

GEOLOGICAL REPORT

Nip & Tuck 1-8 M.Cs. (Rec. Nos. 394(8) - 401(8))
Time 1-8 M.Cs. (Rec. # 829(9), 914-18(7), 1032-33
WH 1-4 M.Cs. (Rec. Nos. 425(9) - 428(9))

Mapsheet 82 K 8W. Golden M.D.
Latitude N50° 45' Long. E116° 20'

for:

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**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

11,739

SUMMARY

Five days were spent by the writer and D.J. Whalen at the Nip and Tuck prospect, 30 km west of Invermere, B.C., owned by Golden Gate Explorations Ltd (75%) and Alhambra Mining Ltd (25%). The prospect consists of 19 2-post mineral claims at the head of Red Line Creek, at elevations 6,500-10,000 feet above sea level.

Pits and open cuts on Nip and Tuck 1 claim expose strongly oxidized vein mineralization of argentiferous galena, tetrahedrite, pyrite and stibnite in gangue of dolomite and manganiferous siderite. Broader zones of disseminated tetrahedrite and galena in quartz stringers and dolomite occur. Both types of mineralization occur in Mt. Nelson dolomites adjacent to fault zones. Rocks are moderately to strongly folded in the claim area.

Previous production of 177 tons of ore averaging 48 to 55% lead and 69 to 101 oz. silver per ton is recorded. Potential is considered good for discovery of further mineable surface high grade material, as well as lower-grade bulk mineable material.

A total of 6 rock geochemical samples and 33 assay samples were taken.

A program of further exploration mapping, sampling and trenching, totalling \$26,950.00 in stage 1 is recommended with a second stage of drilling with estimated cost \$112,500 dependant on results of Stage I.

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GEOLOGICAL REPORT
NIP AND TUCK PROSPECT

Introduction

Approximately 5 days were spent by the writer, assisted by D.J. Whalen, at the Nip and Tuck silver-lead-copper-gold prospect. Old workings were mapped and sampled and the crosscut adit was tied in to other surface showings by hip-chain and compass surveys and by resection. Thirty samples were taken for assay. Claims were roughly surveyed and two additional claims were staked. Preliminary research prior to the field work was done by the writer and Shawn Godwin.

Location and Access

The Nip and Tuck prospect is situated at elevation 6500 to 10,000 feet at the head of Redline Creek, a tributary of MacDonald Creek which joins Horsethief Creek 30 km west of Invermere, B.C. The property can be reached by a 4 wheel drive vehicle along a generally good gravel road system from Invermere or Radium Junction. Helicopter transport, if needed, is available in Radium or in Fairmont Hotsprings, approximately 35 km air distance from the property. Invermere is reached by excellent paved highway from the major service and supply center of Cranbrook, approximately 100 km to the south. Cranbrook is serviced by daily flights from Vancouver and Calgary.

A comfortable cabin exists on the property. High elevations limit time available for exploration on the property to 2-3 months per year, roughly July to September. Adequate water exists over most of the property during these months for drilling purposes. Timber is available below 7500 feet for buildings, mine-timbers, etc.

Claims

The property consists of the following two post claims:

<u>Claim</u>	<u>Record No.</u>
Nip & Tuck 1-2	394-395(8)
Nip & Tuck 3-8	396-401(8)
Time 1	829(9)
Time 2-6	914-918(7)
Time 7-8	1032-1033

Claims are owned by Golden Gate Explorations Ltd (75%) and Alhambra Mining Ltd (25%).

Note: Crown-Granted claims L5345-5349 are improperly placed on topographic and claim maps and the above listed claims are not in contravention of these claims, which lie to the north of their presently plotted position.

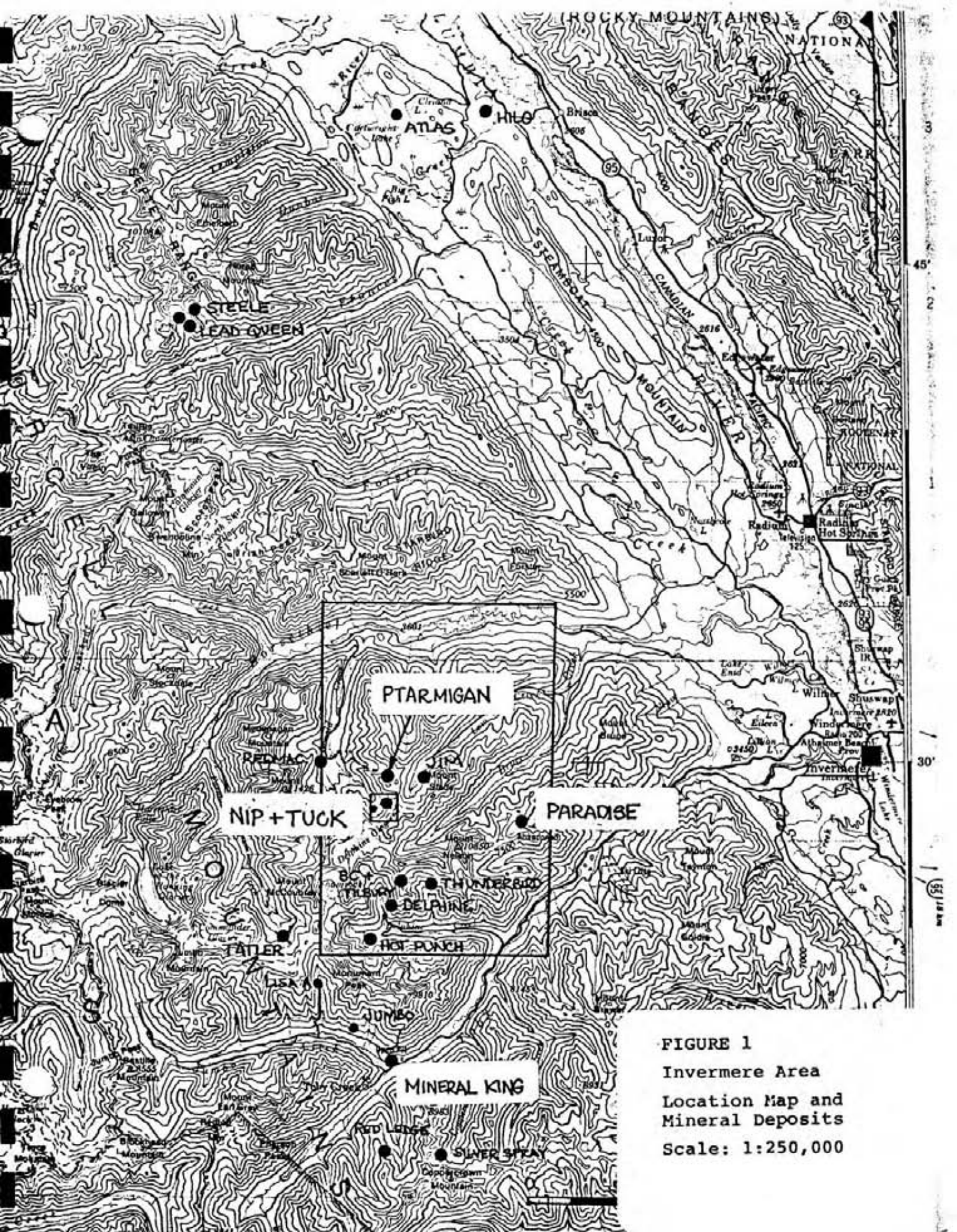


FIGURE 1
 Invermere Area
 Location Map and
 Mineral Deposits
 Scale: 1:250,000

Claims are shown on the accompanying maps, figures 2 and 4A.

Regional Geology (Figure 3)

The prospect is situated along the central axis of the "Purcell Anticlinorium", a northwesterly trending series of folds in predominantly Proterozoic rocks, east of the "Kootenay Arc".

Stratigraphy

The area is underlain by coarse clastics of the Windermere system - the Toby conglomerate and Horsethief Creek Group, and by carbonates and clastics of the Purcell super group of Proterozoic age.

The Horsethief Creek Group covers approximately 600 to 700 square miles and consists of grits, conglomerates, slate, argillite, phyllite and limestone.

The Toby conglomerate varies widely in thickness and composition but generally outlines major structural features in the area.

The Mt. Nelson Formation covers an area of over 200 square miles, and is characterized by extensive cliff-forming dolomite or dolomitic limestone units, weathers buff colored and can be massive to thinly-laminated. Slaty rocks and quartzites are present in the unit and it is characterized by a white basal quartzite band.

The underlying Dutch Creek Formation, covering an area of 120 square miles, is composed of varicolored slates, quartzites, grey limestone and buff dolomite. It is a thick unit - 1000 to 2000 meters, and is most easily defined where the Mt. Nelson carbonates are overlying.

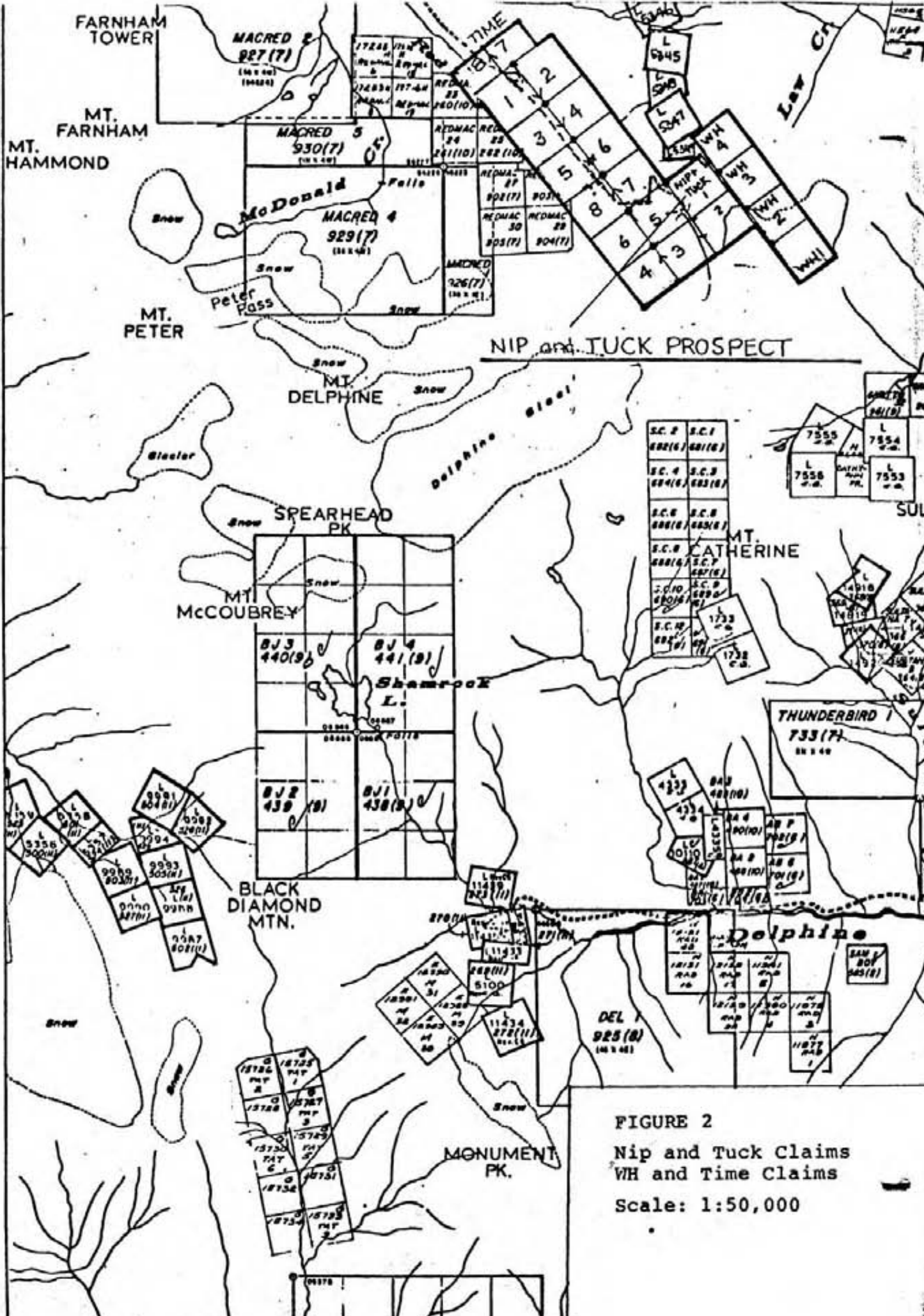
The accompanying stratigraphic table illustrates lithologies, ages and relative thicknesses. (G.A.C. Guidebook 1977).

Structure

Competent formations within the Purcell anticlinorium are folded in broad open folds, but argillaceous units are more complexly folded, with numerous recumbent, nappe-like folds noted in the prospect area.

The recumbent folds are generally seen below carbonate (Mt. Nelson) units which appear to have moved by thrusting on the plastic argillaceous strata underneath fold axes plunge gently northward or southward.

M82K/8W



NIP and TUCK PROSPECT

S.C. 2	S.C. 1
882(6)	881(8)
S.C. 4	S.C. 3
884(6)	883(8)
S.C. 6	S.C. 5
886(6)	885(8)
S.C. 8	S.C. 7
888(6)	887(8)
S.C. 10	S.C. 9
890(6)	889(8)
S.C. 12	S.C. 11
892(6)	891(8)

FIGURE 2
 Nip and Tuck Claims
 WH and Time Claims
 Scale: 1:50,000

M82K/7E

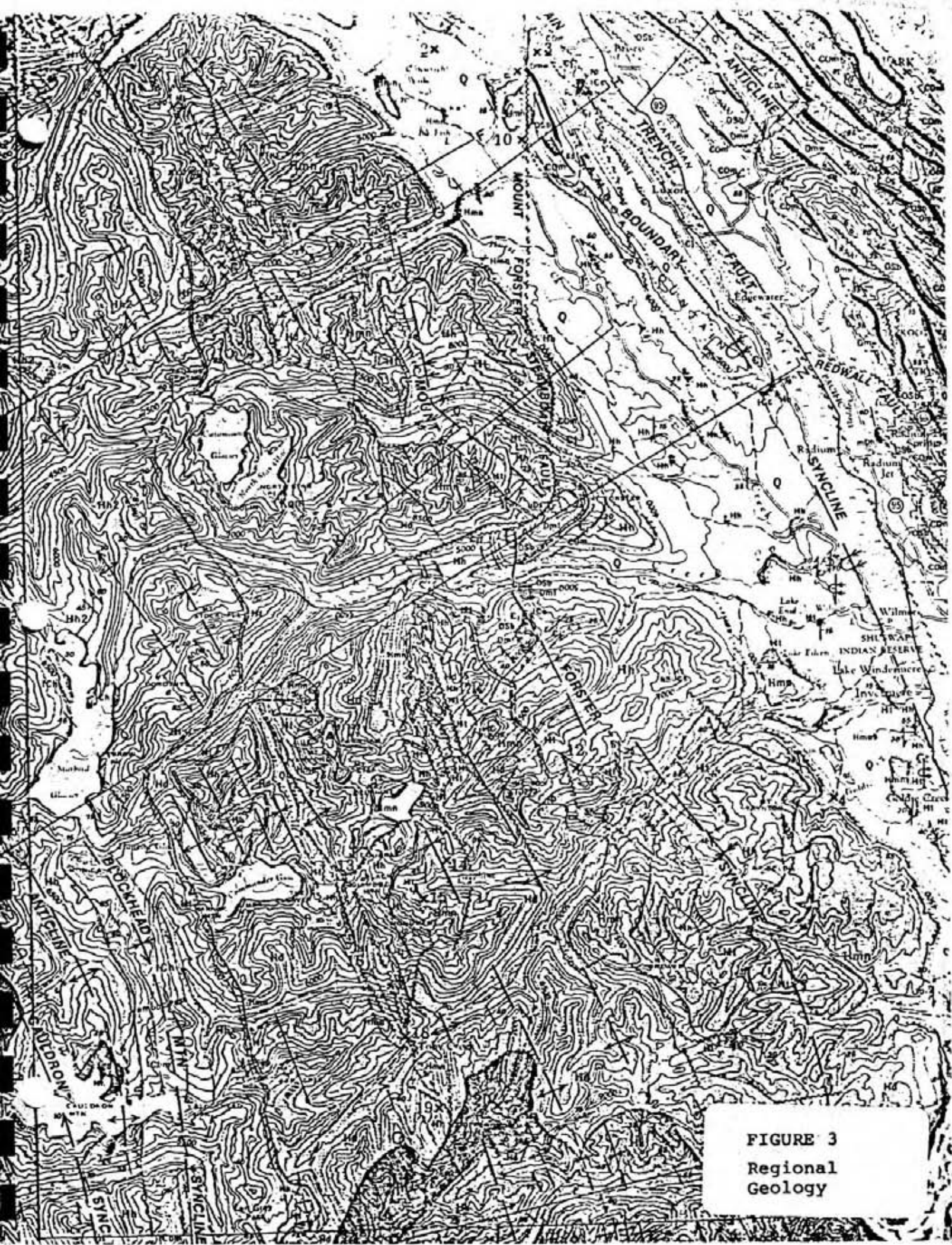


FIGURE 3
Regional
Geology

Faults are common throughout the area. Most are normal faults with west side down (Reesor, 1973) although as noted above, thrust faulting may be more common than previously thought.

