DIAMOND DRILLING REPORT ON THE KNOB HILL PROPERTY

VANCOUVER ISLAND, BRITISH COLUMBIA

LATITUDE 50° 46' N, LONGITUDE 128° 03' W

NTS MAP-SHEETS 102 I 9E & 16E

FOR

FIRST CHOICE INDUSTRIES LTD.

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DECEMBER 15, 1997

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KNOB HILL PROPERTY

1. SUMMARY

- The Knob Hill property is located 45 km west of Port Hardy on northern Vancouver Island. In its present configuration it consist of 33 claims (146 units) held under option by First Choice Industries Ltd. ("First Choice") from Peter G. Dasler.

- Knob Hill is at the north end of a 25-km band of volcanics and intrusives which host zones of alteration and mineralization – the Utah-Expo Belt. Since 1980 sulphide-rich siliceous alteration caps overlying these systems have been shown to contain gold adding a new dimension to exploration potential in the region.

- In 1993 geological–prospecting work was carried out in the Knob Hill area by Peter Dasler. This included panning for heavy minerals, mapping and sampling which suggested previously unrecognized potential for epigenetic gold mineralization.

- In 1995 a grid was established by First Choice to support a 42 line-km geochemical-geophysical survey. This produced soil anomalies within a broad magnetic high: the perimeter of the anomaly copper-zinc enrichment with above average barium and arsenic; the core, elevated arsenic, gold and copper. I.P. work plus drilling in 1996 revealed a region of pervasive sulphide mineralization, Obling Creek anomaly. This area was designated for follow-up drilling.

- The current (1997) program comprised an airborne geophysical survey of the claim block plus a drill test of the Obling and other targets. Prospecting, grid controlled soil sampling and ground follow-up VLF-EM surveys coincided with work on residual anomalies from earlier work together with follow-up on some of the airborne targets.

- Results of the program were negative in spite of encouraging features (structural, alteration and sulphide enrichment). And, no economic grades of mineralization were encountered after a thorough drill test of the region(s) of interest. The primary target, Obling Creek gold-copper-arsenic anomaly, proved to be underlain by mainly rhyolitic lapilli-tuff breccias, a sub-areal volcanic assemblage complicated by the intrusion of innumerable early to late dikes ranging from rhyolitic to diabasic in compositions.

- Future work on the Knob Hill property should focus on the area located south of the existing grid towards and including the recently staked Bluff claims. This region has never been tested except by cursory prospecting and minor reconnaissance work.

INTRODUCTION

2.1 General

This report describes results from the latest (1997) phase of exploration work at Knob Hill on northern Vancouver Island. It was completed for First Choice Industries Ltd. by Leighton Exploration and Development Ltd., and supervised by the writer.

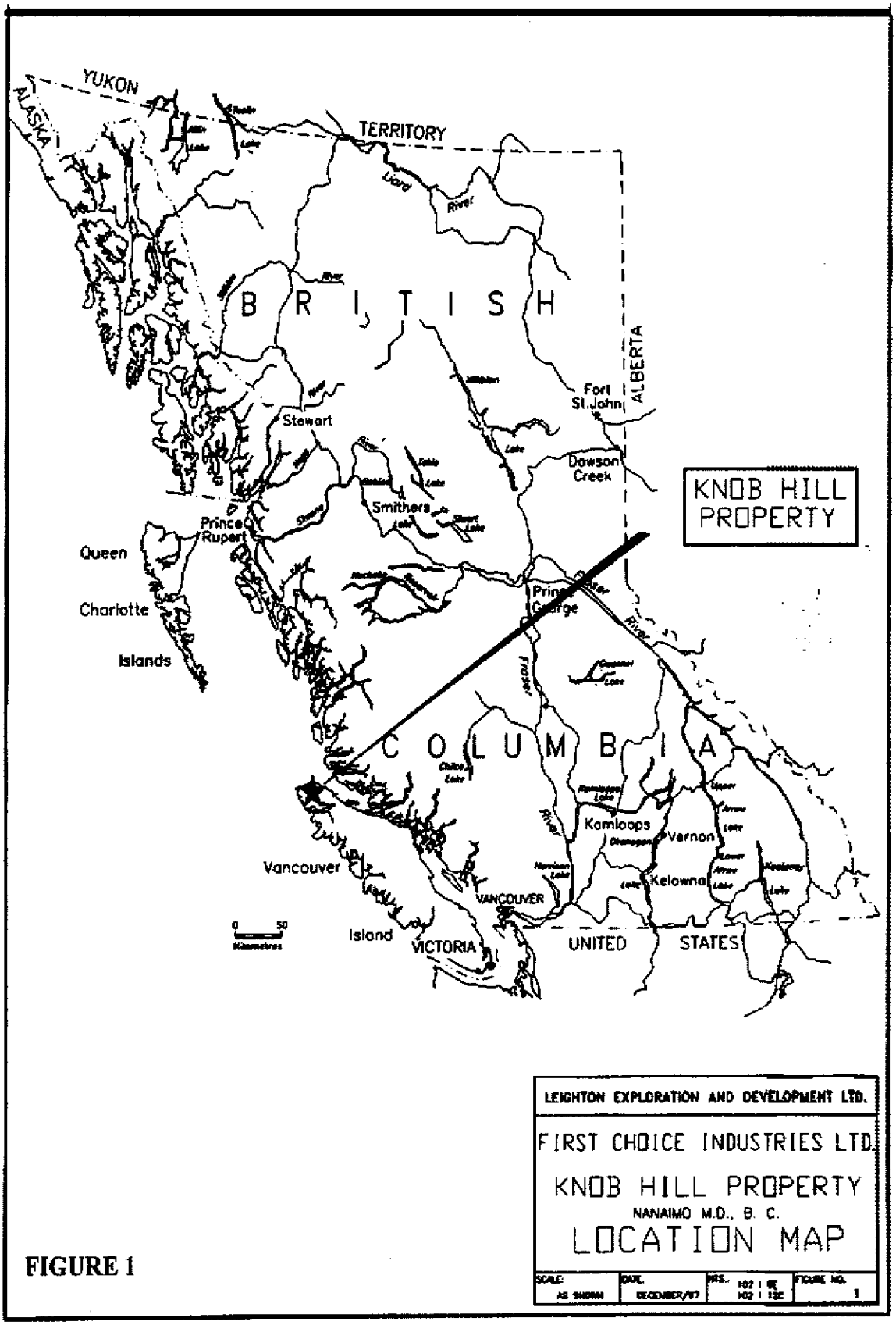
The field program began on July 23rd when a crew was mobilized by helicopter from the former Rich-ply logging camp on the Nawhitti River near Holberg, a convenient staging point. A BQ type wire-line drill, under sub-contract from Olympic Drilling Consulting Ltd., followed on August 12th. Work continued semi-continuously until October 12th when the camp was deactivated.

Besides the 7000 ft. drill program, 1997 work included an airborne geophysical survey by Aerodat Inc., grid controlled geochemical (soil) and geophysical (VLF-EM) surveys and general prospecting work; the primary purpose, to investigate a number of gold-copper targets.

2.2 Location, Access and Physiography

The Knob Hill property is 45-km northwest of Port Hardy on northern Vancouver Island (**FIG. 1**). Topographic coordinates of the claim block center are 50° 46' north, 128° 03' west and the relevant NTS map-sheet is 102I/16E. Access is by helicopter. Logging roads that extend toward the prospect from several directions may eventually allow vehicle access.

The region of interest occupies the center and flanks of a relatively flat area referred to as Knob Hill Plateau. The terrain is unusual (for Vancouver Island); a mixture of perched marshy ground and open grassland with scattered groves of stunted cedar and jackpine. The Plateau has an elevation of 500-700 metres, and to the south, east and northeast is bounded by steep slopes supporting stands of mature timber. Abundant streams furnish adequate water year-round for drilling purposes. Outcrop is rare.


YUKON
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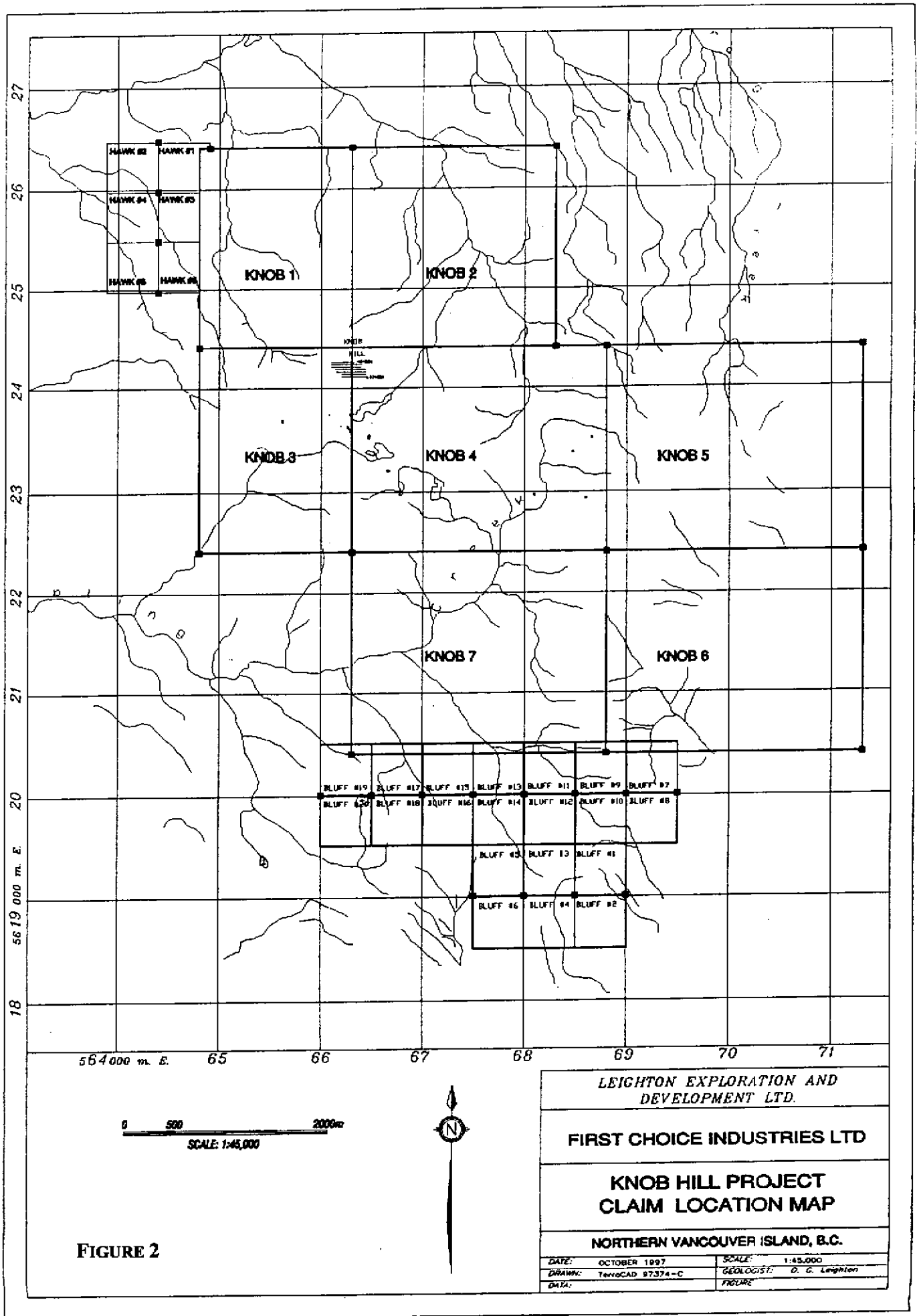
ALASKA
B R I T I S H
C O L U M B I A
ALBERTA
Fort St. John
Dawson Creek
Stewart
Smithers
Prince Rupert
Queen Charlotte Islands
Prince George
Kamloops
Vernon
Kelowna
Vancouver
VANCOUVER
Island
VICTORIA
UNITED STATES
KNOB HILL PROPERTY
LEIGHTON EXPLORATION AND DEVELOPMENT LTD.
FIRST CHOICE INDUSTRIES LTD.
KNOB HILL PROPERTY
NANAIMO M.D., B. C.
LOCATION MAP
SCALE: AS SHOWN
DATE: DECEMBER/97
FIGURE NO. 1

FIGURE 1


KNOB 1
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HAWK #5
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N
LEIGHTON EXPLORATION AND DEVELOPMENT LTD.
FIRST CHOICE INDUSTRIES LTD
KNOB HILL PROJECT
CLAIM LOCATION MAP
NORTHERN VANCOUVER ISLAND, B.C.
DATE: OCTOBER 1997
DRAWN: TerraCAD 97374-C
DATA:
SCALE: 1:45,000
GEOLOGIST: D. G. Leighton
FIGURE

FIGURE 2

2.3 Property and Claim Status

Knob Hill Property (FIG. 2) consist of 33 contiguous four and two-post claims located within the Nanaimo Mining Division as follows:

CLAIM(S)	TENURE NO(S).	UNITS	EXPIRY DATE[1]	RECORDED OWNER
Knob #1	342338	12	Nov 16, 2006	Peter G. Dasler
Knob #2	342339	16	Nov 16, 2006	Peter G. Dasler
Knob #3	342340	12	Nov 17, 2006	Peter G. Dasler
Knob #4	342341	20	Nov 18, 2006	Peter G. Dasler
Knob #5	347091	20	Jun 13, 2006	Peter G. Dasler
Knob #6	347092	20	Jun 14, 2006	Peter G. Dasler
Knob #7	347093	20	Jun 16, 2006	Peter G. Dasler
Hawk #1-6	358356-361	6	July 28, 2003	Peter G. Dasler
Bluff #1-2	358892-893	2	Aug 29, 2006	Peter G. Dasler
Bluff #3-6	358894-897	4	Aug 30, 2006	Peter G. Dasler
Bluff #7-10	358898-901	4	Aug 29, 2006	Peter G. Dasler
Bluff #11-20	358902-911	10	Aug 30, 2006	Peter G. Dasler
		146		

2.4 History

The first recorded work on Knob Hill was by Chevron Minerals Ltd. who became active in the area in the early 1970s following discovery of the Island Copper Mine. Chevron geologists realized that significant alteration patterns extended along a belt of Bonanza Formation rocks beyond the Holberg–Expo zone and, as part of the ensuing staking rush, optioned the Elk mineral claims. Over a five year period a program of mapping was completed along with till sampling, overburden drilling, magnetic surveys, IP work, and diamond drilling: four holes in 1972 (3,177 ft.), and five holes in 1976 (1,989 ft.).

The Elk claims reverted to owners, Messrs. Veerman and Botel, in 1980 when Chevron withdrew from mining in B. C. after which Teck Corporation took control of the property. Teck completed a minor magnetometer survey and drilled three short holes intercepting sub-economic copper mineralization.

In 1989 Placer Dome re-staked the area following a regional survey for gold related to diorite intrusives. Placer was drawn to the region because of concentrations of gold in Oblong Creek. Modest follow-up programs were completed over a three year period including two soil sample lines northeast of Knob Hill, along with reconnaissance mapping. Gold samples were microprobed revealing mercury and copper rich grains – indicating both epithermal and mesothermal targets.

Finally, the area was re-staked by Kamaka Resources Ltd. (Peter G. Dasler) in March-April, 1993, to cover the previously recognized copper anomalies (Chevron 1975), new gold anomalies (Placer 1990), and an area of intense northwest trending fracturing (magnetic lineations). First Choice Industries Ltd., who optioned the claims in August, 1995, expanded the block by staking in 1997. The company

[1] Assumes acceptance of Statements of Work filed November 10, 1997 supported by reports by Aerodat Inc. on the airborne geophysical survey and the diamond drilling, etc, by Leighton Exploration and Development Ltd..

completed grid controlled geophysical and geochemical programs during 1995-6 including a series of shallow drill holes in the Obling Creek area (FIG. 3) with encouraging results.

3. REGIONAL GEOLOGY

Vancouver Island, north of Holberg and Rupert Inlets, is underlain by mainly volcanic rocks of the Vancouver and Bonanza Groups (Muller et al, 1974). These units, ranging in age from Upper Triassic to Mid-Jurassic, form part of an emergent Island Arc. The sequence is intruded by Jurassic and Tertiary dykes, sills and stocks and, in turn, is overlain by later Cretaceous sediments. There is a northwest regional trend to major lithologies.

Vancouver Group rocks are divided as follows:

Basal Sediment - Sill Unit: The so-called "Daonella" beds; Mid-Triassic
Karmutsen Formation: Basaltic flows and tuffs; Upper Triassic
Quatsino Formation: Limestone; Upper Triassic
Parson Bay Formation: Fine ash tuffs and sediments; Upper Triassic

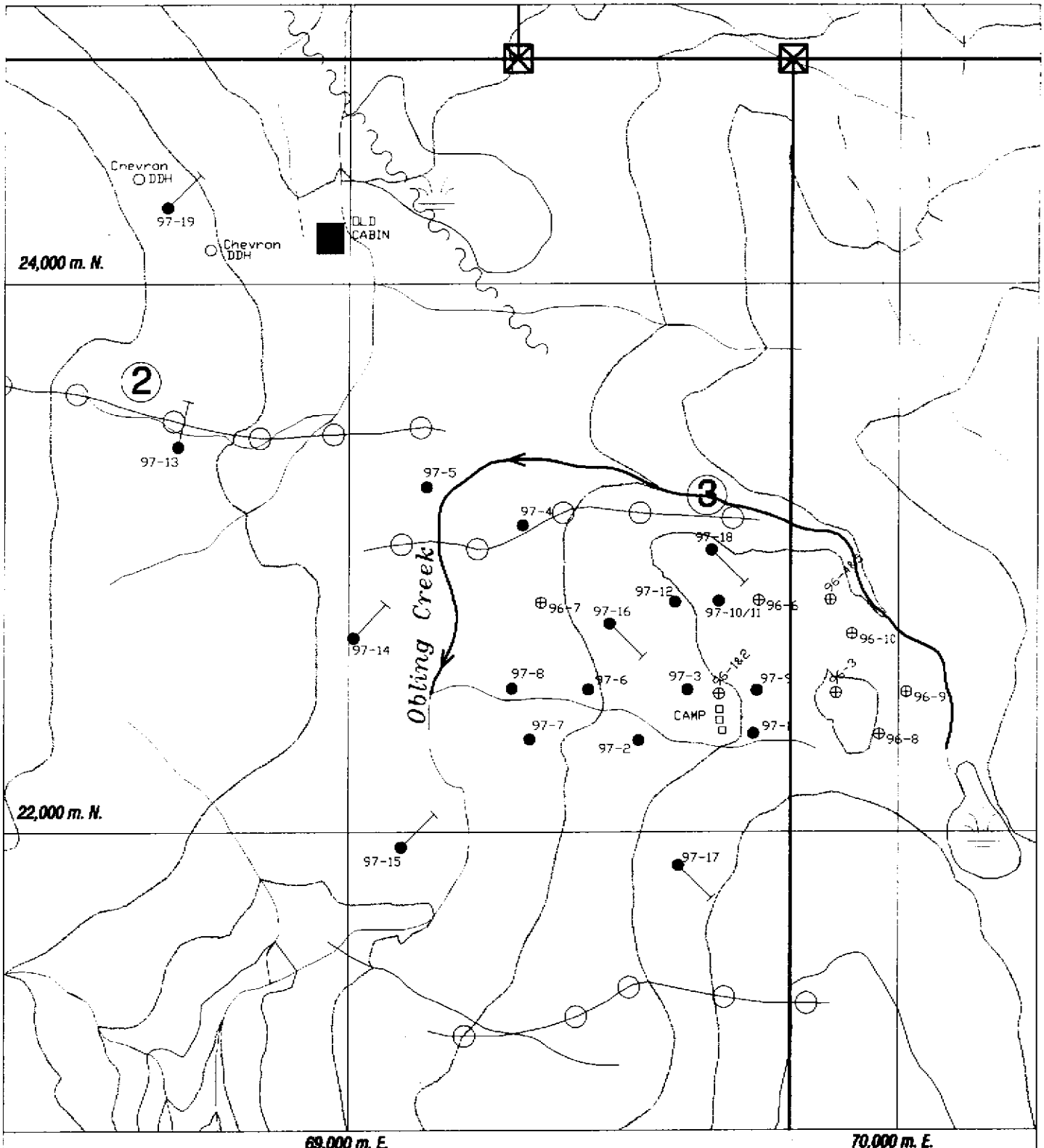
The Bonanza Group contains two divisions:

Harbledown Formation: Sediments; Lower Jurassic
Bonanza Volcanics: Andesitic ash tuff and flows; Lower Jurassic

Diorite-quartz diorite stocks of the Island Plutonic suite (or Island Intrusions) intrude the Vancouver and Bonanza Group rocks. Quartz-feldspar porphyry (QFP) dykes and irregular bodies occur along the southern edge of the belt of stocks. These dykes are characterized by coarse, subhedral quartz and plagioclase phenocrysts set in a grey or pink, fine grained, quartz and feldspar matrix. They are commonly extensively altered and pyritized. Bonanza Group rocks together with associated plutonic phases host the majority of copper occurrences in the district with porphyry copper systems appearing in the lower part of the succession.

At the former Island Copper Mine, the porphyries are enveloped by altered, brecciated and mineralized Bonanza wallrocks and all rock units are pyritized, extensively altered, mineralized where brecciated, and cut by siliceous veins; they are thought to be differentiates of Jurassic intrusive rocks of the Island Intrusions (Muller et al, 1974). Cretaceous sedimentary rocks of the Coal Harbour Group overly Bonanza volcanics locally.

In economic terms, he most significant regional fault system is the one trending west to northwest along Rupert and Holberg inlets. Near Holberg this structure splits, the main branch following Holberg inlet, another passing through the west side of the Stranby River Valley, east of the property. A subsidiary northwesterly to westerly fault system passes through William Lake, lowland south of the Stranby River. Another system runs through Nahwitti Lake Valley.



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KNOB HILL PROJECT
OBLING CREEK AREA
DRILL HOLE LOCATION MAP

NORTHERN VANCOUVER ISLAND, B.C.

DATE:	OCTOBER 1997	SCALE:	1:10,000
DRAWN:	TerraCAD 97374-A	GEOLOGIST:	D. G. Leighton
DATA:		FIGURE:	1

FIGURE 3

Northeast trending faults comprise a series of subordinate but economically important structures in the North Island. In some cases lateral displacements exceed several hundred metres.

Airborne magnetic data clearly shows dominant west-northwest breaks as well as the conjugate sets of northeast trending faults. Intersections of these fault sets coincide with copper-gold occurrences at Hushamu, Hep, Red Dog, and the Island Copper orebody.

4. PROPERTY GEOLOGY

The area surrounding Knob Hill forms a gently rolling plateau, locally bush covered, but mainly characterized by small scattered ponds and open peaty swampland. In places frost boils provide indications of shallow subcrop.

The region is underlain by altered Bonanza Group volcanics intruded to the northeast by diorites and overlain by relatively younger Cretaceous sediments to the southwest. Details are impossible to discern owing to lack of outcrop. The few exposures demonstrate alteration to the extent that lithologic identification is difficult. Alteration products identified in drill core from scattered locations include sericite, chlorite, clay minerals, biotite, secondary quartz, pyrite and pyrrhotite. Chalcopyrite remains visible in some specimens.

A basal till drill-sampling program was completed by Chevron Standard Minerals Ltd. in 1972; samples assayed for copper, molybdenum and zinc. Results compared favorably with soil results. Chevron's survey delineated areas with anomalous copper. The wide sampling (300 ft. on 800 ft. spaced lines) defined a zone about five by one kilometres with values generally over 200 ppm copper. Within this zone are sub-areas defined by highly anomalous values (800-1100 ppm Cu).

Knob Hill is on the south side of a strongly deformed 4000 gamma airborne magnetic anomaly. West of the summit, offset in the magnetic field suggests a major NE trending structure, a feature reflected in ground geophysics and the granodiorite outcrop pattern as well. Silicification in volcanics and in Parsons Bay sediments (mapped as rhyolite) apparently relate to this or other structures. Pyrrhotite is common in the altered rocks, along with pyrite, and some chalcopyrite and sphalerite.

A narrow belt of 'rhyolite' parallels the southern edge of this intrusive in the north (the granodiorite-quartz diorite stock), and, further south, scattered outcrop indicates a two to three kilometre wide zone of volcanics. This is an extension of the Bonanza Group volcanic belt to the southeast.

There are 11 old drill sites scattered across Knob Hill with holes ranging from 20 to 150 metres deep. Core from these holes provides evidence of an environment similar to that hosting Island Copper, particularly in the pyritization and magnetite-chlorite-biotite alteration. Copper was only recorded by Chevron from hole 72-1

(80 ft. of 0.10% Cu, incl. 10 ft. of 0.2% Cu). Drill logs portray an incomplete picture however; unsplit core from Chevron's program exhibits widespread, albeit low grade chalcopyrite mineralization.

Coarse calcite-arsenopyrite veining was noted in one 1972 hole This material was sampled and assayed by Placer geologists in 1990, and was shown to contain elevated gold values, (7200 ppm As, 410 ppb Au). Unfortunately weathering of boxes has obliterated some of the footage marker information.

Chevron geologists reported significantly more veining in volcanics on the property than elsewhere in the belt. This is confirmed by Mr. Dasler (personal communication) who has experience mapping and supervising exploration programs on properties located between Knob Hill and the Island Copper Mine.

In fact, in the writer's experience, it is unusual to see extensive quartz veining in the Bonanza Group volcanics. Mr Dasler, and others, speculate that the increased quartz is associated with regional hornfelsing by the large intrusive body located to the north of the Knob Hill property and that this may be a factor related to anomalous gold values in the Knob Hill area.

4.1 The Exploration Target(s)

From the earliest work, a target at Knob Hill became the soil anomaly (200 -400 ppm Cu) on the southern slope. Moreover, rock exposed here exhibits a distinctive biotite-chlorite-magnetite alteration, typical of every significant porphyry deposit and prospect in the 60 km long Island Copper – Expo Belt. The anomaly contains two sub-zones measuring 1200 by 400 m within a broader area roughly 1 by 5 km in extent.

Work by Placer Dome focused on gold dispersion in Oblong Creek which drains the southeastern flank of the Knob Hill. According to D. Sketchley, Placer's field crew obtained one moss mat sample from the Creek which contained 30-50 gold colors. Following this discovery, gold was found through to the headwaters. Microprobed samples showed gold to be copper-mercury rich -- indicating both a deep porphyry, and a high level epithermal environment.

In Aug. 1993, Peter Dasler re-sampled the lower levels of Oblong Creek and obtained samples with 1-7 colors of gold in 10 pannings. In fact, his first sample contained six small gold particles (specks) and one 0.75 mm flat flake.

Levels of gold seen in the drainages from Knob Hill is not common to steams elsewhere in the belt. Furthermore, Oblong Creek runs into the Stranby River, which was dredged for gold at its mouth (10 km to the northwest) at the turn of the century; north of Knob Hill, the Nahwitti River was also being dredged.

Knob Hill is underlain, in part, by high level acid-sulphate altered rocks. Further east, acid sulphate alteration occurs at both the NW Expo showing and surrounding the Red Dog property. Based on geological similarities, Peter Dasler has suggested that the Le Panto-El Indio deposit model may be an applicable exploration guide to future work at Knob Hill. Support for the idea that a replacement sulphide-gold

target exists comes from the arsenic-antimony-gold association, from observed alteration patterns and from the probable occurrence of acid volcanic rocks known as ash flow tuffs or ignimbrites. And, as Mr. Dasler has noted, comparable high-level gold mineralization exists at Hushamu (Cf. recent drilling results obtained by Moraga Resources Ltd.). Furthermore, the geologic section becomes shallower to the west. While deep erosion has removed high level zones from Island Copper, locally evidence remains of an epithermal zone at Hushamu. At Knob Hill, further west and even geologically higher, the probability of the upper portion of the porphyry system (along with its gold rich cap) remains.

5. SOIL GEOCHEMISTRY

5.1 Previous Work

In 1990 Placer collected a set of soil samples along an orientation line on the east side of Knob Hill; values ran up to 150 ppb gold and one test pit returned 100 ppm arsenic. A follow-up program by First Choice Industries Ltd. in 1995, was designed to provide a wide coverage centered on Placer's anomaly. A total of 1657 samples were collected on lines 4000N to 5400N: stn. 5000N, 5000E coinciding with the summit of Knob Hill. Multi-element anomalies were discovered across the new survey area.

Gold and arsenic identified by Placer coincides with a copper-in-soil anomaly, but also, as spot highs near the center of the property. As expected, values were influenced by soil type and geochemical data would probably be more diagnostic except for the presence of swampland cover.

5.2 The 1997 Work

Two small soil sample sub-grids were established in 1997, both shown on the General Compilation Map (in pocket):

1. The "Northwest Zone" at the northwest corner of the property
2. The "Knob Zone" immediately southwest of Knob Hill summit

Analytical results from the two small sub-grids are included with the drill core assays (**APPENDIX "A"**)

6. GEOPHYSICS

6.1 Regional Airborne Magnetic Survey

In the early 1960s, the government completed an airborne magnetic survey covering much of the north end of the Island. The objective was to assist companies searching for iron and/or copper-iron skarn deposits. In fact, the data has made an invaluable contribution to regional mapping (both lithologies and structure) and the identification of fertile prospecting environments, particularly in pointing toward regions of extensive hydrothermal alteration likely to host epigenetic mineral deposits.

6.2 The 1996 Ground Magnetic Survey

Following a sampling program, a proton precession magnetometer was used in 1996 to take readings across Knob Hill grid. Traverses were looped in the usual manner to monitor diurnal variations in the magnetic field. Snow impeded progress to the extent that the sampling density was reduced to a 200 metre line spacing. This proved adequate for interpretation purposes.

6.3 Aerodat Inc. (1997) Survey

On June 18, First Choice Industries Ltd. entered an agreement with Aerodat Inc. for a helicopterborne five-frequency electromagnetic, magnetic, radiometric and VLF-EM survey over the Knob Hill claim block. A 48 km^2 area was designated to be surveyed with 365 line-km of flight lines on a 150 metre line spacing. The contract was shared by Jordex Resources Inc. who arranged to have a part of their adjoining Expo property flown at the same time. Results were received in time to help guide exploration work.

One target arising from the airborne survey was an apparently[2] strong EM anomaly on the northwestern corner of the property (AGT 1). A sub-grid was established to control detailed soil sampling and ground VLF-EM work. Finally the target was drilled (DDH 97-20) with negative results. It was concluded that the geophysical response was real but due to a shallow blanket of secondary iron-manganese (wad) rather than massive sulphide mineralization as expected.

Numerous secondary targets arising from the Aerodat survey comprised linear (and comparably weak) VLF-EM conductors up to several kilometres long following mainly east-west trends; a number of these are shown on the General Compilation Map. One of passes south of Knob Hill and coincides with an old copper-in-soils anomaly. This was designated Target AGT 4 and re-sampled on a relatively closer spacing (See section 5, Soil Geochemistry). The two additional targets to the east, AGT 2 & 3, on the same conductor and a fault south-offset segment, were drilled (DDH 97-13 and DDH 97-18 respectively).

[2] There was some question as to the validity of this anomaly arising from the possibility of 60 Hertz interference, however, owing to the high strength of the response the area was targeted for follow-up.

7. THE 1997 DRILLING PROGRAM

7.1 General

Between August 12th and September 3rd, 1997, 20 holes were completed on the Knob Hill property. All drilling was BQ wireline done under sub-contract by Olympic Drilling and Consulting Ltd. of Delta B. C. To an extent this work was follow-up to encouraging results from the previous field season. Hole locations are shown on Figures 3 and 4. Pertinent drill hole data are provided in TABLE 1 below.

DDH	COMPL.	DPTH	DIP	BNG	UTM-E	UMT-N	T. FT.	ZONE
97-1	Aug 14/97	302	-90	000	68735	23180	302	Obling Creek
97-2	Aug 16/97	302	-90	000	68565	23180	604	Obling Creek
97-3	Aug 18/97	302	-90	000	68625	23260	906	Obling Creek
97-4	Aug 20/97	402	-90	000	68355	23570	1308	Obling Creek
97-5	Aug 22/97	352	-90	000	68140	23620	1660	Obling Creek
97-6	Aug 27/97	712	-90	000	68435	23260	2372	Obling Creek
97-7	Aug 29/97	382	-90	000	68400	23180	2754	Obling Creek
97-8	Aug 31/97	182	-90	000	68330	23260	2936	Obling Creek
97-9	Sep 13/97	420	-90	000	68735	23260	3356	Obling Creek
97-10	Sep 14/97	230	-90	000	68660	23380	3586	Obling Creek
97-11	Sep 14/97	80	-45	090	68660	23380	3666	Obling Creek
97-12	Sep 16/97	305	-50	313	68610	23380	3971	Obling Creek
97-13	Sep 19/97	300	-50	013	67900	23710	4271	Central E-M
97-14	Sep 23/97	332	-60	043	68010	23365	4603	Obling West
97-15	Sep 24/97	300	-60	044	68100	22950	4903	Obling West
97-16	Sep 27/97	316	-50	135	68475	23300	5219	Obling Creek
97-17	Sep 29/97	170	-50	135	68605	22950	5389	Obling Cr/S
97-18	Sep 30/97	330	-50	135	68645	23530	5719	Obling Cr/N
97-19	Oct 1/97	300	-50	045	67660	24140	6019	Cabin West
97-20	Oct 3/97	230	-50	225	64520	25820	6249	NW E-M

TABLE 1 DRILL HOLE SUMMARY

7.2 Results

Much of the core was split (mainly to five foot sections) and assayed. Summary assay results, abstracted from the full 30 element plus gold reports (see **APPENDIX A**), are listed in Table 2. Summaries of the 20 1997 drill hole logs are provided below with the full field logs are attached as Appendix B.

a) DDH 97-1 Rhyolite lapilli-tuff breccia, mainly pseudo-fiamme type (as in ignimbrite).
b) DDH 97-2 Diorite dike (?) throughout.
c) DDH 97-3 Rhyolite breccia with section of medium grey granodiorite around 170 feet.
d) DDH 97-4 Poly-lithic rhyolite breccia, partly pseudo-fiamme type, minor sorting between 20 and 25 feet, between 170 to 190 feet poorly defined but grades from fine grained sandy tuff to coarse rhyolite breccia.

e) DDH 97-5 Andesite cut by diorite dikes with minor laminated tuffaceous siltstone (slightly chloritized, carbonatized and potassic altered) beds at about 200 ft.
f) DDH 97-6 Andesite, variable massive to massive fine grained to porphyritic to brecciated, Cpy dissem and veinlets throughout assayed up to 0.23%Cu.
g) DDH 97-7 Andesite cut by diorite, qtz diorite and altered diorite dikes, intense silicification with Cpy, esp top half, top of hole rock looks like obsidian (hornfels?) at 150 feet more hornfels, partly "auto-brecciated" but containing irregular blotchy patches with creamy silicification with epidote and again at about 280 feet.
h) DDH 97-8 Diorite throughout.
i) DDH 97-9 Typical poly-lithic rhyolite breccia throughout, abun. pyrite, occasional diorite dike, pseudo-fiamme developed at 170 to 175 feet and also around 300 feet, late porphyry dike at 315 feet associated with blocky core, possibly injected into fault zone.
j) DDH 97-10 Typical rhyolite breccia, throughout.
k) DDH 97-11 Rhyolite breccia, abundant pyrite 50-75 ft.
l) DDH 97-12 Top, rhyolite breccia, especially high pyrite content, Sph common, below 220 ft. andesite, 60 ft black sediment (?) at contact, Zn common around 130 ft., probably true stratigraphic contact between rhyolites and underlying (?) andesites.
m) DDH 97-13 Fault zone, mixed serpenized andesite, with granitic xenoliths(?). Abundant but sub-economic Cpy.
n) DDH 97-14 Andesite, massive skarny (?) pyrrhotite in sesections
o) DDH 97-15 Porphyritic andesite and diorite
p) DDH 97-16 Massive dome type (?) rhyolite and/or felsite dike.
q) DDH 97-17 Poly-lithic rhyolite breccia.
r) DDH 97-18 Rhyolite breccia.
s) DDH 97-19 Rhyolite, rhyolite breccia, pyritic
t) DDH 97-20 Andesitic lapilli tuff throughout.

As indicated, drilling in the Obling Creek area intersected Bonanza Formation volcanics and associated dikes. Volcanics are dominated by relatively coarse acid pyroclastics (lapilli tuffs) overlying massive to porphyritic andesitic flows and cut by numerous later dikes ranging from diabase to rhyolite in composition.

These are interpreted to be vent or near vent facies rocks. The breccias include blocks of basement granodiorite. Within the volcanic pile a minor component of extremely fine to relatively coarse tuff occurs. Rare examples of bedding and sorting were seen.

Rocks in the Obling Creek area are marked by pervasive sulphide mineralization and a distinct geochemical arsenic overprint. Sulphide minerals as disseminations and within dry fractures (quartz veining being relatively inconsequential) include pyrite, pyrrhotite, arsenopyrite with minor chalcopyrite, sphalerite, galena and molybdenite. Magnetite and manganese, in small amounts, are ubiquitous.

Alteration minerals include chlorite, epidote and (hydrothermal?) biotite. There is a degree of albitization and potassium feldspar alteration evident in stained samples

and from petrographic studies. In a geochemical sense, besides arsenic, lead, copper, zinc and gold each produce anomalous zones, to varying degrees, over the pyroclastic rock unit. In part rocks are moderately skarny and/of hornfelsic, likely an effect from heating by the more massive dikes which pervade the area.

Late near vertical faults transect the area. These are clearly identifiable on airborne geophysical maps (but not on the ground) of the region as weak EM conductors which, intersected in drill holes, were found to contain a significant component of clay. This clay rather than sulphide mineralization presumably accounts for the conductive nature of these structures.

Vent facies rocks, especially coarse pyroclastics, tend to vary as much laterally as well as vertically. This, combined with the almost total lack of outcrop in the Obling Creek area makes geological interpretation tentative at best. Furthermore dike swarming and fault dislocations undoubtedly add another level of complexity to the geological picture. Notwithstanding, the area east of Obling Creek is dominated by rhyolites (as massive felsic units and coarse breccias) and the region west of the creek by andesitic lavas. Whereas the acid rocks are anomalous in their sulphide mineral content, andesites are typical of those found elsewhere on the north Island.

Regarding exploration potential of the Knob Hill property, no obvious targets were left untested. This would include the northern two thirds of the existing claim block. The region between Obling Creek and the newly staked Bluff claims remains to be explored. Future work in this region will benefit from data contained in the Aerodat geophysical survey.

TABLE II

KNOB HILL PROPERTY
1997 DRILL CORE ASSAYS

Hole	Sample	Date	Footage	Cu	Pb	Zn	Ag	Fe %	As	Au	Sulphides
97-1	191928	Sep 25/97	11-22	44	29	1042	0.6	4.24	345	9	Sphalerite
97-1	191929	Sep 25/97	32-42	26	29	1001	0.6	3.55	40	2	Sphalerite
97-1	191930	Sep 25/97	52-62	29	33	3164	0.7	2.07	176	7	Sphalerite
97-1	191931	Sep 25/97	72-82	47	31	1397	0.8	4.18	42	4	Sphalerite
97-1	191932	Sep 25/97	92-102	85	92	2823	1.7	2.58	347	35	Sphalerite
97-1	191933	Sep 25/97	112-122	67	35	1273	1	3.23	178	4	Sphalerite
97-1	191934	Sep 25/97	132-142	60	22	800	0.8	3.07	60	39	Sphalerite
97-1	191935	Sep 25/97	152-162	86	50	841	1.4	4.73	248	30	Sphalerite
97-1	191936	Sep 25/97	172-182	70	21	897	0.8	2.73	205	2	Sphalerite
97-1	191937	Sep 25/97	192-202	75	29	823	1	3.36	63	77	Sphalerite
97-1	191938	Sep 25/97	212-222	99	29	352	1.2	2.95	82	54	Pyr/Pyh to 5%
97-1	191939	Sep 25/97	232-242	68	26	98	0.7	3.99	521	87	Arsenopyrite
97-1	191940	Sep 25/97	252-262	136	160	78	6.9	4.88	1796	50	Arsenopyrite
97-1	191941	Sep 25/97	272-282	123	18	48	1.1	4.39	858	41	Arsenopyrite
97-1	191942	Sep 25/97	292-302	45	18	67	0.7	3.76	82	2	Pyr/Pyh to 5%
97-2	191857	Aug 20/97	15-20	930	4	187	4.7	4.53	17	18	Pyr/Pyh/Cpy to 5%
97-2	191858	Aug 20/97	25-30	374	< 3	140	2.3	3.62	13	11	Pyr/Pyh/Cpy to 5%
97-2	191859	Aug 20/97	35-40	612	17	4803	4.6	5.48	180	12	Pyr/Pyh/Cpy/Sph
97-2	191860	Aug 20/97	45-50	285	< 3	186	1.2	3.71	5	14	Pyr/Pyh to 5%
97-2	191855	Aug 19/97	50-55	244	14	380	1.5	3.64	3	16	Pyr/Pyh to 5%
97-2	191856	Aug 19/97	55-60	181	5	91	0.4	3.2	< 2	12	Pyr/Pyh to 5%
97-2	191861	Aug 20/97	65-70	216	3	84	0.3	2.89	5	18	Pyr/Pyh to 5%
97-2	191862	Aug 20/97	75-80	198	< 3	63	0.6	2.76	3	17	Pyr/Pyh to 5%
97-2	191863	Aug 20/97	85-90	414	< 3	107	1.5	2.93	2	24	Pyr/Pyh to 5%
97-2	191864	Aug 20/97	95-100	197	< 3	57	0.6	2.9	< 2	17	Pyr/Pyh to 5%
97-2	191853	Aug 19/97	100-105	297	3	82	0.9	3.07	< 2	22	Pyr/Pyh to 5%
97-2	191854	Aug 19/97	105-110	345	< 3	57	0.4	2.84	< 2	33	Pyr/Pyh to 5%
97-2	191867	Aug 20/97	135-140	203	4	234	0.8	3.31	< 2	15	Pyr/Pyh 4%
97-2	191868	Aug 20/97	145-150	159	< 3	55	0.4	2.83	2	8	Pyr/Pyh 4%
97-2	191869	Aug 20/97	155-160	183	< 3	38	< .3	2.67	< 2	14	Pyr/Pyh 4%
97-2	191870	Aug 20/97	165-170	242	< 3	70	0.5	4.09	< 2	14	Pyr/Pyh 6%
97-2	191871	Aug 20/97	175-180	148	< 3	48	0.3	2.76	4	17	Pyr/Pyh 6%
97-2	191872	Aug 20/97	185-190	212	< 3	142	0.5	2.76	< 2	17	Pyr/Pyh 4%
97-2	191873	Aug 20/97	195-200	144	5	117	0.4	3.11	< 2	10	Pyr/Pyh 4%

Assay: 30 element + Au (ppb)

TABLE II (CONTINUED)

Hole	Sample	Date	Footage	Cu	Pb	Zn	Ag	Fe %	As	Au	Sulphides
97-2	191874	Aug 20/97	205-210	116	< 3	148	0.6	3.25	< 2	8	Pyr/Pyh 4%
97-2	191875	Aug 20/97	215-220	128	< 3	49	< .3	2.8	3	12	Pyr/Pyh 4%
97-2	191876	Aug 20/97	225-230	330	7	140	1.8	2.89	2	19	Pyr/Pyh 4%
97-2	191877	Aug 20/97	235-240	166	4	84	0.9	3.79	3	7	Pyr/Pyh 4%
97-2	191878	Aug 20/97	245-250	112	3	56	0.4	2.92	< 2	7	
97-2	191879	Aug 20/97	255-260	88	3	52	0.3	3.1	< 2	5	Pyr/Pyh 4%
97-2	191880	Aug 20/97	265-270	179	< 3	89	0.9	3.29	2	5	Pyr/Pyh 4%
97-2	191881	Aug 20/97	275-280	131	3	226	0.7	3.3	6	4	
97-2	191852	Aug 19/97	285-290	109	4	146	0.4	2.82	< 2	8	Pyr/Pyh to 5%
97-3	191882	Aug 22/97	12-15	277	4	90	0.6	2.03	3	3	Pyr/Pyh to 5%
97-3	191883	Aug 22/97	15-20	318	6	171	2.1	2.03	4	< 1	
97-3	191884	Aug 22/97	25-30	638	18	115	3.6	2.15	4	9	Minor Cpy
97-3	191885	Aug 22/97	35-40	1840	33	296	9.2	2.88	3	16	Chalcopyrite
97-3	191886	Aug 22/97	45-50	1446	20	219	9.6	2.12	3	21	Chalcopyrite
97-3	191887	Aug 22/97	55-60	818	156	148	3.9	2.47	< 2	427	Chalcopyrite
97-4	191535	Aug 31/97	46-54	156	18	338	0.3	5.78	2	1	Pyr/Pyh 6%
97-4	191536	Aug 31/97	54-60	143	12	398	< .3	5.81	< 2	1	Pyr/Pyh 6%
97-4	191537	Aug 31/97	60-72	164	18	387	< .3	6.01	2	1	Pyr/Pyh 6%
97-4	191538	Aug 31/97	72-82	217	21	243	0.4	5.42	11	1	Pyr/Pyh 6%
97-4	191539	Aug 31/97	92-102	170	18	377	< .3	6.12	8	1	Pyr/Pyh 6%
97-4	191540	Aug 31/97	142-152	94	19	291	< .3	5.26	13	1	Pyr/Pyh 6%
97-4	191541	Aug 31/97	152-161' 8"	99	24	455	< .3	5.3	2	< 1	Pyr/Pyh 6%
97-4	191542	Aug 31/97	212-221' 8"	77	40	491	0.4	4.58	13	1	Pyr/Pyh 6%
97-4	191543	Aug 31/97	221' 8"-232	135	8	149	< .3	6.51	9	3	Pyr/Pyh 6%
97-4	191544	Aug 31/97	282-291	115	22	229	0.3	5.53	< 2	1	Pyr/Pyh 6%
97-4	191545	Aug 31/97	312-322	101	18	427	< .3	7.05	< 2	1	Pyr/Pyh 6%
97-4	191546	Aug 31/97	362-372	68	12	1667	< .3	6.3	< 2	1	Pyr/Pyh/Sph 6%
97-4	191815	Aug 28/97	310.5-311.5	102	12	575	0.5	6.1	10	1	Pyr/Pyh 6%
97-5	191523	Aug 30/97	52-62	67	6	179	< .3	4.84	5	1	Pyr/Pyh 4%
97-5	191524	Aug 30/97	82-92	71	6	171	< .3	5.11	15	1	Pyr/Pyh 4%
97-5	191525	Aug 30/97	138-148	39	8	93	< .3	3.19	5	< 1	
97-5	191526	Aug 30/97	162-172	31	9	118	< .3	3.48	6	< 1	Pyr/Pyh 4%
97-5	191527	Aug 30/97	177-185	69	8	349	< .3	4.45	< 2	1	Pyr/Pyh 4%
97-5	191528	Aug 30/97	187-192	47	7	74	< .3	3.11	4	1	

Assay: 30 element + Au (ppb)

TABLE II (CONTINUED)

Hole	Sample	Date	Footage	Cu	Pb	Zn	Ag	Fe %	As	Au	Sulphides
97-5	191529	Aug 30/97	192-202	27	10	83	< .3	2.72	5	< 1	
97-5	191530	Aug 30/97	207-212	53	6	179	< .3	5.26	5	1	Pyr/Pyh 6%
97-5	191531	Aug 30/97	213-222	22	12	167	0.3	4.19	< 2	2	Pyr/Pyh 6%
97-5	191532	Aug 30/97	282-292	84	7	138	< .3	5.34	4	3	Pyr/Pyh 6%
97-5	191533	Aug 30/97	312-322	82	7	644	< .3	5.1	15	2	
97-5	191534	Aug 30/97	342-352	25	8	388	< .3	3.93	< 2	< 1	Pyr/Pyh 4%
97-5	191816	Aug 28/97	99-100	73	< 3	103	0.3	5.22	< 2	< 1	Pyr/Pyh 6%
97-6	191502	Aug 29/97	12-22	657	133	502	2.1	5.3	3	12	Pyr/Pyh to 5%
97-6	191503	Aug 29/97	22-32	1056	74	273	4.5	4.67	5	11	Pyr/Pyh/Cpy to 5%
97-6	191504	Aug 29/97	32-42	384	35	190	1.7	5.05	5	7	Pyr/Pyh to 5%
97-6	191505	Aug 29/97	42-52	280	28	239	1.2	4.9	< 2	6	Pyr/Pyh to 5%
97-6	191506	Aug 29/97	52-62	603	25	326	3.6	4.95	10	13	Cpy/Pyr/Pyh to 4%
97-6	191507	Aug 29/97	72-82	319	23	183	1.4	5.04	6	7	Pyr/Pyh to 5%
97-6	191508	Aug 29/97	87-92	1181	28	221	2.9	4.69	4	19	Pyr/Pyh/Cpy to 5%
97-6	191509	Aug 29/97	97-99	1049	18	223	1	4.95	< 2	21	Pyr/Pyh/Cpy to 5%
97-6	191510	Aug 29/97	99-102	817	16	194	3	4.91	2	13	Pyr/Pyh to 5%
97-6	191511	Aug 29/97	102-112	146	16	233	0.9	4.54	4	1	Pyr/Pyh to 5%
97-6	191512	Aug 29/97	112-122	607	18	193	3.5	4.6	< 2	8	Pyr/Pyh to 5%
97-6	191513	Aug 29/97	132-142	870	26	204	6.9	4.66	5	15	Pyr/Pyh to 5%
97-6	191514	Aug 29/97	152-162	644	23	187	2.7	5.09	13	30	Pyr/Pyh to 5%
97-6	191811	Aug 28/97	153-154	1234	6	140	6.2	4.63	3	14	Cpy/Pyr/Pyh to 4%
97-6	191515	Aug 29/97	162-172	1053	16	214	2.7	4.7	< 2	49	Cpy/Pyr/Pyh to 4%
97-6	191814	Aug 28/97	179-180	1563	9	216	1	3.84	4	23	Cpy/Pyr/Pyh to 4%
97-6	191752	Aug 31/97	187.4-187.6	102	13	149	< .3	4.3	2	< 10	GRAB Qtz Vein
97-6	191516	Aug 29/97	192-202	267	13	126	0.4	3.92	< 2	5	Pyr/Pyh to 5%
97-6	191517	Aug 29/97	222-232	1332	16	174	0.7	3.74	< 2	11	Cpy/Pyr/Pyh to 4%
97-6	191751	Aug 31/97	236.5	2322	13	277	2.6	4.48	8	< 10	GRAB Qtz Vein
97-6	191518	Aug 29/97	232-242	1517	23	222	1.3	4.8	3	12	Cpy/Pyr/Pyh to 4%
97-6	191519	Aug 29/97	252-262	457	12	127	1.2	4.63	3	5	Pyr/Pyh to 5%
97-6	191520	Aug 29/97	272-282	582	10	150	1.2	4.7	3	3	Pyr/Pyh to 5%
97-6	191521	Aug 29/97	292-294	562	7	181	0.6	6.3	4	4	Pyr/Pyh to 5%
97-6	191817	Sep 1/97	294-302	312	4	161	0.9	4.14	< 2	3	Pyr/Pyh to 5%
97-6	191818	Sep 1/97	302-312	359	8	159	1	4.49	< 2	5	Pyr/Pyh to 5%
97-6	191819	Sep 1/97	312-322	259	3	133	0.6	4.34	3	3	Pyr/Pyh to 5%
97-6	191820	Sep 1/97	322-332	304	8	77	0.5	4.81	3	3	Pyr/Pyh to 5%
97-6	191821	Sep 1/97	332-342	693	5	95	0.7	4.04	< 2	2	Pyr/Pyh/Cpy to 5%

Assay: 30 element + Au (ppb)

TABLE II (CONTINUED)

Hole	Sample	Date	Footage	Cu	Pb	Zn	Ag	Fe %	As	Au	Sulphides
97-6	191522	Aug 29/97	334-336	2360	10	204	2.7	4.1	5	3	Cpy/Pyr/Pyh to 4%
97-6	191823	Sep 1/97	352-362	258	< 3	72	0.9	3.89	< 2	1	Pyr/Pyh to 5%
97-6	191824	Sep 1/97	362-372	542	5	69	1.3	3.46	4	3	Pyr/Pyh/Cpy to 5%
97-6	191825	Sep 1/97	372-382	873	5	67	1.7	3.14	< 2	5	Pyr/Pyh/Cpy to 5%
97-6	191826	Sep 1/97	382-392	193	5	54	0.8	3.82	4	< 1	Pyr/Pyh to 5%
97-6	191827	Sep 1/97	392-402	216	35	124	1.1	5.78	262	8	As/Pyr/Pyh to 5%
97-6	191828	Sep 1/97	402-412	82	< 3	56	0.4	3.23	< 2	< 1	Pyr/Pyh to 5%
97-6	191829	Sep 1/97	412-423' 4"	131	8	81	0.5	3.34	5	< 1	Pyr/Pyh to 5%
97-6	191830	Sep 1/97	423' 4"-432	24	4	55	< .3	3.17	< 2	< 1	Pyr/Pyh to 5%
97-6	191831	Sep 1/97	432-442	163	4	181	0.6	5.28	9	2	Pyr/Pyh to 5%
97-6	191832	Sep 1/97	442-452	323	20	1185	1.1	5.83	7	1	Pyr/Pyh/Sph to 5%
97-6	191833	Sep 1/97	452-462	74	5	134	0.4	3.32	5	< 1	Pyr/Pyh to 5%
97-6	191834	Sep 1/97	462-472	309	< 3	268	0.9	3.98	2	1	Pyr/Pyh to 5%
97-6	191835	Sep 1/97	472-482	143	5	64	0.3	4.04	< 2	< 1	Pyr/Pyh to 5%
97-6	191836	Sep 1/97	482-492	272	3	131	0.7	3.75	3	< 1	Pyr/Pyh to 5%
97-6	191837	Sep 1/97	492-502	93	< 3	81	0.3	4.4	10	< 1	Pyr/Pyh to 5%
97-6	191812	Aug 28/97	499-500	904	8	109	1.2	3.47	9	12	Cpy/Pyr/Pyh to 4%
97-6	191838	Sep 1/97	502-512	217	< 3	443	0.6	3.66	7	2	Pyr/Pyh to 5%
97-6	191839	Sep 1/97	512-522	675	< 3	143	1.6	3.49	3	3	Pyr/Pyh to 5%
97-6	191840	Sep 1/97	522-532	242	< 3	77	0.4	4.34	13	2	Pyr/Pyh to 5%
97-6	191841	Sep 1/97	532-542	443	3	75	0.4	3.73	2	1	Pyr/Pyh to 5%
97-6	191842	Sep 1/97	542-552	187	5	83	< .3	4.37	< 2	2	Pyr/Pyh to 5%
97-6	191843	Sep 1/97	552-562	148	10	70	< .3	4.33	< 2	1	Pyr/Pyh to 5%
97-6	191844	Sep 1/97	562-572	129	< 3	75	0.4	4.6	< 2	1	Pyr/Pyh to 5%
97-6	191845	Sep 3/97	572-582	195	5	81	0.6	4.98	2	1	Pyr/Pyh to 5%
97-6	191813	Aug 28/97	574.5-575.5	422	3	56	0.8	3.26	3	7	Pyr/Pyh to 5%
97-6	191846	Sep 3/97	582-592	177	< 3	142	0.7	4.99	< 2	1	Pyr/Pyh to 5%
97-6	191847	Sep 3/97	592-602	170	6	92	0.5	5.24	< 2	1	Pyr/Pyh to 5%
97-6	191848	Sep 18/97	602-612	107	7	73	< .3	3.63	< 2	2	Pyr/Pyh to 5%
97-6	191849	Sep 18/97	612-622	67	4	81	< .3	4.05	4	1	Pyr/Pyh to 5%
97-6	191850	Sep 18/97	622-632	152	6	105	0.4	4.15	< 2	1	Pyr/Pyh to 5%
97-6	191904	Sep 18/97	632-642	140	< 3	98	0.3	3.8	< 2	4	Pyr/Pyh to 5%
97-6	191905	Sep 18/97	652-662	121	3	68	0.3	3.45	< 2	2	Pyr/Pyh to 5%
97-6	191906	Sep 18/97	672-682	210	4	70	0.7	3.83	4	5	Pyr/Pyh to 5%
97-6	191907	Sep 18/97	692-702	69	5	62	< .3	3.39	2	< 1	Pyr/Pyh to 5%

Assay: 30 element + Au (ppb)

TABLE II (CONTINUED)

Hole	Sample	Date	Footage	Cu	Pb	Zn	Ag	Fe %	As	Au	Sulphides
97-7	191888	Sep 2/97	15-22	95	10	159	0.6	4.06	7	2	Pyr/Pyh to 5%
97-7	191889	Sep 2/97	22-32	227	6	100	0.7	3.8	2	4	Pyr/Pyh to 5%
97-7	191890	Sep 2/97	32-42	853	4	122	4.8	3.43	5	6	Cpy/Pyr/Pyh to 4%
97-7	191891	Sep 2/97	42-52	1698	12	115	5.5	4.01	7	7	Cpy/Pyr/Pyh to 4%
97-7	191892	Sep 2/97	52-62	346	12	169	1.3	3.92	4	14	Pyr/Pyh to 5%
97-7	191893	Sep 2/97	62-72	398	19	253	2	4.56	< 2	5	Pyr/Pyh to 5%
97-7	191894	Sep 2/97	72-82	734	38	945	3.9	4.39	9	9	Pyr/Pyh/Sph to 5%
97-7	191895	Sep 2/97	82-92	786	26	832	5.3	5.47	8	4	Pyr/Pyh/Sph to 5%
97-7	191896	Sep 2/97	92-102	728	13	131	2.8	4.41	4	11	Pyr/Pyh to 5%
97-7	191897	Sep 2/97	102-112	1253	16	204	4.1	5.43	4	13	Pyr/Pyh/Cpy to 5%
97-7	191898	Sep 2/97	112-122	1484	15	184	3.7	4.88	< 2	10	Pyr/Pyh/Cpy to 5%
97-7	191754	Sep 2/97	216.5-217	412	69	17%	3.2	10.62	70	6	Sulphide Vein
97-7	191899	Sep 2/97	132-142	215	7	100	0.4	4.34	3	2	Pyr/Pyh to 5%
97-7	191753	Aug 31/97	217-218	4079	22	939	10.6	4.79	< 2	< 10	GRAB/Cpy Vein
97-7	191900	Sep 2/97	252-262	326	20	187	1.4	4.71	4	2	Pyr/Pyh to 5%
97-7	191901	Sep 2/97	332-342	199	20	3446	1	6.9	16	2	Pyr/Pyh to 5%
97-7	191902	Sep 2/97	355-362	110	18	1236	0.5	5.93	12	2	Pyr/Pyh to 5%
97-7	191903	Sep 2/97	362-372	154	12	581	0.6	6.53	12	< 1	Pyr/Pyh to 5%
97-7	191900	Sep 2/97	252-262	326	20	187	1.4	4.71	4	2	Pyr/Pyh to 5%
97-7	191901	Sep 2/97	332-342	199	20	3446	1	6.9	16	2	Pyr/Pyh to 5%
97-7	191902	Sep 2/97	355-362	110	18	1236	0.5	5.93	12	2	Pyr/Pyh to 5%
97-7	191903	Sep 2/97	362-372	154	12	581	0.6	6.53	12	< 1	Pyr/Pyh to 5%
97-9	191908	Sep 18/97	20-30	57	51	660	0.6	1.78	23	7	Sphalerite
97-9	191909	Sep 18/97	40-50	59	216	2692	1.2	2.1	15	11	Sphalerite
97-9	191910	Sep 20/97	60-70	72	54	1711	0.9	2.37	25	35	Sphalerite
97-9	191911	Sep 20/97	80-90	66	188	1713	1.3	2.88	23	88	Sphalerite
97-9	191912	Sep 20/97	100-110	77	203	858	2.1	2.63	44	26	Sphalerite
97-9	191913	Sep 20/97	120-130	91	333	250	7.2	2.3	36	121	
97-9	191914	Sep 20/97	140-150	118	52	152	1.5	3.88	23	197	Pyr/Pyh to 5%
97-9	191915	Sep 20/97	160-170	58	17	463	0.8	3.15	13	99	Pyr/Pyh to 5%
97-9	191916	Sep 20/97	180-190	154	28	1602	2.2	4.94	17	121	Pyr/Pyh/Sph 5%
97-9	191917	Sep 20/97	200-210	138	40	229	1.3	2.76	11	12	Pyr/Pyh to 5%
97-9	191918	Sep 20/97	220-230	146	68	214	1.3	3.64	28	6	Pyr/Pyh to 5%
97-9	191919	Sep 20/97	240-250	82	31	128	0.7	2.2	32	12	
97-9	191920	Sep 20/97	260-270	88	41	87	0.9	2.23	16	11	

