



To: V.A. Preto

Date: February 11, 1987

Copies To: N. Church, J. Gammon, D. MacIntyre, T. Schroeter,
A. Wilcox

From: D.V. Lefebure, District Geologist, Smithers

887575

PROPERTY EXAMINATION

PROPERTY NAMES: SILVER QUEEN, NADINA

OPERATOR: HOUSTON METALS CORPORATION Confidential: until
January 1988

NTS MAP: 093L02E

MINFILE #: 93L 002

LATITUDE: 54° 05.3'

LONGITUDE: 126° 44.4'

MINING DIVISION: Omineca

DEPOSIT TYPE: Vein

COMMODITIES: Ag, Zn, Pb, Cu, Au, Cd, Ba, Ga, Ge

HOST: Cretaceous Tip Top Hill dacite and andesite volcanic
rocks and Mine Hill microdiorite

AGE OF MINERALIZATION: Eocene (?)

TECTONIC BELT: Intermontane TERRANE: Stikinia

RECIPIENT OF 1986 FAME GRANT

INTRODUCTION:

- visited Silver Queen property on December 12, 1986 with B. Good and D. Flynn
- tour of underground workings and review of proposed plans

LOCATION AND ACCESS:

- 35 km south of Houston on east side of Owen Lake
- accessible by all weather gravel road

LOG NO:	02/17/87	VAN	17
ACTION:			
FILE NO:			

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CLAIMS AND OWNERSHIP:

- 49 contiguous crown granted and located claims totalling 144 units (see Table 1 and Figure 1)
- Houston Metals Corporation can earn a 50% interest in the Owen Lake property by spending \$300,000 by Dec. 31, 1986 (GCNC, Oct. 27, 1986)
- Bulkley Silver Resources Inc. optioned claims from New Nadina Res., Placer Development Ltd. and Thorne Riddell Inc., the receiver of Petromac Energy Inc.

CONTACT: W.W. Cummings, Project Engineer Radio Telephone
Houston Metals Corp. 0-711 ask for
Owen Lake Project Houston YR H425936
Box 1300, Houston, B. C. V0J 1Z0

CURRENT ACTIVITY:

- in May completed underground sampling program for Ga and Ge, particularly northwest end of #13 vein at 2600' level
- rehabilitation of underground workings is in progress with 2600' level approximately 2/3 complete; area around Alimak raise is not completed
- starting a crosscut to the #2 vein from near the northwestern end of the 2600' level of the #3 vein
- underground timber is rotten in a number of places and altered wallrock has slumped slowing rehabilitation program
- started and advanced an adit approximately 20 m. into and along the #5 vein
- approximately 20 employees on site
- received \$90,000 1986 FAME grant
- 2600 level north drift was sampled in May every 20' along the north wall(?) for 900' from section 24900 to the face
- at same time some samples from parallel section of vein and surface sampling of Cole, Barite, Bear, NGVG-6, No. 1, No. 2, No. 3 and Switchback veins completed
- 43 samples collected
 - Ag - 1.6 to 820 g/t
 - Au - 0.01 to 4.74 g/t
 - Zn - 0.02 to 17.6%
 - Ge - 1 to 128 ppm background ~ 10 ppm?, crustal av. 1.5 ppm
 - Ga - 1 to 42 ppm, background 1-4 ppm?, crustal average 15 ppm
- repeat analyses at different laboratories for gallium were different by a factor of 2.5!
- high gallium values (>12 ppm, Min-En analyses) found only in surface sampling north of Wrinch Creek and on Switchback and No. 2 vein
- germanium values greater than 20 ppm found virtually everywhere although not consistently high in any one vein
- no obvious correlations between Ga and Ge and Ag, Au, Zn

HISTORY:

- discovered in 1912
- in 1928 Owen Lake Mining and Development Company Ltd. optioned claims and started shaft sinking and tunnelling including the Earl adit for 915 m
- road built in 1929
- bulk of property acquired in 1941 by (Canex) Canadian Exploration Ltd. who completed sporadic exploration until 1947
- Nadina Explorations carried out surface and underground exploration from 1963 to 1967
- in 1966 and 1967 Frontier Exploration Ltd. drilled around and re-opened underground workings at Diamond Belle in the eastern half of Owen Lake camp
- for 1967 Nadina optioned ground to Kennco who were exploring for a porphyry copper
- Nadina explored from 1967 to 1970
- in 1969 mapped by N. Church of M.E.M.P.R.
- Northgate Explorations optioned both Nadina and Frontier ground in 1970, dropped property in 1971
- in 1971 Bradina Joint Venture between Bralorne and Nadina was formed
- property went into production in 1972 at 500 tons per day from #3 vein
- shut down in late 1973 after milling approximately 200,000 tons (40% low grades muck and waste)
- Nadina and Frontier, latterly New Nadina and Bulkley Silver Resources Inc. explored until March 1985 when Bulkley Silver optioned the New Nadina ground to consolidate claims over the Owen Lake camp (expenditures of \$2,600,000 to enable to subscribe for \$2,432,692 shares at average \$1.04 per share for approximately 50% equity in New Nadina; production decision and minimum expenditure of \$382,000 by Dec. 31, 1986)

CAPSULE GEOLOGY (from Church, 1969):

- Owen Lake area is underlain by Tip Top Hill dacites and andesites of Upper Cretaceous age and outliers of Goosly Lake and Buck Creek Eocene trachyte and trachyandesite volcanic rocks (Church, 1973)
- volcanic rocks and cut by microdiorite dykes and sills related(?) to the Duck Lake stock to the southwest
- in the mine area there are numerous pulaskite (feldspathoid-bearing, trachytoid syenite) trachyte feldspar-porphyry and occasional basalt dykes
- numerous widespread limonite and jarosite gossans at surface which appear to be result of pervasive kaolinitization and pyritization
- intense carbonate-clay alteration is common adjacent to the veins; a black manganese oxide stain is common

MINERALIZATION (principally from Church, 1969):

- banded, sometimes vuggy veins average 1 m and up to 5 m in width
- main ore minerals are sphalerite, galena, tennantite, chalcopryrite, bismuthinite, and tetrahedrite
- gangue consists of pyrite, specular hematite, quartz, siderite, rhodochrosite, occasional barite and rarely pyrobitumen
- four main groups of veins recognized:
 - i) Wrinch vein system (includes #3 and #2 veins)
 - ii) Portal vein system (includes #5 vein)
 - iii) Chisholm vein system
 - iv) Cole vein system
- both Cole and Chisholm vein systems typically contain sphalerite-pyrite and galena
- #5 vein at face is approximately 1 metre across with gray fault gouge in the footwall; banded sphalerite in a quartz gangue was seen at the face
- on the #5 vein muck pile there was also chunks of chalcopryrite-rich vein material

GENESIS:

- located at the approximate intersection of the margin of the "Buck Creek caldera" and a northeast-trending series of Upper Cretaceous and Eocene feeder plugs and intrusions (Church, 1973; 1985)
- base metal zone in epithermal veins of felsic intrusion type (Eckstrand, 1984)
- Tip Top Hill volcanic rocks are possible Kasalka group equivalents
- age of mineralization should be determined using galena sample
- close association of veins with undersaturated dykes (Fig.3) suggests mineralization related to minor, younger mineralizing event at Equity Silver Mine

David Lefebvre

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SAMPLES:

- 86-1 - muck sample from #5 vein, Portal vein system
 - 20% blotchy chalcopyrite and 20% sphalerite in white quartz gangue
 - may contain barite (heavy)
 - chalcopyrite and sphalerite form two almost separate bands
 - minor vugs in gangue
- 86-2 - wallrock next to #5 vein, from face (~20 m from portal)
 - altered volcanic(?) cut by gray chert, pink rhodochrosite, specular hematite and patchy or disseminated pyrite
- 86-3 - purple feldspar porphyry andesite dyke in Earl adit
 - feldspars altered to soft, green mineral
- 86-4 - start of #2 vein crosscut
 - purple crowded feldspar andesite(?) dyke, 50% feld phenocrysts 4 mm, minor black biotite phenocrysts 1 1/2 mm set in aphanitic matrix
- 86-5 - #3 vein (5 cm wide) near #2 vein crosscut
 - disseminated chalcopyrite and pyrite (<5%) in a quartz-matrix, sphalerite bands near margins of core of vein
- 86-6 - #3 vein, near N7 stope
 - massive sphalerite
 - submitted for assay
- 86-7 - #3 vein, near N7 stope
 - disseminated and patchy chalcopyrite marginal fine-grained sphalerite zone with tetrahedrite?
 - submitted for assay
- 86-8 - #3 vein, near N7 stope
 - patchy amber sphalerite in rhodochrosite matrix with pyrobitumen in vug

REFERENCES:

- Church, B.N. 1973. Geology of the Buck Creek area. Preliminary Map #11, British Columbia Ministry of Energy, Mines and Petroleum Resources.
- Church, B.N. 1969. Geology of the Owen Lake area. Geology, Exploration and Mining in British Columbia, Ministry of Energy, Mines and Petroleum Resources, pp. 122-141.
- Church, B.N. 1985. Update on the geology and mineralization in the Buck Creek area, the Equity Silver mine revisited, Paper 1985-1, British Columbia Ministry of Energy, Mines and Petroleum Resources, pp. 174-187.
- Eckstrand, O.R. (ed.) 1984. Canadian mineral deposit types: a geological synopsis, Economic Geology Report 36, Geological Survey of Canada, 86 p.

Table 1. List of Claims on Silver Queen Property

<u>Claim Name</u>	<u>Record No.</u>	<u>No. of Units</u>	<u>Status</u>
Asta Fraction	7543	1	crown grant
Bell #1	24929	1	located
Bell #1 Fr.	24932	1	located
Bell #2	24930	1	located
Bell #2 Fr.	24933	1	located
Bell #3	24931	1	located
Bell #3 Fr.	24934	1	located
Bell #4 Fr.	24935	1	located
Bell #5 Fr.	24936	1	located
Black Bear	1685	1	located
Cole #1	636	2	located
Diamond Belle	1684	1	located
Earl No. 1	7399	1	crown grant
Earl No. 1 Fr.	7401	1	crown grant
Earl No. 2	7400	1	crown grant
Earl No. 3	7402	1	crown grant
Ethel	7363	1	located
I X L	6551	1	crown grant
I X L No. 3	7403	1	crown grant
Ivan Fr.	40867	1	located
Lily Fraction	7541	1	crown grant
Lucy	7404	1	crown grant
Mae	7545	1	crown grant
Mae No. 1	7544	1	crown grant
Mary	7540	1	crown grant
Mary Fraction	7542	1	crown grant
Silver #2	637	10	located
Silver #3	106	18	located
Silver #4	107	12	located
Silver 1	104	20	located
Silver 5 M.C.	108	20	located
Silver 6	101	12	located
Silver 7	102	2	located
Silver King	6547	1	crown grant
Silver Queen	6549	1	crown grant
Silver Tip	6550	1	crown grant
Tip Top #1	635	8	located
Tyee	6548	1	crown grant
Van #1 Fr.	35244	1	located

Table 1 Cont'd.

<u>Claim Name</u>	<u>Record No.</u>	<u>No. of Units</u>	<u>Status</u>
Van #1	35245	1	located
Van #2	35246	1	located
Van #3	35247	1	located
Van #4	35248	1	located
Van #5	35249	1	located
Van #6	35250	1	located
Van #7	35251	1	located
Van #8	35252	1	located
Van #9	35253	1	located
Van #2 Fr.	87987	1	located

