Assessment Report for the

Sul Claim Group

Golden Mining Division
N.T.S. 82 K/8W
Latitude 50° 26'N, Longitude 116° 23'W

for

Gwen Resources Ltd.
1595 Griffith Place
Kelowna, BC
V1Z 2T7

Submitted by:

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SUMMARY

The locations of previously unknown kimberlitic lamprophyric and kimberlitic dykes were recently disclosed in a scientific journal (Pope and Thirlwall 1992). At least thirteen separate occurrences were identified in a north-south belt closely associated with the "Windermere High", a local basement high. Independent whole rock and trace element analyses has confirmed the kimberlitic affinity of three of these exposures. The SUL Claim Group was acquired by staking in May, 1992 and consists of 6 2-post claim units which overlie at least one ultrapotassic occurrence. It has been tentatively assigned to Group A (kimberlitic lamprophyre) dykes on the basis of SiO_2, Al_2O_3 and TiO_2 content, mineralogy and texture.

Alkaline intrusive diatremes, dykes and sills have been examined and documented in the southern Rocky Mountain alkaline belt of British Columbia, extending from Fernie to northeast of Golden. Documented lithologies include olivine melilites, alkaline to basaltic lamprophyres, kimberlites and diamond-bearing lamproites. The Cross kimberlite is a Permo-Triassic intrusive breccia located north of Elkford on the southeastern edge of a broadly defined north-trending belt of alkaline diatremes. The Joff Pipe is located on the western edge of this same belt east of Invermere and is considered to be either a kimberlite (Nassichuk et al. 1989) or an olivine melilite (Pell 1987). The northern portion of this belt is located in the area west of the Columbia Icefields and consists of diamond-bearing lamproites (Nassichuk et al. 1989). Of particular significance regarding this program is the presence of diamond-bearing lamproites in a mobile belt.

The objective of the 1993 program was to identify potential diamond-bearing properties in the Purcell Mountains and secure the ground by staking in order that a more in-depth examination may be carried out in the future. A cursory geological examination was made of the property, with some geological mapping, prospecting, and sampling carried out. Sampling included one 50kg sample of diatreme material for heavy mineral separation and several thin sections for description and lithological identification.

INTRODUCTION

The SUL claim group was staked on the basis of a recent scientific paper describing occurrences of kimberlite and kimberlitic lamprophyre dykes in an entirely new location. Pope and Thirlwall (1992) document thirteen occurrences with whole rock and trace element data for 9 of these localities. The described occurrences are comprised of ultrapotassic, silica-deficient, phlogopite-apatite ultrabasic dykes that compare favourably with world-wide kimberlitic data (Dawson 1980).

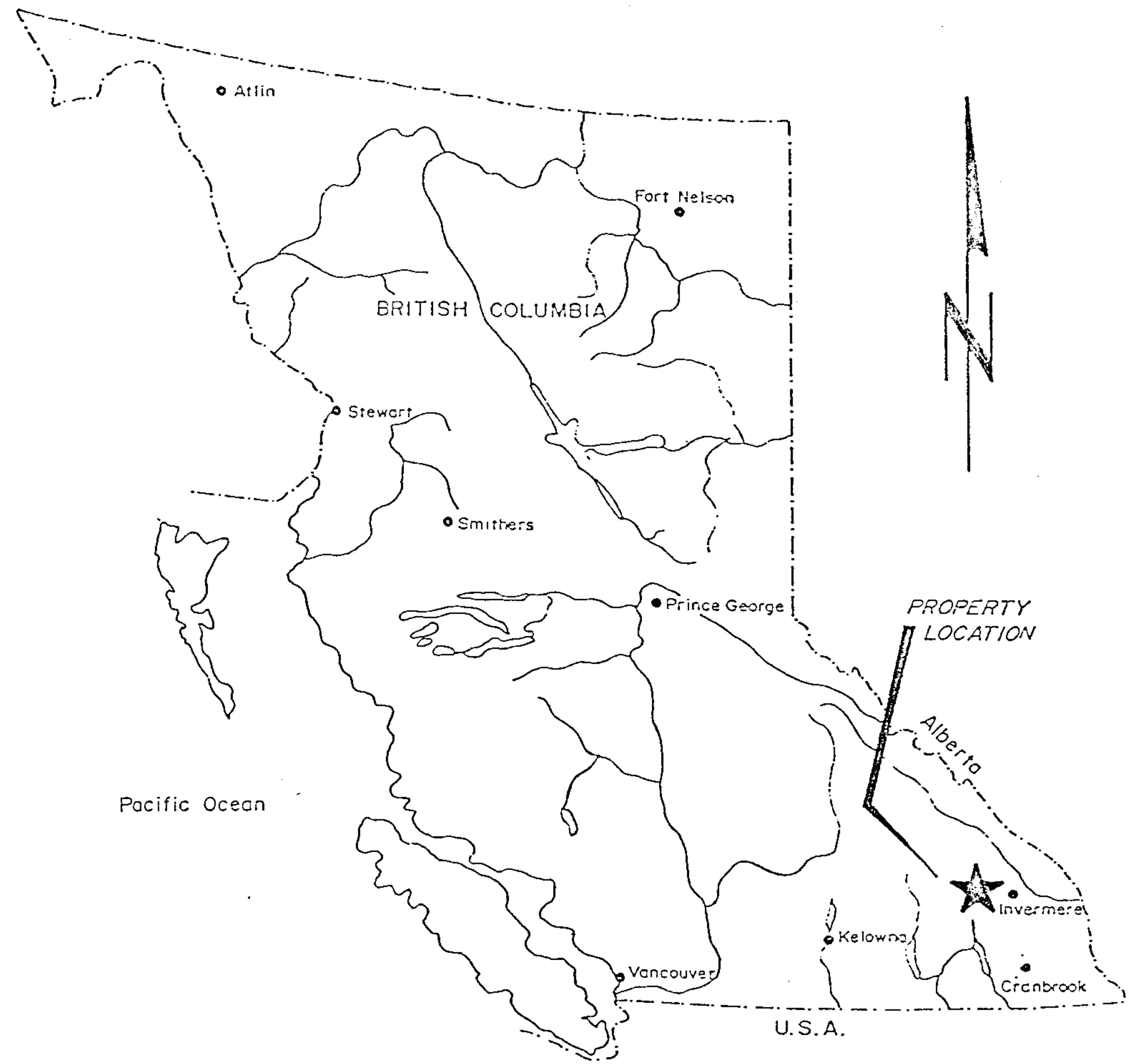
The dykes are distinct from other igneous lithologies in the area which include the Toby volcanics (altered submarine basalts), metadiabase dykes (interpreted to be coeval with Toby volcanics) and the Horsethief Creek quartz monzonite batholith. Sedimentary strata in the area consist of Proterozoic to Lower Paleozoic clastics and carbonates deposited on attenuated basement of the North American miogeocline. Recent mapping (Reesor 1973, Root 1983, Pope 1990) has identified a local basement high, the "Windermere" High", consisting of an inverted, dismembered high standing block of terraced basement which may have controlled emplacement of the ultrapotassic dykes (Pope and Thirlwall 1992).

The ultrapotassic dykes are kimberlitic in composition or of kimberlitic affinity. They have compositions that plot in rift associated and/or active orogen fields of ultrapotassic, major element discrimination diagrams (Pope and Thirlwall 1992). They are coeval with the Cross kimberlite in the southern Rocky Mountains and may be spatially and temporally related to diamond-bearing ultrapotassic lamproites northeast of Golden, B.C.

Dykes in the Toby - Horsethief Creek area (see Figure 1) represent a newly discovered series of ultrapotassic occurrences in an area previously thought devoid of such intrusives. They are exciting in terms of their kimberlitic composition or affinity and possible relationship with diamond-bearing lamproites in the southern Rocky Mountains.

Diamond Exploration Potential

Ultrapotassic/ultrabasic intrusive bodies have recently been identified and described in the Purcell Mountains west of Invermere, B.C. (see Figure 3). All of the occurrences are presently interpreted to be dykes (Pope and Thirlwall 1992) although the Law Creek occurrence (C12 claim group) may prove to be an elongated pipe. These intrusive bodies intrude host strata at high angles, contain abundant carbonate as a primary and/or replacement phase, have narrow chilled margins against host lithologies and show little or no assimilation of xenoliths (when present). Furthermore, they are reported to contain a minor component of ultramafic inclusions (pyroxenite nodules), foreign to host lithologies exposed in the surrounding area (Pope and Thirlwall 1992). These features are common for reported kimberlite intrusions around the world (Dawson 1980).



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SUL CLAIM GROUP

Location Map

Gemquest Geological		NTS: 82K/8W
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These occurrences have silica deficient compositions, are potassium enriched, and have high MgO and TiO_2 content (see Table 1). Mineralogically, they contain olivine (partially to completely altered to calcite or serpentine), euhedral to subhedral phlogopite phenocrysts, ilmenite and apatite. The mineralogy and composition (see Table 2) of these dykes compares favourably with kimberlites. Ubiquitous phlogopite as both a matrix and phenocryst phase in some occurrences described in the Toby - Horsethief Creek area is analogous to micaceous (Group II) kimberlites of South Africa.

They have been dated at 245 $\pm$ 2.4 Ma and are therefore coeval with the Cross kimberlite in the southern Rocky Mountains (241 $\pm$ 5 Ma and 249 $\pm$ 12 Ma, Smith et al. 1988; 244 Ma, Grieve 1982). The Cross kimberlite is near the southern end of a belt of alkaline diatremes documented in the Rocky Mountains (Pell 1986, Ijewliw 1986, Helmstaedt et al. 1987, Ijewliw and Schulze 1988, Nassichuk et al. 1989). This belt is approximately 40 kilometres wide and extends from Fernie, B.C. to the Bush Arm of McNaughton Lake (Reservoir), north of Golden, B.C. Alkaline lithologies described in the literature include alkaline to basaltic lamprophyres, olivine melilite, kimberlite and lamproite (Pell 1985, 1986, 1987; Ijewliw 1986; Ijewliw and Schulz 1988; Nassichuk et al. 1989).

Diatremes, dykes and sills of lamproitic composition have been described at the northern end of this belt, west of the Columbia Icefields and northeast of Golden, B.C. (Ijewliw and Schulze 1988). Several diamonds have reportedly been recovered from these lamproitic occurrences (JACK claims, 1 microdiamond and 1 macrodiamond recovered; MARK claims, 1 microdiamond recovered; Nassichuk et al. 1989) although not in economic quantities. However, diamonds have been recovered from ultrapotassic occurrences in the southern Rocky Mountains, **a mobile belt.**

The presence of dykes (and possible pipes) having kimberlitic composition in a previously unknown location together with documented diamond-bearing ultrapotassic intrusive bodies farther north is sufficient to warrant further exploration in the Toby - Horsethief Creek area to:

1) determine the diamond potential of these occurrences using an integrated exploration program including:
    a) soil sample geochemistry,
    b) whole rock geochemistry,
    c) heavy mineral and xenolith inclusion suites, and
    d) identification of kimberlitic indicator mineral suites.