Assay: 30 element + Au (ppb)

TABLE II (CONTINUED)

Hole	Sample	Date	Footage	Cu	Pb	Zn	Ag	Fe %	As	Au	Sulphides
97-9	191921	Sep 20/97	280-290	73	34	70	0.6	2.28	23	8	
97-9	191922	Sep 20/97	300-310	46	120	234	1.6	1.43	3052	468	ARSENOPYRITE
97-9	191923	Sep 20/97	320-330	70	26	365	0.9	3.1	74	21	
97-9	191924	Sep 20/97	340-350	309	54	136	3.3	3.02	28	560	Pyr/Pyh to 5%
97-9	191925	Sep 20/97	360-370	195	25	178	1.2	3.57	37	46	Pyr/Pyh to 5%
97-9	191926	Sep 20/97	380-390	65	12	54	0.5	1.66	8	4	
97-9	191927	Sep 20/97	410-420	94	128	214	2.4	1.92	570	94	Arsenopyrite
97-10	190831	Sep 23/97	20-30	31	36	152	0.9	4.89	5	58	Pyr/Pyh to 5%
97-10	190832	Sep 23/97	30-40	89	64	456	1.4	5.05	16	55	Pyr/Pyh to 5%
97-10	190833	Sep 23/97	50-60	66	84	1162	1.8	3.15	29	45	Pyr/Pyh/Sph to 5%
97-10	190834	Sep 23/97	70-80	24	22	1228	0.4	2.63	3	114	Pyr/Pyh/Sph to 5%
97-10	190835	Sep 23/97	90-100	39	30	1272	0.7	3.06	< 2	69	Pyr/Pyh/Sph to 5%
97-10	190836	Sep 23/97	110-120	69	17	74	0.6	3.09	5	68	Pyr/Pyh to 5%
97-10	191755	Sep 18/97	113-113.5	1402	81	150	8.4	4.01	12	1660	0.3mm Sul. Vein
97-10	190837	Sep 23/97	130-140	162	29	202	1.4	3.58	4	82	Pyr/Pyh to 5%
97-10	190838	Sep 23/97	150-160	65	33	337	0.7	2.9	30	75	Pyr/Pyh to 5%
97-10	191756	Sep 18/97	159-160	61	22	466	0.8	3.7	5	58	3, 4mm Sul. Veins
97-10	190839	Sep 23/97	170-180	40	20	62	0.5	2.55	5	7	Pyr/Pyh to 5%
97-10	190840	Sep 23/97	190-200	44	23	147	0.4	2.64	< 2	19	Pyr/Pyh to 5%
97-10	190841	Sep 23/97	210-220	44	18	217	0.4	3.21	7	12	Pyr/Pyh to 5%
97-11	190842	Sep 23/97	30-40	27	35	294	0.9	4.53	4	68	Pyr/Pyh to 5%
97-11	190843	Sep 23/97	40-50	37	51	536	1	4.8	12	34	Pyr/Pyh to 5%
97-11	190844	Sep 23/97	50-60	86	160	1224	2.6	4.33	35	476	Pyr/Pyh/Sph to 5%
97-12	190801	Sep 20/97	10-20	60	15	237	< .3	3.09	17	2	Pyr/Pyh to 5%
97-12	190802	Sep 20/97	20-30	39	14	124	< .3	3.1	6	< 1	
97-12	190803	Sep 20/97	30-40	59	14	437	< .3	2.84	5	< 1	Pyr/Pyh to 3%
97-12	190804	Sep 20/97	40-50	55	13	131	< .3	3.32	7	1	Pyr/Pyh to 3%
97-12	190805	Sep 20/97	50-60	60	11	108	0.4	3.26	5	5	Pyr/Pyh to 3%
97-12	190806	Sep 20/97	60-70	64	12	267	< .3	3.53	6	3	Pyr/Pyh to 3%
97-12	190807	Sep 20/97	70-80	70	17	570	0.5	3.98	8	15	Pyr/Pyh to 3%
97-12	190808	Sep 20/97	80-90	96	18	945	0.4	3.51	9	15	Pyr/Pyh/Sph to 5%

Assay: 30 element + Au (ppb)

TABLE II (CONTINUED)

Hole	Sample	Date	Footage	Cu	Pb	Zn	Ag	Fe %	As	Au	Sulphides
97-12	190809	Sep 20/97	90-100	756	22	424	4.3	4.18	8	94	Cpy/Pyr/Pyh to 4%
97-12	190810	Sep 20/97	100-110	127	15	1381	0.5	3.77	6	269	Pyr/Pyh/Sph to 5%
97-12	190811	Sep 20/97	110-120	479	25	369	2.9	3.94	8	607	Pyr/Pyh to 3%
97-12	190812	Sep 20/97	120-130	95	10	277	0.3	2.77	6	44	Pyr/Pyh to 3%
97-12	190813	Sep 20/97	130-140	1593	54	1067	9.8	5.94	28	1850	Pyr/Pyh/Sph/Cpy
97-12	190814	Sep 20/97	140-150	112	32	1245	1	7.34	8	62	Pyr/Pyh/Sph to 5%
97-12	190815	Sep 20/97	150-160	38	26	314	1.7	4.84	12	93	Pyr/Pyh to 5%
97-12	190816	Sep 20/97	160-170	42	16	197	1.4	5.33	10	51	Pyr/Pyh to 5%
			AVERAGE	468			2.75			384	
97-12	190817	Sep 20/97	170-180	70	15	195	0.5	4.14	11	7	Pyr/Pyh to 5%
97-12	190818	Sep 20/97	180-190	44	6	298	< .3	4.59	12	3	Pyr/Pyh to 5%
97-12	190819	Sep 20/97	190-200	35	< 3	157	< .3	4.01	14	2	Pyr/Pyh to 5%
97-12	190820	Sep 23/97	200-210	41	4	185	0.4	4.72	8	1	Pyr/Pyh to 5%
97-12	190821	Sep 23/97	210-220	45	< 3	307	0.4	5.81	2	1	Pyr/Pyh to 5%
97-12	190822	Sep 23/97	220-230	39	< 3	82	0.3	6.45	4	1	Pyr/Pyh to 5%
97-12	190823	Sep 23/97	230-240	81	9	500	0.6	4.7	8	4	Pyr/Pyh to 5%
97-12	190824	Sep 23/97	240-250	59	< 3	167	0.5	5.68	7	1	Pyr/Pyh to 5%
97-12	190825	Sep 23/97	250-260	58	30	111	0.8	5.02	7	13	Pyr/Pyh to 5%
97-12	190826	Sep 23/97	260-270	55	13	112	0.6	5.09	5	6	Pyr/Pyh to 5%
97-12	190827	Sep 23/97	270-280	32	14	114	0.4	4.52	< 2	4	Pyr/Pyh to 5%
97-12	190828	Sep 23/97	280-290	48	7	77	0.4	4.65	< 2	10	Pyr/Pyh to 5%
97-12	190829	Sep 23/97	290-300	53	3	89	0.3	4.94	22	8	Pyr/Pyh to 5%
97-13	190845	Sep 23/97	30-40	918	7	69	0.3	5.08	2	5	Pyr/Pyh/Cpy to 5%
97-13	190846	Sep 23/97	40-50	1184	3	59	0.7	4.92	< 2	2	Pyr/Pyh/Cpy to 5%
97-13	190847	Sep 23/97	50-60	947	15	72	0.7	4.12	3	8	Pyr/Pyh/Cpy to 5%
97-13	190848	Sep 23/97	60-70	1375	12	549	1.7	4.51	9	3	Pyr/Pyh/Cpy to 5%
97-13	190849	Sep 23/97	70-80	1752	3	107	1.6	5.37	8	7	Pyr/Pyh/Cpy to 5%
97-13	190850	Sep 23/97	80-90	4110	< 3	149	3.1	5.05	8	18	Pyr/Pyh/Cpy to 5%
97-13	190851	Sep 23/97	90-100	1517	7	91	0.6	4.01	9	8	Pyr/Pyh/Cpy to 5%
97-13	190852	Sep 23/97	100-110	1986	7	126	1.8	4.1	35	24	Pyr/Pyh/Cpy to 5%
97-13	190853	Sep 23/97	110-120	2008	7	189	2.4	4.4	23	14	Pyr/Pyh/Cpy to 5%
97-13	190855	Sep 23/97	130-140	1518	4	53	0.6	3.28	5	9	Pyr/Pyh/Cpy to 5%
97-13	190856	Sep 23/97	140-150	1581	6	57	0.6	3.86	< 2	8	Pyr/Pyh/Cpy to 5%
97-13	190857	Sep 23/97	150-160	1852	< 3	53	0.5	3.92	4	14	Pyr/Pyh/Cpy to 5%

Assay: 30 element + Au (ppb)

TABLE II (CONTINUED)

Hole	Sample	Date	Footage	Cu	Pb	Zn	Ag	Fe %	As	Au	Sulphides
97-13	190858	Sep 23/97	160-170	1795	7	56	0.6	3.62	< 2	25	Pyr/Pyh/Cpy to 5%
97-13	190859	Sep 23/97	170-180	1773	4	53	0.9	3.88	< 2	13	Pyr/Pyh/Cpy to 5%
97-13	190860	Sep 23/97	180-190	2092	5	47	0.3	3.88	< 2	32	Pyr/Pyh/Cpy to 5%
97-13	190861	Sep 23/97	190-200	2221	< 3	50	0.6	4.29	< 2	22	Pyr/Pyh/Cpy to 5%
97-13	190862	Sep 23/97	200-210	1812	< 3	50	0.6	4.4	4	11	Pyr/Pyh/Cpy to 5%
97-13	190863	Sep 23/97	210-220	1281	4	40	0.4	3.84	4	9	Pyr/Pyh/Cpy to 5%
97-13	190864	Sep 23/97	220-230	1521	< 3	78	0.9	4.17	17	12	Pyr/Pyh/Cpy to 5%
97-13	190865	Sep 23/97	230-240	1346	4	87	0.7	3.8	14	19	Pyr/Pyh/Cpy to 5%
97-13	190866	Sep 23/97	240-250	1607	< 3	44	0.5	3.46	< 2	24	Pyr/Pyh/Cpy to 5%
97-13	190867	Sep 23/97	250-260	1494	< 3	51	0.5	3.92	< 2	5	Pyr/Pyh/Cpy to 5%
97-13	190868	Sep 23/97	260-270	1896	6	170	1.9	4.57	12	16	Pyr/Pyh/Cpy to 5%
97-13	190869	Sep 23/97	270-280	1682	6	79	0.6	4.06	2	4	Pyrittic to 5%
97-13	190870	Sep 23/97	280-290	99	4	96	< .3	2.6	< 2	1	
97-13	190871	Sep 23/97	290-300	1009	9	65	0.3	3.36	< 2	3	Pyr/Pyh/Cpy to 4%
			AVERAGE	1630			0.9				
97-14	190718	Oct 6/97	90-100	677	57	2700	1.1	13.85	49	2	Pyrittic to 10%
97-14	190719	Oct 6/97	100-110	150	90	1029	1	6.28	10	< 1	Pyrittic to 5%
97-14	190720	Oct 6/97	300-310	900	4	511	1.7	6.56	31	3	Pyr/Pyh/Cpy to 5%
97-14	190721	Oct 6/97	310-320	464	10	296	1	5.59	9	1	Pyrittic to 5%
97-14	190722	Oct 6/97	320-332	317	< 3	159	0.5	4.43	4	1	Pyrittic to 5%
97-16	190872	Sep 28/97	20-30	89	14	1090	< .3	5.7	3	< 1	Sphalerite
97-16	190873	Sep 28/97	30-40	142	22	407	0.6	5.63	2	2	Pyrittic to 5%
97-16	190874	Sep 28/97	40-50	126	9	351	1	4.74	< 2	1	Pyrittic to 5%
97-16	190875	Sep 28/97	50-60	334	12	605	1.8	6.15	< 2	295	Pyrittic to 5%
97-16	190876	Sep 28/97	60-70	163	15	294	1.1	4.55	< 2	4	Pyrittic to 5%
97-16	190877	Sep 28/97	70-80	318	6	226	1.8	5.28	2	10	Pyrittic to 5%
97-16	190878	Sep 28/97	80-90	368	< 3	193	2.2	5.36	< 2	27	Pyrittic to 5%
97-16	190879	Sep 28/97	90-100	778	8	395	4	5.86	< 2	16	Pyrittic to 5%
97-16	190880	Sep 28/97	100-110	398	15	212	1.5	5.05	< 2	6	Pyrittic to 5%
97-16	190881	Sep 28/97	110-120	971	14	263	2.4	5.39	< 2	29	Pyrittic to 5%
97-16	190882	Sep 28/97	120-130	507	11	141	1.7	4.08	< 2	4	Pyrittic to 5%
97-16	190883	Sep 28/97	130-140	844	7	139	2.1	3.79	2	6	Pyr/Pyh/Cpy to 5%
97-16	190884	Sep 28/97	140-150	1771	7	159	2.6	4.45	< 2	9	Pyr/Pyh/Cpy to 5%
97-16	190885	Sep 28/97	150-160	315	7	68	< .3	4.17	2	18	
97-16	190886	Sep 30/97	160-170	932	23	348	2.1	4.58	3	15	Pyr/Pyh/Cpy to 5%

Assay: 30 element + Au (ppb)

TABLE II (CONTINUED)

Hole	Sample	Date	Footage	Cu	Pb	Zn	Ag	Fe %	As	Au	Sulphides
97-16	190887	Sep 30/97	170-180	447	20	433	2.1	5.03	65	4	Pyr/Pyh to 5%
97-16	190888	Sep 30/97	180-190	472	7	84	0.7	4.09	10	25	Pyr/Pyh to 5%
97-16	190889	Sep 30/97	190-200	1407	12	711	3.8	4.38	< 2	45	Pyr/Pyh/Cpy to 5%
97-16	190890	Sep 30/97	200-210	1584	36	220	4.4	3.75	2	33	Pyr/Pyh/Cpy to 5%
97-16	190891	Sep 30/97	210-220	1503	24	107	4.9	0.96	4	5	Pyr/Pyh/Cpy to 5%
97-16	190892	Sep 30/97	220-230	1403	44	155	5.2	0.81	3	12	Pyr/Pyh/Cpy to 5%
97-16	190893	Sep 30/97	230-240	1287	29	123	4.4	3.7	2	20	Pyr/Pyh/Cpy to 5%
97-16	190894	Sep 30/97	240-250	1110	15	93	2.3	3.18	4	21	Pyr/Pyh/Cpy to 5%
			AVERAGE	1382			4.16				
97-16	190895	Sep 30/97	250-260	646	35	64	0.9	0.92	4	18	Pyr/Pyh/Cpy to 5%
97-16	190896	Sep 30/97	260-270	785	32	68	1.2	1.92	< 2	13	Pyr/Pyh/Cpy to 5%
97-16	190897	Sep 30/97	270-280	621	45	114	1.6	0.97	3	23	
97-16	190898	Sep 30/97	280-290	863	54	71	1.2	0.98	4	64	Pyr/Pyh/Cpy to 5%
97-16	190899	Oct 3/97	290-300	647	40	83	0.5	1.12	3	63	Pyr/Pyh/Cpy to 5%
97-16	190900	Oct 3/97	300-310	530	24	56	0.5	0.9	2	24	
97-16	190701	Oct 3/97	310-316	608	26	60	0.6	0.83	2	25	Cpy/Pyr/Pyh to 4%
97-17	190702	Oct 3/97	10-20	53	40	1051	0.6	2.33	21	7	Sphalerite
97-17	190703	Oct 3/97	20-30	284	110	1264	5.2	2.97	39	670	Sphalerite
97-17	190704	Oct 3/97	30-40	181	45	1500	0.8	2.84	30	55	Sphalerite
97-17	190705	Oct 3/97	40-50	64	28	1705	0.4	2.75	25	17	Sphalerite
97-17	190706	Oct 3/97	50-60	46	26	2027	< .3	2.23	16	7	Sphalerite
97-17	190707	Oct 3/97	60-70	54	38	1347	0.3	2.33	9	10	Sphalerite
97-17	190708	Oct 3/97	70-80	69	27	1501	< .3	2.69	16	14	Sphalerite
97-17	190709	Oct 3/97	80-90	52	23	1664	0.3	2.41	23	113	Sphalerite
97-17	190710	Oct 3/97	90-100	48	43	1533	0.7	2.61	15	31	Sphalerite
97-17	190711	Oct 3/97	100-110	51	58	1136	0.7	2.38	36	61	Sphalerite
97-17	190712	Oct 3/97	110-120	62	38	972	< .3	2.77	10	25	Sphalerite
97-17	190713	Oct 3/97	120-130	57	36	1059	0.4	2.86	13	22	Sphalerite
97-17	190714	Oct 3/97	130-140	49	27	1242	0.4	2.18	10	62	Sphalerite
97-17	190715	Oct 3/97	140-150	253	22	380	0.7	2.51	14	30	Pyr/Pyh to 5%
97-17	190716	Oct 3/97	150-160	44	17	1259	< .3	2.05	8	28	Sphalerite
97-17	190717	Oct 3/97	160-170	90	22	748	0.7	4.03	15	470	Sphalerite

Assay: 30 element + Au (ppb)

TABLE II (CONTINUED)

Hole	Sample	Date	Footage	Cu	Pb	Zn	Ag	Fe %	As	Au	Sulphides
97-20	190730	Oct 6/97	90-100	41	< 3	132	< .3	2.54	19	2	Pyr/Pyh to 5%
97-20	190731	Oct 6/97	100-110	46	< 3	63	< .3	3.96	13	2	Pyr/Pyh to 5%
97-20	190732	Oct 6/97	110-120	46	7	111	< .3	4.6	17	< 1	Pyr/Pyh to 5%
97-20	190733	Oct 6/97	120-130	58	8	77	< .3	3.91	23	1	Pyr/Pyh to 5%
97-20	190734	Oct 6/97	130-140	33	< 3	60	< .3	3.68	3	< 1	Pyr/Pyh to 5%
97-20	190735	Oct 6/97	140-150	54	3	60	< .3	3.87	56	< 1	Pyr/Pyh to 5%
97-20	190736	Oct 6/97	150-160	40	< 3	69	< .3	3.64	114	< 1	Pyr/Pyh to 5%
97-20	190737	Oct 6/97	160-170	102	4	125	< .3	4.87	24	< 1	Pyrittic to 5%
97-20	190738	Oct 6/97	170-180	73	< 3	96	0.3	4.97	6	< 1	Pyrittic to 5%
97-20	190739	Oct 6/97	180-190	88	28	420	0.7	4.77	161	2	Pyrittic to 5%
97-20	190740	Oct 6/97	190-200	77	9	207	0.4	5.57	11	< 1	Pyrittic to 5%
97-20	190741	Oct 6/97	200-210	63	< 3	104	0.3	5.42	70	2	Pyrittic to 5%
97-20	190742	Oct 6/97	210-220	65	< 3	191	< .3	5.32	8	< 1	Pyrittic to 5%
97-20	190743	Oct 6/97	220-230	49	7	145	< .3	4.6	3	< 1	Pyr/Pyh to 5%

Assay: 30 element + Au (ppb)

8. CERTIFICATE OF QUALIFICATIONS

I, Douglas G. Leighton, do hereby certify that:

1. I am a consulting geophysicist/geologist with offices at 3806 - 254th Street, Aldergrove, B.C., V4W 2R3.

2. I am a graduate of the University of British Columbia, B.Sc. (1968).

3. I am a registered Professional Geoscientist of the Association of Professional Engineers and Geoscientists of the Province of British Columbia.

4. I have practiced my profession continuously since 1968.

5. I personally supervised the exploration program on the Knob Hill Property described in this report for First Choice Industries Ltd.

6. I have not received, nor do I expect to receive any interest, direct or indirect, in the Knob Hill Property, in First Choice Industries Ltd. or in the securities of these companies.

7. I hereby consent to the publication of this report for purposes of a Prospectus or Statement of Material Facts.

Dated at Aldergrove, British Columbia, this 15th day of December, 1997

Douglas G. Leighton, P.Geo.

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APPENDIX A

LABORATORY ASSAY CERTIFICATES

KNOB HILL PROPERTY – 1997 PROGRAM

FILE NUMBER	
97-3913	SOILS FRON HAWK GRID
97-4302	SOILS FRON HAWK GRID
97-4420	SOILS FRON HAWK GRID
97-4500	CORE SAMPLES
97-4680	CORE SAMPLES
97-4775	CORE SAMPLES
97-4795	CORE SAMPLES
97-4869	CORE SAMPLES
97-4870	CORE SAMPLES
97-4945	SILTS FROM BLUFF CLAIMS
97-4952	CORE SAMPLES
97-5107	SOILS FROM KNOB HILL
97-5108	SOILS FROM KNOB HILL
97-5109	CORE SAMPLES
97-5110	ROCK CHIPS FROM OLD CABIN AREA
97-5492	CORE SAMPLES
97-5518	CORE SAMPLES
97-5519	CORE SAMPLES
97-5520	CORE SAMPLES
97-5665	CORE SAMPLES
97-5678	CORE SAMPLES
97-5709	CORE SAMPLES
97-5710	CORE SAMPLES
97-5748	CORE SAMPLES (FIRE ASSAYS)
97-5861	CORE SAMPLES
97-6000	CORE SAMPLES

ACME ANALYTICAL LABORATORIES LTD. ... E. ...TING ST. ...COUVER BC ... 1R... P...E(6(...53-... F...(604)...-17...

GEOCHEMICAL ANALYSIS CERTIFICATE

Leighton Exploration & Dev. File # 97-4500
3806 - 254th St., Aldergrove BC V4W 2R3 Submitted by: Steve Oakley

CORG

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
B 191851	1	105	16	939	.9	11	13	1134	3.41	2	<8	<2	<2	44	7.1	<3	<3	67	1.63	.060	7	9	1.22	50	.08	<3	1.87	.12	.15	<2	4
B 191852	2	109	4	146	.4	8	11	575	2.82	<2	<8	<2	<2	44	1.0	<3	<3	63	1.22	.062	7	9	1.01	50	.13	<3	1.65	.15	.19	<2	8
B 191853	5	297	3	82	.9	10	11	366	3.07	<2	<8	<2	<2	33	.4	<3	<3	63	1.04	.067	7	11	.97	54	.15	<3	1.48	.12	.20	<2	22
B 191854	2	345	<3	57	.4	9	10	387	2.84	<2	<8	<2	<2	35	<.2	<3	<3	62	1.21	.066	6	10	.94	39	.13	<3	1.38	.11	.14	<2	33
B 191855	3	244	14	380	1.5	10	12	1206	3.64	3	<8	<2	<2	26	2.3	<3	<3	67	.69	.067	6	11	1.19	50	.11	<3	1.63	.11	.19	<2	16
B 191856	3	181	5	91	.4	9	11	648	3.20	<2	<8	<2	<2	30	.2	<3	<3	65	.56	.069	7	11	1.00	55	.14	<3	1.49	.14	.19	2	12
RE B 191856	3	181	<3	91	.5	9	11	649	3.22	2	<8	<2	<2	30	.3	<3	<3	65	.56	.069	7	11	1.01	55	.14	<3	1.50	.14	.19	2	1

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: CORE AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: AUG 20 1997 DATE REPORT MAILED: Aug 27/97 SIGNED BY. ..... D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Data ___ FA ___

ACME LYT L LI ATO LT E. FIN F. OUV C 1R6 PF (60 3-3 FN)4)7 L71

GEOCHEMICAL ANALYSIS CERTIFICATE

Leighton Exploration & Dev. File # 97-4680

3806 - 254th St., Aldergrove BC V4W 2R3 Submitted by: S.R. Oakley

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
B 191857	27	930	4	187	4.7	13	14	1629	4.53	17	<8	<2	2	22	.6	<3	7	69	.48	.074	9	15	1.15	54	.09	<3	1.84	.10	.20	2	18
B 191858	9	374	<3	140	2.3	10	12	915	3.62	13	<8	<2	2	30	.9	<3	<3	70	.53	.073	8	14	1.14	64	.12	<3	1.74	.15	.26	2	11
B 191859	12	612	17	4803	4.6	12	14	2955	5.48	180	8	<2	2	14	41.6	6	12	48	.43	.069	10	9	.69	50	.03	<3	1.07	.06	.20	<2	12
B 191860	5	285	<3	186	1.2	11	11	1151	3.71	5	<8	<2	2	30	.9	<3	<3	68	.56	.074	9	14	1.07	57	.13	<3	1.65	.15	.22	2	14
B 191861	13	216	3	84	.3	9	10	393	2.89	5	<8	<2	<2	33	.4	<3	<3	64	1.13	.073	9	13	.93	55	.15	<3	1.55	.13	.20	<2	18
B 191862	3	198	<3	63	.6	9	10	361	2.76	3	<8	<2	2	33	.3	<3	<3	63	1.18	.069	9	12	.97	34	.13	<3	1.48	.11	.11	2	17
B 191863	10	414	<3	107	1.5	10	10	400	2.93	2	<8	<2	<2	34	.5	<3	<3	63	.98	.070	8	13	.99	47	.15	<3	1.55	.13	.16	2	24
B 191864	6	197	<3	57	.6	8	10	346	2.90	<2	<8	<2	2	41	.2	<3	<3	69	1.13	.073	8	14	.97	39	.17	<3	1.54	.16	.13	3	17
B 191865	2	400	<3	85	.9	10	10	340	2.84	13	9	<2	2	38	.5	<3	<3	65	1.06	.071	9	14	.88	37	.15	<3	1.49	.15	.14	2	40
B 191866	15	310	<3	185	.7	10	10	409	3.01	4	<8	<2	2	46	1.3	<3	<3	65	1.43	.072	10	13	.87	41	.12	<3	1.52	.15	.15	<2	22
B 191867	5	203	4	234	.8	11	11	617	3.31	<2	<8	<2	2	48	1.8	<3	<3	71	1.60	.070	10	14	1.10	53	.12	<3	1.71	.15	.23	2	15
B 191868	2	159	<3	55	.4	9	10	329	2.83	2	<8	<2	<2	44	<.2	<3	<3	70	1.00	.071	9	13	1.00	62	.16	<3	1.59	.19	.23	3	8
RE B 191868	3	165	<3	56	.6	9	10	337	2.89	2	<8	<2	2	45	.3	<3	<3	72	1.01	.073	10	14	1.02	63	.16	<3	1.63	.20	.24	3	8
RRE B 191868	3	158	<3	56	.5	10	10	323	2.82	<2	<8	<2	3	41	.3	<3	<3	70	.96	.072	10	13	1.00	61	.16	<3	1.54	.17	.23	2	9
B 191869	8	183	<3	38	<.3	7	9	222	2.67	<2	<8	<2	2	40	<.2	<3	3	67	.83	.073	9	13	.86	48	.16	<3	1.43	.18	.18	3	14
B 191870	1	242	<3	70	.5	4	11	639	4.09	<2	<8	<2	<2	30	<.2	<3	<3	65	1.78	.111	12	6	1.12	19	.19	<3	1.75	.10	.07	<2	14
B 191871	12	148	<3	48	.3	9	10	296	2.76	4	<8	<2	2	45	.2	<3	<3	66	1.20	.073	10	14	.90	46	.13	<3	1.48	.17	.17	3	17
B 191872	3	212	<3	142	.5	9	10	369	2.76	<2	<8	<2	<2	39	.9	<3	<3	67	1.02	.076	11	13	.99	35	.15	<3	1.51	.15	.14	<2	17
B 191873	3	144	5	117	.4	11	11	413	3.11	<2	<8	<2	2	51	.8	3	<3	76	1.19	.073	11	17	1.12	60	.17	<3	1.84	.20	.27	2	10
B 191874	10	116	<3	148	.6	11	12	572	3.25	<2	<8	<2	2	52	.9	<3	<3	73	1.50	.070	10	16	1.20	50	.13	<3	1.85	.16	.23	<2	8
B 191875	12	128	<3	49	<.3	9	10	319	2.80	3	<8	<2	<2	48	.2	<3	3	68	1.00	.071	10	17	.98	52	.17	<3	1.71	.19	.24	3	12
B 191876	6	330	7	140	1.8	10	11	454	2.89	2	<8	<2	2	44	1.1	<3	<3	66	1.18	.070	10	13	1.04	43	.15	<3	1.73	.15	.19	<2	19
B 191877	15	166	4	84	.9	13	13	1270	3.79	3	<8	<2	2	74	.4	4	<3	71	2.51	.069	13	15	1.27	41	.05	<3	2.02	.12	.15	2	7
B 191878	7	112	3	56	.4	9	10	393	2.92	<2	<8	<2	2	49	<.2	<3	<3	68	1.22	.068	10	13	1.05	59	.14	<3	1.70	.17	.26	2	7
RE B 191878	7	114	4	58	.4	10	11	411	3.01	<2	<8	<2	2	51	.2	<3	<3	71	1.26	.070	11	13	1.08	61	.15	<3	1.76	.18	.28	2	7
RRE B 191878	6	112	5	52	.4	9	10	400	2.89	2	12	<2	2	49	.2	<3	<3	67	1.23	.067	10	12	1.04	59	.14	<3	1.70	.17	.27	2	7
B 191879	2	88	3	52	.3	10	12	542	3.10	<2	<8	<2	2	54	.2	<3	<3	71	1.52	.067	10	12	1.20	63	.13	<3	1.81	.16	.25	2	5
B 191880	4	179	<3	89	.9	10	12	964	3.29	2	<8	<2	2	60	.6	3	<3	67	2.21	.064	11	11	1.21	41	.06	<3	1.89	.13	.18	<2	5
B 191881	2	131	3	226	.7	10	12	1113	3.30	6	<8	<2	2	62	1.4	<3	<3	67	2.19	.065	11	10	1.21	42	.07	<3	1.88	.12	.18	<2	4
STANDARD C3/AU-R	25	66	33	151	5.7	35	12	725	3.36	55	25	<2	19	28	23.0	14	23	82	.57	.089	19	170	.64	143	.10	19	1.92	.04	.16	23	457

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: CORE AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: AUG 25 1997 DATE REPORT MAILED: Aug 28/97 SIGNED BY. C. Leong .D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Data / FA

ACME ANALYTICAL LABORATORIES LTD. ... E. HASTINGS ST. VANCOUVER BC ... 1R6 PHONE(6..)253-... FAX(604)...-17..

GEOCHEMICAL ANALYSIS CERTIFICATE

Leighton Exploration & Dev. File # 97-4775

3806 - 254th St., Aldergrove BC V4W 2R3 Submitted by: S.R. Oakley

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
B 191882	2	277	4	90	.6	5	4	413	2.03	3	<8	<2	2	8	.6	<3	<3	23	.06	.016	19	11	.37	48	.02	<3	.95	.07	.13	<2	3
B 191883	2	318	6	171	2.1	5	4	479	2.03	4	<8	<2	2	6	.9	<3	<3	21	.07	.020	17	12	.37	44	.02	<3	.96	.06	.13	2	<1
B 191884	3	638	18	115	3.6	6	5	493	2.15	4	<8	<2	2	5	1.3	<3	<3	22	.04	.007	16	11	.38	45	.01	<3	1.01	.06	.13	<2	9
B 191885	2	1840	33	296	9.2	5	8	730	2.88	3	<8	<2	2	6	3.1	<3	<3	48	.03	.006	15	9	.66	37	.01	<3	1.31	.07	.10	<2	16
B 191886	8	1446	20	219	9.6	6	5	421	2.12	3	<8	<2	2	7	1.8	<3	<3	26	.04	.007	15	12	.41	52	.01	<3	1.01	.07	.13	2	21
B 191887	3	818	156	148	3.9	5	6	392	2.47	<2	<8	<2	<2	9	1.3	<3	3	22	.11	.033	16	10	.51	67	.01	<3	1.14	.08	.14	2	427
RE B 191887	3	786	147	144	3.7	6	6	372	2.34	2	<8	<2	<2	8	1.3	<3	3	22	.11	.031	16	11	.48	65	.01	<3	1.09	.07	.13	<2	322

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: CORE AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: AUG 26 1997 DATE REPORT MAILED: Sept 2/97 SIGNED BY. C. Leong .D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Data FA

ACME ANALYTICAL LABORATORIES LTD. E. TIN T. TOU BC 1R. F E(60 53- F 04) 17

GEOCHEMICAL ANALYSIS CERTIFICATE

Leighton Exploration & Dev. File # 97-4869

3806 - 254th St., Aldergrove BC V4W 2R3 Submitted by: S.R. Oakley

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
B 191811	<1	1234	6	140	6.2	11	25	1710	4.63	3	<8	<2	2	134	.5	5	<3	123	2.21	.095	4	14	1.64	94	.15	7	4.35	.31	.06	2	14
B 191812	1	904	8	109	1.2	114	29	353	3.47	9	<8	<2	<2	149	.9	<3	<3	124	2.00	.086	6	193	3.40	138	.13	5	3.74	.38	.75	<2	12
B 191813	2	422	3	56	.8	5	10	274	3.26	3	<8	<2	2	22	.2	<3	<3	54	.62	.103	10	19	.47	25	.13	4	.84	.16	.16	4	7
B 191814	4	1563	9	216	1.0	9	20	1012	3.84	4	<8	<2	<2	339	1.7	<3	<3	132	3.52	.085	5	15	1.56	64	.15	8	5.90	.48	.29	4	23
B 191815	<1	102	12	575	.5	22	21	1361	6.10	10	<8	<2	2	79	5.1	<3	<3	111	2.29	.064	4	42	1.93	67	.13	6	3.44	.27	.07	2	1
B 191816	1	73	<3	103	.3	90	34	942	5.22	<2	<8	<2	2	116	<.2	<3	<3	133	1.81	.085	4	218	2.79	98	.25	6	3.99	.41	.32	<2	<1
RE B 191816	2	75	6	99	.3	88	33	939	5.19	2	<8	<2	<2	116	<.2	<3	<3	132	1.81	.085	3	215	2.76	103	.26	4	3.96	.41	.32	2	<1

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: CORE AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: AUG 29 1997 DATE REPORT MAILED: Sep 8/97 SIGNED BY. ...D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Data FA

GEOCHEMICAL ANALYSIS CERTIFICATE

Leighton Exploration & Dev. File # 97-4870

3806 - 254th St., Aldergrove BC V4W 2R3 Submitted by: S.R. Oakley

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
648314 H	4	170	288	501	.9	5	10	412	2.24	32	<8	<2	<2	69	4.6	21	4	56	.90	.072	2	6	.98	33	.13	<3	1.78	.20	.03	<2	1
648315 H	1	118	4	32	<.3	40	15	278	4.45	113	<8	<2	<2	27	<.2	10	<3	85	.45	.077	9	20	.78	30	.14	4	1.15	.06	.03	<2	<1
648316 H	2	60	<3	53	<.3	17	8	242	2.65	18	<8	<2	<2	80	.4	5	<3	62	.81	.059	4	17	.63	39	.15	<3	1.80	.21	.06	2	1
RE 648316 H	2	60	<3	53	<.3	17	8	241	2.64	20	<8	<2	<2	81	.4	6	<3	63	.82	.059	5	18	.63	40	.15	3	1.82	.21	.05	2	1

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: ROCK AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: AUG 29 1997 **DATE REPORT MAILED:** Sep 8/97 **SIGNED BY.** .....D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Data FA

...CME ANALYTICAL LABORATORIES LTD. ...E. ...TING ST. VANCOUVER BC ...1R6 PH...(60...)253-3... FAX(604)253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

Leighton Exploration & Dev. File # 97-4944 Page 1

3806 - 254th St., Aldergrove BC V4W 2R3 Submitted by: S. Oakley

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
B 191502	1	657	133	502	2.1	24	22	1508	5.30	3	<8	<2	2	109	4.3	3	<3	139	1.66	.159	7	27	1.87	158	.16	<3	4.06	.37	.57	<2	12
B 191503	1	1056	74	273	4.5	13	19	1379	4.67	5	<8	<2	2	90	2.5	8	<3	111	1.16	.095	7	16	1.58	158	.15	<3	3.21	.24	.56	<2	11
B 191504	1	384	35	190	1.7	24	20	1518	5.05	5	<8	<2	<2	111	2.0	8	<3	144	1.56	.103	6	30	1.71	203	.22	3	3.81	.35	.62	4	7
B 191505	4	280	28	239	1.2	15	19	1774	4.90	<2	<8	<2	2	94	2.1	<3	<3	105	1.93	.118	5	12	1.70	78	.13	3	4.32	.38	.15	<2	6
B 191506	13	603	25	326	3.6	15	16	2122	4.95	10	<8	<2	<2	80	2.9	10	<3	83	1.15	.151	7	10	1.43	81	.11	<3	3.03	.25	.19	3	13
B 191507	5	319	23	183	1.4	13	14	1788	5.04	6	<8	<2	<2	70	1.7	7	<3	82	1.06	.139	6	9	1.23	97	.12	<3	2.81	.24	.31	2	7
B 191508	4	1181	28	221	2.9	24	18	1176	4.69	4	<8	<2	2	68	2.1	3	<3	81	1.29	.137	7	13	1.01	93	.13	<3	2.51	.20	.24	<2	19
B 191509	<1	1049	18	223	1.0	7	15	879	4.95	<2	<8	<2	<2	149	2.2	<3	<3	115	1.63	.133	7	10	1.52	329	.17	<3	4.03	.39	1.42	<2	21
B 191510	5	817	16	194	3.0	12	14	2082	4.91	2	<8	<2	2	76	1.8	3	<3	84	1.35	.129	6	10	1.20	116	.13	<3	3.15	.26	.38	<2	13
B 191511	3	146	16	233	.9	10	15	1484	4.54	4	<8	<2	2	99	2.2	8	<3	98	1.52	.186	9	11	1.21	169	.14	3	3.21	.31	.56	<2	1
B 191512	2	607	18	193	3.5	13	18	1461	4.60	<2	<8	<2	2	82	1.7	4	<3	87	1.76	.134	6	11	1.35	100	.15	3	3.44	.30	.46	<2	8
RE B 191512	2	589	20	185	3.4	12	18	1424	4.52	<2	<8	<2	2	80	1.6	<3	<3	85	1.73	.131	6	10	1.32	97	.15	<3	3.37	.30	.45	<2	6
RRE B 191512	3	673	26	217	3.8	13	20	1465	4.79	2	<8	<2	<2	91	1.9	4	<3	94	1.81	.139	7	11	1.37	113	.17	4	3.58	.33	.51	2	5
B 191513	2	870	26	204	6.9	13	17	1411	4.66	5	<8	<2	2	121	1.9	3	<3	140	2.42	.085	6	8	1.40	195	.18	3	4.44	.34	.47	3	15
B 191514	3	644	23	187	2.7	14	23	1487	5.09	13	<8	<2	<2	187	1.9	13	<3	177	2.70	.096	6	11	1.59	136	.19	5	5.17	.61	.43	13	30
B 191515	<1	1053	16	214	2.7	14	22	1078	4.70	<2	13	<2	2	142	1.5	<3	<3	143	1.97	.090	4	8	1.44	125	.17	<3	4.09	.39	.29	<2	49
B 191516	2	267	13	126	.4	7	14	673	3.92	<2	<8	<2	3	92	.9	<3	<3	113	1.28	.085	7	12	1.31	177	.22	<3	2.60	.25	.63	<2	5
B 191517	1	1332	16	174	.7	7	15	489	3.74	<2	<8	<2	<2	184	1.7	<3	<3	127	2.17	.067	4	9	.63	81	.21	4	2.81	.36	.15	<2	11
B 191518	1	1517	23	222	1.3	9	20	744	4.80	3	<8	<2	2	261	2.1	6	<3	194	2.99	.070	5	10	1.13	137	.20	5	4.32	.47	.44	4	12
B 191519	2	457	12	127	1.2	11	18	1234	4.63	3	<8	<2	<2	196	1.2	<3	<3	164	2.30	.076	4	9	1.36	88	.17	3	4.35	.47	.17	3	5
B 191520	1	582	10	150	1.2	9	19	1023	4.70	3	<8	<2	<2	127	1.4	<3	<3	146	2.10	.078	5	6	1.53	83	.20	3	4.12	.45	.10	2	3
B 191521	2	562	7	181	.6	13	22	2164	6.30	4	<8	<2	<2	146	1.8	3	<3	168	1.85	.179	8	9	1.87	93	.22	3	4.00	.27	.32	4	4
B 191522	2	2360	10	204	2.7	8	20	715	4.10	5	<8	<2	2	37	2.4	5	<3	53	1.12	.084	6	5	1.26	40	.12	3	1.98	.09	.09	2	3
B 191523	2	67	6	179	<.3	78	31	1079	4.84	5	<8	<2	2	82	1.1	<3	<3	164	1.61	.082	3	230	4.13	90	.27	<3	4.11	.31	.30	<2	1
B 191524	1	71	6	171	<.3	69	31	917	5.11	15	<8	<2	<2	78	1.2	6	<3	155	1.52	.084	3	143	2.98	118	.29	<3	3.24	.32	.49	2	1
RE B 191524	2	66	7	164	<.3	68	31	903	5.05	14	<8	<2	2	76	.9	8	<3	153	1.51	.082	4	140	2.95	114	.28	<3	3.18	.29	.46	<2	1
RRE B 191524	1	62	5	152	<.3	65	29	861	4.78	13	8	<2	2	73	.9	9	<3	147	1.37	.080	4	136	2.90	113	.27	<3	3.10	.30	.47	<2	1
B 191525	1	39	8	93	<.3	54	17	514	3.19	5	<8	<2	2	50	.4	4	<3	77	.85	.067	4	135	2.03	41	.18	<3	2.10	.16	.11	<2	<1
B 191526	1	31	9	118	<.3	141	26	682	3.48	6	<8	<2	<2	82	.7	6	<3	82	1.29	.079	4	356	3.08	80	.20	3	3.19	.29	.28	3	<1
B 191527	1	69	8	349	<.3	79	30	801	4.45	<2	<8	<2	2	91	2.3	4	3	107	1.67	.078	4	222	2.47	40	.20	3	3.52	.38	.09	<2	1
B 191528	3	47	7	74	<.3	63	20	507	3.11	4	<8	<2	<2	68	.5	<3	<3	88	1.41	.096	3	196	1.61	26	.22	3	2.38	.35	.04	<2	1
B 191529	2	27	10	83	<.3	59	13	581	2.72	5	<8	<2	<2	109	.6	6	<3	98	1.88	.089	5	204	1.99	81	.25	4	3.14	.43	.22	4	<1
B 191530	<1	53	6	179	<.3	79	27	787	5.26	5	<8	<2	2	130	1.1	<3	<3	140	1.70	.125	4	159	3.31	136	.18	<3	4.18	.35	.64	2	1
B 191531	1	22	12	167	.3	60	20	749	4.19	<2	<8	<2	2	100	.5	<3	<3	128	1.34	.085	3	126	3.64	91	.15	<3	3.86	.32	.26	<2	2
B 191532	2	84	7	138	<.3	9	18	562	5.34	4	<8	<2	<2	153	1.3	<3	<3	156	2.69	.068	6	15	1.70	101	.19	5	4.64	.64	.28	8	3
B 191533	2	82	7	644	<.3	12	21	713	5.10	15	<8	<2	3	73	4.9	<3	4	129	1.84	.063	5	16	1.86	74	.21	<3	2.79	.29	.38	<2	2
STANDARD C3/AU-R	25	66	34	169	6.3	38	12	771	3.61	57	24	2	22	32	25.0	15	25	81	.60	.100	19	170	.68	162	.09	21	2.06	.05	.20	19	441

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: CORE AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: SEP 2 1997 DATE REPORT MAILED: Sep 8/97 SIGNED BY ..... D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

 Data ✓ FA ___

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
B 191534	<1	25	8	388	<.3	112	25	1073	3.93	<2	<8	<2	<2	194	1.4	<3	<3	96	2.01	.067	<1	247	4.44	38	.14	<3	5.40	.44	.03	<2	<1
B 191535	2	156	18	338	.3	21	20	1229	5.78	2	<8	<2	<2	43	1.8	<3	3	101	2.56	.066	4	32	1.36	81	.12	<3	1.97	.07	.14	<2	1
B 191536	2	143	12	398	<.3	24	19	1333	5.81	<2	<8	<2	<2	49	2.4	<3	<3	123	2.46	.055	3	48	1.59	70	.12	<3	2.36	.11	.10	2	1
B 191537	2	164	18	387	<.3	21	19	1262	6.01	2	<8	<2	<2	40	2.5	<3	<3	120	2.33	.055	4	41	1.39	77	.13	<3	2.07	.07	.13	<2	1
B 191538	3	217	21	243	.4	22	20	1443	5.42	11	<8	<2	<2	55	1.4	<3	3	106	3.08	.073	5	37	1.58	80	.11	<3	2.48	.11	.13	<2	1
B 191539	3	170	18	377	<.3	19	17	1068	6.12	8	<8	<2	<2	60	2.5	<3	<3	124	2.81	.055	3	38	1.42	81	.15	<3	2.54	.16	.13	2	1
B 191540	4	94	19	291	<.3	18	17	1223	5.26	13	<8	<2	<2	46	1.9	<3	<3	113	3.27	.060	5	38	1.44	62	.08	<3	1.95	.06	.09	<2	1
B 191541	3	99	24	455	<.3	21	17	1185	5.30	2	<8	<2	<2	50	3.3	<3	5	98	3.19	.065	5	37	1.41	72	.06	<3	2.02	.07	.12	<2	<1
B 191542	2	77	40	491	.4	7	14	1030	4.58	13	<8	<2	<2	43	3.8	<3	4	91	2.65	.092	6	14	1.23	54	.11	<3	1.80	.08	.09	2	1
B 191543	2	135	8	149	<.3	13	21	1426	6.51	9	<8	<2	<2	112	<.2	<3	<3	134	3.60	.069	3	23	1.73	66	.09	<3	3.40	.28	.09	<2	3
B 191544	2	115	22	229	.3	9	17	960	5.53	<2	<8	<2	<2	58	1.2	<3	6	102	2.48	.084	4	16	1.17	62	.17	<3	2.17	.13	.11	<2	1
RE B 191544	2	114	21	222	<.3	9	17	934	5.41	<2	<8	<2	<2	57	1.3	<3	<3	100	2.43	.082	5	15	1.15	53	.17	<3	2.13	.13	.10	2	1
RRE B 191544	1	120	17	246	<.3	8	17	980	5.60	<2	<8	<2	<2	56	1.3	<3	<3	105	2.58	.084	5	17	1.18	61	.19	3	2.13	.12	.10	<2	<1
B 191545	2	101	18	427	<.3	20	25	1587	7.05	<2	<8	<2	<2	114	2.6	<3	<3	141	3.15	.075	2	34	2.21	80	.17	5	4.69	.44	.08	<2	1
B 191546	1	68	12	1667	<.3	23	25	2415	6.30	<2	<8	<2	<2	125	14.2	<3	<3	185	3.55	.065	1	50	2.90	39	.17	3	4.14	.31	.04	<2	1
STANDARD C3/AU-R	25	66	37	169	5.7	36	12	724	3.39	56	18	3	19	31	24.0	13	25	84	.60	.089	18	174	.65	149	.10	20	1.93	.04	.17	20	483

Sample type: CORE. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

Data ✓ FA ___

ACME ANALYTICAL LABORATORIES LTD. ... E. HASTIN... ST. ...COU... BC ... 1R... PHONE(6...)253-...3 F...(604)...-17...

GEOCHEMICAL ANALYSIS CERTIFICATE

Leighton Exploration & Dev. File # 97-4952

3806 - 254th St., Aldergrove BC V4W 2R3 Submitted by: P. Dasler

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W Au** ppm oz/t
B 191751	5	2322	13	277	2.6	14	19	1359	4.48	8	<8	<2	2	238	1.6	<3	<3	140	4.99	.046	1	10	1.23	28	.23	9	3.53	.17	.08	2<.001
B 191752	1	102	13	149	<.3	105	42	477	4.30	2	<8	<2	<2	61	.6	<3	<3	72	1.66	.065	1	189	1.31	25	.22	<3	2.30	.32	.05	<2<.001
B 191753	19	4079	22	939	10.6	18	37	1461	4.79	<2	<8	<2	<2	95	7.7	<3	<3	133	2.33	.082	3	20	1.78	45	.22	3	3.61	.26	.12	<2<.001
RE B 191753	19	3934	18	906	10.2	17	35	1402	4.59	3	<8	<2	<2	91	7.3	<3	<3	127	2.24	.080	3	18	1.69	43	.21	3	3.46	.25	.12	2<.001

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: CORE AU** BY FIRE ASSAY FROM 1 A.T. SAMPLE.
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: SEP 2 1997 DATE REPORT MAILED: Sep6/97 SIGNED BY. ..... D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Data ___ FA ___

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

GEOCHEMICAL ANALYSIS CERTIFICATE

Leighton Exploration & Dev. File # 97-4944 Page 1

3806 - 254th St., Aldergrove BC V4W 2R3 Submitted by: S. Oakley

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
B 191502	1	657	133	502	2.1	24	22	1508	5.30	3	<8	<2	2	109	4.3	3	<3	139	1.66	.159	7	27	1.87	158	.16	<3	4.06	.37	.57	<2	12
B 191503	1	1056	74	273	4.5	13	19	1379	4.67	5	<8	<2	2	90	2.5	8	<3	111	1.16	.095	7	16	1.58	158	.15	<3	3.21	.24	.56	<2	11
B 191504	1	384	35	190	1.7	24	20	1518	5.05	5	<8	<2	<2	111	2.0	8	<3	144	1.56	.103	6	30	1.71	203	.22	3	3.81	.35	.62	4	7
B 191505	4	280	28	239	1.2	15	19	1774	4.90	<2	<8	<2	2	94	2.1	<3	<3	105	1.93	.118	5	12	1.70	78	.13	3	4.32	.38	.15	<2	6
B 191506	13	603	25	326	3.6	15	16	2122	4.95	10	<8	<2	<2	80	2.9	10	<3	83	1.15	.151	7	10	1.43	81	.11	<3	3.03	.25	.19	3	13
B 191507	5	319	23	183	1.4	13	14	1788	5.04	6	<8	<2	<2	70	1.7	7	<3	82	1.06	.139	6	9	1.23	97	.12	<3	2.81	.24	.31	2	7
B 191508	4	1181	28	221	2.9	24	18	1176	4.69	4	<8	<2	2	68	2.1	3	<3	81	1.29	.137	7	13	1.01	93	.13	<3	2.51	.20	.24	<2	19
B 191509	<1	1049	18	223	1.0	7	15	879	4.95	<2	<8	<2	<2	149	2.2	<3	<3	115	1.63	.133	7	10	1.52	329	.17	<3	4.03	.39	1.42	<2	21
B 191510	5	817	16	194	3.0	12	14	2082	4.91	2	<8	<2	2	76	1.8	3	<3	84	1.35	.129	6	10	1.20	116	.13	<3	3.15	.26	.38	<2	13
B 191511	3	146	16	233	.9	10	15	1484	4.54	4	<8	<2	2	99	2.2	8	<3	98	1.52	.186	9	11	1.21	169	.14	3	3.21	.31	.56	<2	1
B 191512	2	607	18	193	3.5	13	18	1461	4.60	<2	<8	<2	2	82	1.7	4	<3	87	1.76	.134	6	11	1.35	100	.15	3	3.44	.30	.46	<2	8
RE B 191512	2	589	20	185	3.4	12	18	1424	4.52	<2	<8	<2	2	80	1.6	<3	<3	85	1.73	.131	6	10	1.32	97	.15	<3	3.37	.30	.45	<2	6
RRE B 191512	3	673	26	217	3.8	13	20	1465	4.79	2	<8	<2	<2	91	1.9	4	<3	94	1.81	.139	7	11	1.37	113	.17	4	3.58	.33	.51	2	5
B 191513	2	870	26	204	6.9	13	17	1411	4.66	5	<8	<2	2	121	1.9	3	<3	140	2.42	.085	6	8	1.40	195	.18	3	4.44	.34	.47	3	15
B 191514	3	644	23	187	2.7	14	23	1487	5.09	13	<8	<2	<2	187	1.9	13	<3	177	2.70	.096	6	11	1.59	136	.19	5	5.17	.61	.43	13	30
B 191515	<1	1053	16	214	2.7	14	22	1078	4.70	<2	13	<2	2	142	1.5	<3	<3	143	1.97	.090	4	8	1.44	125	.17	<3	4.09	.39	.29	<2	49
B 191516	2	267	13	126	.4	7	14	673	3.92	<2	<8	<2	3	92	.9	<3	<3	113	1.28	.085	7	12	1.31	177	.22	<3	2.60	.25	.63	<2	5
B 191517	1	1332	16	174	.7	7	15	489	3.74	<2	<8	<2	<2	184	1.7	<3	<3	127	2.17	.067	4	9	.63	81	.21	4	2.81	.36	.15	<2	11
B 191518	1	1517	23	222	1.3	9	20	744	4.80	3	<8	<2	2	261	2.1	6	<3	194	2.99	.070	5	10	1.13	137	.20	5	4.32	.47	.44	4	12
B 191519	2	457	12	127	1.2	11	18	1234	4.63	3	<8	<2	<2	196	1.2	<3	<3	164	2.30	.076	4	9	1.36	88	.17	3	4.35	.47	.17	3	5
B 191520	1	582	10	150	1.2	9	19	1023	4.70	3	<8	<2	<2	127	1.4	<3	<3	146	2.10	.078	5	6	1.53	83	.20	3	4.12	.45	.10	2	3
B 191521	2	562	7	181	.6	13	22	2164	6.30	4	<8	<2	<2	146	1.8	3	<3	168	1.85	.179	8	9	1.87	93	.22	3	4.00	.27	.32	4	4
B 191522	2	2360	10	204	2.7	8	20	715	4.10	5	<8	<2	2	37	2.4	5	<3	53	1.12	.084	6	5	1.26	40	.12	3	1.98	.09	.09	2	3
B 191523	2	67	6	179	<.3	78	31	1079	4.84	5	<8	<2	2	82	1.1	<3	<3	164	1.61	.082	3	230	4.13	90	.27	<3	4.11	.31	.30	<2	1
B 191524	1	71	6	171	<.3	69	31	917	5.11	15	<8	<2	<2	78	1.2	6	<3	155	1.52	.084	3	143	2.98	118	.29	<3	3.24	.32	.49	2	1
RE B 191524	2	66	7	164	<.3	68	31	903	5.05	14	<8	<2	2	76	.9	8	<3	153	1.51	.082	4	140	2.95	114	.28	<3	3.18	.29	.46	<2	1
RRE B 191524	1	62	5	152	<.3	65	29	861	4.78	13	8	<2	2	73	.9	9	<3	147	1.37	.080	4	136	2.90	113	.27	<3	3.10	.30	.47	<2	1
B 191525	1	39	8	93	<.3	54	17	514	3.19	5	<8	<2	2	50	.4	4	<3	77	.85	.067	4	135	2.03	41	.18	<3	2.10	.16	.11	<2	<1
B 191526	1	31	9	118	<.3	141	26	682	3.48	6	<8	<2	<2	82	.7	6	<3	82	1.29	.079	4	356	3.08	80	.20	3	3.19	.29	.28	3	<1
B 191527	1	69	8	349	<.3	79	30	801	4.45	<2	<8	<2	2	91	2.3	4	3	107	1.67	.078	4	222	2.47	40	.20	3	3.52	.38	.09	<2	1
B 191528	3	47	7	74	<.3	63	20	507	3.11	4	<8	<2	<2	68	.5	<3	<3	88	1.41	.096	3	196	1.61	26	.22	3	2.38	.35	.04	<2	1
B 191529	2	27	10	83	<.3	59	13	581	2.72	5	<8	<2	<2	109	.6	6	<3	98	1.88	.089	5	204	1.99	81	.25	4	3.14	.43	.22	4	<1
B 191530	<1	53	6	179	<.3	79	27	787	5.26	5	<8	<2	2	130	1.1	<3	<3	140	1.70	.125	4	159	3.31	136	.18	<3	4.18	.35	.64	2	1
B 191531	1	22	12	167	.3	60	20	749	4.19	<2	<8	<2	2	100	.5	<3	<3	128	1.34	.085	3	126	3.64	91	.15	<3	3.86	.32	.26	<2	2
B 191532	2	84	7	138	<.3	9	18	562	5.34	4	<8	<2	<2	153	1.3	<3	<3	156	2.69	.068	6	15	1.70	101	.19	5	4.64	.64	.28	8	3
B 191533	2	82	7	644	<.3	12	21	713	5.10	15	<8	<2	3	73	4.9	<3	4	129	1.84	.063	5	16	1.86	74	.21	<3	2.79	.29	.38	<2	2
STANDARD C3/AU-R	25	66	34	169	6.3	38	12	771	3.61	57	24	2	22	32	25.0	15	25	81	.60	.100	19	170	.68	162	.09	21	2.06	.05	.20	19	441

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: CORE AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: SEP 2 1997 DATE REPORT MAILED: Sep 8/97 SIGNED BY ..... D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Data FA

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
B 191534	<1	25	8	388	<.3	112	25	1073	3.93	<2	<8	<2	<2	194	1.4	<3	<3	96	2.01	.067	<1	247	4.44	38	.14	<3	5.40	.44	.03	<2	<1
B 191535	2	156	18	338	.3	21	20	1229	5.78	2	<8	<2	<2	43	1.8	<3	3	101	2.56	.066	4	32	1.36	81	.12	<3	1.97	.07	.14	<2	1
B 191536	2	143	12	398	<.3	24	19	1333	5.81	<2	<8	<2	<2	49	2.4	<3	<3	123	2.46	.055	3	48	1.59	70	.12	<3	2.36	.11	.10	2	1
B 191537	2	164	18	387	<.3	21	19	1262	6.01	2	<8	<2	<2	40	2.5	<3	<3	120	2.33	.055	4	41	1.39	77	.13	<3	2.07	.07	.13	<2	1
B 191538	3	217	21	243	.4	22	20	1443	5.42	11	<8	<2	<2	55	1.4	<3	3	106	3.08	.073	5	37	1.58	80	.11	<3	2.48	.11	.13	<2	1
B 191539	3	170	18	377	<.3	19	17	1068	6.12	8	<8	<2	<2	60	2.5	<3	<3	124	2.81	.055	3	38	1.42	81	.15	<3	2.54	.16	.13	2	1
B 191540	4	94	19	291	<.3	18	17	1223	5.26	13	<8	<2	<2	46	1.9	<3	<3	113	3.27	.060	5	38	1.44	62	.08	<3	1.95	.06	.09	<2	1
B 191541	3	99	24	455	<.3	21	17	1185	5.30	2	<8	<2	<2	50	3.3	<3	5	98	3.19	.065	5	37	1.41	72	.06	<3	2.02	.07	.12	<2	<1
B 191542	2	77	40	491	.4	7	14	1030	4.58	13	<8	<2	<2	43	3.8	<3	4	91	2.65	.092	6	14	1.23	54	.11	<3	1.80	.08	.09	2	1
B 191543	2	135	8	149	<.3	13	21	1426	6.51	9	<8	<2	<2	112	<.2	<3	<3	134	3.60	.069	3	23	1.73	66	.09	<3	3.40	.28	.09	<2	3
B 191544	2	115	22	229	.3	9	17	960	5.53	<2	<8	<2	<2	58	1.2	<3	6	102	2.48	.084	4	16	1.17	62	.17	<3	2.17	.13	.11	<2	1
RE B 191544	2	114	21	222	<.3	9	17	934	5.41	<2	<8	<2	<2	57	1.3	<3	<3	100	2.43	.082	5	15	1.15	53	.17	<3	2.13	.13	.10	2	1
RRE B 191544	1	120	17	246	<.3	8	17	980	5.60	<2	<8	<2	<2	56	1.3	<3	<3	105	2.58	.084	5	17	1.18	61	.19	3	2.13	.12	.10	<2	<1
B 191545	2	101	18	427	<.3	20	25	1587	7.05	<2	<8	<2	<2	114	2.6	<3	<3	141	3.15	.075	2	34	2.21	80	.17	5	4.69	.44	.08	<2	1
B 191546	1	68	12	1667	<.3	23	25	2415	6.30	<2	<8	<2	<2	125	14.2	<3	<3	185	3.55	.065	1	50	2.90	39	.17	3	4.14	.31	.04	<2	1
STANDARD C3/AU-R	25	66	37	169	5.7	36	12	724	3.39	56	18	3	19	31	24.0	13	25	84	.60	.089	18	174	.65	149	.10	20	1.93	.04	.17	20	483