Intrusives

A short distance north of the property, the extensive Horsethief Creek Batholith, quartz monzonite with pink potash feldspar, cuts Dutch Creek sediments. No other notable intrusives are present in proximity to the property, except for minor metamorphosed dykes and sills.

Mineral Deposits of the Area

As can be seen from Figure 2, which shows some of the more important mineral deposits, the area of the Purcell Anticlinorium is a strongly mineralized belt. Table I lists production tonnages and grades from deposits in the Golden Mining Division.

Mineral King

The most productive deposit has been the Mineral King deposit 15 km due south of the Nip and Tuck deposits. The deposit is described by Hoy (1982) and Fyles (1959): Dolomite of the Mt. Nelson formation is replaced by barite and sulphides - namely sphalerite, galena, pyrite and minor bournonite ($PbCuSbS_3$). The orebodies are extremely irregular in shape, forming tabular and lenticular masses in roughly the same plane. They are in part, deformed along with the enclosing host rocks, and sulphides form structurally elongated, irregular discontinuous lenses either in the dolomite or in barite gangue. The deposit has produced 2.3 million tons (2.1 million metric tons) averaging 1.76% Pb, 4.12% Zn, 0.7% Zn, 0.7 oz silver per ton, with small percentages of copper and cadmium and considerable barite. Structural setting of the deposit is shown in compiled data in Appendix B.

Paradise Deposit

This deposit produced 69,000 tons (63000 metric tons) averaging 11.2% lead and 10.4 oz/ton silver. Upper levels of the mine contained irregular pockets of highly oxidized galena, sphalerite and pyrite in a carbonate sand matrix. Lower levels were less oxidized, and were extensive replacements of Mt. Nelson dolomite below a slate bed. Ore from the mine was processed at the Mineral King concentrator. Early oxidized ore averaged 51 oz/ton silver and 59% lead and this material was "rawhided" or shipped by wagon to railroad at Golden. This oxidized ore was soft and required heavy timbering. Later unoxidized ore was of lower grade and necessitated development of sufficient reserves prior to economic mining. Ore appeared to be controlled by folds in the carbonate units and by the overlying shale "capping".

Delphine

This property is situated on Delphine mountain 5 km due south of the Nip and Tuck. Several carloads (187 tons) were mined from 1899 to 1905 from a 30 foot shaft and connected drifts and raises. The "vein" strikes northwest and dips 65 to 80 degrees northeast in a siliceous limestone (Mt. Nelson Fm). The vein, 10 to 18 inches wide had distinct walls with sphalerite, galena, and tetraharite in quartz. Ore averaged 1.24% lead, 1.78% copper and 105.6 oz/ton silver and was worth "over \$100 per ton" in 1899. (Present gross metal value \$1090 per ton).

B.C. and Tilbury

This property, situated well above the Delphine, at 8830 ft. elevation, shipped 5 or 6 cars of ore (87 tons), with some work apparently done during winter months. The zone appeared to be shallowly dipping (possibly a bedded replacement). Work was done from a shaft 50 feet deep with drifts in both directions. Ore averaged 51.5% lead, and 73.5 oz/ton silver.

Numerous other properties in the area produced small tonnages of lead-silver ore from similar oxidized zones in the Mt. Nelson dolomite. The most significant of these, considering its proximity to the Nip and Tuck property is the Ptarmigan deposit.

Ptarmigan

The Ptarmigan property consists of 5 crown granted claims (shown incorrectly positioned in current topographic and claim maps). Situated covering the height of land between Redline Creek and the next northerly tributary of McDonald Creek, between elevations of 8500 feet and 9600 feet, the property adjoins the Nip and Tuck property on the north.

The showings were probably discovered in conjunction with the Nip and Tuck (then Tecumseh and Paymaster claims) and was originally known as the Red Line Group. By 1902 considerable work had been done; on the Iron Cap claim (across the cirque and north from Nip & Tuck 1) the following workings existed:

No. 1 tunnel	528 feet
No. 2 tunnel	197 feet
No. 3 tunnel	208 feet, winze 62 feet
No. 4 tunnel	12 feet, open cut 12 feet
No. 5 tunnel	<u>126</u> feet, winze 21 feet
Total	1166 feet

On the north side of the hill on the Red Line claim, sulphides carrying copper and silver were being developed by three tunnels.

No. 1 tunnel	228 feet, upraise 38 feet
No. 2 tunnel	80 feet
No. 3 tunnel	<u>235 feet</u>
Total	581 feet

A total of three carloads of ore were shipped in 1902. In 1903: development on the Red Line claim included a 365 foot tunnel, 50 foot winze, a level 70 feet long from the 50 foot level of the winze, No. 1 upraise 115 feet from the mouth of the tunnel, 79 feet - connecting with the surface; level 120 feet long from the upraise. No. 1, 50 feet above the tunnel level; upraise No. 2, 230 feet from the mouth of the tunnel, 33 feet. A compressor site, camp and sawmill were erected 8000 feet from the workings, and an aerial tram was being constructed. Work was discontinued on the Iron Cap due to low price of silver and lead.

The workings followed two veins with nearly vertical dip, mineralized with pyrite and tetrahedrite, assaying high in silver with some gold. The property was closed in 1906, "pending railroad construction" and was dormant due to rich surface ore being completely extracted. The Annual Report for 1916 was pessimistic, indicating that far more money was spent on the camp and workings than would ever be recovered. However in 1920, when the property was under bond to E.W. Watson, rich new surface showings were discovered in areas which had formerly been covered with ice from the glacier, which had receded 1000 feet. The price of silver had recovered and 150 tons of dump ore were shipped - averaging \$40/ton in silver and \$15/ton in gold, with no lead (i.e. tetrahedrite ore). In addition 50 tons of high grade ore were sacked for later shipment.

In 1919 and 1920 about 300 tons were shipped from the dumps, but no ore was mined.

In 1921, work again focussed on the Iron Cap claim, where J.L. MacKay and G. Larrabee leased the upper tunnel. A sample over 3 feet at the bottom of a 60 foot winze, a few feet in from the upper tunnel assayed silver: 24.3 oz/ton, lead 17.3%.

On the other side of the hill, in 1921, workings were blocked by ice, except for the lower tunnel, where workings were in good condition and dry beyond the initial 150 ft blockage at the portal. A sample of the 100-1000 ton dump assayed 15.3 oz/ton silver and 0.02 oz/ton gold. A shipment of 250 tons was made from the lower terminal of tramway.

There is no record of work on the Ptarmagan property from 1921 to 1955. In 1955 the property was optioned by Heinz K.F. Seel of, Edgewater, who re-opened the old wagon road with a bull dozer from Horsethief Creek to the mine-portal. In 1955 the road was upgraded and made passable by truck. The No. 3 portal (lowest) was re-timbered and a snowshed built from the portal to the dump. A machine shop and compressor house were built and an Ingersoll-Rand 310 diesel air compressor installed.

In 1957 a small cut and fill stope was commenced and 20 tons mined averaging 0.25 oz/ton gold and 153 oz/ton silver. In 1958, 160 feet of ice were removed from the level and 34 feet of drifting done on a new high grade lead. A shipment of 181 tons was trucked to Trail Smelter and this material ranged from 210 to 400 ounces silver per ton (\$2100 - \$4000/ton at present prices or gross metal value \$378,000 - \$720,000). A further 60 tons of ore were mined in 1959, mostly from a small stope above the No. 3 level, which assayed 225 to 250 oz/ton silver, and the remainder from the No. 1 level stope which averaged 55 to 65 ounces silver per ton. Both stopes were narrow quartz veins with tetrahedrite:

No production occurred in 1960 but in 1961 the property was mapped and sampled and in 1963 optioned to Belle Tahsis Mines who conducted geological and geophysical surveys and 10 diamond drill holes from surface and underground, totalling 650 feet.

In 1964 Union Carbide reached agreement with Belle Tahsis Mines to explore the property and geological mapping and 13 diamond drill holes, totalling 1250 feet were done on the lower level.

In 1971 geological mapping at 1 inch = 100 ft was done on the surface, and on the Red Line workings, 1 inch - 20 ft scale mapping was done.

Total production to present is tabulated below:

	<u>Tons</u>	<u>Au</u>	<u>Ag</u>
1900-1920	481T	45 oz	39827 oz
1920-1921	Est 400T(dump)	100 oz	16000 oz
1957-1959	<u>244T</u>	<u>69 oz</u>	<u>49200 oz</u>
	1125T	214 oz	105027 oz

Average Grade 0.19 oz/ton Au 93.34 oz/ton Ag
Gross metal value/ton (1982) \$1,028.50

NIP AND TUCK PROPERTY

History

The property, originally known as the Tecumseh Group, was discovered prior to 1903 and by that date, workings consisting of a 40 ft tunnel and several open cuts had disclosed a paystreak averaging 20 inches of solid ore assaying 150 oz/ton silver and 70 percent lead. By 1905, a trial shipment of 29 tons with value \$2425.96 was made and the owners had committed to working the prospect during the winter. By late 1906 the No. 1 tunnel had advanced to 95 feet, giving a depth of 75 feet, showing 18 inches of clean ore. No. 2 tunnel, 10 feet showing 18 inches of ore, and No. 3 tunnel 30 feet, also with 18 inches of ore. A shipment of 26.8 tons to the Trail Smelter averaged 83 oz/ton silver and 56.6 percent lead.

In 1915, the property, now named the Nip and Tuck, and a shipment of 10 tons netted \$60 per ton. In 1916 the owners Brown and Haupt were engaged in blasting ice from the tunnels which had become filled during the winter, and sorting ore from the dump. The underhand stopes from the tunnels had caved and none of the veins could be seen on the surface, but silver-rich material still remained on the dump.

In 1920 the property had been sold to W.D. MacMillan of Seattle, who had uncovered some rich new surface showings and prepared about a car load of ore for shipment.

In 1921 the property was leased to a syndicate under the management of R.H. Perry. Rich material had been found near the small peak of the claim and 140 sacks filled with this material from shallow surface pits. This material was transported by single cable to the lower portal, and from there by another cable to the trail.

The lower tunnel at this time was driven 68 feet in a S35E direction. A 12 inch sample at the face assayed Gold 0.02 oz/ton, Silver 25.8 oz/ton, lead 8.8% (oxidized?) and zinc 0.7%. A grab sample from one of the upper tunnels ran: Gold; 0.02 oz/ton, Silver 74.1 Oz/ton, Lead 44.7% and Zinc 1%.

In 1922 the property was bonded (optioned) to Interprovincial Mines Development Company and active exploration was undertaken by manager T.H. Kerruish, who described 5 "veins", numbered 1 to 4 and the "East Vein". (From their descriptions, two of the "veins" were actually zones of disseminated sulphides in dolomitic host rocks).

No. 1 vein was developed by two adit tunnels; the upper tunnel, 110 feet long, provided most of the ore shipped in the past, and the lower, 80 feet long, had a vein 2½ feet wide consisting of "dry"

carbonates (lead carbonates?) with streaks of "grey copper". An aerial tram was installed to provide transportation to the trail 1000 feet below. During 1922, 200 sacks of ore were prepared for shipment, ranging in value from \$114 to \$560 per ton in silver and lead. Lead carbonate ore was discovered in the slide below the lowest tunnel. Across 2 feet this material assayed gold 0.04 oz/ton, silver 49.1 oz/ton and lead 20.7%. No further information is available until 1928, when the property was owned by the Trethwood Mining Company of Vancouver, who completed a 600 feet crosscut. No further work is reported on the property until 1964 when the property was acquired by the current owners. Previous information was compiled on the property in 1965 by J. Sullivan, P.Eng., who recommended detailed surface mapping and surveying the lower adit, with 4000 feet of drilling subsequently, dependent on results of mapping and sampling. This report was updated with respect to cost estimates in 1980 by R. Phendler, P.Eng. Work done on the property from 1980 to 1981 included extensive road building and repairs, and rehabilitation of the crosscut portal.

Total production from the property (BCDM Production Statistics) is 177 tons averaging 51% lead and 83.6 oz/ton silver (apparently gold was not recovered).

1982 Mapping and Sampling Program

On September 2nd, the writer, D.J. Whalen, and W. Abraham mobilized from Vancouver to Cranbrook and Radium Hot Springs to inspect the claims. Field work was done from September 3 to September 9 by the writer and D.J. Whalen, with helicopter support on September 4. Demobilization was completed September 9 and geologic maps and reports were completed October 27, 1982. A total of 6 rock geochemical samples and thirty-three fire-assay samples were taken and analyzed by Vangeochem Lab Ltd. at total cost of \$1032.30. (See itemized cost sheet - Appendix I).

Field work concentrated on surveying and sampling known showings, prospecting and locating other showings reported in previous property descriptions and locating claim posts. The underground workings (i.e. the 600 ft crosscut was surveyed, mapped and sampled and tied in by hip-chain, compass and altimeter survey to the surface showings and claim posts.

Geology

The Nip and Tuck workings occur within a belt of strongly folded and faulted rocks including Dutch Creek Formation - phyllites and quartzites, Mt. Nelson Formation - limestones and dolomites and Horsethief Creek Group - quartzites, grits and conglomerates.

Most showings seen were present in buff to light grey and finely-laminated to massive dolomite of the Mt. Nelson Formation,

although galena associated with silica veinlets was observed above 9500 ft elevation in grits and quartzites which may be in the Horsethief Creek Group.

Fold axes trend northwesterly (160° - 340°) and folds vary from moderate open folds to very tight isoclinal folds, depending on the competence of the strata - (i.e. phyllites are isoclinally folded). The area, judging from minor structures are believed to plunge shallowly southeastward. A number of synclines - and anticlines are seen on Nip and Tuck I claim and adjacent Iron Crown and Iron Cap claims (See Figure 4a).

Longitudinal faults trend 160 degrees, parallel to fold axes. Cross faults are suspected, from outcrop patterns, and these range from 055 degrees to 110 degrees in orientation.

The most important showings occur on Nip and Tuck I Claim. The main structural feature (shown in Figure 4a) is a syncline - anticline pair cut by longitudinal and cross faults (normal faults).

The "East Vein" described by Kerruish (1922) lies on the east limb of the fold and the "No. 1 Vein" is situated in a fault zone cutting the crest of the fold parallel to its axis. "No. 2 vein, sampled by D.J. Whalen occurs above and approximately 30 metres west of the upper adit of No. 1 vein. "No. 3 Vein" is more appropriately called a "zone" and is situated nearly on strike with the adits mentioned above, on the east flank of "Nip and Tuck Peak". "Vein No. 4" is a similar zone of disseminated mineralization sitting on top of the peak, cut off on its southern side by a fault.

