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Assessment Report for the

DELPHINE Claim Group

Golden Mining Division
N.T.S. 82 K/8W
Latitude 50° 25' N, Longitude 116° 25.5' W

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for

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Kelowna, B.C.
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Submitted: September 20, 1994

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

23,500

Table of Contents

	Page
Summary	1
Introduction	2
Location and Access	3
Claim Status	5
Physiography and Climate	7
History	8
Mineral King Mine	8
Kootenay Queen Group	8
Delphine	9
Hot Punch	9
Copper King	9
Regional Geology	10
Stratigraphy	10
Proterozoic	10
Belt - Purcell Supergroup	10
Windermere Supergroup	12
Lower Paleozoic	14
Middle Cretaceous	14
Permo - Triassic	14
Structure	15
Local Geology	16
1993 - 94 Program	17
Results	18
Conclusions and Recommendations	19
Proposed Budget	20
References	21

Figures

	Page
Figure 1 - Regional Location Map	4
Figure 2 - Claim Location Map	6
Figure 3 - 1 : 50,000 scale geological map of the Delphine Creek area	after page 8
Figure 4 - Mineral occurrence location map	after page 8
Figure 5 - 1 : 20,000 scale property sketch map for the Hot Punch mine ...	after page 16

Tables

Table 1 - Partial results of 30 element ICP analyses	18
Table 2 - Tabulation of quantitative assays	18

List of Appendices

- Appendix A - Statement of Qulifications
- Appendix B - Claim Records
- Appendix C - Analytical results
- Appendix D - Statement of Expenditures
- Appendix E - Program - Related Documents

SUMMARY

The objective of the 1993 - 1994 program was to identify possible base metal properties in the Purcell Mountains and secure the ground by staking in order that a more in-depth evaluation could be carried out in the future. The Toby Creek - Horsethief Creek area is the locus of a number of lead - zinc occurrences, which range in size from small showings to the Mineral King Mine (1.334 million tons of Pb - Zn ore at 8 % Zn and 3 % Pb / ton).

These base metal occurrences (with local precious metal enrichment) are located proximal to the "Windermere High", a local high standing area of basement which has been interpreted to have had an important effect on stratigraphy, structure and mineralization in the area (Pope 1990; Root 1985, 1983). Mineralized occurrences have been influenced by and / or have resulted from one or all of the four major phases of deformation documented to have affected the area. Mineralization styles documented in the area include stratabound massive replacement, vein and / or fracture, Mississippi Valley Type and strataform disseminated.

The Hot Punch mine had been formerly held as a group of leases under the collective name of Hot Punch (no. 1 through 4). These leases reverted to the Crown on June 3, 1991 and were acquired by staking by Gemquest Geological. A cursory geological examination was made of the property, which included prospecting and limited sampling of mine tailings and in situ vein material. Anomalous base and precious metal values were returned from analysis of these samples and therefore additional work has been recommended for this property.

INTRODUCTION

In excess of 80 mineral occurrences have been documented in and adjacent to the area bounded Toby Creek and Horsethief Creek in the Purcell Mountains (Pope 1990). These occurrences are hosted primarily by Proterozoic Purcell Supergroup and Windermere Supergroup strata which have been subjected to four phases of deformation. These strata have been folded and transported by northeast verging thrust faults and subsequently disrupted by steeply dipping extensional faults. The area comprises the northeastern flank of the Purcell Anticlinorium, a northwest plunging stack of thrust sheets.

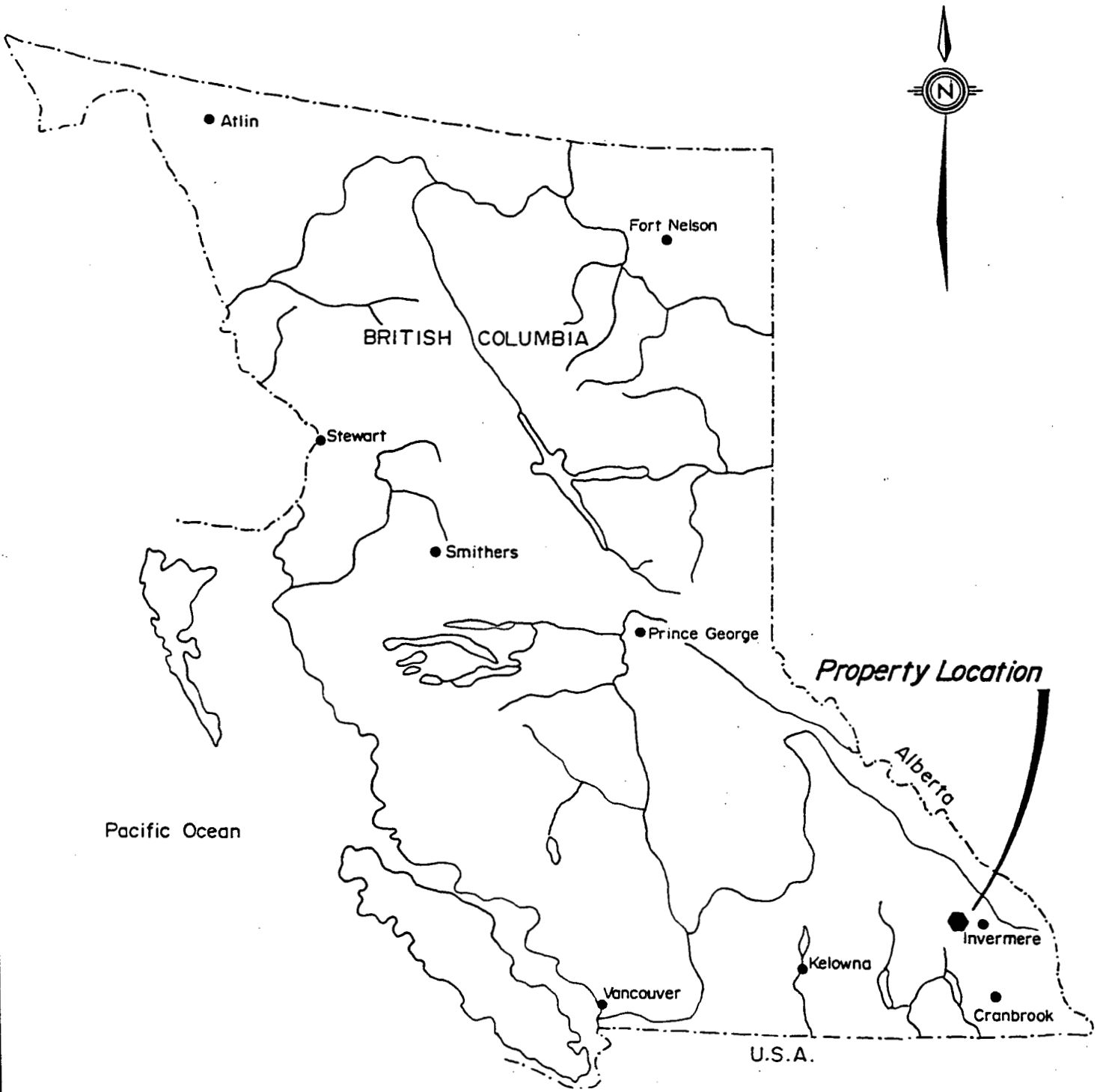
The area contains mainly Ag - Pb - Zn occurrences with subordinate Au, Cu and Fe mineralization. The mineralization is present as stratabound massive replacement, fracture vein and / or fault, Mississippi Valley Type and / or strataform disseminated occurrences. These occurrences range in size from small showings to the 1.334 million ton Mineral King mine. The documented occurrences in the Delphine Creek valley (Delphine, Hot Punch and Kootenay Queen) are hosted by veins and contain mineralization in the form of lead, zinc and silver with minor copper and gold as galena, tetrahedrite, sphalerite and chalcopyrite.