Sample type: CORE. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

Data ✓ FA ___

GEOCHEMICAL ANALYSIS CERTIFICATE

Leighton Exploration & Dev. File # 97-5109 Page 1

3806 - 254th St., Aldergrove BC V4W 2R3 Submitted by: S.R. Oakley

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
B 191754	3	412	69	16999	3.2	17	45	2284	10.62	70	<8	<2	<2	17	158.3	<3	9	149	1.07	.084	5	22	2.14	15	.17	<3	3.01	.09	.08	9	6
B 191817	2	312	4	161	.9	7	16	845	4.14	<2	<8	<2	<2	213	1.2	<3	<3	143	2.60	.077	4	9	1.19	112	.18	4	4.76	.47	.22	3	3
B 191818	1	359	8	159	1.0	7	18	863	4.49	<2	<8	<2	<2	171	1.0	<3	<3	134	2.21	.082	7	13	1.38	207	.19	3	4.41	.38	.45	2	5
B 191819	2	259	3	133	.6	6	17	927	4.34	3	<8	<2	<2	184	1.0	<3	3	130	2.60	.091	6	11	1.36	223	.17	3	4.68	.38	.29	4	3
B 191820	2	304	8	77	.5	8	14	573	4.81	3	<8	<2	<2	251	.8	<3	<3	132	3.12	.072	5	11	1.27	142	.15	4	5.39	.50	.29	<2	3
B 191821	2	693	5	95	.7	14	13	588	4.04	<2	<8	<2	<2	89	.4	<3	<3	97	1.75	.087	4	24	1.18	43	.21	<3	3.12	.35	.10	<2	2
B 191822	1	454	<3	57	.3	18	11	376	3.60	<2	<8	<2	<2	72	.4	<3	<3	87	1.57	.089	5	33	.96	100	.19	<3	2.83	.32	.18	4	2
B 191823	1	258	<3	72	.9	22	15	928	3.89	<2	<8	<2	<2	66	.6	<3	<3	95	2.36	.087	5	38	1.30	19	.19	<3	2.84	.25	.05	<2	1
B 191824	2	542	5	69	1.3	20	15	890	3.46	4	<8	<2	<2	61	.5	<3	<3	92	3.25	.083	5	35	1.16	20	.15	<3	2.49	.22	.05	<2	3
B 191825	2	873	5	67	1.7	17	11	464	3.14	<2	<8	<2	<2	71	.4	<3	<3	81	1.70	.103	4	36	.86	24	.18	<3	2.59	.33	.03	<2	5
B 191826	2	193	5	54	.8	14	11	817	3.82	4	<8	<2	<2	81	.3	<3	<3	98	2.38	.089	6	24	.98	39	.19	<3	2.97	.32	.10	<2	<1
RE B 191826	1	196	4	55	.6	15	11	822	3.86	3	<8	<2	<2	82	.3	<3	<3	100	2.40	.089	5	25	.99	40	.19	<3	3.00	.32	.10	<2	<1
RRE B 191826	2	209	4	59	.8	16	12	880	4.05	<2	<8	<2	<2	88	.5	<3	<3	104	2.62	.094	5	26	1.04	42	.20	<3	3.17	.34	.10	<2	<1
B 191827	2	216	35	124	1.1	15	16	2442	5.78	262	<8	<2	<2	76	.9	<3	<3	124	5.05	.095	8	30	1.79	34	.05	3	3.00	.08	.13	<2	8
B 191828	2	82	<3	56	.4	16	10	662	3.23	<2	<8	<2	<2	64	<.2	<3	<3	93	2.31	.088	4	22	.89	18	.21	<3	2.19	.24	.04	<2	<1
B 191829	1	131	8	81	.5	18	14	836	3.34	5	<8	<2	<2	51	.3	<3	<3	98	2.70	.097	5	33	1.19	14	.23	<3	1.83	.15	.04	2	<1
B 191830	1	24	4	55	<.3	17	12	564	3.17	<2	<8	<2	<2	47	<.2	<3	<3	85	1.89	.095	5	25	.93	17	.22	<3	1.91	.18	.04	<2	<1
B 191831	1	163	4	181	.6	131	23	949	5.28	9	<8	<2	<2	65	1.4	4	<3	90	2.95	.083	5	242	2.28	35	.12	3	2.63	.20	.14	3	2
B 191832	<1	323	20	1185	1.1	198	33	1047	5.83	7	<8	<2	<2	50	8.4	<3	<3	76	3.79	.078	3	395	3.42	22	.10	3	2.53	.15	.07	<2	1
B 191833	<1	74	5	134	.4	81	20	496	3.32	5	<8	<2	<2	178	1.1	<3	<3	88	2.93	.078	4	149	2.45	141	.14	3	4.68	.44	.89	<2	<1
B 191834	1	309	<3	268	.9	69	27	605	3.98	2	<8	<2	<2	197	3.2	3	<3	117	3.26	.097	5	117	2.71	253	.25	5	5.36	.47	1.36	<2	1
B 191835	<1	143	5	64	.3	91	25	357	4.04	<2	<8	<2	<2	184	.6	<3	<3	137	2.58	.073	5	245	3.48	148	.13	3	5.02	.40	.90	<2	<1
B 191836	<1	272	3	131	.7	94	27	508	3.75	3	<8	<2	<2	179	1.3	<3	<3	128	2.81	.081	5	205	3.41	136	.16	4	4.92	.44	.93	<2	<1
B 191837	<1	93	<3	81	.3	132	34	313	4.40	10	<8	<2	<2	129	.8	<3	<3	168	1.56	.089	6	243	4.87	191	.14	3	4.79	.55	.73	<2	<1
B 191838	1	217	<3	443	.6	172	30	494	3.66	7	<8	<2	<2	167	3.4	<3	<3	101	2.94	.075	6	231	3.08	109	.14	4	4.06	.47	.62	<2	2
RE B 191838	1	218	<3	444	.6	172	30	494	3.67	7	<8	<2	<2	166	3.2	<3	<3	102	2.93	.074	6	230	3.08	109	.14	5	4.06	.47	.62	<2	1
RRE B 191838	<1	213	<3	408	.6	170	30	488	3.68	8	<8	<2	<2	164	3.6	<3	<3	102	2.91	.073	6	229	3.10	109	.15	5	4.04	.47	.62	<2	1
B 191839	<1	675	<3	143	1.6	126	26	489	3.49	3	<8	<2	<2	144	1.2	<3	<3	90	3.44	.076	5	169	2.46	103	.13	7	3.60	.40	.65	<2	3
B 191840	<1	242	<3	77	.4	95	30	322	4.34	13	<8	<2	<2	126	1.1	<3	<3	180	1.34	.063	4	184	3.89	449	.15	<3	4.23	.29	1.39	4	2
B 191841	1	443	3	75	.4	39	19	382	3.73	2	<8	<2	<2	136	.5	<3	<3	154	1.74	.061	3	102	2.29	305	.15	<3	3.67	.42	.96	<2	1
B 191842	<1	187	5	83	<.3	64	24	336	4.37	<2	<8	<2	<2	119	.6	<3	<3	141	1.82	.073	3	127	2.55	174	.12	3	3.78	.41	.64	<2	2
B 191843	1	148	10	70	<.3	68	26	320	4.33	<2	<8	<2	<2	114	1.0	3	<3	155	1.71	.066	4	124	2.70	195	.13	<3	3.74	.44	.61	<2	1
B 191844	<1	129	<3	75	.4	82	26	290	4.60	<2	<8	<2	<2	123	.6	<3	<3	162	1.66	.086	5	164	2.64	322	.13	<3	3.81	.43	.97	<2	1
B 191845	2	195	5	81	.6	23	16	592	4.98	2	<8	<2	<2	43	.2	<3	<3	123	1.10	.104	7	52	1.48	147	.22	<3	2.16	.22	.59	2	1
B 191846	1	177	<3	142	.7	16	15	605	4.99	<2	<8	<2	<2	46	1.1	<3	<3	131	1.11	.095	7	52	1.44	82	.21	<3	2.14	.25	.36	2	1
B 191847	2	170	6	92	.5	86	26	442	5.24	<2	<8	<2	<2	95	.7	<3	<3	165	1.71	.086	5	157	2.71	191	.14	<3	3.73	.38	.91	<2	1
STANDARD C3/AU-R	25	67	34	160	5.7	36	11	737	3.31	52	23	2	18	30	22.2	16	22	83	.58	.090	19	173	.58	149	.10	19	1.90	.04	.16	22	460

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ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
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Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: SEP 5 1997 **DATE REPORT MAILED:** Sep 12/97 **SIGNED BY** ...D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Data FA

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
B 191888	1	95	10	159	.6	8	8	841	4.06	7	<8	<2	<2	72	1.1	3	3	61	1.63	.119	10	23	1.02	83	.20	4	2.72	.30	.52	6	2
B 191889	1	227	6	100	.7	14	11	644	3.80	2	<8	<2	<2	130	.8	<3	<3	106	2.29	.104	8	49	.88	58	.21	4	3.21	.40	.27	6	4
B 191890	4	853	4	122	4.8	23	16	820	3.43	5	<8	<2	<2	128	1.0	<3	<3	103	2.03	.069	6	58	1.03	51	.19	3	3.24	.39	.10	7	6
B 191891	5	1698	12	115	5.5	24	54	665	4.01	7	<8	<2	<2	145	1.1	<3	<3	121	2.24	.073	5	64	.99	56	.21	5	3.33	.41	.13	5	7
B 191892	<1	346	12	169	1.3	20	13	706	3.92	4	<8	<2	<2	152	1.6	<3	<3	136	2.44	.086	6	69	.91	57	.24	5	3.33	.38	.16	5	14
B 191893	1	398	19	253	2.0	16	19	1325	4.56	<2	<8	<2	<2	163	2.2	<3	<3	151	3.21	.088	6	31	1.58	81	.21	4	4.81	.50	.29	4	5
B 191894	1	734	38	945	3.9	10	19	1405	4.39	9	<8	<2	<2	166	9.1	7	<3	145	2.96	.089	8	11	1.57	63	.20	5	4.22	.44	.12	10	9
B 191895	2	786	26	832	5.3	17	24	1456	5.47	8	<8	<2	<2	115	9.0	<3	<3	148	2.76	.086	6	16	1.53	103	.20	4	3.97	.38	.26	6	4
B 191896	7	728	13	131	2.8	16	20	1098	4.41	4	<8	<2	<2	201	1.2	<3	<3	131	3.09	.097	6	20	1.03	200	.21	4	4.72	.60	.50	6	11
B 191897	13	1253	16	204	4.1	16	26	1248	5.43	4	<8	<2	<2	203	2.8	<3	<3	142	3.19	.092	6	21	1.59	142	.23	5	5.40	.61	.64	8	13
B 191898	5	1484	15	184	3.7	16	22	1049	4.88	<2	<8	<2	<2	165	2.2	<3	<3	122	3.28	.088	7	17	1.10	81	.22	6	4.53	.38	.36	6	10
RE B 191898	5	1512	10	185	4.0	17	22	1067	4.96	<2	<8	<2	<2	167	2.2	3	<3	125	3.32	.089	7	23	1.11	82	.22	6	4.58	.39	.36	9	11
RRE B 191898	5	1602	13	211	4.3	15	22	1065	4.81	3	<8	<2	<2	159	2.2	<3	<3	119	3.24	.089	7	17	1.10	74	.21	6	4.43	.36	.33	6	8
B 191899	2	215	7	100	.4	15	17	693	4.34	3	<8	<2	<2	200	.9	<3	<3	148	2.99	.089	7	18	1.01	136	.20	4	3.39	.28	.29	4	2
B 191900	2	326	20	187	1.4	6	14	1138	4.71	4	<8	<2	<2	73	1.4	<3	<3	113	2.05	.095	7	12	1.53	135	.24	5	3.35	.27	.43	3	2
B 191901	<1	199	20	3446	1.0	8	27	1601	6.90	16	<8	<2	<2	438	28.2	4	<3	139	5.16	.077	6	13	1.39	56	.19	7	7.60	.24	.32	10	2
B 191902	2	110	18	1236	.5	9	26	1075	5.93	12	<8	<2	<2	687	10.7	<3	<3	106	6.62	.087	7	12	.55	91	.22	6	8.65	.26	.13	8	2
B 191903	<1	154	12	581	.6	8	25	1470	6.53	12	<8	<2	<2	584	6.6	<3	<3	182	6.01	.091	6	10	1.30	109	.18	7	8.09	.20	.14	9	<1
STANDARD C3/AU-R	25	65	36	143	5.7	35	12	729	3.35	52	22	<2	17	30	22.4	13	22	82	.57	.090	19	168	.58	148	.10	21	1.88	.04	.16	20	444

Sample type: CORE. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

Data /· FA ____

CME LYT LA ATOI LTI E. FINC T. OUV JC 1R(Pl (60)3-3 F/ 64) 171

GEOCHEMICAL ANALYSIS CERTIFICATE

Leighton Exploration & Dev. File # 97-5110

3806 - 254th St., Aldergrove BC V4W 2R3 Submitted by: S.R. Oakley

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
B 191801	3	48	23	69	.3	14	8	1262	2.63	139	<8	<2	<2	274	.7	<3	<3	64	2.57	.076	6	28	.80	25	.20	3	3.95	.35	.02	4	<1
B 191802	5	58	51	77	.8	19	10	635	3.36	162	<8	<2	<2	67	.6	<3	<3	58	.85	.088	7	25	.87	12	.25	<3	1.70	.18	.01	<2	<1
B 191803	4	49	37	141	.9	9	8	712	3.51	136	<8	<2	<2	18	.9	<3	<3	66	.65	.093	8	27	1.08	8	.19	<3	1.35	.06	.01	2	<1
B 191805	4	59	8	88	.3	17	9	631	3.26	92	<8	<2	<2	35	.3	<3	<3	55	.91	.208	11	47	.92	21	.18	<3	1.26	.10	.02	2	1
B 191806	9	43	8	315	.4	26	7	708	3.16	124	<8	<2	<2	41	1.8	<3	<3	70	1.37	.229	11	51	.82	12	.18	<3	1.30	.12	.02	3	<1
B 191807	5	46	14	85	.3	16	12	1019	4.21	217	<8	<2	<2	21	<.2	<3	<3	72	1.64	.117	7	50	.67	20	.23	<3	1.19	.06	.03	3	<1
B 191808	3	39	11	47	<.3	14	8	488	3.63	64	<8	<2	<2	57	<.2	<3	<3	59	1.11	.215	9	37	.78	26	.20	<3	1.59	.16	.04	4	<1
RE B 191808	4	38	9	46	.5	13	8	487	3.63	64	<8	<2	<2	56	<.2	<3	<3	59	1.11	.213	9	36	.78	26	.20	<3	1.55	.16	.04	3	<1
B 191809	4	32	88	112	.3	11	8	679	3.57	450	<8	<2	<2	36	.9	<3	<3	57	.67	.112	6	36	.91	30	.20	<3	1.38	.08	.03	<2	<1
B 191810	3	30	50	78	.6	14	7	518	3.49	164	<8	<2	<2	35	.6	3	<3	52	.84	.182	9	42	.73	22	.19	<3	1.42	.10	.03	4	1

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: ROCK AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: SEP 5 1997 **DATE REPORT MAILED:** Sep 12/97 **SIGNED BY** ...D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Data / FA

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

GEOCHEMICAL ANALYSIS CERTIFICATE

Leighton Exploration & Dev. File # 97-5492

3806 - 254th St., Aldergrove BC V4W 2R3 Submitted by: S. Oakley

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
B 191848	1	107	7	73	<.3	71	21	313	3.63	<2	<8	<2	<2	115	.6	<3	<3	135	1.66	.072	5	167	2.31	275	.12	<3	3.41	.43	.76	<2	2
B 191849	1	67	4	81	<.3	72	26	308	4.05	4	<8	<2	<2	127	.7	<3	<3	169	1.76	.067	5	147	2.99	342	.14	<3	4.12	.43	1.18	2	1
B 191850	1	152	6	105	.4	50	18	581	4.15	<2	<8	<2	<2	163	.8	<3	<3	139	2.32	.061	3	118	2.26	142	.15	3	3.90	.54	.55	<2	1
B 191904	1	140	<3	98	.3	63	21	446	3.80	<2	<8	<2	<2	134	.8	<3	<3	147	1.93	.080	5	172	2.63	305	.17	<3	3.96	.42	1.09	<2	4
B 191905	3	121	3	68	.3	56	21	368	3.45	<2	<8	<2	<2	76	.5	<3	<3	157	1.35	.091	5	145	2.43	372	.19	<3	3.09	.32	1.23	<2	2
B 191906	2	210	4	70	.7	69	21	452	3.83	4	<8	<2	<2	93	.7	3	<3	122	1.66	.086	5	171	2.02	131	.15	<3	2.79	.33	.49	<2	5
B 191907	1	69	5	62	<.3	92	24	379	3.39	2	<8	<2	<2	91	.5	<3	<3	117	1.45	.062	5	169	2.63	217	.13	<3	2.95	.39	.51	<2	<1
B 191908	3	57	51	660	.6	6	5	572	1.78	23	<8	<2	2	4	6.6	<3	<3	12	.04	.004	11	6	.24	35	<.01	<3	.71	.03	.19	<2	7
RE B 191908	2	57	49	645	.5	6	5	564	1.76	23	<8	<2	<2	4	6.4	<3	<3	12	.04	.004	10	6	.24	35	<.01	<3	.70	.03	.19	<2	7
RRE B 191908	2	57	50	636	.7	6	5	554	1.72	23	<8	<2	2	4	6.4	<3	<3	12	.04	.004	10	6	.23	34	<.01	<3	.69	.03	.19	<2	6
B 191909	3	59	216	2692	1.2	5	5	657	2.10	15	<8	<2	<2	4	27.3	<3	<3	13	.05	.003	10	8	.30	43	<.01	3	.91	.04	.25	3	11
B 191910	3	72	54	1711	.9	5	5	1153	2.37	25	<8	<2	<2	4	21.5	<3	<3	8	.08	.015	12	6	.19	43	<.01	<3	.62	.03	.24	3	35
STANDARD C3/AU-R	25	60	34	145	5.2	35	11	713	3.31	47	15	3	18	29	23.1	11	22	81	.57	.091	18	163	.58	147	.09	20	1.90	.04	.17	17	496

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: CORE AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: SEP 19 1997 DATE REPORT MAILED: Sept 30/97 SIGNED BY..... D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Data FA

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

ASSAY CERTIFICATE

Leighton Exploration & Dev. File # 97-5518R

3806 - 254th St., Aldergrove BC V4W 2R3

SAMPLE#	S.Wt gm	NAu mg	-Au opt	DupAu opt	TotAu opt
B 190809	536	.01	.002	-	.003
B 190810	576	<.01	.007	-	.007
B 190811	567	<.01	.018	-	.018
B 190812	581	<.01	.015	-	.015
B 190813	443	.02	.069	.092	.070
B 190814	520	<.01	.004	-	.004
B 190815	481	<.01	.003	-	.003

-100 AU BY FIRE ASSAY FROM 1 A.T. SAMPLE. DUPAU: AU DUPLICATED FROM -100 MESH. NAU - NATIVE GOLD, TOTAL SAMPLE FIRE ASSAY.
- SAMPLE TYPE: CORE REJ.

DATE RECEIVED: OCT 27 1997 DATE REPORT MAILED: Oct 31/97 SIGNED BY: ..D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Data__ FA

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

GEOCHEMICAL ANALYSIS CERTIFICATE

Leighton Exploration & Dev. File # 97-5519
3806 - 254th St., Aldergrove BC V4W 2R3 Submitted by: S. DeRley

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
B 191911	3	66	188	1713	1.3	5	5	2243	2.88	23	<8	<2	4	4	17.9	<3	4	9	.14	.021	11	7	.20	40	<.01	<3	.65	.03	.24	<2	88
B 191912	3	77	203	858	2.1	4	5	1921	2.63	44	<8	<2	2	6	8.3	<3	<3	9	.13	.021	9	7	.20	133	<.01	<3	.63	.03	.26	5	26
B 191913	3	91	333	250	7.2	7	5	1404	2.30	36	<8	<2	3	3	2.0	3	14	13	.10	.024	10	9	.27	57	<.01	<3	.83	.03	.25	<2	121
B 191914	2	118	52	152	1.5	3	7	1529	3.88	23	<8	<2	2	7	1.5	<3	<3	43	.18	.059	11	5	.60	62	<.01	<3	1.41	.03	.20	<2	197
B 191915	3	58	17	463	.8	5	6	2199	3.15	13	<8	<2	3	4	5.1	<3	<3	12	.15	.026	12	7	.26	48	<.01	<3	.77	.04	.21	<2	99
B 191916	5	154	28	1602	2.2	15	9	2152	4.94	17	<8	<2	3	11	15.4	<3	3	58	.66	.053	8	24	.82	60	<.01	<3	1.50	.03	.19	<2	121
B 191917	3	138	40	229	1.3	6	5	1132	2.76	11	<8	<2	<2	13	2.0	<3	<3	19	.96	.029	7	9	.35	49	<.01	<3	.91	.04	.21	<2	12
B 191918	3	146	68	214	1.3	4	6	2170	3.64	28	<8	<2	2	5	2.0	<3	3	10	.25	.026	9	8	.25	41	<.01	<3	.77	.04	.30	3	6
B 191919	2	82	31	128	.7	4	3	874	2.20	32	<8	<2	<2	13	.8	<3	<3	11	1.16	.022	8	7	.23	38	<.01	3	.75	.04	.23	<2	12
B 191920	2	88	41	87	.9	5	4	1047	2.23	16	<8	<2	<2	6	.6	<3	<3	12	.24	.068	10	8	.24	43	<.01	<3	.73	.05	.23	<2	11
B 191921	2	73	34	70	.6	4	4	1406	2.28	23	<8	<2	2	5	.4	<3	4	9	.13	.029	11	7	.22	41	<.01	3	.68	.05	.24	<2	8
B 191922	2	46	120	234	1.6	3	4	445	1.43	3052	<8	<2	3	4	1.5	8	<3	13	.10	.025	12	5	.20	42	<.01	4	.72	.03	.27	<2	468
RE B 191922	2	45	113	226	1.1	3	3	442	1.42	3044	<8	<2	2	4	1.3	8	3	13	.10	.026	12	5	.20	43	<.01	3	.71	.02	.27	<2	508
RRE B 191922	2	52	110	254	1.2	4	3	480	1.51	3081	<8	<2	<2	4	1.6	10	4	13	.11	.027	13	6	.21	44	<.01	5	.77	.03	.29	<2	477
B 191923	2	70	26	365	.9	9	12	1188	3.10	74	<8	<2	3	8	3.5	<3	5	55	.20	.050	10	19	.90	62	.03	<3	1.55	.04	.18	<2	21
B 191924	2	309	54	136	3.3	5	8	1857	3.02	28	<8	<2	3	4	1.4	<3	29	11	.14	.032	8	5	.27	52	<.01	<3	.88	.03	.26	<2	560
B 191925	3	195	25	178	1.2	3	12	1504	3.57	37	<8	<2	2	6	1.7	3	6	28	.24	.086	10	5	.48	57	<.01	<3	1.20	.04	.25	<2	46
B 191926	2	65	12	54	.5	4	5	656	1.66	8	<8	<2	3	4	.5	<3	9	13	.09	.025	10	6	.26	40	<.01	3	.75	.05	.19	<2	4
B 191927	4	94	128	214	2.4	5	5	637	1.92	570	<8	<2	2	5	1.3	4	<3	14	.10	.027	11	9	.28	78	<.01	3	.83	.05	.22	9	94
STANDARD C3/AU-R	25	66	35	169	5.5	37	13	743	3.39	52	24	2	18	31	23.8	13	25	85	.58	.089	18	167	.59	150	.10	21	1.91	.04	.17	20	467

1CP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: CORE AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: SEP 22 1997 DATE REPORT MAILED: Sept 30/97 SIGNED BY. D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of the analysis only. Data FA

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

GEOCHEMICAL ANALYSIS CERTIFICATE

Leighton Exploration & Dev. File # 97-5665 Page 1

3806 - 254th St., Aldergrove BC V4W 2R3 Submitted by: S. Oakley

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb	SAMPLE lb
B 190820	3	41	4	185	.4	14	16	2216	4.72	8	<8	<2	<2	36	.8	4	<3	97	.78	.077	3	32	1.60	141	.17	<3	2.65	.12	.06	<2	1	12
B 190821	1	45	<3	307	.4	24	26	1941	5.81	2	<8	<2	<2	79	2.2	4	<3	96	.97	.061	3	51	1.62	141	.11	4	3.66	.22	.11	<2	1	13
B 190822	1	39	<3	82	.3	44	30	1145	6.45	4	<8	<2	<2	103	<.2	3	<3	83	1.10	.050	4	72	1.38	136	.17	5	3.64	.24	.19	2	1	12
B 190823	2	81	9	500	.6	27	22	1582	4.70	8	<8	<2	<2	97	4.0	5	<3	104	1.49	.066	4	57	1.60	75	.13	<3	3.85	.32	.07	<2	4	11
B 190824	1	59	<3	167	.5	45	25	1822	5.68	7	<8	<2	<2	129	.5	4	<3	124	2.97	.060	4	95	2.31	74	.18	3	4.90	.39	.20	<2	1	13
B 190825	3	58	30	111	.8	32	24	1650	5.02	7	<8	<2	<2	106	.3	3	<3	104	2.15	.061	3	59	1.62	125	.19	4	4.18	.38	.44	2	13	12
B 190826	3	55	13	112	.6	18	22	1577	5.09	5	<8	<2	<2	143	.2	3	<3	115	3.32	.076	4	27	1.65	86	.19	5	3.62	.28	.31	2	6	13
B 190827	1	32	14	114	.4	12	15	1371	4.52	<2	<8	<2	<2	83	.5	3	<3	93	2.61	.077	6	22	1.36	51	.16	<3	2.70	.18	.18	3	4	13
B 190828	2	48	7	77	.4	5	15	1100	4.65	<2	<8	<2	<2	27	.2	<3	<3	74	1.47	.096	7	6	1.15	31	.21	<3	1.72	.09	.08	2	10	14
B 190829	<1	53	3	89	.3	22	18	1398	4.94	22	<8	<2	<2	104	.2	5	<3	128	1.73	.065	4	45	1.44	109	.14	5	4.09	.38	.31	<2	8	11
B 190831	1	31	36	152	.9	12	10	5107	4.89	5	<8	<2	<2	8	.6	<3	<3	42	.44	.048	5	22	.86	71	.07	3	1.65	.02	.18	<2	58	13
B 190832	3	89	64	456	1.4	14	14	3466	5.05	16	<8	<2	<2	6	3.4	<3	<3	50	.34	.052	7	21	.94	73	.07	<3	1.89	.03	.24	<2	55	12
B 190833	2	66	84	1162	1.8	9	7	1118	3.15	29	<8	<2	<2	4	12.1	<3	5	28	.10	.040	11	10	.58	59	<.01	<3	1.50	.03	.38	<2	45	11
B 190834	1	24	22	1228	.4	6	4	1716	2.63	3	<8	<2	<2	4	13.4	<3	3	14	.09	.031	13	7	.32	41	<.01	<3	1.02	.03	.22	<2	114	13
B 190835	2	39	30	1272	.7	5	4	2213	3.06	<2	<8	<2	<2	4	13.4	<3	<3	12	.10	.027	10	6	.31	54	<.01	<3	.85	.03	.17	<2	69	12
RE B 190835	2	43	30	1310	.5	5	4	2356	3.24	<2	<8	<2	<2	4	14.2	<3	<3	13	.11	.028	12	9	.32	60	<.01	<3	.91	.03	.18	<2	106	-
RRE B 190835	1	42	30	1286	.7	5	5	2348	3.24	2	<8	<2	<2	4	13.8	<3	3	13	.11	.029	12	9	.32	60	<.01	<3	.90	.03	.18	<2	52	-
B 190836	3	69	17	74	.6	5	5	1795	3.09	5	<8	<2	<2	4	.5	<3	<3	12	.09	.026	12	10	.32	74	<.01	<3	.95	.05	.21	2	68	12
B 190837	3	162	29	202	1.4	6	8	1730	3.58	4	<8	<2	<2	4	1.7	<3	5	12	.12	.026	11	8	.30	68	<.01	<3	.87	.04	.21	<2	82	12
B 190838	1	65	33	337	.7	9	8	1133	2.90	30	<8	<2	<2	4	3.1	<3	<3	19	.09	.031	10	12	.42	50	<.01	<3	1.03	.04	.18	<2	75	11
B 190839	2	40	20	62	.5	6	4	1953	2.55	5	<8	<2	<2	4	.4	<3	<3	14	.09	.026	13	14	.30	61	<.01	3	.83	.05	.20	2	7	12
B 190840	3	44	23	147	.4	5	4	1657	2.64	<2	<8	<2	<2	19	1.2	<3	<3	15	1.10	.026	11	13	.31	56	<.01	<3	.84	.04	.18	2	19	13
B 190841	2	44	18	217	.4	6	5	2433	3.21	7	<8	<2	<2	9	1.8	<3	<3	18	.42	.027	12	13	.36	56	<.01	<3	.95	.04	.19	<2	12	13
B 190842	2	27	35	294	.9	16	13	3396	4.53	4	<8	<2	<2	14	1.2	3	<3	77	.49	.065	4	25	1.31	46	.10	<3	2.43	.04	.12	<2	68	13
B 190843	4	37	51	536	1.0	15	12	3045	4.80	12	<8	<2	<2	7	4.6	<3	<3	66	.31	.060	7	25	1.24	89	.05	<3	2.32	.03	.19	<2	34	13
B 190844	3	86	160	1224	2.6	15	9	1804	4.33	35	<8	<2	<2	4	11.8	<3	6	52	.12	.051	12	23	.96	63	<.01	<3	2.04	.02	.26	<2	476	11
B 190845	4	918	7	69	.3	5	22	307	5.08	2	<8	<2	<2	31	.4	<3	<3	91	1.09	.097	4	9	1.17	42	.23	<3	2.20	.13	.20	<2	5	13
RE B 190845	4	884	6	62	.5	6	22	290	4.84	<2	<8	<2	<2	29	.2	<3	<3	87	1.03	.092	4	10	1.12	39	.19	<3	2.06	.12	.19	<2	3	-
RRE B 190845	3	931	<3	66	.6	5	22	302	5.11	<2	<8	<2	<2	31	.3	<3	<3	92	1.08	.096	3	10	1.17	41	.22	<3	2.16	.13	.21	<2	1	-
B 190846	3	1184	3	59	.7	7	19	319	4.92	<2	<8	<2	<2	34	<.2	<3	<3	90	1.32	.093	4	14	1.12	21	.19	<3	2.12	.13	.07	2	2	13
B 190847	2	947	15	72	.7	6	17	383	4.12	3	<8	<2	<2	81	.2	<3	<3	93	1.58	.091	4	12	1.16	30	.15	<3	2.35	.17	.11	<2	8	12
B 190848	3	1375	12	549	1.7	8	17	550	4.51	9	<8	<2	<2	29	3.5	<3	<3	84	1.53	.092	4	20	1.19	22	.14	<3	2.09	.09	.08	<2	3	13
B 190849	5	1752	3	107	1.6	10	16	609	5.37	8	<8	<2	<2	29	.4	<3	<3	99	1.44	.100	4	25	1.37	21	.17	<3	2.44	.10	.08	<2	7	12
B 190850	14	4110	<3	149	3.1	10	19	612	5.05	8	<8	<2	<2	25	.8	<3	<3	95	1.45	.102	3	16	1.26	52	.17	<3	2.29	.11	.22	<2	18	11
B 190851	3	1517	7	91	.6	9	13	416	4.01	9	<8	<2	<2	25	.4	<3	<3	87	1.53	.106	6	17	1.12	31	.13	<3	2.03	.10	.13	<2	8	12
STANDARD C3/AU-R	25	66	37	157	5.5	37	13	755	3.46	49	24	3	15	29	23.1	18	19	82	.58	.087	20	178	.60	151	.09	16	1.93	.04	.17	16	453	-

97-12 200'-300'

97-10 20-220'

97-11

97-13 30'-100'

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: CORE AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: SEP 26 1997 DATE REPORT MAILED: Oct 6/97 SIGNED BY: .D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Data FA

ACME ANALYTICAL

Leighton Exploration & Dev. FILE # 97-5665

ACME ANALYTICAL

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	AU* ppb	SAMPLE lb
B 190852	3	1986	7	126	1.8	7	12	576	4.10	35	<8	<2	<2	20	.6	<3	<3	89	1.38	.101	5	14	1.18	32	.15	<3	1.97	.09	.17	<2	24	13
B 190853	<1	2008	7	189	2.4	9	13	694	4.40	23	8	<2	<2	25	.9	<3	<3	83	1.73	.100	7	12	1.13	47	.11	<3	1.96	.08	.29	<2	14	8
B 190855	2	1518	4	53	.6	8	10	282	3.28	5	<8	<2	<2	30	.3	<3	<3	90	1.15	.093	6	14	1.14	90	.18	<3	1.80	.11	.44	<2	9	11
B 190856	2	1581	6	57	.6	10	12	290	3.86	<2	<8	<2	<2	35	.2	<3	<3	104	1.14	.102	6	20	1.24	92	.27	3	2.13	.17	.47	<2	8	13
B 190857	1	1852	<3	53	.5	12	17	251	3.92	4	<8	<2	<2	37	.2	<3	<3	95	1.06	.099	6	24	1.26	95	.28	<3	2.08	.16	.48	<2	14	13
B 190858	3	1795	7	56	.6	8	15	224	3.62	<2	<8	<2	<2	26	.4	<3	<3	75	.91	.090	8	12	1.00	73	.24	<3	1.70	.13	.38	<2	25	13
B 190859	7	1773	4	53	.9	8	15	261	3.88	<2	<8	<2	<2	24	<.2	<3	<3	71	1.01	.090	7	13	.98	71	.15	3	1.62	.10	.39	2	13	13
B 190860	6	2092	5	47	.3	8	14	215	3.88	<2	13	<2	<2	23	.2	<3	<3	78	.85	.094	6	15	1.07	73	.26	<3	1.72	.12	.32	2	32	13
B 190861	2	2221	<3	50	.6	8	13	246	4.29	<2	<8	<2	<2	34	.2	<3	<3	93	1.00	.091	4	12	1.19	95	.27	<3	2.04	.14	.59	<2	22	13
B 190862	2	1812	<3	50	.6	8	14	306	4.40	4	<8	<2	<2	27	<.2	<3	<3	77	1.17	.089	5	15	1.09	69	.17	<3	1.91	.11	.43	<2	11	13
B 190863	1	1281	4	40	.4	9	13	300	3.84	4	<8	<2	<2	32	<.2	<3	<3	72	1.43	.090	7	14	.89	52	.14	<3	1.64	.10	.25	<2	9	12
B 190864	2	1521	<3	78	.9	8	13	509	4.17	17	12	<2	<2	32	.4	<3	<3	71	1.69	.087	8	15	.96	61	.12	<3	1.76	.09	.31	<2	12	12
B 190865	5	1346	4	87	.7	7	15	404	3.80	14	14	<2	<2	30	.3	<3	<3	69	1.16	.082	7	12	.91	95	.17	<3	1.66	.11	.38	<2	19	13
B 190866	3	1607	<3	44	.5	7	12	211	3.46	<2	9	<2	<2	26	<.2	<3	<3	61	.80	.082	7	11	.89	82	.19	<3	1.59	.13	.41	<2	24	12
RE B 190866	4	1624	<3	44	.7	7	12	218	3.52	<2	<8	<2	<2	26	.2	<3	<3	62	.81	.084	7	13	.90	83	.20	<3	1.60	.13	.42	<2	20	-
RRE B 190866	4	1685	4	45	.6	6	12	219	3.55	<2	10	<2	<2	27	.2	<3	<3	64	.83	.085	7	12	.93	86	.25	<3	1.64	.13	.43	<2	18	-
B 190867	6	1494	<3	51	.5	8	13	261	3.92	<2	10	<2	<2	26	<.2	<3	<3	64	1.00	.090	8	13	.98	70	.18	<3	1.65	.12	.38	2	5	12
B 190868	4	1896	6	170	1.9	8	16	474	4.57	12	9	<2	<2	27	.8	<3	<3	76	1.53	.087	8	12	1.14	78	.15	<3	1.78	.07	.48	2	16	13
B 190869	6	1682	6	79	.6	8	15	352	4.06	2	10	<2	<2	26	.4	<3	<3	67	1.40	.078	7	15	1.01	52	.14	<3	1.62	.06	.25	<2	4	13
B 190870	13	99	4	96	<.3	5	8	480	2.60	<2	15	<2	<2	35	.4	<3	<3	36	2.14	.074	11	10	.66	28	.01	<3	1.19	.04	.13	<2	1	12
B 190871	2	1009	9	65	.3	8	11	454	3.36	<2	10	<2	<2	53	.2	<3	<3	93	2.20	.082	6	12	1.06	29	.13	<3	1.90	.14	.09	2	3	13
STANDARD C3/AU-R	25	64	35	154	5.4	35	13	738	3.28	50	16	3	15	28	22.2	17	16	80	.56	.086	19	172	.58	140	.09	18	1.85	.04	.16	19	475	-

97-13
100' - 300'

Sample type: CORE. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

Date ___ FA ___

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

GEOCHEMICAL ANALYSIS CERTIFICATE

Leighton Exploration & Dev. File # 97-5678

3806 - 254th St., Aldergrove BC V4W 2R3 Submitted by: S. Oakley

97-1
11-302

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
B 191928	3	44	29	1042	.6	6	6	3066	4.24	345	<8	<2	2	4	10.4	<3	7	20	.16	.030	8	11	.32	54	<.01	4	.82	.03	.18	3	9
B 191929	3	26	29	1001	.6	5	3	3032	3.55	40	<8	<2	2	4	8.7	<3	6	15	.14	.027	9	14	.25	54	<.01	5	.70	.04	.18	<2	2
B 191930	2	29	33	3164	.7	6	4	845	2.07	176	<8	<2	<2	4	27.2	<3	7	18	.07	.026	10	14	.25	55	<.01	3	.75	.04	.18	3	7
B 191931	3	47	31	1397	.8	6	4	3562	4.18	42	<8	<2	2	5	13.2	<3	5	15	.18	.028	8	13	.22	59	<.01	4	.53	.04	.16	<2	4
B 191932	1	85	92	2823	1.7	5	4	1419	2.58	347	<8	<2	2	4	29.8	5	7	7	.12	.026	9	10	.13	46	<.01	5	.38	.03	.20	3	35
B 191933	2	67	35	1273	1.0	6	4	2184	3.23	178	<8	<2	2	4	13.0	<3	6	12	.14	.027	9	11	.22	59	<.01	4	.61	.04	.20	<2	4
B 191934	1	60	22	800	.8	5	4	2128	3.07	60	<8	<2	3	4	8.5	<3	5	12	.13	.026	10	13	.22	57	<.01	6	.68	.03	.21	2	39
B 191935	4	86	50	841	1.4	17	8	2354	4.73	248	<8	<2	2	4	8.1	<3	11	50	.15	.045	8	34	.78	49	<.01	8	1.69	.02	.23	<2	30
B 191936	2	70	21	897	.8	5	5	1642	2.73	205	<8	<2	<2	4	9.3	<3	6	9	.11	.024	9	9	.15	55	<.01	4	.47	.03	.21	2	2
B 191937	3	75	29	823	1.0	5	5	2243	3.36	63	<8	<2	<2	4	8.5	<3	11	13	.13	.027	8	10	.23	53	<.01	3	.66	.03	.19	2	77
B 191938	4	99	29	352	1.2	5	5	1382	2.95	82	<8	<2	<2	3	3.5	<3	13	12	.10	.026	9	12	.21	59	<.01	3	.63	.04	.21	4	54
B 191939	2	68	26	98	.7	5	5	2113	3.99	521	<8	<2	2	4	.6	<3	3	9	.15	.025	8	8	.14	48	<.01	7	.33	.02	.16	2	87
RE B 191939	2	68	26	99	.6	5	5	2098	3.95	507	<8	<2	<2	4	.6	<3	<3	9	.15	.025	8	8	.14	48	<.01	5	.33	.02	.16	<2	239
RRE B 191939	2	68	28	99	.6	4	5	2122	4.02	526	<8	<2	2	4	.6	<3	<3	9	.15	.025	8	8	.14	49	<.01	4	.33	.02	.16	2	65
B 191940	4	136	160	78	6.9	1	9	3080	4.88	1796	<8	<2	<2	6	.4	15	91	12	.31	.098	10	9	.47	59	<.01	4	.96	.03	.17	2	50
B 191941	2	123	18	48	1.1	5	8	2902	4.39	858	<8	<2	3	4	.3	8	6	8	.18	.027	9	12	.18	62	<.01	8	.52	.02	.21	2	41
B 191942	2	45	18	67	.7	5	4	2877	3.76	82	<8	<2	2	4	.3	<3	3	11	.19	.025	11	11	.14	57	<.01	6	.44	.03	.20	3	2
STANDARD C3/AU-R	23	61	35	153	5.4	35	12	711	3.26	51	23	2	16	28	21.5	16	20	76	.54	.086	19	164	.57	138	.09	23	1.81	.04	.16	17	498

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: CORE AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: SEP 29 1997 DATE REPORT MAILED: Oct 6/97 SIGNED BY ..... D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Data FA

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

GEOCHEMICAL ANALYSIS CERTIFICATE

Leighton Exploration & Dev. File # 97-5709

3806 - 254th St., Aldergrove BC V4W 2R3 Submitted by: S. Oakley

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
B 191757	1	706	<3	18	<.3	16	4	221	2.66	<2	<8	<2	<2	245	<.2	<3	<3	148	2.63	.055	2	20	.18	2	.71	4	1.38	.01	.01	<2	4

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: ROCK AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)

DATE RECEIVED: SEP 25 1997 DATE REPORT MAILED: Oct 6/97 SIGNED BY. ..... D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Peters
Quartz veined
Boulder.

Data FA

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

GEOCHEMICAL ANALYSIS CERTIFICATE

Leighton Exploration & Dev. File # 97-5710
3806 - 254th St., Aldergrove BC V4W 2R3 Submitted by: S. Oakley

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb	SAMPLE lb
B 190872	<1	89	14	1090	<.3	12	23	2566	5.70	3	<8	<2	<2	95	7.6	<3	3	157	1.67	.077	<1	10	1.71	111	.21	<3	3.91	.32	.40	<2	<1	12
B 190873	1	142	22	407	.6	14	24	2211	5.63	2	<8	<2	<2	128	2.0	<3	<3	151	2.95	.069	1	18	1.78	113	.18	3	4.49	.35	.56	<2	2	15
B 190874	2	126	9	351	1.0	20	21	2136	4.74	<2	<8	<2	<2	200	1.2	<3	<3	123	3.20	.077	2	31	2.03	175	.17	4	5.33	.39	.52	<2	1	13
B 190875	4	334	12	605	1.8	19	28	1966	6.15	<2	<8	<2	<2	273	3.1	<3	<3	158	3.81	.069	<1	26	1.70	175	.17	4	6.51	.40	.48	<2	295	12
B 190876	2	163	15	294	1.1	15	18	2265	4.55	<2	<8	<2	<2	157	.9	<3	<3	151	2.96	.070	<1	23	1.85	31	.15	3	4.05	.33	.07	<2	4	13
B 190877	1	318	6	226	1.8	16	25	1965	5.28	2	<8	<2	<2	236	.3	<3	4	151	3.42	.070	<1	21	1.71	118	.17	6	5.11	.35	.45	<2	10	14
B 190878	<1	368	<3	193	2.2	16	21	2142	5.36	<2	<8	<2	<2	172	<.2	<3	<3	168	3.40	.068	<1	21	1.82	76	.19	<3	4.49	.33	.22	<2	27	13
B 190879	<1	778	8	395	4.0	16	26	2079	5.86	<2	<8	<2	<2	124	2.1	<3	<3	199	2.73	.067	<1	23	1.96	152	.22	3	4.44	.35	.63	<2	16	13
B 190880	1	398	15	212	1.5	9	21	[illegible]	5.05	<2	<8	<2	<2	148	.3	<3	<3	142	2.92	.084	2	20	1.82	142	.20	3	4.42	.38	.44	<2	6	13
B 190881	2	971	14	263	2.4	9	18	1868	5.[illegible]	<2	<8	<2	<2	264	.5	<3	<3	[illegible]50	3.84	.085	3	14	1.93	271	.20	4	6.65	.38	.89	<2	29	12
B 190882	3	507	11	141	1.7	9	16	1331	4.08	<2	[illegible]	<2	<2	190	<.2	<3	4	125	2.46	.080	4	17	1.37	136	.18	3	4.54	.44	.40	<2	4	13
RE B 190882	4	518	6	144	1.6	9	16	1348	4.17	<2	<8	<2	<2	191	<.2	<3	<3	126	2.48	.082	4	18	1.41	136	.18	3	4.57	.44	.40	<2	8	-
RRE B 190882	4	494	14	138	1.6	10	16	1263	3.96	3	<8	<2	<2	179	<.2	<3	<3	121	2.30	.079	3	18	1.37	134	.16	3	4.31	.41	.40	<2	9	-
B 190883	2	844	7	139	2.1	10	16	962	3.79	2	<8	<2	<2	115	<.2	<3	<3	111	1.93	.079	3	18	1.39	106	.17	<3	3.59	.34	.37	<2	6	12
B 190884	2	1771	7	159	2.6	19	18	1043	4.45	<2	<8	<2	<2	106	<.2	<3	6	128	1.79	.064	3	32	1.49	179	.15	3	4.27	.39	.64	<2	9	13
B 190885	1	315	7	68	<.3	27	17	641	4.17	2	<8	<2	<2	55	<.2	<3	<3	88	.74	.076	2	36	1.28	193	.10	<3	3.02	.16	.49	<2	18	11
STANDARD C3/AU-R	25	65	36	161	5.6	36	12	711	3.28	53	20	<2	15	29	22.3	12	21	82	.55	.085	17	160	.56	144	.10	19	1.83	.04	.16	22	468	-

97-16, 20-160'

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: CORE AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: SEP 29 1997 DATE REPORT MAILED: Oct 6/97 SIGNED BY. ..... J.D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Date ___ FA ___

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

GEOCHEMICAL ANALYSIS CERTIFICATE

Leighton Exploration & Dev. File # 97-5748

3806 - 254th St., Aldergrove BC V4W 2R3 Submitted by: S. Oakley

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
B 190886	1	932	23	348	2.1	31	16	1285	4.58	3	<8	<2	2	40	1.7	3	<3	90	.58	.046	4	48	1.54	116	.12	<3	2.66	.17	.46	<2	15
B 190887	3	447	20	433	2.1	29	17	1303	5.03	65	<8	<2	4	12	2.1	<3	15	82	.25	.069	5	37	1.28	140	.03	<3	2.56	.06	.49	<2	4
B 190888	2	472	7	84	.7	31	18	564	4.09	10	<8	<2	4	64	<.2	<3	8	101	.96	.061	5	44	1.30	193	.12	<3	3.33	.20	.68	<2	25
B 190889	3	1407	12	711	3.8	44	18	945	4.38	<2	<8	<2	<2	77	5.6	<3	<3	119	1.61	.073	4	72	1.79	164	.22	3	3.35	.30	1.10	<2	45
B 190890	4	1584	36	220	4.4	25	9	754	3.75	2	<8	<2	2	31	1.1	<3	<3	72	1.25	.035	7	59	1.18	105	.12	<3	1.78	.11	.97	<2	33
B 190891	7	1503	24	107	4.9	3	2	371	.96	4	<8	<2	3	17	.9	<3	<3	4	.98	.012	8	11	.10	43	<.01	3	.45	.08	.16	5	5
B 190892	8	1403	44	155	5.2	3	2	357	.81	3	<8	<2	2	16	1.5	3	<3	2	.87	.011	8	9	.07	40	<.01	<3	.37	.09	.14	2	12
B 190893	6	1287	29	123	4.4	3	8	535	3.70	2	<8	<2	<2	21	.4	<3	7	62	.87	.049	8	8	.60	73	.19	<3	1.30	.14	.55	3	20
B 190894	6	1110	15	93	2.3	3	6	347	3.18	4	<8	<2	<2	17	.3	<3	10	54	.65	.043	5	8	.56	63	.18	<3	1.28	.15	.46	<2	21
B 190895	5	646	35	64	.9	2	3	191	.92	4	<8	<2	4	6	.4	<3	4	2	.18	.008	6	10	.08	33	.02	<3	.42	.12	.10	4	18
RE B 190895	5	630	30	62	1.0	2	2	186	.90	2	<8	<2	5	6	.5	4	<3	2	.17	.008	5	10	.07	33	.02	<3	.42	.12	.10	5	20
RRE B 190895	5	639	40	60	1.1	2	2	177	.87	<2	<8	<2	3	5	.6	<3	<3	1	.17	.009	6	10	.07	33	.01	<3	.41	.12	.10	3	21
B 190896	4	785	32	68	1.2	2	3	249	1.92	<2	<8	<2	3	10	.3	<3	<3	24	.31	.023	5	9	.29	61	.09	<3	.84	.15	.30	4	13
B 190897	9	621	45	114	1.6	2	2	179	.97	3	<8	<2	4	5	.8	3	3	2	.27	.009	6	10	.07	31	.01	<3	.40	.12	.09	5	23
B 190898	11	863	54	71	1.2	2	2	266	.98	4	<8	<2	4	5	.5	5	4	2	.17	.006	7	12	.08	36	.01	<3	.40	.11	.12	5	64
STANDARD C3/AU-R	26	64	39	163	5.4	35	13	706	3.25	52	20	2	18	30	23.4	18	26	83	.57	.087	18	164	.59	147	.10	19	1.84	.04	.17	21	434

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
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ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: CORE AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: OCT 1 1997 **DATE REPORT MAILED:** Oct 7/97 **SIGNED BY.** C. Leong .D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Data FA

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

GEOCHEMICAL ANALYSIS CERTIFICATE

Leighton Exploration & Dev. File # 97-5861

3806 - 254th St., Aldergrove BC V4W 2R3 Submitted by: S. OAKLEY

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
B 190701	11	608	26	60	.6	3	1	399	.83	2	<8	<2	3	8	.3	<3	<3	1	.42	.006	11	8	.06	25	.01	<3	.32	.06	.08	2	25
RE B 190701	10	611	25	61	.6	3	1	404	.85	3	<8	<2	3	8	.3	<3	<3	1	.42	.006	11	8	.06	26	.01	<3	.32	.06	.09	2	24
RRE B 190701	11	594	39	84	.9	3	1	377	.81	2	<8	<2	4	7	.4	<3	<3	1	.37	.005	10	9	.06	26	.01	<3	.32	.06	.09	2	24
B 190702	2	53	40	1051	.6	5	4	1156	2.33	21	<8	<2	3	3	14.3	<3	5	18	.09	.031	11	6	.33	35	<.01	<3	.94	.02	.17	<2	7
B 190703	.2	284	110	1264	5.2	9	7	1273	2.97	39	<8	<2	3	2	9.7	<3	43	23	.09	.030	8	8	.42	31	<.01	<3	1.12	.02	.19	<2	670
B 190704	1	181	45	1500	.8	7	8	1433	2.84	30	8	<2	2	2	14.9	<3	<3	21	.10	.032	10	7	.40	27	<.01	<3	1.06	.03	.20	<2	55
B 190705	2	64	28	1705	.4	9	6	1024	2.75	25	<8	<2	3	2	19.7	<3	3	26	.09	.034	10	10	.45	23	<.01	<3	1.23	.04	.20	2	17
B 190706	2	46	26	2027	<.3	7	4	800	2.23	16	<8	<2	2	3	23.0	<3	5	19	.08	.030	11	6	.36	25	<.01	<3	1.02	.04	.18	3	7
B 190707	3	54	38	1347	.3	6	3	1279	2.33	9	<8	<2	<2	4	15.9	<3	3	15	.10	.027	12	7	.27	39	<.01	<3	.79	.04	.16	<2	10
B 190708	2	69	27	1501	<.3	6	4	1404	2.69	16	<8	<2	2	3	17.2	<3	<3	17	.11	.031	11	6	.31	32	<.01	3	.89	.04	.17	<2	14
B 190709	3	52	23	1664	.3	6	5	1151	2.41	23	<8	<2	2	3	19.9	<3	<3	14	.09	.026	12	7	.29	35	<.01	<3	.85	.04	.17	2	113
B 190710	2	48	43	1533	.7	5	4	1558	2.61	15	<8	<2	2	6	18.8	<3	4	14	.27	.026	11	6	.30	35	<.01	<3	.86	.04	.17	<2	31
B 190711	2	51	58	1136	.7	6	4	1173	2.38	36	<8	<2	2	3	13.7	<3	3	14	.09	.026	12	8	.27	36	<.01	<3	.82	.04	.18	<2	61
B 190712	2	62	38	972	<.3	6	5	1452	2.77	10	<8	<2	2	4	11.6	<3	4	19	.16	.028	12	9	.33	30	<.01	<3	.95	.04	.17	<2	25
B 190713	3	57	36	1059	.4	7	5	1492	2.86	13	<8	<2	2	14	12.4	<3	4	20	.98	.072	11	8	.33	36	<.01	<3	.99	.04	.18	<2	22
B 190714	2	49	27	1242	.4	4	4	1074	2.18	10	<8	<2	2	7	15.0	<3	3	11	.36	.024	11	5	.24	38	<.01	3	.73	.03	.16	<2	62
B 190715	2	253	22	380	.7	6	6	996	2.51	14	<8	<2	3	22	4.4	<3	4	13	1.28	.024	11	7	.28	41	.01	<3	.86	.03	.18	<2	30
B 190716	2	44	17	1259	<.3	7	5	946	2.05	8	<8	<2	2	29	14.9	<3	<3	18	1.57	.030	11	7	.35	45	.01	3	.89	.04	.17	<2	28
B 190717	2	90	22	748	.7	21	7	1834	4.03	15	<8	<2	<2	41	8.5	3	9	60	2.17	.057	12	22	1.12	61	.05	<3	2.08	.08	.24	2	470
B 190899	3	647	40	83	.5	2	2	311	1.12	3	<8	<2	4	4	.6	<3	<3	3	.17	.007	8	11	.11	25	.01	<3	.41	.06	.08	3	63
B 190900	9	530	24	56	.5	2	1	422	.90	2	<8	<2	4	6	.2	<3	<3	1	.34	.006	12	8	.07	26	.01	<3	.35	.06	.08	2	24
B 191758	7	9275	82	42447	40.3	24	33	1568	6.32	23	<8	<2	3	11	399.5	<3	24	47	1.34	.034	7	33	.68	74	.02	<3	1.34	.02	.26	<2	17
STANDARD C3/AU-R	26	64	37	145	5.8	38	12	744	3.36	53	25	3	19	28	23.5	18	22	86	.57	.085	21	166	.60	143	.10	20	1.83	.04	.16	22	440

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Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: OCT 6 1997 DATE REPORT MAILED: Oct 15/97 SIGNED BY. C. Leong D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Data ✓ FA ____