2) identify additional occurrences of kimberlitic dykes through mapping, prospecting and remote sensing, and

3) determine the possible presence and location of hidden diatremes in subsurface or under cover using geophysics.

LOCATION AND ACCESS

The SUL claim group is located in the Purcell Mountains (latitude 50° 26'N, longitude 116° 23'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 6 2-post claim units located over and adjacent to Sultana Creek, a south flowing tributary of Delphine Creek.

The claim group can be accessed by rough 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 3 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.

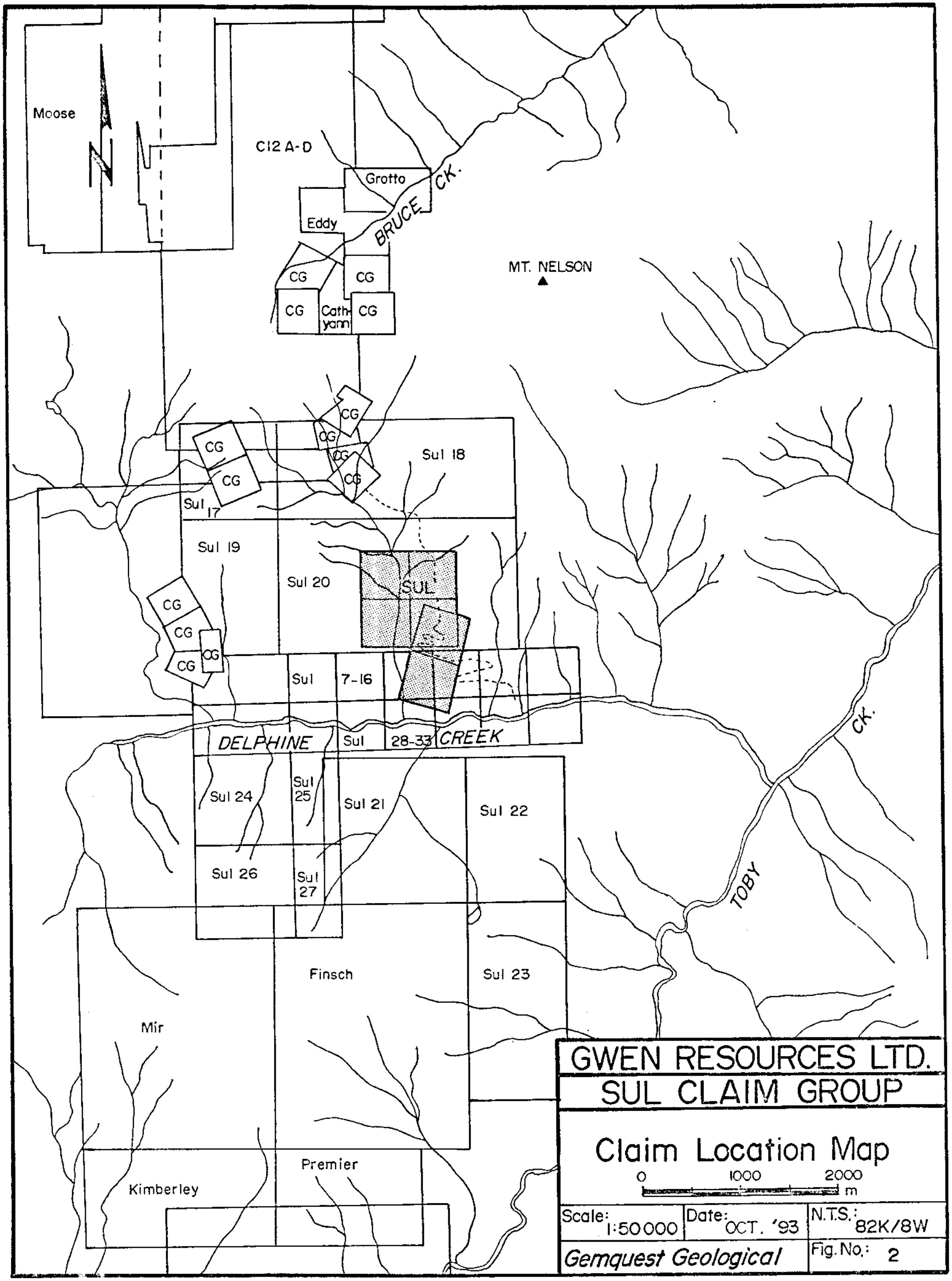
CLAIM STATUS

The property consists of 6 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*
SUL 1	1	311872	July 16, 1992	July 16, 1995
SUL 2	1	311873	July 16, 1992	July 16, 1995
SUL 3	1	311874	July 16, 1992	July 16, 1995
SUL 4	1	311875	July 16, 1992	July 16, 1995
SUL 5	1	311876	July 16, 1992	July 16, 1995
SUL 6	1	311877	July 16, 1992	July 16, 1995
Total:	6			

Copies of claim application forms are provided in Appendix B.

*After 1993 assessment credit applied.


Moose
C12 A-D
Grotto
Eddy
BRUCE CK.
CG
CG
CG
Cath-yann
CG
MT. NELSON
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7-16
DELPHINE
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28-33
CREEK
CK.
Sul 24
Sul 25
Sul 21
Sul 22
Sul 26
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TOBY
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Sul 23
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Claim Location Map
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Fig. No.: 2

PHYSIOGRAPHY AND CLIMATE

The SUL claim group is located within and adjacent to Sultana Creek. Relief in the area varies from 1433 metres (4700 feet) along Delphine Creek to more than 3307 metres (10,850 feet) on Mt. Nelson.

The claims are moderately well exposed along Sultana Creek and generally poorly exposed 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 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. These occurrences vary in size from small showings up to the 1.2 million tonne Mineral King deposit just north of Toby Creek and west of Jumbo Creek. Other mineral deposits include (from south to north): Silver Spray, Mineral King, Kootenay Queen, Hot Punch, Delphine, Nip and Tuck, Silver Queen, Ptarmigan and the Iron King. The majority of the mineral occurrences are fault and/or vein type deposits.

These mineral occurrences are coincident with a north-south belt of lamprophyric to kimberlitic dykes interpreted to be closely associated with the locus of the "Windermere High". Mineral deposits proximal to known dyke occurrences are briefly described below.

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 (Pope 1990).

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 (Pope 1990).

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 within the Mount Nelson Formation (white marker member), immediately below the interpreted position of the Windermere Unconformity. The orebody 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.

Silver Queen Mine

The Silver Queen mine is present at the base of a cliff on the west side of Mt. Slade at an elevation of 2900 metres. The mine consists of a system of small veins situated in the lower main dolomite of the Hadrynian Mount Nelson Formation and is associated with a green metadiabase dyke. The main workings were within a 20 centimetre wide vein hosting galena and sphalerite with minor chalcopyrite having a reported production of less than

100 tons with a grade of 2.35 kilograms per tonne silver and 59 percent lead.

Silver Spray Mine

The Silver Spray Mine is situated on the west side of Coppercrown Creek at an elevation of 2290 metres and is part of a group of claims which includes the Lady Bing, Gracie Fraction, Betsy and IOU properties. The workings are contained in the dolomite dominated upper portion of the Lower Gateway Formation immediately below the unconformably overlying Dutch Creek Formation. Up to 50 tons of ore were recovered consisting of galena, tetrahedrite and cerussite with minor sphalerite and copper carbonates in vertical and bedding parallel fractures.

Pretty Girl Group

The Pretty Girl Group is situated on the ridge crest between Law and Bruce Creeks at an elevation of 2720 metres (8925 feet). Stratigraphically the Pretty Girl Group is located within argillites of the Horsethief Creek Formation. The mineralization is reported to consist of tetrahedrite and chalcopyrite in a discontinuous quartz vein with less than 50 tons recovered at grades up to 188 grams per tonne silver and 27 per cent copper.

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

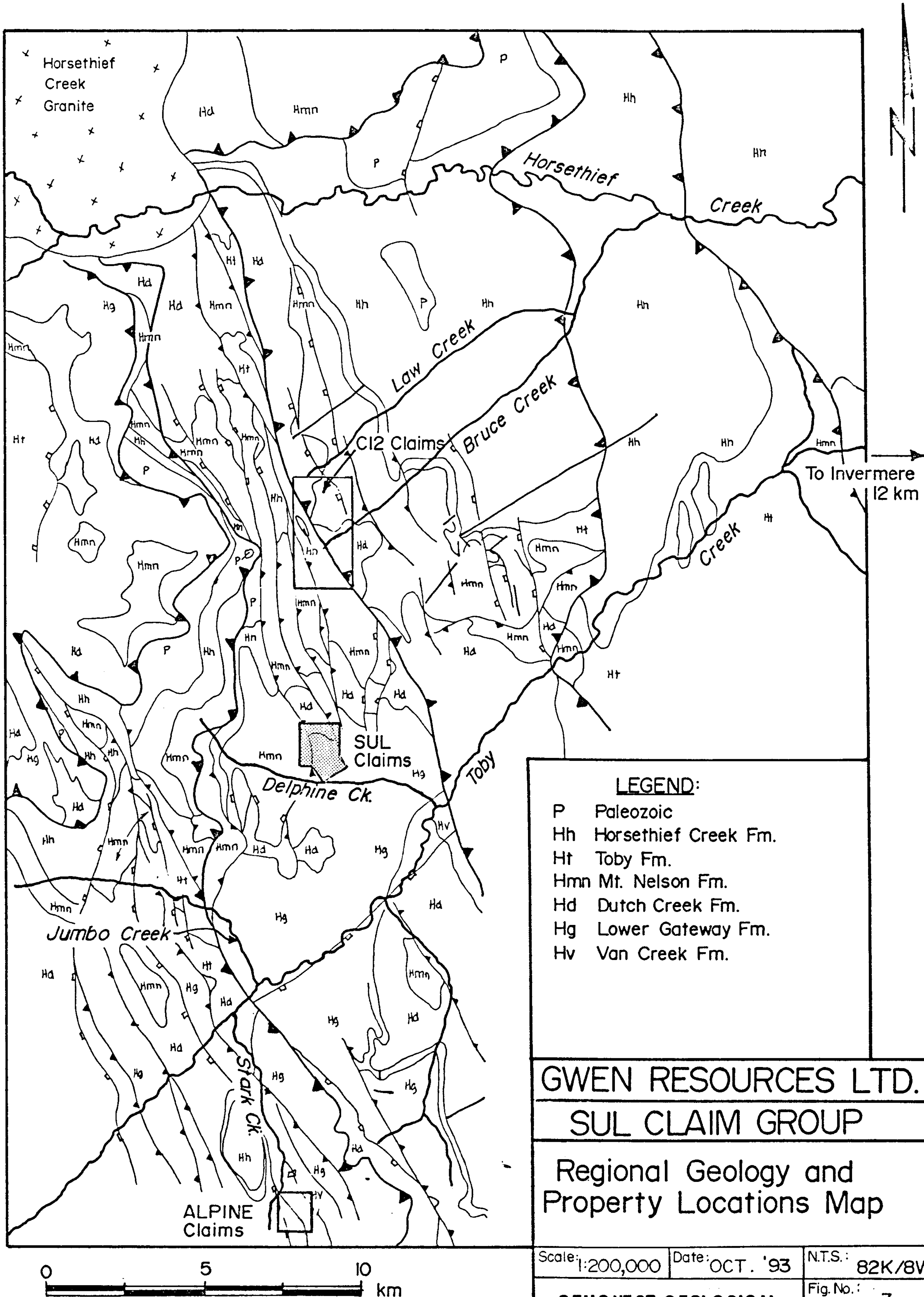
Belt-Purcell Supergroup

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



LEGEND:

P Paleozoic
Hh Horsethief Creek Fm.
Ht Toby Fm.
Hmn Mt. Nelson Fm.
Hd Dutch Creek Fm.
Hg Lower Gateway Fm.
Hv Van Creek Fm.

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SUL CLAIM GROUP

Regional Geology and Property Locations Map

Scale: 1:200,000	Date: OCT. '93	N.T.S.: 82K/8W
GEMQUEST GEOLOGICAL		Fig. No.: 3

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 the interpreted 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 (1989), 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 3) 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 (see Figure 3). 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).

Group A dykes are typically light green in colour with phlogopite phenocrysts absent to abundant (porphyritic) in a carbonate rich matrix with carbonate-iron oxide pseudomorphs after euhedral olivine. Olivine pseudomorphs are recognized by their crystal outline and relict serpentine fractures. The matrix consists of fine-grained carbonate, opaques and iron-stained, fine-grained laths, possibly an alteration product of mica or feldspar.

Xenoliths are abundant in Group A dykes, typically more than 50 percent xenoliths by volume, and are almost exclusively derived from the underlying Belt-Purcell Supergroup. However, granitic gneiss and ultrabasic xenoliths have also been reported (Pope 1990). Group A dykes correspond to the lamprophyre-kimberlite field (Pope and Thirlwall 1992), transitional between rift and active orogen type volcanics.

Group B dykes are typically dark green in colour. They are porphyritic with phlogopite phenocrysts up to 8 centimetres long and apatite phenocrysts up to 0.5 millimetres in diameter poikilitically enclosed by phlogopite. Phlogopite crystals are also intergrown with calcite, suggesting that calcite may also be primary.

Matrix phases identified include: carbonate, serpentine, chlorite, phlogopite, apatite and opaques. The presence of abundant matrix calcite distinguishes Group B dykes from lamproites (Pope and Thirlwall 1992, after Dawson 1987). The xenolith content of Group B dykes is typically less than 10 percent by volume.

Group B dykes are petrologically similar to kimberlites (Pope and Thirlwall 1992) and are classified as continental rift associated ultrapotassic rocks with kimberlitic affinities. They can be further defined as micaceous kimberlites, due to the high proportion of phlogopite, matrix calcite and apatite (Pope and Thirlwall 1992).

Table 1: Whole rock chemistry for ultrapotassic - ultrapotassic dykes in the Toby - Horsethief Creek area (modified from Pope and Thirlwall 1992). The "A" series analyses are from Group A (kimberlitic lamprophyre) dykes, "B" series analyses are from Group B (true kimberlite) dykes while the last three are independent analyses of material from the Toby - Horsethief Creek area.

	A1	A2	A3	A4	A5	A6	B1	B2	B3	C-12	Alpine	Sultana
SiO_2	41.49	39.89	38.08	40.44	40.16	37.25	34.12	35.45	33.35	43.69	37.68	37.65
Al_2O_3	12.71	11.57	12.00	11.09	12.02	12.77	7.78	6.92	7.81	11.44	5.00	5.04
Fe_2O_3	14.32	12.77	13.10	12.37	14.72	12.61	15.60	16.27	15.93	15.30	9.41	9.30
MgO	11.17	14.65	15.09	14.09	11.15	15.10	14.18	17.58	14.43	5.33	13.24	13.68
CaO	14.11	14.87	15.23	15.85	14.18	13.66	15.74	11.83	14.71	6.95	13.97	13.95
Na_2O	0.05	0.04	0.02	1.23	0.02	0.06	0.00	0.01	0.06	3.06	0.02	0.01
K_2O	2.67	1.60	1.73	0.54	2.38	4.07	5.33	4.99	5.56	0.06	2.14	1.85
TiO_2	3.31	2.80	2.97	2.54	3.15	3.11	2.64	2.68	2.68	2.58	0.98	0.98
P_2O_5	0.74	0.71	0.72	0.68	0.72	0.66	1.81	2.09	1.97	0.27	0.31	0.33
MnO	0.20	0.20	0.21	0.22	0.20	0.21	0.33	0.22	0.29	0.22	0.17	0.17
LOI	19.87	20.19	20.89	21.60	19.03	18.84	18.83	19.26	17.36	11.10	16.99	16.99
Total	100.80	99.10	99.14	99.07	98.65	99.49	97.51	98.04	96.99	100.00	99.91	99.85
K_2O/Na_2O	53.4	40	86.5	0.43	119	67	499	93	0.02	107	185	2.6
Ni	263	335	362	306	217	326	507	631	478	32	131	110
Cr	689	808	857	917	669	489	650	698	591	59	627	111
V	366	323	334	328	351	304	258	285	265	268	152	43
Sr	654	928	992	564	646	342	531	544	514	143	381	129
Rb	88	52	55	27	76	131	340	348	356	---	---	---
Ba	309	238	280	116	262	601	511	623	588	50	60	270
Zr	213	186	200	170	206	173	230	228	235	---	---	---
Nb	110	104	127	127	107	113	67	69	73	---	---	---
Y	30	27	29	27	29	26	21	19	23	6	15	6
La	62	54	58	62	59	63	37	39	38	10	10	20
Ce	119	106	110	111	115	108	77	78	75	---	---	---
Nd	50	45	46	44	49	42	35	34	33			

Structure

Four major phases of deformation have been identified in the Toby Creek area, Helikian-Devonian extension (D1), Jurassic-Paleocene contraction (D2-D3) and Eocene extension (D4).

The first phase of deformation resulted in unconformities at the base of the Dutch Creek and Mount Nelson Formations (D1a) and the unconformity at the base of the Windermere Supergroup (D1b). Thinning of Paleozoic strata onto the Windermere High is interpreted to reflect the effects of D1c deformation together with the development of small fault-bounded sub-basins.

Contraction during the Columbian (D2) and Laramide (D3) orogenies resulted in a series of northeast vergent thrust faults and the development of a regional foliation (S1). 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 D2 and D3 produced east-vergent imbricate thrust faults and west vergent backthrusts. Many of these faults were subsequently reactivated during the fourth phase (D4) of deformation. High angle brittle faults are also a result of D4.

LOCAL GEOLOGY

The SUL claim group contains two known ultramafic occurrences, one at approximately 1737 metres (5700 feet) in the Sultana Creek drainage and the other along a trail at approximately 1722 metres (5650 feet), south of Sultana Creek. The occurrence within Sultana Creek is in situ outcrop while the occurrence along the trail may be proximal float. One day was spent by the authors sampling and mapping along Sultana Creek and so the nature of the exposure along the trail is currently unresolved.

The occurrence along Sultana Creek is present on the southern bank and is exposed through glacio-fulvial cover. The outcrop extends approximately 10 metres above the level of the creek and approximately 5 meters along the creek. It is a medium green weathering rock with light to medium orange weathering interstitial carbonate. Phlogopite phenocrysts are present up to 0.75 cm in long dimension and imparts a porphyritic texture to the exposure. The phlogopite has a greenish colour and is interpreted to be partially altered to chlorite. The abundance and nature of the carbonate suggests that much of it is primary but additional secondary carbonate has been developed through alteration of primary olivine. Primary olivine is recognizable, in thin section, by relict crystal shape (outlined by opaques) and characteristic serpentine fractures.

The occurrence is located at or near the locus of three thrust faults and has intruded host lithologies of the Hadrynian Dutch Creek Formation (Pope 1990). Geological mapping by the authors is not sufficient at this time to determine the timing of intrusion relative to the thrust faults however it is interpreted to pre-date thrusting as it has been foliated. In addition, the nearby Toby Creek occurrence has been dated at 245 $\pm$ 2.4 Ma and therefore, as the intrusives are almost certainly coeval, was intruded during the earliest stages of the Columbian Orogeny.

1992-93 PROGRAM

A total of two man-days were spent on the property by the authors, in an attempt to determine the economic potential of the property. On June 10th, 1992, the authors hiked in to the property and collected a 50kg sample of the Sultana Creek diatreme material, as well as completed limited geologic mapping of the surrounding area (1:10,000 scale).

A total of 3 hand samples were taken from the property area, and were representative of diatreme lithologies encountered. Two were taken from float in Sultana Creek and the third from the occurrence along the trail at approximately 1722 metres. Thin sections were made of the selected material which was representative of the occurrences. Petrographic examinations and lithological identification were completed by R. Walker, and a single thin section was examined and described by S. Digel at the University of Calgary (see Appendix C).

One 50kg bulk sample was taken from diatreme float in Sultana Creek, representing various phases of the diatreme. Furthermore, the 50kg sample was split into two sub-equal portions. One split was kept in Cranbrook for sample duplication and the remainder shipped to Loring Labs in Calgary, where it was crushed to -6 mesh. A representative portion was split from the crushed and homogenized sample and analyzed for whole rock, gold and 47-element ICP at Activation Labs in Ontario (geochemical analyses have not been returned as of this writing and are still pending). The remaining crushed material (18.5 kg) was then placed in an acid bath for 24 hours to remove carbonates, washed, deslimed and further processed through heavy-liquid media.

The heavy liquid separation resulted in two sets of mineral separates: one containing minerals having specific gravities between 2.96 and 3.30 and a second having minerals greater than 3.30 S.G.. The two sets were further separated using a Frantz Isodynamic Magnetic Separator into four fractions: non-magnetic, weakly para-magnetic, para-magnetic and magnetic. The resulting heavy mineral concentrates were examined by R. Walker. Representative indicator minerals were picked under binocular microscope and have been sent away for electron microprobe analysis at the University of Calgary to confirm mineral composition.