The Hot Punch mine was previously held as leases, collectively known as Hot Punch no. 1 to 4, which reverted to the Crown on June 3, 1991. They have since been staked by Gemquest Geological as the Delphine Group.

LOCATION AND ACCESS

The Delphine claim group is located in the Purcell Mountains (latitude 50° 25' N, longitude 116° 25.5' W), approximately 35 kilometres west-southwest of the community of Invermere, B.C. on N.T.S. mapsheet 82 K/8W (see Figure 1). The claim group consists of 8 2-post claim units located over and adjacent to Delphine Creek.

The claim group can be accessed by logging roads from Invermere, B.C. along Toby and Delphine Creeks. The road along Delphine Creek is passable for approximately 3 kilometres to a washout and then by foot or motorcycle for an additional 6 kilometres along road and trail. The condition of the road beyond the washout is adequate for vehicles to pass but the washout itself would require work and stabilization to re-establish should the need arise.

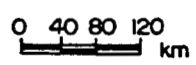


Gwen Resources Ltd.

DELPHINE CLAIMS

Property Location

Scale: 1: 8,000,000	Date: AUG. '94	NTS: 82K/8W
GEMQUEST GEOLOGICAL		Fig.no.: 1



CLAIM STATUS

The property consists of 8 2-post claims (see Figure 2), staked in accordance with existing government claim location regulations. Significant claim data are summarized below:

Claim Name	Units	Tenure #	Date of Record	Expiry Date*
DELPHINE 1	1	319201	June 30, 1993	June 30, 1995
DELPHINE 2	1	319202	June 30, 1993	June 30, 1995
DELPHINE 3	1	319207	June 30, 1993	June 30, 1995
DELPHINE 4	1	319208	June 30, 1993	June 30, 1995
DELPHINE 5	1	318700	June 30, 1993	June 30, 1995
DELPHINE 6	1	318701	June 30, 1993	June 30, 1995
DELPHINE 7	1	318702	June 30, 1993	June 30, 1995
DELPHINE 8	1	318703	June 30, 1993	June 30, 1995

Total: 8

Copies of claim application forms are provided in Appendix B.

*After 1994 assessment credit applied.

OUBREY



SILVEROCK
L.

Falls

SUL 17
315682

L
1739
C.G.
L
1732
2.G.

SUL 19
315684

3728
2208
36X56
330117

330116

BLACK
DIAMOND
MTN.

DELPHINE 1 319201	DELPHINE 2 319202
DELPHINE 3 319207	DELPHINE 4 319208
DELPHINE 5 318700	DELPHINE 6 318701
DELPHINE 7 318702	DELPHINE 8 318703

L
4333
C.G.
L
4334
C.G.

SUL 30
315699
SUL 31
315701
SUL 32
315702

SUL 24
316080
2NX2W
202970
20297

SUL 26
316082
25X2W

JUMBO 9 313616	JUMBO 8 313615
JUMBO 6 313052	JUMBO 5 313051
JUMBO 4 313050	JUMBO 3 313049
JUMBO 2 313048	JUMBO 1 313053
JUMBO 15 313622	JUMBO 14 313621
JUMBO 13 313620	JUMBO 12 313619
JUMBO 16 313623	JUMBO 17 313624
JUMBO 10 313625	JUMBO 19 313626

MONUMENT
PK.
JUMBO
314111
4N.14W

2029

TOBY 1
1572 (5)
5NX4E
FORMERLY

Snow

MIR

**GWEN RESOURCES LTD.
DELPHINE CLAIMS**

CLAIM LOCATION MAP

Scale: 1: 31,680	Date: AUG. '94	N.T.S.: 82 K/8W
Gemquest Geological		Fig. No. 2

PHYSIOGRAPHY AND CLIMATE

The DELPHINE claim group is located within and adjacent to Delphine Creek. Relief in the area varies from 1676 metres (5500 feet) along Delphine Creek to more than 3078 metres (10,100 feet) on Monument Peak.

The claims are poorly exposed in the bush on either side of Delphine Creek and throughout the remainder of the claims. Vegetation in the area consists of a mixture of coniferous and deciduous trees with the undergrowth comprised largely of slide alder and / or Devil's Club. The occurrence is moderately well exposed at higher elevations.

The claims are located east of Kootenay and Trout Lakes in a regional topographic high and are therefore subject to heavier precipitation than further north and south. As a result, the region has many icefields and small glaciers developed in the area. The property is available for geological exploration from May to late October.

HISTORY

The area between Toby and Horsethief Creeks has over 80 documented mineral occurrences for commodities such as lead, silver and copper (Figure 4). These occurrences vary in size from small showings up to the 1.334 million tonne Mineral King deposit. Other mineral deposits in the immediate area include (from south to north): Delphine, Copper King, Hot Punch, Kootenay Queen, and the Mineral King. The majority of the mineral occurrences are fault and / or vein type deposits. The Delphine, Hot Punch and Kootenay Queen are all examples of fault vein type mineral deposits in the and adjacent to Delphine Creek. The Copper King deposit has been interpreted as a fracture vein deposit, located to the west of Delphine Creek. The Mineral King is a stratabound massive replacement (manto type) mineral deposit located several kilometres to the southwest at the confluence of Toby Creek and Jumbo Creek.

These mineral occurrences are coincident with a north-south belt interpreted to be closely associated with the locus of the "Windermere High". Most of the occurrences are hosted by Hadrynian Purcell Supergroup strata, adjacent to or below the Windermere unconformity and have been moderately to strongly affected by the effect of multiple phases of deformation.

Mineral deposits in the immediate vicinity of the DELPHINE claim group (including the Hot Punch) are briefly described below (from Pope 1990).

Mineral King Mine

The Mineral King mine is located north of Toby Creek and west of Jumbo Creek at an elevation between 1220 metres (4005 feet) and 1670 metres (5480 feet). The mine produced a total of 1,334,400 tons of ore at a reported grade of 8 percent zinc and 3 percent lead per ton before suspending operations in 1964.

