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VANCOUVER, B.C.

**Geological Report
on the
Snow Claim Group**

Skeena Mining Division
NTS 104B/1E
Lat: 56° 06'N
Long: 130° 03'W

**Owner and
Operator:**

Homestake Mining (Canada) Limited
#1000 - 700 West Pender Street
Vancouver, B.C.
V6C 1G8

Author:

Robert G. Carmichael

Date Submitted:

October 6, 1989

GEOLOGICAL BRANCH
ASSESSMENT REPORT

19,294

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1.0 INTRODUCTION

1.1 Location and Access

The Snow Claim group straddles the Salmon River Valley 25 km northwest of Stewart, B.C. and includes the toe of the Salmon Glacier. Access to the claims is provided by the Granduc Mine Road, which traverses the eastern edge of the property. The western side of the property is best accessed by helicopter from Stewart.

1.2 Claim Status

The Snow Claim group consists of 6 located claims and fractions and 15 crown granted claims and fractions, totalling 38 units. The claims are owned by Homestake Mining (Canada) Limited. Assuming acceptance of this assessment work, claim data is as follows:

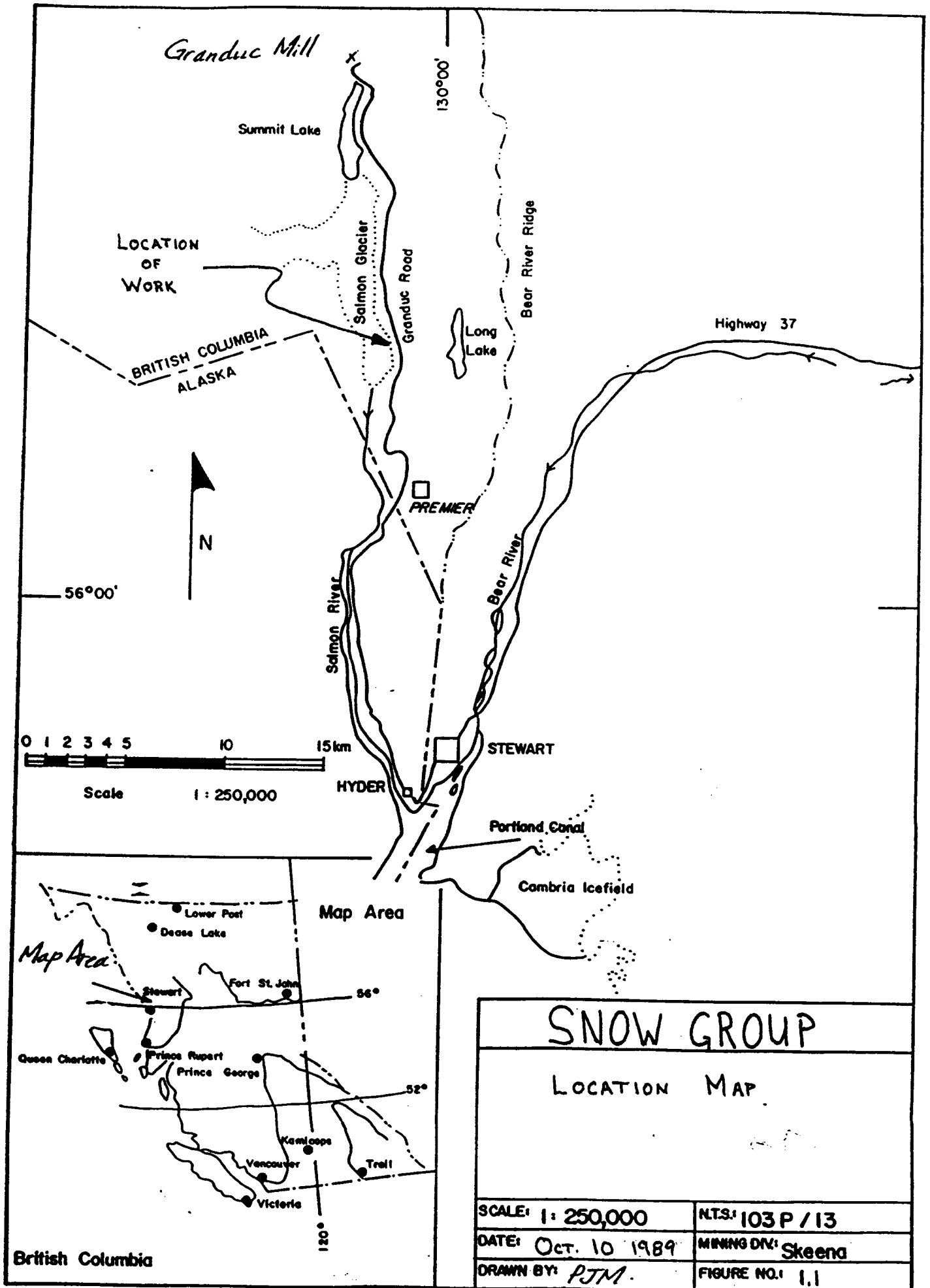
<u>CLAIM</u>	<u>UNITS</u>	<u>RECORD #</u>	<u>EXPIRY DATE</u>
Snow 2	15	1838	Sept.18, 1990
Firn	2	2616	Oct. 03, 1990
Big Chief 2	1	1646	Aug. 15, 1992
Big Chief 3	1	1647	Aug. 15, 1992
Munro 1	1	1645	Aug. 15, 1992
Munro 2&3	1	1644	Aug. 15, 1992
Munro 4&5&Boundary	1	1648	Aug. 15, 1992
Firn FR	1	2617	Oct. 03, 1992
Wolfgang FR	1	2573	Sept.29, 1994
Bean FR	1	738	Sept.05, 1995
Boston FR 2	1	739	Sept.05, 1995
Boston FR.	1	737	Sept.05, 1995
Boundary 4	1	734	Sept.05, 1995
Salmon FR	1	2591	Sept.12, 1995
Snow 1	3	1837	Sept.18, 1995
Snow 3 FR	1	1839	Sept.18, 1995
Snow 4 FR	1	1840	Sept.18, 1995
Boundary 1	1	735	Sept.05, 1996
Glacier	1	730	Sept.05, 1996
Knobhill	1	736	Sept.05, 1996
Amadeus FR	1	2574	Sept.29, 1996