Samples analyzed by ICP methods were crushed to -80 mesh and dissolved in aqua-regia solution.

RESULTS

One rock sample taken in October, 1992 from each of Law Creek, Sultana Creek and Stark Creek was sent to Eco-Tech Laboratories in Kamloops, B.C. for whole rock and ICP analysis. The results are tabulated in Table 1 and the complete results are included as Appendix C. A representative split from sample SUL93-2 was sent for geochemical analysis (whole rock and "Gold + 47" elements) but unfortunately no results have been returned.

It can be seen that the whole rock compositions obtained compare favourably with the results documented for the Toby - Horsethief Creek area by Pope and Thirlwall (1992). The results confirm ultrabasic (<45 wt.% SiO_2), potassium-enriched compositions having high K_2O/Na_2O ratios and high Mg values (>3 wt.%). Furthermore, the trace element data (see Table 2) is generally comparable to kimberlitic values established from worldwide occurrences as compared to the range for average ultramafic compositions. Deviation from kimberlitic compositions is expected as the samples submitted for geochemical analysis were not free of contamination by host lithologies. Xenoliths of host lithologies are present and include both carbonate- and silica-rich compositions (eg. Upper Gateway Formation and Mount Nelson Formation). Therefore, a characteristic kimberlitic composition will be diluted by inclusion of sedimentary inclusions (xenoliths). Such dilution is interpreted to be evident in the independent analyses from samples taken in October, 1992 (Columns C-E in Table 2) whereas samples taken by Pope and Thirlwall (1992) from the same occurrences have values more comparable to world-wide kimberlite values.

Sample SUL93-2 was a bulk sample taken of diatreme material found in Sultana Creek below the occurrence itself. It was processed at Loring Laboratories as described in "1992-93 Program" above. The weights of the fractions obtained through heavy liquid separation are tabulated below.

		Middlings (g) (2.96-3.3 S.G.)		Heavies (>3.3 S.G.) + 28 Mesh		- 28 Mesh		
Sample ID	Original Weight (kg)	Mag. (g)	Non-Mag. (g)	Magn. (g)	Non-Magn. (g)	Para. (g)	Weakly (g)	Non-Mag. (g)
Sul93-2	18.5	0.19	18.34	0.48	0.78	0.09	0.29	1.23

Initial results have been returned from electron microprobe analysis at the University of Calgary and are tabulated in Table 3 to 5. Clinopyroxenes (Table 3) are subhedral to anhedral, light to medium translucent grass green in colour and are interpreted as diopsides. Microprobe analysis confirms a calcium rich and while chrome-bearing are not the high chrome diopsides considered an indicator mineral. However, Nassichuk et al. (1989) have derived a factor plot for low-chrome diopsides associated with eclogitic diamond inclusions from world-wide occurrences. The clinopyroxene data has not been compared with these data however.

Table 2: Representative trace element content for ultramafic and kimberlitic lithologies. Column A - average ultramafic, B - kimberlite, C - C12 (Law Creek), D - Alpine West, E - Sultana Creek, F - Group A kimberlitic lamprophyres and G - Group B (true kimberlites). Column A and B data from Dawson (1980); F and G from Pope and Thirlwall (1992). All values in ppm.

Element	A	B	C	D	E	F	G
B	7	0-170	2	2	2		
Ba	20	137-1970	50	60	270	116-601	511-623
Ce	1.93	45-522				106-119	75-78
Co	110	35-130	43	35	18		
Cr	3090	550-2900	59	627	111	489-917	591-698
Cu	47	10-300	160	2	68		
La	0.92	26-200	10	10	20	54-63	37-39
Nb	1.3	32-450				104-127	67-73
Nd	1.44	25-180				42-50	33-35
Ni	1450	710-1600	32	131	110	217-362	478-631
Sr	22	40-1900	143	381	129	342-992	514-544
V	50	21-250	268	152	43	304-366	258-285
Y	2.9	4-75	6	15	8	26-30	19-23
Zn	56	15-287	78	23	46		
Zr	16	84-700				170-213	228-235

Table 3 - Electron Microprobe Analyses of clinopyroxenes

Clinopyroxene - Sultana Claim Group

Formula Based on 6 O										Number of ions in formula										End Member Components		
SiO2	TiO2	Al2O3	FeO*	MnO	MgO	CaO	Na2O	Cr2O3	Total	Si	Ti	Al	Fe	Mg	Mn	Ca	Na	Cr	Sum	X Wo	X En	X Fs
52.79	0.17	1.05	7.34	0.16	14.86	22.37	0.48	0.01	99.23	1.97	0.00	0.05	0.23	0.83	0.01	0.90	0.03	0.00	4.02	0.459	0.424	0.117
54.00	0.15	0.63	5.95	0.15	15.99	22.61	0.41	0.03	99.92	1.99	0.00	0.03	0.18	0.88	0.00	0.89	0.03	0.00	4.01	0.457	0.449	0.094
55.58	0.19	0.46	3.61	0.08	17.53	23.27	0.19	0.05	100.96	2.00	0.01	0.02	0.11	0.94	0.00	0.90	0.01	0.00	3.99	0.461	0.483	0.056
53.95	0.16	0.49	7.82	0.23	14.50	21.48	0.92	0.07	99.62	2.01	0.00	0.02	0.24	0.80	0.01	0.86	0.07	0.00	4.01	0.450	0.422	0.128
54.16	0.15	0.78	5.04	0.11	16.86	22.19	0.31	0.06	99.66	1.99	0.00	0.03	0.15	0.92	0.00	0.87	0.02	0.00	4.00	0.448	0.473	0.079
53.18	0.11	0.95	7.34	0.20	15.14	21.68	0.58	0.03	99.21	1.98	0.00	0.04	0.23	0.84	0.01	0.87	0.04	0.00	4.01	0.447	0.435	0.118
54.05	0.17	0.77	4.82	0.10	16.46	23.30	0.23	0.07	99.97	1.98	0.00	0.03	0.15	0.90	0.00	0.92	0.02	0.00	4.00	0.466	0.458	0.075
52.63	0.36	2.30	8.63	0.23	13.10	21.97	0.96	0.00	100.18	1.96	0.01	0.10	0.27	0.73	0.01	0.88	0.07	0.00	4.02	0.468	0.388	0.144
53.88	0.17	0.91	6.99	0.22	14.90	22.37	0.72	0.08	100.24	1.99	0.00	0.04	0.22	0.82	0.01	0.88	0.05	0.00	4.01	0.461	0.427	0.112
51.28	0.00	0.10	22.47	2.54	3.00	23.24	0.01	0.01	102.65	2.01	0.00	0.00	0.74	0.18	0.08	0.98	0.00	0.00	3.99	0.517	0.093	0.390
53.63	0.10	3.54	6.43	0.24	13.25	21.88	1.59	0.13	100.79	1.96	0.00	0.15	0.20	0.72	0.01	0.86	0.11	0.00	4.02	0.483	0.407	0.111
53.65	0.20	4.52	2.53	0.07	16.24	21.03	1.21	1.36	100.81	1.92	0.01	0.19	0.08	0.87	0.00	0.81	0.08	0.04	4.00	0.461	0.496	0.043
55.26	0.18	0.50	3.61	0.07	18.27	22.87	0.24	0.11	101.11	1.99	0.00	0.02	0.11	0.98	0.00	0.88	0.02	0.00	4.00	0.447	0.497	0.055
54.00	0.13	4.13	2.53	0.05	17.02	21.92	0.83	0.89	101.50	1.92	0.00	0.17	0.08	0.90	0.00	0.84	0.06	0.03	4.00	0.461	0.498	0.042

Table 4 - Electron Microprobe Analyses of garnets

Garnets - SUL Claim Group

Formula Based on 24 O

SiO2	TiO2	Al2O3	FeO*	MnO	MgO	CaO	Cr2O3		Number of ions in formula									End-member components			
Molecular Weight of Oxides																					
60.090	79.900	101.940	71.850	70.940	40.320	56.080	152.020	Total	Si	Ti	Al	Fe	Mg	Mn	Ca	Cr	Sum	Alm	Gro	Pyr	Spes
37.060	0.000	21.230	32.830	0.490	4.110	4.210	0.060	99.990	5.920	0.000	3.998	4.386	0.978	0.066	0.721	0.008	16.077	0.713	0.117	0.159	0.011
37.810	0.000	21.040	32.840	0.300	6.780	0.840	0.030	99.640	5.986	0.000	3.927	4.348	1.600	0.040	0.143	0.004	16.048	0.709	0.023	0.261	0.007
37.520	0.000	20.830	32.290	0.350	5.810	2.360	0.000	99.160	5.989	0.000	3.920	4.310	1.382	0.047	0.404	0.000	16.052	0.702	0.066	0.225	0.008
37.790	0.000	21.160	32.690	0.330	5.750	2.350	0.000	100.070	5.978	0.000	3.947	4.325	1.356	0.044	0.398	0.000	16.048	0.706	0.065	0.221	0.007
36.790	0.000	20.420	34.850	0.370	4.350	1.780	0.020	98.580	5.984	0.000	3.915	4.740	1.054	0.051	0.310	0.003	16.057	0.770	0.050	0.171	0.008
38.390	0.000	21.270	30.850	0.290	8.160	1.030	0.050	100.040	5.992	0.000	3.914	4.027	1.898	0.038	0.172	0.006	16.048	0.656	0.028	0.309	0.006
37.460	0.000	20.880	32.530	0.490	6.050	1.760	0.000	99.170	5.979	0.000	3.929	4.342	1.439	0.066	0.301	0.000	16.057	0.706	0.049	0.234	0.011
38.260	0.050	21.410	26.780	0.460	9.770	1.750	0.050	98.530	5.973	0.006	3.940	3.496	2.273	0.061	0.293	0.006	16.048	0.571	0.048	0.371	0.010
38.450	0.020	21.940	28.450	0.220	9.430	0.920	0.070	99.500	5.960	0.002	4.009	3.688	2.178	0.029	0.153	0.009	16.029	0.610	0.025	0.360	0.005
38.190	0.000	21.460	29.550	0.250	8.720	1.050	0.030	99.250	5.975	0.000	3.958	3.866	2.033	0.033	0.176	0.004	16.045	0.633	0.029	0.333	0.005