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

GEOCHEMICAL ANALYSIS CERTIFICATE

Leighton Exploration & Dev. File # 97-6000 Page 1

3806 - 254th St., Aldergrove BC V4W 2R3

CORE

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb	SAMPLE lb
B 190718	7	677	57	2700	1.1	8	55	876	13.85	49	<8	<2	<2	118	19.1	<3	3	138	2.61	.062	<1	10	1.80	85	.13	3	4.32	.34	.34	<2	2	12
B 190719	4	150	90	1029	1.0	22	25	1665	6.28	10	<8	<2	<2	132	5.8	<3	<3	166	2.98	.077	4	23	2.35	61	.20	<3	4.28	.34	.11	<2	<1	13
B 190720	7	900	4	511	1.7	24	33	1782	6.56	31	<8	<2	<2	206	2.6	<3	<3	168	5.04	.071	4	44	2.21	89	.17	<3	5.54	.39	.62	<2	3	14
B 190721	2	464	10	296	1.0	27	26	1274	5.59	9	<8	<2	<2	228	1.5	<3	<3	162	4.25	.076	4	46	1.81	201	.19	3	5.55	.53	.53	<2	1	13
B 190722	2	317	<3	159	.5	21	18	618	4.43	4	<8	<2	<2	363	.3	<3	<3	125	4.12	.081	4	36	.89	136	.14	3	6.48	.62	.24	<2	1	15
RE B 190722	2	309	<3	153	.4	21	18	602	4.33	<2	<8	<2	<2	356	<.2	<3	3	122	4.02	.080	5	35	.87	132	.14	3	6.32	.60	.24	<2	1	-
RRE B 190722	3	318	6	159	.6	23	19	608	4.45	<2	<8	<2	<2	358	.2	<3	<3	124	4.05	.081	5	36	.88	134	.14	<3	6.40	.61	.24	2	1	-
B 190723	1	42	19	299	<.3	7	14	1606	3.44	71	<8	<2	<2	55	2.4	<3	3	98	1.31	.058	7	9	1.40	48	.02	<3	3.48	.19	.10	2	<1	9
B 190724	2	70	5	382	<.3	7	13	1239	3.65	79	<8	<2	<2	56	2.4	<3	<3	61	1.33	.058	5	12	1.19	71	.04	3	2.62	.16	.09	<2	<1	10
B 190725	2	62	39	401	1.1	4	11	1354	3.52	116	<8	<2	<2	118	2.6	<3	<3	80	2.67	.058	7	7	1.29	62	.04	3	3.68	.30	.19	2	1	10
B 190726	1	58	9	481	<.3	9	9	1354	2.93	38	<8	<2	<2	59	2.4	<3	<3	42	2.16	.062	11	12	.96	41	<.01	<3	1.71	.07	.10	<2	3	12
B 190727	1	66	10	608	<.3	9	10	1455	2.92	20	<8	<2	<2	65	3.3	<3	<3	38	3.06	.061	14	11	.94	53	<.01	<3	1.47	.02	.09	<2	<1	12
B 190728	1	66	11	540	.3	9	10	1514	3.04	14	<8	<2	<2	47	2.8	<3	<3	41	2.37	.060	6	12	1.04	55	.03	<3	1.74	.05	.10	<2	1	12
B 190729	3	40	7	256	.3	4	10	1435	2.91	22	<8	<2	<2	112	1.1	<3	<3	63	2.94	.057	5	7	1.10	79	.04	3	3.22	.27	.13	<2	7	14
B 190730	2	41	<3	132	<.3	6	8	1069	2.54	19	<8	<2	<2	127	.2	<3	<3	52	2.48	.056	3	10	1.01	40	.03	<3	2.86	.25	.09	2	2	10
B 190731	1	46	<3	63	<.3	18	18	903	3.96	13	<8	<2	<2	288	<.2	3	<3	91	3.02	.053	4	14	1.83	82	.12	<3	4.34	.40	.06	<2	2	13
B 190732	1	46	7	111	<.3	29	24	1151	4.60	17	<8	<2	<2	130	.3	<3	<3	115	4.28	.053	6	18	2.53	25	.04	<3	3.81	.20	.07	<2	<1	12
B 190733	3	58	8	77	<.3	4	13	1314	3.91	23	<8	<2	<2	220	<.2	3	<3	81	3.02	.057	4	8	1.31	75	.08	<3	3.97	.42	.10	2	1	12
B 190734	2	33	<3	60	<.3	5	12	972	3.68	3	<8	<2	<2	221	<.2	<3	<3	81	2.14	.057	3	12	1.35	182	.13	3	3.64	.40	.26	2	<1	14
B 190735	2	54	3	60	<.3	4	14	1114	3.87	56	<8	<2	<2	150	<.2	<3	<3	76	2.31	.059	5	8	1.32	70	.04	<3	2.93	.26	.09	2	<1	12
B 190736	3	40	<3	69	<.3	4	9	1607	3.64	114	<8	<2	2	248	<.2	6	<3	71	4.19	.058	6	9	1.37	84	.04	3	3.48	.33	.16	2	<1	12
B 190737	2	102	4	125	<.3	4	17	1146	4.87	24	<8	<2	<2	170	.5	<3	6	102	3.92	.053	4	7	1.41	183	.14	3	3.61	.40	.24	2	<1	12
B 190738	1	73	<3	96	.3	7	18	823	4.97	6	<8	<2	<2	97	.2	<3	3	146	1.95	.061	4	11	1.73	91	.25	3	3.42	.36	.62	2	<1	13
B 190739	1	88	28	420	.7	14	23	1520	4.77	161	<8	<2	<2	77	2.3	3	<3	137	3.02	.078	5	25	2.00	27	.05	5	3.40	.24	.15	<2	2	11
RE B 190739	1	89	24	422	.7	15	24	1524	4.80	157	<8	<2	<2	77	2.2	3	<3	138	3.03	.077	5	25	2.00	27	.05	4	3.41	.24	.15	<2	2	-
RRE B 190739	2	96	26	455	.6	15	25	1650	5.14	158	<8	<2	<2	81	2.3	<3	4	148	3.20	.082	5	26	2.17	28	.05	<3	3.66	.25	.16	<2	1	-
B 190740	1	77	9	207	.4	6	19	1326	5.57	11	<8	<2	<2	88	.8	<3	<3	154	2.26	.062	4	11	2.10	78	.23	<3	3.61	.32	.58	<2	<1	13
B 190741	1	63	<3	104	.3	6	17	1128	5.42	70	<8	<2	<2	98	<.2	<3	<3	157	2.22	.063	4	10	2.07	97	.24	<3	3.85	.36	.86	<2	2	12
B 190742	2	65	<3	191	<.3	6	18	1055	5.32	8	<8	<2	<2	106	.5	<3	<3	163	2.02	.062	3	13	1.89	104	.28	<3	3.78	.36	.93	2	<1	12
B 190743	2	49	7	145	<.3	5	14	1213	4.60	3	<8	<2	<2	248	.3	<3	3	122	2.63	.063	3	9	1.69	91	.18	<3	4.42	.50	.39	<2	<1	13
B 190744	4	27	15	72	<.3	9	7	374	2.26	11	<8	<2	<2	52	<.2	<3	<3	41	.72	.049	2	21	.98	68	.09	3	2.13	.18	.06	3	<1	12
B 190745	8	212	13	86	.5	14	11	391	3.18	16	<8	<2	<2	68	.2	<3	<3	42	1.01	.057	2	22	.92	49	.06	<3	2.19	.27	.08	3	1	12
B 190746	5	37	12	55	<.3	13	13	707	3.79	25	<8	<2	<2	43	<.2	<3	<3	57	.63	.053	4	27	.95	48	.04	<3	1.71	.15	.10	2	2	11
B 190747	3	7	9	53	<.3	12	13	633	3.51	21	<8	<2	<2	86	<.2	<3	<3	54	1.06	.058	1	27	1.57	51	.10	<3	2.24	.20	.05	3	1	13
B 190748	2	12	8	54	<.3	8	7	300	2.31	21	<8	<2	<2	82	.2	<3	<3	35	.90	.040	2	23	.81	34	.06	4	1.76	.26	.10	5	<1	12
STANDARD R-1/AU-R	24	67	35	163	5.5	34	12	738	3.35	54	27	4	19	30	23.3	15	21	83	.58	.084	18	167	.58	148	.10	19	1.90	.04	.16	21	450	-

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: CORE AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: OCT 9 1997 DATE REPORT MAILED: Oct 21/97 SIGNED BY..... D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Data FA

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb	SAMPLE lb
B 190749	5	33	6	50	<.3	12	12	389	3.14	13	<8	<2	<2	46	<.2	<3	<3	60	.81	.049	2	24	1.16	55	.07	<3	2.01	.22	.10	3	4	13
B 190750	3	29	5	39	<.3	8	8	331	2.50	13	<8	<2	<2	67	<.2	<3	<3	46	.77	.043	2	23	.82	57	.07	<3	1.74	.23	.15	4	19	12
RE B 190750	3	27	4	38	<.3	7	8	323	2.42	12	<8	<2	<2	66	<.2	<3	<3	44	.76	.041	2	21	.80	57	.07	<3	1.71	.23	.15	4	4	-

Sample type: CORE. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

Data___ FA ____

ACME LYT. . LA ATOR LTI E. ING I. OUV C IR(PI (60 3-3 FA 54)? 171

GEOCHEMICAL ANALYSIS CERTIFICATE

BLUFF SILTS

Leighton Exploration & Dev. File # 97-4945

3806 - 254th St., Aldergrove BC V4W 2R3 Submitted by: S. Oakley

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm
PG A	6	10	8	53	<.3	7	26	5744	11.47	28	<8	<2	<2	54	.2	<3	<3	137	.66	.036	3	13	.78	135	.11	<3	2.57	.02	.04	<2
PG B	<1	11	16	78	<.3	7	45	22299	6.44	8	9	<2	<2	94	.6	<3	<3	110	.84	.059	3	10	.46	211	.07	4	2.22	.02	.04	<2
PG C	1	6	6	68	<.3	11	30	8311	5.74	17	<8	<2	2	25	<.2	<3	<3	138	.27	.029	4	37	.84	105	.15	<3	2.84	.02	.03	<2
PG D	1	17	7	106	<.3	7	18	2606	2.91	<2	<8	<2	<2	250	.3	<3	<3	108	1.17	.050	9	9	.75	129	.17	3	3.46	.02	.04	<2
PG E	1	4	7	15	<.3	3	14	2389	10.47	29	<8	<2	<2	17	<.2	<3	<3	220	.16	.067	3	14	.11	33	.05	3	1.28	.02	.03	<2
PG F	2	5	3	56	<.3	7	12	702	9.78	22	<8	<2	<2	22	<.2	<3	<3	145	.24	.039	6	26	.66	37	.13	<3	2.53	.02	.02	<2
RE PG F	2	5	3	53	<.3	7	11	682	9.66	22	<8	<2	<2	22	<.2	<3	<3	143	.24	.039	6	25	.62	36	.13	<3	2.50	.01	.01	<2
STANDARD C3	25	65	32	169	5.7	35	12	738	3.39	55	23	3	18	30	24.2	14	22	83	.59	.087	18	168	.61	152	.10	19	1.94	.04	.16	24

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
- SAMPLE TYPE: SILT Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: SEP 2 1997 **DATE REPORT MAILED:** Sep 8/97 **SIGNED BY** .....D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Data FA

ME YTI LAI FOR LTD 8 E ENGS V UVE V R6 PHC 504 -31 FAX 125 716

GEOCHEMICAL ANALYSIS CERTIFICATE

SOILS

Leighton Exploration & Dev. PROJECT KNOB HILL File # 97-3913 Page 1

3806 - 254th St., Aldergrove BC V4W 2R3 Submitted by: D.G. Leighton

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
65+00N 32+25E	3	34	10	42	.3	5	4	185	4.53	18	8	<2	3	10	.2	3	<3	113	.16	.014	7	29	.36	18	.18	5	4.89	.01	.02	<2	1
65+00N 32+50E	3	35	7	119	<.3	8	6	307	3.93	46	<8	<2	2	14	<.2	<3	<3	103	.25	.012	6	23	.66	25	.23	<3	4.52	.01	.02	<2	3
65+00N 32+75E	2	38	13	48	<.3	6	6	218	7.00	41	<8	<2	3	10	<.2	<3	<3	204	.16	.014	5	38	.42	18	.28	<3	4.47	.01	.03	<2	17
65+00N 33+00E	3	14	11	87	<.3	3	3	132	3.63	49	<8	<2	<2	11	<.2	<3	<3	143	.17	.011	8	34	.24	16	.22	<3	3.20	.01	.02	<2	3
65+00N 33+25E	2	20	15	53	<.3	7	5	258	4.19	70	<8	<2	2	12	<.2	<3	<3	204	.20	.008	7	36	.63	47	.34	<3	3.57	.01	.03	<2	25
65+00N 33+75E	2	29	8	49	<.3	7	5	225	5.04	27	<8	<2	2	11	<.2	<3	<3	161	.20	.012	4	30	.40	18	.24	<3	3.77	.01	.02	<2	2
65+00N 34+00E	<1	50	7	51	<.3	10	8	338	5.69	6	<8	<2	<2	15	.2	<3	<3	122	.25	.016	6	24	.72	38	.22	<3	5.40	.01	.02	<2	1
65+00N 34+25E	2	20	8	15	<.3	3	3	132	4.02	3	<8	<2	<2	9	<.2	<3	3	168	.12	.009	6	18	.17	14	.17	<3	2.88	.01	.02	<2	1
65+00N 34+50E	3	23	13	27	<.3	6	5	205	5.06	6	<8	<2	3	13	<.2	<3	<3	203	.21	.009	8	33	.39	17	.28	3	3.39	.01	.02	<2	1
65+00N 34+75E	3	28	9	25	<.3	6	5	208	5.75	6	<8	<2	2	12	<.2	<3	<3	185	.17	.009	5	35	.37	15	.26	<3	3.47	.01	.02	<2	7
65+00N 35+00E	1	14	11	18	<.3	4	4	151	5.01	4	<8	<2	2	11	<.2	<3	<3	164	.15	.010	5	26	.25	12	.24	<3	3.01	.01	.02	<2	2
65+00N 35+25E	2	26	11	24	<.3	5	4	174	5.81	3	<8	<2	2	10	<.2	<3	<3	176	.14	.014	5	31	.33	13	.24	<3	3.94	.01	.02	<2	5
65+00N 35+50E	2	30	12	31	<.3	7	5	234	6.20	5	<8	<2	3	11	<.2	<3	<3	157	.18	.014	7	36	.48	21	.24	<3	4.97	.01	.02	<2	2
65+00N 35+75E	2	30	6	31	<.3	7	6	236	6.04	7	<8	<2	<2	10	<.2	<3	<3	169	.17	.016	6	35	.48	18	.27	<3	4.49	.01	.02	<2	1
65+00N 36+00E	2	37	10	37	<.3	7	6	229	5.26	4	<8	<2	3	10	<.2	<3	<3	149	.16	.021	7	37	.47	21	.24	<3	5.91	.01	.02	<2	2
65+00N 36+25E	<1	34	9	45	<.3	9	7	281	5.63	5	<8	<2	<2	11	<.2	<3	<3	174	.20	.015	5	30	.55	34	.24	<3	3.65	.01	.02	<2	2
65+00N 36+50E	2	26	7	18	<.3	5	4	148	5.73	6	<8	<2	<2	8	<.2	<3	<3	182	.13	.015	4	28	.24	12	.24	<3	3.19	.01	.02	<2	1
65+00N 36+75E	3	37	11	35	<.3	6	5	230	3.65	9	<8	<2	<2	9	<.2	<3	<3	120	.14	.017	6	23	.62	27	.15	<3	5.31	.01	.03	<2	2
65+00N 37+00E	3	28	6	27	<.3	5	4	150	5.97	2	<8	<2	2	13	<.2	<3	<3	118	.18	.015	7	31	.35	22	.14	<3	4.70	.01	.03	<2	53
65+00N 37+25E	1	14	7	12	<.3	3	4	115	6.27	3	<8	<2	<2	7	<.2	<3	<3	135	.10	.011	6	18	.21	10	.13	<3	2.90	.01	.02	<2	2
65+00N 37+50E	2	32	11	25	<.3	5	4	184	4.98	4	<8	<2	2	11	<.2	<3	<3	147	.18	.013	4	33	.38	16	.27	<3	4.49	.01	.02	<2	48
65+00N 37+75E	3	12	17	20	<.3	4	3	172	5.12	4	<8	<2	3	13	<.2	<3	<3	149	.19	.008	7	30	.36	17	.26	<3	3.38	.01	.02	<2	4
RE 65+00N 37+75E	3	11	16	20	<.3	4	3	167	4.85	4	<8	<2	2	13	<.2	<3	<3	142	.19	.008	6	27	.35	17	.25	<3	3.22	.01	.02	<2	3
65+00N 38+00E	3	24	16	23	<.3	5	5	181	6.53	<2	<8	<2	2	10	<.2	<3	<3	170	.13	.013	6	23	.40	15	.26	<3	4.11	.01	.03	<2	2
65+00N 38+50E	3	22	11	26	<.3	5	4	179	4.45	3	<8	<2	2	12	<.2	<3	<3	135	.17	.011	5	30	.40	18	.20	<3	3.76	.01	.02	<2	4
65+00N 38+75E	4	19	19	27	<.3	5	4	191	4.87	5	<8	<2	3	11	<.2	<3	<3	134	.13	.015	6	34	.46	22	.22	<3	3.31	.01	.03	<2	146
65+00N 39+00E	2	23	14	26	<.3	5	4	181	4.98	5	<8	<2	2	10	<.2	<3	3	159	.15	.011	7	29	.40	19	.21	<3	3.95	.01	.02	<2	20
65+00N 39+45E	3	33	7	34	<.3	5	5	237	6.18	20	<8	<2	2	8	.2	<3	<3	133	.11	.012	5	24	.49	27	.19	<3	4.83	.01	.02	<2	4
60+00N 35+00E	4	25	13	23	<.3	5	3	170	4.53	4	<8	<2	2	11	<.2	<3	<3	147	.14	.010	4	25	.30	20	.19	3	3.00	.01	.02	<2	6
60+00N 35+25E	1	40	8	35	<.3	6	6	224	6.62	5	<8	<2	<2	8	<.2	<3	<3	139	.13	.018	7	26	.52	30	.14	<3	5.23	.01	.03	<2	3
60+00N 35+50E	2	45	10	48	<.3	12	7	302	3.71	10	<8	<2	2	12	<.2	<3	<3	130	.17	.018	6	35	.78	42	.15	<3	5.35	.01	.02	<2	3
60+00N 35+85E	2	59	16	53	<.3	10	8	329	4.72	6	<8	<2	2	12	<.2	<3	<3	123	.16	.025	4	31	.77	26	.14	<3	5.59	.01	.03	<2	3
60+00N 36+00E	1	21	13	15	<.3	4	3	150	4.49	4	<8	<2	2	9	<.2	<3	<3	160	.11	.006	5	19	.24	12	.21	<3	2.12	.01	.01	<2	7
60+00N 36+25E	2	20	10	23	<.3	4	4	175	4.82	3	<8	<2	<2	8	<.2	<3	<3	167	.10	.010	5	23	.32	13	.18	<3	2.59	.01	.02	<2	3
60+00N 36+50E	2	26	9	31	<.3	6	5	221	4.94	6	<8	<2	2	8	<.2	<3	<3	168	.12	.012	6	31	.59	21	.22	<3	4.46	.01	.03	<2	5
STANDARD C3/AU-S	26	68	35	161	5.6	36	13	760	3.65	55	18	<2	20	31	23.1	14	20	83	.62	.087	21	178	.66	145	.09	19	2.06	.05	.17	18	46

1CP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
- SAMPLE TYPE: SOIL AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: JUL 29 1997 DATE REPORT MAILED: Aug 5/97 SIGNED BY. . . . . D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Date FA

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
60+00N 36+75E	4	49	12	27	<.3	7	4	188	6.02	<2	<8	<2	2	12	<.2	<3	<3	167	.16	.025	5	33	.35	16	.22	<3	4.41	.01	.02	<2	2
60+00N 36+90E	3	60	16	53	.3	12	6	288	2.83	2	<8	<2	2	17	<.2	<3	4	103	.24	.036	5	38	.70	28	.21	<3	6.50	.01	.02	<2	16
60+00N 37+25E	2	17	12	25	<.3	6	2	207	2.04	5	<8	<2	<2	13	<.2	<3	4	82	.17	.014	4	17	.47	23	.13	<3	1.99	.01	.03	<2	3
RE 60+00N 37+25E	2	17	11	23	<.3	6	2	197	1.95	3	<8	<2	<2	13	<.2	<3	<3	79	.16	.015	4	17	.45	23	.13	<3	1.95	.01	.02	<2	<1

Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

Data ___ FA ___

GEOCHEMICAL ANALYSIS CERTIFICATE

Leighton Exploration & Dev. PROJECT 97-01 File # 97-4302 Page 1

SOILS

3806 - 254th St., Aldergrove BC V4W 2R3 Submitted by: S.R. Oakley

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
L6+00N 2+50E	2	28	9	27	.5	9	5	244	5.29	9	<8	<2	5	14	.2	<3	3	159	.20	.018	3	45	.42	34	.26	<3	3.57	.01	.03	<2	1
L6+00N 2+60E	2	37	4	31	.4	9	4	222	5.93	13	<8	<2	4	10	.5	<3	<3	159	.15	.022	3	58	.44	31	.29	<3	5.88	.01	.03	<2	1
L6+00N 2+70E	3	33	11	46	.7	12	6	328	7.17	18	<8	<2	4	13	<.2	<3	4	176	.19	.017	5	39	.65	39	.33	3	4.32	.01	.04	<2	3
L6+00N 2+80E	2	21	8	33	.5	10	5	226	6.25	6	<8	<2	5	9	<.2	<3	4	161	.16	.017	4	33	.51	26	.27	4	3.38	.01	.02	<2	2
L6+00N 2+90E	2	51	6	46	<.3	12	7	303	4.62	6	<8	<2	4	11	.7	<3	10	139	.18	.023	3	35	.58	26	.25	<3	5.93	.02	.02	3	2
L6+00N 3+00E	2	37	8	37	.4	10	6	284	4.65	10	<8	<2	3	12	.5	<3	5	148	.19	.015	3	32	.54	30	.27	<3	5.12	.01	.03	<2	1
L6+00N 3+10E	2	55	<3	43	<.3	13	7	314	4.81	10	<8	<2	2	12	.8	3	6	149	.20	.019	3	39	.61	27	.26	4	6.14	.02	.02	3	3
L6+00N 3+20E	1	15	11	9	.4	10	3	124	5.96	2	<8	<2	<2	6	<.2	<3	5	217	.09	.010	2	30	.15	11	.26	<3	1.48	.01	.01	<2	6
L6+00N 3+30E	2	35	<3	26	.6	8	5	209	5.30	9	<8	<2	4	9	.2	<3	7	168	.13	.022	3	41	.39	23	.26	<3	5.79	.01	.02	<2	1
L6+00N 3+40E	2	16	12	17	.6	4	3	165	6.63	6	<8	<2	3	8	.2	<3	<3	192	.12	.012	3	27	.29	15	.27	<3	2.56	.01	.02	<2	1
L6+00N 3+50E	1	36	<3	28	<.3	10	6	260	6.59	8	<8	<2	2	10	.5	3	13	180	.14	.015	2	42	.51	27	.29	<3	5.76	.01	.02	<2	2
L6+00N 3+60E	1	28	<3	20	.7	8	4	157	7.60	4	9	<2	5	8	.2	<3	13	141	.12	.025	6	41	.37	23	.19	<3	6.17	.02	.02	<2	2
L6+00N 3+70E	1	9	10	12	<.3	2	3	131	3.32	3	<8	<2	2	8	<.2	<3	7	148	.10	.008	3	17	.18	2	.19	<3	1.77	.01	.01	<2	2
L6+00N 3+80E	2	24	8	20	.6	7	4	175	5.40	5	<8	<2	3	10	.2	<3	5	159	.15	.018	5	37	.30	23	.26	<3	4.05	.01	.02	<2	1
L6+00N 3+90E	2	17	15	19	<.3	8	3	179	5.05	4	<8	<2	3	7	.6	<3	6	157	.10	.011	5	23	.42	27	.24	<3	2.56	.01	.03	<2	1
L6+00N 4+00E	2	21	14	18	.7	6	3	170	4.18	6	<8	<2	4	10	<.2	<3	4	156	.15	.011	6	30	.35	23	.25	<3	2.77	.01	.02	<2	2
L6+00N 4+10E	1	37	4	30	<.3	9	6	224	5.26	12	<8	<2	<2	9	.2	<3	5	135	.16	.018	3	38	.46	32	.24	<3	4.24	.01	.02	<2	1
L6+00N 4+20E	2	20	15	15	.8	4	2	149	8.22	3	<8	<2	5	8	<.2	<3	<3	249	.12	.009	4	45	.28	23	.38	<3	2.89	.01	.02	<2	1
L6+00N 4+30E	2	29	6	20	.6	6	4	185	5.59	8	<8	<2	4	8	.7	<3	3	195	.11	.015	4	35	.35	28	.27	<3	4.45	.01	.02	2	4
L6+00N 4+40E	1	46	<3	31	<.3	9	6	228	4.11	10	<8	<2	2	9	.4	<3	<3	120	.17	.026	3	43	.51	40	.21	<3	5.30	.02	.02	<2	2
L6+00N 4+50E	1	29	3	9	.6	6	4	163	10.56	<2	<8	<2	4	5	<.2	<3	<3	269	.09	.029	5	26	.83	20	.19	5	4.56	.02	.03	<2	2
RE L6+00N 4+50E	1	30	<3	9	.9	6	4	157	10.17	<2	<8	<2	5	5	<.2	<3	6	260	.09	.026	5	25	.80	3	.18	5	4.20	.02	.03	<2	1
L5+00N 2+50E	1	12	13	8	.6	5	2	77	1.25	3	<8	<2	5	7	.2	3	<3	88	.09	.012	4	14	.16	23	.16	3	1.62	.01	.02	<2	4
L5+00N 2+60E	1	4	8	9	<.3	3	1	28	.63	8	<8	<2	<2	6	<.2	<3	<3	31	.06	.032	3	5	.07	19	.04	<3	.90	.01	.01	<2	<1
L5+00N 2+70E	1	18	5	35	.9	9	5	268	2.14	19	<8	<2	5	10	.2	<3	<3	108	.20	.022	8	29	.62	40	.17	<3	4.14	.01	.03	<2	<1
L5+00N 2+80E	1	7	12	6	<.3	1	1	92	1.73	<2	<8	<2	<2	7	<.2	<3	6	106	.09	.004	4	13	.10	8	.17	<3	1.24	<.01	.01	<2	4
L5+00N 2+90E	<1	8	5	7	<.3	2	2	44	2.49	115	<8	<2	<2	11	.2	3	<3	44	.17	.033	4	5	.09	16	.03	<3	.65	.01	.01	<2	2
L5+00N 3+00E	2	14	12	18	.6	5	4	161	7.20	6	<8	<2	5	8	.4	3	<3	183	.12	.013	7	28	.32	16	.28	4	3.32	.01	.02	<2	1
L5+00N 3+10E	2	26	<3	23	.4	6	3	179	6.22	7	<8	<2	3	9	.4	<3	<3	144	.13	.023	8	45	.37	25	.23	<3	6.37	.01	.02	<2	2
L5+00N 3+20E	2	11	13	12	.6	6	2	121	6.69	3	<8	<2	3	8	<.2	<3	8	196	.11	.014	4	26	.22	12	.33	<3	2.98	.01	.02	<2	1
L5+00N 3+30E	1	8	10	14	<.3	3	2	94	.62	4	<8	<2	2	7	<.2	4	8	53	.13	.017	4	12	.22	28	.16	<3	1.50	.01	.01	<2	1
L5+00N 3+40E	<1	6	5	8	<.3	<1	1	26	.17	4	<8	<2	<2	5	<.2	3	<3	7	.04	.028	3	4	.04	20	.02	<3	.87	<.01	.01	<2	1
L5+00N 3+50E	2	35	6	48	.3	8	6	316	2.94	7	<8	<2	4	10	.4	<3	<3	98	.18	.023	9	32	.70	48	.16	<3	4.96	.01	.03	<2	1
L5+00N 3+60E	1	6	16	14	<.3	4	3	148	1.79	4	<8	<2	<2	9	<.2	<3	<3	96	.12	.008	6	14	.32	24	.16	<3	1.81	<.01	.02	<2	1
L5+00N 3+70E	<1	14	<3	30	<.3	12	2	372	11.84	73	<8	<2	<2	7	<.2	3	5	91	.11	.021	6	25	.78	38	.12	5	4.29	.01	.01	3	1
STANDARD C3/AU-S	25	64	31	150	5.6	34	11	732	3.32	49	15	<2	19	27	22.5	12	25	78	.55	.087	18	159	.61	152	.10	19	1.81	.04	.16	18	49

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
- SAMPLE TYPE: SOIL AU* - AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: AUG 11 1997 DATE REPORT MAILED: Aug 19/97 SIGNED BY. C. Leong .D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

 Data___ FA ___

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Tl ppm	Hg ppm	Au* ppb	Au* ppb
L5+00N 3+80E	1	33	11	29	<.3	6	4	237	4.62	6	<8	<2	<2	10	<.2	<3	<3	137	.17	.021	7	35	.53	28	.24	<3	4.31	.01	.02	<2	<5	<1	1	-
L5+00N 3+90E	2	35	9	30	<.3	3	4	204	5.61	3	<8	<2	<2	8	<.2	<3	4	151	.14	.015	5	31	.53	28	.29	<3	4.08	.01	.05	<2	<5	<1	1	-
L5+00N 4+00E	2	44	16	23	<.3	3	4	180	4.62	7	<8	<2	<2	9	<.2	<3	<3	138	.13	.018	7	38	.39	24	.25	<3	4.96	.01	.02	<2	<5	2	2	-
L4+00N 2+00E	2	46	13	42	<.3	6	4	223	5.11	3	<8	<2	3	8	.2	<3	13	130	.12	.018	6	36	.48	31	.20	<3	4.45	.01	.02	<2	<5	<1	2	-
L4+00N 2+10E	2	20	14	19	<.3	6	2	119	.86	<2	<8	<2	<2	8	<.2	<3	<3	84	.10	.010	4	20	.27	27	.15	4	2.08	<.01	.01	<2	<5	<1	6	-
L4+00N 2+20E	2	37	13	34	<.3	4	4	229	3.19	<2	<8	<2	<2	8	.2	<3	<3	128	.16	.016	8	33	.50	16	.19	<3	4.22	.01	.01	<2	<5	<1	603	9
L4+00N 2+30E	1	23	10	22	.3	3	4	188	4.34	3	<8	<2	3	8	<.2	<3	5	151	.13	.010	5	23	.42	17	.26	<3	2.77	.01	.03	<2	<5	<1	6	-
L4+00N 2+40E	<1	6	4	17	1.4	<1	1	18	.14	4	10	<2	6	15	<.2	7	8	5	.12	.025	3	2	.06	8	.01	<3	.18	.01	.02	<2	<5	1	4	-
L4+00N 2+50E	2	32	11	38	.9	7	4	229	3.65	7	<8	<2	4	12	.6	4	<3	122	.19	.016	6	27	.45	34	.26	<3	3.87	.01	.02	<2	<5	<1	2	-
L4+00N 2+60E	2	22	8	24	.3	3	3	182	3.83	5	<8	<2	<2	9	<.2	<3	7	123	.15	.013	5	26	.37	8	.22	<3	3.07	.01	.01	<2	<5	<1	3	-
L4+00N 2+70E	1	48	8	41	<.3	8	5	278	3.19	9	<8	<2	<2	10	.3	3	<3	121	.17	.017	4	26	.64	33	.22	7	4.92	.01	.01	2	<5	<1	1	-
L4+00N 2+80E	1	19	15	21	<.3	6	3	198	1.74	4	<8	<2	<2	10	.3	<3	<3	124	.18	.007	6	22	.45	18	.26	<3	2.22	.01	.01	<2	<5	<1	1	-
L4+00N 2+90E	2	13	20	13	.3	4	2	114	3.47	5	<8	<2	2	9	<.2	<3	<3	106	.12	.007	7	18	.25	25	.21	<3	2.38	<.01	.02	<2	<5	1	6	-
L4+00N 3+00E	2	32	13	32	<.3	8	3	247	7.38	7	<8	<2	2	9	<.2	<3	<3	177	.14	.015	5	32	.55	26	.34	<3	3.20	.01	.02	<2	<5	<1	1	-
L4+00N 3+10E	2	16	16	14	<.3	3	2	123	4.59	7	<8	<2	<2	7	.4	<3	<3	172	.08	.009	4	19	.23	11	.23	3	2.18	<.01	.01	<2	<5	<1	10	-
L4+00N 3+20E	2	22	16	19	.9	4	4	165	5.42	10	14	<2	5	8	<.2	6	<3	179	.12	.010	5	26	.33	18	.28	4	2.17	<.01	.02	<2	<5	1	3	-
L4+00N 3+30E	2	35	13	36	.4	8	5	294	5.78	8	<8	<2	3	11	.2	4	5	157	.18	.015	6	34	.68	40	.29	6	4.20	.01	.01	<2	<5	1	3	-
L4+00N 3+40E	2	50	14	35	<.3	7	5	277	4.81	7	<8	<2	<2	11	.7	<3	<3	127	.17	.019	5	30	.65	22	.24	<3	4.54	.01	.01	<2	<5	<1	3	-
L4+00N 3+50E	1	7	6	20	.3	3	1	52	2.93	32	<8	<2	2	19	<.2	<3	3	21	.19	.050	4	4	.07	10	.02	<3	.47	.01	.02	<2	<5	1	<1	-
L4+00N 3+60E	2	17	17	22	<.3	5	3	194	5.57	11	<8	<2	2	10	.3	<3	6	144	.14	.013	6	22	.39	14	.26	<3	2.24	.01	.01	<2	<5	<1	1	-
L4+00N 3+70E	3	79	14	45	<.3	11	7	335	5.44	11	<8	<2	<2	11	.4	<3	3	154	.18	.018	4	39	.71	29	.25	<3	5.11	.01	.02	2	<5	1	2	-
RE L4+00N 3+70E	3	83	10	46	<.3	12	8	350	5.57	13	<8	<2	<2	12	.3	<3	<3	162	.19	.021	4	41	.73	33	.26	5	5.61	.01	.02	3	<5	<1	20	-
L4+00N 3+80E	2	24	15	17	.4	4	4	142	5.15	10	8	<2	3	8	<.2	<3	10	172	.11	.015	6	25	.26	13	.24	3	3.08	<.01	.01	<2	<5	1	3	-
L4+00N 3+90E	2	45	10	34	<.3	9	6	247	5.24	8	<8	<2	2	8	.5	<3	3	198	.12	.014	4	35	.44	14	.25	<3	4.86	<.01	.01	<2	<5	<1	1	-
L4+00N 4+00E	3	53	14	33	<.3	7	6	216	4.15	6	<8	<2	<2	9	.4	<3	<3	136	.13	.021	3	32	.45	31	.21	<3	5.01	.01	.01	<2	<5	<1	2	-
L3+00N 2+00E	2	41	21	45	.9	7	5	288	6.22	13	<8	<2	4	8	.3	5	<3	158	.11	.016	5	29	.61	43	.22	<3	3.90	.01	.02	<2	<5	1	1	-
L3+00N 2+10E	2	18	23	23	.6	6	3	171	3.91	9	8	<2	3	9	<.2	3	<3	143	.12	.012	7	20	.35	27	.23	<3	2.95	<.01	.02	<2	<5	<1	1	-
L3+00N 2+20E	1	4	6	20	<.3	1	<1	51	.39	2	<8	<2	<2	8	<.2	<3	8	5	.07	.039	3	2	.04	13	.01	3	.25	.01	.01	<2	<5	1	1	-
L3+00N 2+30E	1	5	5	18	.3	2	1	21	1.24	13	<8	<2	<2	9	<.2	<3	4	14	.10	.041	3	3	.05	9	.02	<3	.48	.01	.03	<2	<5	<1	2	-
L3+00N 2+40E	2	47	21	56	<.3	8	7	321	5.31	11	<8	<2	<2	11	.3	<3	5	123	.16	.018	7	32	.77	31	.16	6	4.69	.01	.03	<2	<5	1	2	-
L3+00N 2+50E	1	15	12	15	<.3	2	2	111	.90	6	<8	<2	2	7	.2	<3	<3	83	.09	.008	5	12	.24	19	.16	<3	1.44	<.01	.02	<2	<5	<1	<1	-
L3+00N 2+60E	2	22	15	22	<.3	4	3	150	6.18	9	<8	<2	<2	8	<.2	<3	6	179	.11	.009	5	30	.26	12	.24	4	1.97	<.01	.02	<2	<5	2	2	-
L3+00N 2+70E	2	36	17	40	<.3	5	5	260	4.19	10	<8	<2	<2	10	.4	4	<3	131	.15	.013	5	28	.58	45	.21	<3	3.71	<.01	.02	<2	<5	<1	2	-
L3+00N 2+80E	2	25	21	34	<.3	6	5	272	6.09	14	<8	<2	<2	10	<.2	<3	6	181	.17	.009	3	28	.58	19	.30	<3	2.15	.01	.01	<2	<5	1	1	-
L3+00N 2+90E	2	55	18	55	<.3	8	8	355	5.09	17	<8	<2	<2	9	.4	<3	<3	139	.14	.024	4	30	.81	34	.22	<3	5.41	.01	.02	2	<5	3	4	-
STANDARD C3/AU-S	26	68	35	159	5.6	34	11	724	3.39	52	21	<2	21	28	23.3	13	28	82	.57	.084	20	167	.63	147	.11	21	1.85	.03	.15	21	<5	1	45	-

Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

Data 4 FA ___

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
L3+00N 3+00E	1	12	4	29	.9	3	2	84	.57	4	<8	<2	6	12	.3	3	<3	19	.12	.026	3	5	.15	26	.03	<3	.62	.02	.04	<2	<1
L3+00N 3+10E	1	60	23	79	.5	11	8	429	6.16	12	<8	<2	6	10	.2	<3	8	133	.14	.019	7	23	.98	68	.20	<3	4.85	.02	.06	3	<1
L3+00N 3+20E	2	32	17	43	.3	7	6	247	2.35	4	<8	<2	4	11	.8	<3	8	125	.14	.015	6	27	.65	36	.19	<3	4.66	.01	.04	<2	1
L3+00N 3+30E	1	32	14	37	.4	9	4	258	1.46	<2	<8	<2	5	13	1.0	3	<3	114	.15	.015	6	31	.68	33	.16	<3	3.98	.01	.03	<2	4
L3+00N 3+40E	1	5	3	71	.5	2	1	19	.31	4	<8	<2	2	14	<.2	<3	<3	6	.09	.024	2	2	.06	20	.01	<3	.28	.02	.02	<2	<1
L3+00N 3+50E	1	6	3	12	.7	2	1	25	.65	7	<8	<2	5	19	.3	<3	3	8	.17	.027	2	2	.06	13	.01	<3	.39	.01	.02	<2	<1
L3+00N 3+60E	1	20	9	34	.7	1	8	277	4.51	<2	<8	<2	6	10	.4	4	3	119	.15	.018	6	20	1.17	85	.27	<3	3.87	.04	.24	<2	<1
L3+00N 3+70E	2	10	18	19	.5	4	2	149	2.47	<2	<8	<2	5	9	.2	<3	4	125	.13	.010	6	21	.35	17	.19	<3	2.33	.01	.03	<2	2
L3+00N 3+80E	2	42	16	26	<.3	5	4	184	4.98	<2	<8	<2	3	8	<.2	<3	7	152	.11	.013	6	27	.43	18	.23	4	4.26	.01	.03	<2	1
L3+00N 3+90E	2	39	18	42	.5	8	6	292	9.00	4	<8	<2	7	11	<.2	<3	9	194	.15	.012	6	63	.69	23	.29	6	4.80	.02	.03	<2	1
L3+00N 4+00E	2	45	12	46	.3	11	6	295	5.53	<2	<8	<2	5	10	<.2	<3	3	141	.15	.030	5	37	.67	32	.25	<3	5.65	.01	.03	<2	1
L2+00N 2+00E	1	17	12	22	.3	5	3	141	4.22	<2	<8	<2	4	7	.2	<3	10	111	.09	.011	5	16	.31	34	.17	<3	2.48	.01	.02	<2	2
L2+00N 2+10E	2	22	16	36	.3	5	4	212	4.40	4	<8	<2	6	8	.2	<3	8	144	.12	.011	6	25	.47	31	.18	<3	2.82	.01	.03	<2	1
L2+00N 2+20E	2	45	18	46	.5	8	5	290	7.44	4	<8	<2	6	8	<.2	6	<3	177	.12	.017	7	37	.64	25	.24	<3	4.54	.01	.05	<2	6
L2+00N 2+30E	1	4	<3	37	.5	<1	1	21	.27	<2	<8	<2	3	12	.3	<3	3	7	.10	.029	2	2	.06	14	.01	<3	.30	.02	.02	<2	<1
L2+00N 2+45E	1	44	19	56	<.3	7	6	342	6.54	7	<8	<2	5	9	<.2	<3	17	155	.14	.017	5	33	.75	43	.22	<3	3.61	.01	.02	<2	5
L2+00N 2+50E	1	29	14	36	.4	6	5	240	4.40	4	<8	<2	5	8	<.2	<3	3	135	.11	.014	5	20	.47	14	.14	<3	2.41	.01	.02	<2	2
RE L2+00N 2+50E	1	28	13	34	.4	6	5	235	4.32	4	<8	<2	3	8	<.2	<3	5	133	.11	.013	5	20	.46	18	.13	<3	2.33	.01	.02	<2	3
L2+00N 2+60E	1	6	<3	50	.4	3	1	46	.50	7	<8	<2	2	12	.3	<3	<3	21	.13	.026	2	4	.12	8	.03	<3	.48	.01	.01	<2	<1
L2+00N 2+70E	<1	3	3	97	.7	2	1	20	.22	2	<8	2	4	25	.4	<3	6	4	.24	.032	2	1	.12	8	.01	4	.12	.02	.03	<2	1
L2+00N 2+80E	1	32	18	50	.5	5	5	220	5.25	7	<8	<2	5	7	.5	<3	14	144	.11	.019	4	23	.48	25	.21	<3	4.03	.01	.03	<2	3
L2+00N 2+90E	5	20	24	29	.3	5	3	198	8.09	6	<8	<2	5	7	<.2	3	<3	251	.12	.011	5	32	.42	22	.31	<3	2.53	.01	.02	<2	20
L2+00N 3+00E	3	41	20	45	<.3	9	5	271	8.07	5	<8	<2	2	7	<.2	<3	7	192	.11	.024	2	47	.61	37	.29	<3	6.01	.01	.02	3	2
L2+00N 3+10E	2	28	15	29	.3	1	6	191	6.15	2	<8	<2	6	6	<.2	<3	17	181	.11	.020	4	34	.42	19	.24	<3	4.58	.01	.03	<2	2
L2+00N 3+20E	3	41	18	32	<.3	5	4	184	5.74	5	<8	<2	7	8	.2	<3	11	157	.11	.023	4	38	.38	29	.22	<3	5.33	.01	.02	<2	7
L2+00N 3+30E	2	61	13	40	<.3	6	5	238	3.77	3	<8	<2	5	9	.2	<3	8	111	.13	.023	5	31	.58	29	.20	<3	5.94	.01	.03	<2	4
L2+00N 3+40E	2	39	18	42	<.3	7	5	272	6.46	<2	<8	<2	5	9	<.2	<3	14	173	.13	.017	6	38	.69	30	.29	<3	4.98	.01	.05	<2	2
L2+00N 3+50E	2	23	11	27	.6	3	3	211	3.74	3	<8	<2	4	6	.3	<3	<3	110	.09	.014	4	19	.42	27	.16	<3	2.98	.01	.03	<2	2
L2+00N 3+60E	<1	40	8	41	.6	4	5	367	2.48	2	<8	<2	3	26	.3	<3	<3	102	.33	.029	5	9	1.01	62	.15	<3	2.62	.03	.05	<2	2
L2+00N 3+70E	2	48	15	41	<.3	10	5	281	2.96	6	<8	<2	2	15	<.2	3	5	128	.19	.024	5	28	.86	52	.17	<3	5.52	.02	.03	<2	5
L2+00N 3+80E	2	20	21	23	.5	3	3	162	5.57	<2	<8	<2	4	8	.3	<3	14	183	.11	.012	6	30	.37	23	.27	<3	3.20	.01	.02	<2	2
L2+00N 3+90E	1	30	14	32	<.3	5	4	227	5.11	5	<8	<2	6	8	.2	<3	7	149	.15	.013	5	33	.51	23	.21	5	3.78	.01	.02	<2	3
L2+00N 4+00E	1	25	16	31	<.3	4	6	253	7.25	5	<8	<2	4	10	<.2	<3	4	171	.17	.014	4	29	.57	33	.29	<3	2.35	.01	.03	<2	3
L1+00N 2+40E	1	53	21	59	.4	9	7	315	5.28	3	<8	<2	3	7	.4	<3	4	140	.12	.023	4	30	.67	37	.17	<3	5.31	.01	.02	<2	3
L1+00N 2+50E	2	31	15	28	<.3	6	4	195	6.61	6	<8	<2	5	7	<.2	<3	3	179	.10	.015	4	35	.43	27	.25	<3	3.82	.01	.03	<2	2
STANDARD C3/AU-S	26	66	35	164	5.9	36	12	746	3.63	51	22	<2	23	28	23.7	15	23	84	.58	.085	20	167	.67	155	.10	18	2.00	.04	.16	22	45

Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

Data___ FA ___

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
L1+00N 2+60E	1	58	4	25	1.1	6	10	229	2.94	18	<8	<2	5	8	.4	<3	<3	183	.27	.056	9	27	.76	33	.25	<3	3.00	.02	.02	2	<1
L1+00N 2+70E	1	9	4	37	.4	1	<1	37	.38	4	<8	<2	2	11	<.2	<3	<3	23	.07	.032	2	3	.08	13	.02	<3	.49	.02	.02	<2	<1
L1+00N 2+80E	2	49	12	27	.5	8	4	196	1.66	12	<8	<2	4	10	.3	<3	<3	114	.13	.020	6	35	.58	33	.17	<3	6.19	.01	.03	<2	2
L1+00N 2+90E	2	14	12	9	.4	4	2	107	3.08	9	<8	<2	4	5	<.2	<3	6	140	.07	.009	4	13	.18	19	.14	<3	1.89	.01	.02	<2	16
L1+00N 3+00E	2	36	14	24	.3	5	4	207	7.63	15	<8	<2	4	10	<.2	4	<3	166	.13	.012	7	33	.53	30	.21	<3	3.67	.01	.02	3	5
L1+00N 3+10E	2	50	14	38	<.3	9	5	279	6.98	25	<8	<2	4	7	.6	<3	3	180	.11	.020	4	41	.64	45	.24	3	6.17	.01	.03	2	2
L1+00N 3+20E	2	52	10	49	<.3	10	6	294	5.36	20	<8	<2	4	9	.3	<3	6	158	.15	.016	6	36	.70	37	.22	<3	5.35	.01	.02	3	7
L1+00N 3+30E	2	32	14	29	.5	7	3	228	5.05	16	<8	<2	3	8	.3	<3	<3	145	.12	.016	7	29	.54	33	.17	<3	4.75	.01	.02	<2	1
L1+00N 3+40E	3	47	14	25	.5	5	5	203	6.28	18	<8	<2	5	8	.3	<3	9	163	.13	.024	5	47	.46	20	.25	<3	5.36	.01	.03	<2	2
L1+00N 3+50E	1	63	10	36	<.3	8	6	257	6.59	22	<8	<2	5	7	.4	<3	<3	166	.10	.023	4	39	.64	23	.24	<3	5.18	.01	.04	<2	2
L1+00N 3+60E	2	21	13	18	.6	6	3	167	3.51	12	<8	<2	5	8	.2	<3	<3	151	.11	.008	7	19	.36	12	.19	5	2.24	.01	.03	<2	58
L1+00N 3+70E	1	13	15	16	.4	3	2	129	.91	5	<8	<2	2	9	<.2	<3	<3	67	.09	.009	6	21	.29	22	.12	<3	1.97	<.01	.01	<2	6
L1+00N 3+80E	1	9	6	25	<.3	4	6	302	4.32	18	<8	<2	3	5	.2	<3	<3	65	.09	.018	7	10	.73	22	.09	<3	1.78	.01	.02	<2	<1
L1+00N 3+90E	1	7	13	26	.8	3	1	54	.36	3	<8	<2	4	11	.2	3	3	42	.14	.026	4	10	.16	22	.04	<3	1.58	.02	.03	<2	5
L1+00N 4+00E	2	40	10	31	<.3	7	2	206	1.44	13	<8	<2	2	8	.3	<3	<3	95	.11	.025	6	25	.63	28	.11	<3	3.70	.01	.03	<2	1
L0+00N 2+50E	2	48	24	29	<.3	10	5	218	5.25	16	<8	<2	3	11	.4	<3	6	162	.16	.018	4	56	.48	27	.26	<3	4.80	.01	.01	<2	3
L0+00N 2+60E	2	46	15	29	<.3	7	4	232	6.11	11	<8	<2	3	10	.4	<3	7	204	.15	.014	5	54	.54	26	.24	<3	3.93	.01	.02	<2	2
L0+00N 2+70E	3	49	11	41	.5	10	6	281	5.13	17	<8	<2	2	9	.5	<3	4	147	.13	.021	4	35	.65	31	.24	4	6.10	.01	.04	<2	1
RE L0+00N 2+80E	2	7	15	12	.3	4	2	110	3.49	7	<8	<2	4	6	.3	4	10	162	.08	.010	7	19	.22	18	.19	5	1.72	.01	.02	<2	2
L0+00N 2+80E	2	9	16	12	.4	4	1	106	3.46	7	<8	<2	4	6	.3	<3	5	161	.08	.010	6	19	.21	18	.18	3	1.65	<.01	.02	<2	2
L0+00N 2+90E	<1	4	<3	35	.4	2	1	41	.34	2	<8	<2	3	21	.2	<3	<3	12	.07	.027	2	3	.14	15	.02	<3	.38	.02	.02	<2	<1
L0+00N 3+00E	1	10	5	41	.5	6	2	207	1.76	7	<8	<2	3	20	.5	<3	5	34	.22	.024	3	10	.53	18	.06	<3	1.14	.01	.01	<2	1
L0+00N 3+10E	1	29	15	49	<.3	13	7	334	7.45	17	<8	<2	4	11	<.2	<3	<3	179	.15	.017	7	41	.85	51	.23	<3	5.17	.01	.03	<2	3
L0+00N 3+20E	1	6	12	19	.3	6	4	128	1.28	16	<8	<2	<2	6	<.2	<3	<3	89	.10	.016	6	18	.43	25	.07	<3	1.66	.01	.03	<2	1
L0+00N 3+30E	1	9	6	54	.4	5	2	89	1.27	4	<8	<2	2	15	.3	5	<3	39	.07	.028	3	7	.22	14	.05	<3	.80	.02	.02	<2	1
L0+00N 3+40E	2	22	18	36	<.3	7	3	264	7.38	18	<8	<2	<2	9	.2	<3	4	202	.12	.012	6	32	.63	40	.25	<3	3.49	.01	.03	<2	1
L0+00N 3+50E	2	20	19	25	.3	6	2	190	3.46	12	<8	<2	5	10	.4	<3	5	134	.14	.010	7	22	.42	38	.20	<3	3.26	<.01	.02	2	2
L0+00N 3+60E	1	16	9	17	.3	2	2	161	1.63	7	<8	<2	4	7	<.2	<3	5	114	.09	.005	6	11	.22	17	.15	<3	1.44	.01	.02	<2	2
L0+00N 3+70E	2	24	14	35	.6	7	4	264	6.65	17	<8	<2	6	10	.2	<3	<3	185	.14	.011	7	35	.61	32	.26	<3	3.56	.01	.03	<2	<1
L0+00N 3+80E	1	8	5	48	.6	3	<1	26	.53	5	<8	<2	2	16	.4	4	11	15	.16	.030	3	4	.04	14	.02	<3	.38	.01	.02	<2	1
L0+00N 3+90E	1	39	8	54	.5	8	3	153	1.29	9	<8	<2	3	14	.3	<3	9	53	.15	.036	5	15	.44	31	.08	<3	2.40	.01	.03	<2	2
L0+00N 4+00E	2	39	13	43	.3	10	5	255	1.89	12	<8	<2	2	15	<.2	<3	16	71	.24	.030	6	20	.64	38	.14	<3	3.15	.01	.02	2	4
L0+00N 4+10E	2	18	8	28	<.3	9	4	165	3.59	15	<8	<2	<2	9	.3	<3	<3	108	.11	.028	4	13	.54	32	.09	<3	1.39	.01	.04	<2	8
L0+00N 4+20E	4	19	8	38	.4	5	3	218	2.44	43	<8	<2	3	12	.3	<3	9	95	.15	.019	4	14	.55	35	.09	<3	1.76	.01	.04	<2	1
STANDARD C3/AU-S	27	68	37	161	5.7	39	12	748	3.52	56	20	<2	23	29	23.6	16	27	83	.58	.087	19	169	.67	154	.10	19	1.90	.04	.17	23	50

Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

Data ___ FA ___

GEOCHEMICAL ANALYSIS CERTIFICATE

Leighton Exploration & Dev. PROJECT 97-02 File # 97-4420 Page 1 SOILS

3806 - 254th St., Aldergrove BC V4W 2R3 Submitted by: S.R. Oakley

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
L9+00N 3+00E	2	14	10	12	<.3	3	3	157	4.59	5	<8	<2	2	10	<.2	<3	<3	180	.15	.007	5	27	.17	13	.24	5	2.31	.01	.02	<2	50
L9+00N 3+10E	2	13	13	9	<.3	3	4	139	9.01	<2	<8	<2	3	6	<.2	<3	<3	238	.08	.011	6	29	.12	14	.26	5	2.68	.01	.02	3	3
L9+00N 3+20E	1	2	8	<1	.3	1	1	44	.63	<2	<8	<2	2	4	<.2	<3	<3	44	.05	.013	4	12	.05	8	.08	9	.70	.01	.02	<2	1
L9+00N 3+30E	3	6	11	8	<.3	2	3	157	6.17	8	<8	<2	3	7	<.2	<3	<3	181	.09	.009	6	19	.17	11	.22	6	1.85	.01	.03	2	1
L9+00N 3+40E	2	4	13	3	.3	1	2	64	3.08	10	<8	<2	2	7	<.2	<3	<3	98	.08	.015	7	17	.09	13	.09	5	1.05	.01	.02	<2	2
L9+00N 3+50E	1	22	12	18	.6	7	4	209	2.90	10	<8	<2	2	10	<.2	<3	<3	76	.20	.020	8	32	.44	28	.20	8	4.03	.01	.02	<2	1
L9+00N 3+60E	1	12	3	4	.4	2	1	37	.16	2	<8	<2	2	6	<.2	<3	<3	18	.04	.028	4	7	.03	9	.03	7	.67	.01	.02	<2	<1
L9+00N 3+70E	<1	6	15	6	<.3	3	2	94	.78	7	<8	<2	2	15	<.2	<3	<3	33	.21	.020	6	21	.18	20	.04	6	1.44	.01	.03	<2	1
L9+00N 3+80E	1	3	8	2	<.3	7	3	112	1.39	<2	<8	<2	<2	16	<.2	<3	<3	60	.15	.011	4	21	.25	8	.20	4	.87	.01	.02	<2	1
L9+00N 3+90E	3	26	10	28	<.3	7	5	217	1.62	<2	<8	<2	2	12	<.2	<3	<3	77	.21	.024	8	31	.50	27	.19	5	4.89	.01	.02	<2	1
RE L9+00N 3+90E	3	26	8	28	.3	7	5	220	1.64	<2	<8	<2	2	12	<.2	<3	<3	77	.21	.024	9	31	.50	27	.19	5	4.96	.01	.02	<2	1
L9+00N 4+00E	1	47	10	18	.3	5	6	196	2.06	6	<8	<2	<2	27	<.2	<3	<3	133	.45	.043	9	19	.43	38	.11	3	2.06	.04	.03	<2	1
L9+00N 4+10E	4	9	14	9	<.3	2	3	147	14.42	108	<8	<2	<2	11	<.2	<3	<3	172	.17	.041	7	12	.16	15	.06	4	1.75	.01	.01	<2	<1
L9+00N 4+20E	2	5	6	4	.3	1	1	41	5.63	9	<8	<2	2	5	<.2	<3	<3	34	.05	.038	5	7	.03	8	.02	5	.67	.01	.02	<2	1
L9+00N 4+30E	2	7	7	6	<.3	2	1	189	5.73	4	<8	<2	<2	16	.3	<3	<3	54	.24	.037	5	10	.04	16	.02	<3	.86	.01	.01	<2	<1
L9+00N 4+40E	1	28	5	22	<.3	7	7	251	2.44	<2	<8	<2	2	15	<.2	<3	<3	72	.30	.024	8	24	.58	36	.19	4	4.71	.02	.01	<2	3
L9+00N 4+50E	1	26	8	21	<.3	7	4	188	1.07	<2	<8	<2	<2	11	<.2	<3	<3	53	.23	.028	8	28	.48	28	.14	4	3.85	.01	.02	<2	2
L9+00N 4+60E	1	5	3	10	.3	2	2	138	2.89	14	<8	<2	2	15	.2	<3	<3	29	.26	.035	4	8	.19	12	.03	5	.62	.01	.01	<2	1
L9+00N 4+70E	<1	14	3	6	<.3	2	<1	9	.29	<2	<8	<2	<2	8	<.2	<3	<3	10	.06	.028	3	5	.03	7	.02	3	.83	.01	.01	<2	1
L9+00N 4+80E	<1	9	7	<1	.3	2	1	27	.69	7	<8	<2	<2	11	<.2	<3	<3	33	.16	.029	6	8	.03	14	.02	4	1.21	.01	.01	<2	1
L9+00N 4+90E	<1	19	5	18	<.3	7	4	191	1.02	<2	<8	<2	2	11	.2	<3	<3	69	.23	.022	7	24	.41	20	.17	4	3.96	.01	.01	<2	3
L9+00N 5+00E	1	2	10	<1	<.3	1	1	50	.37	<2	<8	<2	2	4	<.2	<3	<3	65	.04	.007	5	7	.06	10	.21	5	.75	.01	.02	<2	2
L8+00N 3+00E	2	5	10	10	<.3	2	3	161	2.43	<2	<8	<2	<2	10	<.2	<3	<3	106	.11	.004	5	11	.38	41	.21	3	1.68	<.01	.04	<2	1
L8+00N 3+10E	2	19	10	26	<.3	8	5	206	3.80	5	<8	<2	2	11	<.2	<3	<3	129	.20	.018	4	33	.49	18	.22	<3	3.71	.01	.02	<2	1
L8+00N 3+20E	3	20	14	17	<.3	5	4	151	3.50	6	<8	<2	3	13	<.2	<3	3	157	.19	.011	6	27	.31	20	.21	7	4.17	.01	.02	<2	2
L8+00N 3+30E	3	13	18	17	<.3	4	3	165	6.07	5	<8	<2	3	9	<.2	<3	<3	170	.12	.007	4	37	.25	18	.27	4	2.52	.01	.02	<2	1
L8+00N 3+40E	2	73	15	14	<.3	4	3	147	3.30	7	<8	<2	2	10	<.2	<3	<3	122	.15	.007	5	30	.27	16	.25	<3	2.66	.01	.02	<2	90
L8+00N 3+50E	<1	18	19	24	<.3	5	3	146	.76	2	<8	<2	<2	12	<.2	<3	<3	73	.16	.011	6	22	.35	27	.19	4	2.40	.01	.02	<2	2
L8+00N 3+60E	2	12	31	19	<.3	5	4	187	2.88	<2	<8	<2	2	12	<.2	<3	<3	112	.19	.008	5	22	.40	19	.26	4	2.56	.01	.02	<2	1
L8+00N 3+70E	3	40	10	37	<.3	10	6	246	3.64	4	<8	<2	3	13	<.2	<3	<3	109	.23	.017	4	31	.58	27	.24	3	4.67	.01	.02	<2	2
L8+00N 3+80E	3	27	7	34	<.3	8	6	255	4.62	4	<8	<2	3	12	.2	<3	<3	117	.22	.014	5	36	.58	23	.23	3	4.85	.01	.02	<2	2
L8+00N 3+90E	2	15	11	15	<.3	5	5	194	5.65	4	<8	<2	2	9	<.2	<3	<3	182	.15	.012	4	27	.28	12	.24	3	2.43	.01	.02	<2	1
L8+00N 4+00E	1	25	9	23	<.3	6	5	208	2.39	7	<8	<2	2	12	<.2	<3	<3	139	.22	.014	8	33	.47	23	.22	<3	4.35	.01	.02	<2	4
L8+00N 4+10E	4	23	10	21	<.3	6	5	191	4.87	4	<8	<2	2	12	.2	3	<3	166	.19	.017	6	35	.37	19	.27	4	4.52	.01	.02	2	7
L8+00N 4+20E	3	39	8	31	<.3	8	7	252	4.09	3	<8	<2	2	11	.2	<3	<3	142	.21	.014	3	30	.50	18	.22	3	4.55	.01	.02	<2	4
STANDARD C3/AU-S	25	63	39	147	5.4	35	13	750	3.44	52	20	2	18	30	22.3	14	21	80	.58	.086	20	173	.63	152	.09	18	1.93	.04	.16	22	46

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
- SAMPLE TYPE: SOIL AU* - AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: AUG 18 1997 DATE REPORT MAILED: Aug 28/97 SIGNED BY ..... D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Data f FA