1.3 Physiography

The property is characterized by rugged topography and although rock exposure is extensive access to much of the ground is difficult. Rock outcrop is obscured by the Salmon Glacier, its lateral moraines and flood plain in the central part of the property. Elevations range from 180m to 1250m. Much of the property lies below the trim line of the Salmon Glacier and is unvegetated, while areas above the trim line are covered by balsam and spruce forest with a dense undergrowth of slide alder and devil's club.

1.4 Exploration History

Work on the Snow Claim Group is reported as early as 1922, when the crown granted claims to the west of the Salmon Glacier were known as the Munro Group. Mineralization, consisting of galena, sphalerite, chalcopyrite and tetrahedrite is reported



Granduc Mill

Summit Lake

LOCATION OF WORK

BRITISH COLUMBIA
ALASKA



56°00'



Scale 1 : 250,000

HYDER

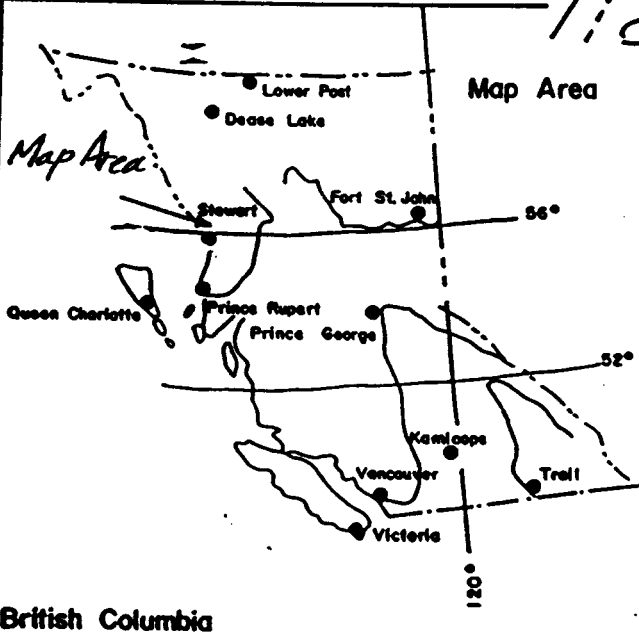
STEWART

Portland Canal

Cambria Icefield

Map Area

Map Area

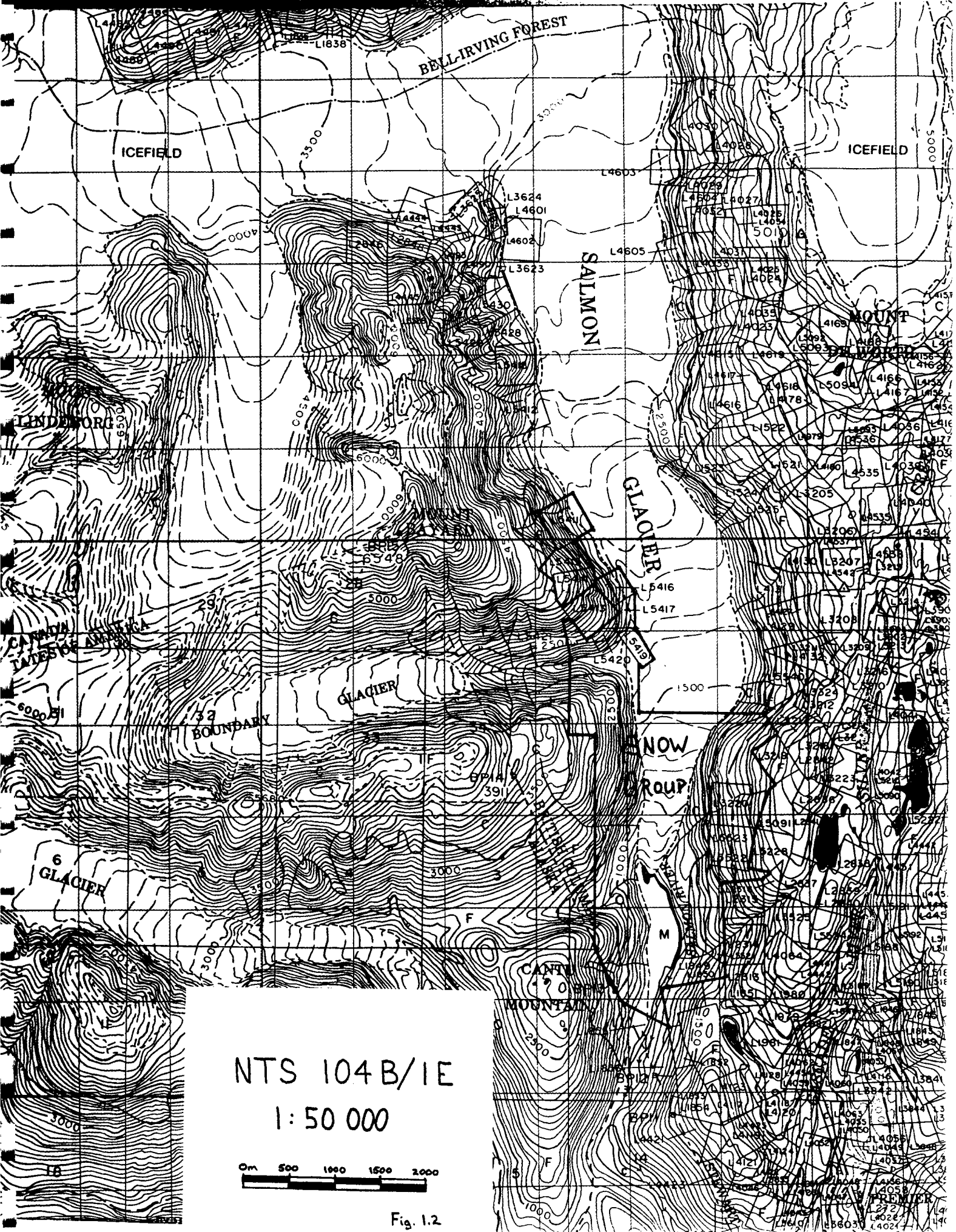


British Columbia

SNOW GROUP

LOCATION MAP

SCALE: 1 : 250,000	NTS: 103 P / 13
DATE: Oct. 10 1989	MINING DIV: Skeena
DRAWN BY: PJM.	FIGURE NO.: 1.1



NTS 104B/1E
1:50 000

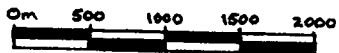


Fig. 1.2

in two northwest - trending quartz veins up to 1.2 metres wide. Between 1922 and 1936, surface work and minor underground work was carried out on these veins.

No work is reported on the claim from 1936 to 1980. In 1980 and 1981 a program of geological mapping was done by Ulrich Kretschner and Windy Point Minerals Ltd. No work has been done since 1981.