Table 5 - Electron Microprobe Analyses of opaques

Opaques - SUL Claim Group

Formula Based on 32 O

Mineral Identity	SiO_2	TiO_2	Al_2O_3	FeO*	MnO	MgO	CaO	Cr_2O_3	Total	Si	Ti	Al	Fe	Mg	Mn	Ca	Na	Cr
										Number of ions in formula								
Chromite	0.03	1.24	26.96	21.65	0.20	14.18	0.02	35.42	99.70	0.01	0.23	7.76	4.42	5.16	0.04	0.01	0.00	6.84
Chromite	0.06	1.06	22.26	19.55	0.22	14.49	0.02	41.97	99.63	0.01	0.20	6.51	4.06	5.36	0.05	0.01	0.00	8.23
Chromite	0.04	1.09	24.28	19.19	0.20	14.90	0.02	39.68	99.40	0.01	0.20	7.04	3.95	5.46	0.04	0.01	0.00	7.71
Chromite	0.03	0.81	27.03	18.52	0.22	15.30	0.02	38.16	100.09	0.01	0.15	7.67	3.73	5.50	0.04	0.01	0.00	7.27
Chromite	0.10	1.06	25.34	17.40	0.20	15.82	0.02	40.36	100.30	0.02	0.19	7.20	3.51	5.68	0.04	0.01	0.00	7.69
Chromite	0.14	1.10	25.43	17.23	0.19	15.86	0.02	41.37	101.34	0.03	0.20	7.15	3.44	5.64	0.04	0.01	0.00	7.80
Chromite	0.04	1.02	24.74	17.16	0.23	15.33	0.01	41.22	99.75	0.01	0.19	7.09	3.49	5.56	0.05	0.00	0.00	7.92
Chromite	0.04	0.98	22.40	17.10	0.25	15.25	0.02	43.67	99.71	0.01	0.18	6.49	3.51	5.59	0.05	0.01	0.00	8.48
Chromite	0.05	0.98	23.48	16.88	0.20	15.41	0.01	42.53	99.54	0.01	0.18	6.77	3.45	5.62	0.04	0.00	0.00	8.23
Chromite	0.10	0.90	23.23	16.76	0.20	15.63	0.03	43.15	100.00	0.02	0.16	6.67	3.42	5.68	0.04	0.01	0.00	8.31
Chromite	0.07	1.02	24.29	16.73	0.23	15.86	0.01	42.19	100.40	0.02	0.19	6.91	3.38	5.71	0.05	0.00	0.00	8.06
Chromite	0.04	0.97	22.95	16.69	0.19	15.70	0.02	43.29	99.85	0.01	0.18	6.61	3.41	5.72	0.04	0.01	0.00	8.36
Chromite	0.07	0.78	24.48	16.59	0.19	15.71	0.02	41.95	99.79	0.02	0.14	7.00	3.37	5.69	0.04	0.01	0.00	8.05
Chromite	0.05	0.84	21.94	16.31	0.21	15.56	0.02	45.29	100.22	0.01	0.15	6.32	3.33	5.67	0.04	0.01	0.00	8.75
Chromite	0.12	0.87	23.90	16.25	0.20	16.07	0.01	42.65	100.07	0.03	0.16	6.82	3.29	5.80	0.04	0.00	0.00	8.17
Chromite	0.08	1.07	24.66	16.25	0.23	16.28	0.02	42.26	100.85	0.02	0.19	6.96	3.26	5.82	0.05	0.01	0.00	8.01
Chromite	0.08	0.82	24.90	16.21	0.22	16.19	0.01	41.25	99.68	0.02	0.15	7.10	3.28	5.84	0.05	0.00	0.00	7.89
Chromite	0.08	0.84	24.51	16.14	0.21	16.23	0.02	40.67	98.70	0.02	0.15	7.06	3.30	5.92	0.04	0.01	0.00	7.86
Chromite	0.10	0.72	24.51	16.10	0.18	15.78	0.02	42.17	99.58	0.02	0.13	7.01	3.27	5.71	0.04	0.01	0.00	8.10
Chromite	0.11	0.74	25.32	15.91	0.17	16.30	0.01	42.20	100.76	0.03	0.13	7.13	3.18	5.81	0.03	0.00	0.00	7.97
Chromite	0.07	0.74	23.92	15.86	0.20	15.59	0.02	43.54	99.94	0.02	0.14	6.84	3.22	5.64	0.04	0.01	0.00	8.35
Chromite	0.12	0.76	25.72	15.72	0.20	16.57	0.02	41.14	100.25	0.03	0.14	7.26	3.15	5.91	0.04	0.01	0.00	7.79
Chromite	0.12	0.81	24.02	15.37	0.22	16.19	0.02	42.31	99.06	0.03	0.15	6.90	3.13	5.88	0.05	0.01	0.00	8.15

Most of the garnets identified in the heavy mineral are light to medium pink in colour and are almost certainly not pyrope rich. However, some medium red garnets are also present and will be sent away for quantitative analysis. Garnets analyzed to date do not have high calcium-high chrome compositions consistent with G10 garnets associated with kimberlites. However, the data has not yet been evaluated relative to eclogitic diamond compositions. The colour of the garnets is not the deep orange associated with eclogitic garnets however. Analysis of the garnet compositions is not yet complete and more need to be submitted for quantitative analysis before any conclusions can be made.

Non-magnetic to weakly paramagnetic opaque compositions (Table 5) document a chromite composition for the majority of the opaques submitted for analysis. However, the chromite content of these samples is approximately 25-20 weight percent lower than chromite compositions associated with diamondiferous lithologies. However these represent preliminary results and more grains need to be picked and submitted for analysis before any conclusions can be reached.

Thin Section Descriptions

Sample BRWT93-14 - The sample consists of several large inclusions (clasts) up to 3 cm in long dimension oriented sub-parallel to parallel to a moderately well defined foliation. The foliation is comprised of sub-parallel to parallel subordinate chlorite in a groundmass consisting of 30-35% opaques, 40-50% fine-grained carbonates minor phlogopite and minor serpentine. The inclusions are rounded to sub-rounded and predominantly comprised of a granoblastic mosaic of carbonate, coarse at the core and finer grained at the rim. A skeletal biotite is present with individual laths separated by coarse granoblastic carbonate. The biotite is yellow-brown to red-brown pleochroic and has golden-yellow to black pleochroic (altered) rims. Portions of the biotite inclusion are corroded.

This sample is interpreted to represent Toby conglomerate.

Sample BRWT93-15 - The sample consists of a highly altered (hydrated), fine-grained, opaque-rich lithology with a poorly developed foliation defined by opaques and fine-grained serpentine. Three thin (<<1 mm thick) carbonate veinlets cross-cut the plane of thin section, consisting of a granoblastic mosaic of carbonate grains. A porphyritic texture is developed, characterized by the presence of completely altered, euhedral to subhedral phenocrysts of pseudomorphed olivine and pyroxene. The phenocrysts have been completely pseudomorphed by serpentine and carbonate. The original identity of the phenocrysts has been surmised based upon relict crystal shape (columnar to lath shaped - pyroxene) and serpentine alteration along fractures (typical of olivine). The phenocrysts have a glomeroporphyritic texture comprised of clusters of 2 - 6 phenocrysts. A hematite-rich rind is present, developed as an irregular alteration front extending for up to 1 cm into the plane of the thin section and is interpreted to represent late stage alteration of the sample.

The sample is interpreted to be an essentially completed hydrated mafic to ultramafic igneous intrusive. Original composition is difficult to surmise due to the extent of alteration, however the presence of pyroxene and olivine and apparent lack of feldspar (no sericite alteration evident), together with the ubiquitous presence of serpentine suggests an ultramafic precursor, consistent with a kimberlitic composition.

CONCLUSIONS AND RECOMMENDATIONS

Dykes of kimberlitic affinity are known to occur in a north-south belt (Pope and Thirlwall 1992), within which the SUL claim group lies (see Figure 3). "(The) common petrogenesis and extensional, fault-controlled structural setting, coupled with essentially identical ages of emplacement, lead us to postulate that the Toby - Horsethief Creek dykes and the Cross kimberlite evolved in parallel, during a single phase of continental extension" (Pope and Thirlwall 1992).

Due to the backlog caused by intense diamond exploration in Canada this season, geochemical analysis (whole rock and "gold+47" element analysis) of the bulk sample sent in early July to Loring Laboratories in Calgary has not yet been returned, therefore it is impossible to comment on the geochemistry of the occurrence beyond that previously discussed for the sample obtained in October, 1992.

Preliminary geochemical results of samples taken from the occurrences does confirm composition of kimberlitic affinity. The Sultana Creek occurrence appears to be a dyke or diatreme having textural similarities to the Toby Creek occurrence, described by Pope and Thirlwall (1992) as a true kimberlite. However, geochemical data from a sample submitted in October, 1992 is more comparable to lamprophyres of kimberlitic affinity.

At present, it is not clear where these intrusives originated relative to the diamond stability field. However, regardless of their diamond potential, the fact that they originated in the lower levels of the crust or from within the mantle suggests potential for hosting Rare-Earth Elements (REEs), Platinum Group Elements and gold.

If the results of the program (some still outstanding), do confirm a kimberlitic affinity for the dykes in terms of composition, elemental suites, kimberlitic indicator minerals and/or deep seated xenoliths (peridotitic and/or eclogitic inclusions) a follow-up program of trenching and drilling is recommended. Trenching, possibly with blasting, would enable the collection of a large sample of pristine dyke material for a determination of diamond content. Drilling is recommended upon favourable geochemical results, in terms of a kimberlitic indicator (heavy mineral) and/or xenolith suite. A preliminary budget has been prepared for the above work and is presented on the following page.

The fact that kimberlites and lamprophyres of kimberlitic affinity have been documented in a new, previously unknown, terrane clearly indicates that more exploration is warranted in the Purcell Mountains. The close association postulated by Pope and Thirlwall (1992) between diatremes mapped in the Rocky Mountains in terms of alkaline composition, age of intrusion and volcanic association demands that these occurrences be thoroughly evaluated for their potential as hosts for diamonds. The recovery of several diamonds in the Golden cluster of diatremes and the kimberlitic affinity of the Purcell Mountain occurrences suggests these occurrences may be possible diamond hosts.

PROPOSED BUDGET

Pre-Field		$ 5,000.00
Field Program		
	Diamond Drilling	$30,000.00
	Personnel	$20,000.00
	Helicopter Support	$ 5,000.00
	Analytical	$ 5,000.00
	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
		$77,000.00
	Contingency on Field Program (10%)	$ 7,700.00
	Post-Field	$ 5,000.00
	TOTAL:	$89,700.00

REFERENCES

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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 July 17th, 1992, and June 10th, 1993.

7) I was personally involved in the acquisition of the claims described herein.

8) I hold at present 21,500 common shares of Gwen Resources Ltd..

Dated at Cranbrook, British Columbia this 13th day of October, 1993.