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
L8+00N 4+30E	2	43	5	29	<.3	7	6	260	5.93	<2	<8	<2	3	12	<.2	<3	3	161	.20	.015	3	46	.52	20	.27	<3	6.53	.01	.02	<2	<1
L8+00N 4+40E	2	24	9	13	<.3	5	4	166	5.79	4	<8	<2	2	11	<.2	<3	<3	186	.18	.009	5	35	.28	10	.26	<3	2.32	.01	.02	<2	<1
L8+00N 4+50E	2	46	<3	36	<.3	9	7	301	5.57	2	<8	<2	3	13	<.2	<3	<3	144	.23	.017	4	42	.65	20	.27	<3	6.04	.01	.02	<2	<1
L8+00N 4+60E	1	12	10	10	<.3	2	3	165	4.91	10	8	<2	<2	10	<.2	<3	<3	163	.12	.010	4	16	.24	12	.22	<3	1.58	.01	.02	<2	<1
RE L8+00N 4+60E	3	12	11	10	<.3	2	3	158	4.88	8	<8	<2	<2	9	<.2	<3	<3	161	.12	.010	4	16	.24	12	.22	<3	1.57	.01	.02	<2	3
L8+00N 4+70E	2	15	17	17	<.3	4	3	174	4.89	3	<8	<2	2	11	<.2	<3	<3	117	.17	.012	6	15	.31	21	.22	<3	4.09	.01	.02	<2	<1
L8+00N 4+80E	2	9	15	14	<.3	5	3	139	3.48	3	<8	<2	2	9	<.2	<3	<3	136	.13	.010	6	18	.31	15	.26	<3	2.46	.01	.02	<2	<1
L8+00N 4+90E	3	11	10	12	<.3	3	2	134	3.87	2	<8	<2	3	11	.2	<3	<3	124	.13	.014	6	24	.23	14	.20	3	2.22	.01	.02	<2	<1
L8+00N 5+00E	3	18	11	22	<.3	5	4	187	5.75	<2	<8	<2	3	13	<.2	<3	<3	172	.18	.010	7	32	.40	19	.26	<3	2.92	.01	.03	<2	3
L7+00N 3+00E	1	14	4	20	.3	3	2	88	.74	13	<8	<2	<2	8	<.2	<3	<3	49	.11	.033	4	20	.17	16	.11	<3	1.25	.01	.03	<2	<1
L7+00N 3+10E	1	32	6	34	<.3	11	5	253	4.60	9	<8	<2	2	14	<.2	<3	<3	172	.24	.012	5	58	.54	23	.34	<3	4.25	.01	.03	<2	<1
L7+00N 3+20E	3	186	<3	143	.4	35	7	571	8.29	61	<8	<2	2	16	<.2	<3	<3	295	2.31	.019	3	120	.75	31	.29	5	5.63	.01	.02	<2	2
L7+00N 3+30E	<1	43	<3	41	.3	12	6	237	6.24	<2	<8	<2	3	10	<.2	<3	<3	146	.19	.018	7	69	.53	22	.27	<3	7.18	.01	.02	<2	1
L7+00N 3+40E	3	40	<3	37	<.3	8	6	239	6.10	8	<8	<2	<2	14	.3	4	<3	160	.19	.023	4	42	.51	23	.25	<3	5.92	.01	.02	<2	2
L7+00N 3+50E	2	26	11	34	<.3	7	6	312	6.64	5	<8	<2	3	14	<.2	3	<3	209	.21	.009	4	34	.64	21	.40	<3	3.29	.01	.04	<2	<1
L7+00N 3+60E	2	46	3	40	<.3	10	7	290	6.00	4	<8	<2	3	14	<.2	<3	<3	154	.23	.016	4	48	.65	20	.28	<3	5.71	.01	.02	<2	1
L7+00N 3+70E	2	52	<3	38	<.3	11	8	309	5.74	6	<8	<2	2	15	.2	3	<3	169	.24	.020	4	44	.64	25	.26	<3	5.85	.01	.03	<2	1
L7+00N 3+80E	1	30	6	28	<.3	7	6	231	4.98	4	<8	<2	2	14	<.2	3	<3	170	.23	.012	5	30	.40	18	.26	<3	4.38	.01	.02	<2	<1
L7+00N 3+90E	<1	29	4	25	<.3	8	6	228	4.87	2	<8	<2	3	13	<.2	<3	<3	156	.21	.011	4	34	.41	24	.24	3	4.54	.01	.02	<2	15
L7+00N 4+00E	4	32	6	23	<.3	7	5	179	7.04	5	<8	<2	4	12	<.2	<3	<3	182	.18	.021	6	54	.38	18	.30	4	5.71	.01	.03	<2	1
L7+00N 4+10E	2	28	5	23	.3	6	4	178	2.87	3	<8	<2	3	10	<.2	<3	<3	149	.18	.020	8	36	.38	17	.23	3	7.15	.01	.02	<2	1
L7+00N 4+20E	1	27	6	30	<.3	7	6	246	5.66	2	<8	<2	3	14	<.2	<3	<3	149	.23	.018	6	42	.51	17	.25	<3	4.45	.01	.02	<2	<1
L7+00N 4+30E	1	25	<3	22	<.3	6	5	179	4.93	2	<8	<2	2	12	<.2	<3	<3	155	.21	.016	4	37	.34	16	.25	<3	4.79	.01	.02	<2	<1
L7+00N 4+40E	2	24	3	25	<.3	4	4	284	7.78	4	<8	<2	2	12	<.2	<3	<3	180	.15	.016	5	26	.72	21	.50	<3	4.90	.01	.06	<2	1
L7+00N 4+50E	2	31	<3	31	<.3	7	6	211	6.88	4	<8	<2	2	11	<.2	<3	<3	187	.18	.019	4	41	.46	16	.29	<3	5.51	.01	.02	<2	1
L7+00N 4+60E	2	25	3	19	<.3	5	5	165	6.01	3	<8	<2	2	11	<.2	<3	<3	183	.16	.013	5	34	.28	16	.25	<3	4.25	.01	.02	<2	43
L7+00N 4+70E	1	11	13	15	<.3	2	3	170	6.64	3	<8	<2	<2	10	<.2	<3	<3	203	.12	.010	7	23	.28	15	.24	<3	2.67	.01	.02	<2	12
L7+00N 4+80E	2	47	4	34	<.3	8	6	246	4.66	4	<8	<2	3	12	<.2	<3	<3	112	.18	.028	7	40	.55	23	.22	<3	5.76	.01	.02	<2	3
L7+00N 4+90E	3	46	5	50	<.3	11	8	282	5.38	3	<8	<2	2	13	<.2	<3	<3	154	.21	.030	4	46	.53	30	.27	<3	5.89	.01	.03	<2	2
L7+00N 5+00E	2	31	<3	25	<.3	6	5	180	7.39	6	<8	<2	2	11	<.2	<3	<3	203	.18	.012	3	45	.40	17	.30	<3	4.21	.01	.02	<2	3
STANDARD C3/AU-S	26	68	28	153	5.7	36	13	759	3.59	54	16	3	20	30	23.2	16	20	82	.60	.087	21	177	.67	153	.10	18	2.03	.04	.17	21	50

Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

Data FA

GEOCHEMICAL ANALYSIS CERTIFICATE

Leighton Exploration & Dev. PROJECT 9702 File # 97-5107 Page 1

3806 - 254th St., Aldergrove BC V4W 2R3 Submitted by: S.R. Oakley

SOILS

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
L48+50N 48+00E	<1	2	<3	6	<.3	1	<1	11	.08	<2	<8	<2	<2	31	<.2	<3	<3	1	.05	.024	<1	<1	.28	6	<.01	6	.08	.04	.02	<2	<1
L48+50N 48+20E	<1	2	<3	4	<.3	<1	<1	58	.63	2	<8	<2	2	35	<.2	<3	<3	3	.36	.029	1	1	.08	5	<.01	7	.09	.03	.02	<2	<1
L48+50N 48+40E	1	5	<3	5	<.3	1	1	34	4.91	103	<8	<2	<2	18	<.2	3	<3	13	.26	.045	2	4	.02	9	.01	<3	.35	.01	.01	<2	<1
L48+50N 48+60E	3	29	12	39	<.3	9	5	77	6.16	28	<8	<2	5	11	<.2	<3	<3	166	.12	.011	2	32	.64	28	.20	11	3.43	.01	.03	<2	1
L48+50N 48+80E	3	52	14	40	.3	11	6	79	3.84	39	<8	<2	3	10	<.2	<3	<3	104	.08	.038	5	31	.79	43	.07	8	6.63	.01	.03	<2	2
RE L48+50N 48+80E	1	53	12	41	.4	12	6	81	3.98	35	<8	<2	4	10	<.2	<3	<3	106	.08	.038	6	32	.81	43	.07	8	6.74	.01	.03	2	2
L48+50N 49+00E	2	73	13	54	.4	13	8	147	6.21	36	<8	<2	5	11	<.2	<3	<3	119	.12	.029	4	33	.76	55	.12	8	5.23	.01	.03	<2	7
L48+50N 49+20E	2	62	12	46	<.3	11	7	108	5.53	25	<8	<2	3	11	.2	3	<3	146	.11	.028	4	37	.72	33	.18	8	6.09	.01	.03	<2	2
L48+50N 49+40E	2	64	14	42	.4	11	5	127	2.52	15	<8	<2	2	14	<.2	<3	<3	123	.15	.018	3	29	.77	36	.14	7	5.19	.01	.03	<2	6
L48+50N 49+60E	2	25	10	25	<.3	5	5	34	8.94	20	<8	<2	3	8	<.2	<3	<3	175	.08	.011	3	20	.60	17	.12	6	3.14	.01	.03	<2	1
L48+50N 50+00E	1	37	10	40	<.3	5	5	298	10.22	21	<8	<2	2	8	<.2	<3	<3	264	.09	.021	3	31	1.00	12	.22	4	4.82	.01	.02	2	2
L48+25N 48+00E	<1	3	3	5	<.3	1	1	29	.74	3	<8	<2	<2	15	<.2	<3	<3	5	.14	.037	1	1	.05	4	.01	5	.16	.02	.02	<2	<1
L48+25N 48+20E	1	3	<3	5	<.3	1	<1	20	.19	<2	<8	<2	<2	22	<.2	<3	<3	2	.09	.039	<1	1	.10	5	<.01	<3	.08	.03	.02	<2	<1
L48+25N 48+40E	<1	5	3	5	<.3	1	1	18	.35	7	<8	<2	2	21	<.2	<3	<3	11	.12	.033	2	4	.07	6	.01	3	.25	.02	.03	<2	<1
L48+25N 48+60E	<1	5	3	4	<.3	1	1	15	6.33	101	<8	<2	<2	13	<.2	3	<3	12	.12	.036	<1	4	.02	8	.01	<3	.27	.01	.01	<2	<1
L48+25N 48+90E	1	29	9	35	<.3	6	4	95	5.68	16	<8	<2	<2	5	<.2	3	3	146	.06	.016	1	16	.58	19	.10	<3	2.74	.01	.03	<2	8
L48+25N 49+00E	1	50	14	54	<.3	12	6	160	4.34	34	<8	<2	2	10	<.2	<3	<3	143	.11	.021	4	28	.84	39	.09	3	4.88	.01	.03	<2	3
L48+25N 49+20E	2	73	13	46	.3	10	6	66	5.06	23	<8	<2	3	12	<.2	<3	<3	119	.12	.027	6	40	.66	28	.12	4	7.25	.01	.02	<2	2
L48+25N 49+40E	2	43	12	46	<.3	10	6	113	6.16	20	<8	<2	<2	15	<.2	3	<3	151	.18	.018	5	33	.72	31	.18	<3	4.33	.01	.03	<2	<1
L48+25N 49+60E	2	60	12	51	.4	11	6	122	5.33	26	<8	<2	3	14	<.2	<3	<3	133	.17	.023	5	39	.73	42	.18	6	5.16	.01	.02	<2	3
L48+25N 49+85E	2	24	13	37	<.3	8	4	92	3.75	15	<8	<2	3	12	<.2	<3	<3	139	.13	.012	5	25	.65	29	.18	5	3.41	.01	.03	<2	2
L48+25N 50+00E	1	34	12	39	.3	9	5	113	2.98	22	<8	<2	2	13	.2	<3	<3	172	.17	.015	6	30	.64	39	.12	4	4.00	.01	.03	<2	6
L48+25N 50+20E	2	52	12	44	.6	9	7	132	6.13	20	<8	<2	3	12	<.2	<3	<3	163	.13	.022	4	39	.67	31	.22	5	4.88	.01	.03	<2	1
L48+25N 50+40E	3	67	9	52	<.3	11	7	144	5.10	23	8	<2	2	13	<.2	4	<3	129	.16	.026	4	33	.74	34	.20	<3	5.31	.01	.03	<2	3
L48+25N 50+60E	3	77	10	64	<.3	14	9	184	5.39	19	<8	<2	4	14	<.2	<3	<3	128	.16	.027	4	34	.73	49	.19	5	5.79	.01	.03	<2	7
L48+25N 50+80E	1	36	8	32	.3	6	6	53	5.27	13	<8	<2	3	11	<.2	<3	<3	147	.10	.019	5	25	.49	22	.09	3	5.06	.01	.02	<2	4
L48+25N 51+00E	2	47	8	33	.3	7	5	102	8.31	17	<8	<2	3	11	<.2	<3	<3	192	.12	.017	5	47	.59	22	.19	<3	4.43	.01	.02	2	3
L48+00N 48+00E	<1	5	<3	4	<.3	1	1	9	1.40	16	<8	<2	<2	5	.2	<3	<3	11	.05	.060	2	5	.03	3	.01	<3	.26	.02	.02	<2	<1
L48+00N 48+20E	1	4	<3	5	<.3	1	<1	43	.18	2	<8	<2	<2	11	<.2	<3	<3	6	.08	.023	<1	4	.06	4	.01	<3	.18	.02	.01	<2	<1
L48+00N 48+40E	<1	4	<3	5	.3	1	1	170	1.77	11	<8	<2	2	45	.2	<3	<3	8	.71	.039	1	3	.04	9	.01	<3	.26	.02	.01	<2	<1
L48+00N 48+60E	<1	8	7	6	.4	2	1	45	1.34	9	<8	<2	<2	17	<.2	<3	<3	54	.21	.030	2	11	.08	31	.02	<3	1.05	.01	.02	<2	<1
L48+00N 48+80E	<1	4	3	5	<.3	1	1	23	3.55	28	<8	<2	<2	22	<.2	<3	<3	19	.29	.048	2	5	.06	11	.01	<3	.32	.02	.03	<2	<1
L48+00N 49+00E	1	3	<3	3	<.3	1	<1	2	.16	2	<8	<2	<2	6	<.2	<3	<3	8	.03	.030	1	4	.04	6	.02	<3	.52	.01	.01	<2	<1
L48+00N 49+20E	1	27	12	38	<.3	7	4	220	2.83	15	<8	<2	<2	10	<.2	<3	<3	104	.11	.016	5	19	.78	31	.08	<3	2.93	.01	.03	<2	1
L48+00N 49+40E	2	60	9	44	<.3	10	6	102	5.87	21	<8	<2	<2	15	<.2	<3	<3	138	.17	.021	6	38	.66	31	.18	<3	4.49	.01	.03	<2	3
STANDARD C3/AU-S	24	66	41	158	5.7	37	13	751	3.66	51	24	3	18	32	25.8	15	20	82	.63	.096	21	179	.65	140	.09	19	2.09	.04	.17	19	47

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
- SAMPLE TYPE: SOIL AU* - AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: SEP 5 1997 DATE REPORT MAILED: Sept 15/97 SIGNED BY. C. Leong .D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

Data ___ FA ___

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
L48+00N 49+60E	1	9	5	31	<.3	3	2	264	3.37	15	<8	<2	2	3	<.2	<3	<3	92	.04	.008	3	5	.51	10	.09	5	1.44	.01	.02	<2	<1
L48+00N 49+80E	3	29	18	34	<.3	6	4	307	5.42	17	<8	<2	<2	9	<.2	3	<3	148	.10	.013	6	19	.65	25	.20	4	3.61	.01	.03	<2	2
L48+00N 50+00E	5	58	15	46	.3	13	7	361	7.18	32	<8	<2	5	11	<.2	<3	3	173	.47	.021	6	41	.70	29	.24	6	4.48	.01	.03	<2	36
L48+00N 50+20E	1	12	3	9	.5	2	1	57	.66	2	<8	<2	<2	7	.3	<3	<3	21	.05	.037	1	7	.14	11	.03	<3	1.19	.01	.02	<2	<1
RE L48+00N 50+40E	2	63	13	49	<.3	11	7	319	5.57	31	<8	<2	2	12	<.2	<3	<3	131	.11	.024	4	31	.71	33	.19	<3	5.99	.01	.03	<2	4
L48+00N 50+40E	3	61	9	48	<.3	11	7	310	5.36	29	<8	<2	2	11	<.2	<3	<3	127	.11	.023	5	29	.69	32	.19	3	5.73	.01	.03	<2	3
L48+00N 50+60E	2	57	12	38	.4	9	5	298	5.74	22	<8	<2	3	9	<.2	<3	<3	149	.09	.019	5	28	.60	26	.18	3	4.92	.01	.03	<2	5
L48+00N 50+80E	3	58	10	43	<.3	9	5	289	4.84	17	<8	<2	2	12	<.2	<3	<3	142	.12	.017	7	24	.60	29	.18	3	4.99	.01	.02	<2	10
L48+00N 51+00E	4	42	14	41	.3	8	5	275	5.73	20	<8	<2	3	13	<.2	<3	<3	155	.14	.022	5	30	.57	24	.18	<3	5.19	.01	.02	<2	2
L47+75N 48+40E	2	25	11	25	.5	6	3	240	1.37	9	<8	<2	2	12	.2	<3	<3	117	.14	.010	7	21	.50	43	.11	5	3.06	.01	.03	<2	2
L47+75N 48+60E	2	20	14	24	<.3	6	4	217	4.49	16	<8	<2	3	9	<.2	<3	<3	167	.11	.008	5	23	.43	18	.12	3	3.05	.01	.02	<2	5
L47+75N 48+80E	2	36	15	42	.4	10	5	275	3.72	22	<8	<2	3	14	<.2	<3	<3	117	.15	.015	7	29	.51	37	.14	5	4.13	.01	.03	<2	3
L47+75N 49+00E	2	50	18	52	<.3	12	6	345	5.06	25	<8	<2	2	12	<.2	<3	<3	133	.15	.013	7	36	.67	53	.15	<3	4.27	.01	.03	<2	2
L47+75N 49+20E	2	21	13	20	<.3	5	2	185	2.37	13	<8	<2	<2	10	<.2	<3	<3	99	.11	.011	6	20	.36	23	.10	<3	2.43	.01	.03	<2	5
L47+75N 49+40E	3	32	14	42	<.3	9	5	317	3.09	22	<8	<2	2	13	<.2	<3	<3	102	.19	.011	6	21	.62	42	.12	<3	2.97	.01	.03	<2	3
L47+75N 49+60E	3	31	11	35	.7	7	4	250	4.34	25	<8	<2	<2	10	<.2	<3	<3	119	.11	.015	6	21	.47	30	.18	<3	3.12	.01	.02	<2	3
L47+75N 49+80E	4	60	14	58	<.3	12	7	374	5.12	34	<8	<2	3	13	<.2	<3	<3	136	.18	.018	7	30	.67	49	.19	<3	4.35	.01	.03	<2	3
L47+75N 50+00E	4	53	14	50	<.3	10	6	322	3.90	24	<8	<2	<2	13	<.2	<3	<3	129	.14	.015	5	28	.69	44	.18	<3	4.24	.01	.04	<2	7
L47+75N 50+20E	3	41	11	25	<.3	3	2	199	2.54	<2	<8	<2	5	9	<.2	<3	<3	68	.09	.003	<1	18	.42	18	.13	5	3.12	.01	.03	<2	2
L47+75N 50+40E	3	44	15	47	.4	7	6	278	6.98	26	<8	<2	3	10	<.2	<3	<3	188	.10	.019	6	29	.50	22	.18	3	3.61	.01	.03	<2	4
L47+75N 50+60E	4	45	13	36	.5	8	6	242	5.46	19	<8	<2	2	10	<.2	<3	<3	149	.10	.026	6	36	.47	27	.16	<3	5.34	.01	.03	<2	3
L47+75N 50+80E	<1	59	11	57	<.3	14	8	351	5.49	25	<8	<2	3	15	<.2	<3	<3	144	.19	.020	6	39	.65	32	.22	<3	4.62	.01	.02	<2	4
L47+75N 51+00E	6	41	15	30	<.3	6	4	229	4.16	17	<8	<2	2	9	<.2	4	<3	133	.10	.015	7	25	.38	20	.11	<3	3.71	.01	.02	<2	4
L47+75N 51+20E	3	53	13	57	<.3	12	6	336	5.31	26	<8	<2	3	12	<.2	<3	<3	138	.15	.025	6	36	.63	47	.19	3	5.06	.01	.03	<2	3
L47+75N 51+40E	3	69	15	49	.4	10	6	301	3.37	25	<8	<2	2	11	<.2	<3	<3	142	.12	.022	5	34	.63	33	.12	<3	5.44	.01	.02	<2	5
L47+75N 51+60E	3	47	17	37	<.3	8	5	255	6.66	26	<8	<2	2	11	<.2	<3	<3	165	.12	.015	5	39	.50	29	.17	<3	4.39	.01	.02	<2	3
L47+50N 48+40E	<1	18	3	29	<.3	2	4	119	1.64	13	<8	<2	<2	51	.3	<3	<3	39	.56	.038	3	4	.27	39	.06	<3	1.53	.09	.04	<2	1
L47+50N 48+60E	1	9	13	17	<.3	3	3	156	1.11	8	<8	<2	<2	9	<.2	<3	<3	69	.09	.011	7	14	.30	19	.10	<3	1.90	.01	.02	<2	1
L47+50N 48+80E	3	35	13	32	.5	6	4	213	3.57	18	<8	<2	2	11	<.2	<3	<3	119	.13	.011	7	22	.39	27	.11	<3	3.48	.01	.02	<2	4
L47+50N 49+00E	3	37	14	40	<.3	9	5	281	6.47	33	<8	<2	2	12	<.2	<3	<3	148	.14	.011	5	30	.51	42	.17	<3	3.66	.01	.03	<2	17
L47+50N 49+20E	<1	8	4	10	.3	2	1	43	.53	4	<8	<2	<2	19	.3	<3	<3	16	.09	.028	2	5	.15	12	.02	<3	.57	.02	.03	<2	1
L47+50N 49+40E	2	29	14	35	<.3	7	4	266	1.86	13	<8	<2	2	13	<.2	<3	<3	124	.17	.007	6	27	.54	26	.16	<3	3.18	.01	.02	<2	2
L47+50N 49+60E	2	7	12	17	<.3	3	1	198	.84	5	<8	<2	<2	9	<.2	<3	<3	62	.09	.009	6	13	.32	18	.09	<3	2.04	.01	.03	<2	7
L47+50N 49+80E	2	19	11	27	.3	5	3	221	2.97	12	<8	<2	<2	11	<.2	<3	<3	104	.12	.010	6	22	.39	21	.18	<3	2.56	.01	.02	<2	2
L47+50N 50+00E	1	26	14	36	.3	8	4	298	3.11	12	<8	<2	2	14	<.2	<3	<3	116	.15	.009	8	24	.64	30	.16	<3	3.22	.01	.03	<2	3
STANDARD C3/AU-S	26	62	40	149	5.7	35	12	715	3.25	47	25	<2	22	29	22.0	15	20	75	.56	.084	20	167	.58	132	.09	23	1.86	.04	.16	23	51

Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

Data # FA ___

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

GEOCHEMICAL ANALYSIS CERTIFICATE

Leighton Exploration & Dev. File # 97-5108 Page 1

3806 - 254th St., Aldergrove BC V4W 2R3 Submitted by: S.R. Oakley

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
L47+50N 50+20E	4	30	14	30	.5	7	5	218	3.65	15	<8	<2	2	11	<.2	<3	<3	125	.12	.015	7	30	.42	26	.13	4	3.31	.01	.03	<2	5
L47+50N 50+40E	1	12	16	16	<.3	3	2	135	1.03	8	<8	<2	<2	9	<.2	<3	<3	98	.09	.009	4	16	.23	19	.10	<3	2.32	.01	.03	<2	4
L47+50N 50+60E	1	9	10	29	.3	3	2	205	1.16	5	<8	<2	<2	11	<.2	<3	<3	69	.09	.022	3	10	.38	19	.07	<3	1.84	.01	.03	<2	3
L47+50N 50+80E	1	50	15	46	<.3	10	5	290	4.56	22	<8	<2	<2	11	<.2	<3	<3	129	.13	.017	6	25	.55	45	.18	<3	4.39	.01	.03	<2	2
L47+50N 51+00E	3	70	16	62	<.3	11	8	380	5.25	25	<8	<2	<2	9	.2	<3	<3	127	.10	.032	4	24	.82	47	.09	<3	6.41	.01	.03	<2	4
L47+50N 51+20E		17	13	23	<.3	4	3	205	4.23	11	<8	<2	<2	9	<.2	<3	<3	121	.13	.012	6	17	.36	17	.10	<3	2.14	.01	.02	<2	2
L47+50N 51+40E		45	20	59	<.3	10	7	353	2.69	12	<8	<2	<2	10	<.2	<3	<3	131	.11	.019	6	23	.66	65	.09	<3	4.36	.01	.03	<2	3
L47+50N 51+60E	<1	4	<3	27	<.3	1	<1	16	.10	<2	<8	<2	<2	23	<.2	<3	<3	10	.08	.032	<1	3	.08	15	.01	<3	.58	.02	.02	<2	3
L47+25N 49+00E	3	56	20	47	.3	9	4	316	2.85	20	<8	<2	<2	11	<.2	4	3	146	.13	.011	5	29	.65	42	.18	<3	4.06	.01	.03	<2	18
L47+25N 49+20E	3	58	17	61	<.3	11	7	339	4.89	25	<8	<2	<2	13	<.2	<3	<3	138	.15	.022	5	43	.61	30	.21	<3	4.19	.01	.02	<2	6
L47+25N 49+40E	2	45	18	57	<.3	10	6	356	4.79	28	<8	<2	<2	12	<.2	<3	<3	133	.16	.018	5	37	.64	35	.20	<3	3.66	.01	.03	<2	15
L47+25N 49+60E	2	32	17	45	<.3	7	5	305	4.70	18	<8	<2	<2	14	<.2	<3	<3	135	.20	.016	6	24	.62	34	.23	<3	3.33	.01	.07	<2	12
L47+25N 49+80E	2	18	18	30	<.3	5	4	214	4.02	9	<8	<2	<2	13	<.2	<3	<3	107	.14	.013	5	30	.33	22	.18	<3	2.91	.01	.03	<2	2
L47+25N 50+00E	4	31	17	35	<.3	7	5	238	4.01	16	<8	<2	<2	12	<.2	<3	<3	120	.13	.015	5	33	.41	25	.18	<3	3.30	.01	.03	<2	8
RE L47+25N 50+40E	2	21	18	30	<.3	6	4	205	4.27	15	<8	<2	<2	12	<.2	<3	<3	125	.13	.015	7	21	.34	24	.12	<3	3.20	.01	.02	<2	4
L47+25N 50+20E	2	30	14	32	<.3	6	3	261	1.65	11	<8	<2	<2	10	<.2	<3	<3	98	.15	.014	5	24	.53	27	.11	<3	3.75	.01	.02	<2	3
L47+25N 50+40E	2	20	13	29	<.3	5	4	2[illegible]	4.09	13	<8	<2	<2	12	<.2	<3	<3	122	.13	.015	5	25	.34	24	.11	<3	3.17	.01	.03	<2	12
L47+25N 50+60E	4	44	17	36	<.3	7	5	2[illegible]	5.11	20	<8	<2	<2	11	<.2	<3	<3	154	.12	.021	5	28	.49	25	.22	<3	3.27	.01	.02	<2	7
L47+25N 50+80E	2	41	17	43	<.3	8	5	253	2.92	21	<8	<2	<2	12	<.2	<3	<3	146	.14	.026	6	27	.50	30	.20	<3	4.57	.01	.02	<2	7
L47+25N 51+00E	3	83	20	79	<.3	14	7	373	4.63	27	<8	<2	<2	14	<.2	<3	<3	134	.17	.021	6	41	.70	42	.20	<3	4.88	.01	.03	<2	12
L47+25N 51+20E	3	60	17	62	<.3	10	6	340	5.70	25	<8	<2	<2	11	<.2	<3	<3	161	.13	.027	5	29	.66	48	.17	<3	4.80	.01	.04	<2	2
L47+25N 51+40E	3	34	17	33	<.3	6	3	238	4.90	16	<8	<2	<2	10	<.2	<3	<3	155	.10	.011	7	28	.40	37	.17	<3	3.13	.01	.02	<2	5
L47+25N 51+60E	3	43	21	40	<.3	8	4	243	2.82	24	<8	<2	<2	13	<.2	<3	<3	141	.15	.012	4	30	.45	34	.18	<3	3.77	.01	.03	<2	5
L47+00N 49+00E	4	56	17	53	<.3	10	6	302	4.08	19	<8	<2	<2	14	<.2	<3	<3	120	.16	.026	4	40	.56	29	.21	<3	5.15	.01	.03	<2	4
L47+00N 49+20E	3	19	23	28	<.3	6	3	200	5.05	12	<8	<2	<2	12	<.2	<3	<3	150	.13	.010	5	29	.34	22	.20	<3	2.65	.01	.03	<2	3
L47+00N 49+40E	2	62	18	73	.4	14	7	396	5.58	32	<8	<2	<2	13	<.2	<3	<3	129	.19	.018	8	34	.75	53	.19	<3	4.32	.01	.03	<2	11
L47+00N 49+60E	3	32	17	41	.3	9	6	277	6.22	21	<8	<2	<2	13	<.2	<3	<3	161	.16	.020	8	38	.50	24	.23	<3	2.92	.01	.02	<2	6
L47+00N 49+80E	3	40	14	32	.3	6	5	228	6.88	19	<8	<2	<2	7	<.2	<3	<3	151	.08	.017	6	22	.49	29	.08	<3	4.18	.01	.03	<2	4
L47+00N 50+00E	2	25	21	33	.3	6	4	228	4.57	19	<8	<2	<2	13	<.2	<3	<3	140	.15	.010	6	25	.40	23	.21	<3	2.89	.01	.02	<2	6
L47+00N 50+20E	4	28	20	34	.3	7	4	236	5.54	21	<8	<2	<2	12	<.2	<3	<3	175	.14	.020	7	32	.41	24	.20	<3	3.48	.01	.02	<2	93
L47+00N 50+40E	2	25	17	25	<.3	5	3	190	4.35	13	<8	<2	<2	11	<.2	<3	<3	147	.12	.010	7	25	.28	16	.19	<3	2.17	.01	.02	<2	3
L47+00N 50+60E	3	40	17	37	<.3	7	5	249	4.86	21	<8	<2	<2	12	<.2	4	<3	142	.14	.017	6	27	.40	27	.19	<3	3.61	.01	.02	2	5
L47+00N 50+80E	2	30	18	32	<.3	6	4	241	4.80	18	<8	<2	<2	11	<.2	<3	<3	157	.14	.012	5	38	.40	24	.19	<3	3.08	.01	.02	<2	5
L47+00N 51+00E	2	47	22	69	<.3	12	7	402	4.59	21	<8	<2	<2	14	<.2	<3	<3	135	.18	.021	6	28	.88	43	.19	<3	4.36	.01	.03	<2	4
L47+00N 51+20E	2	55	19	58	<.3	10	6	324	4.44	26	<8	<2	<2	13	<.2	<3	<3	128	.16	.025	6	37	.56	48	.20	<3	4.93	.01	.03	<2	4
STANDARD C3/AU-S	28	64	39	159	5.5	37	13	758	3.49	48	19	3	17	30	22.9	13	19	85	.59	.087	23	177	.61	137	.09	17	1.96	.04	.16	23	45

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.
- SAMPLE TYPE: SOIL AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: SEP 5 1997 DATE REPORT MAILED: Sept 18/97 SIGNED BY. C. Leong D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of the analysis only. Data FA

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
L47+00N 51+40E	3	36	19	41	<.3	7	4	109	2.38	19	<8	<2	<2	12	<.2	<3	<3	141	.12	.012	8	25	.48	36	.11	<3	3.72	.01	.02	<2	10
L47+00N 51+60E	4	52	12	57	.5	13	6	105	3.34	14	<8	<2	2	13	.2	<3	<3	137	.15	.022	6	41	.64	38	.19	<3	4.94	.01	.03	<2	5
L10+00N 0+80E	3	16	9	20	.3	3	2	34	4.89	39	<8	<2	3	9	<.2	<3	<3	171	.09	.011	5	16	.18	16	.21	3	1.51	.01	.03	<2	2
L10+00N 0+90E	2	1	5	7	<.3	1	1	57	.95	14	9	<2	<2	4	<.2	<3	<3	52	.04	.005	3	3	.06	11	.09	<3	.66	.01	.02	<2	<1
L10+00N 1+00E	3	3	3	10	<.3	1	1	69	1.33	11	<8	<2	<2	3	<.2	<3	<3	57	.03	.010	4	6	.13	15	.03	<3	1.22	<.01	.01	<2	<1
L10+00N 1+10E	2	26	9	46	<.3	8	5	37	4.18	6	<8	<2	2	13	<.2	<3	<3	138	.22	.013	5	33	.43	17	.30	<3	3.94	.01	.02	<2	1
L10+00N 1+20E	2	23	9	30	<.3	6	4	35	4.91	2	<8	<2	3	13	<.2	<3	<3	152	.19	.011	5	38	.36	16	.32	<3	3.68	.01	.02	<2	4
L10+00N 1+30E	2	22	14	20	<.3	4	3	40	6.61	<2	<8	<2	3	10	<.2	3	<3	200	.12	.009	6	36	.44	18	.43	<3	2.89	.01	.06	<2	7
L10+00N 1+40E	2	24	12	40	.3	6	4	35	4.85	7	<8	<2	5	12	<.2	<3	<3	174	.18	.009	6	36	.37	15	.33	4	3.15	.01	.02	<2	2
L10+00N 1+50E	3	25	6	46	<.3	6	4	33	4.89	12	<8	<2	3	10	.2	<3	<3	172	.18	.013	6	32	.36	18	.31	<3	4.91	.01	.02	<2	2
L10+00N 1+60E	2	34	5	58	<.3	8	6	71	5.07	13	<8	<2	3	12	.3	<3	<3	159	.20	.013	4	41	.49	20	.32	<3	4.69	.01	.02	<2	2
L10+00N 1+70E	2	18	11	20	<.3	4	3	35	4.20	3	<8	<2	3	10	<.2	<3	<3	142	.13	.009	5	23	.17	14	.29	<3	2.62	.01	.02	<2	6
L10+00N 1+80E	3	26	8	32	<.3	7	5	36	5.12	4	<8	<2	3	12	<.2	3	<3	166	.18	.010	4	40	.34	16	.32	<3	3.86	.01	.01	<2	1
RE L10+00N 1+80E	1	25	7	31	<.3	7	5	37	5.11	3	<8	<2	3	12	<.2	<3	<3	159	.19	.009	4	37	.34	16	.32	<3	3.86	.01	.01	<2	1
L10+00N 1+90E	1	19	8	18	<.3	6	4	25	3.94	<2	<8	<2	<2	10	<.2	<3	<3	174	.11	.008	4	30	.18	15	.25	<3	4.00	.01	.02	<2	7
L10+00N 2+00E	2	19	12	18	<.3	4	3	24	5.43	<2	<8	<2	4	9	<.2	<3	<3	170	.12	.015	5	28	.22	12	.30	<3	3.49	.01	.02	<2	1
L10+00N 2+10E	2	4	9	10	<.3	1	2	29	5.16	<2	<8	<2	<2	8	<.2	<3	<3	113	.09	.005	5	16	.12	7	.13	3	1.75	<.01	.01	<2	17
L10+00N 2+20E	1	26	3	29	.3	9	6	49	3.85	<2	<8	<2	3	14	<.2	<3	<3	130	.23	.012	5	33	.48	19	.27	5	4.19	.01	.02	<2	1
L10+00N 2+30E	2	22	6	25	.3	8	5	35	4.36	3	<8	<2	4	12	<.2	<3	<3	154	.21	.014	6	39	.41	20	.34	5	4.14	.01	.02	<2	1
L10+00N 2+40E	2	18	9	25	<.3	7	4	33	4.33	<2	<8	<2	2	13	<.2	<3	<3	180	.18	.010	4	40	.39	18	.39	<3	3.77	.01	.02	<2	5
L10+00N 2+50E	1	14	5	19	.4	4	3	64	.81	<2	<8	<2	3	11	<.2	<3	<3	39	.19	.017	6	30	.31	17	.19	6	3.08	.01	.02	<2	1
L10+00N 2+60E	<1	12	8	20	.3	6	3	76	1.56	<2	10	<2	2	12	<.2	<3	<3	50	.16	.018	4	19	.38	20	.12	<3	2.30	.01	.03	<2	2
L10+00N 2+70E	2	7	16	15	<.3	3	2	37	3.93	<2	<8	<2	<2	8	<.2	<3	<3	172	.09	.006	5	22	.22	11	.32	<3	2.33	.01	.02	<2	2
L10+00N 2+80E	2	7	10	13	<.3	3	2	50	3.26	4	<8	<2	2	9	<.2	<3	<3	168	.11	.003	5	20	.26	11	.23	<3	2.00	.01	.02	<2	39
L10+00N 2+90E	2	15	9	24	<.3	6	4	33	2.77	3	<8	<2	<2	11	<.2	<3	<3	118	.16	.016	6	35	.34	20	.22	<3	3.69	.01	.02	<2	1
L10+00N 3+00E	4	23	11	27	<.3	5	3	33	6.91	4	<8	<2	2	10	<.2	<3	<3	181	.12	.014	4	41	.31	13	.30	<3	3.15	.01	.02	<2	1
L8+00N 0+80E	3	9	9	53	<.3	2	12	1029	6.37	158	<8	<2	<2	6	<.2	<3	<3	125	.09	.010	3	19	.13	11	.12	<3	1.37	.01	.02	<2	10
L8+00N 0+90E	3	19	14	138	<.3	4	60	5417	11.49	327	<8	<2	<2	7	.2	<3	<3	107	.20	.014	3	9	.42	43	.11	<3	3.03	<.01	.02	<2	3
L8+00N 1+00E	<1	6	36	199	<.3	<1	243	99999	26.15	852	<8	<2	<2	4	<.2	<3	44	194	.04	.026	1	<1	.07	98	.10	<3	3.81	<.01	.02	<2	2
L8+00N 1+10E	7	3	21	64	<.3	<1	211	10806	31.65	1452	<8	<2	<2	4	<.2	<3	44	94	.04	.022	1	<1	.02	49	.04	<3	2.13	.01	.02	2	1
L8+00N 1+20E	4	1	14	25	<.3	1	4	162	4.91	399	<8	<2	2	9	<.2	<3	<3	101	.10	.004	6	10	.10	17	.06	3	1.38	<.01	.02	<2	4
L8+00N 1+30E	2	4	12	17	<.3	2	2	85	3.26	228	<8	<2	<2	7	<.2	<3	<3	77	.08	.032	3	11	.06	14	.04	<3	1.28	.01	.02	<2	1
L8+00N 1+40E	4	3	10	13	<.3	1	2	43	9.19	968	<8	<2	2	7	<.2	<3	<3	100	.09	.013	5	8	.11	9	.08	3	.76	.01	.02	<2	1
L8+00N 1+50E	3	30	4	40	<.3	7	5	33	3.43	40	<8	<2	<2	12	<.2	<3	<3	118	.20	.012	5	30	.46	18	.22	<3	4.78	.01	.02	<2	2
L8+00N 1+60E	1	10	7	24	.4	3	3	56	1.46	107	10	<2	2	7	<.2	<3	<3	53	.13	.016	8	16	.27	15	.09	6	2.34	.01	.02	<2	2
STANDARD C3/AU-S	24	62	36	154	5.6	36	12	748	3.37	43	21	<2	18	29	21.8	15	18	82	.57	.081	19	174	.60	141	.09	16	1.91	.04	.16	23	45

Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

Data___ FA___

ACME ANALYTICAL

Leighton Exploration & Dev. FILE # 97-5108

ACME ANALYTICAL

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
L8+00N 1+70E	3	1	12	12	.4	1	1	36	1.65	216	10	<2	2	9	<.2	<3	<3	65	.08	.005	7	10	.05	14	.07	5	.84	.01	.03	<2	6
L8+00N 1+80E	1	5	10	15	.3	2	<1	19	.37	42	<8	<2	<2	7	<.2	<3	<3	36	.06	.035	4	10	.04	13	.02	<3	1.32	.01	.02	<2	4
L8+00N 1+90E	1	15	8	42	.3	5	3	65	1.72	69	<8	<2	2	10	<.2	<3	<3	70	.16	.013	5	17	.35	18	.19	3	2.24	.01	.02	<2	434
L8+00N 2+00E	2	6	7	14	<.3	1	3	36	11.04	808	<8	<2	3	4	<.2	<3	<3	192	.06	.012	4	7	.27	9	.12	4	1.19	.01	.02	<2	<1
L8+00N 2+10E	2	3	7	8	.3	2	2	41	2.36	118	<8	<2	2	5	<.2	<3	<3	50	.06	.007	4	5	.13	7	.07	3	.77	.01	.01	<2	1
RE L8+00N 2+10E	1	3	7	7	.4	1	2	42	2.32	114	9	<2	4	5	<.2	<3	<3	47	.06	.007	5	7	.13	7	.07	7	.76	.01	.01	<2	<1
L8+00N 2+20E	4	12	13	17	<.3	1	2	25	14.80	266	<8	<2	<2	4	.3	<3	<3	70	.03	.046	6	15	.03	9	.02	3	1.14	.01	.02	<2	<1
L8+00N 2+30E	1	87	12	172	.9	10	6	166	1.68	17	<8	<2	<2	17	.2	<3	<3	79	.23	.043	8	25	.71	34	.08	3	2.97	.01	.03	<2	6
L8+00N 2+40E	3	31	7	99	.4	9	5	41	2.77	109	<8	<2	2	17	<.2	<3	<3	129	.25	.025	7	27	.55	34	.16	5	3.85	.01	.02	<2	2
L8+00N 2+50E	2	14	9	35	.3	3	2	40	4.56	294	<8	<2	<2	16	.2	3	<3	76	.29	.026	5	16	.15	22	.04	4	1.34	.01	.02	<2	1
L8+00N 2+60E	1	4	11	9	.3	2	1	52	.56	5	<8	<2	2	8	<.2	<3	<3	40	.14	.009	5	15	.12	13	.12	<3	1.41	.01	.01	<2	4
L8+00N 2+70E	1	28	13	31	<.3	7	5	38	6.40	3	<8	<2	3	9	.4	3	<3	197	.12	.011	3	45	.43	17	.34	<3	3.61	.01	.01	<2	2
L8+00N 2+80E	<1	20	6	20	<.3	5	4	44	4.29	4	<8	<2	2	9	<.2	<3	<3	155	.15	.008	4	28	.27	10	.27	3	2.46	.01	.01	<2	2
L8+00N 2+90E	<1	6	<3	19	.4	3	2	32	1.26	13	<8	<2	<2	23	.6	<3	<3	33	.40	.025	4	6	.08	8	.03	<3	.62	.01	.01	<2	1
L6+00N 0+90E	1	27	11	74	.4	8	5	108	2.41	71	<8	<2	<2	14	<.2	<3	<3	76	.20	.032	6	26	.75	40	.10	4	4.17	.01	.04	3	2
L6+00N 1+00E	3	30	14	104	<.3	7	6	38	6.21	70	<8	<2	<2	10	.2	3	<3	152	.12	.020	7	31	.54	26	.17	<3	4.32	.01	.02	<2	2
L6+00N 1+10E	3	33	6	40	.4	8	6	68	6.03	15	<8	<2	4	9	.3	<3	<3	176	.12	.016	3	39	.51	21	.30	7	4.37	.01	.02	<2	2
L6+00N 1+20E	2	34	14	50	<.3	7	6	55	6.05	25	<8	<2	3	10	<.2	<3	<3	160	.14	.017	3	41	.46	20	.24	5	4.75	.01	.02	<2	2
L6+00N 1+30E	4	33	15	84	<.3	6	4	37	6.64	81	<8	<2	2	9	.3	<3	<3	187	.12	.014	4	42	.44	20	.30	5	3.58	.01	.02	2	5
L6+00N 1+40E	3	21	26	98	<.3	3	4	139	7.31	55	<8	<2	4	7	<.2	<3	9	143	.23	.008	5	30	.19	12	.21	4	2.28	<.01	.02	2	4
L6+00N 1+50E	3	41	6	212	.3	8	6	95	4.78	10	<8	<2	3	9	.3	<3	<3	133	.21	.022	4	36	.49	21	.23	6	6.15	.01	.02	<2	4
L6+00N 1+60E	2	10	11	14	.4	2	1	45	2.05	4	<8	<2	3	9	<.2	<3	<3	141	.09	.009	5	17	.14	9	.19	6	2.07	<.01	.01	<2	3
L6+00N 1+70E	3	41	9	147	<.3	8	6	83	4.35	16	<8	<2	2	9	.4	<3	<3	114	.18	.023	3	37	.51	25	.23	<3	6.02	.01	.02	3	2
L6+00N 1+80E	2	33	9	89	<.3	6	5	65	6.90	12	<8	<2	4	11	<.2	<3	<3	169	.18	.015	4	44	.41	16	.30	6	2.94	.01	.02	<2	3
L6+00N 1+90E	3	13	10	39	<.3	3	3	27	5.84	6	<8	<2	2	8	.2	<3	<3	186	.14	.010	4	31	.20	16	.30	<3	2.89	<.01	.01	<2	3
L6+00N 2+00E	2	24	7	41	<.3	6	4	34	5.45	3	8	<2	3	8	.2	<3	<3	169	.13	.014	2	34	.37	18	.31	4	4.43	.01	.02	<2	9
L6+00N 2+10E	1	43	9	49	<.3	10	8	123	4.59	<2	<8	<2	2	13	.2	<3	<3	130	.19	.016	3	37	.62	33	.28	4	4.93	.01	.02	<2	3
L6+00N 2+20E	2	30	6	30	<.3	8	6	37	5.72	4	<8	<2	2	10	.2	<3	<3	172	.13	.017	2	42	.41	18	.33	3	5.12	.01	.02	<2	3
L6+00N 2+30E	1	13	10	12	<.3	3	3	31	4.52	<2	<8	<2	2	8	<.2	<3	<3	142	.09	.013	2	28	.17	12	.21	<3	3.41	.01	.01	2	3
L6+00N 2+40E	<1	31	7	36	<.3	9	6	90	4.83	<2	<8	<2	2	11	.2	<3	<3	129	.15	.015	3	39	.52	22	.27	4	5.29	.01	.02	<2	1
STANDARD C3/AU-S	26	62	39	155	6.0	36	13	726	3.43	44	20	<2	18	29	22.4	15	20	76	.57	.086	17	172	.69	143	.09	21	1.94	.04	.16	26	46

Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

Data FA

APPENDIX B

DIAMOND DRILL HOLE

FIELD LOGS

HOLE NO. 97-1

DRILL LOG

Page 1 of 3

DDH 97-1

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED Aug 12 COMPLETED Aug 14/97
LOGGED BY M. RIAZ

T.D. 302 COLLAR ELEVATION
INCLINATION -90 BEARING
COORDINATES 68735 E 23180 N
SURVEY REFERENCES Map-sheet 102I 080

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Surf Veins	Frac Inten	VISUAL EST.: Est Cu Mo	$CuFeS_2$	FeS_2	Cu_2FeS_4	Fe_2O_3	MoS_2	Sample No & Interval	LOG: SCALE 1cm. div = 1' BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
0																									0-5' CASING	CASING
45																								light colored tuff breccia occ. clasts of andesite several percent pyrrhotite + pyrite	5'-10' carbonaceous broken core & boulders	BV
12																		X								
85																										
22																		Y								
80																										
32																	Y	X								
100																	X									
42																		X								
100																	Y	,								
																		X								
																		X								
52																	X									
108																		X								

N.B. Entire hole consists of poly. lithic rhyolite breccia

Ca CO_3 veinlets cutting core at 45°

@ 52'-2" blebs of black ZnS

← LAPILLI TUFF BRECCIA →

DDH 97-1

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG. 12 COMPLETED AUG. 14/97
LOGGED BY M. RIAZ

T.D. 302 Ft. COLLAR ELEVATION
INCLINATION -90° BEARING
COORDINATES 68735 E 23180 N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite		STR.: Surf Veins	Frac Inten	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2	CuFeS2	Fe2O3	MoS2	Sample No & Interval
62																								
	100																		Y	Y				
72																				X				
	100																3		Y	X				
82																								
	100																1-2			X				
92																								
	100							X																
102								X									3			X				
	98							X	X															
112																				λ				
	98																							

LOG
SCALE
BASIC GEOLOGY: rock types, metallization, structures alterations, one column system

} Narrow andesite dykes

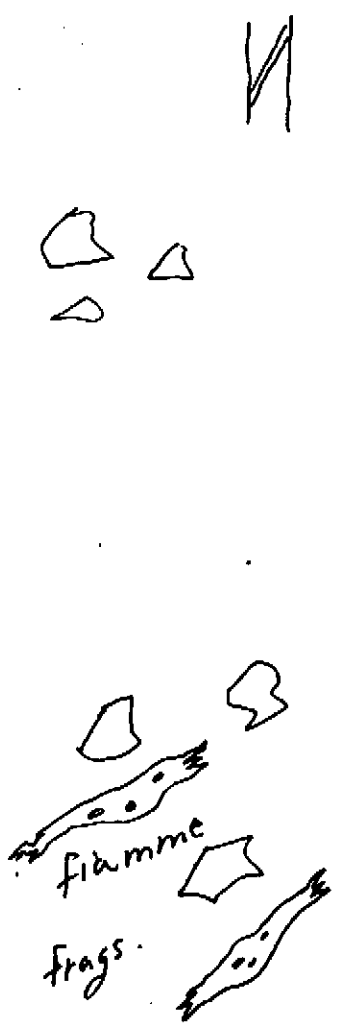
milky white rhyolite clasts form bulk of core

@ 93' & 100' 6" wide shear zone X core at 85°

minor blebs of ZnS.

Pyrrhotite veinlets cutting at 45°

LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES



ROCK UNIT

BV

LAPILLI TUFF BRECCIA

HOLE NO. 97-1 DRILL LOG Page 1 of 1

DDH 97-1

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG. 12 COMPLETED AUG. 14/97
LOGGED BY M. RIAZ

T.D. 302 Ft. COLLAR ELEVATION
INCLINATION -90° BEARING
COORDINATES 68735 E 23180 N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Hotstonwe	STR.: Sulf Veins	Frac Intsn	VISUAL EST.: Est Cu Mo	$CuFeS_2$	FeS_2	Cu_2FeS_3	Fe_2O_3	MoS_2	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
122	95															1			X					$CaCO_3$ veinlets @ 128' & 131' with clay ± sphalerite & pyrrhotite	pseudo fiamme clasts	BL
132	100															1		?	Y							
142	98																	X X X	Y					$CaCO_3$ veins ± clay alteration (tr. ZnS)		
152	98																							traces → blebs of pyrite + clay + ZnS.		
162	95																		X							
172	95																							@ 179' fracturing with clay alt.		← LAPILLI TUFF BRECCIA →

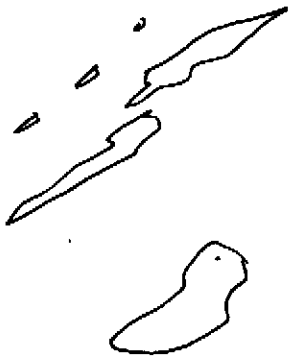
DDH 97-1

DRILL LOG

Page 1

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG. 12 COMPLETED AUG. 14/97
LOGGED BY M. RIAZ

T.D. 302 FT. COLLAR ELEVATION
INCLINATION -90 BEARING
COORDINATES 68735E 23180N
SURVEY REFERENCES

Footage	Core Recovery	Diode	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Intens	VISUAL EST.: Est Cu Mo	$CuFeS_2$	FeS_2	Cu_2FeS_4	Fe_2O_3	MoS_2	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, metalization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
182																								• Rhyolite clasts to 5x5 cm –		B.V.
	85																							≈ Fractures 60° to core axis + clay & calcite		
192																										
	98																									
202																								• As above plus minor pyrite & sphalerite.		
	98															2-3								• Ang. to lenticular rhy. clasts 2-10cm (fiamme?)		LAPILLI TUFF – BRECCIA
212																										
	95															2-3										
222																								• As above. Coarse rhyolite clasts		
	85															1								@ 231.6' clay seam ≈ 6" wide		
232																										
	88															2										

DDH 97-1

HOLE NO. 97-1

DRILL LOG

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG. 12 COMPLETED AUG. 14/97
LOGGED BY M. RIAZ

T.D. 302 FT
INCLINATION -90
COORDINATES 68735 E 23180 N
SURVEY REFERENCES

COLLAR ELEVATION
BEARING

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	F. Sp.	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	Py. rite	S. lite	STR.: Sulf Veins	Frac Inten	VISUAL EST.: Est Cu Mo	CP CuFeS₂	P FeS₂	BN Cu₅FeS₄	MT Fe₃O₄	M.nite MoS₂	AP	Sample No. & Interval	LOG SCALE 1 Small Div = 1' BASIC GEOLOGY: rock types, metallization, structures, alterations, one column system	LITHOLOGIC DESCRIPTIONS, NOTES & SKETCHES	ROCK UNIT
242	98																	1			⌐				?		A.P, Sphalorite? Light color (altered) BT. At 246' a contact of Rhyolite. A F/Filled with clayey mat. Many gashes filled with calcite cutting the core steeply A.P? Pyrite		BV
252	40															?	⌐	1									F. grained Rhyolite maybe dyke? Small andesitic clasts with many black BT spots. Few gashes & veinlets C/F & cutting the core 45–75°. Pyrrhotite? and sphalerite. may be F/zone.		
262	40																										At 262' clayey mat. at 262.2' a contact of light/c BT & having rhyolitic clast & separated by a C/vlet & Andesitic mat. A F/line sody mat. cutting the core steeply. At 271' a rhyolitic dyke?		
272	60																				⌐				⌐		L/color BT containing A & rhyolitic clast, c/gashes cutting the core at 45° at 280' clayey mat. Fault? A.P & Pyrite.		
282	100 Block marking wrong.																								⌐		As above + Rhy/clast 6–8 cm clay mat, c/mat gashes & sody gashes cutting the core steeply. A. pyrite.		
292	100															?									?		BT containing andesitic clast and rhyolitic angular to lenticular clas Fiamme? 294', 297.5', 298 clayey mat veinlets of calcite cutting the core steeply at 300'. 1 cm rhyolitic dyke crossing the core steeply. A. pyrite and Pyrrhotite?		LAPILLI TUFF BRECCIA
300																														

DDH 97-2

HOLE NO. 97-2

DRILL LOG

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG. 14 COMPLETED AUG 16/97
LOGGED BY M. RIAZ

T.D. 302 FT
INCLINATION -90
COORDINATES 68565 EAST 23180 NORTH
SURVEY REFERENCES MAP-SHEET 102 I-080
COLLAR ELEVATION
BEARING

Column headings: Footage | % Core Recovery | Oxide | ALTERATION: Quartz, Sericite, Clay/Pyrop, Biotite (F-lite), K-spar, Chlorite, Epidote, Carb Zeo, Garnet, Pyroxene, Amphibole, Wollastonite, Py-tite, S-NE | STR.: Sulf Veins, Frac Inten | VISUAL EST.: Est Cu Mo, CP $CuFeS_2$, F FeS_2, BN Cu_5FeS_4, MT Fe_3O_4, M-lite MoS_2, AP | Sample No. & Interval | LOG — SCALE 1 Small Div = 1' — BASIC GEOLOGY: rock types, metallization, structures, alterations, one column system | LITHOLOGIC DESCRIPTIONS, NOTES & SKETCHES | ROCK UNIT

Legend: Shear zone / Badly Broken core - ; FAULT - — — ; Intermediate B/C Diorite [shaded] ; Rhyolite =

Footage	% Core Rec.	Quartz	Chlorite	Visual / Str. entries	Sample	Log (Basic Geology)	Lithologic Descriptions, Notes & Sketches
0–10	10%	?	?	Py ✓, S ✓, Sulf veins 1%, Est Cu 1.5%, CP ✓, F ✓, AP ✓		0'–5' Red Brownish weathered rock pieces. 5'–8' intermediate black colored Diorite, Broken pieces in F/C.	→ may have Qtz + few patches with solutioning cavities. → Salt & pepper Appearance
10–20	35	?	?	Py ✓, S ✓, Sulf veins 1, Frac Fe, Est 1.7, CP ✓, F major	A	Intermediate B/C Diorite. many fracture/gashes cutting steeply some have P/CP, one vein cut 30° filled P/CP. chlorite	→ in one piece few Qtz clast small (1-2 mm). – at 14.6' sheare zone + clay. at 20' core is badly broken may be F/zone, some pieces with Fractures. at 23' well D/C of Qtz 1mm (4" piece)
20–30	80	✓X	?	Wollast. 1mm, Py ✓, S ✓, Sulf veins 1, Frac Fe/FFA, Est 2, CP ✓, F ✓, BN ✓, AP ✓		A + disseminated sulphide contents, fracture lines (Qtz) along lines P/CP	→ 22' 1mm bornite & malachite. 25' Qtz/V 2-3mm + P/CP along vein. Fr/C steep (Qtz)
30–40	95	✓	?	Py ✓, S ✓, Frac mod-strong, Est 1.2, CP ✓, F ✓		A + disseminated P & calp and sphalerite. white F/G rhyolite contains Py + sphalerite.	at 31' Fracture core is steeply. many F/C (Qtz), core is steeply (Qtz) (many places). – at 37' diorite gradually change colour to white & piece of Rhyolite again gradually change in diorite. 37' fault clay → Rhyolite broken in many pieces with Qtz & F/C Qtz
40–50	98	✓		Oxide ✓, Py ✓, Sulf veins (Qtz), Frac FFA, Est 2.5, CP ✓, F ✓, MT ✓, AP ✓	hole	A + disseminated P & CP sphalerite here A-P, iron oxide (hematite) Along Qtz/V cp	at 42'/49' Qtz/V (1mm) have P/CP. Badly broken core F/Z (Qtz & clay)
50–60	98	✓	? (Biotite ?B)	Py ✓, S ✓, Sulf veins Qtz, Frac M, Est 2, CP ✓, F ✓, M-lite ✓	19185 → 19185	A + CP along broken surfaces & disseminated P, sphalerite? Pyrrhotite? Bornite?	At 51' & 51.2/3' Red blood iron oxide (hematite?) in cross section broken surfaces. At 52.6' & 61' Qtz/V 2mm + CP. 57' - Sandy gashes + P/CP, core Fr broken in to pieces with Qtz/Carbonate?

ROCK UNIT: DIABASE (BLACK) DIA…

HOLE NO. 97-2

DRILL LOG

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG. 14 COMPLETED AUG. 16/97
LOGGED BY M. RIAZ

T.D. 302 FT
INCLINATION -90
COORDINATES 68565 E 23180 N
COLLAR ELEVATION
BEARING
SURVEY REFERENCES

LOG SCALE 1 small div = 1'

Footage	Core Recovery	Str. (Sulf Veins / Frac Inten)	Est Cu	Sample No & Interval	BASIC GEOLOGY: rock types, metallization, structures, alterations, one column system	LITHOLOGIC DESCRIPTIONS, NOTES & SKETCHES	ROCK UNIT
60–70	98	along Qtz/calcite; M	1.5		A+ sphalerite, pyrrhotite, sphalerite P/Cp along broken faces and disseminated rare A/P along Qtz/calcite Vns.	Core broken into pieces with Qtz/calcite faces + cp, P, C/Qtz few.	DIABASE DIKE
70–80	95	M	1		A + cp + P disseminated and along broken faces & calcite V, pyrrhotite, chlorite, bornite? (81.6) (sphalerite 80'?)	at 72.6' calcite/V steeply; core broken with C/Qtz faces. may contain P/cP?	
80–90	98	1	1.5		A + disseminated P + cp, epidote, chlorite? pyrrhotite.	at 82.6' calcite vein, 1–2 mm thin (10" long), crossing the core steeply. at 88.7' Qtz vein cutting core (2 mm) + minor cp	
90–100	100	2	1.5		A + P + Cp are disseminated & along the calcite/V, bornites, pyrrhotite, chlorite/epidote?	2–3 calcite veins cutting steeply containing P + cp, one vein cutting low angle more P + cp. Broken surfaces having Qtz/calcite?	
100–110	100	3/4	1.5–2.0	R1854 ↔ R1853	A + cp + P disseminated and along calcite/V and on broken faces of core. epidote/chlorite, molybdenite, pyrrhotite, bornite and rare A. pyrite	few calcite/Vs, some ‖ + steeply, containing P + cp. 1 mm c/V cut faintly, one crossing in curve (2–3 mm) broken surfaces with calcite/Qtz	
110–120	100	3	1.5		A + disseminated P + cp, along one c/V P + cp. epidote/chlorite P + cp found along broken faces	at 118' one C/V 2 mm – 1 cm, 4" long; some other c/V-F/L, core broken along c/material.	