1.5 Present Work

The 1989 work program detailed in this report was designed to confirm earlier reports of mineralization and to evaluate the economic potential of the property. The author and an assistant spent four days (August 6-9) on the property. Work consisted of geological mapping at 1:5000 and included the collection of 12 rock samples. All work was carried out on the SNOW 1 and SNOW 2 claims.

2.0 REGIONAL GEOLOGY

The geology of the Stewart area has been extensively explored and documented (see BCDM Bulletins #58 and #63 by Grove).

The Snow property lies on the eastern margin of the Coast Crystalline Belt. Stratified rocks in the area are dominated by sedimentary and volcanic rocks of the Jurassic Hazelton Group. These partially subaerial, differentiated, andesitic to dacitic, calc-alkaline volcanics, coeval intrusions and interbedded sediments are thought to represent an island arc sequence which extends from Anyox north for a distance of 150 km to the Iskut River. Middle to late Jurassic Bowser Group shallow marine sediments unconformably overlie the Hazelton Group to the northeast.

Intrusive rocks include the Upper Triassic to Lower Jurassic Texas Creek granodiorite and the Cretaceous granodiorite and quartz monzonite of the Coast range Batholith. The Texas Creek granodiorite is thought to be related to much of the mineralization in the Stewart area and most of the orebodies occur near the intrusive contact.

3.0 PROPERTY GEOLOGY

The Snow property is underlain both by rocks of the Hazelton Group and by the Texas Creek Granodiorite. The contact is very irregular and is difficult to locate. On the east side of the Salmon Glacier, the contact trends north-south. The rocks immediately adjacent to the glacier are granodiorites, with minor argillite and andesite in the north-east corner of the property. Hornfelsed andesitic tuffs occur further to the east towards the Granduc road.

The argillites and andesitic tuffs represent units of the Unuk River Formation, which is part of the Jurassic Hazelton Group.

Argillite was seen only in the northeast corner of the property, on the Snow 1 claim. At this location, the argillite is graphitic and rusty-weathering. Quartz veins 1 to 5 cm wide have silicified envelopes and are associated with pyrite stringers. No bedding was noted in the argillite.

Hornfelsed pyroclastic andesites underlie much of the steep valley side below the Granduc Road. This lithology becomes increasingly hornfelsed and silicified towards the granodiorite contact along the edge of the glacier. The most intensely altered rocks are very fine-grained, grey siliceous rock which contains up to 5% disseminated and stringer pyrite.

Texas Creek granodiorite is well exposed along the eastern margin of the Salmon Glacier and along the eastern side of the valley, downstream from the toe of the glacier. The granodiorite is generally medium to coarse grained and ranges from equigranular to feldspar-hornblende porphyritic. Xenoliths of argillite and hornfels were noted.

Two varieties of dykes occur on the property. A green, fine-grained diorite dyke was noted adjacent to the glacier in the northeast corner of the property. The dyke is 1m wide and is oriented at 150/60°SW. Several, fine-grained, dark, greenish-brown basalt dykes cut the granodiorite and argillite units.

4.0 MINERALIZATION

Mineralization on the Snow property is related to quartz and quartz-carbonate veining. All three showings which were discovered during this work program, occur along the eastern margin of the Salmon Glacier; from north to south, they are the Blue showing, the Ice showing and the Extreme showing.

4.1 Blue Showing

This showing occurs at an elevation of 335m, 50m east of the Salmon Glacier. At this location, the contact between graphitic argillite and overlying andesitic tuff strikes southeast-northwest and dips steeply to the southwest. A 1.2 m wide rusty fault zone occurs within the argillite and is oriented at 163/70°SW (strike/dip). A 1 metre wide fine-grained diorite dyke occurs along the argillite-andesite contact and is oriented at 150/60°SW.

Mineralization is associated with a 1 metre wide silicified zone in the argillite which contains quartz veins up to 5 cm wide. This zone parallels the fault. Within the quartz vein are pyrite (5%), sphalerite (2%), galena (TR.) and arsenopyrite (TR). Sample #30338 which represents this silicified and quartz-veined argillite returned 236 ppm Cu, 641 ppm Pb, 0.96% Zn, 8.0 ppm Ag and 236 ppb Au. Pods of massive (70%) pyrite with 5% black sphalerite also occur within the silicified zone. These pods are at least 5 cm x 30 cm. Sample #30339 a grab sample from one of these pods, returned 704 ppm Cu, 2162 ppm Pb, 3.05% Zn, 89.5 g/t Ag and 218 ppb Au.