PROFESSIONAL GEOSCIENTIST — PROVINCE OF BRITISH COLUMBIA — R. T. WALKER

Richard T. Walker, P.Geo.

STATEMENT OF QUALIFICATIONS

I, Tim J. Termuende, of 2720-17th Street South, Cranbrook, BC, hereby certify that:

1) I am a graduate of the University of British Columbia, Vancouver, B.C. with a Geological Sciences Degree (B.Sc.) in Geology (1987).

2) I am a member in good standing of the Association of Professional Engineers and Geoscientists of the Province of British Columbia, member # 19201.

3) I am a consulting geologist and Principal with the firm of Gemquest Geological with offices at 1916-5th St. S., Cranbrook, British Columbia.

4) I personally carried out geologic work on the SUL claims between July 17, 1992, and June 10, 1993.

5) I was personally involved in the acquisition of the claims described herein.

6) I own at present 20,500 common shares of Gwen Resources Ltd..

Dated at Cranbrook, British Columbia this 13th day of October, 1993.

PROFESSIONAL GEOSCIENTIST
PROVINCE OF BRITISH COLUMBIA
T. J. TERMUENDE

Tim J. Termuende, P.Geo.

Appendix B

Claim Records

Province of British Columbia Ministry of Energy, Mines and Petroleum Resources

RECORD OF 2 POST CLAIM — MINERAL TENURE ACT

SECTION 23

MAP NO. 82K8W

TENURE NO. 311872

MINING RECEIPT NO 15 RECORDED AT NELSON

B.C. DATE OF RECORD JULY 16 19 92

DO NOT WRITE IN THIS SHADED AREA

GOLD COMMISSIONER

GOLDEN

MINING DIVISION

PLEASE PRINT CLEARLY

APPLICATION TO RECORD A 2 POST CLAIM

I, TIM J. TERMUENDE (NAME)

AGENT FOR SELF (NAME)

2720 - 17th ST. S. (ADDRESS)

CRANBROOK, BC

(604) 426-3112 (TELEPHONE) V1C 4H4 (POSTAL CODE)

CLIENT NUMBER 126599

CLIENT NUMBER

hereby apply for a record of a 2 post claim for the location as outlined on the attached copy of mineral titles reference map No. 82 K/8W in the GOLDEN Mining Division

ACCESS: Describe how you gained access to the location; include references to roads, trails, topographic features, permanent landmarks, and a description of the post location.

ACCESS VIA TOBY CK ROAD TO DOLPHINE CK, THEN CONTINUED FOR 3 KM, THEN ALONG DRILL ROAD TO ELEVATION 5300'. INITIAL POST LOCATED ELEVATION 5300' 1400M BEARING 360°, FROM THE CONFLUENCE OF SULTANA AND DOLPHINE CK.

I have securely affixed the portion of the metal identification tag embossed " INITIAL POST (NO. 1)" to the initial post and impressed this information on the tag.

TAG NUMBER 644036M

INITIAL POST (NO. 1)

CLAIM NAME SUL 1

LOCATOR T. TERMUENDE

AGENT FOR SELF

DATE COMMENCED JULY 16/92

TIME COMMENCED 3:00P

DIR. TO NO 2 POST 344°

METRES TO RIGHT 500

METRES TO LEFT —

I have securely affixed the portion of the metal identification tag embossed " FINAL POST (NO. 2)" to the final post (or the witness post*) and impressed this information on the tag.

TAG NUMBER 644036M

FINAL POST (NO. 2)

CLAIM NAME SUL 1

LOCATOR T. TERMUENDE

AGENT FOR SELF

DIST. FROM NO. 1 POST 500M

DATE COMPLETED JULY 16/92

TIME COMPLETED 3:50P

*If witness post placed for final post:

Bearing to true position of final post 344°

distance 375M metres

PAID

GOVERNMENT AGENT CRANBROOK

AUG 4 1992

10 ... 5

AMT $20.00

TRANS. #

RECORDING STAMP

I have complied with all the terms and conditions of the Mineral Tenure Act Regulation pertaining to the location of 2 post claims and have attached a plan of the location on which the positions of the initial and final posts (and witness and identification posts if applicable) are indicated.

Signature of Locator

MTL 205 REV. 91/07

COPY 1 — OWNER

Province of British Columbia Ministry of Energy, Mines and Petroleum Resources

RECORD OF 2 POST CLAIM — MINERAL TENURE ACT

SECTION 23

MAP NO. 82KSW

TENURE NO. 311873

MINING RECEIPT NO 15 RECORDED AT NELSON DATE OF RECORD JULY 16 19 92

DO NOT WRITE IN THIS SHADED AREA — GOLD COMMISSIONER — GOLDEN MINING DIVISION

PLEASE PRINT CLEARLY

APPLICATION TO RECORD A 2 POST CLAIM

I, TIM J. TERMUENDE (NAME) AGENT FOR SCZF (NAME)

2720 - 17th ST. S. (ADDRESS)

CRANBROOK, BC

(604) 426-3112 (TELEPHONE) POSTAL CODE

CLIENT NUMBER 126599 CLIENT NUMBER

hereby apply for a record of a 2 post claim for the location as outlined on the attached copy of mineral titles reference map No. 82K/8W in the GOLDEN Mining Division

ACCESS Describe how you gained access to the location, include references to roads, trails, topographic features, permanent landmarks, and a description of the post location.

ACCESS VIA TOBY CK ROAD FROM INVERMERE, THEN ALONG DELPHINE ROAD TO 3KM, THEN ALONG DRILL ROAD TO 5500' ELEVATION. INITIAL POST LOCATED 1400M BEARING 360°AZ FROM THE CONFLUENCE OF SULTANA AND DELPHINE CK.

TAG INFORMATION

I have securely affixed the portion of the metal identification tag embossed "INITIAL POST (NO. 1)" to the initial post and impressed this information on the tag:

TAG NUMBER 644037M INITIAL POST (NO 1)

CLAIM NAME SUL 2

LOCATOR T. TERMUENDE

AGENT FOR SCZF

DATE COMMENCED JULY 16/92

TIME COMMENCED 3:00P

DIR. TO NO. 2 POST 344°

METRES TO RIGHT —

METRES TO LEFT 500

I have securely affixed the portion of the metal identification tag embossed "FINAL POST (NO. 2)" to the final post (or the witness post*) and impressed this information on the tag:

TAG NUMBER 644037M FINAL POST (NO. 2)

CLAIM NAME SUL 2

LOCATOR T. TERMUENDE

AGENT FOR SCZF

DIST. FROM NO. 1 POST 500M

DATE COMPLETED JULY 16/92

TIME COMPLETED 3:55P

*If witness post placed for final post:

Bearing to true position of final post 344°

distance 275 metres.

PAID
GOVERNMENT AGENT CRANBROOK
AUG -4 1992
AMT. # 1000015
TRANS. #
RECORDING STAMP

ACKNOWLEDGEMENT

I have complied with all the terms and conditions of the Mineral Tenure Act Regulation pertaining to the location of 2 post claims and have attached a plan of the location on which the positions of the initial and final posts (and witness and identification posts if applicable) are indicated.

Signature of Locator

Province of British Columbia Ministry of Energy, Mines and Petroleum Resources

RECORD OF 2 POST CLAIM — MINERAL TENURE ACT

SECTION 23

MAP NO. 82KSW

TENURE NO. 311874

MINING RECEIPT NO 15 RECORDED AT NELSON B.C. DATE OF RECORD JULY 16 19 92

DO NOT WRITE IN THIS SHADED AREA

GOLD COMMISSIONER

GOLDEN

MINING DIVISION

PLEASE PRINT CLEARLY

APPLICATION TO RECORD A 2 POST CLAIM

I TIM J. TERMUENDE (NAME) AGENT FOR SELF (NAME)

2720 - 17th ST S (ADDRESS)

CRANBROOK, BC

(604) 426-3112 (TELEPHONE) V1C 4H4 (POSTAL CODE)

CLIENT NUMBER 126599 CLIENT NUMBER

hereby apply for a record of a 2 post claim for the location as outlined on the attached copy of mineral titles reference map No 82K/SW in the GOLDEN Mining Division

ACCESS Describe how you gained access to the location, include references to roads, trails, topographic features, permanent landmarks, and a description of the post location

ACCESS VIA TONY CK ROAD FROM INVERMERE THEN ALONG DELPHINE CK 3 KM TO DAM ROAD, THEN NORTHWARD TO ELEVATION 5300'. INITIAL POST LOCATED 100M BEARING 140° FROM THE CONFLUENCE OF SULTANA AND DELPHINE CK.

I have securely affixed the portion of the metal identification tag embossed " INITIAL POST (NO. 1)" to the initial post and impressed this information on the tag

TAG NUMBER 644038M

INITIAL POST (NO. 1)

CLAIM NAME SUL 3

LOCATOR T. TERMUENDE

AGENT FOR SELF

DATE COMMENCED JULY 16/92

TIME COMMENCED ~~4:30P~~ 3:00P

DIR. TO NO. 2 POST 164°

METRES TO RIGHT 500

METRES TO LEFT —

I have securely affixed the portion of the metal identification tag embossed " FINAL POST (NO. 2)" to the final post (or the witness post*) and impressed this information on the tag

TAG NUMBER 644035M

FINAL POST (NO. 2)

CLAIM NAME SUL 3

LOCATOR T. TERMUENDE

AGENT FOR SELF

DIST. FROM NO. 1 POST 500M

DATE COMPLETED JULY 16/92

TIME COMPLETED 4:50 P

*If witness post placed for final post

Bearing to true position of final post ______

distance ______ metres.

ACKNOWLEDGEMENT

I have complied with all the terms and conditions of the Mineral Tenure Act Regulation pertaining to the location of 2 post claims and have attached a plan of the location on which the positions of the initial and final posts (and witness and identification posts if applicable) are indicated.

Signature of Locator

PAID
GOVERNMENT AGENT CRANBROOK
AUG 4 1992
AMT. # 60.
TRANS. # 1600215

RECORDING STAMP

MEM 105 REV. 91/07

COPY 1 — OWNER

Province of British Columbia Ministry of Energy, Mines and Petroleum Resources

RECORD OF 2 POST CLAIM — MINERAL TENURE ACT

SECTION 23

MAP NO. 82K8W

TENURE NO. 311875

MINING RECEIPT NO 15 RECORDED AT NELSON DATE OF RECORD JULY 16 19 92

DO NOT WRITE IN THIS SHADED AREA

GOLD COMMISSIONER

GOLDEN

MINING DIVISION

PLEASE PRINT CLEARLY

APPLICATION TO RECORD A 2 POST CLAIM

I, TIM J. TERMUENDE (NAME) AGENT FOR SELF (NAME)

2720 - 17th ST. S. (ADDRESS)

CRANBROOK, BC

(604) 426-5112 (TELEPHONE) V1C-4H4 (POSTAL CODE)

CLIENT NUMBER 106599

CLIENT NUMBER

hereby apply for a record of a 2 post claim for the location as outlined on the attached copy of mineral titles reference map No 82K/08W in the GOLDEN Mining Division

ACCESS

Describe how you gained access to the location, include references to roads, trails, topographic features, permanent landmarks, and a description of the post location.