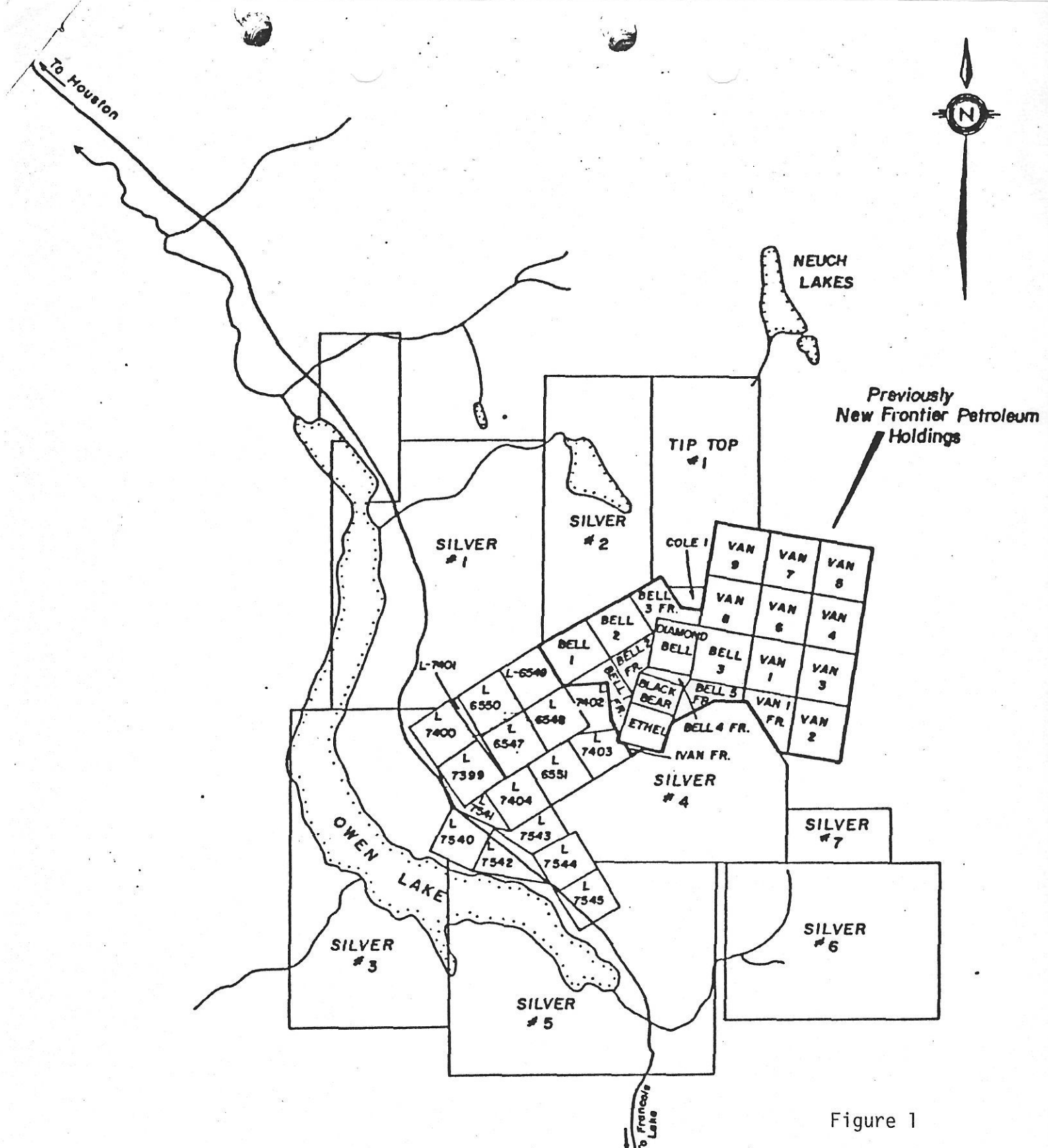


Figure 1

BULKLEY SILVER RESOURCES LTD.	
CLAIM MAP	
OWEN LAKE PROPERTY	
OMINECA MINING DIVISION, B.C.	
Technical Work By: Dawson Geol. Cons. Ltd.	Scale: 1:50,000
Drawn By: W.G.	Date: July, 1985.
Approved By: J.M.D.	Fig. No.

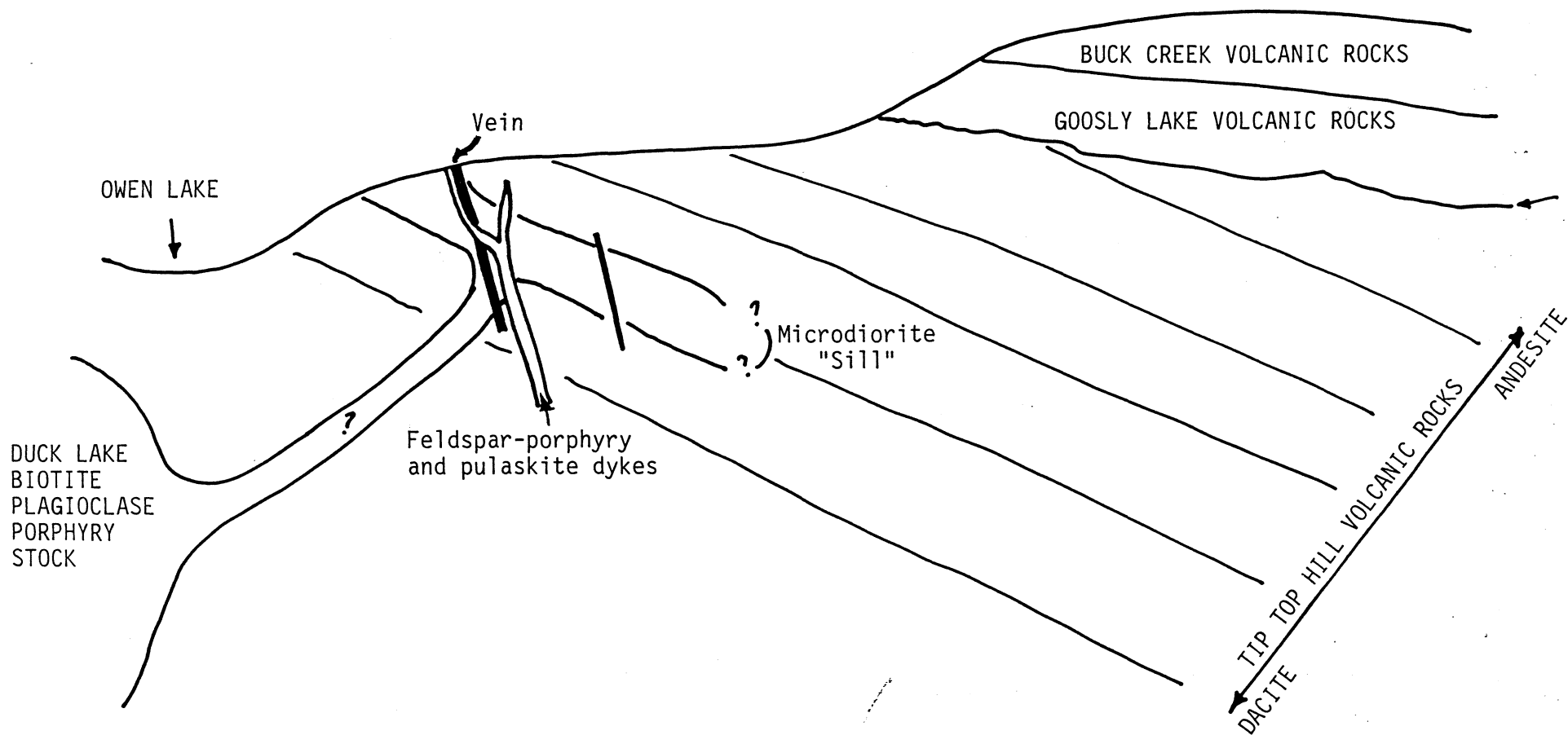


Figure 3. Schematic cross-section of the Silver Queen mine area