A 10 cm wide zone of chlorite (20%) and pyrite (20%) oriented at 147/90° was seen within the andesite near the argillite contact. This zone (Sample #30340) returned 399 ppm Cu, 147 ppm Pb, 759 ppm Zn, 19.0 ppm Ag and 16 ppb Au.

4.2 Ice Showing

This showing is located at an elevation of 300 m immediately adjacent to the Salmon Glacier. The showing consists of a 7 cm wide quartz vein carrying 5 to 30% sulphides including pyrite, sphalerite, galena and chalcopyrite is exposed over a strike

length of 10 m and is covered by talus at either end. This vein is hosted by propylitic-altered, medium-grained, equigranular granodiorite. A quartz-sulphide stringer zone occurs adjacent to the vein. The vein is oriented at 045/90 and slickensides occur along one contact. It consists of granular white quartz with sulphide minerals concentrated in crude bands. Vugs partially filled with euhedral quartz crystals, galena and sphalerite are central to the vein. Sample #31357 is a grab sample of the quartz-sulphide stringer zone. It returned generally low metal values including 145 ppm Cu, 197 ppm Pb, 7226 ppm Zn, 5.2 ppm Ag and 175 ppb Au. Sample #31358 is a grab sample of the vein; it returned 4613 ppm Cu, 2771 ppm Pb, 3.85% Zn, 115.5 g/t Ag and 69 ppb Au.

4.3 Extreme Showing

The Extreme showing is located at an elevation of 300 m and is about 100 m above the Salmon Glacier. The slope here is very steep and is mostly covered by talus and morainal material.

Two types of mineralization were sampled during the 1989 work program. Both represent sulphide-rich quartz veins and both occur as talus float; based on their abundance and angular nature they are probably sourced locally.

Sample #31360 represents a quartz-sulphide vein dominated by copper-zinc-silver, and lesser lead, arsenic and antimony minerals. Chalcopyrite is the most abundant sulphide mineral (20%) and occurs in blebs up to 1 x 5 cm. Gangue material is granular, white quartz. Assays from this sample returned 11.16% Cu, 4893 ppm Pb, 2.66% Zn, 1622.5 g/t Ag and 1563 ppb Au. Several large (2 x 1.5 x .5 m), angular blocks of this material were discovered in an area of outcrop and sub outcrop with relatively little talus cover. This area appears to be the source of the mineralized float.

Sample #31359 was a white quartz vein containing 30% sulphides. This sample is characterized by abundant galena, sphalerite, stibnite, friebertite and arsenopyrite. Analytical results include 3.15% Cu, 8.44% Pb, 3.65% Zn, 3198.5 g/t Ag, 558 ppb Au, 1012 ppm As and >1% Sb. A second boulder of this material was found up the hill from the inferred source of Sample #31360; the vein is possibly buried under talus near this location.

The high silver values obtained from these two samples indicate that additional work is warranted.

5.0 SUMMARY AND CONCLUSIONS

Work on the Snow Claim Group was carried out between August 6, and August 9 of 1989 and involved 1:5000 scale geological mapping of the area to the immediate east of the Salmon Glacier. The purpose was to obtain information on the geology adjacent to the glacier, which has recently been exposed due to ablation of the Glacier. As a result of the 1989 work, three new mineral occurrences have been discovered, and are called the Extreme showing, the Ice showing and the Blue showing, in order of economic interest.

5.1 Extreme Showing

This showing includes two types of mineralized quartz vein float. Sample #31359 represents a Pb-Zn-Ag-As-Sb rich quartz vein. Sample #31360 is a Cu-

Zn-Ag dominated quartz vein, with low Pb, As and Sb. Although both samples are from talus blocks, they are believed to be sourced on the claim group. Both returned ore-grade base and precious metal values.

5.2 Ice Showing

The Ice showing consists of a 7 cm wide quartz-sulphide vein enveloped by a 2 m wide quartz-sulphide stringer zone in propylitic altered granodiorite. The stringer zone is represented by grab sample #31357 and Sample #31358 is a grab sample of the mineralized quartz vein. Both returned anomalous base and precious metal values.