ACCESS VIA TOBY CK ROAD FROM INVERMERE TO DELPHINE ROAD, THEN WESTWARD 2 KM TO DELL ROAD, THEN NORTHWARD TO ELEVATION 5300'. INITIAL POST LOCATED 1 KM BEARING 360° FROM THE CONFLUENCE OF SULTANA AND DELPHINE CK.

I have securely affixed the portion of the metal identification tag embossed " INITIAL POST (NO. 1)" to the initial post and impressed this information on the tag

TAG NUMBER T.T. 644039M
INITIAL POST (NO 1)

CLAIM NAME SUL 4

LOCATOR T. TERMUENDE

AGENT FOR SELF

DATE COMMENCED JULY 16/92

TIME COMMENCED 3:00P

DIR TO NO 2 POST 164°

METRES TO RIGHT —

METRES TO LEFT 500

I have securely affixed the portion of the metal identification tag embossed " FINAL POST (NO 2)" to the final post (or the witness post*) and impressed this information on the tag

TAG NUMBER T.T. 644039M
FINAL POST (NO 2)

CLAIM NAME SUL 4

LOCATOR T. TERMUENDE

AGENT FOR SELF

DIST. FROM NO. 1 POST 500m

DATE COMPLETED T.T. JULY 16/92

TIME COMPLETED 4:55P

*If witness post placed for final post

Bearing to true position of final post ______

distance ______ metres.

PAID
GOVERNMENT AGENT CRANBROOK
AUG 4 1992
100.00 / 5
AMT. #
TRANS. #

RECORDING STAMP

ACKNOWLEDGEMENT

I have complied with all the terms and conditions of the Mineral Tenure Act Regulation pertaining to the location of 2 post claims and have attached a plan of the location on which the positions of the initial and final posts (and witness and identification posts if applicable) are indicated.

[signature]

Signature of Locator

MTL 103 REV. 91/07

COPY 1 — OWNER

Province of British Columbia Ministry of Energy, Mines and Petroleum Resources

RECORD OF 2 POST CLAIM — MINERAL TENURE ACT

SECTION 23

MAP NO. 82K8W

TENURE NO 311876

MINING RECEIPT NO 15 RECORDED AT NELSON B.C. DATE OF RECORD JULY 16 19 92

DO NOT WRITE IN THIS SHADED AREA

GOLD COMMISSIONER

GOLDEN

MINING DIVISION

PLEASE PRINT CLEARLY

APPLICATION TO RECORD A 2 POST CLAIM

I, TIM T. TERMUENDE (NAME) AGENT FOR SELF (NAME)

2720 - 17th ST. S. (ADDRESS)

CRANBROOK, BC

(604) 426-7112 (TELEPHONE) V1C 4H4 (POSTAL CODE)

TELEPHONE POSTAL CODE

CLIENT NUMBER 126579

CLIENT NUMBER

hereby apply for a record of a 2 post claim for the location as outlined on the attached copy of mineral titles reference map No 82K/8W, in the GOLDEN Mining Division

ACCESS Describe how you gained access to the location, include references to roads, trails, topographic features, permanent landmarks, and a description of the post location

ACCESS VIA JUMBO Cr ROAD FROM INVERMERE, THEN ALONG DUTCHMAN ROAD TO 7 KM, THEN ALONG DRILL ROAD TO ELEVATION 5500'. INITIAL POST LOCATED 2 KM BEARING 200° FROM THE CONFLUENCE OF SULTANA AND DUTCHMAN CC.

TAG INFORMATION

I have securely affixed the portion of the metal identification tag embossed "INITIAL POST (NO. 1)" to the initial post and impressed this information on the tag:

TAG NUMBER 644040M

INITIAL POST (NO. 1)

CLAIM NAME SUL 5

LOCATOR T. TERMUENDE

AGENT FOR SELF

DATE COMMENCED JULY 1/92

TIME COMMENCED 1:35P

DIR. TO NO. 2 POST 105°

METRES TO RIGHT 500

METRES TO LEFT

I have securely affixed the portion of the metal identification tag embossed "FINAL POST (NO. 2)" to the final post (or the witness post*) and impressed this information on the tag:

TAG NUMBER 644040M

FINAL POST (NO. 2)

CLAIM NAME SUL 5

LOCATOR T. TERMUENDE

AGENT FOR SELF

DIST. FROM NO. 1 POST 500M

DATE COMPLETED JULY 1/92

TIME COMPLETED 5:15P

*If witness post placed for final post:

Bearing to true position of final post ______

distance ______ metres.

PAID
GOVERNMENT AGENT CRANBROOK
AUG 4 1992
AMT. # 60.00
TRANS. # [illegible]

RECORDING STAMP

ACKNOWLEDGEMENT

I have complied with all the terms and conditions of the Mineral Tenure Act Regulation pertaining to the location of 2 post claims and have attached a plan of the location on which the positions of the initial and final posts (and witness and identification posts if applicable) are indicated.

Signature of Locator

FCL 103 REV. 91/07

COPY 1 — OWNER

Province of British Columbia Ministry of Energy, Mines and Petroleum Resources

RECORD OF 2 POST CLAIM — MINERAL TENURE ACT

SECTION 23

MAP NO. 82K8W

TENURE NO. 311877

MINING RECEIPT NO. 15 RECORDED AT NELSON B.C. DATE OF RECORD JULY 16 19 92

DO NOT WRITE IN THIS SHADED AREA

GOLD COMMISSIONER

GOLDEN
MINING DIVISION

PLEASE PRINT CLEARLY

APPLICATION TO RECORD A 2 POST CLAIM

I, TIM T. TERMUENDE (NAME) AGENT FOR SELF (NAME)

2720-17th ST. S. (ADDRESS)

CRANBROOK, BC

(604) 426-5112 (TELEPHONE) V1C-4H4 (POSTAL CODE)

TELEPHONE POSTAL CODE

CLIENT NUMBER 126597

CLIENT NUMBER

hereby apply for a record of a 2 post claim for the location as outlined on the attached copy of mineral titles reference map No. 82K/8W in the GOLDEN Mining Division

ACCESS: Describe how you gained access to the location, include references to roads, trails, topographic features, permanent landmarks, and a description of the post location

ACCESS VIA TODT CK ROAD TO DERRIBE ROAD THEN WESTWARD ... TO ... ROAD, THEN NORTHWARD TO LOCATION SITE. INITIAL POST LOCATED 500M BEARING 005°AZ FROM THE CONFLUENCE OF SULTANA AND DERRIBE CK.

TAG INFORMATION

I have securely affixed the portion of the metal identification tag embossed " INITIAL POST (NO. 1)" to the initial post and impressed this information on the tag:

TAG NUMBER 643979 M
INITIAL POST (NO. 1)

CLAIM NAME SUL 6

LOCATOR T. TERMUENDE

AGENT FOR SELF

DATE COMMENCED JULY 16/92

TIME COMMENCED 4:35P

DIR. TO NO. 2 POST 105

METRES TO RIGHT —

METRES TO LEFT 500

I have securely affixed the portion of the metal identification tag embossed " FINAL POST (NO. 2)" to the final post (or the witness post*) and impressed this information on the tag

TAG NUMBER 643979 M
FINAL POST (NO. 2)

CLAIM NAME SUL 6

LOCATOR T. TERMUENDE

AGENT FOR SELF

DIST. FROM NO. 1 POST 500M

DATE COMPLETED JULY 16/92

TIME COMPLETED 5:20P

*If witness post placed for final post:

Bearing to true position of final post ______ .

distance ______ metres.

PAID
GOVERNMENT AGENT CRANBROOK
AUG 4 1992
AMT. # 60.00
TRANS. # 1000075

RECORDING STAMP

AGREEMENT

I have complied with all the terms and conditions of the Mineral Tenure Act Regulation pertaining to the location of 2 post claims and have attached a plan of the location on which the positions of the initial and final posts (and witness and identification posts if applicable) are indicated.

[signature]
Signature of Locator

MEL 103 REV. 91/07

COPY 1 — OWNER

Appendix C

Analytical Results

Sample: 6 (Your sample ID: C)

Minerals

Mineral	Mode	Special Characteristics
Chlorite	15%	Very fine-grained matrix phase is pleochroic colourless to green
Biotite	10-15%	Phenocrysts up to 2 mm in size have extreme absorption and are pleochroic honey brown to black. Partial to near total alteration to colourless (Mg-rich?) chlorite especially well developed along cleavage planes
Quartz	25%	Patches and lenses of polycrystalline quartz
Muscovite	5%	Fine-grained matrix phase
Calcite	45%	Equant 3 to 4 mm porphyroblasts have overgrown the fabric and mica phenocrysts. Dusty trails of tiny inclusions parallel to the external foliation can be traced through the calcite grains
Opaques	<5%	Idiomorphic, < 1mm in size. All have translucent orange/brown (hematite?) rims < 0.1 mm thick.

Description

A well developed fabric is defined by the alignment of fine-grained chlorite and muscovite in the matrix. There is also compositional layering (calcite and chlorite-muscovite layers) parallel to the mica foliation and quartz-rich layers and lenses (< 0.5 mm thick). The fabric is somewhat irregular due to the high proportion of calcite porphyroblasts which deflect it.

LORING LABORATORIES LTD.

629 Beaverdam Rd. N.E.
Calgary, Alberta T2K 4W7

Tel: (403) 274-2777
Fax: (403) 275-0541

TO : GEMQUEST GEOLOGICAL
1916 - 5TH Street South
Cranbrook, B.C. V1C 1K4

ATTN :

FILE # 35928-D
DATE : SEPTEMBER 8, 1993
PAGE :

CERTIFICATE OF ANALYSIS

SAMPLE ID	ORIGINAL WEIGHT (Kg)	MIDDLINGS 2.9 - 3.3 SG MAGN. (Gm)	NON-MAG (Gm)	HEAVIES >3.3 SG MAGN. (Gm)	NON-MAG. +28 Mesh (Gm)	P.M. -28 Mesh (Gm)	W.P.M. -28 Mesh (Gm)	NON-MAG. -28 Mesh (Gm)
	27.1	0.17	6.67	0.58	0.65	0.35	0.98	0.69
	25.1	0.82	4.00	1.48	0.59	0.22	0.57	3.47
	22.0	0.14	8.00	3.17	1.57	2.46	3.70	0.61
	25.0	0.24	7.72	0.46	0.43	0.12	0.61	0.97
	29.5	0.17	33.53	0.66	44.40	0.14	0.83	65.18
	27.0	6.62	4.25	3.47	0.02	0.50	0.19	0.18
	20.0	0.13	4.35	2.59	3.85	0.51	2.09	4.77
SUL-93-2	18.5	0.19	18.34	0.48	0.78	0.09	0.29	1.23
	31.5	0.76	20.74	4.49	0.91	1.52	6.62	0.66

NOTE : P.M. = PARAMAGNETIC W.P.M. = WEAK PARAMAGNETIC

I HEREBY CERTIFY that the above results are those assays made by me upon the herein described samples....