The deposit is interpreted as a Stratabound Massive Replacement in a high angle fault panel within the Mineral King duplex system in the footwall of the Mount Forster fault. The orebody is hosted in brecciated dolomite of the Lower Gateway Formation and consists of galena, sphalerite, tetrahedrite (containing 6 to 7 percent silver), pyrite and barite with minor chalcopyrite and pyrrhotite.

Kootenay Queen Group

The Kootenay Queen Mine is located in a cirque south of Delphine Creek at an elevation of 1980 metres (6495 feet). The orebody is hosted in a steep, bedding parallel fault vein within dolomites of the Mount Nelson Formation (white marker member), immediately below the projected position of the Windermere Unconformity. The orebody is intensely deformed and consists of galena, tetrahedrite and sphalerite with reported recovery of less than 100 tons having a grade of 2400 grams per tonne silver and 70 percent lead.

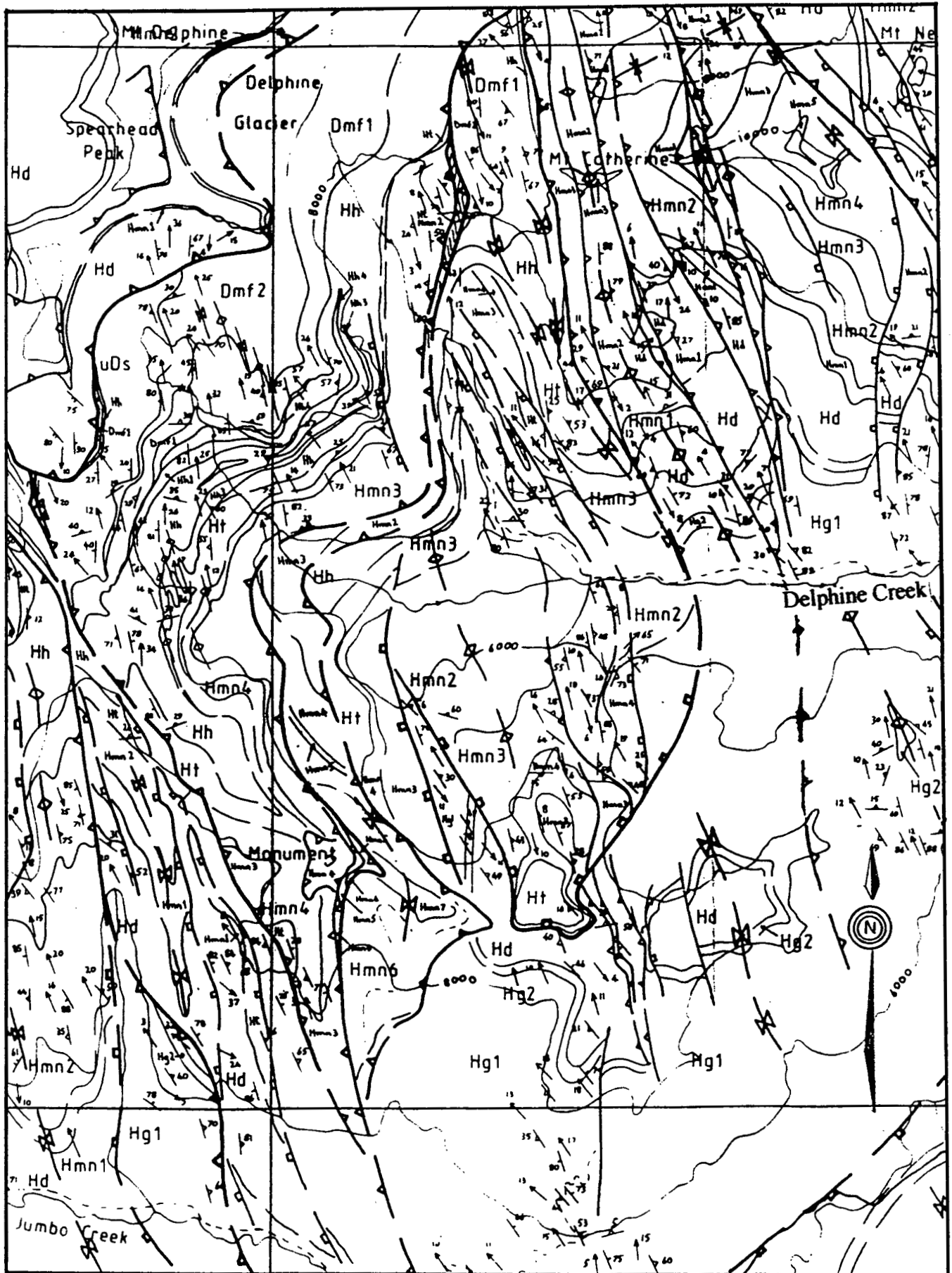
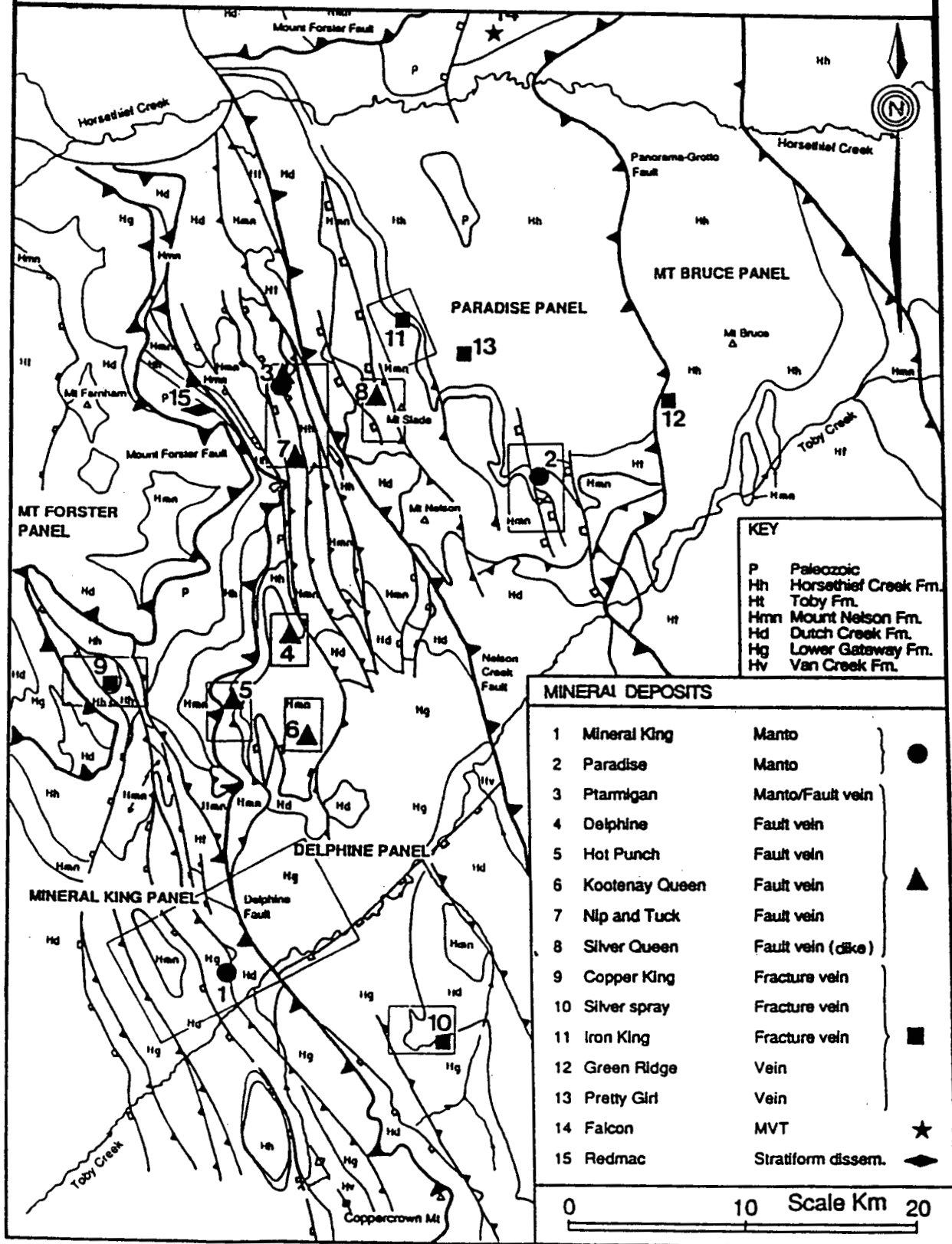


Figure 3 - 1 : 50,000 scale geological map of the Delphine Creek area. Dark vertical line is the 540000 Easting line while the upper horizontal line is the 5590000 Northing line and the lower line is the 5580000 Northing line. (taken from Pope 1990)

Figure 4 - Mineral occurrence location map for occurrences having some recorded production (from Pope 1990)



Delphine

The former Delphine mine is located on the southeast shoulder of Mt. Catherine on the north side of Delphine Creek at an elevation of 1950 metres (6398 feet). The ore was produced from a 0.3 to 1.0 metre thick vein of massive galena, approximately 50 metres in length. Mineralization has been described as "... massive galena with panidiomorphic clumps of tetrahedrite and minor sphalerite, pyrite and chalcopryrite" (Pope 1990). Approximately 150 tonnes of material was shipped and reportedly produced 2400 to 5000 grams per tonne silver, 20 to 30 percent lead and 5 percent copper between 1901 and 1903.

Hot Punch

The former Hot Punch mine was located in the headwaters of Delphine Creek in the immediate footwall of the Hot Punch fault at an elevation of 1800 metres (5905 feet). Very little outcrop is present due to thick vegetation in the area but the ore was reportedly hosted by a 0.1 to 1 metre wide vein in sheared dolomite. Approximately 73 tonnes of ore were shipped which produced 1475 grams per tonne silver and 30 percent lead from galena and tetrahedrite, with minor chalcopryrite and sphalerite.

Copper King

The former Copper King mine was located at the headwaters of Franham Creek at an elevation of 2230 metres (7316 feet). Approximately 20 tonnes of ore was reportedly shipped, returning 340 grams per tonne silver and 4.5 percent copper ore. It has been interpreted as a stratabound fracture vein hosting bournonite with tetrahedrite, galena, chalcopryrite, covellite and sphalerite. Mineralization is interpreted to have resulted from stratabound replacement of host dolomites in the Mount Nelson Formation in fracture vein systems in the hinge of a north plunging anticline.

REGIONAL GEOLOGY

Stratigraphy

The stratigraphy of the Purcell Mountains (see Figure 3) consists of four separate and distinct, megascopic miogeoclinal sequences interpreted to have been deposited on passive North American continental crust. This Helikian to Lower and Upper Paleozoic package has undergone four major phases of deformation and local thermal metamorphism related to the Horsethief Creek Batholith. Igneous activity has episodically affected the sedimentary sequence and includes syn-depositional basaltic to andesitic flows and/or sills to post depositional intrusive dykes, sills and batholiths.

The sedimentary sequence exposed between Toby and Horsethief Creeks (the Toby Creek area) comprises the uppermost Helikian Belt-Purcell Supergroup, the Hadrynian Windermere Supergroup, and Lower Paleozoic strata to the Middle Devonian Starbird Formation. These strata are exposed in six separate panels bounded by thrust faults, and carried in the hanging wall of the northeast vergent Purcell Thrust (Pope 1990).

Proterozoic

Belt-Purcell Supergroup

The Helikian Belt-Purcell Supergroup has an exposed thickness of 4300 metres (14,100 feet), from within the Van Creek Formation to the Mount Nelson Formation. The Belt-Purcell Supergroup is comprised predominantly of cliff-forming, buff weathering dolomitic lithologies with intercalated siliciclastic intervals.

The Van Creek Formation is the lowest formation exposed in the Toby Creek area. It consists of approximately 500 metres of medium- to coarse-grained, light grey to dark green quartzites, siltstones and silty argillites exposed in the core of an anticline. The Nicol Creek Formation is absent as the Van Creek quartzites apparently grade upward into over 1000 metres of pale green quartzites, silts and buff-weathering dolomitic silts of the Lower Gateway Formation.

The Lower Gateway Formation has been subdivided into two members, a basal transitional sequence and an upper dolomite dominated sequence. The transitional sequence is up to 100 metres thick. The base is identified as the first occurrence of carbonate above which are distinctive thin bedded, red spotted quartzites with interbedded green siltstone and buff weathering dolomitic siltstone and dolomite.

The Upper Gateway Formation is dominated by thin bedded dolomite which passes upward into a 90 metre thick, cream to buff weathering dolomitic unit. The dolomite has cryptalgal and stromatolitic laminations and cream coloured chert intercalations. The dolomite ranges from blue-grey micrite to light coloured coarse sucrose textured dolomite.

A sharp contact has been mapped separating the Upper Gateway Formation from the overlying Dutch Creek Formation. The contact is a narrow, rusty-weathering zone interpreted to represent a hiatus along a parallel unconformity. The Dutch Creek Formation varies from 300 to 1000 metres over less than 5 lateral kilometres and consists of dark coloured, fine-grained quartzite-argillite couplets.

The contact with the overlying Mount Nelson Formation is always very sharp with an abrupt change in facies and sedimentary characteristics evident across the contact, which is interpreted as a paraconformity. The Mount Nelson Formation is approximately 1300 metres thick, consisting of thick, well-bedded white orthoquartzite, buff weathering dolomites and purple weathering dolomites and argillites.

The Mount Nelson Formation has been subdivided into the:

- a) lower quartzite, a useful 50 to 150 metre thick marker horizon consisting of white, well-sorted, fine- to medium-grained pure quartz arenites,
- b) lower main dolomite - an approximately 400 metre thick sequence which conformably overlies and is gradational with the lower quartzite, comprised of cryptalgal to stromatolitic laminated, pale grey weathering dolomites with interbedded carbonaceous argillites capped by a cream-coloured stromatolitic, crystalline cherty-dolomite unit approximately 20 metres thick overlain in sharp contact by,
- c) the middle quartzite - an apple green coloured sequence consisting of massive, fine- to coarse-grained quartz arenites, impure sandstones and argillites having A-B to A-E Bouma sequences evident,
- d) orange dolomite sequence - approximately 180 metres thick consisting of varicoloured buff weathering dolomitic siltstones, argillites and impure sandstones underlying bright orange-buff weathering silty and sandy crystalline dolomites with abundant cryptalgal and stromatolitic laminations and intercalated chert.
- e) white markers conformably overlie the orange dolomite and are up to 70 metres thick. The white markers consist of cream, buff and silver-grey dolomites with purple, green and buff dolomitic mudstones and local interbeds of pure white magnesite up to 1 metre thick,
- f) purple sequence - gradationally overlies the white markers, consisting of purple weathering dolomitic sandstones and siltstones which grade upward into purple weathering argillite. Mudchip breccias and monomict pebble conglomerates are interbedded with siltstones and argillites and the sequence is overlain by a pebble to boulder conglomerate with a purple weathering sandy argillitic matrix in sharp contact with the purple shales. The pebble to boulder conglomerate is interpreted as the locus of an intraformational unconformity with a thickness between 2 and 10 metres thick,

- g) upper middle dolomite - approximately 80 metres thick and similar to the lower main dolomite. It is distinguished by abundant algal allochems which are typically replaced by black chert,
- h) upper quartzite - a distinctive cliff-forming unit consisting of white quartzites more than 260 metres thick (equivalent to the upper Mount Nelson Quartzite (Atkinson 1975)). The upper quartzite consists of well sorted medium- to coarse-grained, essentially pure arenites. They are distinguished from the lower quartzite on the basis of massive bedding and poorly preserved sedimentary structures.
- i) upper dolomite - the uppermost unit in the Belt-Purcell exposed below the Windermere unconformity. The upper dolomite is gradational with the underlying quartzite over 10 metres consisting of interbedded purple argillite, quartzite and dolomite. The upper dolomite is comprised of pale to dark grey dolomite interbedded with quartz and dolomite pebble conglomerates with dolomitic quartz sands.

Windermere Supergroup

The Windermere Supergroup varies in thickness in the Toby Creek area, from 80 metres to over 3 kilometres and is in sharp contact with the underlying Belt-Purcell Supergroup across an unconformity with considerable topography, interpreted as a result of a local basement high, the "Windermere High" (Reesor 1973). The Windermere Supergroup was deposited above this unconformity and consists of a basal conglomeratic unit, the Toby Formation, and the overlying argillite and pebble conglomerate dominated Horsethief Creek Formation.

The Toby Formation is the basal unit of the Windermere Supergroup and overlies different levels of the Belt-Purcell stratigraphy in the separate fault panels, interpreted to indicate active faulting during sedimentation (Pope 1990). Four distinct facies have been identified in the Toby Creek area but their stratigraphic position relative to one another is uncertain due to rapid lateral facies changes.

The Toby Formation consists of:

- a) a basal boulder breccia lithofacies consisting of monomict clast-supported boulder breccias.
- b) a diamictite lithofacies - the most commonly developed facies consisting of rounded quartzite and subangular dolomite boulders (derived from the immediately underlying Mount Nelson Formation) in a sandy argillite matrix.
- c) a sparse clast diamictite lithofacies consisting of graded fine- to coarse-grained, poorly sorted arenites and argillites with a minor component of rounded quartzite pebbles or cobbles.

- d) a siltstone-argillite lithofacies which comprises the bulk of, and is the dominant lithology in, the upper portion of the Toby Formation, consisting of well-sorted and graded fine quartz arenites and argillites which typically exhibit complete Bouma sequences.

The Toby volcanics are the oldest igneous rocks identified in the Toby Creek area and are believed to be altered submarine basalts related to regional Hadrynian extension. The flows are holocrystalline and glomeroporphyritic basaltic andesites, having plagioclase phenocrysts in a fine-grained plagioclase groundmass.

Green metadiabase dykes have also been identified and have been interpreted as the metamorphic equivalent to the Toby volcanics. They are the most common igneous rocks and are always intruded at a high angle to bedding. They are typically altered, consisting of anhedral masses of chlorite, anhedral to euhedral carbonate and sericite and skeletal opaques. Chlorite pseudomorphs after pyroxene and amphibole have been identified. Bulk mineralogical proportions indicate these dykes were most probably originally basaltic in composition and have been subsequently hydrated.

The Toby Formation is gradational into the overlying Horsethief Creek Formation, in which five lithofacies have been identified. These lithofacies define a rudimentary stratigraphy of facies within the Horsethief Creek Formation as individual lithological units are inconsistent due to rapid lateral thickness and facies variations.

The lithofacies identified in the Horsethief Creek Formation are as follows:

- a) siltstone-argillite - dominant in the lower half of the Horsethief Creek Formation and separate the remaining lithofacies throughout the formation. This lithofacies consists of thick sequences of thin bedded, graded siltstone and argillite and finely laminated black, green and grey argillite.
- b) black carbonate - an easily traced marker used to identify and map the base of the Horsethief Creek Formation consisting of thin bedded, dark grey to black limestone with variable quartz sand and silt in a calcitic matrix and thin calcareous quartz-arenite beds.
- c) dolomite - buff weathering dolomite, up to 30 metres thick, dolomite pebble-conglomerate beds and dolomite supported quartzite occur throughout the Horsethief Creek Formation.
- d) quartz feldspar arenites and pebble conglomerates - consist of pebble conglomerates comprised of grain-supported crystalline quartz and quartz feldspar grains with variable red jasper, green to grey argillite, quartzite and dolomite clasts in a quartz, feldspar, carbonate, sericite and chlorite matrix. Clasts are generally 1 to 2 centimetres in diameter but may exceed 10 centimetres in length. Quartz feldspar

arenite beds are similar to the pebble conglomerates but have a greater proportion of matrix and are generally poorly sorted.

- e) red and varicoloured argillites - are present at the top of the Horsethief Creek Formation and consist of variably coloured argillites with interbedded pink carbonate, and varicoloured impure arenites.

Lower Paleozoic

The Paleozoic succession is comprised of the Lower Cambrian Cranbrook Formation, Middle Cambrian Jubilee Formation, Ordovician-Silurian Beaverfoot Formation, Middle Devonian Mount Forster Formation and the Upper Devonian Starbird Formation. The Paleozoic stratigraphy neither hosts nor have Paleozoic clasts been identified in kimberlitic dykes and therefore will not be described at this point. The reader is referred to Pope (1990), Root (1985, 1983) and Reesor (1973), for a complete description of Paleozoic stratigraphy in the Invermere area of the Purcell Mountains.

Middle Cretaceous

The Horsethief Creek Batholith (see Figure 4) is a quartz monzonite intrusion present north of Horsethief Creek and therefore out of the Toby Creek area. However, granitic apophyses and aplitic dykes are present throughout the Toby Creek area and thermal metamorphism related to the batholith has affected the strata of the area.

Permo-Triassic

Ultrabasic to ultrapotassic dykes have been recently described (Pope and Thirlwall 1992) extending from Stark Creek northward to Law Creek. These intrusive dykes define a broad north-south belt spatially associated with the intersection of the Nelson Creek Fault and the Bruce Creek Synform, possible basement control related to the locus of the Windermere High.

The dykes occur as rusty weathering, variably carbonatized intrusive bodies ranging from 50 centimetres to 10 metres thick. They have narrow chilled margins and show little or no evidence of contact metamorphism with either the host lithologies or xenoliths. This has been interpreted as evidence for rapid intrusion and quick cooling of the dyke material.

The dykes are xenolithic, ranging from approximately 5 percent to more than 50 percent by volume, and include: pyroxenite nodules, abundant Belt-Purcell quartzite and argillite lithologies and quartz-feldspar xenocrysts derived from either Hudsonian basement or Mesozoic-Cretaceous granitoid intrusives.

The occurrences have been subdivided into two suites based on petrology and chemistry (Table 2). Group A are considered to be lamprophyres having kimberlitic affinity whereas Group B dykes are considered to be true kimberlites (Pope and Thirlwall 1992).

Structure

Four major phases of deformation have been identified in the Toby Creek area, Helikian-Devonian extension (D_1), Jurassic-Paleocene contraction (D_2 - D_3) and Eocene extension (D_4).

The first phase of deformation resulted in unconformities at the base of the Dutch Creek and Mount Nelson Formations (D_{1a}) and the unconformity at the base of the Windermere Supergroup (D_{1b}). Thinning of Paleozoic strata onto the Windermere High is interpreted to reflect the effects of D_{1c} deformation together with the development of small fault-bounded sub-basins.

Contraction during the Columbian (D_2) and Laramide (D_3) orogenies resulted in a series of northeast vergent thrust faults and the development of a regional foliation (S_1). Three major thrust sheets are evident in the Toby Creek area with one, the Mount Nelson thrust sheet, comprised of four smaller fault panels. The three major thrust sheets represent out-of-sequence faults, having propagated toward the hinterland, carried in the hanging wall of the Purcell Thrust.

Contraction during D_2 and D_3 produced east-vergent imbricate thrust faults and west vergent backthrusts. Many of these faults were subsequently reactivated during the fourth phase (D_4) of deformation. High angle brittle faults are also a result of D_4 .

LOCAL GEOLOGY

The DELPHINE claim group was staked to acquire title covering reverted Crown granted mineral leases, collectively known as the Hot Punch Group (Figure 4 and 5). The following description has been taken from Pope (1990) and is based upon his compilation of Ministry of Energy, Mines and Petroleum Resources Assessment Reports:

"The Hot Punch mine at the head of Delphine Creek at an elevation of 1800 metres is within the immediate footwall of the Hot Punch fault. Very little outcrop is present at the Hot Punch ... (but it appears to be) hosted by the Hmn 3 (Mount Nelson) orange dolomite and possible the Toby Formation. The ore occurred as a 0.1 to 1 metre wide fissure vein of variable grade in sheared dolomite. A total of approximately 73 tonnes of ore running approximately 1475 grams per tonne silver and 30 per cent lead were shipped. The ore consisted of galena and tetrahedrite, with minor chalcopyrite and sphalerite, in quartz and dolomite"

The documented occurrences in the Delphine Creek valley (Delphine, Hot Punch and Kootenay Queen) are hosted by veins and mineralization in the form of lead, zinc and silver with minor copper and gold occurs as galena, tetrahedrite, sphalerite and chalcopyrite. Three thrust faults and five normal faults have been mapped in the western half of Delphine Creek which have disrupted and fractured the strata in the area. Furthermore, a northwest trending anticlinal hinge has also been mapped which passes between the Delphine / Kootenay Queen and Hot Punch mines. The combination of these structural features with favourable lithologies and an abundance of known mineralization suggests that the Delphine Creek area is highly prospective for additional occurrences.

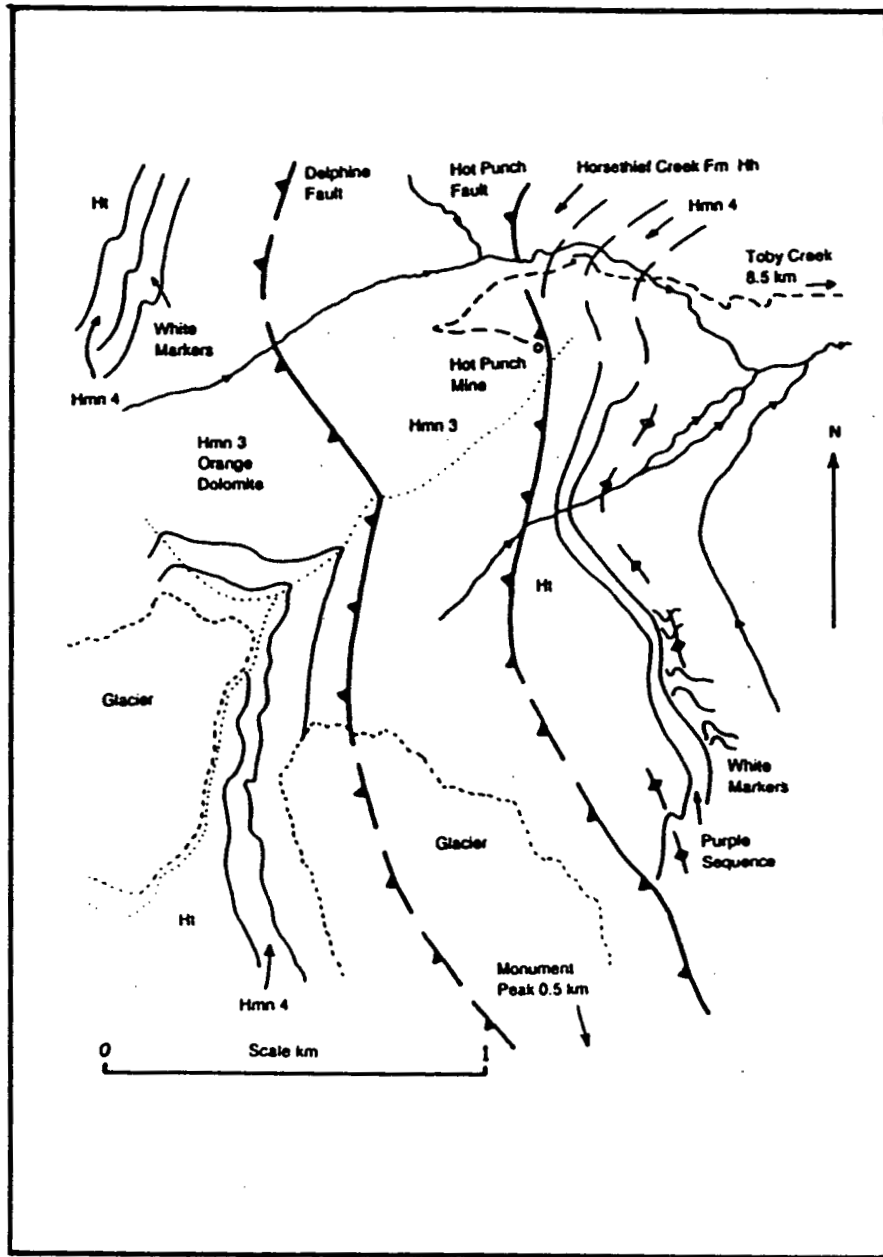


Figure 5 - 1 : 20,000 scale property sketch map for the former Hot Punch mine. Samples HP93 - 1 and HP93 - 2 taken from 20 metres north of adit opening while HP93 - 3 taken from approximately 50 metres to the south, along strike of the vein. (modified from Pope 1990)

RESULTS

Three samples were sent to Eco-Tech Laboratories in Kamloops, B.C. for 30 element ICP analysis. The results are tabulated in Table 1 and Table 2, with the complete results are included as Appendix C. Galena was noted in all samples as well as chalcopyrite with associated malachite and azurite staining. Samples HP93 - 1 and 2 represent analyses of grab samples taken from tailings from the Hot Punch mine. Sample HP 93-3 was taken from the vein approximately 50 metres along strike to the west and had coarse pyrite identified in hand sample.

Table 1 - Partial results from 30 element ICP analysis.

Sample	As	Au	Cu	Pb	Sb	Zn
HP 93-1	3975	>1000	>10000	>10000	6775	4803
HP 93-2	735	930	2336	>10000	2320	>10000
HP 93-2 R	730	—	1926	>10000	1990	>10000
HP 93-3	1965	>1000	3267	7876	2095	848

Table 2 - Tabulation of quantitative assays for Delphine samples.

Sample	Au (g/t)	Au (oz/t)	Ag (g/t)	Ag (oz/t)	Pb (%)	Zn (%)
HP 93-1	1.79	0.052	1970.0	57.45	14.72	1.04
HP 93-2	—	—	1052.0	30.68	33.20	8.42
HP 93-3	4.02	0.117	502.6	14.66	1.13	—

From the above tabulation, it is apparent that highly anomalous values have been returned from the samples submitted for analyses. Anomalous values were reported in the past from the Hot Punch mine and are substantiated by quantitative analyses commissioned by Gemquest Geological on behalf of Gwen Resources Ltd. In addition, anomalous, potentially economic grade values for gold have been returned from these samples. As can be seen from the complete tabulation of data in Appendix C, the presence of gold is consistent with elevated levels of the pathfinders Ag, As, Sb and Bi (particularly HP93-3).

CONCLUSIONS AND RECOMMENDATIONS

As anomalous, potentially economic grade results have been returned from samples taken from mine tailings and from the vein itself, it is recommended that additional work be performed to further evaluate the mineral and economic potential of the property. Additional samples should be taken from the mine tailings in an attempt to determine an approximate minimum grade for the former mine and if such a grade is consistent with reported grades. The vein should be located and mapped for its full extent. Sampling should be carried out along the length of the vein to determine its variability and grade. Additional mapping should be carried out within and adjacent to the property to locate and identify any other, potentially economic occurrences of mineralization.

In the event of subsequent potentially economic ore grade samples within the vein (or elsewhere on the property), the vein should be trenched and / or blasted to recover a larger bulk sample for quantitative analysis. Furthermore, either in conjunction with trenching / blasting or as a subsequent phase, drilling is recommended to further evaluate the economic potential of the property by determining the extent and grade of the vein with depth.

Finally, upon receipt of encouraging results from any phase of the program, other reported occurrences in the area should be similarly evaluated for economic potential. Additional properties are available (subject to verification at the Mining Records Office) and can be acquired by staking for subsequent evaluation.

PROPOSED BUDGET

Pre-Field	\$ 5,000.00
Field Program	
Diamond Drilling	\$20,000.00
Cat (Road Rehabilitation)	\$10,000.00
Personnel	\$20,000.00
Analytical	\$ 3,000.00
Camp Costs	\$ 2,000.00
Food / Grocery	\$ 4,000.00
Truck / Equipment Rentals	\$ 1,000.00
Fuel	\$ 1,000.00
Transportation	\$ 2,000.00
Supplies	\$ 1,000.00
Miscellaneous	\$ 1,000.00
	<hr/>
	\$70,000.00
Contingency on Field Program (10%)	\$ 7,000.00
Post-Field	\$ 5,000.00
	<hr/>
TOTAL:	\$82,000.00

REFERENCES

- Atkinson, S.J. 1975. Surface Geology of the Paradise Basin in Geology in British Columbia, B.C. Ministry of Energy, Mines and Petroleum Resources, pp. 7-12.
- Pope, A.J. and Thirlwall, M.F. 1992. Tectonic setting, age, and regional correlation of ultrabasic - ultrapotassic dykes in the northern Purcell Mountains, southeast British Columbia, in Canadian Journal of Earth Sciences, vol. 28, pp. 523-530.
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- Reesor, J.E. 1973. Geology of the Lardeau Map-Area, East-Half, British Columbia, Geological Survey of Canada, Memoir 369.
- Root, K.G. 1985. Reinterpretation of the age of a succession of Paleozoic strata, Delphine Creek, southeastern British Columbia, in Geological Survey of Canada, Current Research, Part A, Paper 85-1A, pp. 727-730.
- . 1983. Upper Proterozoic and Paleozoic stratigraphy, Delphine Creek area, southeastern British Columbia; Implications for the Purcell Arch, in Geological Survey of Canada, Current Research, Part B, Paper 83-1B, pp. 377-380.

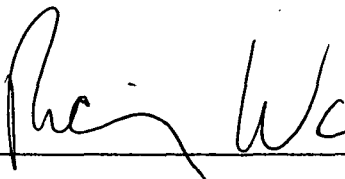
Appendix A
Statement of Qualifications

STATEMENT OF QUALIFICATIONS

I, Richard T. Walker, of 1916 - 5th Street South, Cranbrook, BC, hereby certify that:

- 1) I am a graduate of the University of Calgary of Calgary, Alberta, having obtained a Bachelors of Science in 1986.
- 2) I obtained a Masters of Geology at the University of Calgary of Calgary, Alberta in 1989.
- 3) I am a member in good standing with the Association of Professional Engineers, Geologists and Geophysicists of Alberta.
- 4) I am a member of good standing with the Association of Professional Engineers and Geoscientists of the Province of British Columbia.
- 5) I am a consulting geologist and Principal with the firm of Gemquest Geological with offices at 1916-5th St. S., Cranbrook, British Columbia.
- 6) I am the author of this report which is based on work I personally performed on the property between June 30th, 1993, and June 24th, 1994.
- 7) I was personally involved in the acquisition of the claims described herein.
- 8) I hold at present 131,500 common shares of Gwen Resources Ltd..