DDH 97-2

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG 14 COMPLETED AUG 16/97
LOGGED BY M. RIAZ

T.D. 302 COLLAR ELEVATION
INCLINATION -90 BEARING
COORDINATES 68565 E 23180 N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Inten	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2	Cu2FeS2	Fe2O3	MoS2	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
120																										
	90								X							Few		x	x					Arsenopyrite dissem & along hair line fractures @ 131.8 py & cpy	@ 125' clay alt. in minor fractures	
130																										
	98							X	X									x	x	x					@ 132' carb. veins at acute angle to axis	
140																										
	98							X	X							1		x	x					} Dissem. pyrite & chalcopyrite	@ 142.5' 2cm wide qtz. vein with sulphides	
								X	X									x	x							
150																3/2	1.5	x	x			x			@ 160.8' thin pyrite veinlet (1cm)	
	100																									
160								X	X							3/4	2	x	x					} As above	@ 163.6-5'	
	98																									
170								X	X							3/4	1	x	x					} Disseminated pyrite + cpy.	@ 172.8 1.5' white aplite dike bordered by carb. alt.	
	100																									
180																										DIABASE DIKE

HOLE NO. 97-2 DRILL LOG Page 1

DDH 97-2

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG. 14 COMPLETED AUG. 16/97
LOGGED BY M. RIAZ

T.D. 302 FT. COLLAR ELEVATION
INCLINATION -90 BEARING
COORDINATES 68565 E 23180 N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR. Suit Veins	STR. Frac Intsn	VISUAL EST. Est Cu Mo	VISUAL EST. $CuFeS_2$	VISUAL EST. FeS_2	VISUAL EST. Cu_2FeS_3	VISUAL EST. Fe_2O_3	VISUAL EST. MoS_2	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, metalization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
180																										
	98							X	X							4/5		X	X					Pyrite & cpy dissem and along dry fractures ± chlorite & epidote ↓		
190								X	X																	
	98					X										1		X	X						@ 194.6' 1cm qtz vein at steep angle with py & cpy.	
200								X	X																	
	98					7/X										3/4		X	X							
210								X	X																	
	100																	X	X							
220								Y	Y							2/3										
	98							X	X							2/3		X	Y						@ 224.6' minor qtz veinlet with py & cpy.	
230																										
	95							X	X									X	X					minor py & cpy with carb. veinlet	@ 235' fract. zone	DIABASE DIKE ↑
240																										

HOLE NO. 97-2 DRILL LOG Page 5

DDH 97-2

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG. 14 COMPLETED AUG. 16/97
LOGGED BY M. RIAZ

T.D. 302 COLLAR ELEVATION
INCLINATION -90 BEARING
COORDINATES 68565 E 23180N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zec	Garnet	Pyroxene	Amphibole	Wollastonite		STR.: Surf Veins	Frac Inten	VISUAL EST.: Est Cu Mo	$CuFeS_2$	FeS_2	Cu_5FeS_4	Fe_2O_3	MoS_2	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, metallization, structures alterations, ore column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
240																											
	95							X	X							few				X					Pyrite (secondary) associated with zone	Fracture zone	
250																											
	100							X	X											X							
260																											
	100							X	X							high				X					Pyrite dissem. & alng fractures		
270																											
	100							X	X							mod.				X							
280																											
	98							X	X																		
290																											
								X	X							few			X	X				19/825 ↔ 19/851			DIABASE DIKE
300																				X							

Hole 97-3

HOLE NO. 97-3

DRILL LOG

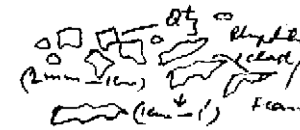
PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG 16 COMPLETED AUG. 17/97
LOGGED BY M. RIAZ

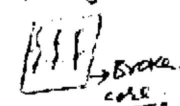
T.D. 302 FT.
INCLINATION -90
COORDINATES 68625 E 23260 N
COLLAR ELEVATION
BEARING
SURVEY REFERENCES MAP-SHEET 102I 080

LOG SCALE 1 small Div = 1'
BASIC GEOLOGY: rock types, metallization, structures alterations, one column system

Shear Zone/Badly Broken Core Fault — Andesite — L/c Breccia Tuff

Footage	Core Recovery	Oxide	Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb-Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	Pyrite	S..ite	Sulf Veins	Frac Inten	Est Cu Mo	CuFeS₂ (CP)	FeS₂ (P)	Cu₅FeS₄ (BN)	Fe₃O₄ (MT)	MoS₂ (M.nite)	AP	Sample No. & Interval	Log / Basic Geology	Lithologic Descriptions, Notes & Sketches
0–2																											10' CASING	Glassed fragments
7	0																											
12–22	60		✓					✓	✓						✓	✓			1	✓	✓				✓	A, B	(light color Breccia Tuff with minor (1-3mm) clasts of Qtz/F/SP and rhyolitic angular to lenticular clast may be Flamme) (Disseminated Py cp, pyrrhotite, sphalerite, late A.P, epidote, chlorite.)	Qtz, Rhyolite clast/Flame (2mm–1cm) (1cm–1'); rock core mostly broken into small pieces, may be F/zone + clay mat.
22–32	80		✓			?		?	✓						✓	?			1	✓	✓				✓		A+B +Biotite ?	As Above; Broken core; F/z
32–42	70		✓					?	✓						✓	✓			1	✓	✓			✓			A+B + Molybdenite & no A.P.	As above
42–52	55		✓					\	✓						✓	✓			1	✓	✓			✓			A+B + Molybdenite & no A.P	As above a few Sody clast (2–4 cm)
52–62	85		✓					✓	✓										.51	✓	✓				✓		A+B, no sphalerite and pyrrhotite, At 57' core became fine clasts of andesite rhyolite/Qtz? no lenticular/Flamme	Relatively less broken as above but still F/Z + clay mat. At 57' it contains more fine clast of glassy andesite, Rhyolite/Qtz?





ROCK UNIT

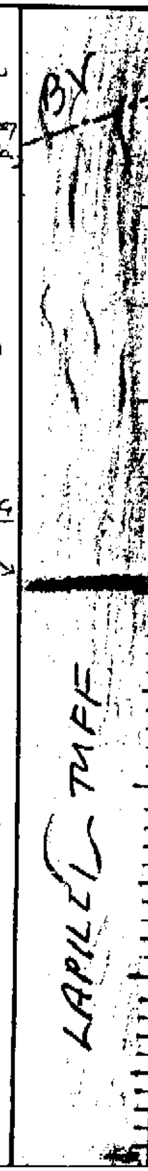
DDH 97-3

HOLE NO. 97-33 **DRILL LOG**

PROJECT	KNOB HILL	T.D.	302 FT
CONTRACTOR	OLYMPIC DRILLING	INCLINATION	-90
DATE STARTED	AUG. 16	COMPLETED	AUG. 17/97
LOGGED BY	M. RIAZ	COORDINATES	68625 E 23260 N
COLLAR ELEVATION		BEARING	
SURVEY REFERENCES			

Footage	Core Recovery	Alteration (Quartz, Chlorite, Epidote, Pyrite ...)	STR. Frac Inten	Visual Est. (Est Cu Mo, $CuFeS_2$, FeS_2, MoS_2)	Sample No & Interval	LOG — SCALE 1 Small DW = 1' — BASIC GEOLOGY	LITHOLOGIC DESCRIPTIONS, NOTES & SKETCHES
62–72	100	✓ ✓ ? ?	Mas	0.5 ✓ ✓	C	(A + B, but no AP, have rare pyrrhotite? chlorite and epidote?)	– as above, but at 63–64' again Qtz, rhyolitic clasts/Fiamme with light color. May be dyke, fracturing + solution f, Fault/clay mat.
					D	(Alteration at 63'–64' with Qtz/rhyolitic clasts/Fiamme of light color)	
72–82	80	✓ [illegible] ?	Mod	0.5 ✓	E	(light color/Tuff with greenish Andesitic clasts + rhyolitic/Qtz? clasts (1–2 mm) with disseminated pyrite, chlorite, epidote, Qtz? sphalerite?)	→ Light color Breccia Tuff with greenish Andesitic clasts + rhyolitic/Qtz clasts (1–2 mm) medium fractured/F/zone? + clay
82–92	95	? ✓ ✓	mod	0.5 ✓ ✓		E + molybdenum, [illegible] sphalerite	→ as above (at about 89', 6–8" dyke of fine/G greyish intrusive dyke at few places?)
92–102	100	✓ ✓	Few	0.3 ✓	F	(light color B. Tuff with greenish clasts of rhyolite/Qtz chlorite (1–2 mm) and few andesitic clasts of dark/gray color? epidote, chlorite, rare pyrite)	→ less fractured, along cal/mat, cal/mat filled gash (t. plag.) – few clasts of F/G gray andesitic (1cm – 3/4 cm)
102–112	95	?	Few	0.3 ✓		F + (rare pyrite).	Few fractures, broken core along cal/clay mat
112–	100	? ?		0.2 ✓	G	(F + D/B mineral possible amphibole? maybe muscovite along broken face?)	→ No fracturing, but at 121.6' 4" greyish intrusive with (1–3 mm) clasts of Qtz/rhyolite. Along broken face muscovite?

ROCK UNIT:



HOLE NO. 97-3

DRILL LOG

DDH 97-3

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED ~~AUG~~ 16 COMPLETED ~~AUG~~ 17/97
LOGGED BY M. TRIAZ

T.D. 302 FT. COLLAR ELEVATION
INCLINATION -90° BEARING
COORDINATES 68625 E 23260 N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite / Flaky	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite			STR. Sulf Veins	Frac Inten	VISUAL EST. Est Cu Mo	CuFeS2	FeS2	Cu2FeS3	Fe2O3	MoS2		Sample No. & Interval	LOG SCALE 1" = Small Divs" BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
122										?		?					1-2				X								
	100																											
132																					Y							
	100									?							1-2				X							
142																					X							
	95																1-2				X							
152					?																							
	90																1-2				X							
162																					X							
	100				?					?			?				1-2											
172																					A							
	100					?				?			?				1-2											

As Above

pyrite coating broken faces of fracture

felsite dyke

rock composed of mm to mono tuff breccia with clasts primarily fine grained dacite - rhyolite(?)

BX LAPILLI TUFF BRECCIA

HOLE NO. 97-3 **DRILL LOG** Page 4 of 5

DDH 97-3

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG 16 COMPLETED AUG 17/97
LOGGED BY M. RIAZ

T.D. 302 Ft. COLLAR ELEVATION
INCLINATION -90 BEARING
COORDINATES 68625 E 23260 N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb-Zeo	Garnet	Pyroxene	Amphibole	Wollastonite			STR.: Suif Veins	Frac Infen	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2	Cu2FeS3 N	Fe2O3 MT	MoS2 Mnit		Sample No. & Interval	LOG: SCALE 1 Small Div = 1' BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
182						?				?			?				feld				Y								
	1m					?																						
192																					X					→ clay on fract. + muscovite ?		
	90				?					?			?				1-2				V							
202																												
	95		L		?								/				1				X							
212																												
	98		L							?			?				1-3				X							
222																												
	98		L		?								?				feld				Y							
232																												
	98		L		?								?				feld				X							

AS ABOVE - numerous clasts 2-4" dia.

as above + qtz crystals

HOLE NO. 97-3 **DRILL LOG** Page 3 of 3

DDH 97-3

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG. 16 COMPLETED AUG. 17/97
LOGGED BY M. RIAZ

T.D. 302 FT. COLLAR ELEVATION
INCLINATION -90° BEARING
COORDINATES 68625 E 23260 N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION (percent) Quartz	Sericite	Clay/Pyrop	F. Lith Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	Py	S	STR. Sulf Veins	Frac Inten	VISUAL EST. Est Cu Mo	CuFeS2	FeS2	Cu2FeS4	Fe3O4	MoS2	M. sulfide	Sample No & Interval	LOG SCALE Small Div. = 1' BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
242	89		X	?									?					X			X						minor pyrite throughout ↓ ± minor silicification	AS ABOVE thin felsite dike	BV
252			X																										
262	89		X	?									?				X	X			X						H	moderately fractured section	
272	95		X	?									?				X	X			X						H		
282	98			?									?				X	X			X						H		
292	95			?	?								?				X	X			X						dark brown mineral - secondary biotite ??	fractures with clay E.O.H.	DRILL HOLE

DDH 97-4

HOLE NO. 97-4

DRILL LOG

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG. 14 COMPLETED AUG 20/97
LOGGED BY M. RIAZ

T.D. 402 FT
INCLINATION -90
COORDINATES 68355 E 23570 N
SURVEY REFERENCES MAP-SHEET 102I 080
COLLAR ELEVATION
BEARING

LOG SCALE Small Div. 1'

BASIC GEOLOGY: rock types, metallization, structures alterations, one column system

LITHOLOGIC DESCRIPTIONS, NOTES & SKETCHES

ROCK UNIT

Legend: B.B. core/Shear zone; Fault =; Andesite/Breccia Tuff; QTZ = ; Clay = ; Rhyolite Breccia = ; Rhyolite =

*M. Seam/carbonaceous matter

Footage	Core Recovery	Quartz	Sericite	K-spar	Chlorite	Epidote	Py rite	S ite	Frac Inten	Est Cu Mo	CuFeS2 (CP)	FeS2 (P)	AP	Sample No. & Interval
0–12														
12–22	30	✓			✓	✓	✓			1			?	A
22–32	95	✓	?		✓	✓	✓		1	3	?	✓	✓	22
32–42	65	✓			✓	✓	✓		2	2.5	?	✓		32
42–52	98	✓			✓	✓	✓		2	3	?	✓		42 B
52–60	95	✓		?	✓	✓	✓	✓		2.5		✓		

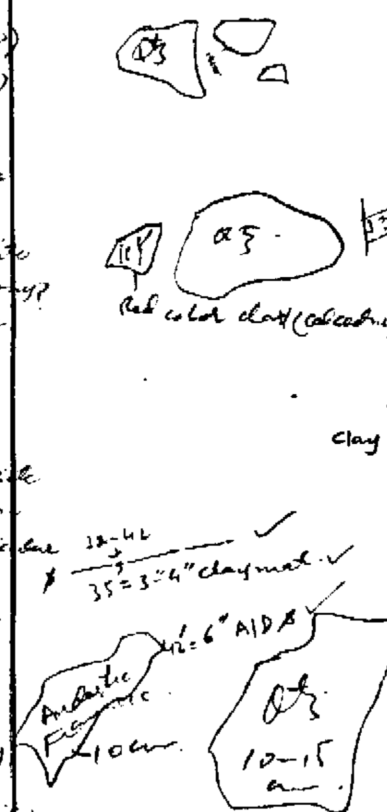
0–15' casing

A (Light color rhyolite Breccia) with Quartz clasts (2 mm–3 cm) disseminated pyrrhotite and A.P? yellowish altered green clasts possible epidote/chlorite

22 → A+ More big clasts of Qtz and a red color clast with Qtz/calcite mix mat. may be calcedony? Pyrrhotite, A.P, CP and Pyrite is in joints of clasts. Patches of 2"–3" Qtz one fracture through sandy mat.

32 → Color of R/Breccia Tends to be darker, more Qtz, epidote chlorite. Pyrite and P are along broken faces and in joints of lat... clasts and also in the clasts. CP. at 35' 4–5" clay mat. may be F/3. 1 Fr Through sandy mat.

42 B → (Color some places light & some places Dark. 4–5" dyke of grey andesite. More big 10–15 cm Qtz clasts) 10–15 cm Andesitic fragment like clast. One fracture through sandy mat. Pyrite along fracture with pyrrhotite + CP. Py on all surfaces ... epidote & chlorite.



DDH 97-4

HOLE NO. 97-4

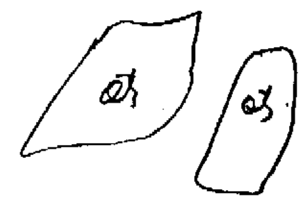
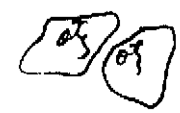
DRILL LOG

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG. 14 COMPLETED AUG. 20/97
LOGGED BY M. RIAZ

T.D. 402 FT
INCLINATION -90
COORDINATES 68355 E 23570 N
SURVEY REFERENCES
COLLAR ELEVATION
BEARING

LOG SCALE 1 small Div = 1'
BASIC GEOLOGY: rock types, metallization, structures, alterations, one column system

Footage	Core Recovery	Oxide	Quartz	Sericite	Clay/Pyrop	Biotite (Fuch)	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	Py lite	S. Ne	Surf Veins	Frac Inten	Est Cu Mo	CP $CuFeS_2$	P FeS_2	BN Cu_5FeS_4	PYT Fe_7O_8	M MoS_2	AP
62	98		✓					✓	✓						✓				2		✓				
72	98		✓					✓	✓						✓			Few	1.5		✓				
82	98		✓					✓	✓						✓	?		2-3	1	?	✓				
92	95	?	✓					✓	✓						✓	✓		Few	1.5	?	✓				
102	95	?	✓					✓	✓						✓	?		2-3	1.5	?	✓				
112	100		✓					✓	✓						✓				2	?	✓				

Sample No. & Interval	Log	Lithologic Descriptions, Notes & Sketches
52	B + more Qtz clasts, 4"-6" A/Dyke? Sphalerite? R. clast of F/Spar? epidote, chlorite, Pyrrhotite + Pyrite.	52' = 6" A/D ✓
62	→ Rhyolitic/B contains more Andesitic clast & few inch Dykes Qtz in last 1cm - 3/4 cm clasts. epidote, chlorite, Pyrite and Pyrite along Slicken faces + disseminated epidote & chlorite.	
72 C	→ (color of C/B more Darker contains Qtz-A/clasts and dykes (few meters)) Many fractures Through Sodgy at one Sodgy fracture contains Pyrite. Cal/Garnet, epidote, chlorite Pyrrhotite + pyrite	✓ [Shear Zone] ✓ 72' ???
82	C + Qtz/clast up to 10 cm, Red clast in [illegible] Sphalerite? Pyrrhotite, cp & P. epidote & chlorite, 2-3 F/about Sodgy [illegible] overall C/[illegible]	→ 
92	C + Few Sodgy Fractures oxide (Red Wood Spot) epidote, chlorite, P, Pyrrhotite.	
102	C + Color more darker 1-5 cm Qtz clast, [illegible] [illegible]? C/Fe, [illegible] 2-3 Sodgy fracture & color [illegible] core. oxide? epidote, chlorite, P & Pyrrhotite	
112	C + 2-10 cm Qtz clast epidote, chlorite, P & Pyrrhotite	

ROCK UNIT

DDH 97-4

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG. 14 COMPLETED AUG. 20/97
LOGGED BY M. RIAZ

T.D. 402 FT COLLAR ELEVATION
INCLINATION −90 BEARING
COORDINATES 68355 E 23570 N
SURVEY REFERENCES

Footage	Core Recovery	Quartz	Chlorite	Epidote	Py lite	S. lite	Frac Inten	Est Cu Mo	$CuFeS_2$	FeS_2	AP	Sample No & Interval	LOG — SCALE (small div = 1') BASIC GEOLOGY	LITHOLOGIC DESCRIPTIONS, NOTES & SKETCHES	ROCK UNIT
122	98	✓	✓	✓	✓	✓	1-2	2	2	✓		D	C + A: pyrite. many F/lines sooty mat. pyrite along F/lines Big clasts of Andesite (epidote chlorite, P & Pyrrhotite, Sphalerite)		B
132	95	✓	✓	✓	✓	✓	Few	1.5	2	✓	✓	32	→ C + D + color → darker. A.P. Few fractures are [illegible] through sooty mat. & F/lines		
142	100	✓	✓	✓	✓	✓	Few	1.5	2	✓			→ C + D, A dark green mineral? Few Fr through sooty material.		
152	95	✓	✓	✓	✓			1.5	2	✓			→ C + D, 3" Qtz vein, red [illegible] clast may be rhyolite? no sphalerite	93-3 [illegible]	
162	98	✓	✓	✓	✓	✓	3-4	1	2	✓	?	E	D + light color F/G rhyolite B Andesite and Qtz clasts (mm–[illegible]) AP? chal.P? P along F/lines Few F/through sooty mat.		
172	98	✓	✓	✓	✓	✓	3-4	1		✓			D + E. At 177' Qtz big clast upto 10 cm 3-4 F/sooty mat. broken core.		

DDH 97-4

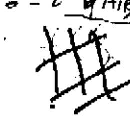
HOLE NO. 97-4

DRILL LOG

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG. 14 COMPLETED AUG. 20/97
LOGGED BY M. RIAZ

T.D. 402 FT
COLLAR ELEVATION
INCLINATION -90
BEARING
COORDINATES 68355 E 23570 N
SURVEY REFERENCES

LOG SCALE 1 small Div = 1'
BASIC GEOLOGY: rock types, metallization, structures alterations, one column system

Footage	Core Recovery	Oxide	Chlorite	Epidote	Biotite	Py cdc	S cdc	Frac Inten	Est Cu Mo	$CuFeS_2$	FeS_2	Sample No & Interval	Log / Basic Geology	Lithologic Descriptions, Notes & Sketches	Rock Unit
182	98	✓	✓	✓		✓	✓	Few	1.5	?	✓	182	D+E Ø∑ + A... clast up to 5 cm one F/breas along clay mat.		B.V
192	98	✓	✓	✓		✓	✓	Few	1.5-2	?	✓	192	D+E Pyrite is along broken pieces of core, and along F/lines A + Ø∑ clast up to 10 cm. Few F's through soft/mat		
202	100	✓	✓	✓		✓	✓	1-2	1.5-2	2	✓	202	D+E broken at 200' core color is greyish. D/Green mineral ? 1-2 F's along lofic mat	at 220'-2' D/AIBT. shear zone 	
212	95	✓	✓	✓		✓	?	1-3	1.5	2	✓	212	D+E ↓ at 220,2' intermediate grey color dyke of Andesite (B.T. Here core is badly broken soft mat Pyrite along broken faces, fine veins + calcite F/lines. Andesite/chlorite lenticular 3 cm clast possible gramme		
222	98	✓	✓	✓		✓		1-2	1.5-2	2	✓	222	D+E 1-2 clayey, 1 big fracture broken through core soft mat		
232	98	✓	✓	✓	78	✓		2-3	1-1.5	2		232	D+E Big clayey, alyite, andesite... Ø∑ up to 10 cm. 1 big patch intrusion of Ø∑ Nm. 5"-6" at 232.6' at 233 Biotite alteration ? Ø∑ clast contain Pyrite.	β 232.6' 6" Ø∑  → Ø∑	

DDH 97-4

HOLE NO. 97-4

DRILL LOG

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG. 14 COMPLETED AUG. 20/97
LOGGED BY M. RIAZ

T.D. 402 FT
INCLINATION -90°
COORDINATES 68355 E 23570 N
SURVEY REFERENCES

COLLAR ELEVATION
BEARING

LOG SCALE 1 small div = 1'
BASIC GEOLOGY: rock types, metallization, structures alterations, one column system

Footage	Core Recovery	Quartz	Biotite	Chlorite	Epidote	Py ank	Frac Inten	Est Cu Mo	$CuFeS_2$	FeS_2	Sample No & Interval	LOG	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES
242	98	✓	78	✓	✓	✓	1-2	1-1.5	.2	✓		D+E at 3 places 3"-4" qtz vein crossing the core. + Cpy. Fr/Sody mat	
252	98	✓		✓		✓	Many	1-1.5		✓	F	(light color rhyolite B + Andesite, rhyolite and qtz Angular to subrounded clast 1cm — 10cm at some places color is greyish. Many big qtz clast up to 15 cm) at 254' 6" qtz vein. All Qtz clast contained sulphide	254' - 6" qtz vein
262	95					✓	Many	1-1.5				D+ Pyrite disseminated along F/L FR broken core along cal/sody mat → D+F qtz, andesite, rhyolitic clast [illegible] many Fr/broken core along cal/sodic mat	
272	98	✓		✓	✓	✓	Few 3/4	1-1.5	.2	✓		→ D+F up to 277' core is andesite + greyish altered is containing light color + qtz clasts. + Cpy, andesitic clast [illegible] F/through sody/cal mat	272-277 = 5' Andesite/greyish core
282	100	✓		✓	✓	✓	1-2	1	.2	✓		D+F 286'-292' F/G rhyolite almost no qtz but sody F/lines contain sulphide	286-292 = 6½ F/G
292	98	✓		✓	✓	✓	1-2	1.5	.2	✓		D+F, one qtz clast contains chlorite? some big up to 6cm qtz clast 1-2 Fr/core broken along sodic mat	

ROCK UNIT: BV

DDH 97-4

HOLE NO. 97-4

DRILL LOG

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG. 14 COMPLETED AUG. 20/97
LOGGED BY M. RIAZ

T.D. 402 FT
INCLINATION -90
COORDINATES 68355 E 23570 N
SURVEY REFERENCES

COLLAR ELEVATION
BEARING

Footage	Core Recovery	Oxide	Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Py-tite	S...	Sulf Veins	Frac Inten	Est Cu Mo	$CuFeS_2$	FeS_2	AP	Sample No & Interval
302	100		✓					✓	✓	..	?			1-1.5		✓	?	302
312	90		✓			?B		✓	✓	✓	?		1	1.5		✓		312
322	98		✓			?B		✓	✓	✓	?			1.5-2		✓		322
332	95		✓			?B		✓	✓	✓	✓		1	2		✓		332
342	100		✓			?B		✓	✓	✓	✓		1	1.5	.2	✓		342
352	95		✓					✓	✓	✓	✓		3-4	1-1.5		✓		352

LOG — SCALE 1 small div = 1'
BASIC GEOLOGY: rock types, metallization, structures, alterations, one column system

302 — Light color rhyolite B andesite, qtz, rhyolite clast angular to subrounded. qtz up to 12 cm. A 2" qtz [illegible] cutting the core. all qtz contains sulphide + D. Pyrrhotite + [illegible] [illegible] and [illegible] in [illegible] of [illegible]. [illegible] epidote, chlorite at 305' 1' F/G rhyolite

312 — G (light color + [illegible] [illegible] well scattered may be [illegible]) 10 cm F/G rhyolite clast [illegible] 5-[illegible] qtz clast andesite + qtz clast small in size up to [illegible] cm. alteration may be biotites
D
1 ft along [illegible].

322 → G+D
qtz andesite + rhy/clast up to 1 cm only.

332 — D+G + [illegible], but qtz clast up to 4-5 cm, 1 ft through [illegible]

342 — D+G + cp + qtz with [illegible] up to 6-8 cm.

352 → D+G + qtz up to 3-5 cm
at 360, 2' rhyolite F/G fracture D [illegible] [illegible]

LITHOLOGIC DESCRIPTIONS, NOTES & SKETCHES

rhyolite + andesite [illegible] up to [illegible] cm

@ 305 - 1' F/G rhyolite

@ 360' - 2' rhyolite F/G Dykes

ROCK UNIT

HOLE NO. 97-4 DRILL LOG Page 1 of 1

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG 14 COMPLETED AUG 20/97
LOGGED BY M. RIAZ

T.D. 402' COLLAR ELEVATION
INCLINATION -90 BEARING
COORDINATES 68355 E 23570 N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zno	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Intens	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2	Cu FeS2	Fe2O3	MoS2	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
362																										
	90		X					X	X							1-2			X							BV
372								Y	X																	
	100		X					X								1-2			Y					3cm Qtz clasts containing ZnS + epidotil	Zn S Qtz	
382								X	X															@ 382' felsite dike with dissem. pyrite (3ft wide)	350	
	90		X					X								many			X							
								Y	X																	
392								X																		
	95		X		?			X	X							Few			X							LAPILLI TUFF BRECCIA
402																									E.O.H.	
412																										

HOLE NO. 97-5

DRILL LOG

Page 1 of 6

DDH 97-5

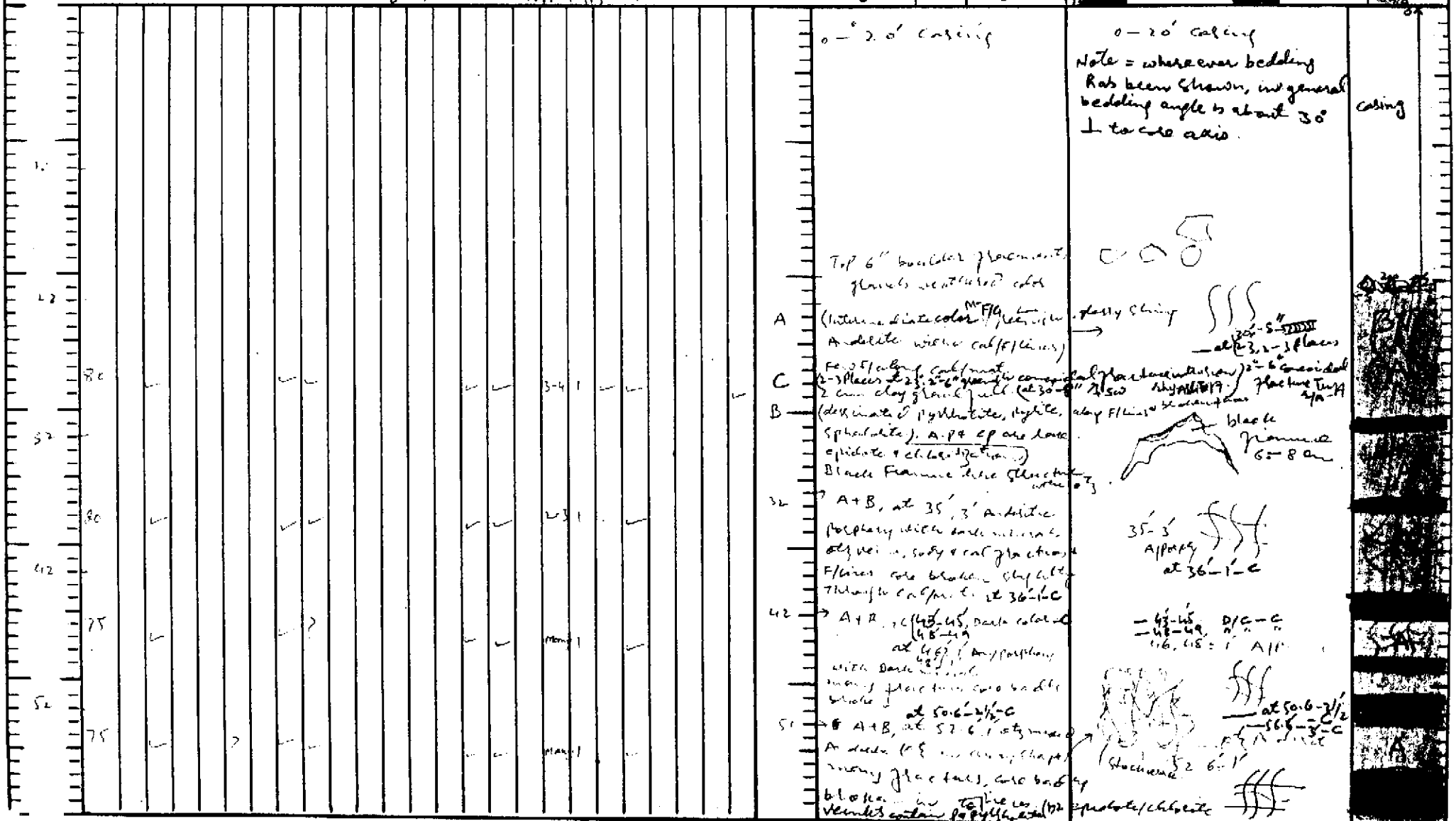
PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG 20 COMPLETED AUG 22/97
LOGGED BY M. RIAZ

T.D. 352 FT
INCLINATION -90
COORDINATES 68140 E 23602 N
SURVEY REFERENCES MAP-SHEET 102I 08D

COLLAR ELEVATION
BEARING

Footage | Core Recovery | Oxide | ALTERATION: Quartz, Sericite, Clay/Pyrop, Biotite, K-spar, Chlorite, Epidote, Carb Zeo, Garnet, Pyroxene, Amphibole, Wollastonite, Py %tr, S: %tr | STR.: Surf Veins, Frac Intsn | VISUAL EST.: Est Cu Mo, cP, CuFeS2, P, FeS2, BN, Chy FeS2, mag, Fe3O4, Mal, Mo S2, AP | Sample No & Interval | LOG SCALE 1 small Div = 1' BASIC GEOLOGY: rock types, metallization, structures alterations, one column system | LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES | ROCK UNIT

Felsic Dyke ^^^^ Shear Zone, Broken core {{{ ### Fault ——·—— Rhydite Rhy Ash Tuff Diorite Andesite



DDH 97-5

HOLE NO. 97-5

DRILL LOG

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG 20 COMPLETED AUG. 22/97
LOGGED BY M. RIAZ

T.D. 352 FT.
INCLINATION -90
COORDINATES 68140 E 23620 N
SURVEY REFERENCES
COLLAR ELEVATION
BEARING

Footage	Core Recovery	ALTERATION / STR. / VISUAL EST. (Quartz, Sericite, Clay/Pyrop, Biotite, K-spar, Chlorite, Epidote, Carb Zeo, Garnet, Pyroxene, Amphibole, Wollastonite, Py. tite, S. tite, Sulf Veins, Frac Inten, Est Cu Mo, CuFeS2, FeS2, Cu5FeS4, Fe3O4, MoS2, AP)	Sample No & Interval	LOG — SCALE 1 small div = 1' — BASIC GEOLOGY: rock types, metallization, structures, alterations, one column system	LITHOLOGIC DESCRIPTIONS, NOTES & SKETCHES	ROCK UNIT
62	45	✓ 78 ✓ ✓ ✓ ? many 2 ✓	62	Blueish color altered core (maybe biotite ?) → A+B+C core is badly broken [illegible] sulphide/clay [illegible] [illegible] 2" [illegible]. 62'-6" D/color A/Site. -72' D/color A/Site same place	64' [illegible] clay [illegible]; D/C Basalt; 64-72' - 8' D/Color	BV
72	70	? ✓ many 1 ✓		→ A+B+C, at [illegible] places 4-6" Andesite C/G. [illegible] Stockwork. 6" epidote, chlorite, Biotite Stockwork. 74'-75'-C, 77'-2'-C. 78'-81'6 clay fault zone. core broken, fractures many fracture lines in all directions.	74'-1'-C, 77'-2'-C; epidote chlorite [illegible] Stockwork	
82	90	? ✓ ✓ ✓ ✓ 2-3 1.5 ✓	82	→ A+B+C many F/lines along with epidote, chlorite, carbon [illegible] sulphide (Py+P), stockwork [illegible] Basalt [illegible]. 84'-4"-C, 89'-1'-C, 91'-6"-C, 92.6'-1'-C	78'-81.6' clay; A/Site Stockwork?; 84'-4"-C, 89'-1'-C, 91'-6"-C, 92.6'-1'-C	
92	90	✓ ? ✓ ✓ ✓ ? 2-3 2-3 1 ✓ ✓	92, D	→ A+B+C, 2-3 fracture along sulphide [illegible] (Stockwork + chlorophyre and fracture many gather sulphide [illegible] Sulphide Pyrrhotite)	chlorophyre, sulphide stockwork	
102	100	✓ ? ✓ ✓ ✓ 2-3 2-3 1-1.5 ✓		→ A+B+C+D, 2-3 fracture through sulphide calcite, at 107'-3' [illegible] [illegible] biotitization [illegible]	107'-3' [illegible] gouge clay; 114'-1' Andesite Blue color	
112	80	? ✓ ✓ ✓ 1 ✓		→ A+B+C+D, at 114'-1'2' core badly broken [illegible] A/Site D/C, 2-3 fracture at [illegible] calcite [illegible] biotitization.	(114'-2')	

HOLE NO. 97-5

DRILL LOG

DDH 97-5

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG 20 COMPLETED AUG. 22/97
LOGGED BY M. RIAZ

T.D. 352 FT
INCLINATION -90
COORDINATES 68140 E 23620 N
COLLAR ELEVATION
BEARING
SURVEY REFERENCES

← general silicification

Footage	Core Recovery	Quartz	Biotite	Chlorite	Epidote	G. Hde	S. Lite	Sulf Veins	Frac Inten	FeS2	AP	Sample No & Interval
122	98	✓	?	✓	?	✓	?	2-3	0.7-1	✓	✓	T12
132	98	✓		✓	✓	✓	✓	1-2	0.7-1	✓		
142	95	✓		✓	✓	✓	✓	1-2	1	✓		142
152	98	✓		✓	✓	✓	?	1-2	1	✓		152
162	98	✓		✓	✓	✓	✓	Few	0.5-1	✓		
172	85	✓		✓	✓	✓	?	Few	0.5-1	✓		

LOG — BASIC GEOLOGY:

B+&+D, highly altered greenish Bluish/Blackish F/G Bedded, highly [illegible] silicified 121-125' (122.6'-2½-C)
125-132 F/G intermediate color Diorite but at few places greenish-brownish laminated/bedded [illegible] 2' [illegible]

B+D, 132-133.6' Diorite [illegible] with greenish color [illegible] greenish color + chlorite/andesite veinlets contain [illegible] at 2-3 places laminated/bedding with sulphide [illegible] at 140-2½-C (bedding greenish, grey[illegible])

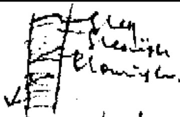
B+D, 142'-142.5' greenish As. Diorite with laminated chlorite/andesite veinlets [illegible] 144'-146' greenish Diorite with 144.5' 150.1 greyish/Blackish D/A? all other is Blackish andesite. 2-3 FL [illegible]

B+D, 152.6'-157' Blackish grey m/G Andesite, 157-162 Blackish greenish F/G [illegible] Andesite & Cal/F/lines

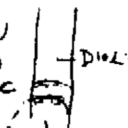
B+D, cp [illegible], few fractures [illegible] clayey seams at cal/Chy F/lines [illegible] All is Blackish & greenish color Andesite

B+D, green with Blackish andesite with [illegible] lamination/bedding at 172-174 color [illegible] through cal/mat. [illegible] through cal/mat. At 176.2', [illegible]

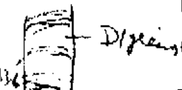
LITHOLOGIC DESCRIPTIONS, NOTES & SKETCHES:



(121'-125') (may be [illegible])



122.6-2½-C
(125-132') Diorite

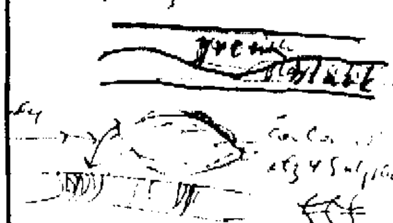


132-133.6

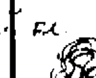
-140-2½-C (greenish [illegible])

(142-142.5 S/D
144-146 " "
148.5-150 greyish D

150-176' Andesite [illegible] [illegible] patches [illegible] other is blackish [illegible] with



at 176-2'



HOLE NO. 97-5

DRILL LOG

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DDH 97-5

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG. 20 COMPLETED AUG. 22/97
LOGGED BY M. RIAZ

T.D. 352 FT. COLLAR ELEVATION
INCLINATION -90 BEARING
COORDINATES 68140 E 23620 N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Surf Veins	Frac Intens	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2	Cu2FeS4	Fe2O3	MoS2	MP	Sample No & Interval
182	95		?			?		X	X			?					1.5		X					
192	90					X		X	X								1		X					
202	95					?		X	X								2		X					
212	98							X	X								2.5							
222	88					?		X	X								0.5		X					
232	100					?		X	X						?		0.5		X					

E
F
G
H

AS ABOVE

↑ minor qtz veining.

↓

} qtz veinlets ± pyrite & chlorite sphalerite ?

@ 185 – 2½' DIORITE

- ALTERED & ALTERED F/G

felsite → dike?

@ 212' - 1' wide diorite dike →

@ 231' - 1' sec containing brown mineral, possibly hydrothermal biotite

BX

Andesite

HOLE NO. 97-55 **DRILL LOG**

DDH 97-5

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG 20 COMPLETED AUG 22/97
LOGGED BY M. RIAZ

T.D. 352 FT
INCLINATION -90
COORDINATES 68140 E 23620 N
SURVEY REFERENCES

COLLAR ELEVATION
BEARING

Footage	Core Recovery	Oxide	Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	Sulf Veins	Frac Inten	Est Cu Mo	CP CuFeS2	P FeS2	BN Cu5FeS4	MT Fe3O4	M. MoS2	AP	Sample No. & Interval
242	98		x			?		x	x										x					
252	92		x			?		x	x										x					
262	98		x					x	x								0.3		x					
272	98		x			?		x	x									0.5	x					
282	92		x			?		x	x								2-3	0.5	x					
292	100		x			?		x	x			?					2-3	0.5	x					

LOG SCALE 1 small div = 1'
BASIC GEOLOGY: rock types, metallization, structures alterations, one column system

AS ABOVE ↑

mid-green mainly massive andesitic flows

some secondary silicification throughout hole

moderately pyritic with typical greenschist chlorite/epidote alteration obscuring texture ↓

LITHOLOGIC DESCRIPTIONS, NOTES & SKETCHES

qtz sulphide veinlets

auto brecciation with flow.

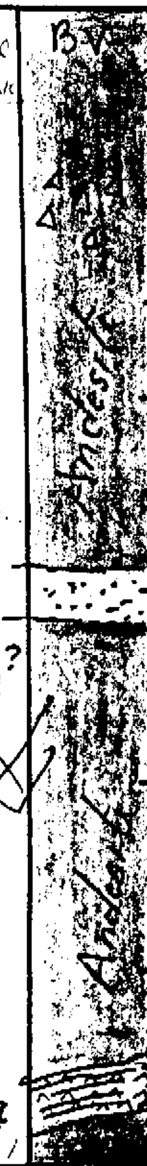
at 269.6 – 2½" ... contact

xt. tuff? layer on flow boundary? →

secondary fractures

?295' – 2½" pyritic felsite dike →

ROCK UNIT



HOLE NO. 97-5 **DRILL LOG**

DDH 97-5

PROJECT KNOB - HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG. 20 COMPLETED AUG. 22/97
LOGGED BY M. RIAZ

T.D. 352 FT
INCLINATION -90
COORDINATES 68140 E 23620 N
SURVEY REFERENCES

COLLAR ELEVATION
BEARING

Footage	Core Recovery	Biotite	Chlorite	Epidote	Pyroxene	Pyrite	Frac Inten	FeS_2
302								
	95	?	x	x	?	x	2-3	v
312								
	75	?	x	x	?	x	2-3	v
322								
	55	?	x	x		x		x
332								
	55		x	x		x	.5	x
342								
	98		x	x		x		
352								
360								

LOG SCALE (small box = 1')
BASIC GEOLOGY: rock types, metallization, structures, alterations, one column system

AS ABOVE

Typical BV

mod fractured in vicinity of narrow fault → minor hydrothermal bleaching

Section somewhat more coarsely porphyritic than normal B.V.

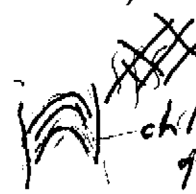
LITHOLOGIC DESCRIPTIONS, NOTES & SKETCHES

AS ABOVE

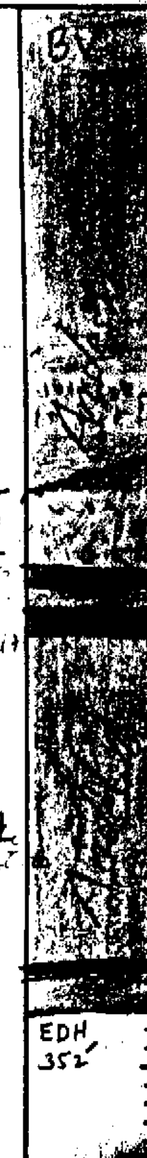
@ 319-3' highly ϕ section with pale green phenos

325-329 - bleached

minor clay assoc with faulting
clay + carbonate



ROCK UNIT



HOLE NO. 97-6 **DRILL LOG** Page 11 of 12

DDH 97-6

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG 22 COMPLETED AUG. 27/97
LOGGED BY M. RIAZ

T.D. 712 COLLAR ELEVATION
INCLINATION -90 BEARING
COORDINATES 68435 E 23260 N
SURVEY REFERENCES MAP-SHEET 102I 080

Footage | Core Recovery | Oxide | ALTERATION: Quartz, Sericite, Clay/Pyrop, Biotite, K-spar, Chlorite, Epidote, Carb Zeo, Garnet, Pyroxene, Amphibole, Wollastonite, Py-ite, S (%) | STR.: Sulf Veins, Frac Intens | VISUAL EST.: Est Cu Mo, CP, DisFeS2, P, FeS2, BN, CuFeS2, MT, Fe3O4, M-mite, MoS2, AF | Sample No. & Interval | LOG SCALE 1 Small Div = 1' BASIC GEOLOGY: rock types, metallization, structures alterations, ore column system | LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES | ROCK UNIT

Shear Zone & Broken Core = SSSS, ≡≡≡ Fault & F/Zone —·—·— Qtz Diorite Rhyolite Andesite Porphyritic NP Andesitic Tuff

Note = All measured angles are ⊥ to the core axis

Typical med. green Bonanza ± porphyritic texture variable over 10' sections moderately fractured

mod. fracturing

SSSS

→ 3 F.S.-1' basaltic tuff horizon →

SSSS

casing

ANDESITE

HOLE NO. 4 6 DRILL LOG Page 1 of 2

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG. 22 COMPLETED AUG. 27/97
LOGGED BY

T.D. 712 COLLAR ELEVATION
INCLINATION -90 BEARING
COORDINATES 68435 E 23260 N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Calc Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Surf Veins	Frac Intsn	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2	CuFeS2	Fe2O3	MoS2	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
62																								AS ABOVE		BV
	30		X		X			X	X							high								highly fractured clay alter. on fract. surfaces		
72																										
	80		X		?	?		X	X							high										
82																										
								X	X																	
90			X													mod								mod. fractured serpenized in part.		
92								X	X																	
100			X					X	X																	
102																mod								chlorite/ epidote alteration	Shear 70	
	98		X					X	X																	
								X	X																	
112																mod										ANDESITE
	95							X	X																	

HOLE NO. 97-6 **DRILL LOG** Page 3 of 12

PROJECT KNOB HILL T.D. 712 Ft COLLAR ELEVATION _____

CONTRACTOR OLYMPIC DRILLING INCLINATION -90 BEARING _____

DATE STARTED AUG. 22 COMPLETED AUG. 27/97 COORDINATES 68435 E 2326 DW

LOGGED BY M. RIAZ SURVEY REFERENCES _____

Footage	Core Recovery	Oxide	ALTERATION (serpentinite) Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite			STR. Suit Veins	Frac Inten	VISUAL EST. Est Cu Mo	Cu-FeS$_2$	Fe$_2$S	Cu-FeS$_2$	Fe$_2$O$_3$	Mo-S$_2$		Sample No & Interval	LOG SCALE (Small Diwt) BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
122																											sulphides in fracturer with qtz & epidote	IN GENERAL BLACK TO DARK GREEN MASSIVE TO BRECCIATED PORPHYRITIC IN PART ANDESITE FLOWS & TUFFS	BV ANDESITE
132	95	X	X				X	X									few	X	X									
142	98	X	X				X	X									2-3	X	X								@ 133.5' 8" felsite dike	
152	100	X	X				X	X									2-3	X	X								Minor blebs of sphalerite	
162	80	X	X				X	X									2-3	X	X								qtz veinlets	
172	100	X	X				X	X									few 0-7	X	X								fractures with qtz - epidote	
	98	X	X				X	X									few 1	X	X								pyrite - pyrrhotite ± sphalerite	

HOLE NO. 97-6

DRILL LOG

Page 4 of 12

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG. 22 COMPLETED AUG. 27/97
LOGGED BY M. RIAZ

T.D. 712 Ft
INCLINATION -90
COORDINATES 68435 E 23260 N

COLLAR ELEVATION
BEARING
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION (scapolitization) Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	Py. Ete	S. Alt	STR. Stwf Veins	Frac Inten	VISUAL EST. Est. Cu. Mo	CuFeS2	P Feld.	BN CuFeS2	MT Fe3O4	M-Pyrite MoS2	AP	Sample No & Interval	LOG SCALE 1 small DW = 1 BASIC GEOLOGY: rock types, metallization, structures alterations, ore column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
182																											Typical BV andesite - lt. med green massive to porphyritic ↓	fractures ± qtz veinlets 2-3" wide at 190.5' - Zn5? qtz epidote veinlets 2-3cm qtz epidote veinlets ± chloritization → ch. 112-5' again Phos A/S pyrite - pyrrhotite ± sphalerite shear 3mm	BV
192	100		X					X	X								2-3			X	X								
202	100		X					X	X								2-3			X	X								
212	98		X					X	X								?			X	X								
222	95		X					X	X											X	X								
232	98		X					X	X								?			X	X								
	80		X					X	X								?			X	X								

HOLE NO. 97-6

DRILL LOG

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG. 22 COMPLETED AUG. 27/97
LOGGED BY M. RIAZ

T.D. 712 Ft.
INCLINATION -90
COORDINATES 68435 E 23260 N

COLLAR ELEVATION
BEARING
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	Py %	S. %	STR.: Surf Veins	Frac Inten	VISUAL EST.: Est Cu Mo	$CuFeS_2$ P	FeS_2 P	$CuFeS_2$ Fr	Fe_2O_3	MoS_2	AP	Sample No. & Interval	LOG SCALE 1 Small Div = 1' BASIC GEOLOGY: rock types, mineralization, structure alterations, ore column system	LITHOLOGIC DESCRIPTIONS, NOTES & SKETCHES	ROCK UNIT
242																													
	40		Y				?	X	Y											X	Y								
252																													
	30		Y					X	Y											X	X								
262																													
	40		X					X	Y											X	X								
272			X																										
			X																	X	X								
	95		X					X	X																				
			X																	X	X								
282																													
	70		Y					X	Y											X	X								
292																													
	85		Y					X	X											X	X								
			X																										
302																													

As above. And. + mod. epidote/carb. alt.

badly fractured

↓

silicification ± epidote and clay on fracture surfaces

qtz healed fractures in part

Rx massive to porphyritic over ≈ 10' ± 5' intervals

HOLE NO. 97-6 **DRILL LOG** Page 6 of 12

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG. 22 COMPLETED AUG. 27/97
LOGGED BY M. RIAZ

T.D. 712 Ft. COLLAR ELEVATION
INCLINATION -90 BEARING
COORDINATES 68 435 E 23260 N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION (serpentinite) Quartz	Sericite	Clay/Prop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	Py tr%	S. tr%	STR. Sulf Veins	Frac Inten	VISUAL EST. Est Cu Mo	Cu-FeS2	Fe S2	Cu-FeS2	Fe2O3	MoS2	AP	Sample No & Interval	LOG SCALE 1 Small Div = 1' BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
302																													
	95		X		?			X	X		?							high		X	X								
312								X	X																				
	90		X					X	X		?							mod		X	X								
322																													
	95		X					X	X									11-12		X	X								
332																				X	X								
	95		X															9-10		X	X								
342								Y	Y																				
	98		Y					X	X									10											
352								X																					
	95		X					Y										12		A		X							

as above with characteristic qtz-chlorite-epidote alteration throughout

overall med. green but lighter color with increasing epidote content

mod. fracture density 5-6 @ 45-60° to core axis - some ±0°

fractures mainly @ 80° to core axis

HOLE NO. 97-6

DRILL LOG

PROJECT: KNOB HILL
CONTRACTOR: OLYMPIC DRILLING
DATE STARTED: AUG. 22 COMPLETED: AUG. 27/97
LOGGED BY: M. RIAZ

T.D.: 712 Ft
INCLINATION: -90
COORDINATES: 68435 E 23260 N
SURVEY REFERENCES:
COLLAR ELEVATION:
BEARING:

Footage	Core Recovery	LOG — BASIC GEOLOGY: rock types, metalization, structures, alterations, one column system (SCALE: 1 Small Div = 1')	LITHOLOGIC DESCRIPTIONS, NOTES & SKETCHES	ROCK UNIT
362	90	A(P+IP), C, F, G, highly fractured core, broken core through cal, many cal/F/lines cutting core 45 — 50°	→ 3-4 Ft 30-45°, 3/4 — 60°; 2-3, 1 cm cal 90°	B.V
372	98	A(P+IP)(D/cal), BC, many fractures through cal & epidote mat, many cal F/lines steeply 80°/70°	8 — 30-45°, 1 — 80/70°	
382		A, C, F, highly fractured through cal mat. Many cal/vlets low to steep angle. ~~qtz + chlorite bands generally~~ within fractures forming ~~cal mat~~	→ 13 Ft 45°, 7/8 — 60-80°	
392		Silicified light/grey color, badly fractured, broken, angled cal and clay mat 1 m — 3 cm. Cal/vein cutting the core all directions + F, many Fr/lines in all directions. F/zone. A 2 cm cal/vein 80° + 1/8 dia cal 80° cal.	A/S, alteration from albite, cal filling; wall + clay + fff	
402	95	A(P) B, C, G, highly fractured through cal mat	→ 7 Ft — 30-45°; 5 — 60°; 6 — 80°; max —	
412	90	A(P) B, C, G, many fractures through cal mat, many cal/vlets cutting core steeply.	3 — 0-10°; 6 — 80°; 5 → 30-45°	

HOLE NO. 97-6

DRILL LOG

Page 8 of 12

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG 22 COMPLETED AUG. 27/97
LOGGED BY M. RIAZ

T.D. 712 Ft.
INCLINATION -90
COORDINATES 68435 E 23260 N
COLLAR ELEVATION
BEARING
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION (serpentinite) Quartz	Sericite	Clay/Prop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	Bx etc	S /Lt	STR. Surf Veins	Frac Intens	VISUAL EST. Est Cu Mo	CuFeS2	FeS2	CuFeS2	Fe2O3	MoS2	AP	Sample No. & Interval	LOG SCALE (Small DIV = 1') BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
422																													
432																													
442																													
452																													
462																													
472																													
480																													

HOLE NO. 97-6 **DRILL LOG**

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG. 22 COMPLETED AUG. 27/97
LOGGED BY M. RIAZ

T.D. 712 Ft
INCLINATION -90
COORDINATES 68435 E 23260 N
SURVEY REFERENCES
COLLAR ELEVATION
BEARING

Footage	Core Recovery	Oxide	Quartz	Sericite	Clay/Pyrop	Stable (F)	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	Pg. wtz	S. wtz	Sulf Veins	Frac Inten	Est Cu Mo	CuFeS2 (cp)	FeS2 (P)	Cu5FeS4 (BN)	Fe3O4	MoS2	AP	Sample No. & Interval	LOG — SCALE (Small Div = 1') BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
482	100		✓					✓	✓						✓	✓		15	0.5 / 0.7	✓	✓						→ A(PH NP) F/G, C, F, D, many fractures Through Cal + Gouge [illegible] qtz cont up to 1cm many [illegible] Cal vlets/FR [illegible] Steeply 80° epidote [illegible] qtz + [illegible]	3 FR — 70–80; 9 — 45°; 3/4 — 10–30°	
492	90							✓								✓		14	0.5		✓						→ A(NC & NP) C, J, many fractures Through cal & qtz/cal [illegible] many chlorite/cal vlets steeply 80°	5 FR — 0–20°; 7 — 45–60°; 2/3 — 70°–80	
502	98		✓					✓	✓							✓		12	0.5	✓	✓						→ A(NP), B, C, D, Fractures along qtz & cal. many F/lines Cal & Gouge/chlorite [illegible] 80°	7 FRs — 10–30°; 3 — 45°; 2 — 60–70°	
512	100		✓					✓	✓							✓		13	0.3 / 0.5	✓	✓						→ A(NP), B, C, D, FRs Through Cal/mat, qtz + epidote filling in A/S many Gouge + Cal F/lines steep 80°	4 FRs — 60; 2 — 50–70°; 4 — 30; 3 — 0–10	
522	100		✓					✓	✓							✓		15	0.5 / 0.7	✓	✓						→ A(PH NP), C, D, F, qtz + epidote + chlorite with cheap board structure & vlets. F/lines steeply and calcite many qtz vlets (1mm) at diff directions	1 FR — 70°; 7 — 30; 6/7 — 0–20 (little fracture)	
532	95		✓					✓	✓						✓	✓		12	0.7	✓	✓						→ A/B Tuff + A, C + F, qtz vns with epidote & sulphide 1cm vn 60 with epidote + qtz. many qtz veinlets 60–80°, qtz contain Sulphide	½–1mm qtz vlets; + 530–540 A/B tuff; 3 FR — 45; 1 — 80; 9/9 — 10–30	

DRILL LOG

PROJECT: KNOB HILL
CONTRACTOR: OLYMPIC DRILLING
DATE STARTED: AUG. 22 COMPLETED: AUG. 27/97
LOGGED BY: M. RIAZ

T.D.: 712 Ft.
INCLINATION: -90
COORDINATES: 68435 E 23260 W
COLLAR ELEVATION:
BEARING:
SURVEY REFERENCES:

ALTERATION: serpentinite | STR. | VISUAL EST.