The 600 ft. (188 m) "cross cut" (Figure 4b, 4c) is situated at the end of this access road at elevation 8340' on the west side of the peak. The azimuth at the portal is 60 degrees such that if the cross cut had continued on this bearing the veins would have been more nearly approached. However the bearing quickly turns, to 110 degrees to 140 degrees, and thus trends more parallel with the major mineralized veins which trend 160 degrees. Surveying from the portal to the vicinity of the No. 1 and east showings indicated that the cross cut, at its closest point is still nearly 200 metres distant from the surface showing and 560 feet vertically below it. If the No. 1 vein and East veins dip steeply westward then the distance from the cross cut will be reduced (possible to 100 - 150 metres).

Within the cross cut, the dolomites are uniformly massive, except near the portal and near the face, where bedding is recognized. The only mineralization seen in the cross cut is in strongly oxidized fault zones, where minor malachite is seen in two places (Samples PNT 17, 23). However, original sulphide (galena) content is confirmed by geochemically anomalous silver and lead content. Tetrahedrite was probably also present in some of the faults, judging from copper content and malachite stains.

Alteration in the carbonates has progressed from; 1) weak dolomitization to, 2) strong dolomitization - obliterating bedding, with accompanying silica in gash veinlets, 3) weak sideritic replacement - buff to brown color and, 4) strong pyritization and manganeseiferous siderite replacement nearest the mineralization.

Two types of mineralization exist;

- 1) the first type represented by the No. 1 and East veins, consists of tabular to pod like bodies of manganeseiferous siderite and pyrite, with variable proportions of galena, sphalerite, tetrahedrite and stibnite.
- 2) The second type, represented by Kerruish's No. 3 and 5 "veins" and the authors PNT 1, 1B, 5, 6, 7 and 8 samples is moderately dolomitized carbonate flooded with minor quartz veinlets containing tetrahedrite and galena.

Samples representative of the massive type of mineralization are PNT 14 to 16, 17B and DJW 1. Strongly oxidized material as seen and collected from various pits on the property has little residual copper, lead, zinc, silver or gold left, for example sample PNT 11 from the East vein area; less than 0.005 oz/ton gold, 0.01% copper, 0.52% lead, 0.03% zinc, 0.31 oz/ton silver. Fresher, galena rich material, for comparison sample PNT 17B has 0.030 oz/ton gold, 0.20% copper, 26.50% lead and 30.80 oz/ton silver. Also for comparison is the fresh, hand cobbled material which averaged 48 to 53% lead and 69 to 101 oz/ton silver.

Best mineralization found to date on the property is massive tetrahedrite float found in talus by D.J. Whalen approximately 125 metres north of the cross cut portal at elevation 8460 feet. This material, reported to be abundant in float at this location, assayed: 0.370 oz/ton gold, 330 oz/ton silver, and 14.8% copper with negligible lead and zinc. This high grade material could represent unoxidized material from a vein-fault zone, perhaps intersected by the cross cut.

Weak copper-lead mineralization is present in massive altered dolomite near a fault zone in the prominent creek gully due south of the portal approximately 200 metres. Presence of mineralization is indicated by copper stain, quartz veinlets and geochemical assay of 910 ppm lead and 5.4 ppm silver in sample PNT 25.

Lower in the valley, on the access road near the prominent switchback close to the cabin, strongly dolomitized carbonate outcrops and present and float was seen here mineralized with tetrahedrite and malachite. The carbonate outcrops extend southward along the road for nearly two claim lengths and could represent a fault-repeated segment of mineralized Mt. Nelson formation.

Silver King showing (See Appendix I)

Although it is uncertain at this time if the Silver King showing is on Time I claim or on adjacent Redmac claims, the surface showing was visited.

The property was discovered about the same time as the adjacent Ptarmigan and Nip and Tuck, and was explored by Ptarmigan Mines personnel in 1903 by which time an adit had been driven 259 feet.

The property is situated on the south west bank of Red Line Creek at elevation 7000 ft approximately 450 metres south of the flat area on which the main Nip and Tuck camp was originally built.

The property was intermittently explored to 1916, when it was held by Larabee and sons of Wilmer. The 259 foot adit, situated on the almost inaccessible cliff face, followed a narrow fissure in altered carbonate/quartzite country rock, containing sphalerite and galena. One zone in the tunnel had a streak of "ore" 6 feet long and 4 to 12 inches wide. An open cut 65 feet above the adit contained similar narrow vein material in rusty pyritized country rock. Although selected material assayed 45 to 57 oz/ton silver and 32 to 56 percent lead with up to 20 percent zinc, the actual amount of ore present was small and only 15 tons of material were extracted for shipment in 1915.

The property was reviewed again by the B.C. Dept. Mines geologist in 1925 following "somewhat extraordinary statements contained in the prospectus" filed by Silver Premier Mining Company, but surface workings were caved and little was to be seen but about 3 tons of material in rotted sacks.

When viewed by the writer and D.J. Whalen, the showings appeared to be of little merit; occurring on the precipitous cliff face, exploration would be difficult. The merit of the property could be in the possible discovery of replacement deposits along the fault elsewhere along strike or down dip, the search for which would necessitate deep drill holes from more accessible locations or from helipads cut in the top of the cliff.

Conclusions

Comparison of production from the Nip and Tuck property with other adjacent properties (Table II), indicates that this property, along with adjacent Ptarmigan and Silver King properties, had highest silver/lead grades of the whole district. The nearby Delphine and B.C. & Tilbury properties, with similar geological controls, also had very high silver/lead content. This geographical grouping of silver grades may indicate a zonation of the camp from a hydrothermal source of silver, lead and gold at depth. However, the relationship seen at the Paradise property between silver-rich oxidized ores at surface and more extensive but lower grade sulfide replacement ore at depth may indicate that secondary enrichment has occurred at the Nip and Tuck and Ptarmigan properties as well.

Sufficient comparisons can be made between the Nip and Tuck property and the nearby Mineral King and Paradise properties to suggest that replacement deposits within the Mt. Nelson carbonate units at Nip and Tuck could occur as shown on the hypothetical cross section (Figure 5).

High grade oxidized ore is present in at least four and probably more zones associated with steeply dipping fault zones on Nip and Tuck I claim. This material consisting of oxides, anglesite, galena, tetrahedrite and stibnite contains up to several hundred ounces silver per ton and up to 0.37 oz/ton gold. Material mined was in a narrow tabular zone developed by two adits 110 feet long and 80 feet long and in adjacent zones developed by short adits and open cuts. Judging from production history for this and adjacent properties, the deposits are likely to be irregular and pod-like. However sufficient width may be present for narrow stopes and lower grade or if formed as replacements along particular bedding horizons, could support bulk mining methods.

The second type of ore, disseminated tetrahedrite carrying silver and gold is present in wide alteration zones adjacent to cross faults. Sample PNT 5 averaged 7.22 oz/ton silver over a width of 1 metre, and it is conceivable that zones could be found with more economic widths and grades to supplement small tonnages of high grade ore. Several areas of the property have potential for this type of mineralization, particularly south of the adit and on Time 7 claim adjacent to the access road.

The various vein and disseminated zones are worthy of further exploration with the objective of outlining small tonnages of high grade material which could supplement moderate grade material in wider replacement zones.

It is likely that production could only be contemplated when sufficient ore is outlined for an efficient low-cost small scale mining operation with minimal infrastructure and capital costs. Mining in this case would involve a small crew working for a short period each year shipping high-grade material without pre-concentration.

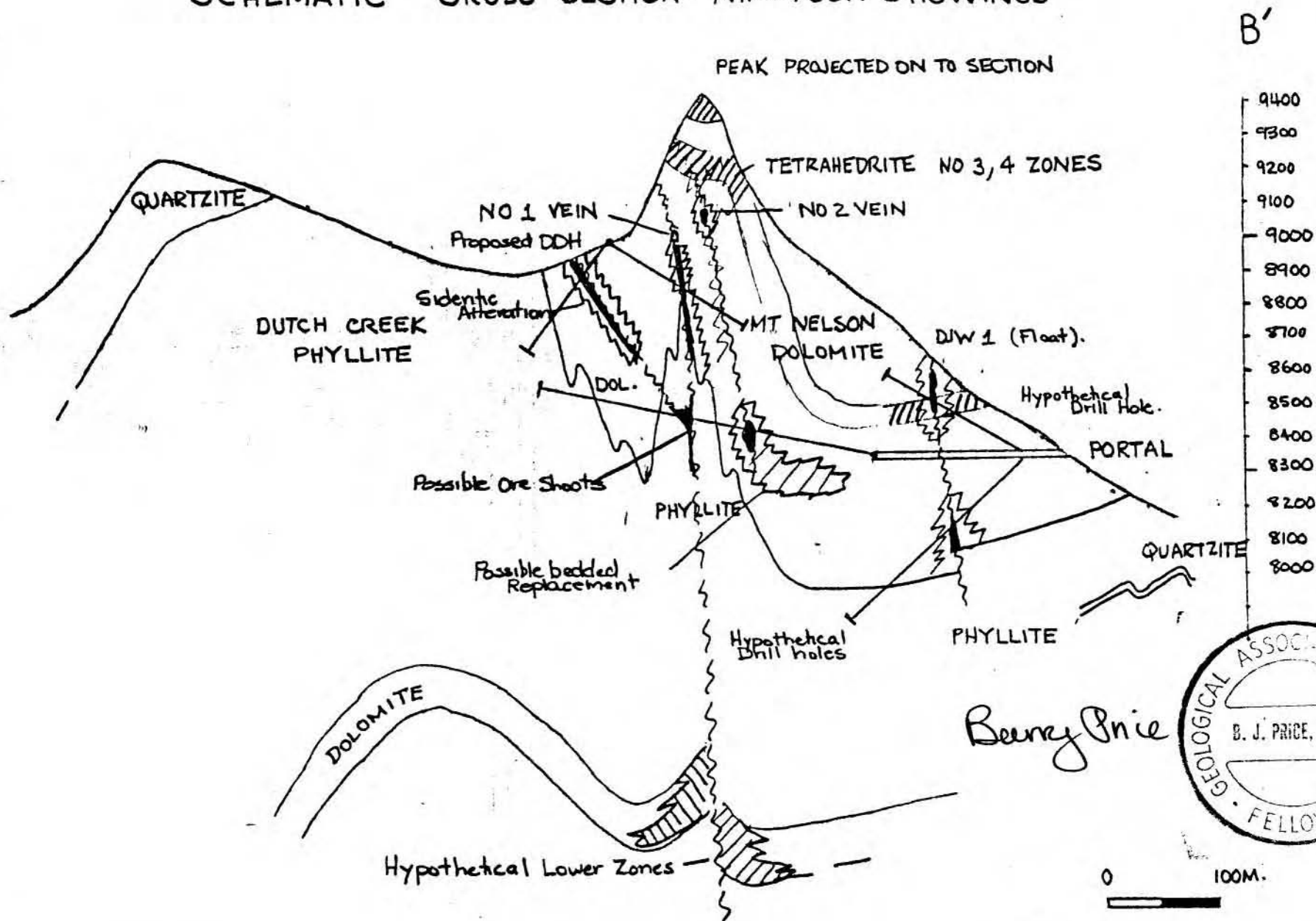
Recommendations

Because of the erratic nature of the pods of high grade material minimum targets to aim for should be defined in any further exploration done. The highest grade material should be searched for and the production from the Ptarmigan property in 1957 illustrates a worthwhile target - 181 tons averaging 210 to 400 oz/ton silver. The minimum target to ensure payment of all exploration and production costs would be 500 tons averaging at least \$1000 gross metal value per ton.

It may be worthwhile to try to combine the Nip and Tuck and Ptarmigan properties, or at least to obtain the geological and drilling data from the adjacent property to facilitate understanding

FIGURE 5

SCHEMATIC CROSS SECTION - NIP+TUCK SHOWINGS



B. J. PRICE, M. Sc.

Oct 1982

of geological conditions in the mineralized belt and to obtain an understanding of mining costs that might be expected for a similar operation.

Exploration of the property should include:

- 1) Additional geological mapping and surveying,
- 2) Geochemical surveys over areas of carbonate rocks (soil and rock geochem) adjacent to the Nip and Tuck 1 showings,
- 3) Surface stripping of the East vein by cat or front end loader,
- 4) Surface diamond drilling on the East vein (See Figure 5).
- 5) Underground diamond drilling from the cross cut to attempt to intersect the various veins or new zones.

Several fractions exist in the 2-post claim staking at present, and these should be infilled quickly with fractional claims, or the entire area should be covered by LCP type claims after protection of the area by formal abandonment. Suggested claim areas are shown in the accompanying map. (Figure 6).

M82K/8W

FARNHAM TOWER

MT. FARNHAM
MT. HAMMOND

MT. PETER

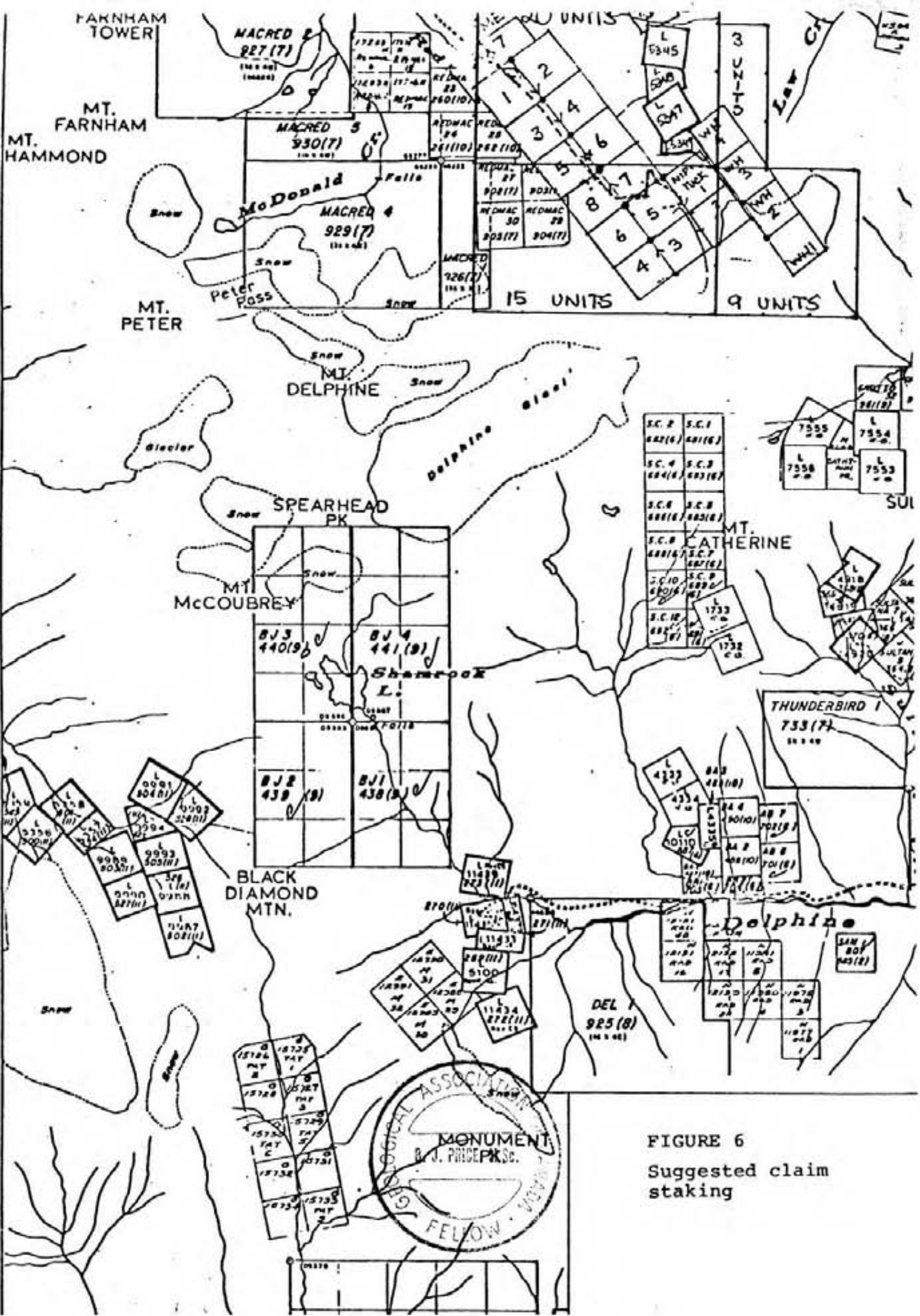
MT. DELPHINE

MT. MCCOUBREY

BLACK DIAMOND MTN.



FIGURE 6
Suggested claim staking



IP 82K/7E

SUGGESTED BUDGET FOR THE WORK OUTLINED IS:

STAGE I

1)	Claim staking 35-40 units 2 men x 4 days, including mob/demob and recording	\$ 4,500.00
2)	Additional geological mapping July or August 1983, 1 man, 10 days @ \$250/day and supporting costs, mob/demob etc., plus report preparation	5,000.00
3)	Geochemical surveys 250 samples @ 13.50/ea 2 men x 5 days, plus supporting costs	2,700.00 2,500.00
	Report and map preparation	1,000.00
4)	Road repair and cat work, 5 days x 8 hours x \$50/hr, plus supporting costs	4,000.00
5)	Hand trenching, 2 men x 10 days, plus supporting costs	5,500.00
	Assays from trenches 50 x \$35	1,750.00

STAGE II

6)	Dependant on results from Stage I, surface diamond drilling 1500 feet 5-10 holes; all inclusive cost \$35/ft.	52,500.00
7)	Underground diamond drilling 2000 ft., 3-4 holes @ \$30/ft.	60,000.00

COSTS:	Stage I	\$ 26,950.00
	Stage II	<u>112,500.00</u>
SUB TOTAL		139,450.00
CONTINGENCY 10%		<u>13,945.00</u>
		<u>\$153,395.00</u>

Barry Price

Barry Price, M.Sc., FGAC
Consulting Geologist



GOLDEN MINING DIVISION
 PRODUCTION TONNAGES, GRADES
 PRESENT GROSS METAL VALUE/TON*

Pb @ 35¢/lb
 Zn @ 50¢/lb
 Ag @ \$10/oz
 Au @ \$500/oz
 Cu @ 70¢/lb

<u>Property</u>	<u>Tons Production</u>	<u>Pounds Grade Pb%</u>	<u>Pounds Zn%</u>	<u>Ounces Ag (oz/T)</u>	<u>Ounces Au (oz/T)</u>	<u>Pounds Other</u>	<u>Gross Metal Value/Ton</u>
Mineral King 1954-64	2.1 M 1,941,802	71,672,137 1.76%	165,465,693 4.12%	1,673,525 24.8g/T (0.7 ozT)	-	Cu 1,269,814	\$60. + Ba Cd Barite Cad. 552,563 lb.
Paradise 1901-52	63,000 tonne (71,247T)	15,979,124 11.2% Pb		737,189 oz 10.35 oz/T	32 oz 0.0004		\$182
Delphine 1899-1905	187	103,353 1.24%		19,751 105.6 oz/T		Cu 6,670 lb 1.78%	\$1,090
B.C. & Tilbury 1905-27	87T	91,306 lb 52.5%	932 lb 0.5%	6,394 oz 73.5 oz/T	-		\$1,103
Black Diamond 1906-07	47T	58,801 lb 62.5%	-	1,930 oz 41.1 oz/T	-		\$848.50
Cave 1937	1T	1,313 lb 65.6%	49 lb 2.5%	13 oz/T			\$614.20
Charlemont 1907	13T	12,247 47.1%	-	861 66.2 oz/T			\$992
Comstock 1907	21T	24,668 58.7%		690 32.8 oz/T			\$739
Hell Diver 1920	35T	19,343 27.6%		874 25 oz/T			\$443
Hot Punch	80T	60,115 37.6%	1,992 1.24%	3,491 oz 43.6 oz/T	2 oz .025 oz/T		\$724

<u>Property</u>	<u>Tons Production</u>	<u>Pounds Grade Pb%</u>	<u>Pounds Zn%</u>	<u>Ounces Ag (oz/T)</u>	<u>Ounces Au (oz/T)</u>	<u>Pounds Other</u>	<u>Gross Metal Value/Ton</u>
Silver King 1915-25	29T	18,201 31.4%	-	832 oz 28.7%			\$507
Star 1926	3T	2,938 49.0%		155 51.7 oz/T			\$860
Steele 1923	221T	140,503 31.8%		5,127 23.2 oz/T			\$246
Sunday 1901	7T	6,987 49.9%		123 17.6 oz/T		Cu 301 2.15%	\$555
Tecumseh/Paymaster* (Nip and Tuck)	79T	87,026 55.1%		7,991 101.15 oz/T			\$1397.20
Nip and Tuck 1916-23 (Note: See Tecumseh)	98T	94,447 lb 48%	-	6,808 oz 69 oz/T	1 oz .01%		\$1026
Western Cross 1952	1T	212 10.6%	216 10.8%	5 5 oz/T			\$232
White Cat 1924-28	167T	177,791 53.2%		4,980 29.8 oz/T			\$670
Lucky Jim (Lower) 1961	5T	5,130 51.3%	160 1.6%	223 44.6 oz/T			\$821
Isaac 1916-24	476T	334,607 lb 35.15%	-	13,123 oz 27.6 oz/T			\$522.05
Silver Key	32T	24,571 lb 38.4%	1,955 3.05%	3,198 oz 100 oz/T			\$1299
Lead Queen 1916-29	429T	321,582 lb 37.5%	2,630 0.3%	14,120 32.9 oz/T	1 oz 0.002 oz/T		\$592.50
Mabel R 1918	17T	19,904 lb		133 oz			

<u>Property</u>	<u>Tons Production</u>	<u>Pounds Grade Pb%</u>	<u>Pounds Zn%</u>	<u>Ounces Ag (oz/T)</u>	<u>Ounces Au (oz/T)</u>	<u>Pounds Other</u>	<u>Gross Metal Value/Ton</u>
Pretty Girl 1904-28	9T	-	-	457 50.7 oz/T		Cu 3,677 20.4%	\$792.60
Ptarmigan 1900-20	781	6,179 0.6%		39,827 82.8 oz/T	45 0.09	Cu 8,407 0.8%	\$873
Ptarmigan 1957-59	244	1,579 0.3%	1,871 0.3%	49,200 201.6 oz/T	69 0.28		\$2156
Ruth Vermont 1892-1930	62	61,898 49.9%	8,200 6.6%	5,821 93.9 oz/T	5 0.08 oz/T		\$1394
Silver Belt 1901-1918	108	39,574 18.3%	-	4,782 44.3 oz/T			\$571
Silver Giant	616,700	41,108,687 3.3%	5,127,122 0.4%	398,960 0.6		Cu 485,726 + Barite	\$53.10

STATUTORY DECLARATION

I, Barry James Price, of 2121 West 5th Avenue, Vancouver do hereby declare that:

- 1) I am a consulting geologist and have practised my profession since 1965.
- 2) This report is based on field examination of the property and research and compilation from available literature concerning the property.
- 3) I am a fellow of the Geological Association of Canada and am authorized to use the stamp affixed to this report.
- 4) I have no direct or indirect interest in the properties or securities of Golden Gate Explorations Ltd or Alhambra Mining Ltd nor do I expect to receive any such interest and will receive only normal geological consulting fees and reimbursement of personal expenditures for the preparation of this report.
- 5) I authorize the above mentioned companies to use this report for whatever purpose they require.

Barry Price

Barry James Price, M.Sc.
Consulting Geologist
Vancouver, B.C.



APPENDICES



December 5 1982

Golden Gate Pipings Ltd.
Albion Mining Corp.,
215-744 Hastings St.,
Vancouver, B.C.
V6C 1A5

INVOICE RE: GIL AND TUCK PROPERTY:

Consulting fees: Field time 10.25 days @ \$250/day.....\$2562.50
Office time 3.5 days @ \$250/day.....\$1625.00

Disbursements: as per attached accounts: \$691.70
\$524.02
\$1553.75
\$2369.48..... \$2369.48

** GIL EXPENSE ADVANCE.....(\$1000.00)

Printing charge on subject.....\$66.47

TOTAL THIS INVOICE \$6625.45

Barry Price
Barry Price, M.Sc.
Geologist

** Total costs this invoice plus advance	\$6625.45
Wages paid to D.J. Whalen	\$ 800.00
Analyses	\$1032.30
Total expences applied to program	\$8457.75



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 AREA CODE 604

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-IN ACCOUNT WITH-

Mr. Barry Price
 2121 West 5th Ave.
 Vancouver, B.C. V6K 1S1

Attention:

Report No: 82-01-016 Page 1 of 2
 Samples Arrived: Sept. 21, 1982
 Report Completed: October 1, 1982
 For Project: N.T. Job No. 82-223
 Analyst: VGC Staff Invoice No. 7045

Sample Marking	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb
PNT 1	500	---	---	3.8	---
PNT 1B	13700	---	---	667.9	---
PNT 5	3240	---	---	198.8	10
PNT 8	1250	141	---	5.0	nd
PNT 12	31	98	16	---	nd
PNT 25	54	910	26	5.4	nd

REMARKS:

Signed:

1 Mo x 1.6585 = 1 MoS₂ 1 Tro. oz./ton = 31.25 ppm 1 ppm = 0.0001% 1 ppb = 0.000001%
 All results are given to be correct to the best knowledge of the analyst based on the method and instrument used.

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 Mr. Barry Price

Report No: 82-01-016 Page 2 of 2
 Samples Arrived:
 Report Completed:
 For Project: Job No.
 Analyst: Assayer: D. Chiu Invoice No.

Attention: Assays

Sample Marking	Cu %	Pb %	Zn %	Ag oz/ton	Au oz/ton	Sb %
PNT 1	---	---	---	0.09	<.005	---
Float 1B	---	---	---	26.31	.012	---
2	---	0.23	---	0.22	<.005	---
Upper trav. 3	---	2.95	---	1.69	<.005	---
4	---	0.64	---	0.70	<.005	---
5	---	---	---	7.22	.008	---
6	0.88	---	---	17.89	.020	---
7	2.60	17.20	---	79.30	.028	---
8	---	---	---	0.16	<.005	---
Nel Va. 10	0.01	0.16	0.02	0.31	<.005	---
East Va. 11	0.01	0.52	0.03	0.31	<.005	---
Schistose ox 12	---	---	---	0.05	<.005	---
N. Side Basin (Plamgaw) 13	0.02	0.42	0.01	0.19	<.005	---
14	0.38	14.40	0.02	7.61	.034	---
15	0.03	17.20	0.01	9.36	.054	8.40
16	0.01	0.14	0.01	0.12	<.005	0.11
ADIT 17	0.01	0.19	0.01	0.21	<.005	---
hi Grade 17B	0.20	26.50	0.01	30.80	.030	---
18	0.01	0.64	0.01	0.41	<.005	---
19	0.01	0.04	0.01	0.05	<.005	---
20	0.01	0.03	0.01	0.01	<.005	---
21	0.01	0.02	0.02	0.01	<.005	---
22	0.01	0.03	0.02	0.02	<.005	---
23	0.09	0.02	0.02	1.96	.006	---
PNT 25 Fault Zone	---	---	---	0.20	<.005	---
DJW 1 Ft.	14.80	0.11	1.50	330.10	.370	---
2	0.09	0.07	0.02	1.89	<.005	---
3	1.64	7.05	0.18	65.66	.030	---
4	0.01	0.10	0.01	0.17	<.005	---
5	0.01	1.48	0.01	0.53	.008	---
6	0.03	0.47	0.01	0.60	.006	---
DJW 7	0.05	0.08	0.01	5.09	.014	---
DJW 8	0.06	4.60	0.05	7.69	.012	---

REMARKS:

Registered Provincial Assayer

Signed:

1 Mg x 1.6665 = 1.6665g

1 Tr. oz./ton = 34.77 ppm

1 ppm = 0.0001%

nd = none detected

ppm = p.p.m. (parts per million)

All values are believed to be correct to the best of our knowledge of the analytical method and instruments used.

MASTER PRINTING LTD.

SAMPLER: B. TRICE
 CODE: PNT 1-25
 MAP SHEET: 82K 8W/0W.

PROJECT: NIP + TUCK
 AREA: Rod Line Cred.
 COMPANY: Golden Gate Expl.
 DATE: Sept 3-13/82
 NO. OF SAMPLES: _____

SAMPLE NO.	TYPE	DESCRIPTION	Au	As	Cu	Pb	Zn	Ag	
PNT 1	Rx	Float. Chalcopyrite, chalcocite + tetrahedrite? in buff dolomite on road west of adit.			500 ppm 0.05%			3.8 ppm	= 0.11 oz
IB					13100 ppm 1.37%			667.9 ppm	= 19.54 oz/T
PNT 2	Rx	Galena in fractures in quartzite and qtz. veinlets Elev. 9840' WH. claims	< 0.005 oz/T			0.23%		0.22 oz/T	
PNT 3	Rx	Selected galena from 1 ft. wide quartz vein in quartzite Elev. 9780'	< 0.005			2.95%		1.69 oz/T	
PNT 4	Rx	Similar to PNT 3 El. 9780'	< 0.005			0.64%		0.70 ^{oz} /T	
PNT 5	Rx	Minor tetrahedrite disseminated in buff to white dolomite Clips over 1 meter.	0.008		3240 ppm 0.32%			7.22 oz/T	check 198.8 p = 5.80
PNT 6	Rx	Same location. Selected copper in qtz + dolomite	0.020		0.88%			17.89 ^{oz} /T	
PNT 7	Rx	Side of knob above cabin Selected galena/tetrahedrite in 1 cm wide vein. Elev. 9240'.	0.028		2.60%	17.20%		79.3 oz/T	

SAMPLE _____
 CODE _____
 MAPSHEET: _____

PROJECT: _____
 AREA: _____
 COMPANY: _____
 DATE: _____
 NO. OF SAMPLES: _____

SAMPLE NO.	TYPE	DESCRIPTION	Au	As	Cu	Pb	Zn	Ag	
PNT 8	Rx	Elev. 9150'. Buff sheared dolomite w. Cu. carbonates	<0.005		1250 ppm 0.125	141 ppm		5 ppm = 0.15 0.16 oz/T on area	
PNT 9	Rx	High grade oxides at tram terminal ~ 9000'	NO ASSAYS. (Renumbered 17B)						
PNT 10	Rx	2 meters completely oxidized vein material w sericite, siderite, etc above adit	<0.005		0.01%	0.16%	0.02%	0.31 oz/T	
PNT 11	Rx	Black oxides from pit (represents the East vein)	<0.005		0.01%	0.52%	0.03%	0.31 oz/T	
PNT 12	Rx	Rod oxides in sheared zone below Mt Nelson Fm below adit.	<0.005		31 ppm	98 ppm	16 ppm	0.05 oz/T	
IRON CAP SAMPLES									
PNT 13	Rx	Elev. 8820'. Buff sideritic dolomite w. siderite (quartz minor tetrahedrite in quartz gash veinlets).	<0.005		0.02%	0.42%	0.01%	0.19 oz/T	

SHEET NO. _____
 CODE PNT
 MAP SHEET: _____

PROJECT: _____
 AREA: _____
 COMPANY: _____
 DATE: _____
 NO. OF SAMPLES: _____

SAMPLE NO.	TYPE	DESCRIPTION	Au	As		Cu	Pb	Zn	Ag	Sb
PNT 14	Rx	Elev 8840'. Nugget of pyrite + chalcopyrite? + galena + oxides.	0.034 oz/T			0.38%	14.40%	0.02%	7.61 oz/T	
PNT 15	Rx	High grade massive pyrite and stibnite on dump of adit @ 8940'.	0.054			0.03%	17.2%	0.01%	9.36 oz/T	8.40%
PNT 16	Rx	Siderite and pyrite with no visible galena/stibnite Same location.	<0.005			0.01%	0.14%	0.01%	0.12 oz/T	0.11%
PNT 17B	Rx	High grade. El. 8990'. ADIT SAMPLES	0.030			0.20	26.50%	0.01%	30.80 oz/T	
PNT 17	Rx	4" quartz-carbonate vein with black specks. Slightly rusty. Near storage str.	<0.005			0.01%	0.19%	0.01%	0.21 oz/T	
PNT 18	Rx	Adjacent to 17. 12" fault zone with siderite + oxides	<0.005			0.01%	0.64%	0.01%	0.41 oz/T	
PNT 19	Rx	39m. 12" oxidized zone Minor malachite on ceiling	<0.005			0.01%	0.04%	0.01%	0.05 oz/T	

SAMPLE#

CODE

MAP SHEET:

PROJECT:

AREA:

COMPANY:

DATE:

NO. OF SAMPLES:

SAMPLE NO.	TYPE	DESCRIPTION	Au	As		Cu	Pb	Zn	Ag
		ADIT SAMPLES							
PNT20	Rx	89m. 77m. 1m zone of carbonates / oxides in strong fault. Some Mn oxides.	<0.005			0.01%	0.03%	0.01%	0.01oz
PNT21	Rx	121m. 1.5 meter chips glz. veinlet + oxidized carbonates.	<0.005			0.01%	0.02%	0.02%	0.01oz
PNT22	Rx	179m. 0.3m. fault makes water. Oxidized.	<0.005			0.01%	0.03%	0.02%	0.02oz
PNT23	Rx	0.7m. chip @ 184m. (near face). oxides on Right wall with. Cu stain.	0.006			0.09%	0.02%	0.02%	1.96oz/T
		D. J. WHALEN SAMPLES	0.370			14.8%	0.11%	1.50%	330.1oz
DJW1		Massive tetrahedrite float Above adit @ 8460' El. in scree of dolomitized limestone. High grade.							

(Note - Gross Metal value ~ \$3600/ton @ \$10 Ag, 0.70 Cu, \$5m Au. RP.)

SAMPLE:

CODE

DJW 2-

MAPSHEET:

PROJECT:

AREA:

COMPANY:

DATE:

NO. OF SAMPLES:

SAMPLE NO.	TYPE	DESCRIPTION	Au	As	Cu	Pb	Zn	Ag
DJW 2	Rx	Galena in carbonate in scree @ 9000' Elev. N71° from str 9 on road survey below.	<0.005		0.09%	0.07%	0.02%	1.89oz
DJW 3	Rx	Better mineralization from adit below rope. Wkngs collapsed & full of ice. (Possibly #2 vein?).	0.030	Note	1.64%	7.05%	0.18%	65.66oz
					Gross Metal Value: \$ 740/ton @ \$500 Au, \$10 Ag \$ 0.70 Cu, \$ 0.35 Pb. Zinc not considered.			
DJW 4	Rx	Chip over 7' (2.3m) of black manganese mineralization. Vein str. 158° / 70° dip SW.	<0.005		0.01%	0.10%	0.01%	0.17oz
DJW 5	Rx	Chips from material at collapsed portal. Prob. East vein. Talus cover	0.008 _{oz/T}		0.01%	1.48%	0.01	0.53oz
DJW 6	Rx	Float from scree - prob from adit (No 1 vein) On trail west of upper cabin	0.006		0.03%	0.47%	0.01	0.60

SAMPLER: _____

CODE: _____

MAP SHEET: _____

PROJECT: _____

AREA: _____

COMPANY: _____

DATE: _____

NO. OF SAMPLES: _____

SAMPLE NO.	TYPE	DESCRIPTION	Au	As	Cu	Pb	Zn	Ag
		MISC SAMPLES	nd.		54 ppm	910 ppm	26 ppm	5.4 ppm
PNT25	Rx	0.7 m. chips dolomitized Mt Nelson carbonates @ Fault zone in creek SW of Niptuck adit. Minor Copper in quartz veins.						
DW7	Rx.	Dump at Ptarmigan lower camp - pyritic material - grab.	0.014 oz/T		0.05%	0.08%	0.07%	5.09 oz/T
					Gross metal value = \$57.90 (Au Ag only). i.e. milling ore			
	Rx	Same location. - Iron - Mn carbonate/oxide. material.	0.012 oz/T		0.06%	4.60%	0.05%	7.69 oz/T
					Gross metal value = \$115. (Au + Ag + Pb only). i.e. milling ore.			

REPORT ON THE
NIP AND TUCK MINEWINDERMERE MINING DIVISION EAST KOOTENAY, B.C.BY
TOM H. KERRUISH
1922LOCATION

This property is situated on McDonald Creek, a branch of Horse Thief Creek, in the Windermere Mining Division of the North East Kootenay District. It is connected with the Kootenay Central R.R. by a first class wagon road, popularly known as one of the best roads of its kind in the Province; thus giving easy access to the Mine and making it possible to ship ore at any season of the year.

HISTORY

The "Nip and Tuck" is what was formerly known as the "Tecumseh" Mine and was staked some years ago by Tom Brown and Haupt. By the shipment of high grade ores some years ago, it was known in the District as the Haupt's Bank, on account of his being able to take one or two men with him and in a short time make a shipment of high grade ore. No road had been built at this time and the ore had to be packed on horses a distance of 28 miles to the Columbia River, thence by boat to Golden, a station on the C.P.R.R., from which it was shipped to the Smelter at Trail.

ECONOMICS

The mineralization is distributed over a wide area and consists of pyrite, galena, gray copper and zinc blende. These minerals occur in varying quantities at different points in the vein system, but the most pronounced and continuous deposits are chiefly shoots of solid galena paralleling each other with a system of cross fracturing or fissuring between, and dips into a hill at a low angle usually about 20 degrees and in most cases have a filling of high grade galena and tetrahedrite (Gray copper) giving high values in silver.

For general description purposes, the Veins will be named as follows:

EAST VEINNO. 1 VEINNO. 2 VEINNO. 3 VEINNO. 4 VEIN

EAST VEIN

The East Vein is a large vein from 4 to 6 feet wide and is no doubt the continuation of the big vein developed on the old Iron Cap Mine across the gulch. Its strike is approximately due North and South and dips to the West about 60 degrees. The vein is enclosed in a bed of altered limestone and can be traced clear across the Nip and Tuck claim into the Silver Tip claim. No work of any consequence has been done on this vein to date, but the outlook for discoveries of shoots of ore along it is very promising; gold float being found along the strike of it for several hundred feet. Most of the vein itself is covered up by slide rock, but at a point on the hill above the trail an exposure of the vein in place is seen. The vein at this point is about 6 feet wide, the mineralization being chiefly iron pyrites. In the centre of the vein is a streak about 2 feet wide of lead carbonate ore showing small particles of solid galena and gray copper: on the foot-wall side there is about 2 feet or more of heavy iron pyrite with which is associated with solid bunches of galena ore and arseno-pyrite. This vein is well worth development and should in all probability produce ore of commercial value.

NO. 1 VEIN

The No. 1 Vein lies approximately 100 feet to the West of the East Vein and is the only vein on which any work of any consequence has been done. Its strike is also due North and South. Its true dip is hard to determine, but in general appearance from observation at different points, it would seem to dip to the East toward the East Vein. The mountain in this section is very badly crushed and broken due no doubt, to pressure from the high pinnacles above. The foot-wall in the old workings seems to stand almost vertical, while the apparent hanging-wall dips at an angle of about 40 degrees. The mineralization in this vein is solid galena ore and hard lead carbonates with a width of from 8 inches to 3 feet wide. All former work done on this vein was confined to the foot-wall section, the former operators evidently being of the opinion that it constituted all of the vein. On a shot being put into what seemingly was the hanging-wall, a streak of ore 14 inches wide was disclosed. This would tend to prove that the vein is much larger than supposed, but has considerable rock filling between the two streaks of ore. I consider this a very important discovery, for if this vein, as shown on the hanging-wall side, continues its present dip, it will intersect the East Vein in a short distance, and at which point the development of a very large body of ore is very probable. The driving of the lower tunnel on this vein is very essential and I can confidently predict that this work will produce ore.

At a point ahead of the vertical of the present underground workings, good shoots of high grade ore are disclosed on the surface, which would tend to prove the continuity of this vein, which, undoubtedly, is well worth further exploratory work in conjunction with the present work of stopping the ore already blocked out.

NO. 2 VEIN

This vein is a very prominent feature of the claim and stands out very clearly on a bluff about 150 feet west of No. 1 Vein.

It can be traced through the Nip and Tuck to a point above the centre of the Silver Tip claim where it disappears under a glacier. At a point about 200 feet elevation above the lower tunnel of No. 1 Vein, an open cut has been run on the vein which has disclosed a shoot of remarkably rich ore. The vein itself is about three feet wide with a streak of solid galena ore on the foot-wall side, 14 inches to 18 inches wide which gave assays of \$560.00 per ton in silver, lead and copper. How long this shoot of ore is, is hard to say, as not enough work has been done to prove it; but it is a very promising-looking vein and can be driven on at considerable depth. From the north side of the mountain down the slope, it can be traced 200 feet to 300 feet lower than the point where the open cut is. Its strike is about as the others, North and South, with a decided dip to the west, all through the open cut. This vein has considerable quantities of high grade ore in sight which should be mined at a handsome profit to the operators.

NO. 3 VEIN

No. 3 Vein is a large body of altered lime-stone in the shape of a replacement vein lying to the South and East of the No. 2 Vein. Its dimensions at present cannot be determined, but at places, it seemingly is 15 to 20 feet across the mineralization and it consists of disseminated particles of iron pyrite, galena and gray copper. The latter mineral sometimes occurring in solid bunches. It is well worth more exploratory work than I have been able to give it, and no doubt has a very important bearing on the general mineralization of this section; it can be seen clearly going on down a gulch on the East side of the mountain. I was unable to get to it from above, as this part of the mountain is extremely rough and inaccessible. My investigation of it, however, will be continued from below as time will permit.

NO. 4 VEIN

No. 4 Vein is a large belt of silicified lime-stone lying on top of the mountain between the No. 1 and the No. 2 Veins. What it amounts to I have not as yet, been able to determine. That it is a very important and interesting mineralization is evidenced by the fact that large pockets and bunches of gray copper ore occur distributed over an area of 400 feet to 500 feet long and 15 feet to 20 feet wide. At several points enough of this ore can be mined clean; "solid gray copper", but the bulk of it is probably ore that will run \$20.00 to \$30.00 per ton. No attempt has been made as yet, to mine any of this ore and development work alone will prove its value. The strong mineralization of this section and the numerous points at which ore of good grade occurs would seem to justify the opinion that bodies of high grade ore will continue to be found as exploratory work progresses.

DEVELOPMENT

The Mine is opened up by two adit tunnels driven on this No. 1 Vein and several open cuts which show ore of exceptionally good grade and from which ore can be mined and made ready for shipment. The upper tunnel is 110 feet long and ore in considerable quantities was taken out in the early history of the mine. The lower tunnel is 80 feet long and has a vein $2\frac{1}{2}$ feet wide, consisting chiefly of dry carbonates with streaks of gray copper which gave high values in silver and lead. The whole of the vein at this point will pay to ship with present facilities. Along the surface open cuts have been made, all showing ore of good shipping grade. An aerial tramway was installed last year to handle the ore from the Mine to the lower terminal, 1000 feet below, and in close proximity to the wagon road. This tramway does away with the slow and laborious work of raw-hiding the ore for this distance, which had to be done formerly to this point.

GEOLOGY

No attempt will be made to describe the geological conditions, as they are very well known, and the report on same can be seen in the Minister of Mines' report of the district for the year 1915. From a close study of this report one must conclude that the district is a very attractive one from a mineral standpoint and no doubt contains large ore bodies which can be exploited on a commercial basis.

GENERAL

This property cannot be looked upon in the light of a new prospect, as its record as a shipper in a small way of high grade ore is too well known and established. Then one compares the present facilities for shipping ore with the conditions which formerly had to be contended with, on account of transportation difficulties, and the evident tonnage in sight, one must conclude that the property is one of exceptional merit.

In the 1902 report of the Minister of Mines it is described as follows:

"The Tecumseh Group adjoins the Iron Cap. The Pay Streak averages 20 inches wide of solid ore assaying 150 ounces Silver and 70% Lead."

Further it says:

"The ledges in this vicinity have every appearance of permanence and strength. Dykes can be traced for miles and in places, glacial action has stripped the vein, leaving large bodies of ore uncovered. The capping on the majority of the ledges is heavy iron

sulphide carrying considerable quantities of gray copper ore and occasionally ruby silver, and some rich samples have been obtained. The general average is uniform and the ore should be profitably shipped even with present facilities."

Much more data of favourable nature can be gathered regarding this property, but time will not allow me at this writing. I will say that I cannot emphasize too strongly that, given the support which this property justifies, we can make a Mine of note.

(Signed) T.H. KERRUISH

Dated : July 25th, 1922

----- October 2nd, 1922

Since the examination was made on which this report is based, considerable work has been done on the Nip and Tuck claim. Over 700 sacks of ore have been sacked, ready for shipment. The values contained in this ore range all the way from \$114. to \$560, per ton in Silver and Lead.

The East Vein has been opened up by surface cuts, which disclose a wonderful shoot of lead-carbonate ore $3\frac{1}{2}$ to 4 feet wide on which a tunnel has been started. The ore is sand carbonate carrying values in gold, silver and lead, from \$39. to \$79, per ton - a sample across 10 inches giving assay returns of \$141, per ton. There is a practically proven ore shoot on this vein of over 100 feet long which is demonstrated by surface cuts disclosing this ore for that length, after which it is covered by slide rock, but ore is in evidence for over 600 feet, in length on the strike of the vein,

There is no doubt in the writer's mind as to the importance of this discovery, as it is a vein which will undoubtedly produce ore of commercial value in large quantity, and in itself is the making of a Mine. On the No. 2 Vein, some prospecting work was done which disclosed some very good ore, but no attempt has been made so far to open up this vein on a working basis. That it contains a large shoot of shipping ore in evidence by the amount of float ore contained in the slide rock on the strike of the vein and I have every confidence that it will produce ore in development. About 300 feet to the east of this No. 2 Vein another vein has been discovered which is well worthy of development. Samples of this vein, which is chiefly a gray copper ore, gave assay returns of \$357. per ton. After a summer's work on the property, the writer is more convinced than ever that the Nip and Tuck property is one of high merit as a mining proposition.

(Signed) T.H. KERRUISH
Manager.

Work has been progressing steadily on this property, formerly known as the *Red Line Group*, about 15 men being continually employed. The Government built twenty miles of waggon road up Horse Thief creek and the company extended this for a distance of eight miles up to the mines. Now that transportation facilities have been afforded it is intended to instal machinery and equipment to facilitate the cheap handling of the ore.

The development work to date on the *Iron Cap* claim of this group consists of:—No. 1 tunnel, 528 feet; No. 2 tunnel, 197 feet; No. 3 tunnel, 208 feet; winze, 62 feet; No. 4 tunnel, 12 feet; open cut, 12 feet; No. 5 tunnel, 126 feet; winze, 21 feet. Total, 1,166 feet.

Good, comfortable cabins have been built on the property for the accomodation of the employees, as well as blacksmith shops at each tunnel.

The character of the ore on the *Iron Cap* is silver-lead, and as, under the existing conditions of the market, it is not profitably handled, work has, for the present, been closed down, and more attention is being paid to the *Red Line* claim, which is on the other side of the hill. The ore on this latter is a sulphide, carrying copper and silver, and is now being hauled down to the river, a distance of about 29 miles, for shipment to the Trail smelter. This claim will be worked all the winter. The development work consists of:—No. 1 tunnel, 228 feet; upraise, 38 feet; No. 2 tunnel, 80 feet; No. 3 tunnel, 235 feet; total, 581 feet.

Iron Mask. Development work on this claim consists of a tunnel 136 feet long, an 8-foot shaft, and 20 feet of open cuts. The character of the ore is silver-lead, and the development shows this to be a very promising claim.