Dated at Cranbrook, British Columbia this 20th day of September, 1994.


Richard T. Walker, P. Geo.



Appendix C
Analytical Results

ECO-TECH LABORATORIES LTD.
 10041 EAST TRANS CANADA HWY.
 KAMLOOPS, B.C. V2C 2J3
 PHONE - 604-573-5700
 FAX - 604-573-4557

JULY 30, 1993

GEMQUEST GEOLOGICAL ETK 93-201
 1916-5th STREET SOUTH
 CRANBROOK, B.C.
 V1C 1K4

ATTENTION: RICK WALKER

18 ROCK SAMPLES RECEIVED JULY 15, 1993

VALUES IN PPM UNLESS OTHERWISE REPORTED

BT#	DESCRIPTION	AG	AL(%)	AS	B	BA	BI	CA(%)	CD	CO	CR	CU	FE(%)	K(%)	LA	MG(%)	MN	MO	NA(%)	NI	P	PB	SB	SN	SR	TI(%)	U	V	W	Y	ZN
5	- HP 93-2	>30	.03	735	<2	60	<5	.05	469	1	47	2336	4.85	<.01	<10	.03	>10000	<1	<.01	4	30	>10000	2320	60	<1	<.01	10	<1	<10	<1	>10000
6	- HP 93-3	>30	.01	1965	<2	85	50	.05	4	13	28	3267	>15	<.01	<10	.19	>10000	<1	<.01	2	<10	7876	2095	60	3	.01	100	<1	<10	<1	848
7	- HPRW 93-1	>30	.01	3975	<2	85	<5	.16	83	7	13	>10000	>15	<.01	<10	1.73	>10000	<1	<.01	9	<10	>10000	6775	<20	8	<.01	140	<1	<10	<1	4803

QC DATA:

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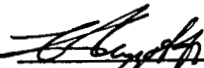
5	- HP 93-2	>30	.02	730	<2	15	<5	.04	395	1	36	1926	3.88	<.01	<10	.02	9187	1	<.01	6	<10	>10000	1990	60	<1	<.01	<10	<1	<10	<1	>10000
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STANDARD 1991 -		1.2	2.04	65	6	150	<5	1.82	<1	21	70	85	3.99	.43	<10	1.06	733	<1	.02	24	670	24	5	<20	75	.13	<10	87	<10	12	73
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NOTE: < = LESS THAN
 > = GREATER THAN

FAX @ 426-8755

SC93/KAMMISC


 ECO-TECH LABORATORIES LTD.
 FRANK J. PEZZOTTI, A.Sc.T.
 B.C. Certified Assayer



ASSAYING
 GEOCHEMISTRY
 ANALYTICAL CHEMISTRY
 ENVIRONMENTAL TESTING

10041 E. Trans Canada Hwy., R.R. #2, Kamloops, B.C. V2C 2J3 Phone (604) 573-5700
 Fax (604) 573-4557

AUGUST 6, 1993

CERTIFICATE OF ANALYSIS ETK 93-201

GEMQUEST GEOLOGICAL
 1916-5th STREET SOUTH
 CRANBROOK, B.C.
 V1C 1K4

ATTENTION: RICK WALKER


SAMPLE IDENTIFICATION: 18 ROCK samples received JULY 15, 1993

ET#	Description	Au (ppb)	Pt (ppb)	Pd (ppb)	Rh (ppb)
1-	[REDACTED]	630	-	-	-
2-	[REDACTED]	70	-	-	-
3-	[REDACTED]	20	-	-	-
4-	[REDACTED]	45	-	-	-
5-	HP 93 - 2	930	-	-	-
6-	HP 93 - 3	>1000	-	-	-
7-	HPRW 93 - 1	>1000	-	-	-
8-	[REDACTED]	25	-	-	-
9-	[REDACTED]	60	-	-	-
10-	[REDACTED]	55	<5	<5	<2
11-	[REDACTED]	10	-	-	-
12-	[REDACTED]	25	-	-	-
13-	[REDACTED]	10	-	-	-
14-	[REDACTED]	15	-	-	-
15-	[REDACTED]	40	-	-	-
16-	[REDACTED]	15	-	-	-
17-	[REDACTED]	10	<5	<5	<2
18-	[REDACTED]	5	-	-	-

NOTE: < = LESS THAN
 > = GREATER THAN

FAX @ 426-8755

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ENVIRONMENTAL TESTING

10041 E. Trans Canada Hwy., R.R. #2, Kamloops, B.C. V2C 2J3 Phone (604) 573-5700
Fax (604) 573-4557

AUGUST 6, 1993

CERTIFICATE OF ASSAY ETK 93-201
=====

GEMQUEST GEOLOGICAL
1916-5th STREET SOUTH
CRANBROOK, B.C.
V1C 1K4

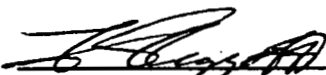
ATTENTION: RICK WALKER

SAMPLE IDENTIFICATION: 18 ROCK samples received JULY 15, 1993

ET#	Description	Au (g/t)	Au (oz/t)	Ag (g/t)	Ag (oz/t)	Pb (%)	Zn (%)
5	HP 93 - 2	-	-	1052.0	30.68	33.20	8.42
6	HP 93 - 3	4.02	.117	502.6	14.66	1.13	-
7	HPRW 93 - 1	1.79	.052	1970.0	57.45	14.72	1.04

FAX @ 426-8755

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B.C. Certified Assayer

Appendix D

Statement of Expenditures

STATEMENT OF EXPENDITURES

The following expenses were incurred on the DELPHINE claim group for the purpose of geological exploration within the period June 30, 1993 to June 24, 1994.

PERSONNEL

R.T. Walker, P.Geo.: 1.0 days at \$400.00 / day	\$ 400.00
T.J. Termuende, P.Geo.: 1.0 days at \$400.00 / day	\$ 400.00

EQUIPMENT RENTAL

4WD Vehicle: 1.0 days at \$50.00 / day	\$ 50.00
Mileage: 322 km at \$0.20 / km	\$ 64.40
Radios (2) 1.0 days at \$10 / day	\$ 20.00

ANALYTICAL

30 element ICP x 3 samples at \$5.50 / sample	\$ 16.50
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FIELD SUPPLY

2.0 man-days at \$20.00 / day	\$ 40.00
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MISCELLANEOUS

Fuel	\$ 40.00
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REPORT / REPRODUCTION

R.T. Walker, P.Geo.: 1.0 days at \$400.00 / day	<u>\$ 400.00</u>
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TOTAL EXPENDITURES**\$1,430.90**