LOG — SCALE: 1 small div = 1'
BASIC GEOLOGY: rock types, metallization, structures alterations, one column system

Footage	Core Recovery	Frac Inten	Est Cu Mo	Sample No & Interval	Basic Geology	Lithologic Descriptions, Notes & Sketches	Rock Unit
542	98	13	0.7		A(NP), C, J, many qtz vlets diff angles 30–45 in all directions. Cal + chlorite F/lines steeply 80°	qtz vns. 3FR — 45°, 5/6 — 30°, 5 — 0–15°	B.X.
552	95	13	0.5–0.7		→ A(NP) D/color, B (broken pieces), C, A 4" qtz + epidote + cal filling vein crossing core 80° many qtz vns 30–60° Sody + cal F/lines steeply	3 FR — 80, 4 — 60, 6 — 10–30°	ANDESITE
562	98	16	.5		→ A(NP), C, F, A 8" qtz, calc epidote filled vn 80°, Few qtz + Sody F/lines 30°–60°, qtz vlets all directions. 1 Sody F/L 80°	7 FR — 45–60°, 3 — 80°, 6 — 10–20	
572	98	13	.3	K	→ A(P) C, G, J, (qtz filling phos... D/color NS) at 577' 4/color epidote cal qtz filled 3–4 cal filled F/lines 80° An 1½ cm qtz epidote chlorite vn 80°. Few other qtz vlets 1mm 60–80°	9 FRs — 45–65, 1 — 80°, 2/3 — 10–20.	
582	95		.3	L	→ A(P) with qtz clast ½ – 20 mm rectangular K, C, J, 2 F/lines 85° & 80° with sulphide 1½" lique with mus of 70°, 591' (A/Tuff D/color, micas) Cal + Sody F/lines steeply 80° qtz vltes in A/tuff in all directions	→ 3 FRs — 60°, 3 — 80°, 5/6 — 30–20	Start 591' A/Tuff
592	100		.2–.3	92	→ A L, C, F, 2/3 qtz epidote vns of 1–2 cm 60° with sulphide many F/lines cal + Sody + qtz all directions	7FR — 45°, 4 — 70–80°, 4/5 — 10–30	
602							

HOLE NO. 97-6

DRILL LOG

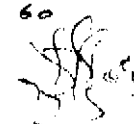
PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG. 22 COMPLETED AUG. 27/97
LOGGED BY M. RIAZ

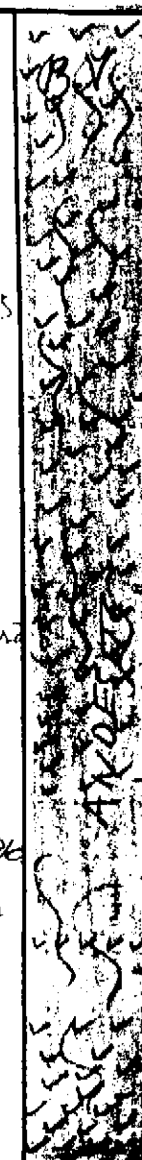
T.D. 712 FT
INCLINATION −90
COORDINATES 68435 E 23260 N
SURVEY REFERENCES

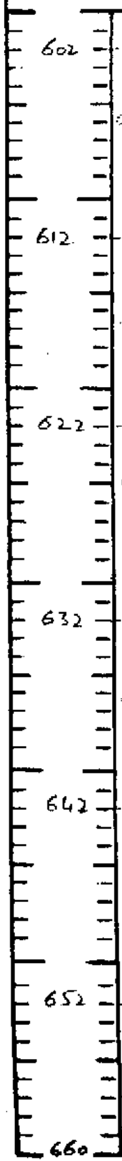
COLLAR ELEVATION
BEARING

LOG SCALE 1 small div = 1'
BASIC GEOLOGY: rock types, metalization, structures alterations, one column system

Footage	Core Recovery	Oxide	Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	Pyrite	S.lite	Surf Veins	Frac Inten	Est Cu Mo	CuFeS₂	FeS₂	Cu₅FeS₄	Fe₂O₃	MoS₂	AP	Sample No. & Interval	LOG	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
602	98		✓					✓	✓									12	.2	✓	✓						→ L, C, J, Highly F/lines Sody/chlorite, cal & qtz 30—80° & direction less	1 FR — 80°; 5 — 45-60; 7 — 10-30	
612	95		✓					✓	✓							✓		10	.2-.3	✓	✓						→ L, C, F, Cal, qtz veinlets & F/lines 60° and all directions	5 FRs — 60; 2 — 80°; 2/3 — 30	
622	98		✓					✓	✓									8	0.3								→ L, C, J, 1, 1-2 cm epidote & qtz vein with sulphide 70-80° Highly Sody, Cal & qtz F/lines 45°, 60° & 80°	3 FRs — 45°; 1 — 75; 3/4 — 10-30°	
632	98		✓					✓										6	0.3	✓	✓						→ L, C, J, along planes qtz epidote cal filled chopboard structure. qtz clasts & cm qtz, Cal & Sody F/lines 30, 45 & 80° and all directions	chopboard; 7 FRs — 70°-80°; 6 — 45°; 2/3 — 10-30	
642	98		✓					✓	✓							2		4/5	0.2	✓	✓						→ ACNP F/G & D/colors B, C, at 648' — 1' A/Tuff, qtz cal F/lines steeply 80° some qtz F/lines all directions	@ 641.5' A/S F/G D/C; @ 648' — 1' A/Tuff; 1 — FR — 60°; 3-4 — 10-28	
652	100		✓					✓	✓							1		12	0.1-.2	✓	✓						→ L + A, C, B, Cal, qtz & F/lines 70°, 45° & 80°, qtz Highly F/lines all directions. qtz epidote & cal filled chopboard structures	@ 653 → 653 A/Tuff; qtz FRs. 5 FRs — 70-90°; 3 — 30°; 3 — 45°	
660																													







HOLE NO. 97-6

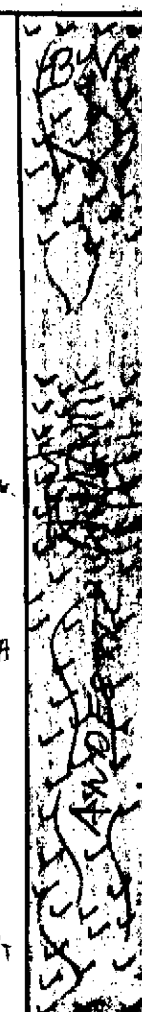
DRILL LOG

PROJECT: KNOB HILL
CONTRACTOR: OLYMPIC DRILLING
DATE STARTED: AUG. 22 COMPLETED: AUG. 27/97
LOGGED BY: M. RIAZ
T.D.: 712
INCLINATION: -90
COORDINATES: 68435 E 23260 N
COLLAR ELEVATION:
BEARING:
SURVEY REFERENCES:

Column headings: Footage | Core Recovery | Oxide | ALTERATION (serpentinite): Quartz, Sericite, Clay/Pyrop, Biotite, K-spar, Chlorite, Epidote, Carb Zeo, Garnet (SP), Pyroxene, Amphibole, Wollastonite, Py. stilb., S. ... | STR.: Sulf Veins, Frac Inten | VISUAL EST.: Est Cu Mo, $CuFeS_2$ (CP), FeS_2 (P), Cu_5FeS_4 (BN), Fe_3O_4 (MT), MoS_2 (M. ...), AP | Sample No. & Interval | LOG — SCALE 1 Small Div = 1′ — BASIC GEOLOGY: rock types, metallization, structures, alterations, one column system | LITHOLOGIC DESCRIPTIONS, NOTES & SKETCHES | ROCK UNIT

Footage	Core Recovery	Frac Inten	Visual Est.	Sample	Log / Basic Geology	Lithologic Descriptions, Notes & Sketches
662	90	12	.01 .02		→ L, C, B, 1(1/2 cm) Cal vn 60° qtz, cal F/lines 45°, 60° and all other Directions. Dark color banding at 0–10°	6 FRs — 70°; 4 — 90–45°; 2 — 0–10
672	98	13	.01 .02		→ A(F F/G), B, C, at 678′–682′ L, fill along cal + clay and qtz, epidote + chlorite making chromosphere structure. qtz cal F/lines 80°, 45°, 30°, qtz F/lines all directions	@ 678 — 4′ A/Tuff. 1 FR — 80°; 3 — 45; 6 — 30; 3/4 — 0–10. @ 682–692′ — VFG H/F A/Tuff. Fault — clays (anastom.)
682	80	Badly broken	.02		→ L, C, B, qtz F/L + filling, all directions, Badly broken core along Cool fault, sulfy + Cal (+ clay) F/lines	
692	90	Highly	.03	M	→ {L (VFG Hornfelsic A/Tuff) Highly D/C C, B with minor F/lines in all Directions} at 700′ — 2′ Phosphoritic A/Tuff. Highly Fractured through Cal mat. qtz vns (1 cm) mixed with other chlorite minerals 45°–60°.	@ 700′ — 2′ Phos/A/Tuff. 4–5 FRs 80°; 7–8 — 45–60; 3/4 — 20–30 other angles.
702	90	15	.02 .03		→ M, C, J, at 706′ — 2′ phosphoritic A/Tuff with minor F/lines 60–80° and all Directions, qtz F/lines, Clast up to 1/2 cm, Sulfy + Cal F/lines 45°–60° + 80 mostly Gs Through Calcite	@ 706′ — 2′ Phosph. A/T. 3 FRs — 80°; 7 — 45–60; 5/6 — 20–30
712 EOH						

ROCK UNIT:



EDH 712

HOLE NO. 97-7

DRILL LOG

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG 27 COMPLETED AUG. 29/97
LOGGED BY M. RIAZ

T.D. 382 FT.
INCLINATION -90
COORDINATES 68400 E 23180 N
SURVEY REFERENCES MAP-SHEET 102 I 080
COLLAR ELEVATION
BEARING

LOG SCALE 1 Small Div = 1'
BASIC GEOLOGY: rock types, metallization, structures, alterations, one column system

Legend: Shear zone & Broken core; Fault & F/zone; Hornfelsic silicified dyke; Diorite; QTZ-Diorite; Altered Diorite; Andesite

Footage	Core Recovery	Quartz	Biotite	Chlorite	Epidote	Garnet (SP)	Amphibole	S-lite	Frac Inten	Est Cu Mo	Cp	P
12–22	30	✓		✓	✓					0.1		✓
22–32	95	✓		✓	✓	✓	✓	✓	10	0.1-0.2	✓	✓
32–42	98	✓	?	✓	✓	✓		✓	8	.3	✓	✓
42–52	98	✓	?	✓	✓	✓		✓	12	0.3-0.5	✓	✓
52–60	95	✓	?	✓	✓	✓		✓	15	0.3-0.5	✓	✓

LOG / LITHOLOGIC DESCRIPTIONS, NOTES & SKETCHES

0 — 12' Casing

12' — 15' gravel, weathered rock fragments — 12'–15'

A → (Light to dark color) FG Andesite (Diorite))
Non bleached & bleached, magnetic qtz, cal & epidote filling.)

B → Chlorite & qtz veins 60°. (Sulphide disseminated and along qtz veinlets & F/lines
Broken core.)

Up to 27' silicified HF Dyke

C → (Silicified? Hornfelsic — dyke with qtz generation through epidote (calcite & calcite) & diorite clasts + qtz veinlets (biotite)

[G] → C, A (started 27') many qtz veins with epidote 60° & 80° 45°, many cal F/lines

1 FR — 60°
5 — 45
4 — 20–30
@ 27'–36' – A
@ 38'–45' D

D → A, B, (at 38' light color FG Diorite with cal epidote & qtz filling & bleaching.) many qtz veins F/lines 30°, 60°, 45° & 50°. (Dark black color mafic mineral maybe serpentinite)

E

F — (Brownish color maybe Biotite?)

5 FRS — 30°
1 — 45
3/4 — 10–20

→ D, at 45' A started, B, E, F, G, many qtz veins & F/lines 30°, 60°, 80°, contain sulphide in blebs & lines

→ at 45' – A started
7 FR — 20°–30°
2 — 80°
3 — 45

→ A, B, G, E, F, qtz veins & F/lines, V.High 30°, 60°, 45°, some 80°

6 FRS — 45°–60°
9/9 — 20°–30°

ROCK UNIT

Casing (0–12')
B.V
A

HOLE NO. 97-7

DRILL LOG

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG. 27 COMPLETED AUG. 29/97
LOGGED BY ~~OLYMPIC DRILLING~~ M. RIAZ

T.D. 382
INCLINATION -90
COORDINATES 68400 E 23180 N
SURVEY REFERENCES

COLLAR ELEVATION
BEARING

LOG SCALE 1 small Div = 1'
BASIC GEOLOGY: rock types, metallization, structures alterations, one column system

Footage	Core Recovery	Oxide	Quartz	Sericite	Clay/Pymp	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet / Sp	Pyroxene	Amphibole	Wollastonite	Py tite	S. lite	Sulf Veins	Frac Inten	Est Cu Mo	CP CuFeS2	P FeS2	BN Cu5FeS4	MT Fe3O4	MoS2	AP	Sample No. & Interval	LOG: BASIC GEOLOGY	LITHOLOGIC DESCRIPTIONS, NOTES & SKETCHES	ROCK UNIT
62	95		✓			✓		✓	✓		✓				✓	✓		17	0.5	✓	✓						A (Phosphoritic), B, C, G, E, F Highly qtz veins & bedding with epidote, chlorite + biotite. 45–60° cal veinlets + filling clast	qtz, chlorite, biotite, epidote; 6 FRs — 45–60°; 8 — 20–30°; 31 — 0–10	ANDESITE MASSIVE TO BRECCIATED
72	98		✓			✓		✓	✓		✓				✓	✓		10	0.5	✓	✓						A, B, G, E, F, 1–2 cm qtz veinlets 30–45° with bedding of chlorite, epidote few qtz + cal filling vllets.	4 FRs — 45°; 5 — 30°; 1 — 80°; 3 — 10°	
82	98	?	✓			✓		✓	✓		✓				✓	✓		10	0.7–1	✓	✓					H	A, B, G, E, F, Highly qtz generations in bedding 2–12 cm vns Through epidote, chlorite & cal 45–60 & 80. Some cal vllets 60–75 & Sody filled (Red blood may be hematite)	1 FR — 85°; 1 — 45; 3/4 — 10–20	
92	98	?	✓			✓		✓	✓		✓				✓	✓			.5	✓	✓						A, B, G, E, F, H, one 1/2 cm Sulphide vllet 85°. qtz + cal, Sody vns & F/lines 45°, 60, 80° and other angles qtz veins High through epidote Sody/Chlorite & cal filling.	2 FRs — 80°; 2 — 85°; 2 — 45; 5 — 20°	
102	100		✓			(		✓	✓		✓				✓	✓		10	13	✓	✓						A (Phosphoritic), B, G, E, F Highly qtz generation with major epidote & chlorite qtz veins in 60°, 45°, 30°, 80 and cal, Sody F/lines crossing all directions Calcite & epidote filling.	3 FRs — 45; 7/8 — 0–15°	
112	98		✓			✓		✓	✓		✓				✓	✓			1–1.5	✓	✓						A, B, G, E, F one 1 cm (at 116') Sulphide vns 70–80°, Highly altered epidote & qtz generation; epid matrix, qtz, Cal & Sody F/lines & vllets 30, 45, 60 & 80, More weathered/alteration	Sulphide vn; 1 FR — 80° at (116'); 4 — 45–60; 9 — 10–20°	
120																													

DRILL LOG

HOLE NO. 97-7

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG. 27 COMPLETED AUG. 29/97
LOGGED BY M RIAZ

T.D. 382 FT.
INCLINATION -90
COORDINATES 68400 E 23180 N
SURVEY REFERENCES
COLLAR ELEVATION
BEARING

LOG SCALE 1 small Div = 1'

Footage	Core Recovery	Quartz	Biotite	Chlorite	Epidote	Garnet	Py.tite	S.kite	Frac Inten	Est Cu Mo	CuFeS2	FeS2	BASIC GEOLOGY	LITHOLOGIC DESCRIPTIONS, NOTES & SKETCHES	ROCK UNIT
122	98	✓	✓	✓	✓	✓	✓	✓	12	13-15	✓	✓	→ A, B, G, E, F, 2" biotite qtz epidote vn 20°, qtz vns, cal [illegible] chlorite vns & F/lines 30°, 45°, 60°, 80 and randomly, epidote & cal filling. all FRs 10–20°	@122.5'  biotite, qtz epidote	B.V.
132	95								12	.2			→ A, B, G, F, F, [illegible] fracture hematite (red blood), cal qtz vn, High 2-1 cm thick cal vns 80–85°. qtz, cal & [illegible] F/lines 80°, 60°, 45° & 30. qtz [illegible] 2 cm in epidote	3 FR – 80°; 3 — 45–60°; 4/5 — 10–20°	ANDESITE
142	85	✓		✓	✓			✓	10	0.1	✓	✓	→ A, B, G, E, epidote & calcite filling, many qtz vlets 10, 30°, 45°, 60° & 80°, F/lines steeply at 147–150' c type, fractures & core broken through cal & clay mat maybe local fault. 1½" qtz epidote vn 30°	147'–150' – c; clay & epidote; 150–155' altered dike; 3 FRS — 45°; 5 — 10–15°	
152	98	✓		✓	✓				15	½	✓	✓	→ A, B, G, E, but 150'–155' altered dike ½–2 cm, 2 cal vns 60° & 80° FR through cal, qtz vns 60° & 45°, 30°	3 FRS — 80°; 6 — 45°–60°; 6 — 20°–30°	
162	98	✓			✓		✓	✓	10	.5	✓	✓	→ A (B/Black), B, G, E, 0.1–3 cm qtz/cal & epidote vns 45°–60°, 1 cm cal vn FR 80°, other qtz cal & epidote vnlets randomly.	2 FRS — 70–80°; 2 — 45°; 5 — 10–20°	
172	100	✓	✓	✓	✓		✓	✓	15	.5 .7	✓	✓	→ A, B, E, F, G, High alteration through chlorite biotite & epidote & thin vns 10°–45° qtz & cal filling	3 FRS — 45°; 1 — 80; 9 — 20–30; 2 — 10;  chlorite, epidote, qtz & cal, biotite vns.	ANDESITE
180															

DRILL LOG

HOLE NO. 97-7

PROJECT: KNOB HILL
CONTRACTOR: OLYMPIC DRILLING
DATE STARTED: AUG. 27 COMPLETED: AUG. 29/97
LOGGED BY: M. RIAZ

T.D.: 382 FT
INCLINATION: -90
COORDINATES: 68400 E 23180 N
COLLAR ELEVATION:
BEARING:
SURVEY REFERENCES:

Footage	Core Recovery	Oxide	Quartz	Biotite	Chlorite	Epidote	Garnet	Pg.tite	S.lite	Frac Inten	Est Cu Mo	$CuFeS_2$	FeS_2	Sample No & Interval
182–192	98		✓		✓	✓	✓		✓	10	0.3	✓	✓	J
192–202	98	✓	✓		✓		✓	✓	✓	11	0.5	✓	✓	
202–212	95			✓	✓	✓	✓	✓	✓	8	0.5 / 0.7	✓	✓	J
212–222	95		✓	✓	✓	✓	✓	✓	✓	15	.7 / 1	✓	✓	J
222–232	95		✓	✓	✓			✓	✓	14	0.7	✓	✓	
232–242	100		✓	✓	✓	✓	✓		✓	12	1.1 / 1.2	✓	✓	K

LOG SCALE: 1 Small Div = 1'

BASIC GEOLOGY:

→ A (light color) B, E, F, G, epidote + chlorite with slight qtz vns & filling through the calcite, qtz, Sody Cal F/Lines 10,3 → 45° and 80°.

192' (B, E, F) 232' Diorite, F/G light color with Highly altered epidote, chloritization Cal, Sody/chloritization & qtz veins at all Direction & 10°, 30°, 45°, 60°, 80°
203–213' – 2" qtz epidote + chlorite vn 30°.
at 217' – 1 cm sulphide vn 80° FL with cal
227' – 1 cm cal vn 80° FLS almost through calc qtz.
192' – ½–1 cm sulphide vn)

→ J

→ J

232'–238'
→ A, B, E, F, but at 238' a 2½" qtz/chlorite/biotite–epidote vn 60° separate A/S+(qtz Diorite (D type) qtz 1 mm – ½ cm clast filling many qtz chlorite – epidote & cal filling vns & FLS/Lines 30, 60°, 80°!

LITHOLOGIC DESCRIPTIONS, NOTES & SKETCHES:

3 FR — 60°
4/5 — 60°
2 — 30

192–232' Diorite

4 FR — 80°
6 — 20–30°

sulphide at 217' ½–1 cm vn

5 FRS — 30
3/4 — 10

→ 1 FR — 85
1 — 75
6 — 45
7 — 0–15

1 FR — 75°
2 — 45–60°
10 — 10–20

A — 232'–238'–A
B — 238'–262' qtz Di[illegible]

1 FR — 60
8 — 30–45
2 — 0–15

ROCK UNIT: A

DD Hole 97-7

HOLE NO. 97-7

DRILL LOG

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG. 27 COMPLETED AUG. 29/97
LOGGED BY M. RIAZ

T.D. 382 Ft.
INCLINATION -90
COORDINATES 68400 E 23180 N
COLLAR ELEVATION
BEARING
SURVEY REFERENCES

LOG SCALE 1 Small DIV = 1'
BASIC GEOLOGY: rock types, metallization, structures alterations, one column system

Footage	Core Recovery	Oxide	Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet SP	Pyroxene	Amphibole	Wollastonite	Py-tite	S-tite	Sulf Veins	Frac Inten	Est Cu Mo	Cp CuFeS$_2$	P FeS$_2$	BN Cu_5FeS_4	MT Fe_3O_4	M. tite MoS_2	AP	Sample No. & Interval	Log	Lithologic Descriptions, Notes & Sketches	Rock Unit
242–252	95		✓					✓	✓		✓							9	0.2	✓	✓					42	→ up to 263 – K type. at 256'–1' A/site. Many chlorite – qtz + epidote F/lines 30, 45°, 68 and 80°. FRs along calcite + B, E, F	— 256'–1' A/S. 3 FRs — 10–20°; 4 — 30–45°. [sketch: qtz-epidote chlorite-biotite vns]	
252–262	98		✓			✓		✓	✓									11	0.2	✓	✓					52	→ K type + B, E, F, A 2" qtz-epidote-biotite & chlorite bedded vn 45°. cp in vns + broken faces F/lines. Some chlorite, cal & epidote filled 30, 60°, 45° & 80°, few gls along cal.	2 FR — 70–80; 1 — 45; 8 — 10–20°	
262–272	95	?	✓			✓		✓	✓		✓				✓	✓		11	.05	✓	✓				?	62	→ From 263'– A, B, E, F, But Highly altered through biotite. qtz-epidote + calcite filling 2 big FRs through cal & clay mat. qtz, cal, chlorite F/lines High randomly & 30, 60°, 45°, High 80°	1 FR — 80; 3 — 45; 5 — 30°; 7 — 10–20°	
272–282	98		✓			?	✓	✓	✓		✓					✓		11	.03	✓	✓					272	→ A, B, F, F, at 280'6" Dyke of Highly altered Q/Diorite epidote qtz ½ cm – 3 cm & flame like lenticular structure. Pinkish cleaning color High w/ epidote chlorite & qtz vns, FRs randomly 60, 30, 80	[sketch: qtz] 10 FRs — 10–30°	
282–292	100		✓			✓		✓							✓	✓		13	.2 .5	✓	✓					82	→ A, B, E, F, A 6" qtz Dr int. qtz ½ – few clast. Some qtz epidote filled vns. F/lines Sody 10, 20, 30, 45, 60, 80° & randomly	7 FRs — 20; 1 — 45; 2 — 60; 3 — 0–10	
292–300	95		✓			✓		✓	✓						✓	✓		13	.5	✓	✓					92	→ A, B, E, F, and at 298'–1' Q/Diorite F/G. 5/6 qtz & epidote-chlorite ½ – 2 cm Ø vns 45 – 68, Some F/lines & veinlets all directions	✱ 298'–1' Q/Dio F/G. 4 FRs — 95°; 5 — 30°; 4 — 10–15	Andesite

Alteration: serpentinite

HOLE NO. 97-7 **DRILL LOG** Page 6 of 7

H 97-1

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG. 27 COMPLETED AUG. 29/97
LOGGED BY M. RIAZ

T.D. 382 Ft. COLLAR ELEVATION
INCLINATION -90 BEARING
COORDINATES 68400 E 23180 N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION (separate) Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	Py tr	S. tr	STR. Surf Veins	Frac Intens	VISUAL EST. Est. Cu Mo	CP Cu-FeS2	P FeS2	BN Cu-FeS2	MT Fe3O4	MS MoS2	AP	Sample No & Interval	LOG SCALE 1 Small Div = 1' BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
302								x	x									9		x	x						AS ABOVE	4 @ 45° 5 @ 20°	
	98		x			?	?																				med green massive to porphyritic (& amygdaloidal) Andesite mainly massive fine to med. grained.		
312								x	x									7		x	x								
	98		x			x	?																						
								x	x																				
322																												5- @ 35° 1- @ 60° 5/8 @ 10-20°	
	92		x			x	?											12			x							fracturing 4 @ 30° 3 @ 45-60° 2/3 @ 10°	
332								x	x																				
	100		x			x		x	x									8		x	x								
								x	x																				
342																												3 @ 70-80° 1 @ 45 3 @ 10-20°	
	98		x			?		x	x									7		x	x								
																												DIORITE → 2 @ 80° 2 @ 30° 3 @ 60° 3 @ 10°	
352																											L & M type @ 355'		
	95		x			?		x	x									10		x	x								
362																													

Andesite

HOLE NO. 97-7

DRILL LOG

Page 7 of 7

DDH 97-7

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG. 27 COMPLETED AUG 29/97
LOGGED BY M. RIAZ

T.D. 382 FT. COLLAR ELEVATION
INCLINATION -90 BEARING
COORDINATES 68400E 23180N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyop	Biotite	K-spar	Chlorite	Epidote	Calc Sil	Garnet (Serpentinite)	Pyroxene	Amphibole	Wollastonite	Py. blb	S. Mk	STR.: Stlf Veins	Frac Inten	VISUAL EST.: Est Cu Mo	CuFeS2	P	FeS2	Cu2FeS2	Fe3O4	MoS2	AP	Sample No & Interval
362																											
	98		X			7		X	X							—		9		X	X						
372																											
	92							X										20			X						
382																											

LOG
SCALE 1 Small Div = 1'
BASIC GEOLOGY:
rock types, metallization, structures alterations, one column system

AS ABOVE

Fractured diorite

LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES

2 @ 70-80°
5 @ 30-45°
2 @ ~15°

@ 375-385' Diorite

Fractures:
5 @ 70-75°
4 @ 50°
8 @ 30°
3 @ 20°

ROCK UNIT

A

EOH 382'

HOLE NO. 97-8 **DRILL LOG** Page 1 of 3

DDH 97-8

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED AUG 29 COMPLETED AUG 31/97
LOGGED BY M. RIAZ

T.D. 182 FT COLLAR ELEVATION
INCLINATION -90 BEARING
COORDINATES 68330 E 23260 N
SURVEY REFERENCES MAP-SHEET 102I 080

Footage	Core Recovery	Oxide	ALTERATION (comp. dia. %) Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR. Surf Veins	Frac Intens	VISUAL EST. Est Cu Mo	CuFeS2	FeS2	Cu2FeS3	Fe3O4	MoS2		Sample No & Interval	LOG SCALE 1 small div = 1' BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
5																										CASING	
12																											
25			Y					X	Y							6	0-1		X						Med. grained grey to light green dinite ↓ massive to porphyritic, relatively unaltered and possibly later dike unit.	numerous dry fractures predominately 45° to core axis but ranging from 40 - 80°	BROKEN DIORITE DIKE(?)
22																											
50			Y		?			X	X							25	1-5		Y								
32																											
80/85			Y					Y	Y								1-5		Y								
42																											
85			Y					X	Y							25	0-3		Y								
53																											
90			X					X	X							30	0-2		X								
60																											

HOLE NO. 97-8 **DRILL LOG** Page 2 of 3

DDH 97-8

PROJECT KNOB HILL T.D. 180 FT COLLAR ELEVATION
CONTRACTOR OLYMPIC DRILLING INCLINATION -45 90 BEARING 090
DATE STARTED AUG. 29 COMPLETED AUG. 31/97 COORDINATES 68660 E 23380 N
LOGGED BY M. RIAZ SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Intsn	VISUAL EST.: Est Cu Mo	Cu$_2$S, CuFeS$_2$	FeS$_2$	Cu$_2$FeS$_2$	Fe$_2$O$_3$	MoS$_2$	Sample No & Interval	LOG: SCALE 1 small Div = 1' BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
62	98		X		?			X	X							15								As above		
72	98		X			?			X	X						19								General weak chlorite - epidote alteration ± minor silicification		
82	80		X			?		X	X							17										
92	98		X			?		X	X							16										
102	98									X														ϕ DIORITE Med grey. Plag pheno to ≤ 5mm, equigranular 30%, mafic phenos 10% with similar size distribution	Occasional calcite veinlets ∠ 010-080° ≤ 1mm wide → no sulphides (massive unaltered homogeneous ϕ dike rock)	DIORITE DIKE (?)
112										X																
										X																

HOLE NO. 97-8

DRILL LOG

Page 3 of 3

DDH 97-8

PROJECT KNOB HILL

CONTRACTOR OLYMPIC DRILLING

DATE STARTED AUG. 29 COMPLETED AUG. 31/97

LOGGED BY MR → D.G.L.

T.D. ~~+80 FT~~ 182

INCLINATION ~~-45~~ -90 BEARING ~~090~~

COORDINATES

SURVEY REFERENCES

COLLAR ELEVATION

Footage	Core Recovery	Oxide	ALTERATION (Supergene) Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	Py		STR. Surf Veins	Frac Intgn	VISUAL EST. Est Cu Mo	$CuFeS_2$	FeS_2	Cu_2FeS_3	Fe_2O_3	MoS_2		Sample No & Interval	LOG SCALE 1small Div = 1' BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
120																												
122	98																									AS ABOVE	SAME BORING GREY GREEN DIKE ↓ FRESH	DIORITE DIKE(?)
132	98																											
142	98																											
152	98																										TALKY IN PART ~ BLOCKY SECTION FAULT SUB-PARALLEL CORE AXIS (SOME CLAY) ~ FRESH DIORITE DIKE	
162	85																											
172	93																										E.O.H 182'	
180																												

HOLE NO. 97 9

DRILL LOG

DDH 97 9

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED SEP 10 COMPLETED SEP 13/97
LOGGED BY D. LEIGHTON

T.D. 420 FT
INCLINATION -90
COORDINATES 68 660 E 23,380 N
SURVEY REFERENCES MAP-SHEET 102I 080

COLLAR ELEVATION
BEARING —

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Prop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Surf Veins	Frac Inten	VISUAL EST.: Est Cu Mo	$CuFeS_2$	FeS_2	Cu_2FeS_3	Fe_2O_3	MoS_2	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
20																			X					← START RHYOLITE BX. CLASTS > 3 cm RARE, OCC SUB-ROUNDED CLOTS OF DARK BLUE-GREEN MAFICS TO 2.5 cm	FRACTURING SUB-PARALLEL TO CORE AXIS - SOMEWHAT TALKY PYRITE COMMON ON FRACTURE SURFACES	B.V. ↓ POLY-LITHIC LAPILLI TUFF BX
30																			X							
40																			X					∅ DIORITE DIKE 5' RHYOLITE BX AS ABOVE	TYPICAL FRESH PORPHYRY	

HOLE NO. 97-9

DRILL LOG

Page 2 of 12

DDH 97-9

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED _____ COMPLETED SEP 13/97
LOGGED BY D. G. LEIGHTON

T.D. 420 FT. COLLAR ELEVATION _____
INCLINATION -90 BEARING _____
COORDINATES 68735 E 23260 N
SURVEY REFERENCES _____

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Surf Veins	Frac Inten	VISUAL EST.: Est Cu Mo	$CuFeS_2$	FeS_2	Cu_2FeS_2	Fe_2O_3	MoS_2	Sample No & Interval	LOG: SCALE _____ BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
98																								RHYOLITE BX CLASTS TO SEVERAL CM. → TYPE I MILKY WHITE & TYPE II LIGHT GREY MATRIX MOSTLY F.G. Mod. Grey but some what variable → ie buff green to black (almost) Flatn clasts seem to lie sub-parallel to one axis 5% of rock composed of mafic clots		BV ← LAPILLI TUFF BRECCIA
50																										
98																										
60																										
90																										
70																										

HOLE NO. 9, 9 **DRILL LOG** Page 3 of

DDH 97-9

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING.
DATE STARTED _____ COMPLETED SEP. 13/97
LOGGED BY D. G. LEIGHTON

T.D. 420 FT. COLLAR ELEVATION _____
INCLINATION -90 BEARING _____
COORDINATES 68735 E 23260 N
SURVEY REFERENCES _____

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Inten	VISUAL EST.: Est. Cu Mo	$CuFeS_2$	FeS_2	$CuFeS_2$	Fe_2O_3	MoS_2	Sample No & Interval	LOG: SCALE _____ BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
80																			X					RHYOLITE BX AS ABOVE	BLEB – SPH (± CPY)	BV
90																			X						← PYRITE / SPH ? RICH A 1'	← LAPILLI TUFF BRECCIA →
100																			X						NB THE MAFIC CLOTS HOST VARIETY OF SULPHIDES incl. GALENA / SPH. (Somemmer!)	

HOLE NO. 97-9 **DRILL LOG** Page 1 of

DDH 97-9

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED ____ COMPLETED SEP 13/97
LOGGED BY D.G. LEIGHTON

T.D. 420 FT COLLAR ELEVATION ____
INCLINATION -90 BEARING ____
COORDINATES 68735E 23260N
SURVEY REFERENCES ____

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite			STR.: Surf Veins	Frac Intsn	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2	CuFeS2	Fe2O3	MoS2	Sample No & Interval	LOG: SCALE ____ BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
80																					X					RHYOLITE BX AS ABOVE	← ~~~ MINOR FAULT ? ← GALENA WITH PY + CPY ± 1PT.	BX → ← LAPILLI TUFF BRECCIA →
110																					X							
80																					X							
																										DARK GREY FELD ∅ DIKE	CORE BLOCKY IN VICINITY OF BOTH CONTACTS	
120																												
																					X							
130																					X					GALENA, PY + CPY '1W' 3X2 cm MAFIC CLAST		
																					X							
																					X							
																					X							

HOLE NO. KT 9 **DRILL LOG** Page 5 of [illegible]

DDH 97-9

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED _____ COMPLETED SEP. 13/97
LOGGED BY D.G. LEIGHTON

T.D. 420 FT. COLLAR ELEVATION _____
INCLINATION -90 BEARING _____
COORDINATES 67900 E 23710 N
SURVEY REFERENCES _____

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Surf Veins	Frac Intens	VISUAL EST.: Est Cu Mo	$CuFeS_2$	FeS_2	Cu_2FeS_2	Fe_2O_3	MoS_2	Sample No & Interval	LOG: SCALE _____ BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
																								TRACHYLITE BX ↓ N N BLOCKY N FAULT ZONE ↓ ALT DIORITE DIKE ↓ ↓	138 2 1cm FeS_2 veins in odd looking 1FT wide section of mottled micro gabbro rhyolite ↗ SUB-PARALLEL TO CORE AXIS (MOTLED & SOME SERPENTIZED) 'NORMAL' BX BX & EQUIGRANULAR ~1cm CLASTS 'NORMAL' BX	B.V. ← LAPILLI TUFF BRECCIA →

140
150
160

HOLE NO. 97-9 **DRILL LOG** Page 5 of 5

DDH 97-9

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED _____ COMPLETED SEP. 13/97
LOGGED BY D.G. LEIGHTON

T.D. 420 FT. COLLAR ELEVATION _____
INCLINATION -90 BEARING _____
COORDINATES ~~67900 E 23710 N~~
SURVEY REFERENCES 68735 E 23260 N

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Inten	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2	Cu2FeS2	Fe2O3	MoS2	Sample No & Interval
170	98																		X	X			
																			X				
																			X				
180	98																						
																			X				
																			X				
																			X				
190	98																		X				

LOG
SCALE _____
BASIC GEOLOGY: rock types, metallization, structures alterations, one column system

RHYOLITE BX

CLASTS HIGHLY LENTICULAR 45° TO AXIS LINEATION

CLASTS TO 5cm COMMON

LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES

THIN PYRITE VEIN LETS WITH DK GR → BLK MN SALVAGES → very rare Qtz veinlets

NARROW (2mm) PYRITE VEINLETS

± PYRRHOTITE

BLEBS SPHALERITE + PYRITE (1%) esp within MAFIC CLASTS

ROCK UNIT

B.V.

← FELSIC LAPILLI TUFF

← POLY LITHIC

HOLE NO. 97-9 **DRILL LOG** Page 1 of 1

DDH 97-9

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED ____ COMPLETED SEP. 13/97
LOGGED BY D.G. LEIGHTON

T.D. 420 FT. COLLAR ELEVATION ____
INCLINATION -90 BEARING ____
COORDINATES 68735 E 23260 N
SURVEY REFERENCES ____

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Inten	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2	Cu2FeS2	Fe2O3	MoS2	Sample No & Interval	LOG: SCALE ____ BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
210	98																		X					RHYOLITE BX	VERY MINOR CPY/SPH	B.V.
																			X						5% PRY - MAINLY ON DRY FRACTURES AND GASHES WITH MN (OCC WELL DEV. DENDRITES)	
220	98																		X							
																			X						RX MOD. ALT WITH 5% SULPHIDES - MAINLY PY ± cn, zn, etc ? 1-2% PYRRHOTITE	
																			X							
230	98																		X	X						
																								Lenticular Clasts 45° (FIAMMA)	0° FRESH RHY BX RARE CALCITE VEINLETS	← POLY LITHIC LAPILLI TUFF

HOLE NO. 97-9 DRILL LOG Page 1 of 1

DDH 97-9

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED ____ COMPLETED AUG 13/97
LOGGED BY D.G. LEIGHTON

T.D. 420 FT. COLLAR ELEVATION ____
INCLINATION -90 BEARING ____
COORDINATES 68735 E 23260 N
SURVEY REFERENCES ____

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Hollaissonite	STR.: Surf Veins	Frac Intens	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2	CuFeS2	Fe2O3	MoS2	Sample No & Interval	LOG: SCALE ____ BASIC GEOLOGY: rock types, metallization, structures alterations, ore column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
240																			X					RHYOLITE BX		B.V.
																			X							
																			X					FOL. 40° to AXIS	Z-5% PY/ PYRRHOTITE AS ABOVE PYRITE MAINLY IN OCCAS. INHAL DRY FRACT & GABBRO WITH MN.	
260																			X							
																			X							
																			X							
280																			X						TALCY FRACTURES SUB-PARALLEL TO CORE AXIS	← LAPILLI TUFF BRECCIA →

HOLE NO. 97-9 **DRILL LOG** page 9 of --

DDH 97-9

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED _____ COMPLETED SEP 13/97
LOGGED BY D.G. LEIGHTON

T.D. 420 FT. COLLAR ELEVATION _____
INCLINATION -90 BEARING _____
COORDINATES 68735 E 23260 N
SURVEY REFERENCES _____

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Intsn	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2	CuFeS2	Fe2O3	MoS2	Sample No & Interval	LOG: SCALE _____ BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
270																			XX					RHYOLITE BX (AS ABOVE		B.V. →
	95																		X					AVG BX - LESS THAN AVG SULPHIDES		
280																			X							
	98																		X							
290																			X							← RADILLI TUFF BRECCIA
																			X						0.5FT SUGARY GREEN & BROWN SEC.	
																									VERY MINOR CLAY ALT SUB-PARALLEL CORE AXIS	

HOLE NO. 9, 9 — DRILL LOG — Page 10 of 1

DDH 97-9

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED ____ COMPLETED AUG. 13/97
LOGGED BY D.G. LEIGHTON

T.D. 420 FT. COLLAR ELEVATION ____
INCLINATION -90 BEARING ____
COORDINATES 68735 E 23260 N
SURVEY REFERENCES ____

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Intens	VISUAL EST.: Est Cu Mo	$CuFeS_2$	FeS_2	Cu_2FeS_4	Fe_2O_3	MoS_2	Sample No & Interval	LOG: SCALE ____ BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
310																								RHYOLITE BX	FAULT	BX.
85																								ALT. MED. GR. DIORITE DIKE (WITHIN FAULT ZONE?)		
320																								RHYOLITE BX ↓	BLOCK	← LAHILLI TYPE BRECCIA
90																									SUGARY TEXTURE.	
330																									NORMAL TEXTURE & STRUCTURE OBSCURED BY FRACTURING, SILICIFICATION & RELATED ALT. (BLEACHING)	

HOLE NO. 97-9 **DRILL LOG** Page 1 of 2

DDH 97-9

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED _____ COMPLETED 15 Sept 13/97
LOGGED BY D.G. LEIGHTON

T.D. 420 FT. COLLAR ELEVATION _____
INCLINATION -90 BEARING _____
COORDINATES 68735E 23260N
SURVEY REFERENCES _____

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Inten	VISUAL EST.: Est Cu Mo	$CuFeS_2$	FeS_2	Cu_2FeS_3	Fe_2O_3	MnS_2	Sample No & Interval	LOG: SCALE _____ BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
340	90																		X					RHYOLITE BX	2% Pyrite with min CPY & Mn	B.V. → LAPILLI TUFF BRECCIA
																			X					ALTERED DIORITE DIKE PERMEATED WITH F.G. SULPHIDES + MN	MICRO STOCKWORK TEXTURE	
350	85																		X					RHYOLITE BX	VERY BLOCKY & BROKEN CORE	
																			X					AS ABOVE - ALTERED DIKE → ALSO		
360																	X		X						CLAY ALTERATION ON FRACTURE SURFACES	
																			X					RHYOLITE BX		

HOLE NO. 97-7

DRILL LOG

Page 12 of 13

DDH 97-9

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED _____ COMPLETED SEP. 13/97
LOGGED BY D. G. LEIGHTON

T.D. 420 FT. COLLAR ELEVATION _____
INCLINATION -90 BEARING _____
COORDINATES 68735 E 23260 N
SURVEY REFERENCES _____

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Prop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite		STR.: Sulf Veins	Frac Intsn	VISUAL EST.: Est. Cu Mo	CuFeS2	FeS2	CuFeS2	Fe2O3	MoS2	Sample No & Interval	LOG: SCALE _____ BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS, NOTES & SKETCHES	ROCK UNIT
370																				X					RHYOLITE BX ↓ AVG BX CLAST SIZE DISTRIBUTION	≈ 2% Pyrite, Dissem. within MAFIC CLOTS & on dry fractures to gethan with Mn	B.V. → ANDESITIC TUFF BRECCIA ←
																				X							
																				X							
																				Y							
380																				X							
																				X							
																				X							
390																											

HOLE NO. 97-9 DRILL LOG Page 3 of 3

DDH 97-9

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED ____ COMPLETED SEP 13/97
LOGGED BY D.G. LEIGHTON

T.D. 420 FT. COLLAR ELEVATION ____
INCLINATION -90 BEARING ____
COORDINATES 68735 E 23260 N
SURVEY REFERENCES ____

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Inten	VISUAL EST.: Est Cu Mo	$CuFeS_2$	FeS_2	Cu_2FeS_2	Fe_2O_3	MoS_2	Sample No & Interval	LOG: SCALE ____ BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
405	10%																								FAULT ZONE NO CORE	B.V. → HYALOLITH TUFF BRECCIA
415	60																							RHYOLITE BX ↓	Sub-rounded mafic clasts through out section to 4+cm DIA.	
																			X							
																			X							
																			X							
																			X							
																			X							
																			X							
420																								← E.O.H.	← SAND! NB Mafic clasts in core now chloritized likely originally augite OR Hydrothermal Biotite!	

HOLE NO. 97-10 **DRILL LOG** page 1 of 1

DDH 97-10

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED SEP. 13 COMPLETED SEP 14/97
LOGGED BY D.G. LEIGHTON

T.D. 230 FT. COLLAR ELEVATION —
INCLINATION -90 BEARING —
COORDINATES 68 660E 23380N
SURVEY REFERENCES MAP-SHEET 102I 080

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Surf Veins	Frac Intens	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2	CuFeS2	Fe2O3	MoS2	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
10																		V						RHYOLITE BX Dull buff colour!	CASING —	B.V. POLY LITHIC LAPILLI TUFF BRECCIA CONTINUOUS THROUGHOUT HOLE
	95																	V							ONLY MINOR SULPHIDE CONTENT & MOST OF THIS IS PYRRHOTITE ? Buff brown Black Mafic	
20																		V						Rhyo clasts to several cm very common - & some "clasts" rounded to sub-rounded - & looks more like epiclastic facies than anything seen to date		
	95																									
30																										

HOLE NO. 97-10 **DRILL LOG** Page 2 of 6

DDH 97-10

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED SEP 14 COMPLETED SEP 14/97
LOGGED BY D.G. LEIGHTON

T.D. 230 FT. COLLAR ELEVATION
INCLINATION -90 BEARING
COORDINATES 68660 E 23380 N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Cpx Zeo	Garnet	Pyroxene	Amphibole	Wollastonite		STR.: Surf Veins	Frac Intsn	VISUAL EST.: Est Cu Mo	Cu_2FeS_2	FeS_2	Cu_2FeS_2	Fe_2O_3	MoS_2	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
																									RHYOLITE BX (again distinct epiclastic impression of "normal" Bx) → no grading in surface apparent		B.V.
40																											
90																											
50																											
97																											
60																											

LAPILLI TUFF

HOLE NO. [illegible] DRILL LOG Page 3 of [illegible]

DDH 97-10

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED SEP 14 COMPLETED SEP 14/97
LOGGED BY D.G. LEIGHTON

T.D. 230 FT. COLLAR ELEVATION
INCLINATION -90 BEARING
COORDINATES 68660 E 23380 N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Inten	VISUAL EST.: Est Cu Mo	$CuFeS_2$	FeS_2	Cu_2FeS_4	Fe_2O_3	MoS_2	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
70																			x					RHYOLITE BX IN EVERY CASE BX CLASTS SUB-ROUNDED TO ANG-ULAR. SOME CLASTS MILKY WHITE OTHERS MED. GREY & THE REST LT→ DART GREEN ie. THE MAFIC TYPE	↑ Black clots of augite (biotite) + pyrite ± sphalerite and rarely galena in rims Minor pyrrhotite rare dry 'mm-py veinlet ↓	B.V. ← LAPILLI TUFF →
80																			x							
90																			x							

HOLE NO. 97-10

DRILL LOG

Page 1 of 2

DDH 97-10

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED SEP 14 COMPLETED SEP 14/97
LOGGED BY D.G. LEIGHTON

T.D. 230 FT. COLLAR ELEVATION
INCLINATION -90 BEARING
COORDINATES 68660 E 23380 N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Surf Veins	Frac Inten	VISUAL EST.: Est Cu Mo	$CuFeS_2$	FeS_2	Cu_2FeS_2	Fe_2O_3	MoS_2	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
100																			x					PHYOLITE BX ↓	Max clast size ≈ 1.5 cm	B.V.
																			x							
90																			x							
																			x							
110																										
97																									Minn pyrite ± pyrrhotite → sulphides disseminated dry Mn veinlets & with mafic blebs & clots →	
																								50% OF ROCK CLASTS 1cm TO LARGER, 25% 1mm TO 1cm — BALANCE F.G. MATRIX ↓	dry pyrite vein 2mm wide + Mn	
120																									very minn cpy	

LAPILLI TUFF

HOLE NO. 97-10 **DRILL LOG** Page 5 of 6

DDH 97-10

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED SEP 14 COMPLETED SEP 14/97
LOGGED BY D.G. LEIGHTON

T.D. 230 FT. COLLAR ELEVATION
INCLINATION -90 BEARING
COORDINATES 68660 E 23380 N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Surf Veins	Frac Inten	VISUAL EST.: Est Cu Mo	$CuFeS_2$	FeS_2	Cu_2FeS_4	Fe_2O_3	MoS_2	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
130																								RHYOLITE BR	1FT CHILL/ SHATTER ZONE 90° to CORE AXIS	B.V. ← LAPILLI TUFF →
140																										
150																										

HOLE NO. [illegible] DRILL LOG Page 16 of [illegible]

DDH 97-10

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED SEP 14 COMPLETED SEP 14/97
LOGGED BY D.G. LEIGHTON

T.D. 230 FT. COLLAR ELEVATION
INCLINATION -90 BEARING
COORDINATES 68660 E 23380 N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Surf Veins	Frac Intsn	VISUAL EST.: Est Cu Mo	Cu/FeS$_2$	FeS$_2$	Cu/FeS$_2$	Fe$_2$O$_3$	MnO$_2$	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
160																			X					RHYOLITE BX	CROSSING MN/FC FRACTURE	B.V.
																			Y							
																			X							
170																										
																			X							
																			X							
180																								FELSITE DIKE	SOMEWHAT PORPHYRITIC / MASSIVE RHYOLITE	LAPILLI TUFF

HOLE NO. [illegible] **DRILL LOG** Page 1 of 2

DDH 97-10

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED SEP 14 COMPLETED SEP 14/97
LOGGED BY D.G. LEIGHTON

T.D. 230 FT. COLLAR ELEVATION
INCLINATION -90 BEARING
COORDINATES 68660 E 23380 N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Hotassonite	STR.: Sulf Veins	Frac Intens	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2	CuFeS2	Fe2O3	MoS2	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
190	95																		x x x					RHYOLITE BX TYPICAL LT. GREY BX WITH UNSORTED RHY (SUB-ROUNDED) CONTAINED IN MED GREY MATRIX	NO PYRITE ↕ BLEBS OF PYRRHOTITE IN MAFIC CLOTT 	B.V. ← LAPILLI TUFF BRECCIA →
200	95																									
210																										

HOLE NO. 97-10 **DRILL LOG** Page 8 of 8

DDH 97-10

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED SEP. 14 COMPLETED SEP 14/97
LOGGED BY D. G. LEIGHTON

T.D. 230 FT. COLLAR ELEVATION
INCLINATION -90 BEARING
COORDINATES 68660E 23380N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Intsn	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2	Qz,FeS2	Fe2O3	MoS2	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
220																			x x x					RHYOLITE BX		B.V.
90																									AS ABOVE: PYRRHOTITE BLEBS CONTAINED WITHIN MAFIC CLOTT	LAPILLI-TUFF
230																									NO VEINS	
97																									E.O.H	

HOLE NO. 9 - 11 **DRILL LOG** Page 1 of 2

DDH 97-11

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED SEP 14 COMPLETED SEP 14/97
LOGGED BY D. G. LEIGHTON

T.D. 80 FT. COLLAR ELEVATION
INCLINATION -45 BEARING 090
COORDINATES 68,660 E 23,380 N
SURVEY REFERENCES MAP-SHEET 102I 080

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zne	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Inten	VISUAL EST.: Est Cu Mo	CuFeS$_2$	FeS$_2$	CuFeS$_2$	Fe$_2$O$_3$	MoS$_2$	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
0																								RHYOLITE BX COARSE CLASTIC UNIT. ANGULAR TO SUB-ROUNDED FRAGMENTS ≥5cm COMMON. VERY LIKELY BORDERING ON EPICLASTIC FACIES. NUMEROUS MILKY WHITE SUB-ROUNDED CLASTS. FEWER GREY CLASTS AND STILL FEWER BLACK, ϕ & EVEN PSEUDO GRANITIC (DIORITE) PIECES. ← 2" clay seam	CASING 10' RUBBLE TO 20'	B.V. ← POLYLITHIC LAPILLI TUFF BX →
20																										
30																										
40																										

HOLE NO. 97-11 **DRILL LOG** Page 1 of 2

DDH 97-11

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED SEP 14 COMPLETED SEP 14/97
LOGGED BY D.G. LEIGHTON

T.D. 80 FT. COLLAR ELEVATION
INCLINATION -45 BEARING 090
COORDINATES 68660 E 23380 N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite		STR.: Surf Veins	Frac Intsn	VISUAL EST.: Est Cu Mo	$CuFeS_2$	FeS_2	$CuFeS_2$	Fe_2O_3	MoS_2	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, metallization, structures, alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
50																									TRHYOLITE BX	@ 47 FT 10cm Block PROB. ANHEDRITE	B.V.
60																										Mod. Pyrite assoc. with black F.G. matrix	
70																									FELSITE DIKE Med Grey & aphto fractured → plag phenos	Permeated with sulphides, mainly Py but including Sphalerite, etc	← LAPILLI TUFF

HOLE NO. 5, 11 **DRILL LOG** Page ___ of ___

DDH 97-11

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED SEP 14 COMPLETED SEP 14/97
LOGGED BY D.G. LEIGHTON

T.D. 80 FT
INCLINATION -45
COORDINATES
SURVEY REFERENCES

COLLAR ELEVATION
BEARING 090

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite			STR.: Sulf Veins	Frac Infen	VISUAL EST.: Est Cu Mo	$CuFeS_2$	FeS_2	Cu_3FeS_4	Fe_2O_3	MoS_2	Sample No & Interval	LOG: SCALE ___ BASIC GEOLOGY: rock types, metallization, structures alterations, ore column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
80																										RHYOLITE BX CREAM COLORED FELSITE (RHY)	Hole Lost	13.V. LAPILLI →
90																												

HOLE NO. S-12 **DRILL LOG** Page 1 of 1

DDH 97-12

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING.
DATE STARTED Sept 15/97 COMPLETED SEP. 16/97
LOGGED BY D.G. LEIGHTON

T.D. 305' COLLAR ELEVATION
INCLINATION -50 BEARING 313
COORDINATES 6861 0E; 23,380N
SURVEY REFERENCES MAP-SHEET 102I080

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Inten	VISUAL EST.: Est Cu Mo	$CuFeS_2$	FeS_2	$CuFeS_2$	Fe_2O_3	MoS_2	ZnS	Sample No & Interval
10	<																		x					
	80																		x					
20	<																							
	97																		x					
																			x					
30	<																						x	
	95																						x	
																			x					
40	<																		x				x	
	95																		x					
50	<																							
	97																		x					
																			x					
																			x					

LOG
SCALE _____
BASIC GEOLOGY:
rock types, metallization, structures alterations, one column system

PHYTOLITE BX
(Lapilli Type)
↓
Bleached Lt grey with pale mustard colored alt. throughout
↓
NB Most larger clasts, sub-rounded to angular & the milky white rhyolite type ≤ 3-4cm

LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES

CASING TO 10 FT.

RUBBLE

→ surface weathering feature to ± 40 Ft.

MAFIC CLASTS WITH PYRITE

← Py/Pyrr. with mafic clots.

Mn/Py type veinlets present but rare.

ND Pyrite = Pyrite ± Pyrrhotite

ROCK UNIT

HOLE NO. 97-12 **DRILL LOG** Page 1 of 2

DDH 97-12

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED SEP 15 COMPLETED SEP 16/97
LOGGED BY D.G. LEIGHTON

T.D. 305' COLLAR ELEVATION
INCLINATION -50 BEARING 313
COORDINATES 68610 E 23380 N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Prop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Surf Veins	Frac Intsn	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2	CuFeS2	Fe2O3	MoS2	ZnS	Sample No. & Interval
60	90																		x					
70	95																		x					
80	95																		x				x	
90	98																		x x x					
100	95																		x					
110	95																		x					
	95																		x				x x	

LOG
SCALE
BASIC GEOLOGY:
rock types, metallization, structures alterations, one column system

RHYOLITE BX as ↓ above
6" aplitic band sub-parallel core axis

LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES

minor diss arsenopyrite
small clots of ZnS
small blebs & clots of Cpy.
small clots of ZnS
Cpy over 1.5"
NB Pyrite = Pyrite ± ZnS Pyrrhotite

ROCK UNIT

HOLE NO. [illegible] **DRILL LOG** Page [illegible]

DDH 97-12

PROJECT: KNOB HILL
CONTRACTOR: OLYMPIC DRILLING
DATE STARTED: SEP 15 COMPLETED: SEP 16/97
LOGGED BY: D.G LEIGHTON

T.D.: 305'
INCLINATION: -50
COORDINATES: 68610 E 23380 N
SURVEY REFERENCES:
COLLAR ELEVATION:
BEARING: 313

ALTERATION: Quartz, Sericite, Clay/Pyrop, Biotite, K-spar, Chlorite, Epidote, Carb Zeo, Garnet, Pyroxene, Amphibole, Wollastonite | STR.: Sulf Veins, Frac Inten | VISUAL EST.: Est Cu Mo, $CuFeS_2$, FeS_2, Cu_5FeS_4, Fe_3O_4, MoS_2, ZnS | Sample No & Interval

Footage	Core Recovery	LOG (Scale; Basic Geology: rock types, metallization, structures, alterations, one column system)	LITHOLOGIC DESCRIPTIONS, NOTES & SKETCHES
120	97	RHYOLITE BX	← Blebs & clots of ZnS
130	90	med grey owing to darker avg. matrix	ZnS + Pyrite
140	95	DARK GREEN ANDESITE DIKE FAINTLY Φ	6" block mg. gabbro; Nice Cpy & 2" @ 141' a FT of CG Gabbro
150	95	sort of 'includes' BX ± 3FT	As everywhere mafic clots act to precipitate sulphides
160	95	RHYOLITE BX	
170	95		at 171' 10cm block of rhyolite or felsite vein 80° to core axis; at 178 15cm F.G. Hornfelsic material at 20° to core axis

X marks are recorded in the FeS_2 column throughout 120–175', in the $CuFeS_2$ column at about 141', and in the ZnS column between 125' and 141'.

HOLE NO. 97-12 **DRILL LOG** Page 4 of 4

DDH 97-12

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED SEP 15 COMPLETED SEP 16/97
LOGGED BY D.G. LEIGHTON

T.D. 305' COLLAR ELEVATION
INCLINATION -50 BEARING 313
COORDINATES 68610E 23380N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Prop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Surf Veins	Frac Intens	VISUAL EST.: Est Cu Mo	$CuFeS_2$	FeS_2	Cu_2FeS_4	Fe_2O_3	MoS_2	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, mineralization, structures, alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
180																								PHYOLITE BX mod ↓ green	← clay on fracture // core axis	
90																			x							
190																			x							
85																			x						@ 194' 10cm piece of CG → MG diorite at 70° to core axis (pyrrhotite on contact(s))	
200									x															↑ clots of epidote		
									x															DARK GREEN ANDESITE DIKE		
97									x										x							
210									x										x							
									x															↓ clots of epidote		
98									x															BLACK F.G. DIKE(?) LIKE COAL	← NB PROB. HOST MATERIAL TO BLACK FRAGMENT SEEN IN RHY BX	
									x															↓ GRADES TO ANDESITE(?) BX		
220									x																	
95									x																NB ANDESITE HOST IRREGULAR PATCHES TO SEVERAL cm THAT LOOK LIKE BIOTITE HORN FELS	
									x																	
280																									NB Pyrite = Pyrite ± Pyrrhotite	
97																										

HOLE NO. 97-12

DRILL LOG

Page 5 of ~

DDH 97-12

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED SEP 15 COMPLETED SEP 16/97
LOGGED BY D.G. LEIGHTON

T.D. 305'
INCLINATION -50
COORDINATES 68610 E 23380 N

COLLAR ELEVATION
BEARING 313
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Prop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	pyrite	STR.: Sulf Veins	Frac Intens	VISUAL EST.: Est. Cu Mo	$CuFeS_2$	FeS_2	Cu_2FeS_3	Fe_2O_3	MoS_2	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, metallization, structures, alterations, one column system	LITHOLOGIC DESCRIPTIONS, NOTES & SKETCHES	ROCK UNIT
240	90														x					x						PURPLE/GREEN ANDESITE BX ↓		
250	90														x					x						WHITE TO PALE EP. GREEN ALTER. SUGARY 30% C ↓		
260	97														x											← BLEBS PYRRHOTITE WITH EPIDOTE		
270	90														x													
280	95														x					x						MASSIVE DK. GREEN ANDESITE FG → MG. & ϕ	← 5cm GABBRO 80° TO AXIS	
290	60														x					x						PURPLE/GREEN AND. BX. + RHYOLITE CLASTS TO SEVERAL CM	↗ CLAY FRACTURES SUB-PARALLEL to CORE AXIS	
																											301 - E.O.H.	