1903

The *Silver Thread Group* (Law creek) consists of three claims in a formation of limestone, slate and porphyry. The ledge is about 5 feet wide, carrying galena assaying 70 ozs. in silver and 60 per cent. lead. Development work consists of about 80 feet of tunnelling and numerous open cuts.

The *Tecumseh Group* consists of three claims, adjoining the *Iron Cap*. The paystreak averages 20 inches of solid ore, assaying 150 ozs. in silver and 70 per cent. lead. Development work consists of a 40-foot tunnel and several open cuts.

A force of from 25 to 40 men has been continuously employed on this *Ptarmigan Mines* property, known formerly as the *McDonald* or *Red Line* mine. During the past year work was chiefly confined to the development of the *Red Line* vein. The ore in this ledge is a high-grade grey copper associated with iron pyrites, lying between serpentine and quartzite formation. The development on the *Red Line* consists, in addition to that of last year, of a 365-foot tunnel; 50-foot winze; a level 70 feet long from the 50-foot level of the winze; No. 1 upraise, 115 feet from mouth of tunnel, 79 feet, connecting with the surface; level 120 feet long from the upraise No. 1, 50 feet above the tunnel level; upraise No. 2, 230 feet from mouth of tunnel, 35 feet. Owing to the hardness of the rock, but slow progress could be made, and the Company decided to install a 4-drill compressor plant, which is now working. The waggon road was extended one mile to the compressor site, situated 8,000 feet from the mine, to which latter the air is carried by a 5½-inch pipe. The Company has also erected a saw-mill, with a capacity of 8,000 feet per day, and an aerial tram is under construction to convey the ore to the end of the waggon road. Three car-loads were shipped last season, and ore is now being hauled to the Columbia river for shipment as soon as navigation opens. Work was discontinued on the *Iron Cap*, owing to the low price of silver and lead.

Among other properties worked by this Company is the *Silver King Group*, a tunnel having been driven 259 feet.

There are several other properties in the vicinity of the *Ptarmigan* mines, viz:—the *Kentucky Group*, *Isabel Group*, and *White Elephant Group*, but little more than assessment work has been done so far.

The *Silver Treasure Group* consists of two claims located on Taylor creek and about 3 miles from the waggon road. The ore is found in quartz, in a lime schist, and accompanying an enormous quartzite dyke, following through the country across the *Ptarmigan* property, to which the ore is very similar. By tracing the quartzite dyke and prospecting closely, bodies of iron ore, with gray copper occurring in them, can be found for the entire length of the group, and assays from ore taken in a tunnel which is being run into the ledge, giving a depth of 150 feet, have been obtained as high as:—gold, \$21; silver, 65 ounces; copper, 6 per cent. Development work will be pushed throughout the winter and the ore shipped out.

1904 p H97,98

The property formerly known as the *Red Line*, or *McDonald* mines, is Ptarmigan Group now called the *Ptarmigan* mines, and is owned by the "Ptarmigan Mines of the Selkirks," a syndicate of eastern American investors, under the local management of Mr. Thomas Starbird, of Wilmer, B. C. The group includes the following Crown-granted mineral claims:--*Red Line No. 1*, *Red Line No. 2*, *Iron Cap*, *Iron Crown Fraction* and *Contention Fraction*. The mine is situated in the basin at the head of McDonald creek, a branch of Horse Thief creek, at an elevation of 8,500 feet above sea level, and a distance of about 27 miles from the town of Wilmer, on the Columbia river, from which point a steamer connects in summer with the Canadian Pacific Railway at Golden. A very good waggon road has been built from Wilmer to the mine office and compressor plant at the lower terminal of the aerial tramway, which is at an elevation of 6,500 feet. This road follows up Horse Thief creek, and for about half the distance has an easy grade and was not difficult to build, but shortly after passing "Blowfly," where the manager's house is situated, it enters a narrow part of the valley, where the steep and rocky sides have necessitated heavy work and called for considerable engineering skill on the part of Mr. T. H. Taylor, the company's engineer, to complete the undertaking. This has been done at last, but at the expense of some sharp curves and heavy grades, which fortunately, however, are mostly "down hill" from the mine. The mine has already been described in previous reports, so that a further summary only is necessary.

In the steep hill on the south side of the basin, just below a glacier, a Red Line Claim. couple of veins were found cutting into the hill with a dip nearly vertical. The country rock appears to be dark silicified limestone, with argillites and quartzite. Surface prospecting above the outcrops is prevented by the glacier, from under which, however, rich float is obtained. The glacier keeps the ground in a frozen condition even in summer, thus increasing the difficulties of mining. On the smaller of these veins a tunnel has been driven for 300 to 400 feet, following a marked quartz fissure vein, which carries a paystreak a few inches wide, containing ore consisting of iron pyrites and tetrahedrite, assaying high in silver with some gold. This paystreak, though small, was found to be so rich that the lead was later cut by another tunnel about 125 feet deeper, and here

1906

The *Tecumseh* Group, situated on Iron Cap and Horse Thief creeks, has a ledge about 7 feet wide, carrying a paystreak 18 inches wide. Development work on the *Tecumseh*: No. 1 tunnel on lead 95 feet, which gives a depth of 75 feet, showing 18 inches of clean ore all the way; four carloads of ore have been shipped from this tunnel. No. 2 tunnel, 10 feet, showing 18 inches of ore. No. 3 tunnel, 30 feet, showing 18 inches of ore. A shipment of 53,675 pounds sent to the Trail smelter this fall averaged 83 oz silver and 56.60 per cent. lead.

The *Ptarmigan* mines, a well-known property, situated on McDonald creek, has been closed down, pending railroad construction.



1910.

The *Ptarmigan* mine, on *Horse Thief* creek, also reported upon in 1903, *Ptarmigan Mine*. has since then been practically dormant and has not been further developed.

The former manager, Mr. Thomas Starbird, is still upon the property, although no work is being done at the mine.

The only properties in the district which shipped ore in 1908 were the *B. C. and Tilbury*, about 27 tons, and the *Hot Punch* 15 tons, and in 1909 the only shipment was from the *Hot Punch*, about 15 tons.



1916

This claim is situated on the south side of Iron Cap creek, a short glacial Silver King creek which is one of the branching feeders of McDonald creek at its source.

The claim is now owned by Larabee & Sons, of Wilmer, who restaked it a few years ago. Practically all the development-work done on it was done by the Ptarmigan Mines, Limited, which at one time either owned or had an option on the claim.

The country-rock here consists of blue and grey lime, argillites, quartzites, and slates, striking roughly north-west. A small fissure conforming to the strike of the formation has been developed by a tunnel 250 feet long. Very little ore can be found in this fissure, as it consists for the most part of altered country-rock. In one place in the tunnel there is a little bunch of ore 6 feet long and 4 to 12 inches wide consisting of galena and zinc-blende. Sixty-five feet above this tunnel there is an open-cut showing from 2 to 6 inches of sulphides—mostly sphalerite—lying between decomposed red rusty rock-matter. In one other place a tunnel has been faced up on the vein and an inch streak of ore is showing.

A sample of selected galena assayed 45.4 oz. of silver to the ton and 56.0 per cent. lead, while another containing some zinc-blende assayed: Silver, 56.5 oz.; lead, 32.4 per cent.; zinc, 20.7 per cent.

The actual amount of ore taken out in development-work has been slight. An 11-ton shipment is reported to have been made during 1915, and this represented a clean-up of all the available ore already extracted.

McDONALD CREEK.

McDonald creek takes its source in a number of glaciers near the foot of Mount Farnham. It flows nearly northerly for seven miles to where it joins Horse Thief creek. It is a rapid stream flowing through a rugged piece of country, and goes through quite a canyon before joining Horse Thief creek, showing very clearly the hanging valley system developed by the glaciers along the main stream.

The Ptarmigan Mines property, on which considerable money was spent in former years, is situated at the head of the creek. A full description of this property will be found in the Minister of Mines' Report for the year 1903. Several thousand feet of tunnelling was done on the property, driving on veins which in places carried masses of iron pyrites. Associated with this pyrite in small quantities was tetrahedrite which contained high silver values. The total amount of this tetrahedrite was, however, small, and the bulk of the iron carries but little value. Even the pyrite is by no means continuous, but occurs in bunches, and for long distances the veins contain no metaliferous minerals. Assay plans of some of the workings seen by the writer show that the values on the average are much too low to constitute pay-ore. The rich ore near the surface was soon all extracted and shipped. Besides the underground workings, the company erected good mine buildings, a steam-driven compressor plant, and an aerial tramway from the mine-workings to the wagon-road. There is no doubt that the mine will never be reopened again, and there is also no doubt that a great deal more money was spent on the property than ever its showing of ore warranted.

This group of two claims is situated in the basin at the head of Iron Cap creek. It is owned by Tom Brown and Haupt. This property was also worked to some extent several years ago and some ore shipped, but now the workings are solid with ice; the elevation is close to 9,000 feet, and ice forming in the tunnels in winter never thaws out in summer. The lowest tunnel is 55 feet long, the next one is 30 feet above the first and 110 feet long, and 20 feet above there is another one in 20 feet. The owners had just started work on the property when it was visited by the writer, and were engaged in sorting over an old dump and blasting the ice and frozen muck out of one of the tunnels in order to recommence mining. The vein could not be seen even on the surface, as it has been underhand-stopped, and these stopes are now caved in, so the writer cannot tell very much. The formation is lime, siderite, slate, etc., with quartz stringers running through. The vein is said to be from 1 to 2 feet wide and to have a fair-sized pay-stream of galena, lead carbonates, zinc-blende, and grey-copper in small amounts. One sample of the ore which was taken from the dump assayed: Gold, 0.06 oz.; silver, 116.2 oz.; lead, 60.6 per cent.; copper, 1.8 per cent.; and another one: Gold, 0.07 oz.; silver, 148.4 oz.; lead, 36.3 per cent. These values are sufficiently encouraging to warrant a further search for ore.



1920

This property is situated on McDonald creek and was formerly owned by Nip and Tuck W. Haupt. It has been sold to W. D. McMillan, of Seattle, Wash., and work and Silver Tip. was carried on during the summer. Some new rich surface showings were uncovered and about a car of high-grade ore sacked. The ore has not been shipped to date owing to the distance and, at that time, bad state of the road. Further development will be carried on in the spring.

This property is situated above McDonald creek and adjoins the *Nip and Tuck* Ptarmigan Mines. group. It consists of a group of Crown-granted claims known as the *Red Line* group, and upon which a large amount of work was done and money expended in the early days by New York capital. The property is now under bond to E. W. Watson. Considerable prospecting on the surface was done during the summer and some new rich surface showings discovered; these were laid open by the receding of the glacier, which is claimed to have receded some 1,000 feet. Some 50 tons of rich ore has been sacked from the above-mentioned showings. At time of writing some 150 tons of dump-ore has been shipped to the smelter which was mined in the early days. This ore is now made profitable by the high price of silver; it goes about 40 oz. in silver and about \$15 in gold; there is no lead in it. Possibly 1,000 tons of this ore will be shipped this winter which was intended for mill-feed by the old owners. The rich ore will be taken out later. Development on an extensive scale is looked for in the summer and possibly a mill installed.



1921

This property, which was visited in 1903 by W. Fleet Robertson, the Provincial Ptarmigan. Mineralogist, is fully described in his report for that year. Information regarding the workings and the value of the ore mined might be obtained from E. J. Scovill, of Golden, who is agent for the owner. The property was visited by the writer, but could not be properly examined, as the tunnels were nearly filled with ice; access was, however, gained to the lower level by crawling over 150 feet of ice, which almost completely filled the tunnel. When once inside the workings were found to be dry and in first-class condition; even the equipment, consisting of mine-track, air-pipe line, ventilating-pipe, ore-car, and small air-hoist, was in a good state of repair.

A lot of tunnelling has been done, which conveys the impression that there was a lack of systematic development. It would appear that the mountain has been cut transversely by a fault having a south-easterly trend, along which shearing has taken place; in this sheared zone ore has been deposited in small fissures and as irregular-shaped bodies replacing the limestone. The logical way to explore this ground would seemingly be to drift in the direction of the fault-strike and crosscut at intervals. The dump from this level is large, but by far the greater bulk is of waste material, although there may be 700 to 1,000 tons which might be worth careful sampling should the property be reopened. A grab sample from the surface of this portion of the dump ran: Gold, 0.02 oz.; silver, 15.3 oz.

Early in the year about 250 tons was hauled from the lower terminal of the tramway and shipped to Trull. The principal values were in silver, which averaged about 25 oz. a ton. This was second-grade ore sent over the tram and dumped outside the bin. There is about one car-load remaining. The bunk-house at the mine and the buildings at the compressor plant were in a good state of repair.

This group of claims is situated at the head of Horsethief creek and was Ptarmigan. leased to E. Watson and others. During the fall of 1919 and the early part of 1920 quite an amount of ore was shipped from the dumps and brought a fairly good price. In the neighbourhood of 300 tons of ore was shipped to the Trull smelter. At the present time the property is shut down.

This property consists of the *Nip and Tuck* and *Silver Tip* claims, which are Nip and Tuck. situated on McDonald creek, a tributary of Horsethief creek. The owners are W. D. McMillan and V. Sontag, of Seattle, Wash. It has been under option and lease since last August. During the fall about 8 tons of ore has been hauled to Wilmer and 80 feet of tunnel has been run. The ore is good grade and will run to \$150 a ton. It is silver-lead. At the time of writing the property is temporarily shut down, but further work will be done in the spring. Several cars of ore have been developed this fall.

This property, comprising two claims—the *Nip & Tuck* and the *Silver Tip*—is situated at an altitude of 8,900 feet above sea-level. The mine cabin, having accommodation for four men, stands on a barren hillside at a short distance from the workings. A road formerly built to the *Pitarmigan* mine camp ends within about a mile of the workings, and for this latter distance there is a good rawhide trail. The total distance from the railway is approximately 28 miles. Operations are being carried on by a syndicate under the terms of a lease and bond. R. H. Perry had charge of the work.

The formation, consisting principally of limestone, has apparently been tilted vertical, forming a rugged and jagged peak, the easterly shoulder of which joins the glacier-covered summit of the divide between Slade and Law creeks. The workings are situated on the westerly side of this peak in the face of a precipitous bluff.

Snow prevented an examination of the surface showings, but the vein is said to be traceable to the glacier, near which good ore is exposed on the surface. Ore also outcrops near the summit of the peak, where 140 sackfuls had been extracted from shallow surface diggings. In order to handle this a wire had been strung to the portal of the lower tunnel, from whence it was planned to string another wire to the main trail in the basin below.

Work was being confined to driving an adit on the lead, which had previously been prospected by two short tunnels, 20 and 30 feet respectively higher up the hill. Snow and ice prevented an examination of these workings, so all that could be seen was the lowest tunnel then being driven. It was in 68 feet and had a direction of S. 35° E. The ground was frozen within a few feet of the face and the sides and roof were covered with frost crystals.

At the face ore was beginning to make its appearance, and a sample taken across 12 inches gave the following results: Gold, 0.02 oz.; silver, 25.8 oz.; lead, 8.8 per cent.; zinc, 0.7 per cent. A grab sample from a few sacks of ore taken from one of the upper tunnels ran: Gold, 0.02 oz.; silver, 74.1 oz.; lead, 44.7 per cent.; zinc, 1 per cent.

The group is located on the continuation of a well-mineralized zone extending from the *Pitarmigan* in a south-easterly direction. There are many difficulties to contend with, to say nothing of the hardships to be endured in mining at this altitude, and it is to be hoped the efforts will be fully justified by the results of the work now being done.

This property, situated at an elevation of 9,000 feet, lies between the *Pitarmigan* and the *Nip & Tuck*. Many years ago a considerable amount of tunnelling was done, presumably to develop ore exposed near the portal of the upper tunnel and the ground underlying an iron-stained capping. This work principally consisted of three tunnels driven from the surface at vertical intervals of 100 feet. The lowest is in about 350 feet, the next about 200 feet, and the uppermost 400 feet. Near the portal of this latter tunnel a small lens of ore was encountered having a north-westerly trend and a dip apparently to the south-west. At a distance of a few feet in a 60-foot winze was sunk, from which ore is said to have been extracted. This is now full of ice. Past the winze there is no evidence of a vein and no ore has been developed.

The ore is galena, with which is associated a large percentage of iron oxide and a little zinc-blende. A sample over a width of 3 feet ran: Gold, trace; silver, 24.3 oz.; lead, 17.3 per cent.; zinc, 0.6 per cent. The ore probably owes its occurrence to the replacement of limestone in a sheared zone along a line of faulting.

It is doubtful from the development whether those who previously operated the property ever understood the nature of the deposits encountered in this formation, for the exploratory work does not seem to have been guided by good judgment.

During the season J. L. McKay and G. Larrabee did some work at the upper tunnel under a lease, and also extracted some ore from a near-by claim called the *Hell Diver*.

1923

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This property was again visited during the latter part of September. At the time of examination in 1920 it was being operated by a syndicate under the terms of a lease and bond from the owners, W. D. McMillan and V. Sontag, of Seattle. This syndicate abandoned the property in 1921. The only shipment made by them was a few tons. This year the Interprovincial Mines Development Company acquired the property on bond and work was started during the summer under the management of T. H. Kerruish, who is one of the principal owners. As the property has already been described in the Annual Report for 1920, repetition will be avoided as much as possible.

During the earlier part of the season Mr. Kerruish and a small crew of men devoted their time to surface prospecting and taking out ore from a rather inaccessible showing high up in the peak above the mine-workings. About a car-load was extracted, sacked, and dropped down by a light aerial tram to a point alongside the trail in the basin below. A sample taken at random from a few sacks ran as follows: Gold, 0.01 oz.; silver, 63.8 oz.; lead, 35.1 per cent.; zinc, 0.8 per cent. This ore consists principally of galena in a gangue of lime and quartz, the associated minerals being iron pyrites and a little zinc-blende.

Surface prospecting was attended by encouraging results, the most interesting discovery being made in the slide-rock below the old tunnels, where a little digging disclosed some carbonate ore. This would indicate the downward continuation of the vein on which work has been done in the short tunnels above, or the presence of a parallel vein. However, not enough work had been done in the way of uncovering this material to form a definite conclusion as to what might be expected with further development. A sample of this carbonate ore taken across a width of 2 feet, exposed in a shallow digging, ran: Gold, 0.04 oz.; silver, 23.1 oz.; lead, 21.3 per cent.; zinc, 0.8 per cent.

Mr. Kerruish informed the writer that he intends to drive a lower tunnel at this point during the winter. Other showings have been uncovered above and beyond the upper tunnel which indicate the continuity of the vein for a considerable distance, but these could not be examined on account of snow.

In the upper tunnel the vein shows a pay-streak of about 10 inches wide of oxidized ore in the roof; a sample across this gave: Gold, 0.03 oz.; silver, 49.1 oz.; lead, 20.7 per cent.; zinc, 1.1 per cent.

The elevation of the workings—namely, about 9,000 feet above sea-level—and the long haul of about 25 miles to the railway are factors which seriously handicap mining operations, but should sufficient ore be developed to warrant the erection of an aerial tram over the rough bit of country between the mine and the end of the wagon-road, the costs of operating and transportation could be greatly reduced.

1925

McDONALD CREEK.

This property, consisting of one mineral claim, is situated on McDonald creek at a distance of at least 25 miles by road from Lake Windermere Station on the Kootenay Central Railway. The elevation of the tunnel above sea-level is 7,100 feet by aneroid. The only cabin available is situated by the roadside at a distance of about 500 feet from the workings and belongs to the Ptarmigan Mines Company.

The formation consists of limestone and slates, having a north-westerly strike and dipping to the west at a steep angle. Along a well-defined slip between a highly siliceous limestone hanging-wall and a softer formation on the foot-wall side a small vein was disclosed which conforms with the strike and dip of the enclosing rocks.

Exploration at the surface by means of a short tunnel and open-cuts uncovered several small bunches of ore, from which a shipment of about 12 tons is said to have been made some twelve years ago, since which time the property has been inactive. To explore the vein at greater depth a tunnel was driven at an additional depth of about 50 feet below the short upper tunnel.

This lower tunnel follows the slip fracture for 250 feet. The hanging-wall is firm and massive; the foot-wall has a laminated or schistose structure. At 46 feet from the portal the first ore is encountered, consisting of a thin streak of finely crystalline zinc-blende and galena which at 191 feet from the portal swells to form a small lens having a length of 13 feet and a maximum width of 8 inches. A sample across this 8 inches gave the following returns: Gold, 0.02 oz.; silver, 43.7 oz. to the ton; lead, 27.3 per cent.; zinc, 26.2 per cent.

There is probably 20 or 30 tons of this ore between the tunnel and the surface. Taking silver at 70.5 cents an ounce and lead at 8.6 cents a pound, the net value of this ore at the smelter would be about \$65.35. After deducting mining, transportation, and treatment charges there is a possible profit of \$12 a ton.

The surface workings are caved and filled with debris, so there is nothing much to be seen. Lying around on the dumps there are a few tons of ore which had been sacked, but the sacks have mostly rotted away and in all there is not more than 3 tons. A sample taken from a few sacks of this material assayed: Gold, 0.01 oz.; silver, 29.4 oz. to the ton; lead, 20.2 per cent.; zinc, 41.3 per cent.

The values in the vein are confined to the thin streak of finely crystalline zinc-blende and galena; the wall-rock on either side of this streak shows no evidence of replacement or mineralization. For further reference see Annual Report of Minister of Mines for 1915.

A company called the Silver Premier Mining Company, of Vancouver, was incorporated for the purpose of acquiring and operating this mineral claim. The somewhat extraordinary statements contained in the prospectus resulted in inquiries and the further examination of this property.

1928

This group—consisting of the following claims: *Nip & Tuck*, *Silver Tip*, *Nip & Tuck*, *Mohawk*, *Silver Bell*, *Nip & Tuck Fraction*, and *Mountain Lookout*—is now owned by the Trethewey Mining Company, Limited, of Vancouver. A contract was let for driving a 600-foot crosscut last July, the objective being to tap the vein system at depth. This work is being continued through the winter. A compressor and oil-engine have been installed and a new camp built. The property is situated at the head of McDonald creek and is referred to in the Annual Reports for 1920 and 1922.



1956

Silver-Copper

Ptarmigan

(50° 116° N.E.) This property is at an elevation of 8,600 feet. at the headwaters of Red Line Creek, a tributary of McDonald Creek, which in turn is a tributary of Horsethief Creek. The first record

of work done was in 1899, and by the end of 1903 development work in three adits amounted to at least 2,800 feet of drifts and crosscuts and 148 feet of winzes. Some raising and stoping were done, but in 1955, because the two upper adits and portions of the bottom adit were solidly blocked with ice, it was not possible to determine the amount of this work. In 1906 a small amount of development work was done, and in 1919 and 1920 dump ore was salvaged and shipped to Trail.

In 1955 Heinz K. F. Seel, of Edgewater, optioned the property and, employing a crew of two men and a bulldozer, 9 miles of the old wagon-road was reopened to the upper crossing of McDonald Creek at an elevation of 5,000 feet. An additional 4½ miles of road, passable only to 4-wheel-drive vehicles, was completed from the crossing to the mine portal.

[References: *Minister of Mines, B.C., Ann. Rept., 1899, p. 667; 1900, p. 106; 1901, p. 1014; 1902, p. 136; 1903, pp. 97, 104; 1915, p. 97; 1919, p. 146.]*

1957

HORSETHIEF CREEK (50° 116° N.E.)

Silver-Copper

Ptarmigan

This property is at an elevation of 8,600 feet, at the headwaters of Red Line Creek, a tributary of McDonald Creek, which in turn is a tributary of Horsethief Creek. H. K. F. Seel, of Edgewater, employing a crew of two men, reconstructed to truck standards the upper 6 miles of road between the lower crossing of McDonald Creek and the lower terminal of the old aerial tram to the mine. Additional work was done on the 1½ miles of jeep-road between the lower terminal and the mine. No work was done underground, although the portal of the No. 3 or lowest drift was retimbered and a snowshed was constructed between it and the dump. A 30- by 32-foot machine-shop and compressor-house was constructed near by, and an Ingersoll-Rand 310 diesel-driven air compressor was installed. The old bunk-house was completely rebuilt and furnished.

[Reference: *Minister of Mines, B.C., Ann. Rept., 1955, p. 71.]*



1958

HORSETHIEF CREEK (50° 116° N.E.)

Silver-Copper

Ptarmigan (The
Selkirk Ptarmigan
Mines Limited)

President and manager, Heinz K. F. Seel, Edgewater. This property is at an elevation of 8,600 feet, at the headwaters of Red Line Creek, a tributary of McDonald Creek, which in turn is a tributary of Horsethief Creek. Access is by means of a 29-mile road from the village of Wilmer. A description of the property is included in

the 1955 Annual Report.

The property is owned by Mr. Seel, and the present company, which is a private one, was formed in 1958 to continue the operations at the mine. Three men were employed and activities were directed mainly to the No. 3 level, where a small cut-and-fill stope was commenced in 1957. Further ice was removed for a distance of 160 feet at the inner portion of the level, and 34 feet of drifting was done on a new lead of high-grade ore. The total tonnage of ore from the stope and drift was 181 tons, which was shipped by truck to the Trail smelter. Silver assays of the shipments ranged from 210 to 400 ounces per ton. The mine is ventilated by natural means, and a raise was driven from the level to an old incline for a distance of 45 feet to improve the ventilation.

On the surface 2½ miles of the upper portion of the road was relocated to improve the grade, and a small building was put up for storage and heating of water for drilling.

1959

HORSETHIEF CREEK (50° 116° N.E.)*

Silver-Copper

Ptarmigan (The
Selkirk Ptarmigan
Mines Limited)

Heinz K. F. Seel, president, Edgewater. This mine is at the headwaters of Red Line Creek, a tributary of McDonald Creek, which in turn is a tributary of the Horsethief Creek. It is at an elevation of 8,600 feet, and is reached by a 29-mile roadway leading from Wilmer. The mine is an old

operation that was abandoned for many years, and the present company was formed in 1958 to continue operations after the owner, Mr. Seel, had removed a large quantity of ice from the old workings. There are over 3,000 feet of development workings in the mine.

The mine operated for a period of three months during 1959. A crew of four men was employed, and 60 tons of ore was mined and trucked to the Trail smelter. Most of the ore was obtained from a small cut-and-fill stope above No. 3 level. The remainder was mined from a new stope which was started on No. 1 level. Assays of ore shipments from No. 3 level ranged from 225 to 250 ounces of silver per ton. Those from the No. 1 level were of a lower grade, ranging from 55 to 65 ounces per ton. The workings on both levels are on a narrow quartz vein mineralized with tetrahedrite. The mine is ventilated by natural means.



1961

Silver-Copper

HORSETHIEF CREEK (50° 116° N.E.)

Ptarmigan (The Selkirk Ptarmigan Mines Limited)

Heinz K. F. Seel, president, Edgewater. This mine is located at the headwaters of Red Line Creek, a tributary of McDonald Creek, which in turn is a tributary of Horsethief Creek. It is at an elevation of 8,600 feet and is accessible by means of a 29-mile road leading from Wilmer. The mine is an old operation that was abandoned for many years. The present company was formed in 1958 to continue operations after the owner, Mr. Seel, had removed a large quantity of ice from the workings. There are over 3,000 feet of development tunnels in the old workings, and production during the past three years has been obtained from small cut-and-fill stopes on two of the levels.

A crew of three men, including a geologist, worked at the mine for a period of two weeks in the summer getting a number of samples from various parts of the workings. There was no production in 1960.

1963

Silver-Copper

(50° 116° N.E.) Office address, 10th Floor, Credit Foncier

Ptarmigan (Belle Taxis Mines Ltd.)*

Building, 850 West Hastings Street, Vancouver 1. This property is at an elevation of 8,600 feet, at the headwaters of Red Line Creek, a tributary of McDonald Creek, which in turn is a tributary of Horsethief Creek. It can be reached by a 29-mile logging-road leading from the village of Wilmer. The property was formerly operated by

Selkirk Ptarmigan Mines Limited and was optioned by the present company in 1963 for exploration. A description of the property has been given in past Annual Reports.

The work done in 1963 included a geological and geophysical survey, and a crew of six men drilled 10 diamond-drill holes totalling 650 feet on the surface and in the mine. The work was under the direction of D. R. Morgan, geologist.

1957

Silver-Copper

Ptarmigan

This property is at an elevation of 8,600 feet, at the headwaters of Red Line Creek, a tributary of McDonald Creek, which in turn is a tributary of Horsethief Creek. H. F. K. Seel, of Edgewater, is the owner. A crew of three men was employed removing the ice from part of the old workings and re-establishing ventilation. A small cut-and-fill stope was developed on No. 3 level on a narrow quartz vein mineralized with tetrahedrite and pyrite. Six shipments of ore totalling 21 tons were made to the Trail smelter. Silver assays of these shipments ranged from 15 to 203 ounces per ton. The property was in continuous operation from May 15th.



HORSETHIEF CREEK (50° 116° N.E.)

1964

Silver

Ptarmigan (Union Carbide Exploration Limited)*

Head office, 805 Davenport Road, Toronto 4. A. E. Buller, manager. This property is at an elevation of 8,600 feet at the headwaters of Red Line Creek, a tributary of McDonald Creek, which in turn is a tributary of Horsethief Creek. It can be reached by a 29-mile dirt road leading from Wilmer

or a new 26-mile logging-road that was completed from Radium Junction in 1964. The property is an old one and records of it go back to the turn of the century. It is presently owned by Selkirk Ptarmigan Mines Limited, and was optioned by Belle Taxis Mines Ltd. in 1963. The present company made an agreement with the Belle Taxis Mines Ltd. to explore the property in 1964. A detailed description has been given in past Annual Reports.

Some geological mapping was done in 1964, and a crew of four men drilled 13 diamond-drill holes totalling 1,250 feet in the lower level of the mine between July 7th and August 25th. The work was under the direction P. E. Geisterfer, geologist.

* By D. R. Morgan.

CLAIMS: YORNOC, DAVE, totalling 40.
ACCESS: By helicopter from Invermere, 20 miles.
OPERATOR: DRESSER INDUSTRIES, INC., 301, 415 Third Street SW., Calgary, Alta.
METALS: Lead, silver, barite.
WORK DONE: Trenching, 50 feet on Yornoc 24; surface diamond drilling, 12 holes totalling 4,400 feet on Yornoc 22-24.
REFERENCE: *B.C. Dept. of Mines & Pet. Res., G.E.M., 1970, p. 471.*

SHELLY, CAROLE (No. 88, Fig. G)

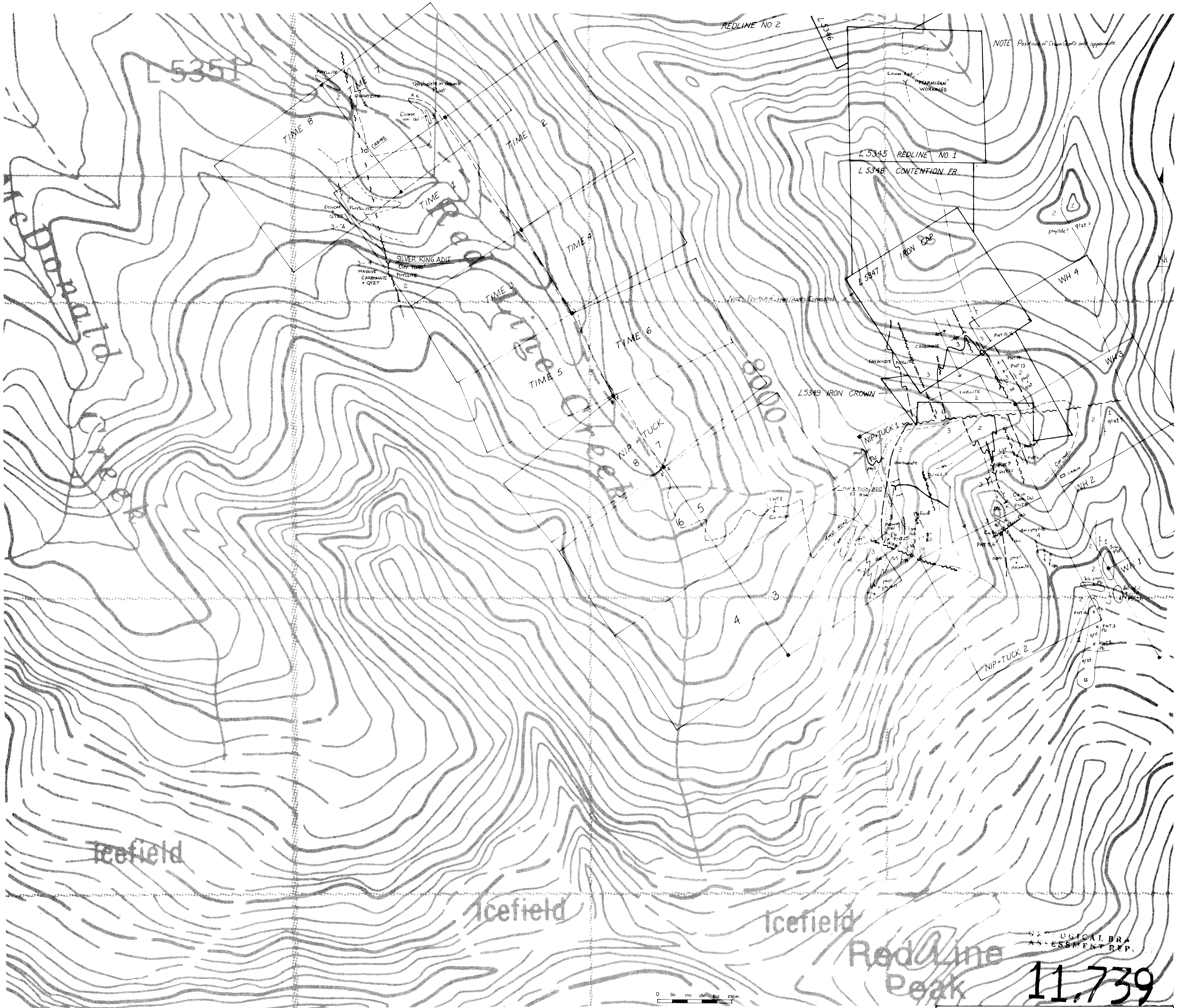
LOCATION: Lat. 50° 19' Long. 116° 15' (82K/8W)
GOLDEN M.D. At approximately 7,600 feet elevation at the headwaters of Mineral Creek, 16 miles southwest of Invermere.
CLAIMS: SHELLY, CAROLE, totalling 22.
ACCESS: By helicopter from Invermere, 16 miles.
OWNER: J. H. CONROY, Box 325, Invermere.
METALS: Barite, lead, silver, copper.
WORK DONE: Surface diamond drilling, two holes totalling 400 feet on Carole 2 and 6.
REFERENCE: *B.C. Dept. of Mines & Pet. Res., G.E.M., 1970, p. 471.*

RAD (No. 101, Fig. G)

LOCATION: Lat. 50° 25' Long. 116° 24' (82K/8W)
GOLDEN M.D. At 7,000 feet elevation along the south side of Delphine Creek valley, 23 miles southwest of Invermere.
CLAIMS: Nine RAD.
ACCESS: By road from Invermere, 23 miles west.
OPERATOR: MEDESTO EXPLORATION LTD., 215A Tenth Street NW., Calgary, Alta.
METALS: Silver, lead.
DESCRIPTION: The property is underlain by rocks of the Dutch Creek and Mount Nelson Formations, consisting of grey, green, and black argillite and slate, dolomite, and argillaceous quartzite.
WORK DONE: Trenching, 1,100 feet on Rad 1.
REFERENCE: *B.C. Dept. of Mines & Pet. Res., G.E.M., 1969, p. 343.*

PTARMIGAN (No. 92, Fig. G)

LOCATION: Lat. 50° 29' Long. 116° 24' (82K/8W)
GOLDEN M.D. Between 8,100 and 9,600 feet elevation at the headwaters of Red Line Creek, 17 miles west of Invermere.
CLAIMS: RED LINE No. 1 (Lot 5345), RED LINE No. 2 (Lot 5346), CONTENTION Fraction (Lot 5348), IRON CAP (Lot 5437), IRON CROWN (Lot 5349).
ACCESS: By road from Invermere, 35 miles.



NOTE: Position of Crown Grants only approximate.

Note: Position of Iron Crown's Estimated

GEOLOGICAL BR
ASSESSMENT REP.

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GOLDEN GATE EXPLORATIONS LTD.

FIGURE 4A
NIP + TUCK PROSPECT
GOLDEN M.D.

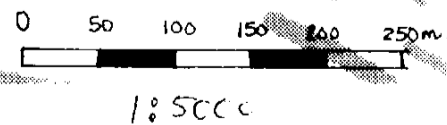
GEOLOGY AND SAMPLE LOCATIONS

TOPICAL-COMPASS SURVEY BY PRICE, D.J. WHALEN.
70% SCALE MAP, UNCORRECTED REPORT DATED Dec 1/1982
B.J. PRICE, M.Sc.

Sept 15, 1982

- LEGEND**
- | | | | |
|---|---|---|-------------------|
| 1 | Tuff Formations?
White, buff quartzite
and grit | x | Sample Location |
| 2 | Black phyllite | ✓ | Strike, dip |
| 3 | Mt Nelson Formation
White to buff, brown dolomite | □ | Claim post |
| 4 | Interbedded quartzite, phyllite
minor dolomite | ■ | Claim post mappet |
| 5 | Gran intruded dykes and sills | — | Adit |
| | | — | Road, Trail |

Strong dolomitization



1:5000

Icefield

Icefield

Icefield

Redline
Peak

L 5351

L 5345 REDLINE NO 1

L 5348 CONTENTION ER.

L 5347

L 5349 IRON CROWN

NIP + TUCK 2

NIP + TUCK 1

NIP + TUCK 7

NIP + TUCK 8

TIME 8

TIME 2

TIME 4

TIME 3

TIME 5

TIME 6

TIME 1

TIME 2

TIME 3

TIME 4

TIME 5

TIME 6

TIME 7

TIME 8

Donald

8000

Lower Adit

PHARMIGAN WORKINGS

Tetrahedrite in dolomite float

Coarse dolomite

Iron veins

Pyrrhotite

Dolomite

Pyrrhotite

3-4

SILVER KING ADIT

Pyrrhotite

MASSIVE CARBONATE + QUARTZ

2

IRON CAP

WH 4

WH 3

WH 2

WH 1

CARBONATE

CARBONATE

pyrrhotite

pyrrhotite

pyrrhotite

pyrrhotite

pyrrhotite

pyrrhotite

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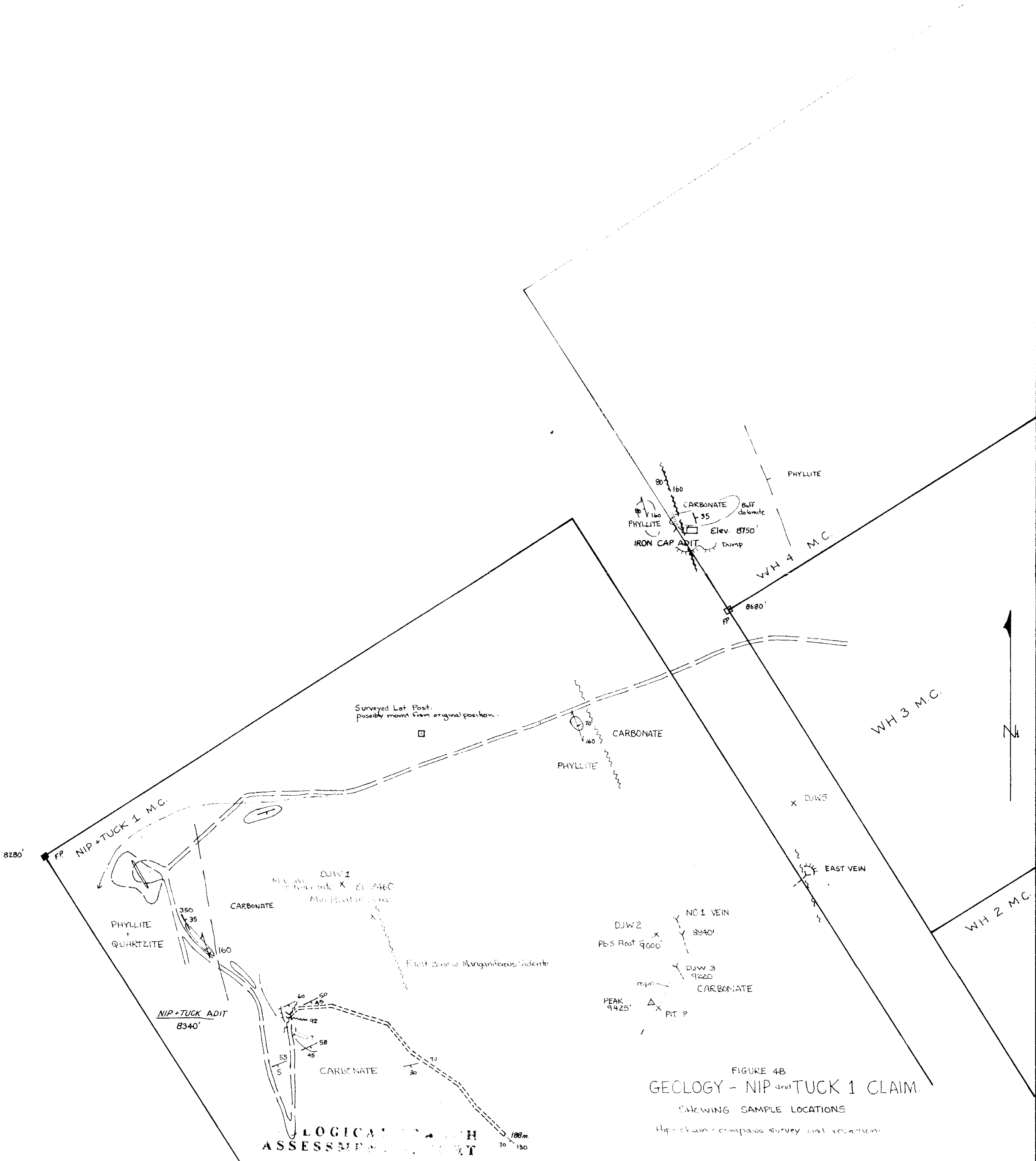
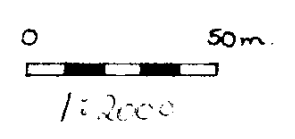


FIGURE 4B
GEOLOGY - NIP and TUCK 1 CLAIM.

SHOWING SAMPLE LOCATIONS

Hip-chain - compass survey and vegetation.



LOGICAL ASSESSMENT REPORT

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Hipchain-Compass survey.

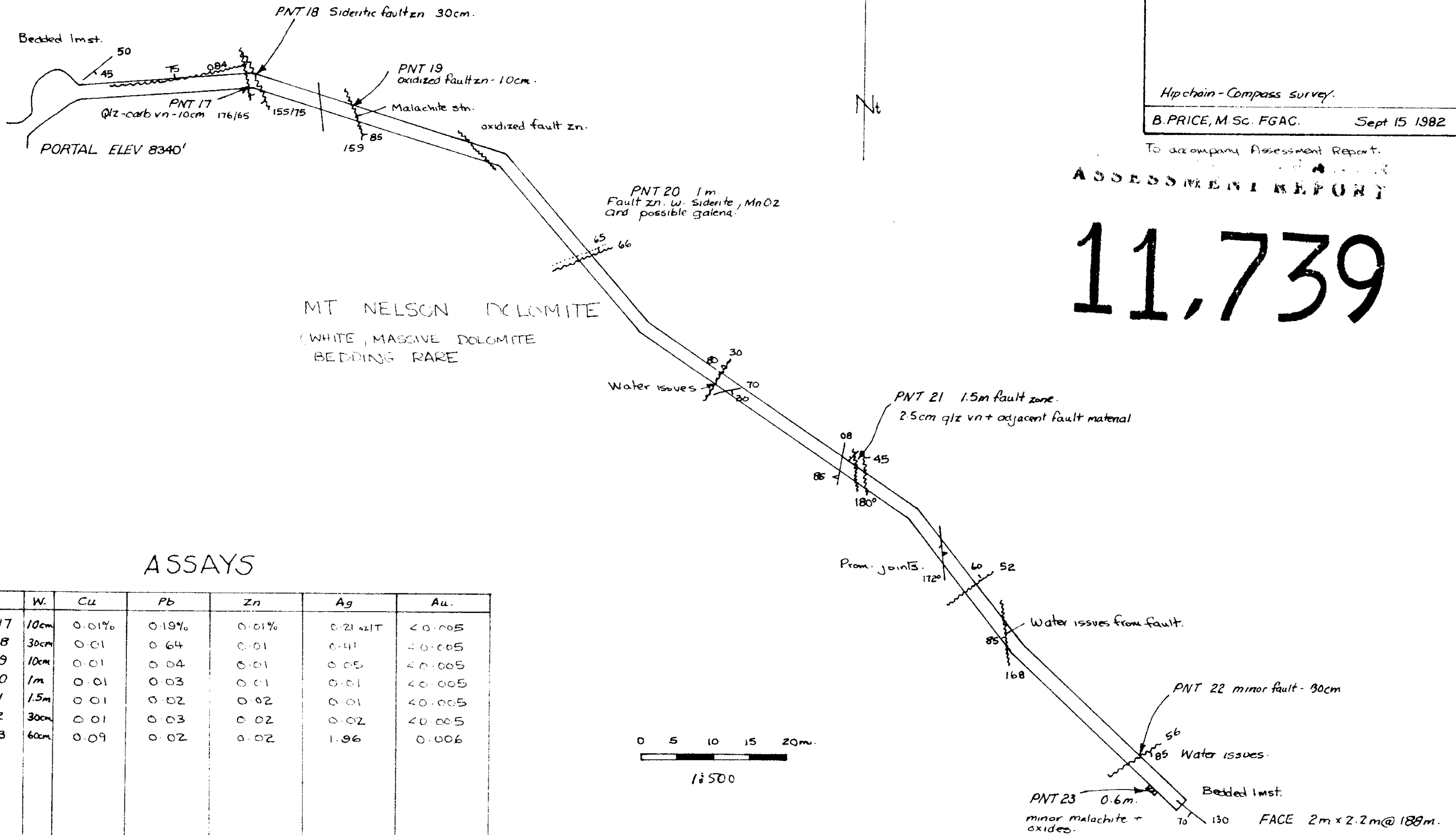
B.PRICE, M.Sc. FGAC.

Sept 15 1982

To accompany Assessment Report.

ASSESSMENT REPORT

11,739



MT NELSON DOLOMITE
(WHITE, MASSIVE DOLOMITE
BEDDING RARE)

ASSAYS

NO	W.	Cu	Pb	Zn	Ag	Au.
PNT 17	10cm	0.01%	0.19%	0.01%	0.21 g/t	< 0.005
PNT 18	30cm	0.01	0.64	0.01	0.41	< 0.005
PNT 19	10cm	0.01	0.04	0.01	0.05	< 0.005
PNT 20	1m	0.01	0.03	0.01	0.01	< 0.005
PNT 21	1.5m	0.01	0.02	0.02	0.01	< 0.005
PNT 22	30cm	0.01	0.03	0.02	0.02	< 0.005
PNT 23	60cm	0.09	0.02	0.02	1.96	0.006