5.3 Blue Showing

The Blue showing is a 1 m wide silicified and quartz-stringer zone hosted by graphitic argillite. This zone occurs near the contact with andesitic pyroclastics, and appears to be related to a 1.2 m wide fault zone within the argillite. Massive pyrite pods up to 10 cm wide occur within the silicified zone. Sample 30338 is a grab sample from the silicified zone, and sample #30339 represents the massive pyrite pods; they returned anomalous base and precious metal values.

In addition to the three showings, a grab sample of float of propylitic altered granodiorite cut by quartz-sulphide stringers (sample #31356) returned 9022 ppm Cu, 3746 ppm Pb, 429 ppm Zn, 216.0 g/t Ag and 84 ppb Au. This sample was collected at the edge of the glacier, about 200 m north of the Ice Showing.

Of these three showings, only the Extreme showing is of possible economic interest. The high silver grades and large size of the boulders indicate that a trenching program is warranted to the vein.

The Blue and Ice showings are not considered to be of economic importance, although they do highlight the importance of prospecting areas uncovered by recent glacial ablation.

6.0 REFERENCES

Foye, G. (1981), Geological Report, Munro Group. B.C. Assessment Report.

Grove, E.W. (1971), Geology and Mineral Deposits of the Stewart Area, British Columbia. BCDM Bulletin 58.

Grove, E.W. (1986), Geology and Mineral Deposits of the Unuk River - Salmon River - Anyox Area. BCDM Bulletin 63.

Kretschmar, U. (1980), Geological Report, Munro Claim Group B.C. Assessment Report.

7.0 STATEMENT OF COSTS

Labour:

R. Carmichael	5 days @ \$165/day	\$ 825.00
D. McDonald	5 days @ \$110/day	550.00
Food and Accomodation	5 days @ \$120/day	600.00
Vehicle and Fuel		200.00
Supplies		200.00
Samples:	12 Rock Samples @ \$ <u>13.75</u> /sample	
	12 Rock Samples @ \$ <u>11.00</u> /sample	
	6 Rock Samples @ \$ <u>7.00</u> /sample	328.00
Report Writing	2 days @ \$165/day	<u>330.00</u>
Total		<u>\$ 3,033.00</u>

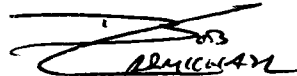
APPENDIX I
STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

I, Robert G. Carmichael, of 4058 West 32nd Ave., Vancouver, B.C., V6S 1Z6,
DO HEREBY CERTIFY THAT:

1. I am a geologist in the employment of Homestake Mineral Development Company at #1000 - 700 West Pender Street, Vancouver, B.C. V6C 1G8.
2. I am a graduate of the University of British Columbia and hold a Bachelor of Applied Science in Geological Engineering (1987).
3. I am currently registered as an Engineer - in - Training with the Association of Professional Engineers of the Province of B. C.
4. I have been employed as a contract geologist in mineral exploration since my graduation in 1987.
5. I am the author of this report and personally supervised the field work documented herein.
6. I have no financial interest in the property described in this report.

DATED THIS 10th DAY OF OCTOBER, 1989 AT VANCOUVER, B.C.



Robert G. Carmichael
Project Geologist

APPENDIX II
ANALYTICAL RESULTS

GEOCHEMICAL ANALYSIS CERTIFICATE

MASTER
NTS: SNOWFIELDS
11. BC. ICAB. 1E
DWB/AL

[Handwritten signature]

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 SR CA P LA CR NG 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 FA/ICP FROM 10 GM SAMPLE.

DATE RECEIVED: AUG 14 1989

DATE REPORT MAILED: Aug 24/89

SIGNED BY: *[Signature]* D. TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

HOMESTAKE MINERAL DEV. CO. PROJECT 5710 29 File # 89-2888

SAMPLE#	Mo	Cu	Pb	Zn	Ag	Mn	Co	Ni	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Ng	Ba	Ti	B	Al	Na	K	W	AU**
	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	%	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	PPM	%	%	PPM	PPM	%	PPM	%	PPM	%	%	%	PPM	PPM
MNI 30334	16	296	50	195	2.9	58	48	1059	11.32	179	5	ND	3	21	2	6	2	41	.35	.029	3	15	.32	19	.01	2	.58	.01	.16	1	54
MNI 30335	32	33	49	304	1.6	2	11	3595	6.51	19	5	ND	2	1366	4	2	3	12	17.15	.024	10	1	3.28	90	.01	2	.22	.01	.14	1	25
MNI 30337	3	167	3524	6094	5.2	18	9	900	2.06	8	5	ND	1	59	83	2	2	23	.98	.028	4	16	.59	96	.01	5	.78	.01	.11	1	45
TI 30338	7	236	641	10375	8.0	27	10	216	3.56	266	5	ND	1	12	143	2	2	9	.14	.011	2	18	.18	22	.01	7	.37	.01	.08	1	236
MNI 30339	17	704	2162	27565	85.6	64	77	712	19.72	343	5	ND	2	3	370	10	72	32	.03	.031	2	16	.66	6	.01	2	1.39	.01	.09	4	218
MNI 30340	3	399	147	759	19.0	10	52	2958	14.45	430	5	ND	1	12	10	2	45	113	.41	.171	6	4	2.16	53	.07	2	4.52	.01	.20	1	16
MNI 30500	2	124	30	122	.5	4	16	1170	4.87	33	5	ND	1	62	2	2	2	121	1.75	.091	5	7	2.84	70	.13	2	3.01	.04	.09	1	9
MNI 31356	5	9022	3746	429	199.6	10	10	682	4.52	15	5	ND	3	4	4	2	114	42	.11	.030	2	4	.86	30	.01	2	1.64	.02	.12	1	84
MNI 31357	3	145	197	7226	5.2	3	11	2723	4.83	56	5	ND	2	284	92	2	2	22	4.35	.084	5	2	.82	102	.01	4	1.67	.01	.29	1	175
MNI 31358	25	4612	2771	35924	113.8	9	24	875	2.20	41	5	ND	1	24	414	3	103	10	1.06	.009	3	7	.12	33	.01	4	.39	.01	.09	1	69
MNI 31359	4	31887	27823	31493	271.1	14	13	1368	3.54	1012	5	ND	1	164	499	15556	3	19	3.13	.080	6	5	.82	30	.01	7	.72	.01	.15	4	558
MNI 31360	10	99999	4893	19823	285.5	169	41	211	10.91	25	5	2	1	4	285	9	431	26	.04	.001	2	1	.15	26	.01	1	.50	.01	.08	3	1563
STD C/AU-R	18	63	42	133	6.9	72	31	1026	4.18	42	16	7	38	49	19	14	22	60	.53	.094	39	55	.93	174	.07	37	2.86	.06	.14	12	490

- ASSAY REQUIRED FOR CORRECT RESULT -

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

DATE RECEIVED: SEP 26 1989

DATE REPORT MAILED: *Sept. 29/89.*

ASSAY CERTIFICATE

- SAMPLE TYPE: Pulp

SIGNED BY *C. Long* D. TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

HOMESTAKE MINERAL DEV. CO. PROJECT 5710 29 FILE # 89-2888R

SAMPLE#	Cu %	Pb %	Zn %	Ag GM/T
MNI 30338	-	-	.96	-
MNI 30339	-	-	3.05	89.5
MNI 31356	-	-	-	216.0
MNI 31358	-	-	3.85	115.5
MNI 31359	3.15	8.44	3.65	3198.5
MNI 31360	11.16	-	2.66	1622.5

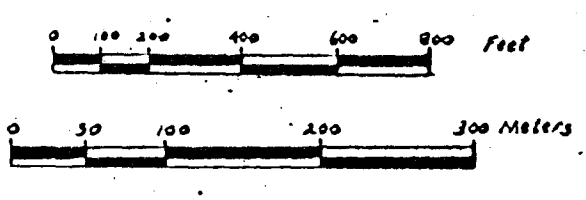
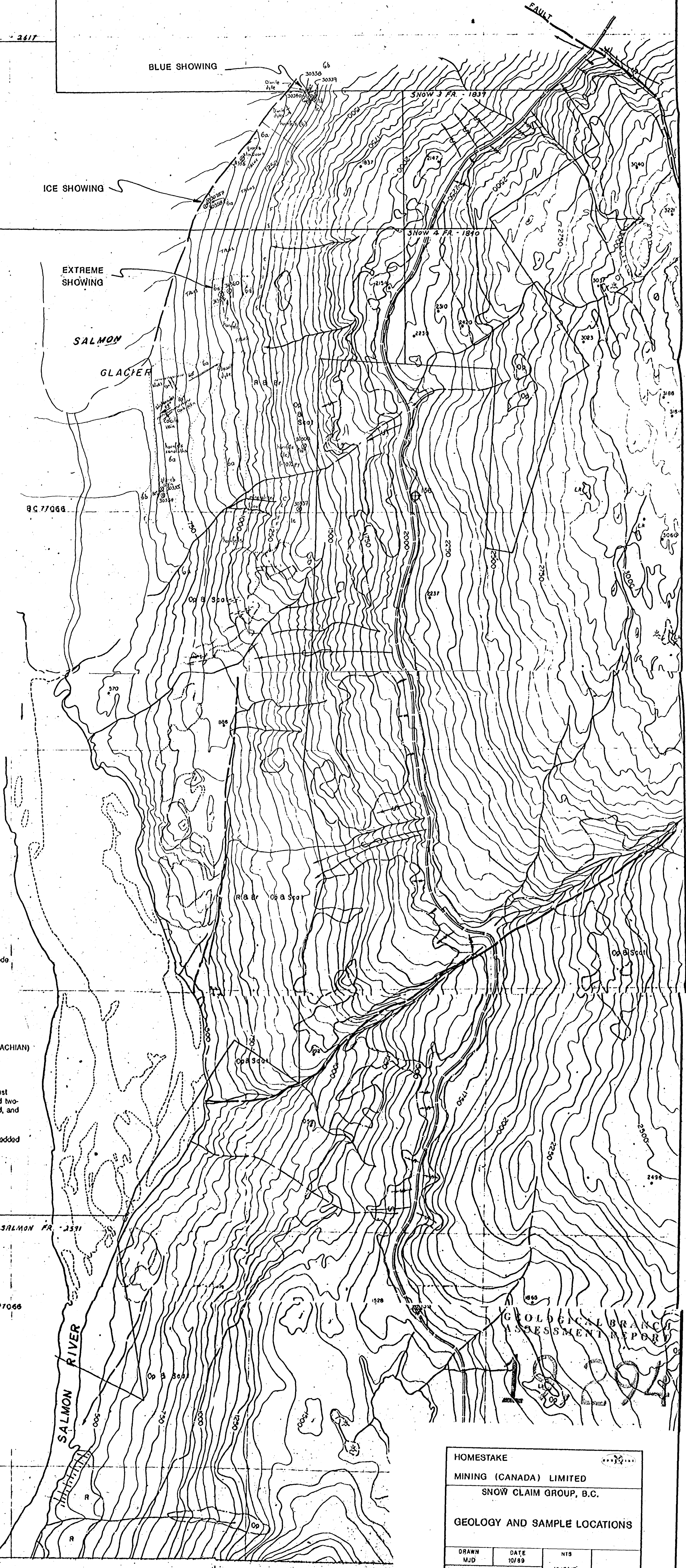
FIRN FR. - 2617

FIRN - 2616

SNOW 1 - 1837
SNOW 2 - 1838

SNOW 3 FR. - 1839

SNOW 4 FR. - 1840



JURASSIC

EARLY JURASSIC

TEXAS CREEK GRANODIORITE SUITE

- 6b TEXAS CREEK BATHOLITH (PORPHYRY PHASE): Orthoclase ± hornblende porphyritic granodiorite, coarse-grained groundmass
- 6a TEXAS CREEK BATHOLITH: Coarse-grained hornblende granodiorite

VOLCANIC AND SEDIMENTARY ROCKS

UPPER TRIASSIC TO LOWER JURASSIC (NORIAN TO PLIENSCHACHIAN)

ANDESITE SEQUENCE (UNUK RIVER FORMATION)

- 1c MIDDLE ANDESITE TUFFS: Mainly ash tuffs, lesser dust and lapilli tuffs, interbedded augite porphyry, tca, and two-feldspar porphyry flows, minor graded sandstone, tcsd, and siltstone, tcsl
- 1b LOWER SILTSTONE MEMBER: Carbonaceous thin-bedded argillite, siltstone

- ⊗ sample location
- strike and dip of vein
- plunge direction and angle
- fault
- - - geological contact
- approximate outcrop boundaries

SALMON FR. - 2591

BC 77066

GEOLOGICAL BRANCH
ASSESSMENT REPORT

10024

HOMESTAKE MINING (CANADA) LIMITED			
SNOW CLAIM GROUP, B.C.			
GEOLOGY AND SAMPLE LOCATIONS			
DRAWN MJD	DATE 10/89	NIS	
		1948/18	