HOLE NO. 97-13 **DRILL LOG** page 1 of 3

DDH 97-13

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED SEP 16 COMPLETED SEP 19/97
LOGGED BY D.G. LEIGHTON

T.D. 300 FT. COLLAR ELEVATION
INCLINATION -50 BEARING 013°
COORDINATES 67,900 E 23,710 N
SURVEY REFERENCES MAP-SHEET 102I 080

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Prop	Biotite	K-spar	Chlorite	Epidote	Carb Zac	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Suit Veins	Frac Intens	VISUAL EST.: Est Cu Mo	$CuFeS_2$	FeS_2	Cu_2FeS_3	Fe_2O_3	MoS_2	CPY	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
0																										CASING	
10																										RUBBLE	BV
20																		X							TYPICAL BONANZA — ANDESITE BX ↓ BX	BLK V. FG. CHILLED SEC.	
30	50																										
40	95																	X							TYPICAL MED. - DK. GREEN. WITH CLASTS TO SEVERAL CM. ANGULAR TO SUB-ROUNDED. FG. → ϕ	6" GOOD CPY-PYRO. IN MED GRAY ϕ	
50	90																	X						X		DLEB CPY WITH PY	
	95																									CA VEINS SUB-PARALLEL C.AXIS MINOR PYRRHOTITE 1.5cm CPY DLEB. CPY ON THIN CA VEINLET	← AUTO BRECCIATED ANDESITE FLOWS

HOLE NO. 91-13 **DRILL LOG** Page 2 of 3

DDH 97-13

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED SEP 16 COMPLETED SEP. 19/97
LOGGED BY D.G. LEIGHTON

T.D. 300 COLLAR ELEVATION
INCLINATION -50 BEARING 013
COORDINATES 67900 E 23710 N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Prop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Surf Veins	Frac Intens	VISUAL EST.: Est Cu Mo	$CuFeS_2$	FeS_2	Cu_5FeS_4	Fe_2O_3	MoS_2	CPY	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, metallization, structures, alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
60																									ANDESITE		BV
	90																				X				CLASTS (?) LT. GREY FELSITE ϕ & F.G.	MINOR CPY + PYRRHOTITE ESP WITH F.G. PHRDLG MAN (BIO?).	
70																					X						
	90																				X					CPY WITH & WITHOUT PYRHOTITE IN FG to MG. DK GR. ANDESITE BX	
80																											
	90																										
90																										FINLY. DISSEM CPY IN BLACK F.G. PATCH	
	95																				X						
100																					X				FAULT ~ (?) ~ BRECCIATION ~	GRAVEL ↑ CPY ± PY/PYRHOTITE IN DK SEMI SERP. V. ↓ MINOR CALCITE VEINING 0→45° TO CORE AXIS ↓	
	85																				X		X				
110																											

← MASSIVE TO BRECCIATED ANDESITE

HOLE NO. 97-13 **DRILL LOG** Page 3 of ___

DDH 97-13

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED SEP 16 COMPLETED SEP 19/97
LOGGED BY D.G. LEIGHTON

T.D. 300 COLLAR ELEVATION ___
INCLINATION -50 BEARING 013
COORDINATES 67900 E 23710 N
SURVEY REFERENCES ___

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Prop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Surf Veins	Frac Intens	VISUAL EST.: Est Cu Mo	QuFeS$_2$	FeS$_2$	CuFeS$_2$	Fe$_2$O$_3$	MoS$_2$	CPY	Sample No & Interval	LOG: SCALE ___ BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
120																			x							
	5%																		x							
130																			x							
	85																		x				x			
140																			x				x			
	95																						x			
150																			x							
	97																		x				x			
160																							x			
	95																						x			
170																							x			
	80																									

BONANZA AND FAULT

MOTLED BLACK TO MED GREY

Back to fresh typical BV. BX (purple, green & med grey [ϕ] clasts)

FRESH FELD ϕ DIKE (?)

SAND + GRAVEL!

semi serpentinized andesite BX

↑ CPY + PYRITE FINLY DISSEM + FRACTURE SURFACES

NB CPY PRIMARILY RELATED TO SEMI-SERP SECTIONS & OCCASIONAL QTZ VEIN

"GRAVEL - IFT"

△ OCCASIONAL ANG TO SUB-ROUNDED CLAST ≤ cm DIA. F.G. BIO. HORNFELS (+ DISSEM SUL. + CPY)

BV

← ANDESITE BRECCIA

HOLE NO. 97-13

DRILL LOG

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DDH 97-13

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED SEP. 16 COMPLETED SEP. 19/97
LOGGED BY D.G. LEIGHTON

T.D. 300 FT. COLLAR ELEVATION
INCLINATION -50 BEARING 013
COORDINATES 67900E 23710N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite		STR.: Sulf Veins	Frac Inten	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2	Cu2FeS2	Fe3O4	MoS2	CPY	Sample No & Interval
180																									
	95																			X				X	
190																				X				X	
	95																								
200																				X				X	
	97																			X				X	
210																				X				X	
																				X				X	
220																				X				X	
																				X				X	
230																				X				X	

ANDESITE BX

~ FAULT ZONE WITH BRECCIATED AND SERP ~ MAFIC I BX M.G. DIORITE BLOCKS (UNALTERED)

LT. GREY GREEN FELD Ø BX
↓
DARK LIGHTLY SERP BV.

75% LT. GREY M.G. DIORITE + QTZ VEINS

SAME

← FEW INCHES M.G. BIOTITE DIORITE WITH DISSEM CPY.

DARK LIGHTLY TO MOD. SERP BV BX - (IN PART HORNFELSIC) BX

MAINLY M.G. HORNBLENDY DIORITE

BV → BRECCIATED ANDESITE BV

HOLE NO. 97-13 **DRILL LOG** Page 5 of 5

DDH 97-13

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING.
DATE STARTED SEP. 16 COMPLETED SEP. 19/97
LOGGED BY D.G. LEIGHTON

T.D. 300 COLLAR ELEVATION
INCLINATION -50 BEARING 013
COORDINATES 67900 E 23710 N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite		STR.: Sulf Veins	Frac Intens	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2	Cu2FeS3	Fe2O3	MoS2	CPY	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, metallization, structures, alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
240																												
	90																			Y								
250																				Y								
	95																											
260																												
	95																											
270																								X				
																								X				
280																								X				
																				Y								
290																				Y								
																				X				X				
300																				BRX				X				

↓ MIXED VOLC - DIORITE ZONE ?

↓

DIORITE (some ϕ)

↓

DIORITE BX

↓ WITH 10% BLACK F.G. SERP. INCLUSIONS & DIORITE CLASTS WITH BLK F.G. SERP. MATRIX MINOR DISSEM CPY THROUGHOUT

↓

AS ABOVE BUT NOW 40% DIORITE (few coarse 5 10cm clots pyrrhotite)

MORE SERP THAN ABOVE / BELOW

← 2cm clot CPY + pyrrhotite

← 1FT GOOD PY + CPY

LAST 2FT. SERP. AND. E.O.F.

BV → MIXED AA ↓

HOLE NO. 97 14 **DRILL LOG** Page 1 of ...

DDH 97-14

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED SEP 20 COMPLETED SEP. 23/97
LOGGED BY D. G. LEIGHTON

T.D. 332 COLLAR ELEVATION ...
INCLINATION -60 BEARING 043
COORDINATES 68 010 E 23365 N
SURVEY REFERENCES MAP SHEET 102 I 080

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Intens	VISUAL EST.: Est Cu Mo	$CuFeS_2$	FeS_2	Cu_5FeS_4	Fe_2O_3	MoS_2	Sample No & Interval	LOG: SCALE ... BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
0																										
10																									Rubble	O Δ O Δ O Δ O
20																										
30									X X										X X X							
40	80																							HIGHLY SILICIFIED BX GENERALLY MOTLED APPEARANCE 'PORPHYRITIC' DIKE LIGHT GREY GREEN FRESH - Phyrrhotite ϕ (ACTUALLY A FELSITE) Massive - Fresh 2% Dark ϕ inclusions ≥ 2 cm	HORNFELSIC ALT Several % PY-Pyrrhotite +epidote contact irreg 5% DISSEM PYRRHOTITE Pyrite + Mn? Random Directions	BV FELSITE DIKE
50	80																									

HOLE NO. [illegible] **DRILL LOG** Page 1 of 6

DDH 97-14

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED SEP 20 COMPLETED SEP. 23/97
LOGGED BY D.G. LEIGHTON

T.D. 332 COLLAR ELEVATION
INCLINATION -60 BEARING 042
COORDINATES 68010 E 23365 N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Prop	Biotite	K-spar	Chlorite	Epidote	Carb Zoc	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Intens	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2	Cu2FeS2	Fe2O3	MoS2	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
60																								FELSITE DIKE	← contact x ⊥ axis	BV
	95																		x						cut by qtz veins ± epidote + pyrrhotite + pyrite	
70																			x					MOTLED ϕ PURPLE HORNFELS		
	95																		x							
80									x																≈ 20° to AXIS	
	97								x															AS ABOVE LT. GRAY FELSITE		
90									x										x						qtz veins net wrinkled pyrrhotite stain	
	95								x										x					mottled F.G. siliceous stain (purple, grey & pale green patches ± 10 cm areas		
100																										HORNFELSIC OR CHILLED ANDESITE
	95																									
110																								FRESH Med Green ϕ ANDESITE DIKE ↓ CG Lt grey green ϕ dike plag & mafic phenos.		ANDESITE
	97																									

HOLE NO. 97-1 **DRILL LOG** Page 3 of 5

DDH 97-14

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED SEP. 20 COMPLETED SEP. 23/97
LOGGED BY D.G. LEIGHTON

T.D. 332 COLLAR ELEVATION
INCLINATION -60 BEARING 043
COORDINATES 68 010 E 23,365 N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Prop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite		STR.: Surf Veins	Frac Intens	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2	CuFeS2	Fe2O3	MoS2	Cpy	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, mineralization, structures, alterations, one column system	LITHOLOGIC DESCRIPTIONS, NOTES & SKETCHES	ROCK UNIT
120																												
	90																											
130																												
	95																											
140																												
	97																											
150																												
	97								X																			
160																												
									X																			
	90																				X							
170																												
									X												X							
																					X							
									X												X							

ϕ DIKE AS ABOVE

Med Green ϕ Dike

Pyrrhotite skarn

↓

As above buff cream colored with mottled texture

↓

Rx becomes dark blue-green – very likely originally andesite is massive + ϕ + Br completely silicified

→ 40% exotic inclusions 'granite', rhyolite, etc

As before highly sil, mottled rock with Ep & numerous qtz veins & veinlets

"

± 5% sulphides, mainly disseminated pyrite + lesser veins & veinlets → again "silica skarn"

BV

MAINLY PORPHYRITIC (SKARN) ANDESITE

HOLE NO. 97-1 **DRILL LOG** Page 7 of ...

DDH 97-14

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED SEP. 20 COMPLETED SEP. 23/97
LOGGED BY D.G. LEIGHTON

T.D. 332 COLLAR ELEVATION
INCLINATION -60 BEARING 043
COORDINATES 68,010 E 23,365 N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Calc Zeo	Garnet	Pyroxene	Amphibole	Wollastonite			STR.: Stwk Veins	Frac Intsn	VISUAL EST.: Est. Cu, Mo	CuFeS2	FeS2	Cu2FeS4	Fe3O4	MoS2	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
180																												
190																					x							
																					x							
																					x							
200																												
210																					x							
220																					x							
																					x							
																					x							
230																												

Andesite skarn as above

As above, numerous qtz veins to ± 1cm + irregular veinlets ± epidote

possibly 40° to core axis

Calcite veins x at 45° to axis

Frequent qtz veins & veinlets rarely to 2cm

4mm Calcite Vein @ 30° to AXIS.

BV

← ALTERED (SKARNY) ANDESITE →

HOLE NO. 97-14 **DRILL LOG** Page 5 of 6

DDH 97-14

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED SEP 20 COMPLETED SEP. 23/97
LOGGED BY D.G. LEIGHTON

T.D. 332 COLLAR ELEVATION
INCLINATION -60 BEARING 043
COORDINATES 68010 E 23365 N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb.Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	Pyrrhotite	STR.: Sulf. Veins	Frac. Inten.	VISUAL EST.: Est. Cu Mo	$CuFeS_2$	FeS_2	Cu_2FeS_3	Fe_2O_3	MoS_2	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
240															X												
															X												
															X												
250															X												
															X												
															X												
260																									AS ABOVE SILICIFIED ANDESITE - ↓ APART FROM UNUSUALLY INTENSE PERVASIVE SILICA RX TYPICAL BOWAMZA ANDESITE ie ϕ → NIN ϕ MASSIVE → BX ± EPIDOTE ↓	} V. HIGH PYRRHOTITE + SILICA PATCH (FLOW TOP ?) ⁄ ? 45° TO AXIS CALCITE VEIN 30° to AXIS CALCITE VEINED ZONE ↓	BV ← SILICIFIED ANDESITE →
270																											
280																											
290															X X X												

HOLE NO. 97-14 DRILL LOG Page 5

DDH 97-14

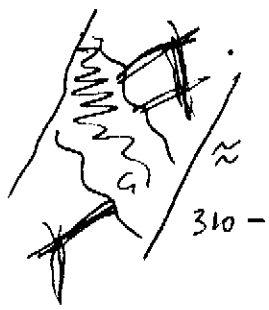
PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED SEP 20 COMPLETED SEP. 23/97
LOGGED BY D.G. LEIGHTON

T.D. 332
INCLINATION -60
COORDINATES 68010 E 23365 N

COLLAR ELEVATION
BEARING 043
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Prop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Inten	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2	Cu3FeS3	Fe2O3	MoS2	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
300									X										X					SILICIUS ANDESITE	25' Sec. mixed soft light grey purple biotite blebs + Lt grey	BV
310									X										X					INTENSE SIL. + LAER CA/BIOTITE ALTERATION ↓ SIL X → CAR X	CHLORITE BLOTCHES WITH PYRITE ↓	ANDESITE
320									X										X						NB Hole permeated by Qtz + areas networked sil veins	
330									X										X					E.O.H.		
																			X							
																			X							
																			X							

* TO END OF HOLE SILICA STOCK WORK VEINS TO ≈ 2 cm



NB FeS2 INCLUDES LESSER PYRRHOTITE

HOLE NO. 97-15 **DRILL LOG** Page 1 of 1

DDH 97-15

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED SEP 24 COMPLETED SEP. 24/97
LOGGED BY D.G. LEIGHTON

T.D. 300 FT. COLLAR ELEVATION
INCLINATION -60 BEARING 044
COORDINATES 68 100E 22,950N
SURVEY REFERENCES MAP-SHEET 102I 080

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Infen	VISUAL EST.: Est Cu Mo	$CuFeS_2$	FeS_2	Cu_2FeS_2	Fe_2O_3	MoS_2	Sample No & Interval	LOG: BASIC GEOLOGY (rock types, metallization, structures, alterations, one column system)	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
0									X															CASING		
									X															ANDESITE - ϕ		
10																									RUBBLE	
									X															FG. LIGHT GREY ϕ DIORITE M.G. - FRESH F.G. & CG. V. FRESH DIKE (?)	BLOCKY	BV
20									X																	
30																									BLOCKY	PORPHYRITIC ANDESITE
40																										
50																								↓	Rare bleb Zns	

HOLE NO. 97-15 **DRILL LOG** page 2 of 3

DDH 97-15

PROJECT Knob Hill
CONTRACTOR OLYMPIC DRILLING
DATE STARTED SEP. 24 COMPLETED SEP. 24/97
LOGGED BY DeLEIGHTON

T.D. 300 COLLAR ELEVATION
INCLINATION -60 BEARING 044
COORDINATES 68,100E 22,950N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Inten	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2	CuFeS2	FeO	MoS2	Zn S	Sample No & Interval
60									x															
70									x														x	
80									x															
90									x														y	
100									x														x	
110									x															

LOG
SCALE
BASIC GEOLOGY: rock types, metallization, structures alterations, one column system

LIGHT GREY-GREEN Ø (ANDESITE ?) ↕ ?
OR ↓ RHYOLITE (?)

most veins @ 35° with sulphide 'core' and inner outer edge

Epid & intensely silicified patches followed by later random veining

? contact ?

Fresh Feld Ø

AREA ↓ NO Epid ↓

LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES

Abun Lt green F.G. veins as epid. stained and occasional complex regional qtz vein to semi-mass with & without sph

minor py & sph throughout

very minor mafic phenos

actually quite stockworked but completely sealed

ROCK UNIT

B.V. → ← PORPHYRITIC ANDESITE

HOLE NO. [illegible] **DRILL LOG** Page 3 of 5

DDH 97-15

PROJECT Knob Hill
CONTRACTOR OLYMPIC DRILLING
DATE STARTED SEP. 24 COMPLETED SEP. 24/97
LOGGED BY D.G. LEIGHTON

T.D. 300 COLLAR ELEVATION
INCLINATION -60 BEARING 044
COORDINATES 68100 E 22950 N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite		STR.: Sulf Veins	Frac Intens	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2	Cu2FeS3	Fe2O3	MoS2	ZnS	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, metallization, structures, alterations, one column system	LITHOLOGIC DESCRIPTIONS, NOTES & SKETCHES	ROCK UNIT
120	97								x											x				x		DIORITE DIKE (?) Massive light → med grey feld ϕ. phenos to 5mm → few sub-rounded inclusions of M.G. diorite, overall ≤ 5% mafics ↓ clay alt'n main slip @ 30° F.G. Rhyolite (?)	20cm ↑ xenolith of finer grained diorite occasional late calcite veinlets — 'dry' @ random ∠'s Rx become med grey & phenos light epidote green → highly variable over 20' abun epidote intense silica veining mainly 45° to axis → in patches bleach + 10% pyrite, patches 60% mottled pink & cream bleaching → TRACES Cpy	B.V.
130	95								x											x				x				
140	95								x											x				x				
150									x											x				x				
160									x											x				x				
170									x											x								

HOLE NO. 15 **DRILL LOG** Page 4 of 5

DDH 97-15

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING.
DATE STARTED SEP. 24 COMPLETED SEP. 24/97
LOGGED BY D.G. LEIGHTON

T.D. 300 FT. COLLAR ELEVATION
INCLINATION -60 BEARING 044
COORDINATES 68100 E 22950 N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb/Zeo	Garnet	Pyroxene	Amphibole	Wollastonite			STR.: Surf Veins	Frac Intens	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2	CuFeS2	Fe2O3	MoS2	ZnS	Sample No & Interval
180									Y																	
190																					Y					
200									Y												t					
									Y												t					
									Y																	
210																										
220																										
80																										
230																										
81																										

LOG
SCALE
BASIC GEOLOGY: rock types, metallization, structures alterations, one column system

(BACK TO) Med. Green ϕ ANDESITE
Coarse feld ϕ but patches where phenos alt. to pale buff-green (albite?)
→ much of the veining is straight milky bog quartz (silica flooding)
however in part rx. vein network ± angular massive & diffuse epidote bleaching

LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES

← 1 clay gouge 45°
Random silica veining throughout
← branch - clay gouge
No 1 fault 45°
2.5cm calcite vein @ 15° to axis
blocky core
MINOR (<2%) PYRITE THROUGHOUT
Blocky
Rare pinkish veinlets possibly albitized
CaCO3 associated with broken core.

ROCK UNIT
B.V
ANDESITE

HOLE NO. 4 — DRILL LOG — Page 5 of 15

DDH 97-15

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED SEP. 24 COMPLETED SEP. 24/97
LOGGED BY D. G. LEIGHTON

T.D. 300 FT COLLAR ELEVATION
INCLINATION −60 BEARING 044
COORDINATES 68100E 22950N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Inten	VISUAL EST.: Est Cu Mo	$CuFeS_2$	FeS_2	Cu_2FeS_3	Fe_2O_3	MoS_2	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, metallization, structures, alterations, one column system	LITHOLOGIC DESCRIPTIONS, NOTES & SKETCHES	ROCK UNIT
240																								AS ABOVE ↓ ↓ As above (?) but mainly non ϕ matrix to dark grey ≈ 35% sub-rounded & diffuse epidote patches & stringers some slightly pinkish ϕ + abundant epidote	NOTE MOST QTZ VEINING ∝ 45° to CORE AXIS ↑ DIKE CONTACT APROX ?? ↓ fairly intense silicia veining throughout and ↓ ↓ Rx blocky & faulted with $CaCO_3$ close to core axis. E.O.H.	B.V. PORPHYRITIC ANDESITE
250																										
260																										
270																										
280																										
290									X																	
									X																	
									X																	

HOLE NO. 97-16 **DRILL LOG** page 1 of -

DDH 97-16

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED ____ COMPLETED SEP. 27/97
LOGGED BY D.G. LEIGHTON

T.D. 316' COLLAR ELEVATION ____
INCLINATION -60 BEARING 135°
COORDINATES 68,100E 22,950N
SURVEY REFERENCES MAP SHEET 102I 080

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Prop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Intsn	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2 + Fe3O4	CuFeS2	Fe2O3	MoS2	Sample No & Interval	LOG: SCALE ____ BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
0																									CASING	
10									x										x					RHYOLITE MASSIVE TO BX. F.G. Mod GRAY	→ Epidote no irregular patches & blebs ± dark green serpenized matics Py + Pyrrhotite in minin equal amounts + trace Cpy & Sph.	B.V.
20									x										x					↓ GRADES INTO TYP. MOTLED GREEN + PURPLE AND BX. FG → MG. ANDESITE	occasional minin qtz & carb veins ± Cpy Sph	
30									x										x					↓		
40									x										x						< Epidote/Carbonate patch with blebs Cpy + Sph. ≈ 15 cm	
50									x																< Cpy + Sph as above	
																									< broken & altered minin fault?	ANDESITE

HOLE NO. 97-16 **DRILL LOG** Page ___ of ___

DDH 97-16

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED ___ COMPLETED SEP 27/97
LOGGED BY D. G. LEIGHTON

T.D. 316' COLLAR ELEVATION ___
INCLINATION -60 BEARING 135°
COORDINATES 68475 E 23300 N
SURVEY REFERENCES ___

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Prop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Intens	VISUAL EST.: Est Cu Mo	Cu-FeS$_2$	FeS$_2$	Cu$_2$FeS$_3$	Fe$_2$O$_3$	MoS$_2$	Sample No & Interval	LOG: SCALE ___ BASIC GEOLOGY: rock types, mineralization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
60									x										x					ANDESITE(?) BX ↓ As above mainly green Bx + epidote & serp mafics in clots & veins → as usual the dark purple parts appear to be like biotite knots F.G. Med GREY BLACK F.G. DIKE? FLOW CONTACT? F.G. And Bx ↓ F.G. Med Grey	← minn Cpy with Qtz vein @ 30° to axis ← 2cm heavy epidote + serp with py + pyrrhotite & minn Cpy + Zns Cpy ± qtz, sph, pyrrhotite ← blebs cpy in dry fractures esp with epidote & serp NB Pyrite = Py + Pyrrhotite	B.V. ANDESITE BRECCIA
70									x										x							
80									x																	
90									x										x							
100									x																	
110																										

HOLE NO. 97-16 **DRILL LOG** Page 3 of 5

DDH 97-16

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED _____ COMPLETED SEP 27/97
LOGGED BY D.G. LEIGHTON

T.D. 1316' COLLAR ELEVATION _____
INCLINATION -60 BEARING 135
COORDINATES 68475E 23300N
SURVEY REFERENCES _____

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	Kspar	Chlorite	Epidote	Calc-Zeo	Gasan	Pyroxene	Amphibole	Wollastonite			STR.: Sulf. Veins	Frac. Intens	VISUAL EST.: Est. Cu Mo	Cu/FeS$_2$	FeS$_2$	Cu$_2$FeS$_2$	Fe$_2$O$_3$	MoS$_2$	CPY	Sample No & Interval	LOG — SCALE _____ BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
120																													
130																													
140																													
150																													
160																													
170																													

AS ABOVE

↓

Rock here likely a rhyolite (massive) or possibly felsite in part rock looks like highly silicified auto-bx

FELSITE DIKE?

↑

BLACK F.G. FEATURELESS ROCK THAT LOOKS SUPERFICIALLY LIKE ARGILLITE

↓

FELSITE DIKE

← Qtz veining ⊥ axis ≈ 5 cm - Mod stage + pyrrhotite

impressive clot style associated with Qtz, epidote & comp. mafics & on dry fractures parallel to axis & with narrow qtz veins

POSSIBLE FAULT BLEACHED BX (in py) INTENSE PYRITE

RARE SED. ≈ 3 cm 20° TO AXIS ??

MINOR FAULTING WITH CPY SOME BLEACHING

B.V.

FELSITE

DDH 97-16

DRILL LOG

HOLE NO. 97-15

PROJECT: KNOB HILL
CONTRACTOR: OLYMPIC DRILLING
DATE STARTED:
COMPLETED: SEP 27/97
LOGGED BY: D.G. LEIGHTON

T.D. ~~300~~ 316.
INCLINATION: -60
COORDINATES: 68475 E 23300 N
SURVEY REFERENCES:
COLLAR ELEVATION:
BEARING: 135

Columns: Footage | Core Recovery | Oxide | ALTERATION: Quartz, Sericite, Clay/Pyrop, Biotite, K-spar, Chlorite, Epidote, Carb. Zeo, Garnet, Pyroxene, Amphibole, Wollastonite | STR.: Surf Veins, Frac Inten | VISUAL EST.: Est Cu. Mo, $CuFeS_2$, FeS_2, Cu_5FeS_4, Fe_3O_4, MoS_2, Cpy | Sample No & Interval | LOG: SCALE, BASIC GEOLOGY: rock types, mineralization, structures, alterations, one column system | LITHOLOGIC DESCRIPTIONS, NOTES & SKETCHES | ROCK UNIT

Footage scale: 180, 190, 200, 210, 220, 230

Footage	Log (Basic Geology)	Lithologic Descriptions, Notes & Sketches	Rock Unit
180–191	AS ABOVE ↓		B.V.
~191–205	BIOTITE HORNFELS LOOK ALIKE - TOO SOFT MASSIVE SHALE?	MIXED ZONE ← ZnS + Cpy + Py vein } QUARTZ EYST	FELSITE (RHYOLITE?)
~205–233	WHITE FELSITE DIKE ACTUALLY LT GREY	Minor Cpy throughout along with pyrite in numerous tight veinlets & issolated disseminations	
~233–	BLACK FG + MG. DIKE?	Cyp & Py throughout in tight hairline fractures & disseminations	

Visual est.: X marks in Cpy column at about 193–205; check marks in FeS_2 and Cpy columns about 210–235; X at 235 and 237–239.

HOLE NO. 97-16 **DRILL LOG** Page 5 of -

DDH 97-16

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED ____ COMPLETED SEP 27/97
LOGGED BY D.G. LEIGHTON

T.D. ~~300~~ 316
INCLINATION -60
COORDINATES 68475 E 23300 N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Surf. Veins	Frac. Inten.	VISUAL EST.: Est. Cu, Mo	CuFeS2	FeS2	CuFeS2	Fe2O3	MoS2	Cpy	Sample No & Interval	LOG: SCALE ____ BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
240																									WHITE FELSITE AS ABOVE	NB Much of the fine sulphide in felsite is pyrrhotite > Cpy > Pyrite	B.V. FELSITE (RHYOLITE?)
250																											
260																										CONTACT 30° TO AXIS	
270																									WHITE FELSITE	FEL.	
280																											
290																										E.O.H @ 310'	

HOLE NO. 97-1 **DRILL LOG** Page 1 of 3

DDH 97-17

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED ____ COMPLETED SEP 29/97
LOGGED BY D.G. LEIGHTON

T.D. 170' COLLAR ELEVATION ____
INCLINATION -50 BEARING 135°
COORDINATES 68 605 E 22 950 N
SURVEY REFERENCES MAP-SHEET 102I 080

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Prop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Intens	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2	Cu2FeS2	Fe2O3	MoS2	Zn sf	Sample No & Interval
0																								
10																								
20																								
30																								
40																								
50																								

LOG
SCALE ____
BASIC GEOLOGY: rock types, metallization, structures alterations, one column system

RHYOLITE BX
↓*
Poly lithic bx vol. bx with clasts to several cm. mod. ϕ And, milk. white & semi opaque F.G. rhyolite & FG → M.G. intermediate volc. — clasts sub. round → angular —
Rx ≥ 90% Rhyolite
MATRIX — mainly dark green serp/epidote admixture + pyrite as core to "mafic" clasts.
↓
Even med grey Bx avg. clast smaller??

LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES

CASING
RUBBLE
yellow & brown secondary (vein) alt.
Minor pyrite
↓
← chlorite clots ≤ 1cm - relatively fresh

ROCK UNIT

B.V.
POLY LITHIC — LAPILLI TUFF

HOLE ___ DR LO Page 2 of 3

DDH 97-17

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED ___ COMPLETED SEP 29/97
LOGGED BY D.G. LEIGHTON

T.D. 170 COLLAR ELEVATION ___
INCLINATION -50 BEARING 135
COORDINATES 68605 E 22950 N
SURVEY REFERENCES ___

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Cara Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Inten	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2	Cu2FeS3	Fe2O3	MoS2	ZnS	Sample No & Interval
60	95																		r				r	
70	95																		r				X	
80	95																		r				X	
90	95																		r				X	
100																			X				X	
110																			X		X		X	

LOG
SCALE ___
BASIC GEOLOGY: rock types, metallization, structures alterations, ore column system

As Abund - massive N. GRAY Bx except ? like top of hole → serp. mafics ~ 2-3 ft

very little sulphide but min ZnS through esp as ore (with pyrite) in the mafic clasts

min pseudo ignim. clasts welding??

volumetrically min pyrite in min narrow qtz veins and min slippage surfaces

LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES

ROCK UNIT

B.V.

POLY LITHIC LAPILLI TUFF

HOLE NO. 97-17 **DRILL LOG** Page 3 of 8

DDH 97-17

PROJECT Knob Hill
CONTRACTOR OLYMPIC DRILLING
DATE STARTED _____ COMPLETED SEP 29/97
LOGGED BY D.G. LEIGHTON

T.D. 170' COLLAR ELEVATION _____
INCLINATION -50 BEARING 135
COORDINATES 68605 E 22950 N
SURVEY REFERENCES _____

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Prop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite		STR.: Sulf Veins	Frac Intsn	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2	Cu3FeS3	Fe3O4	MoS2	Zn,S	Sample No & Interval	LOG: SCALE _____ BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS, NOTES & SKETCHES	ROCK UNIT
120																				1						AS ABOVE (Exactly!)	2' somewhat serp mafics	B.V.
130																				1								
140																				1							toward bottom of hole the sulph (i.e.) pyrite seems to give way to pyrrhotite but wt. % ≤ 1%	
150																				1								
160																				1						blk. mafic F-MG. dike!		
170																				XXX 1							← trans Cpy E.O.H.	LAPILLI TUFF

WD Pyrite + Py + Pyrrhotite

HOLE NO. 1 DR. LO. Page 1 of 3.5

DDH 97-18

PROJECT Knob Hill
CONTRACTOR OLYMPIC DRILLING
DATE STARTED ____ COMPLETED SEP. 30/97
LOGGED BY D.G. LEIGHTON

T.D. 330 COLLAR ELEVATION ____
INCLINATION -50 BEARING 135
COORDINATES 68 645E 23,530 N
SURVEY REFERENCES MAP-SHEET 102I 080

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Prop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite		STR.: Sulf Veins	Frac Intens	VISUAL EST.: Est Cu Mo	$CuFeS_2$	FeS_2	Cu_2FeS_2	Fe_2O_3	MoS_2	Sample No & Interval	LOG: SCALE ____ BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
0																										CASING	
10																											
20	50																			r					M.G. Ø DIORITE ⇓ Med grey Ø (felt) diorite massive fresh	BLOCKY	BX
30																				r						Sulphides disseminated throughout & in veinlets — mainly pyrrhotite + py & ZnS.	
40																				r							
50																										CONTACT ↓ BLOCKY	← DIORITE

DDH 97-18

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED ____ COMPLETED SEP 30/97
LOGGED BY D. G. LEIGHTON

T.D. 330 FT. COLLAR ELEVATION ____
INCLINATION -50 BEARING 135
COORDINATES 68645E 23530N
SURVEY REFERENCES ____

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Inten	VISUAL EST.: Est Cu Mo	$CuFeS_2$	FeS_2	Cu_2FeS_3	Fe_2O_3	MoS_2	Sample No & Interval	LOG: SCALE ____ BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
60																										
10																										
75																										
80																										
85																										
90																										
95																										
100																										
105																										
110																										

Altered diabase dike

BADLY ALT & BROKEN RHY BX LARGELY CLAY & MUD.!

Altered diabase dike(?)

BLK F.G. ARGILLITE(?)

RHYOLITE BX (?)

coarse clastic poly lithic type

see next page

BLOCKY

B.V.

← LAPILLI TUFF / BRECCIA —

HOLE NO. 97-18 DR. LOG Page 3 of 5

DDH 97-18

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED ____ COMPLETED SEP. 30/97
LOGGED BY D.G. LEIGHTON

T.D. 330 FT COLLAR ELEVATION ____
INCLINATION -50 BEARING 135
COORDINATES 68645 E 23530 N
SURVEY REFERENCES ____

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Intens	VISUAL EST.: Est Cu Mo	$CuFeS_2$	FeS_2	Cu_2FeS_3	Fe_2O_3	MoS_2	Sample No & Interval	LOG: SCALE ____ BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROC UNI
120																								RHYOLITE BX CLASTS OCCASIONALLY to ≥ 10 cm. & rnd. Rounded to sub-rounded milky white & light grey rhyolite ≈ 60% pens. ≈ 5% black v.f.g. shale(?) frags; white clast of C.G. rhy. tuff; clast of alt diabase(?); rare sub-rnd maroon clast (ferruginous chert?)	B.X.
130																										
140																										
150																									BLOCKY, CLAY ALT RHY BX	LAPILLI TUFF
160																								Fold ∅ dike		
170																								% ∅ vnlets from 10 → 40% matrix fine grained med grey		DIKE

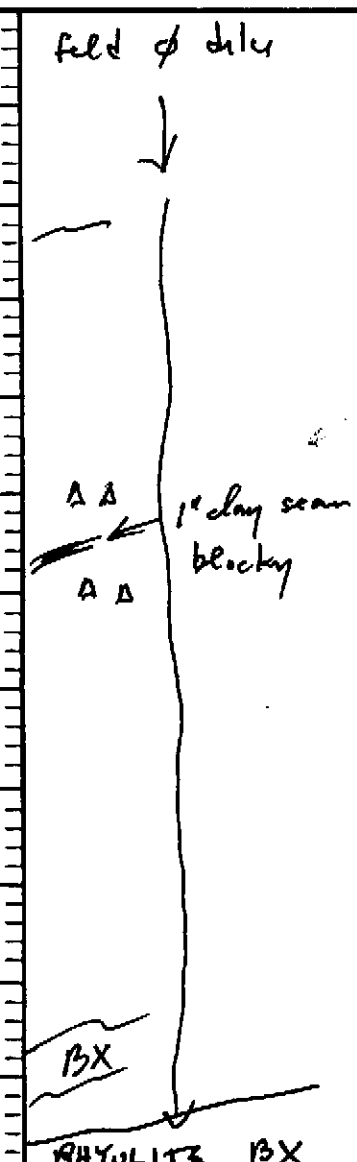
HOLE NO. [illegible] DRILL LOG Page 1 of 3

DDH 97-18

PROJECT Knob Hill
CONTRACTOR OLYMPIC DRILLING
DATE STARTED _____ COMPLETED SEP. 30/97
LOGGED BY D.G. LEIGHTON

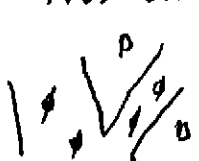
T.D. 330 FT COLLAR ELEVATION _____
INCLINATION -50 BEARING 135
COORDINATES 68645 E 23530 N
SURVEY REFERENCES _____

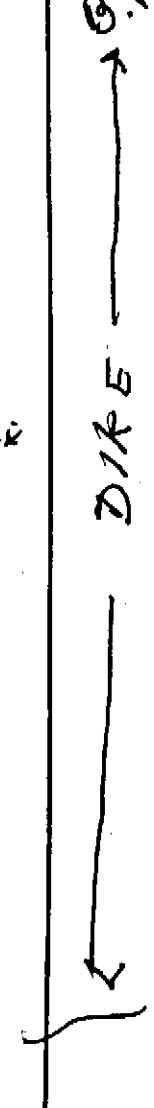
Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Prop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyrosene	Amphibole	Wollastonite	STR.: Suit Veins	Frac Inten	VISUAL EST.: Est Cu Mo	$CuFeS_2$	FeS_2	$CuFeS_2$	Fe_2O_3	MoS_2	Sample No & Interval	LOG: SCALE _____ BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
180																										
190																										
200																										
210																										
220																										
230																										



For the most part dike is ϕic with ≈ 40% 4mm plag. phens altered to pale buff-yellow colour contain ni med grey F.G. matrix → occasional rounded 1-2 cm FG to MG. mafic inclusions

Prob contact





HOLE ___ DR. ___ LOG ___ Page 5 of 5

DDH 97-18

PROJECT Knob Hill
CONTRACTOR OLYMPIC DRILLING
DATE STARTED ___ COMPLETED SEP. 30/97
LOGGED BY D.G. LEIGHTON

T.D. 330 FT COLLAR ELEVATION ___
INCLINATION -50 BEARING 135
COORDINATES 68645 E 23530 N
SURVEY REFERENCES ___

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Inten	VISUAL EST.: Est Cu Mo	$CuFeS_2$	FeS_2	Cu_2FeS_3	Fe_2O_3	MoS_2	Sample No & Interval	LOG: SCALE ___ BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS, NOTES & SKETCHES	ROCK UNIT
300																								PHYLLITE BX -AS ABOVE- ↓ ~ ϕ dike as above ~	very low py + pyrrhotite content ~ E.O.H.	B.V. BRECCIA
310																										
320																										
330																										

HOLE NO. 97-19 **DRILL LOG** Page 1 of 5

DDH 97-19

PROJECT KNOB HILL / OLYMPIC DRILLING
CONTRACTOR ~~LEIGHTON EXPLORATION~~
DATE STARTED Sept 30 COMPLETED Oct 1/97
LOGGED BY DM LEIGHTON

T.D. 300 COLLAR ELEVATION 450m A.S.L.
INCLINATION -50 BEARING 045
COORDINATES 67 660 E 29 140 N
SURVEY REFERENCES U.T.M. Map 102I 080 (TRIM)

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Prop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Intens	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2	Cu2FeS2	Fe2O3	MoS2	Sample No & Interval

LOG
SCALE _____
BASIC GEOLOGY: rock types, metallization, structures, alterations, one column system

LITHOLOGIC DESCRIPTIONS, NOTES & SKETCHES

ROCK UNIT

0

CASING

RUBBLE

10

RHYOLITE - BRECCIA

20

Lt Gray to cream buff colored - totally silicified RX

Highly pyritic 3-5% in places even 10%

Relatively coarse clastic - cut by innumerable vestlets

← Blocky

30

Irregular pale green blebs & patches

likely completely silicified, faulted, brecciated & healed → in the more highly bx areas ~ 50% matrix of very F.G. milky albite (?)

← Blocky (some clay)

40

50

B.V. ← LAPILLI TUFF

HOLE ... DRILL LOG Page 2 of 5

DDH 97-19

PROJECT Knob Hill
CONTRACTOR OLYMPIC DRILLING
DATE STARTED ______ COMPLETED OCT 1/97
LOGGED BY D.G. LEIGHTON

T.D. 300
INCLINATION -50
COORDINATES 67660 E 24140 N
SURVEY REFERENCES ______
COLLAR ELEVATION ______
BEARING 045

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite			STR.: Sulf Veins	Frac Inten	VISUAL EST.: Est Cu Mo	CuFeS$_2$	FeS$_2$	Cu$_5$FeS$_4$	Fe$_3$O$_4$	MoS$_2$		Sample No & Interval	LOG — SCALE ______ BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS, NOTES & SKETCHES	ROCK UNIT
60																											AS ABOVE		B.V.
																											Felsite dike? →	Slightly darker gray massive sec. ∠60° to core axis with distinct laminated contact	
70																													
80																												all rx pale epidote green mottling	
																											~1.5 ft massive med gray rhyolite		
90																												NB although ~25% of rock is clearly rhyolite bx – large of 10' sections consist of 60% med grey v.f.g. matrix irregular and linear cream v.f.g. 20% with a 10% mainly rounded "clasts" poly lithic but mainly v.f.g. rhyolite	RHYOLITE
100																													
110																													

HOLE NO. 97-1 **DRILL LOG** Page 3 of 5

DDH 97-19

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED _____ COMPLETED OCT 1/97
LOGGED BY D.G. LEIGHTON

T.D. 300 COLLAR ELEVATION _____
INCLINATION -50 BEARING 045
COORDINATES 67 660E 24 140N
SURVEY REFERENCES _____

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Inten	VISUAL EST.: Est Cu Mo	$CuFeS_2$	FeS_2	Cu_2FeS_3	Fe_2O_3	MoS_2	Sample No & Interval	LOG: SCALE _____ BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROC UNI
120																								RHYOLITE ↓	below 90° very little sulphide	B.V
130																										—
140																								∅ dike med green fresh	blocky 20% 1-2 mm feld. blocky	MASSIVE TO BX RHYOLITE
150																										
160																									Minor clay fracture @ 20° to core axis	
170																										

HOLE ... DR LO Page 7 of 14

DDH 97-19

PROJECT Knob Hill
CONTRACTOR OLYMPIC DRILLING
DATE STARTED ____ COMPLETED OCT 1/97
LOGGED BY D.G. LEIGHTON

T.D. 300 COLLAR ELEVATION ____
INCLINATION -50 BEARING 045
COORDINATES ~~6845E 2855ON~~
SURVEY REFERENCES 67660E 24140N

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Surf Veins	Frac Intens	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2	CuFeS2	Fe2O3	MoS2	Sample No & Interval	LOG: SCALE ____ BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
180																								As above - highly silicified med gray rhyolite ↓	Blocky core with clay alt. over 11'	B.V. ← MAINLY MASSIVE RHYOLITE
190																										
200																										
210																										
220																									occas ~~sl~~ complex qtz veins 1cm wide with pyrite sulf - parallel & axis @ 70°.	
230																										

HOLE NO. [illegible] DRILL LOG Page 5 of 15

DDH 97-19

PROJECT Knob Hill
CONTRACTOR OLYMPIC DRILLING
DATE STARTED _____ COMPLETED OCT 1/97
LOGGED BY DMR

T.D. 300 COLLAR ELEVATION _____
INCLINATION -50 BEARING 045
COORDINATES 67660E 24140N
SURVEY REFERENCES _____

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Intens	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2	Cu2FeS2	Fe2O3	MoS2	Sample No & Interval	LOG: SCALE _____ BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
240																								RHYOLITE	BLOCKY = chilled margin x 1.5' 2-3% Py sp associated with mafic clots and irregular bands	RHYOLITE
250																										
260																										
270																										
280																								FRESH LIGHT GRAY GRANODIORITE. CG → Ø		GRANODIORITE
290																									E.O.H.	

HOLE NO. 97-2 **DRILL LOG** Page 1 of 4

DDH 97-20

PROJECT Knob Hill
CONTRACTOR OLYMPIC DRILLING
DATE STARTED ____ COMPLETED OCT 3/97
LOGGED BY DEL LEIGHTON

T.D. 230 COLLAR ELEVATION ____
INCLINATION -50 BEARING 225
COORDINATES 64,520 E 25 820 N
SURVEY REFERENCES ____

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Intens	VISUAL EST.: Est Cu Mo	CuFeS2	FeS2	CuFeS2	Fe2O3	MoS2	Sample No & Interval	LOG (SCALE ____ BASIC GEOLOGY: rock types, metallization, structures alterations, one column system)	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
0																									CASING	
10																									RUBBLE	
20																								Lt. Gray Frez' feld ϕ like (?) 50% phenos avg. 3-4 mm	Sheared & fractured with some clay on fract. surfaces	
30																								LAPILLI TUFF Poly lithic, dark brown - block matrix 50% clasts x 1cm	5% Sulphides as Py + Pyrrhotite BLOCKY RUSTY WEATHERED CORE	LAPILLI TUFF
40																									3-4% disem Py-Pyrrhotite throughout	
50																								ϕ as above ↓	↓	

HOLE NO. 97-6 DR. LOG Page 2 of 4

DDH 97-20

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED OCT 3 COMPLETED OCT 3/97
LOGGED BY D.G. LEIGHTON

T.D. 230 FT COLLAR ELEVATION
INCLINATION -50 BEARING ~~045~~ 225
COORDINATES 67660E ~~24140~~N
SURVEY REFERENCES 64520E 25820N

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite			STR.: Sulf Veins	Frac Intsn	VISUAL EST.: Est Cu Mo	$CuFeS_2$	FeS_2	Cu_2FeS_3	Fe_2O_3	MoS_2	SPH	Sample No & Interval
60																										
95																										
70																										
95																										
80																										
97																										
90																										
90																										
100																										
90																										
110																										
97																										

LOG
SCALE
BASIC GEOLOGY: rock types, metallization, structures alterations, one column system

FELD. ϕ AS ABOVE
↓

SHEARING WITH CLAY ALT

LAPILLI TUFF (as above) dark F.G. matrix clasts mainly ≤ 1cm sub-rounded amg. white rhyolite some epidote ∓

LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES

AS ABOVE PY-PYRRHOTITE IN ABOUT EQUAL AMOUNTS - MAINLY DISSEM UP TO 3-4% + MINOR ZnS. ALSO ≈ .5%

BLOCKY

CALCITE VEINING IN BLOCKY SECTION WITH PY-PYRRHOTITE

← CONTACT ~ 2" if THAT → no effect on tuff maybe chilled slightly in ϕ

← dk green diabase dike with random $CaCO_3$ fracture 1-2mm wide

→ bleb and rarely in fractures with Py-pyrrhotite

ROCK UNIT

B.V

LAPILLI TUFF

HOLE ___ DR ___ LOG ___ Page 2 of 4

DDH 97-20

PROJECT KNOB HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED ___ COMPLETED OCT 3/97
LOGGED BY D.G. LEIGHTON

T.D. 230 FT. COLLAR ELEVATION ___
INCLINATION -50 BEARING 225
COORDINATES 64520E 25820N
SURVEY REFERENCES ___

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Inten	VISUAL EST.: Est Cu Mo	Dufek	Fe$_S$	Cu$_x$Fe$_S$	Fe$_2$O$_3$	Mag	Sample No & Interval	LOG: SCALE ___ BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
120	90																							LAPILLI TUFF	at diabase contact tuff bleached to med. grey, serp fractures & somewhat blocky	B.V
130	95																									
140	95																								blocky, serp. fractures	
150	95																								rare qtz vein/veinlet, no Cu anywhere, generally low Py-Pyrr, locally	
160	90																									
170	90																								Small clay seam @ 156' & @ 165' / 010 to core axis.	

LAPILLI TUFF (as above)

↓

Although no obvious grading in sampling some part more appearance of xl tuff (pseudo bx), however, in general bigger clasts (rare) 2 x 3 cm – .5 x 1 cm in matrix blk to brown-black, some (presumably mafic clasts now mainly epidote

} xl tuff.

DDH 97-20

PROJECT KIVOR HILL
CONTRACTOR OLYMPIC DRILLING
DATE STARTED OCT 3 COMPLETED OCT 3/97
LOGGED BY D.G. LEIGHTON

T.D. 230 FT. COLLAR ELEVATION
INCLINATION -50 BEARING 225
COORDINATES 64520E 25820N
SURVEY REFERENCES

Footage	Core Recovery	Oxide	ALTERATION: Quartz	Sericite	Clay/Pyrop	Biotite	K-spar	Chlorite	Epidote	Carb Zeo	Garnet	Pyroxene	Amphibole	Wollastonite	STR.: Sulf Veins	Frac Infen	VISUAL EST.: Est Cu Mo	$CuFeS_2$	FeS_2	Cu_2FeS_4	Fe_2O_3	MoS_2	Sample No & Interval	LOG: SCALE / BASIC GEOLOGY: rock types, metallization, structures alterations, one column system	LITHOLOGIC DESCRIPTIONS. NOTES & SKETCHES	ROCK UNIT
180	100																							LAPILLI TUFF (as above)	Blocky clay seam x 1' Blocky	B.C.
190	100																									
200	95																							x1 tuff		
210	95																									
220	90																									
230																								E.O.H.		

CRYSTAL TUFF

APPENDIX C

COST STATEMENT

Costs and expenses related to exploration work on the Knob Hill property during the 1997 field program are summarized below.

Wages and Professional Fees*	$ 94,070.00
Rentals (Vehicles, Camp, Equipment, etc.)	23,053.00
Helicopter Charter (Vancouver Island Helicopters Ltd.)	62,587.00
Analytical Costs (Acme Analytical Laboratories Ltd.)	16,158.00
Diamond Drilling (6249 Feet)	123,378.00
Food, expendable supplies, etc.	17,955.00
Final Report, Drafting, etc.	8,000.00
Sub-total	345,201.00
GST	24,164.00
PROJECT TOTAL (ROUNDED)	**$369,365.00**

DISTRIBUTION

CATEGORY	AMOUNT	PERCENT
DIAMOND DRILLING	$320,405.00	86.70%
SOIL SAMPLING	28,960.00	7.80%
GROUND GEOPHYSICS	13,725.00	3.70%
PROSPECTING	6,275.00	1.70%
TOTAL	**$369,365.00**	

* Employee time-sheets for workers on the 1997 Knob Hill project showing days worked and pay rates, other than drillers (who were employed and paid under sub-contract by Olympic Drilling and Consulting Ltd. and Helicopter company employees (charter service by Vancouver Island Helicopters Ltd.) are attached.

LEIGHTON EXPLORATION
AND DEVELOPMENT LTD.

TIME SHEET

PERIOD COVERING Jul
15 TO 31, 1997

Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		Total	RATE
Position/Code	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Days	
Oakley, Steve	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	16	$250/Day
Foreman	LG	LG	LG	LG	LG	LG	LG	LG	GS	GS	GS	GS	GS	GS	GS	GS		
Knight, Andrew						X	X	X	X	X	X	X	X	X	X	X	11	$240/Day
Field Technician						LG	LG	LG	LG	LG	LG	LG	LG	LG	GS	GS		
Oakley, Chris								X	X	X	X	X	X	X	X	X	9	$230/Day
Cook								CK	CK	CK	CK	CK	CK	CK	CK	CK		
Leighton, D.G.								X	X	X	X	X		X	/		6.5	$380/Day
Geologist								PS	PS	PS	PS	PS		PS	PS			
Muhammad, Riaz											X	X	X	X	X		5	$300/Day
Geologist											TR	LG	GE	GE	GE			
Total																		

CM Camp Construction, Maintainance
CS Core Splitting
DC Data Compilation, Interpretation
DD Diamond Drilling
DO Day Off
DR Drafting, Report Writing
GE Geology, Mapping
GP Geophysics
GS Geochemical Sampling
LG Logistics, Mob/Demob
LC Linecutting, Surveying
ML Meetings, Liaison, Field Trips
PR Prospecting
PE Property Examination
PS Project Supervision
SD Sick Day
ST Statutory Holiday
TR Travel

OTHER _CS (CORE SPLITTING)__

SIGNED _____ APPROVED _____ DATE _____

LEIGHTON EXPLORATION
AND DEVELOPMENT LTD.

TIME SHEET

PERIOD COVERING Aug
1 TO 15, 1997

Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		Total	RATE
Position/Code	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Days	
Oakley, Steve	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		15	$250/Day
Foreman	GS	GS	GS	GS	GS	GS	GS	GS	GS	GS	GS	GS	GS	GS	GS			
Knight, Andrew	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		15	$240/Day
Field Technician	GS	GS	GS	GS	GS	GS	GS	GS	GS	GS	GS	GS	GS	GS	GS			
Oakley, Chris	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		15	$230/Day
Cook	CK	CK	CK	CK	CK	CK	CK	CK	CK	CK	CK	CK	CK	CK	CK			
Leighton, D.G.		X	X	X	X	X	X	X	X	X	X	X		X	/		12.5	$380/Day
Geologist		PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS		PS	PS			
Muhammad, Riaz											X	X	X	X	X		5	$300/Day
Geologist											TR	LG	GE	GE	GE			
Total																		

CM Camp Construction, Maintainance
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SD Sick Day
ST Statutory Holiday
TR Travel

OTHER _CS (CORE SPLITTING)__

SIGNED DM APPROVED_____ DATE_____

LEIGHTON EXPLORATION
AND DEVELOPMENT LTD.

TIME SHEET

PERIOD COVERING Aug 16 TO 31, 1997

Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		Total	RATE
Position/Code	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Days	
Oakley, Steve	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		15	$250/Day
Foreman	GS	GS	GS	GS	GS	GS	GS	GS	GS	GS	GS	GS	GS	GS	GS			
Knight, Andrew	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		15	$240/Day
Field Technician	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS	CS			
Oakley, Chris	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		15	$230/Day
Cook	CK	CK	CK	CK	CK	CK	CK	CK	CK	CK	CK	CK	CK	CK	CK			
Leighton, D.G.		X	X				X	X	X	X				X	/		7.5	$380/Day
Geologist		PS	PS				PS	PS	PS	PS				PS	PS			
Muhamad, Riaz	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		15	$300/Day
Geologist	GE	GE	GE	GE	GE	GE	GE	GE	GE	GE	GE	GE	GE	GE	GE			
Total																		

CM Camp Construction, Maintainance
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SD Sick Day
ST Statutory Holiday
TR Travel

OTHER _CS (CORE SPLITTING)__

SIGNED DMR APPROVED_____ DATE_____

LEIGHTON EXPLORATION
AND DEVELOPMENT LTD.

TIME SHEET

PERIOD COVERING Sep
16 TO 30, 1997

Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		Total	RATE
Position/Code	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Days	
Oakley, Steve	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		15	$250/Day
Foreman	PR	GS	TR	LG	LG	LG	LG	LG	TR	GS	GS	LG	LG	PR	PR			
Knight, Andrew	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		15	$240/Day
Field Technician	CS	CS	CS	CM	CM	CM	CM	CM	CM	CS	CS	CS	CS	CS	CS			
Oakley, Chris	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		15	$230/Day
Cook	CK	CK	CK	CK	LG	LG	DO	DO	TR	CK	CK	CK	CK	CK	CK			
Leighton, D.G.	X	X	X	X	X	X	X	X	X	X	X	X	X	X			14	$380/Day
Geologist	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS				
Total																		

CM Camp Construction, Maintainance
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OTHER _CS (CORE SPLITTING)__

SIGNED DMR APPROVED_____ DATE_____

LEIGHTON EXPLORATION
AND DEVELOPMENT LTD.

TIME SHEET

PERIOD COVERING Sep
1 TO 15, 1997

Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		Total	RATE
Position/Code	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Days	
Oakley, Steve	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		15	$250/Day
Foreman	PR	GS	TR	LG	LG	LG	LG	LG	TR	GS	GS	LG	LG	PR	PR			
Knight, Andrew	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		15	$240/Day
Field Technician	CS	CS	CS	CM	CM	CM	CM	CM	CM	CS	CS	CS	CS	CS	CS			
Oakley, Chris	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		15	$230/Day
Cook	CK	CK	CK	CK	LG	LG	DO	DO	TR	CK	CK	CK	CK	CK	CK			
Leighton, D.G.	X		X		X	X			X	X	X	/					7.5	$380/Day
Geologist	PS		PS		PS	PS			PS	PS	PS	PS						
Muhamad, Riaz	X	X	X					X	X	X							6	$300/Day
Geologist	GE	GE	TR					TR	GE	TR								
Total																		

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OTHER _CS (CORE SPLITTING)__

SIGNED DMR APPROVED_____ DATE_____

LEIGHTON EXPLORATION
AND DEVELOPMENT LTD.

TIME SHEET

PERIOD COVERING Oct
1 TO 15, 1997

Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		Total	RATE
Position/Code	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Days	
Oakley, Steve	X	X	X	X	X	X	X	X	X	X	X	X	X				13	$250/day
Foreman	LG	LG	LG	LG	LG	LG	LG	LG	TR	CS	LG	LG	LG					
Knight, Andrew	X	X	X	X	X	X	X	X	X	X	X	X	X	X			14	$240/day
Field Technician	CS	CS	CS	CM	CM	CM	TR	LG	TR	CS	CS	CS	LG	LG				
Oakley, Chris	X	X	X	X	X	X	X										7	$230/day
Cook	CK	CK	CK	CK	CK	CK	TR											
Leighton, D.G.	X	X	X	X	X	X	X	X	X	X	X	X	X	X				$380/day
Geologist	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS	PS				
Total																		

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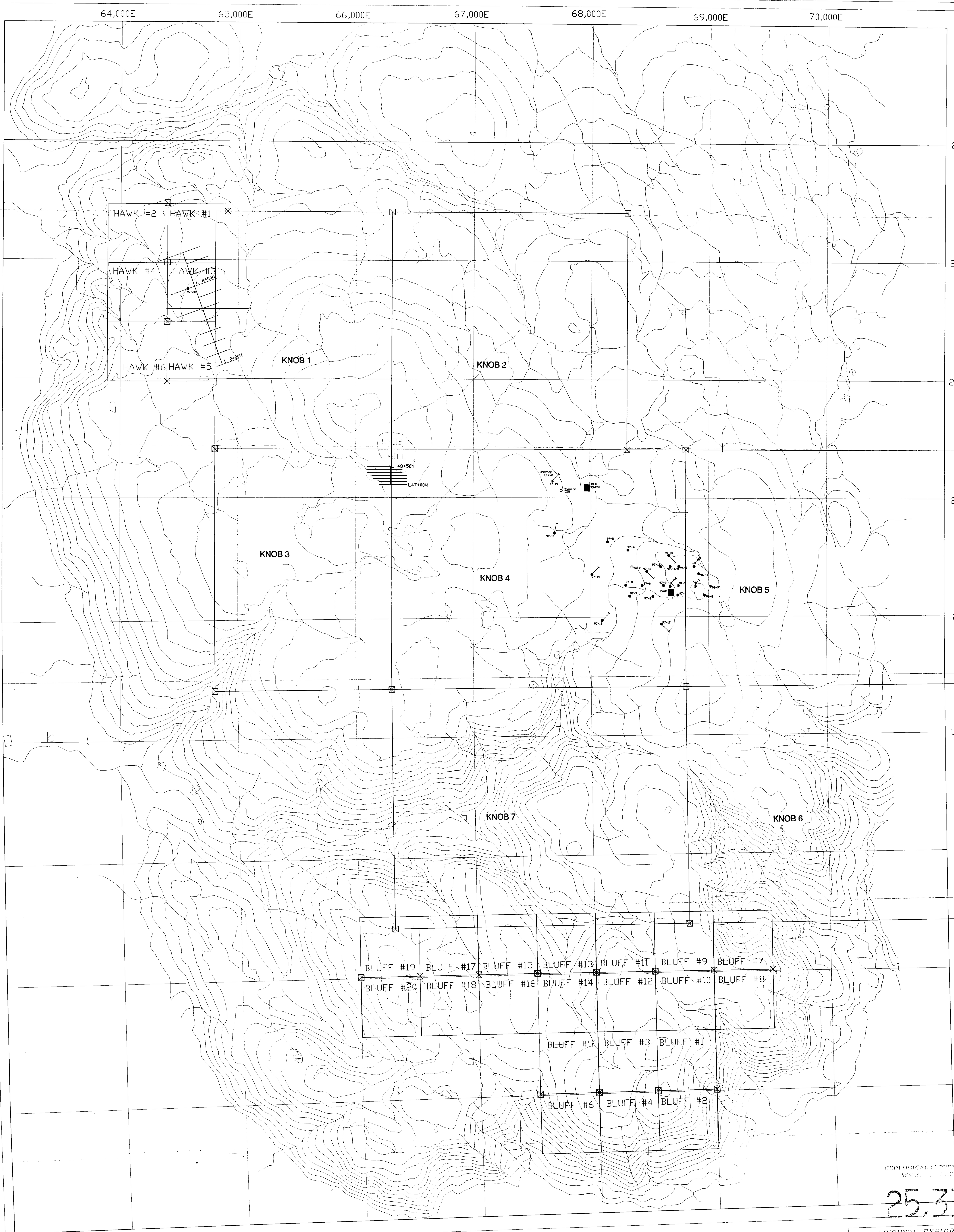
SD Sick Day
ST Statutory Holiday
TR Travel

OTHER _CS (CORE SPLITTING)__

SIGNED DM APPROVED_____ DATE_____



GEOLOGICAL SURVEY BRANCH ASSESSMENT [illegible]

25,330

D. G. F. LEIGHTON

0 200 400 600 800 1000m

SCALE: 1:10,000

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LEIGHTON EXPLORATION AND DEVELOPMENT LTD.

FIRST CHOICE INDUSTRIES LTD

KNOB HILL PROJECT

GENERAL COMPILATION MAP

NORTHERN VANCOUVER ISLAND, B.C.

DATE:	OCTOBER 1997	SCALE:	1:10,000
DRAWN:	TerraCAD 97338	GEOLOGIST:	D. G. Leighton
DATA:		FIGURE:	