ASSAYER

ECO-TECH LABORATORIES LTD.
ASSAYING - ENVIRONMENTAL TESTING
10041 East Trans Canada Hwy., Kamloops, B.C. V2C 2J3 (604) 573-5700 Fax 573-4557

FEBRUARY 4, 1993

CERTIFICATE OF ANALYSIS ETK 93-20

RICK WALKER
1913-5th Street South
CRANBROOK, B.C.
V1C 1K4

SAMPLE IDENTIFICATION: 3 ROCK samples received JANUARY 25, 1993

ET#	Description	BaO	P2O5	SiO2	MnO	Fe2O3	MgO	Al2O3	CaO	TiO2	Na2O	K2O	L.O.I.
1-		.02	.27	43.69	.22	15.30	5.33	11.44	6.95	2.58	3.06	.06	11.10
2-		.07	.31	37.68	.17	9.41	13.24	5.00	13.97	.98	.02	2.14	16.99
3-	SULTANG CREEK	.11	.67	34.74	.15	8.86	10.71	11.42	10.75	2.39	.98	2.58	16.60

QC DATA

	BaO	P2O5	SiO2	MnO	Fe2O3	MgO	Al2O3	CaO	TiO2	Na2O	K2O	L.O.I.
REPEAT #:												
2-	.02	.33	37.65	.17	9.30	13.68	5.04	13.95	.98	.01	1.85	16.99
STANDARD:												
SY2	.07	.40	59.09	.32	6.39	2.87	12.11	8.06	.15	4.32	4.35	1.84
MRG-1	.03	.05	38.19	.17	17.77	13.80	8.30	14.73	3.67	.72	.19	2.40

NOTE: VALUES EXPRESSED IN PERCENT

ECO-TECH LABORATORIES LTD.
FRANK J. PEZZOTTI
B.C. CERTIFIED ASSAYER

SC93/KAMMISC#1

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

FEBRUARY 4, 1993

RICK WALKER ETK 93-20
1916-5th Street South
CRANBROOK, B.C.
V1C 1K4

VALUES IN PPM UNLESS OTHERWISE REPORTED

3 ROCK SAMPLES RECEIVED JANUARY 25, 1993

ET#	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
1	-	.4	2.91	30	2	50	<5	4.54	<1	43	59	160	8.99	<.01	10	2.91	1486	1	.01	32	850	<2	5	<20	143	.01	<10	268	<10	6	78
2	-	.2	2.18	10	2	60	5	8.69	<1	35	627	2	3.79	1.62	10	5.57	1036	<1	<.01	131	1150	<2	<5	<20	381	.17	<10	152	<10	15	23
3	- SULTANG CREEK	.2	2.08	10	2	270	<5	6.97	<1	18	111	68	4.33	.15	20	5.34	991	<1	<.01	110	2630	<2	<5	<20	129	.01	<10	43	<10	8	46

QC DATA

REPEAT #:																														
1	<.2	2.92	25	2	50	<5	4.51	<1	43	59	161	8.96	<.01	10	2.93	1483	1	.01	32	840	<2	<5	<20	144	.01	<10	270	<10	6	75
STANDARD 1991 -	1.8	1.76	70	4	125	<5	1.74	<1	19	63	82	3.68	.37	<10	1.00	703	<1	.01	20	630	10	5	<20	59	.10	<10	72	<10	13	81

NOTE: < = LESS THAN

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

SC93/KAMMISC#1

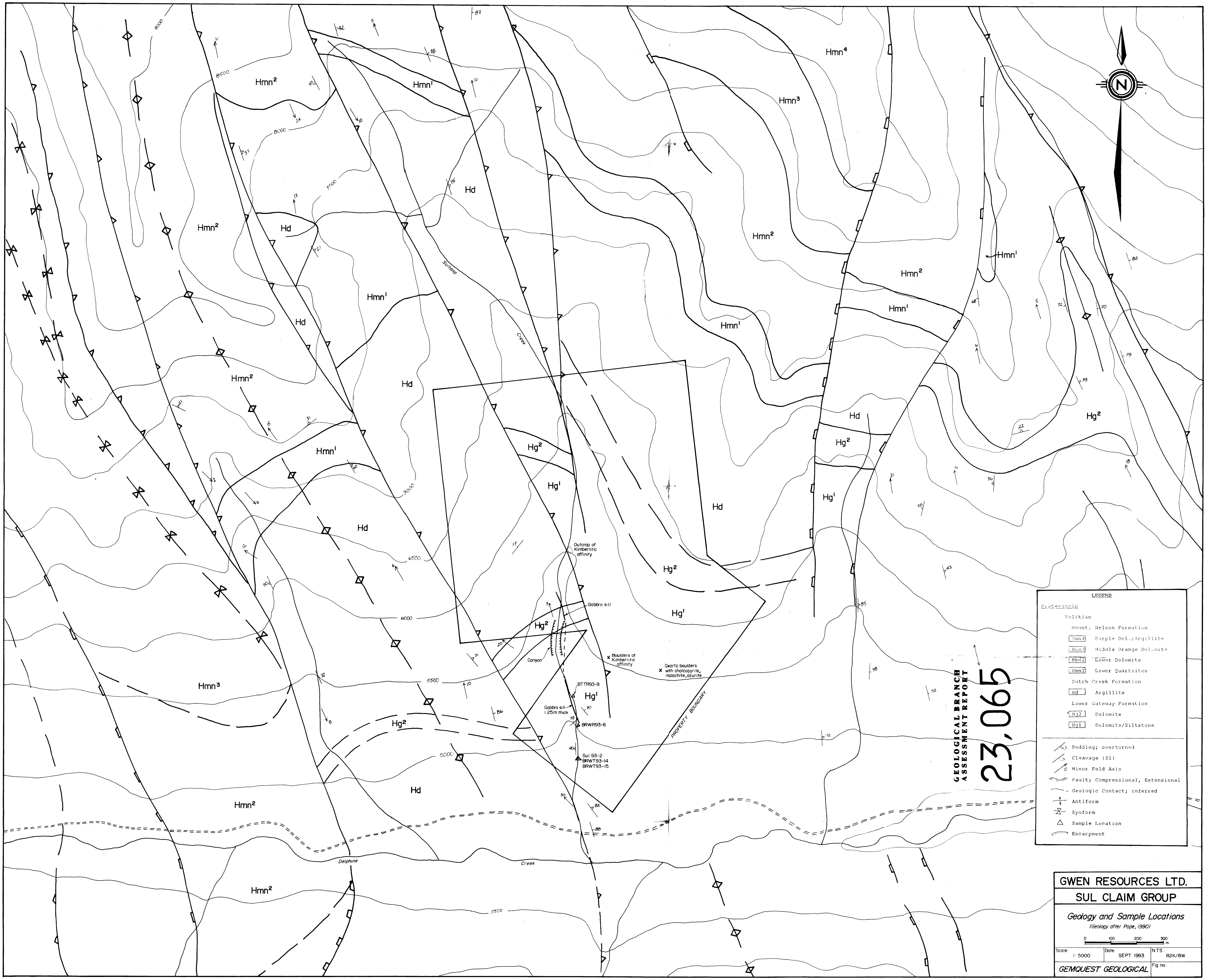
Appendix D

Statement of Expenditures

STATEMENT OF EXPENDITURES

The following expenses were incurred on the SUL claim group for the purpose of geological exploration within the period July 17, 1992 to June 10, 1993.

PERSONNEL	
R.T. Walker, P.Geo.: 1.0 days @ $350.00/day ....$	350.00
T. J. Termuende, P.Geo. 1.0 days x $350.00/day ......$	350.00
EQUIPMENT RENTAL	
4WD Vehicle: 1.0 days x $50.00/day ....$	50.00
Mileage: 322 km x $.20/km ....$	64.40
Radios (2): 1.0 days x $10.00/day ....$	20.00
ANALYTICAL:	
1 50kg. Bulk Samples ....$	350.00
Thin Section Preparation and Petrography ....$	100.00
FIELD SUPPLY	
2.0 man-days x $20.00/day ....$	40.00
MISCELLANEOUS	
Fuel ....$	40.00
Shipping ....$	20.00
REPORT/REPRODUCTION	
R. T. Walker, P.Geo.: 1.0 days x $350.00/day ....$	350.00
T. J. Termuende, P.Geo.: 1.0 days x $350.00/day .....$	350.00
TOTAL EXPENDITURES:	$2,084.40


Hmn⁴
Hmn³
Hmn²
Hmn¹
Hd
Hg²
Hg¹
Hmn³
Sullivan
Creek
Delphine
Creek
8500
8000
7500
7000
6500
6000
5500
5000
Outcrop of Kimberlitic affinity
Gabbro sill
Canyon
Boulders of Kimberlitic affinity
Quartz boulders with chalcopyrite, malachite, azurite
BTTR93-8
Gabbro sill 1.25m thick
BRWR93-6
Sul 93-2
BRWT93-14
BRWT93-15
PROPERTY BOUNDARY
GEOLOGICAL BRANCH
ASSESSMENT REPORT
23,065
LEGEND
Proterozoic
Helikian
Mount. Nelson Formation
Hmn4 Purple Dol./Argillite
Hmn3 Middle Orange Dolomite
Hmn2 Lower Dolomite
Hmn1 Lower Quartzites
Dutch Creek Formation
Hd Argillite
Lower Gateway Formation
Hg2 Dolomite
Hg1 Dolomite/Siltstone
Bedding; overturned
Cleavage (S1)
Minor Fold Axis
Fault; Compressional, Extensional
Geologic Contact; inferred
Antiform
Synform
Sample Location
Escarpment
GWEN RESOURCES LTD.
SUL CLAIM GROUP
Geology and Sample Locations
(Geology after Pope, 1990)
0 100 200 300 m
Scale: 1:5000
Date: SEPT. 1993
N.T.S.: 82K/8W
GEMQUEST GEOLOGICAL
Fig. no.: