84-#290 - 12141

GEOLOGICAL, GEOCHEMICAL and GEOPHYSICAL REPORT on the HART 1-6 CLAIMS: ATLIN M.D.

For

KERR ADDISON MINES LTD.

Owned By

NEWEX SYNDICATE & KERR ADDISON MINES LTD.

NTS 104 K/9E

58°36'N
132°03'W

F. Daley

J. Nelson

Nov 1983

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(In Pocket Unless Otherwise Noted)

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F. Daley
J. Nelson

I. INTRODUCTION

a. Location

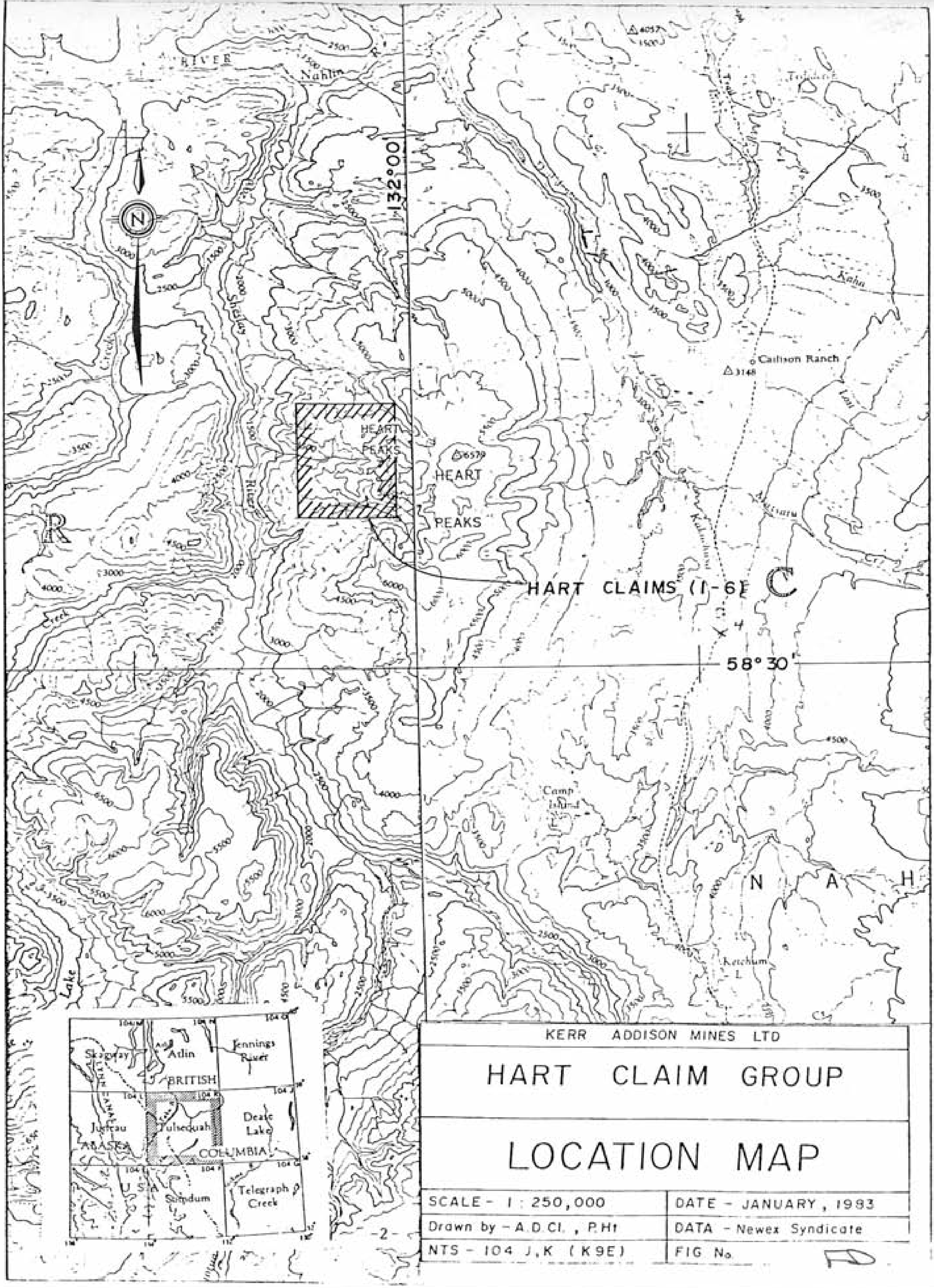
The Hart 1-6 claim group is approximately 145 km south east of Atlin, B.C., centered at 58°36' North Latitude and 132°03' West Longitude. All claims are within NTS 104 K 9E and are assigned to the Atlin Mining Division. (Figure 1).

The 120-unit claim block covers the western slopes of 'Heart Peaks', 2 local basalt domes some 15-40km north-east of the Coast Plutonic Complex. Elevations range from 850m along the western claim boundary to 1750m across the plateau at the eastern margin. Several recent volcanic edifices form prominent peaks of 1500-1600m elevations.

Vegetation in the lower western area consists of second growth pine and spruce. Alpine conditions prevail over most of the property above 1150m elevation and consist of various grasses, moss, buckbrush, alder and dwarf fir. Many areas of the claims, including steep talus slopes and plateaus to the east, have no vegetation cover.

b. Access

Helicopter transportation is the only means of access to the Hart Claim group. Float-equipped fixed wing support is possible from Trapper Lake (35km SW) or Camp Island Lake (20km SE). In 1983, charter helicopter service was available in Atlin, Telegraph Creek and Dease Lake.

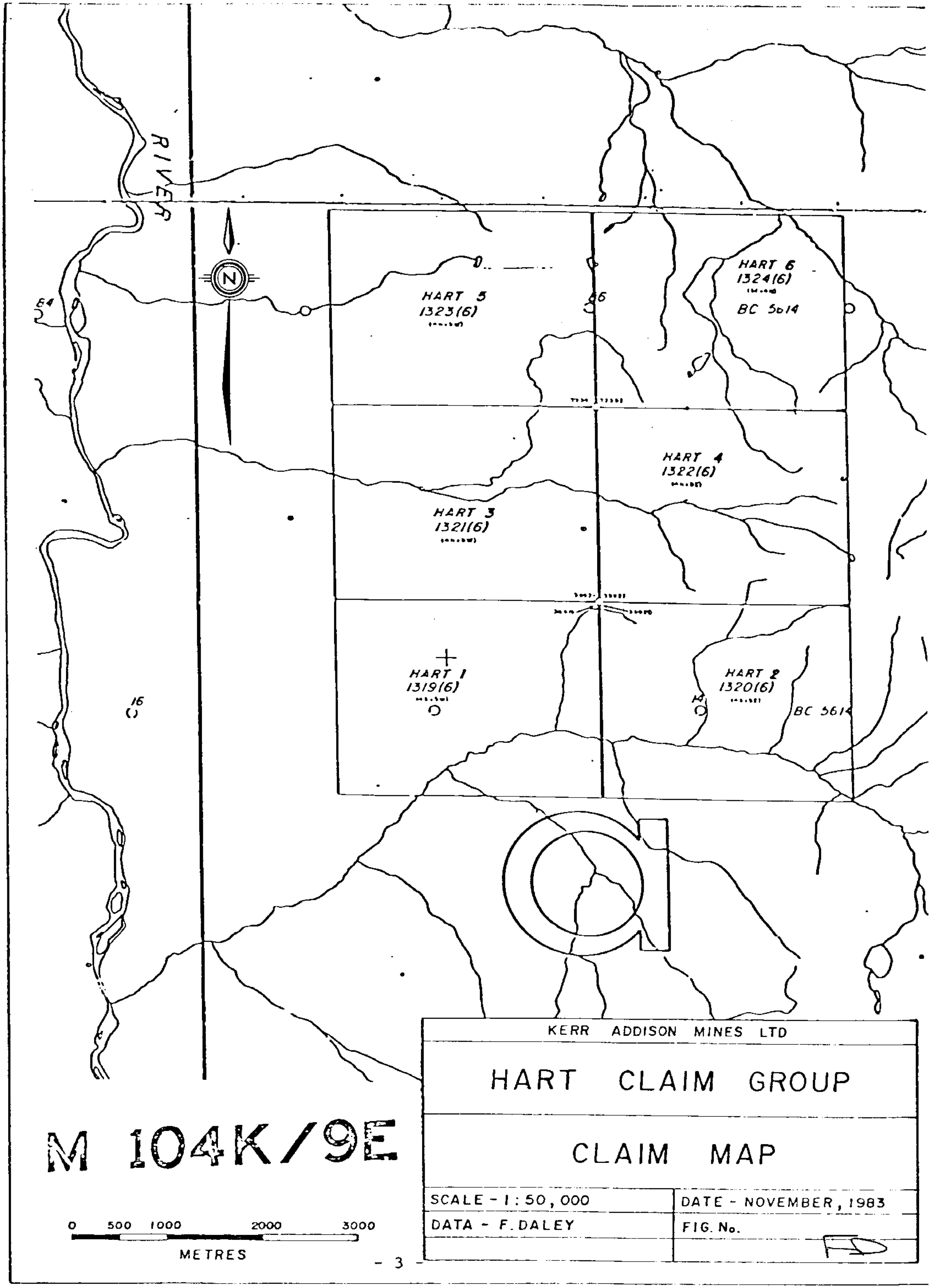


KERR ADDISON MINES LTD

HART CLAIM GROUP

LOCATION MAP

SCALE - 1 : 250,000	DATE - JANUARY, 1983
Drawn by - A.D.Cl., P.Ht	DATA - Newex Syndicate
NTS - 104 J,K (K9E)	FIG No.


RIVER
HART 5
1323(6)
HART 6
1324(6)
BC 5614
HART 4
1322(6)
HART 3
1321(6)
HART 1
1319(6)
HART 2
1320(6)
BC 5614
84
86
16
M 104K/9E
0 500 1000 2000 3000
METRES
KERR ADDISON MINES LTD
HART CLAIM GROUP
CLAIM MAP
SCALE - 1 : 50,000
DATE - NOVEMBER, 1983
DATA - F. DALEY
FIG. No.

c. Previous Exploration

Prospecting in 1980 by a crew of J.C. Stephen's Ltd. personnel located rusty weathering quartz veins within siliceous and pyritic rhyolite and trachyte breccias. Rock geochem analyses showed the veins to have anomalous precious metal content. The Hart 1-6 claims, totalling 120 units, were staked in June 1981 for J.C. Stephen on behalf of the Newex Syndicate (Newmont, Lornex and Stephen), and transferred from J.C. Stephen to Newmont Mines Ltd. by a bill of sale recorded 12 March 1983.

As manager, J.C. Stephen Ltd. ran a 1981 geological and geochemical program. 140 man days were spent prospecting, gridding and mapping new showings, and collecting 339 rock, soil, and talus samples for geochem analyses. Values up to 15 oz/t Ag and 6500 ppb Au were recorded in rock samples.

In 1982, J.C. Stephen Ltd. conducted another geological and geochemical program for the Newex Syndicate. The property was mapped on a 1:5000 scale and quartz vein zones were trenched and sampled. No significant assay values were obtained during the 1982 program.

By a March 1983 Letter of Quit Claim, Lornex terminated their participation in the Hart Claims and all interest was transferred to Newmont. In Feberuary 1983 Kerr Addison Mines Ltd. entered into an agreement with Newmont to earn an interest in the property and assumed the role of operator for the 1983 exploration program.

d. 1983 Exploration Program

From June 24 to August 12, a crew of 4-5 people spent a total of

217 man-days on a program of regional and detailed mapping, grid construction, VLF EM-16 surveys, rock, talus and soil sampling and prospecting.

i. Grid Construction

A total of 49 line km in 2 grids was established on the property in 1983 using a 2-man poly-chain and compass method. The main base line is oriented at 015° and has a total length of 2.9 km. To compensate for topographic conditions, the base line was offset 3 times; twice to the east, to base line 2+50E along line 3+00N, and to base line 5+00E along line 22+00N; and once to the west, to 5+00 west along line 2+00N (Figure 4).

Cross-lines are established every 100m along the baseline, from 3+00 south to 26+00 north, and are oriented at 105°. Stations along the cross lines were established at 25m interevals. All stations were slope corrected and are marked by fluorescent orange wire-flag pickets.

A second grid was constructed on 'Opal Dome' and is tied into the main grid by Lines 7+00N, 8+00N, and 9+00N. The base line for this grid also runs at 015° and is at 17+00E. Again, lines are at 100m spacings, stations at 25m intervals along the lines.

To allow for detailed work on 2 areas of the property, cross lines were established at 50m intervals between Lines 1+00N and 8+00N. These 50m lines are restricted to the areas of interest and do not extend continuously across the grid.

The 1983 grid covers parts of the Hart 1,2,3,4, & 6 Claims.

ii. Geological Survey

The property was mapped by J. Nelson and F. Daley at a scale of 1:5,000. Geological areas of interest defined by this mapping were then covered on a 1:2500 scale. Mineralized showings were mapped in detail at a scale of 1:500.

The entire grid was traversed and mapped with outcrop locations and showings surveyed into the new grid co-ordinates.

iii. Geophysical Survey

A VLF-EM 16 survey was completed over the entire 49km grid using a Geonics Ronka EM 16 instrument. Regional geologic trends and orientation of the grid necessitated using Hawaii (NPM,23.4 Khz) as the primary frequency. Tilt and quadrature readings were taken facing grid east.

Line profiles for tilt and quadrature as well as contoured Fraser Filter data are presented in this report.

iv. Geochemical Surveys

A total of 519 talus fine and soil samples were collected at selected grid locations across the main areas of interest and analyzed for Au, Ag, As and Sb.

139 rock chip samples of all major lithologies were also collected. Of these:

78 were analyzed for Au, Ag, As, Sb, Hg, Tl, Bi, Pb

38 were analyzed for Au, Ag only

15 were analyzed for Au, Ag, As, Sb, Hg

8 were analyzed for Au, Ag, As, Sb

All rock samples were initially analyzed by geochemical techniques. Samples with greater than 15ppm Ag or greater than 5ppm Au (5000 ppb) were re-analyzed by Fire Assay techniques.

Grid contoured element maps for Au, Ag, As, and Sb are included in this report along with sample location maps and Au, Ag analyses for rock geochem sampling. All geochemical analyses are appendixed.

II. RESULTS AND INTERPRETATION

A. GEOLOGICAL SURVEY

a. Regional Geology and Structure

The Hart Claims cover a group of trachyte and lesser rhyolite centers of Pliocene age immediately west of the Plio-Pleistocene Heart Peaks Formation basalt plateau. The age and bimodality of the Heart Peaks suite are comparable to other areas in northwestern British Columbia, notably Mt. Edziza and Level Mtn. Northerly or north-northeasterly trends within these volcanic edifices are ascribed by Souther (1977) to east-west crustal extension accompanying slip on the Queen Charlotte fault system.

An inferred line through the three most resent basalt centers, which includes Heart Peaks, trends 030°. Locally the trachyte domes show a much less pronounced north to northeast trend. The best developed structure within the trachytes is an apparent fracture system at 015° which controlled emplacement of late phreatic explosion breccias and associated vein mineralisation. Basalt dykes at the headwaters of Camp Creek and swarms of calcite veinlets in the Jurassic Takwahoni Formation exposed along Camp Creek below Top Dome (Figure 3) both trend north to northeast and probably filled fractures which opened during post-extrusive Plio-Pleistocene expansion.

b. Property Geology (Figure 3)

i. Basement

The Plio-Pleistocene volcanics were erupted onto folded shale/siltstone/sandstone rhythmites of the Lower Jurassic Takwahoni Formation (LJT, Figure 3). This unit is extensively exposed west of the property. It occurs along Camp Creek at 1000m elevation, almost directly below Top Dome. Later polymict breccias associated with phreatic activity contain fossil bearing fragments of Takwahoni sediments.

ii. Plio-Pleistocene Volcanic and Related Rocks

1. General Considerations

The volcanic rocks on the property can be subdivided into three general lithologic types. In decreasing order of abundance these are; trachyte, basalt, and rhyolite. The trachytes form distinct domes and flows, which are easily distinguishable both on air photos and on the ground.

Based on their stratigraphic position relative to the intervening trachytes, the basalts are subdivided into upper and lower flow packages. The lower basalts (Bhf_L) postdate some trachytes but are overlain by others, particularly King/ Mogul Domes (Figure 3). These basalts are hawaiites with abundant mm-size plagioclase phenocrysts and are included in the Heart Peaks FM. The upper basalts (Bhfu) are also hawaiites, but they contain large olivine xenocrysts in addition to plagioclase phenocrysts. The lowest of the olivine bearing basalts overlies both rhyolite and trachyte and is considered the bottom of the later Level Mtn. Group.

Two groups of rhyolites occur in the area. One (Rf/tx [1]), outcrops west of the main trachyte mass and underlies the oldest trachyte flow of Tarfu Crater (Figure 3). The second group of rhyolites (Rf/wt [2], R/wt [3]) occurs east of the main trachyte mass, and overlies the youngest trachytes.

The existing formational names are misleading. The Heart Peaks Formation contains all the felsic units outcroping west of the geographic "Heart Peaks", while the peaks themselves are vents for basalt of the Level Mtn. Group. Although roughly contemperaneous with the volcanic activity at Level Mtn. 40km east, these basalts are lithologically distinct and of local origin. In this report the names are retained only for the purpose of correlation with earlier work; new ones are certainly desirable.

The Heart Peaks Fm trachytes stratigraphically underlie the Level Mtn. Group. Thus it is unlikely that they formed as late differentiates from a basaltic melt.

2. Mapped Units

In this section, units within the Heart Peaks Fm and Level Mtn. Group are discussed in the order in which they appear on the legend for Figure 3. Purely lithologic units (no age designation) are discussed last for each formation.

A. <u>Heart Peaks Fm</u>

The Heart Peaks Formation includes the trachyte domes, subordiante rhyolite flows, tuffs, and the lower basalt flows. It embraces a wide variety of extrusives, pyroclastic, epiclastic and related rocks: flows, flow-breccias, vent-proximal breccias, tuffs, tuff-breccias, finely laminated tuffaceous sediments, dykes, polymict phreatic explosion breccia and lahars. Trachyte flows constitute the bulk of the formation. Trachyte domes have been used as basic map units because of their clear geomorphic expressions and genetic significance for the Heart Peaks Fm. It should be noted that, in hand sample, trachytes from different domes may appear similar to identical.

i. Rhyolite flows(s) and tuff west of the main trachyte area (Rf/tx [1])

Massive to slightly flow foliated white rhyolite outcrops in three areas near the western exposed limit of the Heart Peaks Formation; along the sides of Tarfu Crater underlying North Crater trachytes; west of Bug Basin; and southwest of Top Dome. Although its contact relations with overlying trachytes is not exposed, it is assumed to be the oldest member of the Heart Peaks Fm, based on the generally observed west to east magmatic trend. Wherever seen, this rhyolite contains small rounded grey quartz, characteristic platy biotite, and white alkali feldspar phenocrysts.

ii. Zero-zero Dome: trachyte flows and flow-breccias (Tf1/Tfx1)

The remains of a small dome now forms a half-moon shaped ridge south of Top Dome. It is truncated by both South and Top Domes, and therefore is older than either of them. Zero-zero Dome consists mainly of trachyte flows, with small alkali feldspar phenocrysts in a white, buff or purple fine-grained feldspathic (+quartz ?) matrix. Fracture patterns range from platy to blocky.

iii. South Dome: trachyte flows and flow-breccia (Tf2/Tfx2)

South Dome is a large, assymmetric dome 1200 meters across and 450 meters high near the south end of the property. Where not kaolinized, the dominant lithology is flow trachyte, similar to Zero-zero Dome trachyte, consisting of small k-spar phenocrysts in a buff to white fine-grained matrix. It fractures to form plates up to 50cm across, with dark orange or purple-coated fracture surfaces. An extensive dyke swarm of identical lithology but distinctive horizontal-columnar jointing outcrops in Bear Creek, southeast of South Dome. The northern part of South Dome consists mainly of kaolinized flow or tuff breccia. This breccia contains about 10%, cm-size, white, in some cases foliated, trachyte flow or ash clasts in a soft white matrix. The strong alteration prevents definitive characterization of the matrix as flow or tuffaceous material.

Because South Dome is more deeply eroded and less "domal" than Top Dome, it is considered to be the older of the two. It is overlain by altered hawaiite at the head of Sinter Creek.

iv. Top Dome: trachyte flows, flow-breccia, tuffaceous sediments (Tf3/Tfx3)

Top Dome and Mogul Dome face each other across Camp Creek. Each is a classically shaped dome breached by an explosive eruption. Top Dome is cratered to the northwest and Mogul Dome cratered to the southwest.

The trachyte flows that make up most of Top Dome differ significantly from those on South and Zero-zero Domes. They contain sparse small alkali feldspar phenocrysts in a pale green, buff, grey, or white matrix that is flinty and aphanitic rather than fine-grained. Extremely fine flow-laminations are developed in some areas; their attitudes vary locally from gentle to vertical. Part of the dense character of the trachyte is due to pervasive silicification, which characterises Top as well as Mogul and King Domes.

Flow or pyroclastic breccias are seen on the ridge west of the Top Dome rock glacier. A set of northwest trending trachyte and rhyolite dykes, which form prominent outcrops on this ridge, represent the only instance of radial dyking in the Heart Peaks Fm.

Finely laminated grey and white tuffaceous siltstones outcrop in two places along the eastern ridge of Top Dome, and subcrop in a band along the flank below. They were probably deposited in a shallow lake, perhaps restricted by the basalt flows that lapped against the dome.

v. Lower Hawaiite Flows (BhfL)

Basalt flows outcrop on Opal Dome, on the main ridge north of South Dome, and underneath Mogul and King Domes. Where fresh, the basalt is dark green to purple with abundant lath-shaped plagioclase phenocrysts averaging 2-3 mm long. Outcrops show curving joints and smooth, dark purple fracture surfaces. Columns were seen in only one instance, resembling a small dyke or lava tube.

The flows are in part tubular and gently dipping but can also be traced down Sinter and John Creeks, in what appears to be valley-filling flows over terrain very similar to present topography. This would suggest a source area in the topographic high between Opal and Top Domes; although no vents or major dykes are now visible.

These basalts pre-date Mogul and King Domes and postdate Top Dome. At 1496m elevation, Top Dome protrudes into the basalt flow, as projected from the east. Thus, either Top Dome intruded the basalts, or the basalts lapped around it. The latter interpretation is considered more likely, since Top Dome trachytes are extrusive in origin. Also, they closely resemble Mogul Dome trachytes, which pierced the basalts in a conduit so narrow that it is not now visible.

Hawaiite on Opal Dome overlies trachyte, and is dissected by trachyte dykes, indicating trachyte activity in this area possibly spanned the period of lower basalt eruptions.

In summary, these lower hawaiites provide a stratigraphic marker that separates the older South and Top Domes from the younger domes north of Camp Creek; while Opal Dome spans the entire interval. The lower basalts emerged in the area near Opal-South-Top Domes and flowed mainly northwestward across the present site of Camp Creek into the lower end of Bug Basin. Less significant southward flow is shown by a remnant of basalt in Sinter Creek.

vi. North Crater and Tarfu Crater: trachyte flows, vent-proximal breccias (Tf4A/Tfx4A)

North and Tarfu Craters are pronounced steep-walled circular depressions near the northern limit of trachyte exposed on the property. The lowest exposed unit in Tarfu Crater is rhyolite (map unit RF1). It is overlain by a roughly tabular trachyte body, distinctive for its content of cm-size alkali feldspar phenocrysts (Tfx4). This "large-phenocryst" trachyte also forms the wall of North Crater and underlies both Mogul and King Domes.

A brecciated white trachyte flow/vent-proximal breccia unit with small (mm-size) alkali feldspar phenocrysts overlies the "large-phenocryst" flow along the south rim of North Crater. On a 5 to 50cm scale, angular trachyte fragments are separated by iron oxide coated fractures and open spaces. Trachyte flows and flow breccias with small phenocrysts occur also as small domes and knobs on the floor of North Crater and probably represent late, small scale activity.

vii. Mogul Dome and King Dome: trachyte flows, flow-breccia, vent-proximal breccia (Tf4/Tfx4/Tvx4)

Mogul Dome is the most symmetrically preserved dome. It has cratered to the southwest and abuts King Dome to the northwest. The dominant lithology in both domes is a white to grey aphanitic flow-trachyte that contains small, sparse alkali feldspar phenocrysts. Local flow breccia and vent-proximal breccia contain clasts of this trachyte in an identical matrix. An abundance of large (10cm-size), angular clasts distinguishes the vent-proximal breccia. "Large phenocryst" trachyte is seen in the core of Mogul Dome and in a band below King Dome.

Silicification, with or without pyrite, is prevalent, particularly in the main dome structures.

As previously discussed, Mogul and King Dome developed on top of the lower basalt. Local stratigraphy indicates they also overlie the "large phenocryst" trachyte & pyroclastics of North Crater (Figure 3). Therefore Mogul and King Domes probably post-date not only the lower basalt but the North Crater flows as well.

The eastern flank of Mogul Dome forms a steep, SE-facing dip slope. It is overlain along a steep contact by an unaltered, nearly horizontal trachyte flow that is thought to have emanated from Opal Dome. Minor black carbonaceous debris occurs along the contact. This relationship suggests that Mogul and King Domes formed prior to the last activity at Opal Dome.

viii. Opal Dome: trachyte flows (Tf5)

Opal Dome, named for the small occurrences of opal near its summit and on its western ridge, is the furthest east of the trachyte domes. It is mainly buff-weathering fine grained homogeneous platy-fracturing trachyte flows. Some areas show strongly streaked grey, pink, and lavender breccia flows, that contain flow-attenuated fragments in contrasting colours. Flows similar to these, both homogeneous and fragmental, outcrop along the hillsides north of Camp Creek. It is suggested that the Opal Dome edifice was once continuous across Camp Creek, but has now been dissected by eastward migration of headwaters.

As described previously, initial Opal Dome trachyte extrusions pre-date the lower basalt flows while its latest flows post-date Mogul Dome. In the headwaters of Camp Creek, trachyte from Opal Dome is overlain by rhyolitic sediments and rhyolites (Rf/wt(2), Rts) which form the youngest phase of the Heart Peaks Fm. Thus Opal Dome is the longest-lived eruptive center in the area.

ix. Bug Basin: trachyte volcaniclastic rocks and sediments. (Tt, Ttx, Tts)

Located between North Crater and King Dome are several small exposures of pyroclastic and epiclastic rocks, including tuff, tuff-breccia, lahars, laminated tuffaceous lake sediments and white kaolin-rich shale with fossil deciduous leaves and, at one locality, petrified wood.

The Bug Basin rocks overlie the upper BhfL flow. Correlative epi-and pyroclastic units are seen below Mogul and King Domes. One prominent boulder-clay lahar contains clasts of "large feldspar" trachyte identical to that exposed in North and Tarfu Craters. Deposition in Bug Basin was probably contemporaneous with the development of North Crater. It points to a paleotopography of lakes and swamps, much gentler than that seen at present.

x. Rhyolite welded tuff and flows east of main trachyte area (Rf2/Rwt2)

The eastern most exposures of the Heart Peaks Fm., south of Camp Creek, consist of characteristic biotite deficient rhyolite with dark grey quartz and alkali feldspar. In places these rhyolites are welded tuffs, containing pea-size spherulites. Other exposures are flow-rhyolites. One outcrop in particular is notable for its "swiss-cheese" vesicles. These rhyolites overlie Opal Dome trachytes and are in turn overlain by the oldest basalt flow of the Level Mtn. Group. A small rhyolite body next to the 1983 camp shows both columnar and platy jointing and may be a local extrusion.

xi. Phreatic explosion breccia.

A distinctive polymict breccia outcrops in a band immediately east of Top and Mogul Domes. It interfingers with trachytes along the northeastern ridge of Top Dome, widens to 500m in the Steep Zone, and is exposed in small outcrops in the End and Mogul Zones. Gently-dipping breccia of this unit overlies Mogul Dome trachytes in one notch on the summit ridge.

The explosion breccia contains highly angular clasts of trachyte showing a wide variety of textures, as well as siltstone/shale of the Jurassic Takwahoni Fm and very minor basalt. The shales, siltstones, and basalt are certainly exotic to their present surroundings. Most of the trachytes are probably exotic as well, based on the wide assortment of textures shown in a single hand sample. In some areas however, notably the cliffs of Top Dome and at the End and

Mogul Zones, large locally derived blocks of trachyte occur in a breccia matrix, indicating some degree of local brecciation.

The matrix of the polymict explosion breccia, where not silicifed, is composed of strongly kaolinized fine fragmental material. Silicification may affect the clasts, the matrix with incursions into the clasts, or the entire breccia. Silicified breccias are grey, hard, and commonly pyritic.

The main breccia is a north-northeast trending tadpole-shaped body with the "head" at Camp Creek (Steep Zone) and the tail fingering into the northeastern ridge of Top Dome. The other breccia occurrences at the End and Mogul Zones lie northward along this trend. The confinement of breccia occurrences to a single trend parallel to regional Plio-Pleistocene extensional features suggests deep structural control.

The highest breccia occurrence is at 1500m elevation on the summit ridge of Mogul Dome. Takwahoni clasts within it originated lower than the Takwahoni exposures at 1000 m elevation along Camp Creek. This establishes a vertical transport of at least 1/2 km for clastic material in the breccia.

xii. Mudflows along Camp Creek (mf)

Sparse remnants of several debris flows occur next to

Camp Creek. Some may be post-glacial, while others were probably coeval with Heart Peaks Formation. No fill or outwash appears in the drainage. The following laharic deposits are present:

1. Below the Top Dome rock glacier, small bank exposures on the north side of Camp Creek consist of greenish-grey clay-rich, commonly pyritic mud containing 1-5cm highly angular, flinty-textured trachyte clasts. These occur at the edge of a forested continuation of the main rock glacier. Probably the present rock glacier, with its well-defined flow-furrows, developed on a mass of kaolinite-rich explosion debris that filled the valley of Camp Creek after an explosive event that ruptured Top Dome.

2. Below the Steep Zone, a small lahar exposure with both trachyte and Takwahoni clasts and black carbonaceous debris overlies and partly engulfs silicified trachyte. The presence of Takwahoni clasts may indicate that this lahar is a surface expression of the polymict explosion breccia.

3. Between the Steep Zone and John Creek are several exposures of kaolinite-rich lahars. Sparse trachtye, trachtye flow breccia, and basalt clasts occur in a white, grey or bluish clay matrix. This mud flow may have originated as a slide in the highly kaolinized material below Dog Dome.

B. Level Mountain Group ($Bhfu_1$, Rwt (3), Bts, $Bhfu_2$)

The mapped portion of the Level Mountain Group includes interlayered basalt flows with basaltic tuffaceous sediments and one rhyolite welded tuff. The basalt member is the Castle Ridge basalt ($Bhfu_1$). It shows true columnar jointing in places, as well as crude vertical jointing. In hand sample it is dinstinctive for its content of large olivine zenocrysts and black glass fragments. The Castle Ridge flow overlies Opal Dome trachyte north of Camp Creek, and rhyolite (Rf/wt [2]) south of Camp Creek.

A rhyolite welded tuff (Rwt [3]) lies between the Castle Ridge flow and the later basalts north of Camp Creek. It has a highly flow-attenuated texture. Limited structural measurements indicate N-S transport, parallel to the probable Pliocene-early Pleistocene (but not present) topographic grain. The welded tuff contains quartz and alkali feldspar phenocrysts, clasts of red basalt scoria, and ping-pong ball-size spherulites.

Above the rhyolite tuff, the Level Mtn. Group consists of basalt flows and basaltic sediments. All post-rhyolite flows are designated (Bhfu [2]). NNE-trending basalt dykes cut the Heart Peaks Fm in the headwaters of Camp Creek.

iii. Alteration and Mineralization

1. Alteration

Three styles of alteration are seen on the property:

pervasive silicification ($\pm$ pyrite), kaolinization, and opalisation. The silicified zones host all of the exposed quartz veining of economic interest. Widespread silicification is seen in the phreatic explosion breccia and in the trachytes of Top, Mogul, and King Domes. Sharp contacts separate the strongly silicified rocks of Top Dome from unaltered South Dome trachytes and the strongly silicified trachyte flows and breccias of Mogul/King Domes from fresh rocks of North Crater and the unaltered flat-lying Opal Dome (?) trachyte flow east of Mogul Dome.

Without exception the phreatic explosion breccia is either silicified or kaolinized. In many cases, silicification seems to have proceeded from the matrix inward to engulf the clasts; however there are examples of silicified, pyritic clasts in a mainly kaolinized matrix, and quartz veinlets which are restricted to a single clast. These textures suggest multiple episodes of brecciation and silicification.

A salient feature of the local geology is the characteristic massive silicification within Top and Opal Domes in contrast to its absence in other areas. It may relate to varying amounts of original water in separate, small magma chambers; or to the nature of the plumbing system on the Top Dome - Mogul Dome trend.

Kaolinisation has affected a wide area, covering parts of South Dome, Dog Dome, Opal Dome and the slopes below the basalt cap east of Top Dome (Figure 3). Most of the kaolinised rocks are trachytes, although bleached zones finger into the basalts.

Two small sinters occur within the zone; crystalline quartz stockworks and grey chalcedony at Dog Dome and a small grey-banded, flow riffled chalcedony exposure at the head of Sinter Creek.

Phreatic breccias at the Steep, End, and Mogul Zones have also undergone varying degrees of post-brecciation kaolinization. Opalisation is most prominent at Opal Dome. At two locations near the summit, grey opal replaces trachyte and trachyte breccia along bedding. Green chaledony (?) opal veinlets are common. A small outcrop of butterscotch, banded opal south of the summit may represent a small sinter.

Upper Bug Basin hosts a small opalized zone within epiclastic sediments.

Alteration in the quartz veins includes varying amounts of kaolinite, limonite and jarosite.

2. Mineralization

Quartz veins occur along a NNE trend from Top Dome (including Top Zone, Quartz Hill, and Bottom Zone showings), through the Steep Zone, to the End Zone, and Mogul Zones. Minor stibnite-opal veining occurs at 1440m elevation on Mogul Dome, north of the Mogul Zone. The strongest evidence for structural control of these 4 zones is their alignment, and the north - northeast trends of some of the veins. No obvious master faults are seen.

With the exception of the Top Zone, the quartz veining is intimately associated with the phreatic explosion breccia, cutting either it or adjacent silicified trachytes.

Precious metal content is associated with altered quartz veins in the Top Zone, quartz veining in silicified breccia zones west of Top Zone, and open space quartz veining at the Steep and Mogul Zones. *There are no base metal bearing veins* exposed on the property.

Detailed Descriptions of showings:

Quartz veins that cut the trachytes, explosion breccias and laminated sediments of Top Dome fall into three geographic zones.

A. Quartz Hill and vicinity/Bottom Zone

These are open-spaced, white, crystalline quartz veins within polymict breccias and silicified trachytes. The veins show cockscomb and platy (replacement?) internal structures with individual quartz prisms commonly zoned from clear interiors to cloudy, "varved" exteriors. Measured trends of these veins cluster around NNW. Veining at Quartz Hill is poorly defined at depth. Surface widths of .3-1m dissipate to fracture-cavity fillings of .1m width within 10 m of surface and resemble more a stockwork type mineralization.

The Bottom Zone may be a southern extension of the Quartz Hill veining under the talus-covered east shoulder of Top Dome.

The Quartz Hill-type veins are low in precious metals (Appendix II), with an average of 10 ppb Au and 7.5 ppm Ag.

B. Top Zone (Figure 5)

This system embraces an area approximately 100 x 200 m centred on the summit of Top Dome. Altered veins within it range up to nearly a meter wide in places and have strike lengths of 50 to 100 meters. In contrast to the Quartz Hill veins, these trend ENE to NE, at nearly right angles to the overall trend of the mineralized zone. Visible ruby silver is contained in the mineral pyrargyrite and occurs as disseminated grains symmetrically distributed about the vein axes. Grey siliceous bands, open-space filling textures and platy replacement textures occur in some veins, on a much smaller scale than those at Quartz Hill.

Gold in the Top Zone veins ranges from 5ppb to a high of .92 oz/ton, with an average of 788ppb for 40 samples. Silver averages 51ppm; values in the 10-oz range are common.

i. Breccia-vein Zones

West of Top Zone, vein trends revert abruptly to N-S. These zones are distinct both from the Top Zone veins and the white cockscomb/platy Quartz Hill veins. In them, lenses of quartz are developed in highly silicified, pyritic, tabular breccia zones that contain sparse trachyte clasts, rather than the variety of clasts seen in the normal phreatic explosion breccias. The total width of these zones is from .5 to 2 meters. Average Au within them is 130 ppb; silver is 10.9ppm. That these values are significantly lower than those in the Top Zone may partly reflect dilution of vein material by silicified breccia.

Comparison of the three groups of veins shows that the Top Zone veins provided the most favorable environment for precious metal mineralization.

C. Steep Zone

Quartz veining on the Steep Zone (Figure 6) is hosted by a pyritic, silicified explosion breccia containing screens and possibly dykes of trachyte. Two prominent steep vein orientations, NNE and NNW, may constitute a conjugate set. The quartz veins, up to 1m across, texturally resemble those at Quartz Hill, showing open space (coxcomb) textures with euhedral, free-growing crystals ranging up to 5 cm in length; and platy replacement textures.

In some samples quartz prisms show clear interiors and cloudy exteriors, as at Quartz Hill. Most gold and silver values in the veins are low. A few higher values bring the averages up to 67 ppb Au and 9.7 ppm Ag.

The Steep Zone breccia has an anomalous precious metal content. Sampling of the pyritic wall rock breccia adjacent to quartz veins returned analyses of up to 550 ppb Au. In this locality, the breccia may have provided both the mechanism and source for mineralization.

D. End Zone

Two small subcrops of quartz-veined phreatic explosion breccia were discovered during the 1983 program on Line 16+00N, 2+25E. They demonstrate the continuity of the breccia trend through this area of very sparse outcrop. Quartz vein float from the End Zone contains 100 ppb Au, and 6.4 ppm Ag. Soil sampling across the area produced a local anomaly of 470 ppb Au and 7 ppm Ag with greater than 10,000 ppm As and greater than 4,000 pppm Sb; possibly reflecting an unexposed mineralized occurrence.

E. Mogul Zone

Detailed geology of the Mogul Zone is fairly complex (Figure 7). Explosive breccia has invaded a flow-trachyte; much of the trachyte bordering the breccia is itself brecciated and silicified. Equally silicified laminated shale unconformably overlies the trachyte and breccia; and fine-grained breccia laminae are intercalated with the shale. Quartz veins cut all three units.

These relationships show a complex history of breccia injection, erosion, sedimentation and veining. The surface veining of the breccia suggests that all of these events took place at a very shallow level.

Several quartz veins cross the Mogul Zone on consistent NNE trends and show platy replacement textures. Inclusions of silicified or kaolinized trachyte are common. The average Au in these, 1166 ppb, is the highest for any group of veins on the property, although the highest value, 5350 ppb, is less than some in the Top Zone. Silver averages 12.3 ppm.

c. Summary

Volcanism at Heart Peaks comprises an earlier, trachyte-rhyolite suite (Heart Peaks Fm) and a later, alkali basalt suite (Level Mtn. Group). Within the Heart Peaks Fm, eruptions proceeded generally from west to east and from south to north. Domal trachyte flows and flow breccias are flanked by remnants of lahars and tuffaceous sediments. Pervasive silicification is restricted to Top and Mogul/King Domes, which form prominent edifices ruptured by late explosive eruptions.

Significant quartz veining on the Hart Claims concentrates in a NNE-trending zone, in close spatial assocation with the phreatic explosion breccias. The events which produced the breccias and the veins probably occurred near or after the close of trachyte eruptions. The breccias, caused by massive steam eruptions focused along a prior NNE-trending zone of weakness (extension?). Later circulation of magmatic and meteoric waters through the resulting hot, permeable zone gave rise to the veining.

II. RESULTS AND INTERPRETATION

B. GEOCHEMICAL SURVEYS

a. Introduction

Precious metal and indicator element geochemical surveys on the property totalled 519 grid samples of soil and talus fines analyzed for Au, Ag, As and Sb; and 139 rock samples analyzed for Au, Ag, As, Sb (+/- Hg, Bi, Pb, Tl, B, Fl). All analyses were done by Chemex Labs Ltd. of North Vancouver. Grid geochemical analyses for Au, Ag, As, Sb are plotted and contoured in Figures 8a-8d. Rock geochem stations and analyses for Au, Ag, Hg, As, Sb are plotted in Figure 4. Bi, Pb, Tl, B, and Fl analyses are included with Appendix II but, because of low values are not plotted.

Soil and Talus Fine (Grid) Sampling

The purpose of the grid sampling survey was four-fold;

a. to verify 1982 Au, Ag, and As anomalies using more accurately located data points

b. to obtain full geochemical coverage along the main 020° trend between mineralized showings.

c. to locate previously undetected mineralization on other parts of the property, and

d. to provide lithogeochemical data for interpreting the origin of quartz vein mineralization.

Soil development across most of the area of interest is poor to non-existant. Moderate slopes covered by sub alpine fir, buckbrush, and dwarf spruce have a poorly developed 'B' horizon. In these areas, every effort was made to locate and sample the B horizon. Where the B horizon was not developed, samples of the C horizon were collected and marked as 'soil' samples. These were soil fractioned samples and did not require crushing prior to analyses.

There is no mature soil development across steep alpine talus slopes. Most of these alpine slopes have continuous movement of blocks up to .5 m^3 size. In these areas the talus 'fines' were sampled; a composite of small rock chips and accreted soil matter (usually clay). These samples required crushing and grinding to -100 mesh prior to analyses and have been interpreted as rock geochemical results.

At all sample stations the nature of the sample medium (soil, organic, rock or clay) and its colour (white, yellow, brown, grey, or black) were noted for future reference.

Analysis for Ag and Au was by nitric-perchloric extraction. Gold geochem was by aqua regia digestion and MiBK extraction with fire assay preconcentration and A.A. analysis. Mercury analyses used a nitric digestion for A.A., antimony used an HCL digestion and organic extraction prior to A.A. A 5 gram sample was used for Ag, As, Sb, and Hg, 15 grams for Au.

Rock Geochemical Survey

Emphasis was placed on determining precious metal and trace element concentrations in all major lithologies in the volcanic sequence. Consequently the pyritic, siliceous and kaolinized trachytes, pyritic and siliceous breccias, altered and unaltered basalt flows and altered or unaltered quartz veins were sampled. Initally Au, Ag, As, Sb, Hg, Bi, Tl and Pb were analyzed with the intent of determining zoning patterns and ratios indicative of temperature and depth, and a locally applicable geochemical signature. Bi, Tl, and Pb were found to occur in insignificant concentrations and showed little or no correlation to other trace element anomalies. These elements were ommitted from later analyses.

All samples were initally run by geochem methods (ie analyzed by AA into ppm or ppb) on the -100 mesh fraction. Rock samples that were greater than 15 ppm Ag or 5 ppm Au were re-run by assay preparation methods.

b. Results

i. Grid Sampling (Au, Ag, As, Sb)

Sub-dividing the sample mediums into soil and talus (rock) indicates the talus concentrations of all 4 elements are consistently higher, approximately double, those found in soil.

	Mean		St. Dev.		Mean + 1st		Mean + 2nd Dev.	
Element	Talus	Soil	Talus	Soil	Talus	Soil	Talus	Soil
Au(ppb)	47.22	16.31	71.37	50.91	118.59	67.22	189.96	118.13
Ag(ppm)	1.49	.53	1.77	1.07	3.26	1.6	5.03	2.67
As(ppm)	428.35	156.88	634.04	484.49	1062.39	641.37	1696.43	1125.86
Sb(ppm)	43.77	18.55	85.60	41.25	129.37	59.8	214.97	10.05

The element maps are contoured on the basis of the anomalous 'soil' statistics (mean +1, 2 standard deviations).

There appears to be a general correlation of Sb with Ag and As with Au. The Ag-Sb correlation is attributed to the visible occurrence of pyrargyrite (Ag_3SbS_3) in some of the quartz veins.

Although there is no visible arsenopyrite in the veins, a Au - As association is common in precious metal veins.

A. Gold (Figure 8a)

The most significant gold anomaly on the proeprty occurs on Lines 2+00N and 3+00N, along the western ridge of Top Dome. This anomaly is approximately 200m west of the 'Top Zone' quartz vein showing. All of the anomalous samples were talus fines with values ranging from 110 ppb to 500 ppb. The anomaly covers an area of about 400m x 250m. The trachyte in this area is strongly silicified and kaolinized and is cut by several NE trending silicified breccia and minor quartz veins. It is significant to note that the best exposed swarms of quartz veins do not appear to coincide with the gold anomaly, and in fact sampling in the talus adjacent to the veins had relatively low results, in the 5 to 50 ppb range.

An obvious gold dispersion train occurs below the 'Steep Zone', between Lines 12+00N - 14+00N adjacent to the 2+50E baseline. Seven talus fine samples ranged between 130 ppb and 500 ppb. Sampling of the Steep Zone outcrops indicates that gold content is actually greater in the silicified, pyritic breccia than in the quartz veins (230 - 550 ppb in breccia; 5- 100 ppb in quartz veins).

The Mogul Zone does not produce a significant soil anomaly. Rock sampling of the quartz veins indicates significant gold (300 - 5000 ppb) close to surface exposure, however, till cover across the hillside may locally prohibit metal dispersion. The lack of geochem response has not been fully resolved.

In the End Zone at Line 16+00N, 2+25E; 470 ppb Au in soil is associated with a small kaolinized, pyritic polymict explosion breccia outcrop. Banded and crystalline quartz vein float is present in the talus and may be the source of the anomaly. This area warrants further investigation.

There are two spot anomalies of interest.

a. Line 6+00N, 13+50E ('Dog Dome'); 120 ppb Au in heavily kaolinized soil or talus fines is associated with a quartz vein - stockwork subcrop in altered trachyte.

A north-northeast trending VLF EM-16 conductor is associated with this anomaly. (see geophysical results). This area also warrants further investigation.

b. Line 9+00N, 1+00E; 215 ppb Au trails off downslope to 130 ppb. The source appears to be a heavily kaolinized silicified zone at the toe of the east ridge from 'Top Dome". Rock geochem sampling in the area has not yet delineated an obvious source.

B. Silver (Figure 8b)

There are 2 distinct silver geochem anomalies across 'Top Dome'. The eastern anomaly, along Lines 3+00N and 3+50N at the 2+50E baseline, is associated with quartz vein float below the 'Top Zone'. Five talus fine samples ran from 5 to 15.5 ppm Ag. Several blocks of quartz vein float in this area have visible ruby silver and assayed up to 37 oz/t Ag. This is the obvious metal source for the geochem anomaly.

The westerly silver anomaly coincides with the core of the gold geochem anomaly. Nine talus fine samples contain between 4.3 ppm and 8.8 ppm Ag. The anomaly has a source very close to the ridge-top, possibly a series of small open space quartz veins with very fine grained sooty metallics.

There is surprisingly low silver content in the talus and soil adjacent to the 'Steep Zone' showing. Most values are in the .5 - 1.5 ppm range with a maximum peak of 3.4 ppm. This could be due to either surface 'depletion' in the upper reaches of the vein system or the showing may be characteristic of a high Au-As, low Ag-Sb setting.

Although there is low silver geochem response over the 'Mogul Zone' itself, there is a well defined linear anomaly extending 200m upslope from the showing. Values of 3-5 ppm are likely associated with coarse, stibnite bearing veins found in this vicinity. The low response over the 'Mogul Zone' may be due to the locally restrictive till cover, as suggested for Au.

A significant silver anomaly corresponds to the 'End Zone' showing on Line 16+00N, 2+00 - 2+50E. Values of 5-10 ppm are amongst the highest on the property and are probably derived from the quartz vein material within the locally exposed breccia.

There is also a high silver response from sampling in the 'Dog Dome' area. Analyses of 2-5 ppm correspond exactly with the previously described Au anomaly in this locale.

C. Arsenic (Figure 8c)

Arsenic correlates well with Au across most of the grid and in fact is the most specific element in outlining the general NE mineralized trend. Very fine grained grey metallics in the breccias and veins that are as yet unidentifiable, may prove to be arsenopyrite and would validate the Au-As correlation.

There is a direct As-Au correlation at 'Top Dome' as well as 'Steep', 'Mogul' and 'End' Zone showings. Only the Dog Dome area has a significant Au anomaly with no associated arsenic. Of interest is the Au-As anomaly at Top Dome, which has a separate and distinct source from the Au-Ag anomaly 200 m further east. This may be due to either two separate sources (eg brecciated veins vs altered veins); or the sampled material is from two separately mineralized sequences.

A gold-arsenic profile along Line 2+00N shows three distinct Au-As peaks.

The highest As value on the property came from the 'End Zone' with a value of greater than 10,000 ppm. Again, this can probably be attributed to very fine grained metallics (arsenopyrite?) in the quartz vein float adjacent to breccia outcrop.

D. Antimony (Figure 8d)

The most notable feature of the contoured antimony map is the appreciable enrichment associated with Mogul Dome. This can be directly related to the occurrence of several stibnite bearing veins along the eastern flank of the Dome.

There is a strong antimony anomaly at the 'End Zone', which suggest an extension of the zone 100m further north than is obvious from the Au, Ag, and As response.

Overall, the correlation of Sb with the other three elements is poor.

E. Summary

Extensive soil and talus sampling over the main areas of interest shows several pertinent features. First, there appears to be no strong evidence of vertical geochemical zonation within the vein system. The Top Zone, which is very high in the system, should theoretically be Au rich-Ag poor; in fact it is Ag rich. There is no obvious increase in As/Sb ratio with depth in the system.

Secondly, each 'showing' seems to have a unique geochemical expression. Lateral zonation between the showings seems better developed than vertical zonation within the individual showings. This would support the idea that each of the showings is a separate entity along a main trend but not necessarily all fed from a common source.

Also, talus fine sampling results are consistently twice as enriched as the geochemical response of soil sampling.

ii. Lithogeochemical Surveys

A total of 139 rock samples were collected and selectively analyzed for Au, Ag, Sb, (+/- Hg, Bi, Tl, Pb, B, Fl). The sample distribution was:

Veins:	80 samples, included altered quartz, bull quartz, quartz amethyst and stockwork.
Trachyte:	32 samples, includes flow banded, massive, to heavily altered, pyritic, silicified, kaolinized.
Breccia:	17 samples; mainly from 'Steep', 'Mogul' and 'End' Zones, minor sampling of Top Dome breccia.
Basalt:	7 samples; fresh, altered and cut by trachyte dykes.
Other:	3 samples, 2 ferricrete with organic matter, 1 debris flow (mud flow from Top Dome).

A. Veins

Top Zone 36 samples

	Mean	(Max.)	St. Dev.	Mean & 1 St. Dev.	Mean & 2 St. Dev.	Au/Ag
Au	1126	.92 oz/t	2345	3471	5816	24.2
Ag	46.5	39 oz/t	95.8	95.8	145.1	

Steep Zone 11 samples

	Mean	(Max.)	St. Dev.	Mean & 1 St. Dev.	Mean & 2 St. Dev.	Au/Ag
Au	81.36	230 ppb	92.25	173.61	265.86	9.1
		pm	12.5	21.45	33.95	

Mogul Zone 11 samples

	Mean	(Max.)	St. Dev.	Mean & 1 St. Dev.	Mean & 2 St. Dev.	Au/Ag
Au	1039	5350ppb	1573	2612	4185	99
Ag	10.5	23ppm	7.3	17.8	25.1	

Partitioning the vein geochemistry with respect to the individual 'showings' clearly demonstrates the existence of at least 2, possibly 3 precious metal populations;

a. Gold rich, silver rich veins at the Top Zone

b. Gold rich, silver poor veins at the Mogul Zone

c. Gold poor, silver poor veins at the Steep Zone

This segregation possibly infers a change in mineralizing parameters over a period of time. Perhaps the initial NE fractures and veining associated with the onset of phreatic brecciation was relatively precious metal poor (ie the low Au-Ag content in the Steep Zone). With subsequent development of metal bearing fluid convection cells, later veining was somewhat enriched (ie gold rich, silver poor veins at Mogul Zone). The fact that the Top Zone veins are anomalous in their precious metal content, their alteration and mineralogy and their orientation, strongly suggests a unique set of mineralizing conditions relative to earlier vein development.

In a conventional single cell precious metal zoned model, the Steep Zone would be uppermost in the system, the Mogul Zone intermediate and the Top Zone relatively low in the system. Trace element geochemistry does not support this geometry. Again, it would appear that the mineralized showings are "individual" phenomena along a general trend but are not part of a large, uniformly mineralized system.

Specific structural conditions associated with Top Dome have produced optimum conditions for localized, episodic, precious metal rich mineralization.

B. Breccias

	Mean	Max	St. Dev^n
Au(ppb)	115.3	600	195.7
Ag(ppm)	2.96	11.0	2.83

Generally, the breccias are slightly enriched in gold but have only background silver content. In particular, the Mogul Zone (600 ppb Au) and Steep Zone (550 ppb Au) breccias are anomalous in silicified and pyritic samples adjacent to quartz veins. Top Zone breccias are low in both Au & Ag but several samples had 3000-4000 ppb Hg, possibly indicating exposure of a higher level of brecciation. The Mogul Zone and Steep Zone breccias may have been the metal source for the later quartz veins.

C. Trachytes

	Mean	Max	St. Dev^n
Au(ppb)	51.9	300	74.1
Ag(ppm)	1.69	9.9	2.23

The Heart Peaks Fm trachytes are not significantly mineralized but may have provided some of the metal source for later mineralization.

Top Dome trachytes had the overall highest precious metal content. Sampling of trachyte dykes cutting the basalts showed them to be very low in Au (5 ppb) and silver (.1 ppm).

c. Summary

From limited sampling to date, altered crystalline quartz veins are the main economic target on the property. Large tonnage, low grade potential associated with either the breccias or trachytes does not appear to be significant at this time.

II. RESULTS AND INTERPRETATION

C. GEOPHYSICAL SURVEY

VLF - EM 16

a. Introduction

The entire 49 line km grid was surveyed using a Geonics VLF EM-16 instrument. All readings were taken facing grid east at 25m station intervals along lines spaced 100m apart. Hawaii was used as the primary transmitting frequency (23.4 KHz). Tilt and quadrature readings were recorded at every station with the in-phase component subsequently filtered using the Fraser Filter Method.

Line profiles are shown in Figures 9a-9d inclusive, the contoured Fraser Filtered data in Figures 9e-9h inclusive.

The purpose of the VLF survey was to try and outline a main structural trend that might be controlling the orientation and distribution of mineralized quartz veins. It was initially anticipated that pyritic breccia bodies, weakly sulphide bearing quartz veins and intense clay altered structures in a near surface environment would respond to a shallow penetrating survey.

Topographic effects varied across the survey. The southern portion of the grid, all above tree line from Line 4+00N to 3+00S was steep with talus slopes approaching 30-40°. The central portion in mainly sub-alpine terrain, had low to moderate relief whereas the northern end of the grid was again steep alpine terrain.

The main structural "trend" to the quartz veins and between mineralized showings is approximtely 020°. Very few of the drainages on the property have a similar orientation. The main drainage, "Camp Creek", flows westerly. Secondary drainages have a north to northwest alignment. "Mogul Creek" is the only significant drainage with a rough northeast orientation.

Depth to overburden and water table varied both across the property and during the course of the survey. Several areas have locally perched water tables, small catchment basins in saddles, etc. The water table dropped noticeably between July 1st and mid-August. With the exception of "Camp Creek", most other drainages dried up between July 1st and mid-August. Overburden and talus cover varies from 1 to greater than 5m.

Quartz veins in the central part of the 'Top Zone' strike 065°-100°, sub-parallel to the orientation of the grid lines. As no significant response was noted using the Hawaii frequency, a test survey was run on a north-south line using the Cutler frequency (17.8 Khz). Again, no significant response was recorded. This was not too unexpected as the low percentage of disseminated sulphides in the veins does not provide a good conductive source.

b. Profile Results

Response over most of the grid was relatively flat. However three areas had a significant conductive response and produced valid in-phase "crossover" anomalies. These are:

i. <u>Conductor A_1</u>

Lines 1+50N to 2+50N; from Stations 1+00W to 1+00 E.

The conductive axis, located at approximately 0+25E, sub-parallels the trend of quartz veins in this area and extends for about 100m along strike. Profiles suggest a sub-vertical source at approximately 205m depth. A ground check showed the conductive axis is associated with a 1m wide silicified, pyritic trachyte breccia with a .3-.5m wide quartz vein along its core axis. Rock geochem sampling of the vein, breccia, and trachyte gave the following results:

- quartz vein outcrop; 300 ppb Au, 1.4 oz/ton Ag (No. 84069)
- altered quartz vein talus; 4775 ppb Au, 8.4 oz/t Ag. (No. 84119)
- siliceous, pyritic trachyte outcrop; 300 ppb Au, 2.4 ppm Ag (No. 84110)
- siliceous breccia outcrop; 45 ppb Au, 1.1 ppm Ag (No. 84085)

There is also a significant Au in talus fines geochem anomaly across this area of 100-200 ppb Au.

ii. <u>Conductor A_2</u>

One hundred metres west of conductor A_1, a lower magnitude response was recorded on Lines 1+00N and 1+50N at Stations 1+50W to 0+50W. This conductor may either be an bifrication of the above conductor or a separate source. It appears to be sub-vertical but shallower, possibly 80m in depth, compared to the main conductor.

iii. Conductor B

Lines 6+00N to 7+50N; Stations 13+00E to 14+50E. The conductive axis is at approxiamtely 13+50 to 14+00E and again sub-parallels the 020° regional structural trend. Line profiles suggest a sub vertical, possibly steep easterly dipping source at approximately 95m depth. The conductor is associated with a sub-cropping stockwork quartz vein and breccia zone within intensely kaolinized trachyte, locally referred to as "Dog Dome Sinter". The well-defined conductor is very limited in extent, relative to the aerally extensive kaolinite alteration, and appears to be restricted to the area of quartz veining. Talus sampling of the quartz veining and stockwork yielded low precious metal values but high mercury, possibly indicating a higher level lower temperature environment;

- siliceous, pyritic trachyte; 5 ppb Au, .1 ppm Ag, 130 ppb Hg (No. 84188)
- pyritic, chalcedonic brecciated quartz vein; 50 ppb Au, 2.2 ppm Ag, 1000 ppb Hg, (No. 84189)
- pyritic, siliceous breccia; 30 ppb Au, 3.7 ppm Ag, 2000 ppb Hg, (No. 84190)
- coxcomb quartz stockwork; 15 ppb Au, 16 ppm Ag, 850 ppb Hg, (No. 84191)

Soil and talus fine sampling across the area also produced a spot anomaly; 120 ppb Au, 5 ppm Ag.

iv. Conductor C

Line 20+00N to 21+00N from Stations 5+00E to 6+00E, and, offset slightly to the east, Lines 18+00N to 19+00N from stations 4+00E to 6+00E. The conductive response is very broad suggesting either conductive overburden or a relatively deep source. The axes strike approximately 020° and are 100m east of the 'Mogul Zone' quartz vein showing.

There is also a conductive response at the east end of Lines 15+00N and 16+00N with an apparent good in-phase cross-over feature. The conductor axis trends 045° across a pronounced topographic depression. This response is probably an "edge effect" over a horizontal conductor, most likely conductive overburden as further west on Line 15+00N, at Station 4+50E, the in-phase signature mirrors the end of line response. The intervening response is anomalously flat. Also, the line traverses up a small ridge, increasing the possibility of conductive overburden.

c. Fraser Filtered Results

Conductors A, B, and C are also significant Fraser Filter anomalies. Conductor A is a well-defined 'dipole' anomaly of 75m width with maximum values of 56°. Conductor A_2 produces a weak filtered anomaly of only minor interest. However, 150m south along strike of conductor A_1 is a strong, well-defined linear filter anomaly with a maximum peak of 65°. The anomaly has a 25m width over a 100m strike length.

Conductor B, at 'Dog Dome', produced the strongest filtered anomaly on the grid. The anomaly has an average width of 75m over its 250m strike length and a maximum peak of 100°.

Conductor C, at the 'Mogul Zone' showing is similar to Conductor A in that only a portion of the unfiltered anomaly is reproduced as a filtered anomaly. In this case, the 'northern' unfiltered anomaly gave a more significant response, attaining a peak of 67° over a 50m area.

These are several 'spot' filtered anomalies and trends that are not associated with obvious unfiltered anomalies. One major trend occurs between lines 6+00N and 10+00N at Stations 4+00E to 4+25E. Although there is no outcrop in this area, the low order anomaly approximates the SW trend of the main "Steep Zone" breccia. The unfiltered in-phase response is high along this trend and occurs along a sharp break in slope. Precious metal geochem response across this trend is low.

A single station 'spot' anomaly at Line 9+00N, 1+50E is associated with a heavily kaolinized and silicified trachyte sub-crop. A peak of 58° is 50m upslope from a 2 ppm Ag, 215 ppb Au in soil geochem anomaly.

Similarly, a coincident geochem-geophysical anomaly occurs at Line 14+00N, 2+50E in 'Camp Creek'. A talus fines sample with 2 ppm Ag and 550 ppb Au is associated with the 62° filtered anomaly. Outcrop in the immediate vicinity includes kaolinized trachyte flow and trachyte (tuff) breccia.

d. Conclusions

i. There appears to be no strong correlation between the occurrence of quartz veins and conductive response. The Top Zone; with a higher percentage of quartz veins, some mineralized, has no well-defined conductors. The mineralogy of the veins (high silica, low sulphides) and change in orientation to an easterly strike, probably prohibit optimum response.

ii. Areas of intense kaolin alteration, including trachyte outcrop and extensive talus slopes, do not have a significant response. With steep slopes and lack of surface moisture, the clay may not be sufficiently wet to act as a good conductor. Individual anomalies within the kaolin alteration zones are discernable. Apparently there is not enough clay content in the quartz veins to enhance their low conductivity.

iii. There were no major subsurface "linears" detected by the survey. The lack of a surface expression of structural control to the quartz veins is confirmed by the relatively shallow penetrating VLF survey. This would suggest the mineralized showings are localized events along a broad zone of tensional weakness but are not connected to a common fault or shear structure within detected depth.

iv. The survey confirmed 2 new surface showings; a mineralized, silicified breccia and quartz amethyst vein on the southwest flank of Top Dome, and the quartz vein-stockwork at "Dog Dome". The area around Dog Dome in particular warrants further work. The survey did not, however, specifically locate any new 'buried' targets. Further VLF surveys on the property are not recommended.

APPENDIX I

Soil & Talus Fine Geochemical Analyses

Sample description	Prep code	Ag ppm	AS ppm	Sb ppm	Au ppb FA+AA	
0+00 0+00	202	0.1	22	2.2	<5	--
0+00 0+50E	202	0.1	29	1.4	<5	--
0+00 1+00E	202	0.1	24	2.2	<5	--
0+00 0+50W	202	0.1	65	4.4	<5	--
0+00 1+00W	202	0.1	50	3.0	<5	--

Sample description	Prep code	Ag ppm	AS ppm	Sb ppm	Au ppb FA+AA	
1+00N 0+00	202	0.1	155	4.8	5	--
1+00N 0+50E	202	1.7	210	13.0	30	--
1+00N 1+00E	202	0.1	220	7.2	25	--
1+00N 0+50W	202	1.5	320	8.2	45	--
1+00N 1+50W	202	3.2	820	54.0	90	--
1+00N 2+50W	202	0.8	230	85.0	55	--
1+00N 1+50E	205	1.2	65	8.4	15	--
1+00N 2+00E	205	2.3	120	10.2	35	--
1+00N 2+50E	205	2.0	100	9.6	20	--
1+00N 1+00W	205	1.9	130	16.4	50	--
1+00N 2+00W	205	2.9	720	390.0	55	--

Sample description	Prep code	Ag ppm	AS ppm	Sb ppm	Au ppb FA+AA	
2+00N BL00	205	2.0	300	13.0	85	--
2+00N 0+25E	205	1.3	90	8.0	45	--
2+00N 0+50E	205	2.7	525	22.0	145	--
2+00N 0+75E	205	4.0	500	17.0	165	--
2+00N 1+00E	205	1.9	435	11.2	110	--
2+00N 1+25E	205	4.3	700	25.0	195	--
2+00N 1+50E	205	2.6	800	23.0	155	--
2+00N 1+75E	205	2.7	470	21.0	120	--
2+00N 2+00E	205	2.7	385	24.0	170	--
2+00N 2+25E	205	2.0	590	38.0	150	--
2+00N 2+50E	205	3.3	220	15.5	60	--
2+00N 2+75E	205	1.8	53	6.0	15	--
2+00N 3+00E	205	3.4	220	19.0	60	--
2+00N 3+25E	205	2.7	240	20.0	55	--
2+00N 3+50E	205	3.2	200	19.0	40	--
2+00N 3+75E	205	2.0	75	8.6	10	--
2+00N 4+00E	205	6.5	53	8.6	30	--
2+00N 6+00E	205	0.2	15	1.7	<5	--
2+00N 7+00E	205	0.1	12	1.0	<5	--
2+00N 8+00E	205	0.1	17	2.5	<5	--
2+00N 9+00E	205	0.1	10	2.3	<5	--
2+00N 10+00E	205	0.1	580	50.0	10	--
2+00N 0+25W	205	1.7	150	36.0	60	--
2+00N 0+50W	205	3.0	325	160.0	90	--
2+00N 0+75W	205	2.0	1800	91.0	165	--
2+00N 1+00W	205	3.8	1450	370.0	310	--
2+00N 1+25W	205	1.0	210	94.0	50	--
2+00N 1+50W	205	1.2	1500	470.0	180	--
2+00N 1+75W	205	0.3	135	63.0	25	--
2+00N 2+00W	205	0.1	200	13.0	15	--
2+00N 2+25W	205	0.2	185	22.0	25	--
2+00N 2+50W	205	0.6	220	21.0	25	--
2+00N 3+75W	205	0.1	240	32.0	10	--
2+00N 4+25W	205	0.1	81	9.0	5	--
2+00N 4+50W	205	0.1	12	2.2	5	--
2+00N 4+25E	201	0.6	53	5.4	<5	--
2+00N 4+50E	201	0.2	360	17.0	<10	--
2+00N 4+75E	201	0.1	55	3.6	5	--
2+00N 5+00E	201	0.1	46	2.4	<5	--
2+00N 2+75W	201	2.3	720	65.0	40	--
2+00N 3+00W	201	1.0	670	60.0	30	--
2+00N 3+25W	201	0.7	490	37.0	20	--
2+00N 3+50W	201	0.7	460	37.0	15	--
2+00N 4+00W	201	0.3	36	3.8	5	--
2+00N 4+75W	201	0.1	59	2.6	<5	--
2+00N 5+00W	201	0.1	88	5.0	5	--
2+00N 10+50E	202	0.1	290	43.0	5	--
2+00N 11+00E	202	0.1	175	39.0	5	--

Sample description	Prep code	Ag ppm	AS ppm	Sb ppm	Au ppb FA+AA	
3+00N BL+00	205	2.9	2100	40.0	315	--
3+00N 00+25E	205	5.1	1450	50.0	215	--
3+00N 00+50E	205	4.7	690	24.0	265	--
3+00N 00+75E	205	8.8	650	25.0	275	--
3+00N 01+00E	205	4.9	625	20.0	170	--
3+00N 01+25E	205	4.6	580	20.0	150	--
3+00N 01+50E	205	3.6	400	15.0	75	--
3+00N 01+75E	205	3.3	215	12.2	90	--
3+00N 02+00E	205	15.5	250	57.0	70	--
3+00N 02+25E	205	5.6	280	23.0	80	--
3+00N 02+50E	205	5.8	240	20.0	150	--
3+00N 02+75E	205	4.6	235	24.0	25	--
3+00N 03+00E	205	3.5	170	21.0	270	--
3+00N 03+25E	205	4.9	235	24.0	25	--
3+00N 03+50E	205	2.6	165	20.0	35	--
3+00N 03+75E	205	2.2	53	10.2	5	--
3+00N 04+00E	205	1.1	50	10.5	10	--
3+00N 06+00E	205	0.2	11	2.0	5	--
3+00N 07+00E	205	0.4	38	3.0	<5	--
3+00N 10+00E	205	0.1	30	9.4	5	--
3+00N 04+25E	201	0.8	69	8.0	5	--
3+00N 04+50E	201	0.9	30	5.8	5	--
3+00N 04+75E	201	0.3	41	2.8	5	--
3+00N 05+00E	201	0.1	490	20.0	15	--
3+00N 08+00E	201	0.2	210	29.0	20	--
3+00N 09+00E	201	0.1	99	20.0	15	--
3+00N 10+50E	202	0.1	30	23.0	5	--
3+00N 11+00E	202	0.1	220	12.8	40	--
3+00N 1+50W	205	0.2	--	--	--	1[illegible]
3+00N 2+00W	205	0.1	--	--	--	5
3+00N 2+50W	205	0.1	--	--	--	<5
3+00N 3+00W	205	0.1	--	--	--	5
3+00N 3+50W	202	0.6	280	25.0	5	--
3+00N 4+00W	202	0.1	90	9.0	<5	--
3+00N 4+50W	202	0.1	90	13.0	<5	--
3+00N 5+00W	202	0.1	53	7.2	<5	--

Sample description	Prep code	Ag ppm	AS ppm	Sb ppm	Au ppb FA+AA	
4+00N 0+00W	202	4.5	7000	190.0	500	--
4+00N 0+50W	202	4.3	1800	280.0	235	--
4+00N 2+50W	203	0.1	45	22.0	<5	--
4+00N 3+00W	202	0.2	65	7.0	<5	--
4+00N 3+50W	202	0.1	195	5.0	<5	--
4+00N 4+00W	202	0.2	63	4.7	<5	--
4+00N 4+50W	202	0.1	83	4.0	<5	--
4+00N 5+00W	202	0.1	22	1.7	<5	--
4+00N 0+50E	205	3.0	--	--	--	70
4+00N 1+00W	205	2.9	--	--	--	100
4+00N 1+50W	205	2.7	--	--	--	150
4+00N 2+00W	205	0.1	--	--	--	25
4+00N BL 02+50E	205	1.9	200	20.0	10	--
4+00N 02+75E	205	2.5	43	5.4	<5	--
4+00N 03+00E	205	1.9	90	11.2	<5	--
4+00N 03+25E	205	3.2	350	25.0	10	--
4+00N 03+50E	205	3.4	280	34.0	40	--
4+00N 03+75E	205	4.3	225	23.0	35	--
4+00N 04+00E	205	1.4	79	8.4	10	--
4+00N 10+00E	205	0.2	160	7.6	<5	--
4+00N 05+00E	201	0.1	39	3.0	<5	--
4+00N 06+00E	201	0.1	85	5.6	5	--
4+00N 07+00E	201	0.1	101	7.0	<5	--
4+00N 08+00E	201	0.2	165	14.0	10	--
4+00N 09+00E	201	0.1	290	10.6	25	--

Sample description	Prep code	Ag ppm	AS ppm	Sb ppm	Au ppb FA+AA	
5+00N 0+00W	205	2.8	--	--	--	50
5+00N 1+00W	205	1.7	--	--	--	95
5+00N 1+50W	205	0.8	--	--	--	55
5+00N 2+00W	205	0.1	--	--	--	20
5+00N 0+50W	202	6.4	3600	8.8	450	--
5+00N 2+50W	202	0.4	90	98.0	5	--
5+00N 3+00W	202	0.1	77	5.5	<5	--
5+00N 3+50W	202	0.1	43	5.0	<5	--
5+00N 4+00W	202	0.1	33	3.2	25	--
5+00N 4+50W	203	0.1	50	4.2	5	--
5+00N 5+00W	202	0.1	57	4.0	<5	--
5+00N BL 02+50E	205	1.3	59	8.4	<5	--
5+00N 02+75E	205	2.5	33	7.0	10	--
5+00N 03+00E	201	1.5	265	48.0	55	--
5+00N 03+25E	201	0.6	170	10.0	5	--
5+00N 03+50E	201	1.0	270	28.0	25	--
5+00N 03+75E	201	0.2	1150	3.4	<5	--
5+00N 04+00E	201	0.2	41	1.7	5	--
5+00N 05+00E	201	0.1	35	2.2	<5	--
5+00N 06+00E	201	0.2	38	2.2	10	--
5+00N 07+00E	201	0.2	25	2.2	5	--
5+00N 08+00E	201	0.2	27	1.8	<5	--
5+00N 09+00E	201	0.1	65	3.8	<5	
5+00N 10+00E	201	0.1	77	5.4	10	
5+00N 11+00E	201	0.1	14	3.4	<5	
5+00N 12+00E	203	0.2	33	3.6	10	
5+00N 13+00E	201	0.1	5	0.8	<5	
5+00N 14+00E	201	0.1	83	3.2	<5	
5+00N 15+00E	201	0.1	11	0.9	5	
5+00N 16+00E	201	0.2	17	1.0	5	

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Fred D:
A.C.
F. C.
P.H

Sample description	Prep code	Ag ppm	AS ppm	Sb ppm	Au ppb FA+AA	
6+00N 4+00W	202	0.4	45	2.9	<5	--
6+00N 4+50W	202	0.2	27	1.9	<5	--
6+00N 5+00W	202	0.1	22	2.0	<5	--
L6+00N 02+50E	201	2.3	460	29.0	15	
L6+00N 02+75E	201	3.4	180	14.6	20	--
L6+00N 03+00E	201	2.6	320	20.0	20	--
L6+00N 03+25E	201	1.8	120	7.6	15	--
L6+00N 03+50E	201	2.2	225	10.0	20	--
L6+00N 03+75E	201	0.8	145	11.4	25	--
L6+00N 04+00E	201	0.1	16	1.6	10	--
L6+00N 05+00E	201	0.7	94	5.6	20	--
L6+00N 06+00E	201	0.5	73	4.6	25	--
L6+00N 07+00E	201	2.4	25	2.0	5	--
L6+00N 08+00E	201	0.1	19	3.2	<5	--
L6+00N 09+00E	201	0.1	33	1.8	5	--
L6+00N 10+00E	201	0.1	135	5.8	20	--
L6+00N 11+00E	201	0.1	35	1.2	5	--
L6+00N 12+00E	201	0.1	10	6.2	15	--
L6+00N 12+50E	201	0.1	38	3.8	5	--
L6+00N 13+00E	201	1.3	35	15.0	40	--
L6+00N 13+50E	201	5.0	130	15.6	120	--
L6+00N 14+00E	201	0.6	48	11.4	10	--
L6+00N 14+50E	201	1.0	63	11.4	15	--
L6+00N 15+00E	201	1.1	79	18.4	5	--
L6+00N 16+00E	205	0.1	12	4.3	<5	

Sample description	Prep code	Ag ppm	AS ppm	Sb ppm	Au ppb FA+AA	
L7+00N 02+50E	201	1.1	300	4.6	20	--
L7+00N 02+75E	201	0.5	130	13.6	15	--
L7+00N 03+00E	201	0.3	77	5.0	10	--
L7+00N 03+25E	201	1.6	88	8.2	5	--
L7+00N 03+50E	201	0.1	36	3.0	5	--
L7+00N 04+00E	201	0.2	53	3.4	10	--
L7+00N 05+00E	201	0.2	92	5.6	15	--
L7+00N 06+00E	201	0.1	36	2.4	5	--
L7+00N 07+00E	201	0.1	10	0.8	<5	--
L7+00N 08+00E	201	0.1	15	3.8	<5	--
L7+00N 09+00E	201	0.1	29	2.7	5	--
L7+00N 10+00E	201	0.1	36	3.0	5	--
L7+00N 11+00E	201	0.1	16	1.6	<5	--
L7+00N 12+00E	201	0.1	11	1.1	<5	--
L7+00N 12+50E	201	0.1	36	4.1	<5	--
L7+00N 13+00E	201	3.4	88	19.0	30	--
L7+00N 13+50E	201	2.2	110	16.0	15	--
L7+00N 14+00E	201	0.8	63	9.4	5	--
L7+00N 14+50E	201	0.9	61	10.2	15	--
L7+00N 15+00E	201	0.9	90	5.2	15	--
L7+00N 16+00E	205	0.1	17	4.0	<5	Copies
L7+00N 17+00E	205	0.1	17	3.6	<5	Fred D:
L7+00N 17+25E	205	0.2	15	3.5	<5	A.C.

FD

Sample description	Prep code	Ag ppm	AS ppm	Sb ppm	Au ppb FA+AA	
L8+00N 02+75E	201	1.3	315	7.8	30	--
L8+00N 03+00E	201	0.4	65	3.4	5	--
L8+00N 03+25E	201	0.1	61	3.5	5	--
L8+00N 03+50E	201	0.1	50	3.3	<5	--
L8+00N 03+75E	201	0.1	41	4.2	5	--
L8+00N 04+00E	201	0.1	53	2.4	5	--
L8+00N 05+00E	201	0.2	125	4.8	5	--
L8+00N 06+00E	201	0.1	130	17.2	25	--
L8+00N 09+00E	201	0.2	29	0.8	5	--
L8+00N 10+00E	201	0.1	30	2.3	5	--
L8+00N 11+00E	201	0.1	23	1.3	<5	--
L8+00N 02+50E	205	1.1	280	5.0	30	F. C.
L8+00N 07+00E	205	0.2	7	0.8	<5	P.H
L8+00N 08+00E	205	0.1	4	0.4	<5	
L8+00N 17+00E	205	0.1	130	15.4	<5	
L8+00N 18+00E	205	0.2	170	17.0	<5	
L8+00N 12+00E	201	1.0	79	17.0	30	--
L8+00N 13+00E	201	0.9	94	19.0	20	--
L8+00N 14+00E	201	0.1	63	6.4	45	--
L8+00N 15+00E	201	0.1	205	62.0	15	--
L8+00N 16+00E	201	0.1	235	130.0	15	--
L8+00N 19+00E	201	0.3	210	22.0	<5	--

Sample description	Prep code	Ag ppm	AS ppm	Sb ppm	Au ppb FA+AA	
L9+00N 0+00	205	0.9	890	8.0	115	--
L9+00N 01+00E	201	2.0	915	28.0	215	--
L9+00N 02+50E	201	0.7	200	6.8	40	--
L9+00N 02+75E	201	0.1	65	3.6	<5	--
L9+00N 03+00E	201	0.1	63	3.2	<5	--
L9+00N 03+25E	201	0.2	61	3.0	<5	--
L9+00N 03+50E	201	0.1	73	4.8	<5	--
L9+00N 03+75E	201	0.1	59	3.2	<5	--
L9+00N 04+00E	201	0.1	53	5.8	<5	--
L9+00N 05+00E	201	0.1	55	2.6	<5	--
L9+00N 06+00E	201	0.1	27	4.8	<5	--
L9+00N 07+00E	201	0.1	29	2.2	<5	--
L9+00N 08+00E	201	0.2	29	3.4	<5	--
L9+00N 09+00E	201	0.1	39	2.4	<5	--
L9+00N 10+00E	201	0.1	36	2.4	<5	--
L9+00N 11+00E	201	0.5	57	8.8	5	--
L9+00N 12+00E	201	0.4	250	19.0	50	--
L9+00N 13+00E	201	0.1	635	34.0	90	--
L9+00N 16+00E	201	0.2	155	57.0	<5	--
L9+00N 17+00E	201	0.1	175	78.0	<5	--
L9+00N 18+00E	201	0.1	15	7.0	<5	--
L9+00N 19+00E	201	0.1	12	51.0	<5	--
L9+00N 02+00E	205	1.0	85	3.3	30	--
L9+00N 02+25E	205	1.1	220	4.2	20	--
L9+00N 14+00E	205	1.5	610	30.0	25	--
L9+00N 15+00E	205	0.7	165	15.6	25	--
L9+00N 01+00W	205	1.3	710	5.2	130	--

FD

Sample description	Prep code	Ag ppm	AS ppm	Sb ppm	Au ppb FA+AA	
L10+00N 02+00E	205	0.6	860	19.6	<65	--
L10+00N 03+00E	205	0.7	435	5.0	35	--
L10+00N 03+25E	205	0.2	120	5.6	5	--
L10+00N 03+50E	205	0.8	255	5.2	45	--
L10+00N 03+75E	205	0.6	77	3.0	20	--
L10+00N 14+00E	205	0.3	27	4.2	<5	--
L10+00N 01+00E	201	0.4	83	10.6	15	--
L10+00N 02+25E	201	0.1	50	3.6	10	--
L10+00N 02+50E	201	0.2	63	3.8	5	--
L10+00N 02+75E	201	0.1	67	3.7	5	--
L10+00N 04+00E	201	0.3	55	2.0	<5	--
L10+00N 04+25E	201	0.1	41	2.0	<5	--
L10+00N 04+50E	201	0.1	38	1.4	5	--
L10+00N 04+75E	201	0.1	39	2.0	<5	--
L10+00N 05+00E	201	0.1	33	3.0	<5	--
L10+00N 13+00E	201	0.7	170	29.0	25	--
L10+00N 15+00E	201	0.2	97	32.0	5	--
L10+00N 16+00E	201	0.1	79	25.0	10	--
L10+00N 17+00E	201	0.1	14	7.2	10	--
L10+00N 17+50E	201	0.1	11	3.0	<5	--
L10+00N 18+00E	201	0.1	32	27.0	<5	--
L10+00N 18+50E	201	0.1	7	1.2	<5	--
L10+00N 19+00E	201	0.1	6	1.0	<5	--
L10+00N 19+50E	201	0.3	7	0.8	<5	--

Sample description	Prep code	Ag ppm	AS ppm	Sb ppm	Au ppb FA+AA	
L11+00N 02+25E	205	0.2	910	15.6	100	--
L11+00N 02+50E	205	0.3	920	11.4	55	--
L11+00N 03+25E	205	0.9	345	16.0	15	--
L11+00N 03+50E	205	1.2	240	3.8	35	--
L11+00N 05+00E	205	0.4	77	4.0	10	--
L11+00N 01+00E	201	0.1	46	2.4	<5	--
L11+00N 02+00E	201	0.6	250	9.4	35	--
L11+00N 02+75E	201	0.4	245	6.8	60	--
L11+00N 03+00E	201	0.6	265	7.0	30	--
L11+00N 03+75E	201	0.1	77	3.4	5	--
L11+00N 04+00E	201	0.2	73	2.4	10	--
L11+00N 04+25E	201	0.2	33	2.2	10	--
L11+00N 04+50E	201	0.1	35	2.4	5	--
L11+00N 04+75E	201	0.1	24	1.8	5	--
L11+00N 13+00E	201	0.1	4	1.4	<5	--
L11+00N 14+00E	201	0.1	9	2.0	<5	--
L11+00N 15+00E	201	0.1	11	2.0	<5	--
L11+00N 16+00E	201	0.1	14	5.0	<5	--
L11+00N 17+00E	201	0.1	11	1.3	<5	--
L11+00N 17+50E	201	0.1	9	1.0	5	--
L11+00N 18+00E	201	0.1	10	1.2	<5	--
L11+00N 18+50E	201	0.1	10	0.6	<5	--
L11+00N 19+00E	201	0.1	6	0.9	<5	--
L11+00N 19+50E	201	0.1	3	0.9	<5	--

Sample description	Prep code	Ag ppm	AS ppm	Sb ppm	Au ppb FA+AA	
L12+00N 02+00E	205	0.4	94	5.2	15	--
L12+00N 02+25E	205	0.3	380	6.6	40	--
L12+00N 02+50E	205	0.8	345	10.6	45	--
L12+00N 02+75E	205	0.3	920	10.8	80	--
L12+00N 03+00E	205	0.8	265	4.4	35	--
L12+00N 03+25E	205	1.0	1350	9.2	160	--
L12+00N 03+50E	205	0.8	185	3.0	50	--
L12+00N 03+75E	205	1.3	250	4.0	30	--
L12+00N 04+00E	205	0.8	320	5.2	30	--
L12+00N 04+50E	205	0.5	200	4.4	25	--
L12+00N 04+75E	205	1.1	73	3.2	50	--
L12+00N 05+00E	205	0.7	185	3.4	25	--
L12+00N 17+00E	205	0.1	15	6.2	<5	--
L12+00N 01+00E	201	0.2	145	4.0	10	--
L12+00N 04+25E	201	1.0	475	9.4	50	--
L12+00N 13+00E	201	0.3	39	4.4	<5	--
L12+00N 14+00E	201	0.1	4	0.6	<5	--
L12+00N 15+00E	201	0.1	4	0.8	<5	--
L12+00N 16+00E	201	0.1	10	1.8	<5	--
L12+00N 16+50E	201	0.1	97	3.8	<5	--
L12+00N 17+50E	201	0.1	10	1.4	<5	--
L12+00N 18+00E	201	0.2	12	0.7	<5	--
L12+00N 18+50E	201	0.1	3	0.4	<5	--
L12+00N 19+50E	201	0.1	3	0.8	<5	--

Sample description	Prep code	Ag ppm	AS ppm	Sb ppm	Au ppb FA+AA	
L13+00N 02+00E	205	1.0	615	5.2	40	--
L13+00N 02+25E	205	1.1	1150	17.8	130	
L13+00N 02+50E	205	0.9	770	7.0	70	
L13+00N 02+75E	205	1.5	1400	20.0	70	
L13+00N 03+00E	205	1.7	1550	16.8	150	
L13+00N 03+25E	205	1.0	1200	9.0	205	
L13+00N 03+50E	205	0.8	1000	6.8	215	
L13+00N 03+75E	205	2.6	1150	13.0	80	
L13+00N 04+00E	205	0.3	140	3.8	<5	
L13+00N 04+25E	205	0.3	245	4.6	5	
L13+00N 04+50E	205	0.7	330	6.6	5	--
L13+00N 04+75E	205	0.6	285	4.0	30	--
L13+00N 05+00E	205	0.4	210	4.2	75	--
L13+00N 17+00E	205	0.1	180	7.6	30	--
L13+00N 01+00E	201	0.1	51	6.8	<5	--
L13+00N 16+00E	201	0.1	4	0.5	<5	--
L13+00N 16+50E	201	0.1	100	6.2	15	--
L13+00N 17+50E	201	0.1	61	3.0	<5	--
L13+00N 18+00E	201	0.1	36	3.2	<5	--
L13+00N 19+00E	201	0.1	36	13.6	<5	--

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F. C.

P.H

FD

Sample description	Prep code	Ag ppm	AS ppm	Sb ppm	Au ppb FA+AA	
L14+00N 01+00E	201	0.1	77	5.8	10	--
L14+00N 03+50E	201	0.5	535	14.2	75	--
L14+00N 03+75E	201	0.3	200	10.2	25	--
L14+00N 04+00E	201	0.5	345	7.0	40	--
L14+00N 04+25E	201	0.2	145	3.5	30	--
L14+00N 04+50E	201	0.1	180	5.2	10	--
L14+00N 05+00E	201	0.5	81	4.0	20	--
L14+00N 14+00E	201	0.2	25	4.9	<5	--
L14+00N 15+00E	201	0.1	36	7.4	<5	--
L14+00N 16+00E	201	0.2	245	17.2	30	--
L14+00N 17+00E	201	0.3	190	11.2	45	--
L14+00N 18+00E	201	0.1	50	4.8	10	--
L14+00N 19+00E	201	0.1	85	35.0	<5	--
L14+00N 02+50E	205	2.0	6300	105.0	550	--
L14+00N 02+75E	205	1.6	2500	26.0	190	--
L14+00N 03+00E	205	3.4	845	9.0	55	--
L14+00N 03+25E	205	1.0	340	6.8	40	--
L14+00N 13+00E	205	0.1	17	2.0	<5	--

Sample description	Prep code	Ag ppm	AS ppm	Sb ppm	Au ppb FA+AA	
L 15+00N 0+00E	205	0.4	[illegible]	37.0	15	--
L 15+00N 1+00E	205	3.7	2200	100.0	60	--
L 15+00N 2+00E	202	0.1	[illegible]	[illegible]	<5	--
L 15+00N 2+25E	202	0.1	22	3.4	[illegible]	--
L 15+00N 2+50E	202	0.4	32	3.6	<5	--
L 15+00N 2+75E	202	0.3	16	[illegible]	<5	--
L 15+00N 3+00E	202	0.4	15	1.0	<5	--
L 15+00N 3+25E	202	0.2	36	7.4	5	--
L 15+00N 3+50E	202	0.4	12	3.6	<5	--
L 15+00N 3+75E	202	0.3	10	1.4	<5	--
L 15+00N 4+00E	202	0.3	5	0.4	<5	--
L 15+00N 4+25E	202	0.1	11	3.4	<5	--
L 15+00N 4+50E	202	0.2	4	0.9	<5	--
L 15+00N 4+75E	202	0.3	6	0.5	<5	--
L 15+00N 5+00E	202	0.1	4	0.5	<5	--
L 15+00N 6+00E	202	0.2	7	0.6	<5	--
L 15+00N 7+00E	202	0.3	10	0.4	<5	--

Sample description	Prep code	Ag ppm	AS ppm	Sb ppm	Au ppb FA+AA	
L 16+00N 0+00E	205	0.2	320	115.0	15	--
L 16+00N 1+00E	205	0.1	130	54.0	5	--
L 16+00N 4+00E	205	0.2	33	15.0	<5	--
L 16+00N 2+00E	202	9.5	200	19.6	20	--
L 16+00N 2+25E	202	6.7	>10000	420.0	470	--
L 16+00N 2+50E	202	4.1	1700	82.0	35	--
L 16+00N 2+75E	202	0.4	50	9.6	<5	--
L 16+00N 3+00E	202	0.4	57	18.4	<10	--
L 16+00N 3+25E	202	0.7	85	33.0	<10	--
L 16+00N 3+50E	202	0.5	65	17.0	5	--
L 16+00N 3+75E	202	0.3	19	8.4	<5	--
L 16+00N 4+25E	202	0.3	12	6.3	<5	--
L 16+00N 4+50E	202	0.6	17	10.2	<5	--
L 16+00N 4+75E	202	0.2	15	11.4	10	--
L 16+00N 5+00E	202	0.3	22	12.0	<5	--
L 16+00N 6+00E	202	0.2	10	1.4	<5	--
L 16+00N 7+00E	202	0.3	10	1.0	<5	--

FD

Sample description	Prep code	Ag ppm	AS ppm	Sb ppm	Au ppb FA+AA	
17+00N 0+00	205	0.8	130	35.0	10	--
17+00N 1+00E	205	1.0	140	49.0	10	--
17+00N 2+00E	202	0.3	300	87.0	5	--
17+00N 2+25E	202	0.1	630	85.0	15	--
L 17+00N 2+50E	202	0.1	125	150.0	<10	--
L 17+00N 2+75E	202	1.4	150	130.0	100	--
L 17+00N 3+00E	202	0.3	150	35.0	<10	--
L 17+00N 3+25E	202	0.5	45	10.0	<5	--
L 17+00N 4+50E	202	0.3	7	11.0	<5	--
L 17+00N 5+00E	202	0.4	35	12.6	<5	--
L 17+00N 6+50E	202	0.3	15	2.0	<5	--
L 17+00N 3+50E	205	0.1	15	12.8	<5	--
L 17+00N 3+75E	205	0.1	9	12.0	5	--
L 17+00N 4+00E	205	0.1	11	10.8	<5	--
L 17+00N 4+25E	205	0.1	9	11.5	<5	--
L 17+00N 4+75E	205	0.1	11	16.0	5	--
L 17+00N 6+00E	205	0.1	140	17.2	5	--
L 17+00N 7+00E	202	0.1	10	0.7	<5	--

Sample description	Prep code	Ag ppm	AS ppm	Sb ppm	Au ppb FA+AA	
18+00N 0+00	205	1.1	610	76.0	15	--
18+00N 2+00E	205	2.0	420	61.0	30	--
18+00N 2+25E	205	1.9	1500	89.0	50	--
18+00N 2+50E	205	0.9	510	55.0	10	--
18+00N 3+25E	205	0.4	240	59.0	<5	--
18+00N 3+75E	205	0.2	12	9.0	5	--
18+00N 4+25E	205	0.1	12	14.0	<5	--
18+00N 4+50E	205	0.1	15	9.0	<5	--
18+00N 4+75E	205	0.3	29	8.0	<5	--
18+00N 6+00E	205	0.1	59	21.0	<5	--
18+00N 1+00E	202	4.1	300	83.0	10	--
18+00N 2+75E	202	2.0	260	67.0	15	--
18+00N 3+00E	202	0.1	240	100.0	5	--
18+00N 3+50E	202	0.1	51	10.0	<5	--
18+00N 4+00E	202	0.2	35	8.6	<5	--
18+00N 5+00E	202	0.1	19	10.4	<5	--
18+00N 7+00E	202	0.2	29	8.8	<5	--

Sample description	Prep code	Ag ppm	AS ppm	Sb ppm	Au ppb FA+AA	
19+00N 0+00	202	0.1	77	11.8	5	--
19+00N 3+00E	202	1.7	215	49.0	15	--
19+00N 3+25E	202	1.1	230	49.0	10	--
19+00N 3+50E	202	0.6	48	13.6	<5	--
19+00N 3+75E	202	0.3	140	27.0	5	--
19+00N 4+00E	202	0.4	51	13.4	<5	--
19+00N 4+75E	202	0.1	16	3.6	<5	--
19+00N 5+00E	202	0.1	17	5.0	<5	--
19+00N 6+00E	202	0.1	27	5.2	<5	--
19+00N 7+00E	202	0.1	53	11.8	<5	--
19+00N 1+00E	205	0.8	105	33.0	10	--
19+00N 2+00E	205	0.2	120	44.0	15	--
19+00N 2+25E	205	0.2	94	30.0	5	--
19+00N 2+50E	205	0.4	200	24.0	10	--
19+00N 2+75E	205	0.5	140	19.5	<5	--
19+00N 4+25E	205	0.1	14	13.5	5	--
19+00N 4+50E	205	0.1	7	12.5	<5	--

Sample description	Prep code	Ag ppm	AS ppm	Sb ppm	Au ppb FA+AA	
20+00N 0+00	202	0.1	120	20.0	20	--
20+00N 1+00E	202	1.5	440	60.0	35	--
20+00N 4+00E	202	3.2	320	60.0	20	--
20+00N 4+25E	202	0.4	140	26.0	5	--
20+00N 4+50E	202	0.2	75	36.0	<5	--
20+00N 4+75E	202	0.1	11	3.0	5	--
20+00N 5+00N	202	0.3	83	21.0	<5	--
20+00N 6+00E	202	0.1	25	4.0	<5	--
20+00N 7+00E	202	0.1	11	2.8	<5	--
20+00N 2+00E	205	0.5	125	27.0	5	--
20+00N 2+25E	205	0.7	200	31.0	10	--
20+00N 2+50E	205	0.1	105	26.0	5	--
20+00N 2+75E	205	1.6	215	36.0	<5	--
20+00N 3+00E	205	0.5	155	26.0	5	--
20+00N 3+25E	205	1.8	1200	75.0	10	--
20+00N 3+50E	205	1.7	340	54.0	10	--
20+00N 3+75E	205	0.5	440	68.0	10	--

Sample description	Prep code	Ag ppm	AS ppm	Sb ppm	Au ppb FA+AA	
21+00N 0+00	202	0.1	195	17.0	15	--
21+00N 1+00E	202	0.1	107	5.7	5	--
21+00N 2+CCE	205	1.8	860	53.0	30	--
21+00N 2+25E	205	0.6	130	26.0	5	--
21+00N 2+50E	205	0.5	185	30.0	5	--
21+00N 2+75E	205	0.7	230	31.0	15	--
21+00N 3+00E	205	0.7	185	28.0	10	--
21+00N 3+25E	205	2.6	1400	96.0	25	--
21+00N 3+50E	205	3.2	630	135.0	10	--
21+00N 3+75E	205	3.2	830	330.0	15	--
21+00N 4+00E	205	2.7	360	250.0	5	--
21+00N 4+75E	205	0.1	150	61.0	5	--
21+00N 5+00E	205	0.1	200	48.0	25	--
21+0CN 4+25E	202	0.1	230	105.0	5	--
21+00N 4+50E	202	0.1	180	240.0	5	--
21+0CN 6+00E	202	0.1	51	19.0	<5	--
21+00N 7+00E	202	0.1	39	10.3	<5	--

Sample description	Prep code	Ag ppm	AS ppm	Sb ppm	Au ppb FA+AA	
22+00N 1+00E	202	0.1	43	16.0	<5	--
22+00N 2+C0E	202	C.1	99	21.0	<5	--
22+00N 3+00E	202	1.2	575	52.C	25	--
22+00N 3+25E	202	0.8	27	3.8	5	--
22+00N 7+00E	202	0.1	51	8.4	<5	--
22+00N 0+25E	205	1.3	355	78.C	15	--
22+00N 2+25E	205	1.2	380	43.0	25	--
22+00N 2+5CE	205	1.1	255	43.0	25	--
22+00N 2+75E	205	0.6	260	33.0	15	--
22+00N 3+50E	205	2.4	760	93.0	20	--
22+00N 3+75E	205	5.4	2200	230.0	75	--
22+00N 4+0CE	205	2.C	480	58.C	15	--
22+00N 4+25E	205	0.8	290	270.0	10	--
22+00N 4+50E	205	1.7	570	740.0	25	--
22+00N 4+75E	205	0.8	355	210.0	25	--
22+00N 5+00E	205	1.5	260	210.0	25	--
22+00N 6+00E	205	1.8	470	190.0	15	--

Sample description	Prep code	Ag ppm	As ppm	Sb ppm	Au ppb FA+AA	
24+00N 5+00E	205	10.7	1700	250.0	35	--
24+00N 6+00E	202	0.1	65	22.0	<5	--
24+00N 7+00E	202	0.1	12	7.5	<5	--
24+00N 8+00E	202	0.1	140	9.3	<5	--
24+00N 9+00E	202	0.1	12	9.0	<5	--

Sample description	Prep code	Ag ppm	AS ppm	Sb ppm	Au ppb FA+AA	
25+00N 0+00E	205	0.6	1100	115.0	10	--
25+00N 1+00E	205	0.8	760	40.0	20	--
25+00N 2+00E	205	0.9	410	33.0	10	--
25+00N 3+00E	205	0.8	540	36.0	5	--
25+00N 4+00E	205	0.3	240	34.0	5	--
25+00N 5+00E	202	0.1	46	10.2	<5	--
25+00N 6+00E	202	0.1	20	5.2	<5	--

Sample description	Prep code	Ag ppm	AS ppm	Sb ppm	Au ppb FA+AA	
26+00N 1+00E	205	0.7	1200	170.0	35	--
26+00N 0+00E	202	0.1	200	52.0	<5	--
26+00N 2+00E	202	2.2	870	35.0	5	--
26+00N 3+00E	202	0.2	180	62.0	10	--
26+00N 4+00E	202	5.1	1100	250.0	40	--
26+00N 5+00E	202	0.3	30	8.0	<5	--

APPENDIX II

Rock Geochemical Analyses

To: ______ From: ______ PROJECT: Hart DATE: 1983

SAMPLE No. (84)	LOCATION	UTM E	UTM N	DESCRIPTION – REMARKS	Au ppb	Ag ppm	As ppm	Sb ppm	Hg ppb	Bi ppm	Tl ppm	Pb ppm
051	Mogul Zone Creek			White Crystalline Quartz vein	30	1.1	19	8.6	40			
052	Mogul Zone Creek			10 cm White crystalline Quartz vein	180	25	260	29	80			
053	Mogul Zone Upper Trench			20 cm chip sample at mouth of trench	130	4.2	720	55	1000			
054	" "	'Upper' vein is 20cm		20 cm chip sample 5m south of 84053	325	10.7	1350	50	350			
055	" "	wide crystalline & vuggy		20 cm chip sample 10 m south of 84053	405	9.7	1200	28	200			
056	" "	White to grey quartz		20 cm chip sample 15 m south of 84053	290	6.8	1100	25	400			
057	Mogul Zone Upper Trench	15 m quartz vein		Composite sample Along 15 m width of upper quartz vein	370	13.8	1100	44	130			
058	Mogul Zone Lower Trench	'Lower' vein is 10cm		10 cm wide chip sample of vein at mouth of trench	2050	22	1650	72	860			
059	" "	wide, vuggy grey to milky		10 cm wide chip sample of vein 5 m south in trench	5350	23	2600	85	780			
060	" "	crystalline quartz in silicified breccia		10 cm wide chip sample of vein 10 m south in trench	1700	14.9	1100	45	520			
061	Mogul Zone /Creek			1 m chip sample silicified & pyritic breccia	600	7	350	40	300			
062	Mogul Dome (J165)			1m silicified zone adjacent to 5 cm wide quartz vein	230	9.9	870	100	680			
063	Top Zone N. Face			35 cm wide quartz vein	5	9.2						
064	Top Zone N. Face			10 cm wide vuggy, grey quartz vein	15	1.6						
065	Top Zone N. Face			15 cm wide vuggy to crystalline quartz vein	6200	16.3						

To: ______________ From: ______________ **PROJECT:** Hart **DATE:** 1983

SAMPLE No. (84)	LOCATION	UTM E	UTM N	DESCRIPTION — REMARKS	Au ppb	Ag ppm	As ppm	Sb ppm	Hg ppb	Bi ppm	Tl ppm	Pb ppm
066	Top Zone N. Face			80 cm wide grey crystalline quartz vein	70	8.7						
067	Top Zone N. Face			60 cm wide banded & vuggy quartz vein	165	23						
069	L. 2+75 N O+25E			1 m wide quartz amethyst vein in silicified breccia	300	24						
070	Steep Zone 1+20S;nO+86W			5 cm wide crystalline quartz vein	5	1.1	290	8.1				
071	Steep Zone 1+15S; 1+05W			1.25 m wide crystalline quartz vein	125	19.8	350	22				
072	Steep Zone			2 m chip sample, silicified breccia	230	1.6	1800	37				
073	Steep Zone 10+85N, 5+00E			vuggy to crystalline quartz vein boulder float	5	0.9	45	1.8				
074	L. 11+25N 6+30E			10 cm wide quartz vein	200	0.8	450	7				
075	L. 11+25N 6+50E			very siliceous pyritic trachyte	65	0.3						
076	L. 12+00N 5+75E			flow banded, mildly altered trachyte	30	0.1						
077	L. 16+00N 2+25E			pyritic quartz vein float	100	6.4						
078	West of Mogul Dome (J173)			modern ferricrete	70	0.9						
079	West of Mogul Dome (J180)			trachyte tuff breccia	5	0.1	35	7.6	70			
080	(J86)				5	1.4						
081	West of Mogul Dome (J183)			trachyte flow	<5	0.1						

To: ____________ From: ____________ **PROJECT:** Hart **DATE:** 1983

SAMPLE No. (84)	LOCATION	UTM E	UTM N	DESCRIPTION — REMARKS	Au ppb	Ag ppm	As ppm	Sb ppm	Hg ppb	Bi ppm	Tl ppm	Pb ppm
082	West of Mogul Dome (J184)			trachyte flow	20	5						
083	L 2+00N 1+20 W			Siliceous and pyritic flow banded trachyte	115	2.4	640	52				
084	L 2+50N 0+80 W			grey, siliceous & pyritic flow banded trachyte	< 5	0.1	70	3.8				
085	L 2+60 N 0+35 W			brecciated zone in trachyte flow	45	1.1	100	52				
086	L 2+60N 0+35 W			siliceous flow banded trachyte	70	0.8	1000	70				
087	L 3+10 N 0+25 E			siliceous, pyritic flow banded trachyte	30	1.8	85	8				
088	L 2+10 N 1+55E			siliceous trachyte flow & bands	80	2.5	75	11.4				
089	L 2+20N 1+90E			siliceous trachyte flow & bands	30	2.4	50	9.6				
090	East of North Dome (J191)			trachyte flow	< 5	0.1	20	42				
101	Mogul Dome Basalt			fractured hawaiite	5	0.1	9	7.6	40	0.1	0.4	7
102	West Rim Mogul Dome			highly fractured, altered basalt	5	0.1	5	3.2	40	0.1	0.1	1
103	West Rim Mogul Dome			purplish brown weathering fresh hawaiite	5	0.1	4	2.5	50	0.1	0.2	12
104	20+00N 2+20E			white quartz vein float	55	0.7	1100	22	130	0.2	8.3	5
105	Dog Dome Creek			well fractured, iron stained basalt	10	0.1	15	2	30	0.1	0.2	1

To: ______ **From:** ______ **PROJECT:** Hart **DATE:** 1983

SAMPLE No. (84 ---)	LOCATION	UTM E	UTM N	DESCRIPTION — REMARKS	Au ppb	Ag ppm	As ppm	Sb ppm	Hg ppb	Bi ppm	Tl ppm	Pb ppm
106	Dog Dome Creek			Highly fractured trachyte dyke cutting basalt	10	0.1	50	2.2	170	0.1	1.4	8
107	L 7+00N 8+50E			altered, iron stained, fractured basalt	5	0.1	5	0.5	40	0.1	0.2	3
108	L 7+00N 8+50 E			1 cm wide trachyte dyke cutting altered basalt	10	0.1	5	0.6	180	0.1	0.1	3
109	Opal Dome Ridge			opalized trachyte	5	0.1	5	11	1700	0.2	0.8	10
110	L 2+00N 1+15 W			siliceous, pyritic trachyte	300	2.4	710	29	220	0.2	1.6	23
111	Rock Glacier			semi massive pyrite, in grey silicified trachyte	650	14.5	840	63	6100	0.2	30	8
112	Rock Glacier			10 cm wide quartz amethyst vein float	95	2	5300	29	150	0.1	3.3	19
113	Rock Glacier			5 cm wide quartz amethyst vein float	90	2.1	1850	55	710	0.1	9.2	120
114	Rock Glacier			drusy & vuggy, brecciated quartz vein float	245	4.7	240	33	230	0.2	2.6	25
115	Rock Glacier			grey & white vuggy quartz vein	175	500	240	820	610	0.2	5.8	15
116	Rock Glacier			quartz amethyst vein	165	5.2	760	37	110	0.2	3.7	22
117	Rock Glacier			crystalline quartz vein float	110	3	300	24	90	0.1	1.4	21
118	Eye of the Needle			40 cm wide vuggy quartz vein	30	5.5	75	9.5	1700	0.1	3.8	8
119	L 2+00N 0+75 E			banded quartz vein (talus)	4775	100						
120	Camp Creek			pyritic, silicified trachyte	25	1.8	110	6	40	0.1	4.7	10

To: ______ From: ______ PROJECT: Hart DATE: 1983

SAMPLE No. (84---)	LOCATION	UTM E	UTM N	DESCRIPTION — REMARKS	Au ppb	Ag ppm	As ppm	Sb ppm	Hg ppb	Bi ppm	Tl ppm	Pb ppm
121	Camp Creek			2.5 cm wide quartz vein in silicified trachyte	20	1.7	101	4.7	30	0.1	4.5	28
122	North Crater			trachyte flow	∠ 5	0.2	99	35	280	0.1	7.7	3
123	Eye of the Needle			trachyte with quartz micro stockwork	25	0.6	23	6	60			
124	Top Zone			re-sample of No. 84516 of quartz vein float	1350	71						
125	West Lake on Camp Creek			debris flow	15	2.3	71	5				
126	L 4+50N 2+50E			10 cm quartz vein float	10	2.8						
127	Top Zone			vaguely banded crystalline quartz vein float	10	21						
128	Top Zone			banded quartz vein	95	66						
129	Top Zone			banded quartz vein float	7900	15.7						
130	Top Zone			.5m wide banded quartz vein	325	18.3						
131	Top Zone			quartz vein float	400	46						
132	Top Zone			quartz vein float up to 0.2 m width	2350	›100						
133	Top Zone			white to grey crystalline quartz	390	›100						
134	Top zone			mixture of quartz amethyst vein float, crystalline quartz	390	›100						
135	Top Zone			selected sample. Greyish white crystalline quartz with 1-2% visible ruby Ag	.08 oz/t	39.2 oz/t						

To: ______ From: ______ PROJECT: HART DATE: 1983

SAMPLE No. (84----)	LOCATION	UTM E	UTM N	DESCRIPTION – REMARKS	Au ppb	Ag ppm	As ppm	Sb ppm	Hg ppb	Bi ppm	Tl ppm	Pb ppm
136	Top Zone			Selected Sample 1.5 cm wide quartz amethyst vein	<5	7.8						
137	Top Zone			quartz vein float to .1m width	240	>100						
138	Top Zone			mixture of clear 'bull' quartz 'banded' quartz	925	>100						
139	Top Zone			banded quartz vein float to .2 m width	1050	75						
140	Top Zone			' sugary' gray and white quartz vein float	10	20						
141	Steep Zone			1.5 - 2m wide crystalline quartz vein	20	8.5						
142	Steep Zone			0.5 m wide crsytalline quartz vein in siliceous breccia.	30	2.2						
143	Steep Zone			0.5 m wide crystalline quartz vein in siliceous breccia	15	3.5						
144	Steep Zone			5 m chip sample in highly fractured trachyte minor quartz micro-stockwork	25	1.6	120	2.5	40	0.1	2.1	22
145	Steep Zone			0.3 m wide crystalline quartz vein	10	1.6	770	9.7	40	0.2	1.4	4
146	Steep Zone			5 m chip sample adjacent to 84145	110	3.0	760	8.0	40	0.1	3.0	46
147	Steep Zone			5 m chip sample adjacent to 84146	55	1.5	360	7	50	0.2	2	29
148	Steep Zone			.75 m wide quartz vein in siliceous & pyritic breccia	210	12.8	630	9.8	70	0.2	2.4	18
149	Steep Zone			1 m chip sample in siliceous & Pyritic breccia	550	3.7	4750	60	70	0.2	3.5	20
150	Steep Zone			unsilicified breccia	40	1.6	210	3.3	50	0.2	4.6	23

To: ______ From: ______ PROJECT: Hart DATE: 1983

SAMPLE No. (84___)	LOCATION	UTM E	UTM N	DESCRIPTION — REMARKS	Au ppb	Ag ppm	As ppm	Sb ppm	Hg ppb	Bi ppm	Tl ppm	Pb ppm
151	L 4+00N 2+50E			Quartz vein float	205	155	25	98	200	1.4	0.7	32
152	Top Zone			banded quartz veins with coxcomb crystallization in centre	5	17.8	20	4	110	0.3	6.4	222
153	Top zone			banded quartz vein float	5	92	22	90	200	0.1	6.6	24
154	Top Zone			banded quartz veins	< 5	15.4	10	5.5	90	0.1	4.3	26
155	Top Zone			banded quartz veins	275	47	19	84	170	0.1	1.2	30
156	Top Zone			banded quartz veins	0.92 oz/t	155	20	100	70	0.1	5	39
157	Top Zone			banded quartz veins	210	30	15	89	60	0.2	4.8	31
158	Top Zone			banded quartz veins	60	16.7	17	31	140	0.1	1.3	37
159	Top Zone			quartz vein float	155	190	12	145	90	0.1	1.4	22
160	Top Zone			quartz veins to .3 m radiating quartz crystals in open spaces	230	22	16	39	140	0.1	3	23
161	Top Zone			quartz veins	305	16.5	17	8.5	90	0.1	2.9	19
162	Quartz Hill			vuggy altered quartz veins about .5 m wide	10	3	690	4.4	130	0.1	2.8	11
163	'Sinter Zone'			sinter feature. Minor fine grained pyrite	1750	38	140	330	10,000	0.1	2.4	7
164	Top Dome			breccia with silicified grey matrix	45	2.8	175	10.5	4,000	0.4	4.1	25
165	Top Dome			banded quartz vein	5	20	38	19.5	480	0.2	1.4	16

To: ______________ From: ______________ PROJECT: Hart DATE: 1983

SAMPLE No. (84__)	LOCATION	UTM E	UTM N	DESCRIPTION — REMARKS	Au ppb	Ag ppm	As ppm	Sb ppm	Hg ppb	Bi ppm	Tl ppm	Pb ppm
166	Top Dome			breccia with abundant bleached trachyte clasts	10	3	43	5.2	3200	0.3	3.2	37
167	Top Dome			breccia	< 5	1.8	43	6.5	130	0.1	2.9	55
168	Top Dome			breccia	< 5	1.9	75	7.2	180	0.2	4.1	25
169	Top Dome			white quartz vein in breccia	25	9.4	200	6.2	440	0.1	9.2	13
170	Top Dome			banded quartz vein	105	13.3	73	7.2	230	0.1	2.3	29
171	Top Dome			banded quartz amethyst vein float in breccia	155	14.8	110	59	430	0.2	2.6	36
172	Top Dome			0.5 m wide siliceous breccia & quartz amethyst zone	110	11.0	160	52	190	0.1	1.4	14
173	Top Dome			flow banded trachyte	60	3.9	335	1000	160	0.2	3.4	22
174	Top Dome			breccia	40	3.8	200	33	140	0.2	2.6	15
175	Top Dome			breccia	5	1.2	20	4.5	130	0.4	0.6	29
176	Top Dome Rock Glacier			quartz vein float	< 5	9.4	61	10	80	0.2	2.5	14
177	Top Dome Rock Glacier			white 'bull quartz' veins	< 5	10.7	115	135	100	0.1	1.7	4
178	Top Dome Rock Glacier			white 'bull quartz' vein float	5	6.2	55	3.2	70	0.2	3.6	52
179	Top Dome Rock Glacier			same 'bull quartz' vein float samples 84176 - 180	5	12	83	3.4	40	0.2	2.2	26
180	Top Dome Rock Glacier			massive white quartz vein float	< 5	8	63	2.1	100	0.1	1.9	10

To: From: PROJECT: Hart DATE: 1983

SAMPLE No. (84__)	LOCATION	UTM E	UTM N	DESCRIPTION – REMARKS	Au ppb	Ag ppm	As ppm	Sb ppm	Hg ppb	Bi ppm	Tl ppm	Pb ppm
181	Top Dome Rock Glacier			massive white quartz vein float	< 5	1.1	32	4.2	70	0.1	4.5	20
182	Top Dome Rock Glacier			massive quartz veins (.5% of talus)	< 5	8	24	6.5	70	0.2	3.3	33
183	Steep Zone			open spaced, iron stained, white quartz vein	205	42	310	8	1200	1.0	1.9	92
184	Steep Zone			.3 m wide crystalline white quartz vein	40	4.4	590	10	270	.1	2	10
185	Mogul Dome			10 cm wide quartz vein in brecciated trachyte flow	30	4.3	285	34	390			12
186	L 0+00N 16+25E			ferricrete	10	0.1	25	0.7	60			1
187	Bear Creek			carbonaceous, debris-rich epiclastic	10	0.2	33	15.3	720			16
188	Dog Dome			siliceous pyritic trachyte	5	0.1	23	7.3	130			10
189	Dog Dome			siliceous pyritic brecciated vein float	50	2.2	39	9	1000			12
190	Dog Dome			'fine grained'pyritic siliceous breccia	30	3.7	63	20	2000			15
191	Dog Dome			quartz stockwork breccia	15	3.2	16	6	850			11
192	Opal Dome			pink and grey flow banded breccia	10	0.1	3	10	880			17
193	Opal Dome			opalized trachyte flow	10	0.1	9	43	660			26
194	Opal Dome			altered trachyte	10	0.1	3	4.8	120			6
195	Opal Dome			opalized trachyte	10	0.1	4	6.2	370			20

To: ____________ From: ____________ PROJECT: Hart DATE: 1983

SAMPLE No. (84___)	LOCATION	UTM E	UTM N	DESCRIPTION — REMARKS	Au ppb	Ag ppm	As ppm	Sb ppm	Hg ppb	Bi ppm	Tl ppm	Pb ppm
196	Opal Dome			altered basalt	20	0.1	63	4.2	290			8
197	Mogul Dome			10 cm wide altered trachyte dyke in blocky basalt	5	0.1	27	8.8	180			12
198	Mogul Dome			30 cm wide highly fractured basalt	5	0.1	16	10.6	70			2
199	Mogul Dome			altered, shattered 10cm trachyte dike adj.to 84198	5	0.1	32	9	200			9
200	Mogul Dome			altered, shattered 10 cm trachyte dike adj.to 84198	5	0.1	63	19	420			11

APPENDIX III

Itemized Cost Statement

ITEMIZED COST STATEMENT

Wages

D. Darrach	$ 69/day June 23-August 13 inclusive	
	52 days total	$ 3,588.00
N. McGarry	$ 80/day June 23 - August 13 inclusive	
	52 days total	$ 4,160.00
J. Nelson	$116/day June 15-August 13 inclusive (field)	
	September 12-15, 19-23, 26-30 (Office)	
	73 days total	$ 8,468.00
F. Daley	$144/day June 15-August 13 inclusive	
	September 12-16, 19-23, 26-30	
	73 days total	$10,512.00
A. Clendenan	$201/day July 16-27 inclusive 12 days	
	August 16, 17 2 days	
	14 days total	$ 2,817.00
R. Dujardin	$230/day July 26, 27	
	August 16, 17	
	4 days total	$ 920.00
	Total Wages	$30,465.00

Meals

Groceries; Super Valu, Whitehorse June 24	$ 493.98
52 days June 23-August 13 inclusive	
4 people at $13.71/person/day	$ 2,850.97
Food Basket Grocery Store, Atlin, B.C.	
Meals Sub Total	$ 3,344.95

Accommodation

June 23	(en route to Property)		
	Klondike Hotel, Whitehorse		
	4 rooms, 1 night		$ 207.20
Aug. 12	(en route from Property)		
	Sheffield Motel, Whitehorse		
	4 rooms, 1 night		$ 359.55
		Accomodation Sub Total	$ 566.75

Transportation

A. Fixed Wing

1. Alkan Air; Whitehorse to Camp Is. Lake, return for both mobilization (June 24) and demobilization (August 12). Single Otter, 206, 185 aircrafts. — $ 4,574.79
2. Air North; Atlin to Trapper Lake with food supplies, groceries, samples out to Atlin. — $ 704.70
3. Taku Air; Atlin to Trapper Lake with field supplies, groceries, etc. samples out to Atlin — $ 1,797.75

Fixed Wing Sub Total — $ 7,077.24

B. Rotary

1. Viking Helicopters 500-D from Trapper Lake 16.33 hours during period June 24-August 12 inclusive @ $375/hour. — $ 6,125.00

C.	Rotary Fuel (JP-4) Nine 45 gallon drums		$ 1,519.20
	Deposit on 9 drums ($35/ea)		$ 315.00
D.	Crew Transportation		
	Vancouver - Whitehorse June 23		
	4 people at $235.50/person		$ 942.00
	Whitehore - Vancouver August 13		
	4 people at $235.50/person		$ 942.00
		Sub Total	$ 1,884.00
E.	Shipping Costs		
	- Mobilization and demobilization of field camp Vancouver-Whitehorse-Vancouver (CP Air)		
	- Shipping samples; Atlin-Whitehorse-Vancouver (Food Basket expediting, Atlin Trucking, CP Air, Chemex)	Sub Total	$ 1,665.08
F.	Vehicle Rental		
	June 24, Norcan Rentals, Whitehorse		$ 53.62
	Gas for vehicle		25.00
		Sub Total	$ 78.62
		Transportation Sub Total	$18,669.14
G.	Instrument Rentals		
	i. VLF EM 16 $40/day x 52 days		$ 2,080.00
	ii. 24" chain saw $20/day x 52 days		$ 1,040.00
	iii. Honda Generator $20/day x 52 days		$ 1,040.00
	iv. 100 Watt radio 3 month rental w/antenna		$ 1,306.83
			$ 5,466.83

H. Geochemical Analyses

Chemex Labs, North Vancouver, B.C.

1.	519 Soil and talus fine samples for Au, Ag, As, Sb at $15.04/sample	$ 7,808.22
2.	139 rock geochem and assay samples	
	- 37 for Au-Au (ppm) @ $9.59/sample	$ 354.66
	- 8 for Au-Ag-As-Sb (ppm) @ $16.15/sample	$ 129.20
	- 11 for Au-Ag-As-Sb-Hg (ppm) @ $23.95/sample	$ 354.66
	- 1 for Au-Ag (oz/t)	$ 10.12
	- 78 for Au-Ag-As-Sb-Hg-Bi-Tl-Pb (ppm) @ $26.15/sample	$ 2,039.30
	- Re-analyses: ppm - oz/t for Au, Ag	500.00
	Analyses Sub Total	$11,196.16

I. Camp Construction Costs

Tents, heaters, stoves, coolers, tables, cots, plywood, 2 x 4's, propane bottles	
1983 Purchase Value	$ 8,702.50
50% depreciation value for 1983 field use	$ 4,351.25

J. Report Preparation

Reductions and enlargements of base maps to acceptable scales (Superior Reproductions)	$ 877.01
Drafting, 70 hours @ $10/hour	$ 700.00
Sub Total	$ 1,577.01

TOTAL 1983 EXPENDITURES $75,632.00

APPENDIX IV

Author's Qualifications

AUTHOR'S QUALIFICATIONS

I, Fred S. Daley, residing at 7511 Greenless Road, Richmond, B.C. declare that:

1. I am a graduate Geologist from the University of British Columbia (B.Sc. Honours; 1975).
2. I have been active in all phases of mineral exploration for base and precious metals during the past 8 years in B.C., the Yukon, and the Western United States.
3. I was employed by Kerr Addison Mines Ltd. for the period of June 1, 1983 to November 15, 1983 as Project Geologist and Party Chief.
4. I was personally present and supervised all aspects of the field program described in this report.

Fred S. Daley

AUTHOR'S QUALIFICATIONS

I, JoAnne Nelson, residing at 2980 W. 8th Avenue, Vancouver, B.C. declare

1. I am a graduate Geologist from the University of British Columbia (M.Sc. 1976) and the University of Washington (B.Sc. 1973).
2. Since 1979 I have been involved in base and precious metal exploration programs in B.C., Alaska, the Yukon, and Western United States.
3. I have done numerous petrographic studies over the last 4 years on a consulting basis for Vancouver Petrographics Ltd. and taught 2nd year Mineralogy at U.B.C. for the 1982-1983 term.
4. I was engaged by Kerr Addison Mines Ltd. as a geologist for the period June 15, 1983 to October 15, 1983.
5. I was personally present and was responsible for the regional and detailed mapping on the Hart Claims described in this report.

J. Nelson

JoAnne Nelson

Tarfu Crater
North Crater
Bug Basin
King Dome
Mogul Dome
HART 5
HART 6
MOGUL ZONE
CAMP CREEK
END ZONE
STEEP ZONE
JOHN CREEK
Opal Dome
HART 3
HART 4
Top Dome
TOP ZONE
Dog Dome
Bottom Zone
Zero-zero Dome
South Dome
BEAR CREEK
HART 1
HART 2
LEVEL MOUNTAIN GROUP.
Bts
Bd — Bd: basalt dykes cutting Bhfu(2) and older units
Bhfu (2) — Bhfu: (2) hawaiite flows ± olivine xenocrysts : above Rwt (3) or Bhfu (1)
Bts: basalt tuffaceous sediments.
Rwt (3) — Rhyolite welded tuff with basalt xenoliths ; spherulitic
Bhfu (1) — CASTLE RIDGE Basalt flow: hawaiite with olivine xenocrysts.
HEART PEAKS FORMATION.
mf — Mudflows, mainly in the CAMP CREEK drainage, some may postdate LEVEL MTN. GROUP.
bx. — Phreatic explosion breccia : polymict contains assortment of trachyte clasts, Takwahoni shale - siltstone, minor basalt. Matrix consist of kaolinized or silicified finely milled clastic material.
Rf, wt(2) — Rhyolite flow(s), welded tuff with small spherulites.
Rts — Unconsolidated massive rhyolite, tuffaceous sediments at head of CAMP CREEK.
OPAL DOME
Tfs — Trachyte flows buff and massive ; strongly flow-streaked grey and pink or lavender. Blocky or platy weathering
BUG BASIN.
Tt /x /s — Trachyte tuffs, tuff breccias, tuffaceous sediments
Bhfl, Bag — Lower hawaiite flows, basalt agglomerate
MOGUL DOME, KING DOME.
Tf4/x4 — Trachyte flows and flow (or vent proximal) breccias : flinty textured aphanitic flows with small or in core of MOGUL DOME, large alkali feldspar phenocrysts. White, grey, less commonly red or green. Breccias dense with large angular clasts.
NORTH CRATER, TARFU CRATER.
Tf4A Tvx4A — Trachyte flows either with large phenocrysts or small phenocrysts. Tvx is small phenocrystic flow, brecciated with open spaces.
TOP DOME.
Tf3/x3 — Trachyte flows, light green, grey, white, generally aphanitic, flinty textured. Commonly finely flow laminated sparse small alkali feldspar phenocrysts ; Tfx clast dense breccia, mainly kaolin altered. May be pyroclastic.
SOUTH DOME.
Tf2/x2 — Tf - purple to orange weathering, buff to white fine grained trachyte flows with small alkali feldspar phenocrysts, platey jointed. Tfx - 10 %, 1cm - size clay altered lithic or tuffaceous clasts in white kaolin rich matrix.
ZERO - ZERO DOME.
Tf1/x1 — Tf - purple to orange weathering, platey jointed trachyte flows, buff to white with small alkali feldspar phenocrysts. Tfx - 10 %, 1cm size clay altered lithic or tuffaceous clasts in white kaolin rich matrix.
Rf / tx(1) — Western rhyolite flows, tuff breccia or lithic tuff. Small quartz, alkali feldspar, biotite phenocrysts.
TAKWAHONI FORMATION.
LJT — Shale - siltstone rhythmites ; massive greywacke. (Jurassic)
Undifferentiated lithologic designations:
Tf. Trachyte flow
Tfx. Trachyte flow breccia
Tvx. Vent proximal breccia
Td. Trachyte dyke
Tt. Trachyte tuff
Ttx. Tuff breccia
Tts. Tuffaceous sediments
mf. mud flow
Rd. Rhyolite dyke
Geological contact
Limit of outcrop
Limit of talus
Quartz veins (float)
Limit of kaolinized zone
" " silicified zone
GEOLOGICAL BRANCH
ASSESSMENT REPORT
12,141
KERR ADDISON MINES LTD
HART CLAIM GROUP
GEOLOGY
SCALE - 1: 5,000
DATE - OCTOBER, 1983
DRAWN BY - J.NELSON
DATA - J.Nelson, F.Daley.
NTS - 104 K 9

FIG. 3.

FIG. 4

KERR ADDISON MINES LTD	
HART CLAIM GROUP	
GEOLOGY & REGIONAL ROCK GEOCHEMISTRY	
SCALE - 1 : 2500	DATE - OCTOBER, 1983
DRAWN BY - J. NELSON	DATA - J. Nelson, F. Daley
NTS - 104 K 9	

LEGEND

bx	POLYMICT BRECCIA Contains angular clasts of local and transported flow trachyte; siltstone - shale of the Takwahoni Formation. Matrix consists of finely milled clastic material with or without chalcedony and pyrite.
Tf	TOP DOME TRACHYTE FLOWS Light green, grey, white, generally flinty textured (aphanitic) flows with sparse small k-spar phenocrysts. Commonly with fine flow lamination. Silification almost ubiquitous, many areas very pyritic also.

- Veins, breccia/vein zones
- Vein sample
- Silicified trachyte sample
- Breccia sample
- Trench (1982)
- Vein orientation
- Limit of outcrop
- Geological contact

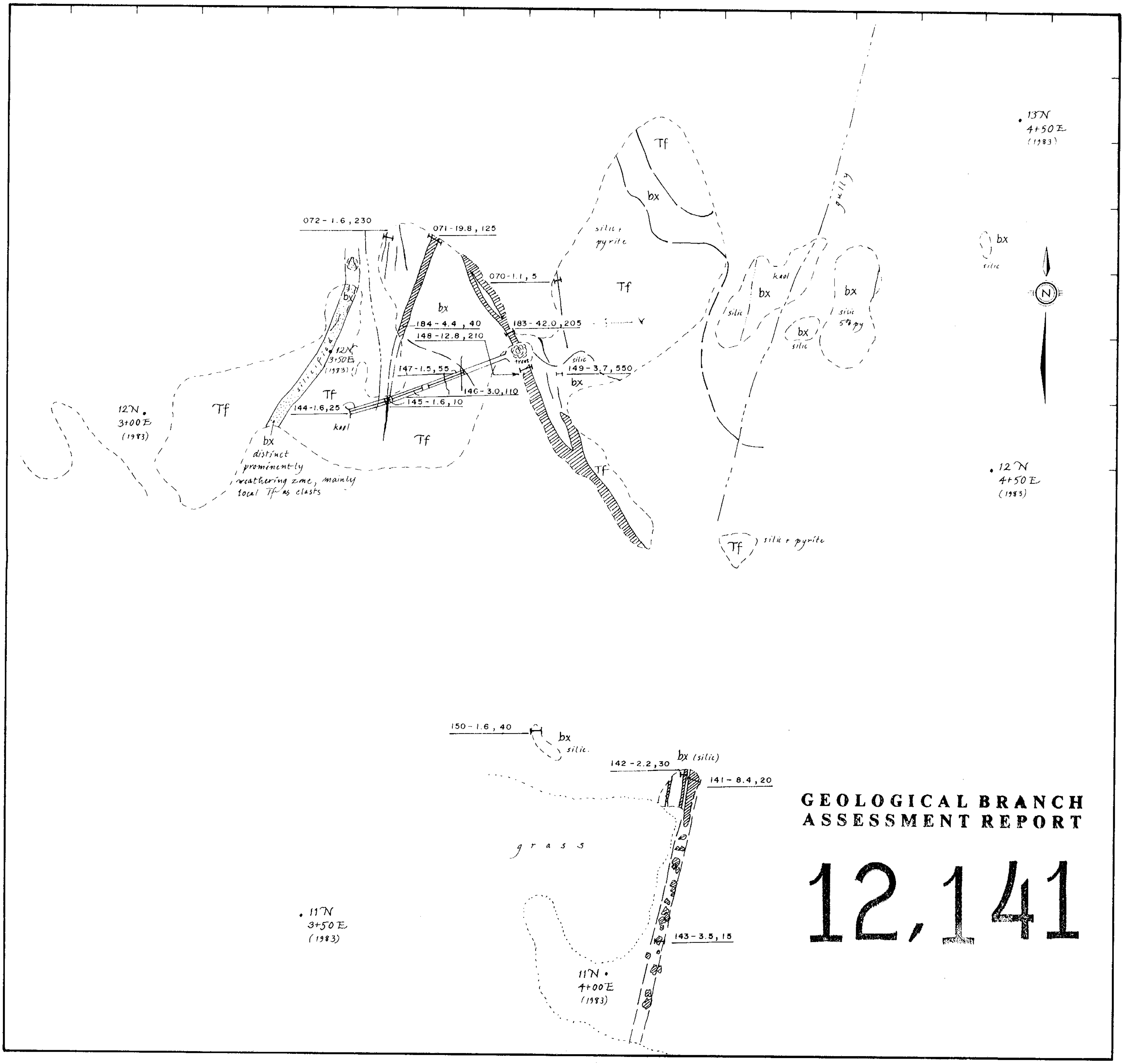
84172 - 11.0, 160, 190, 52.0, 110 = Ag (ppm), As (ppm), Sb (ppm), Hg (ppb), Au (ppb).
or 84174 - 100.0, 250 = Ag (ppm), Au (ppb) (N.B. - Samples with 5 analyses, Ag is first and Au last).

GEOLOGICAL BRANCH
ASSESSMENT REPORT

12,141

FIG. 5

KERR ADDISON MINES LTD	
HART CLAIM GROUP	
TOP ZONE DETAILED GEOLOGY ROCK GEOCHEMISTRY	
SCALE - 1:1000	DATE - SEPTEMBER, 1983
DRAWN BY - P.Ht., J.Nelson	DATA - J.Nelson, F.Daley
NTS - 104 K - 9	FIG. No.



GEOLOGICAL BRANCH
ASSESSMENT REPORT

12,141

FIG. 6

0 5 10 15 20
METRES

Symbol	Description
Tf	Trachyte flows ± dykes. Reddish - brown to gold on weathered fracture surfaces. Moderate to intense kaolinite and/or silica alteration.
bx	Breccia (polymict). Clasts in millimetre to centimetre size range, angular. Include Jurassic Takwahoni Formation shales and siltstones, local and exotic trachytes. Mildly to intensely silicified, pyritic.
	Sample interval
(84) 074 - 1.2 , 85	Sample number - Ag (ppm), Au (ppb).
	Quartz veins
	Outcrop limits

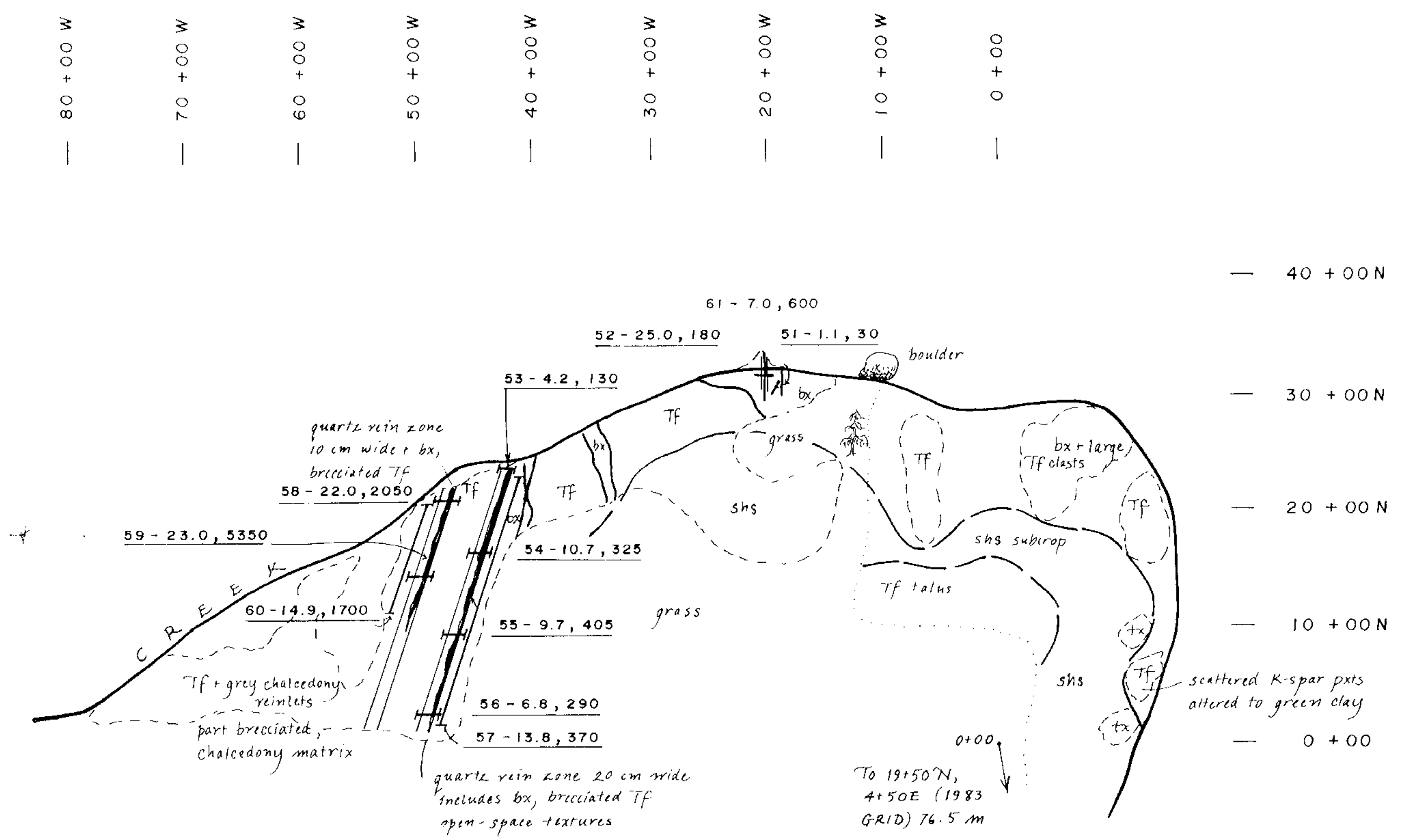
KERR ADDISON MINES LTD

HART CLAIM GROUP

STEEP ZONE GRID

GEOLOGY & GEOCHEMISTRY

SCALE - 1: 500	DATE - JULY , 1983
DRAWN BY - J.Nelson, P.Ht.	DATA - F.Daley , J.Nelson.
NTS - 104 K - 9	FIG. No.



GEOLOGICAL BRANCH
ASSESSMENT REPORT

12,141

FIG. 7

Symbol	Description
shs	Grey finely bedded silicified shale (Lake sediments) rarely fine breccia intercalated; Cross bedding, fine slump features.
Tf	Trachyte flow, yellowish; Kaolinized to silicified.
bx	Breccia – ranges from 25% Takwahoni clasts (polymict) to 100% local trachyte (large, angular clasts). Grey chalcedony matrix.
tx	Grey tuff - breccia, includes ash, Takwahoni clasts.
1.2, 85	Sample interval; Ag (ppm), Au (ppb).
(840) 58	Sample number

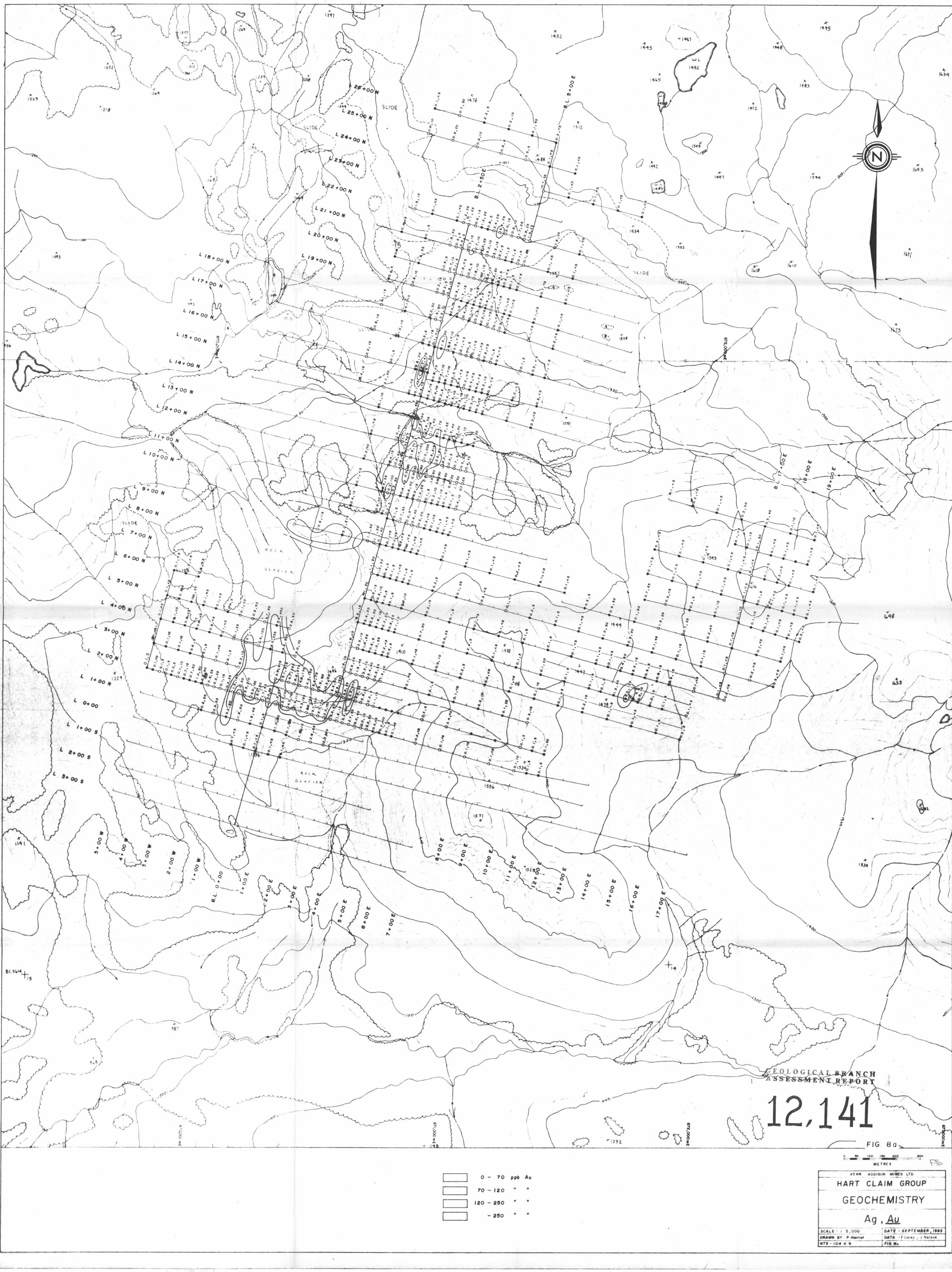
KERR ADDISON MINES LTD

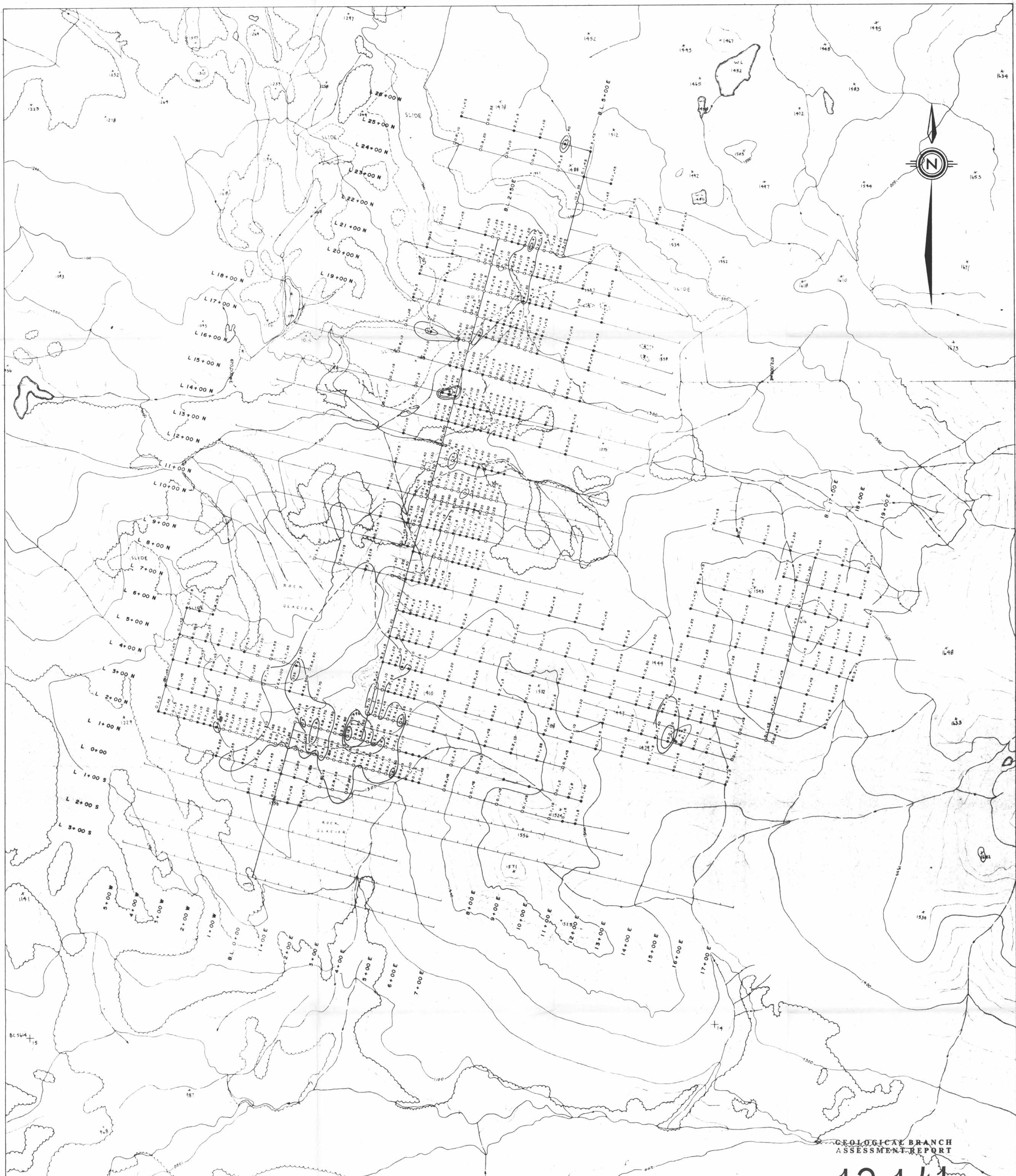
HART CLAIM GROUP

MOGUL ZONE GRID

GEOLOGY & GEOCHEMISTRY

SCALE – 1:500	DATE – JULY, 1983
DRAWN BY – J. Nelson, P.Ht.	DATA – F. Daley, J. Nelson.
NTS – 104 K – 9	FIG. No.


GEOLOGICAL BRANCH
ASSESSMENT REPORT
12,141
FIG 8a
0 50 100 150 200 300
METRES
0 - 70 ppb Au
70 - 120 " "
120 - 250 " "
- 250 " "
KERR ADDISON MINES LTD
HART CLAIM GROUP
GEOCHEMISTRY
Ag, Au
SCALE - 1:5,000
DATE - SEPTEMBER, 1983
DRAWN BY P Halliot
DATA - F Daley, J Nelson
NTS - 104 K 9
FIG No
SLIDE
ROCK GLACIER
BL 5+00 E
BL 2+50 E
BL 0+00
BL 17+00 E
L 25+00 N
L 24+00 N
L 23+00 N
L 22+00 N
L 21+00 N
L 20+00 N
L 19+00 N
L 18+00 N
L 17+00 N
L 16+00 N
L 15+00 N
L 14+00 N
L 13+00 N
L 12+00 N
L 11+00 N
L 10+00 N
L 9+00 N
L 8+00 N
L 7+00 N
L 6+00 N
L 5+00 N
L 4+00 N
L 3+00 N
L 2+00 N
L 1+00 N
L 0+00
L 1+00 S
L 2+00 S
L 3+00 S
5+00 W
4+00 W
3+00 W
2+00 W
1+00 W
1+00 E
2+00 E
3+00 E
4+00 E
5+00 E
6+00 E
7+00 E
8+00 E
9+00 E
10+00 E
11+00 E
12+00 E
13+00 E
14+00 E
15+00 E
16+00 E
17+00 E
18+00 E
19+00 E
WL
N



GEOLOGICAL BRANCH
ASSESSMENT REPORT

12,141

	0.0 - 2.0 ppm Ag
	2.0 - 4.0 " "
	4.0 - 5.0 " "
	5.0 - 10.0 " "
	+10.0 " "

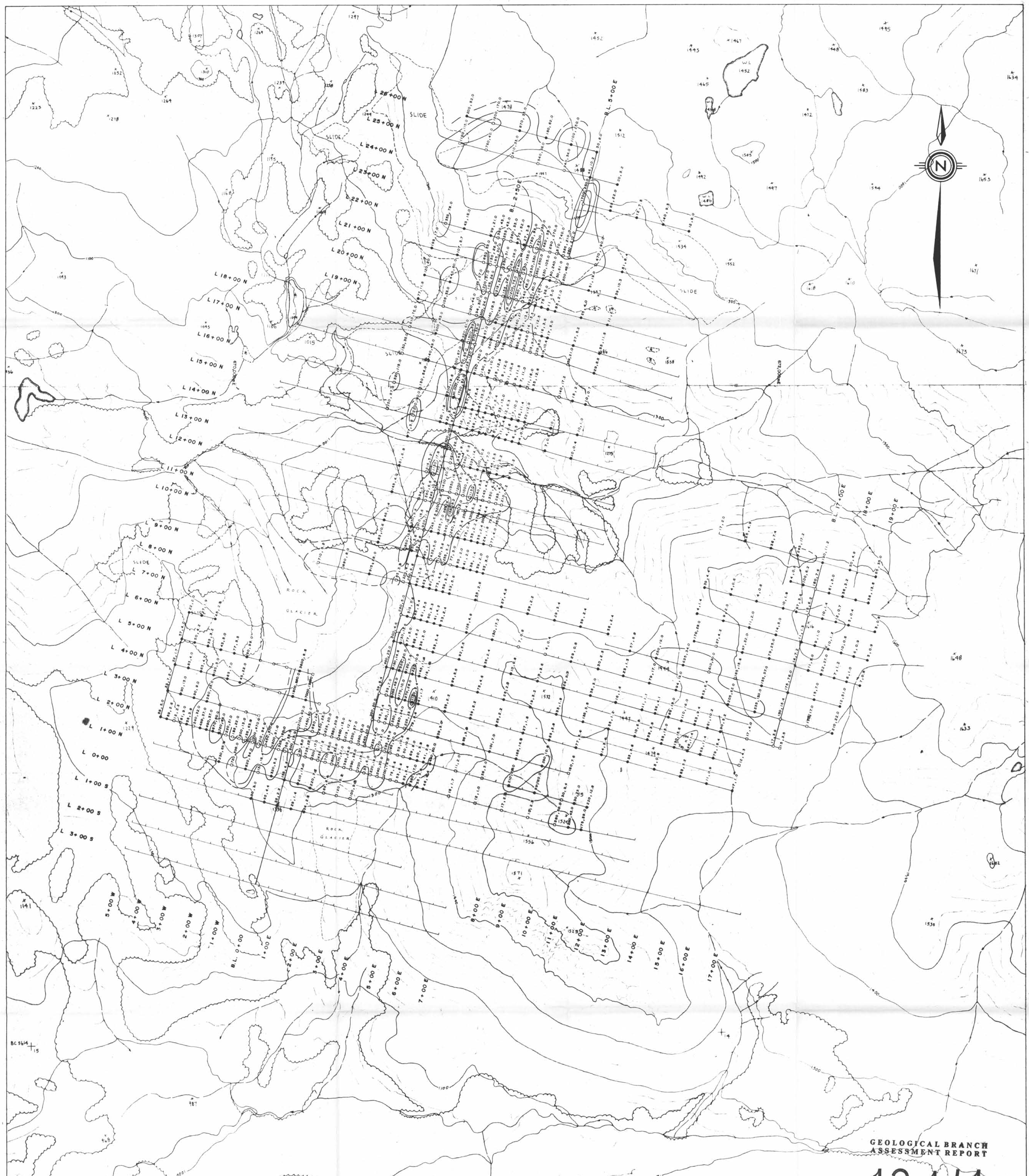
KERR ADDISON MINES LTD

HART CLAIM GROUP

GEOCHEMISTRY

Ag, Au

SCALE - 1 : 5,000	DATE - SEPTEMBER, 1983
DRAWN BY P. Haillot	DATA - F. Daley, J. Nelson
NTS - 104 K 9	FIG No.



GEOLOGICAL BRANCH
ASSESSMENT REPORT

12,141

FIG 8c

LEGEND

☐	0 - 200 ppm As
☐	200 - 650 " "
☐	650 - 1100 " "
☐	+1100 " "

0 50 100 150 200 300
METRES

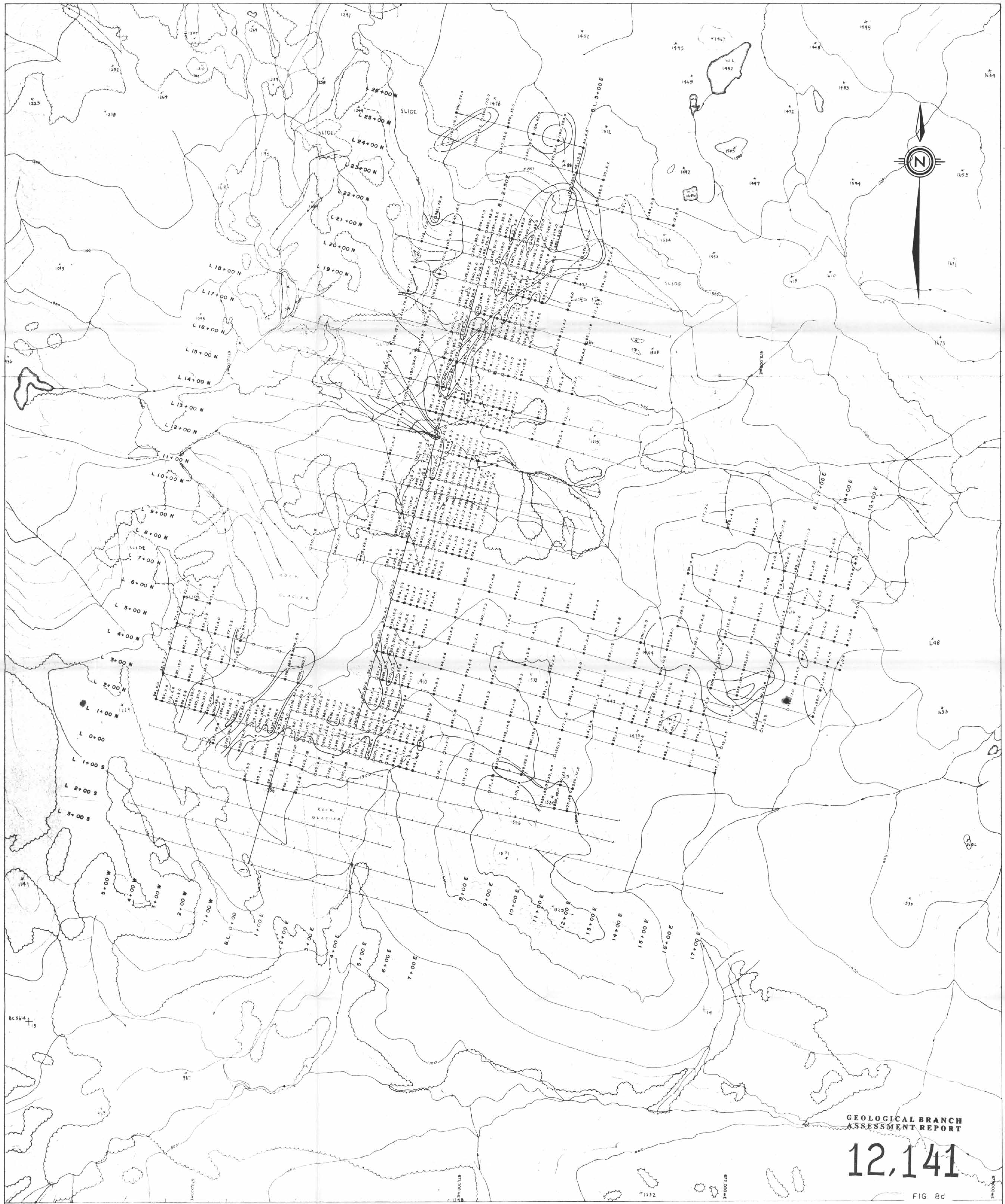
KERR ADDISON MINES LTD

HART CLAIM GROUP

GEOCHEMISTRY

As, Sb

SCALE - 1: 5,000	DATE - SEPTEMBER, 1983
DRAWN BY P Holliot	DATA - F Doley, J Nelson
NTS - 104 K 9	FIG No



GEOLOGICAL BRANCH
ASSESSMENT REPORT

12,141

FIG 8d

METRES

LEGEND

☐	0 - 20 ppm Sb
☐	20 - 60 " "
☐	60 - 100 " "
☐	+100 " "

KERR ADDISON MINES LTD.

HART CLAIM GROUP

GEOCHEMISTRY

As, Sb

SCALE - 1:5,000	DATE SEPTEMBER, 1983
DRAWN BY P Hallist	DATA - T. Sutey, J. Nelson
NTS - 104 K 9	FIG No.

GEOLOGICAL BRANCH
ASSESSMENT REPORT

12,141

	2
3	4

ALL READINDS TAKEN FACING EAST

NORTH IS POSITIVE

IN PHASE •– – –•

QUADRATURE ×——×

STATION USED – HAWAII (NPN), 23.4 KHZ.

VERTICAL SCALE – 1 cm = 20°

CONDUCTOR AXIS ▬▬

FIG. 9a

0 25 50 100 150 200
METRES

KERR ADDISON MINES LTD

HART CLAIM GROUP

VLF-EM 16 SURVEY

GRID PROFILES
NW QUADRANT

SCALE – 1: 2500	DATE – JULY, 1983
DRAWN BY – P. HAILLOT	DATA – N. McGarry, F. Daley
NTS – 104 K 9	FIG. No.

GEOLOGICAL BRANCH
ASSESSMENT REPORT

1	2
3	4

12,141

FIG. 9b

0 25 50 100 150 200
METRES

LEGEND

ALL READINGS TAKEN FACING EAST.

NORTH IS POSITIVE

IN PHASE •- - -•

QUADRATURE ×——×

STATION USED - HAWAII (NPN), 23.4 KHZ.

VERTICAL SCALE - 1 cm = 20°.

CONDUCTOR AXIS. ▬▬

KERR ADDISON MINES LTD

HART CLAIM GROUP

VLF-EM 16 SURVEY

GRID PROFILES
NE QUADRANT

SCALE - 1:2500	DATE - JULY, 1983
DRAWN BY - P. HAILLOT	DATA - N. McGarry, F. Daley
NTS - 104 K 9	FIG. No

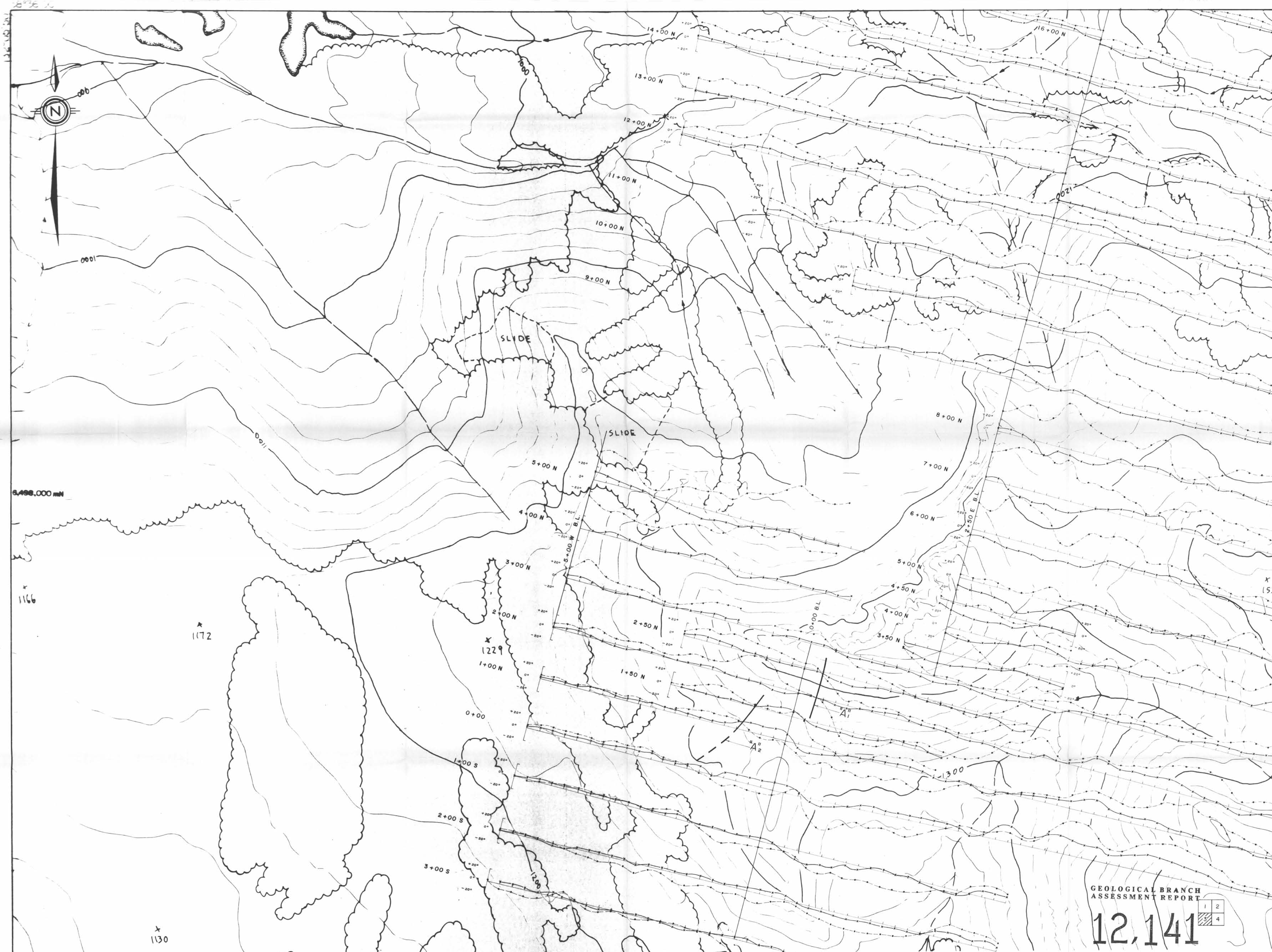


FIG. 9c

0 25 50 100 150 200
METRES

ALL READINDS TAKEN FACING EAST

NORTH IS POSITIVE

IN PHASE

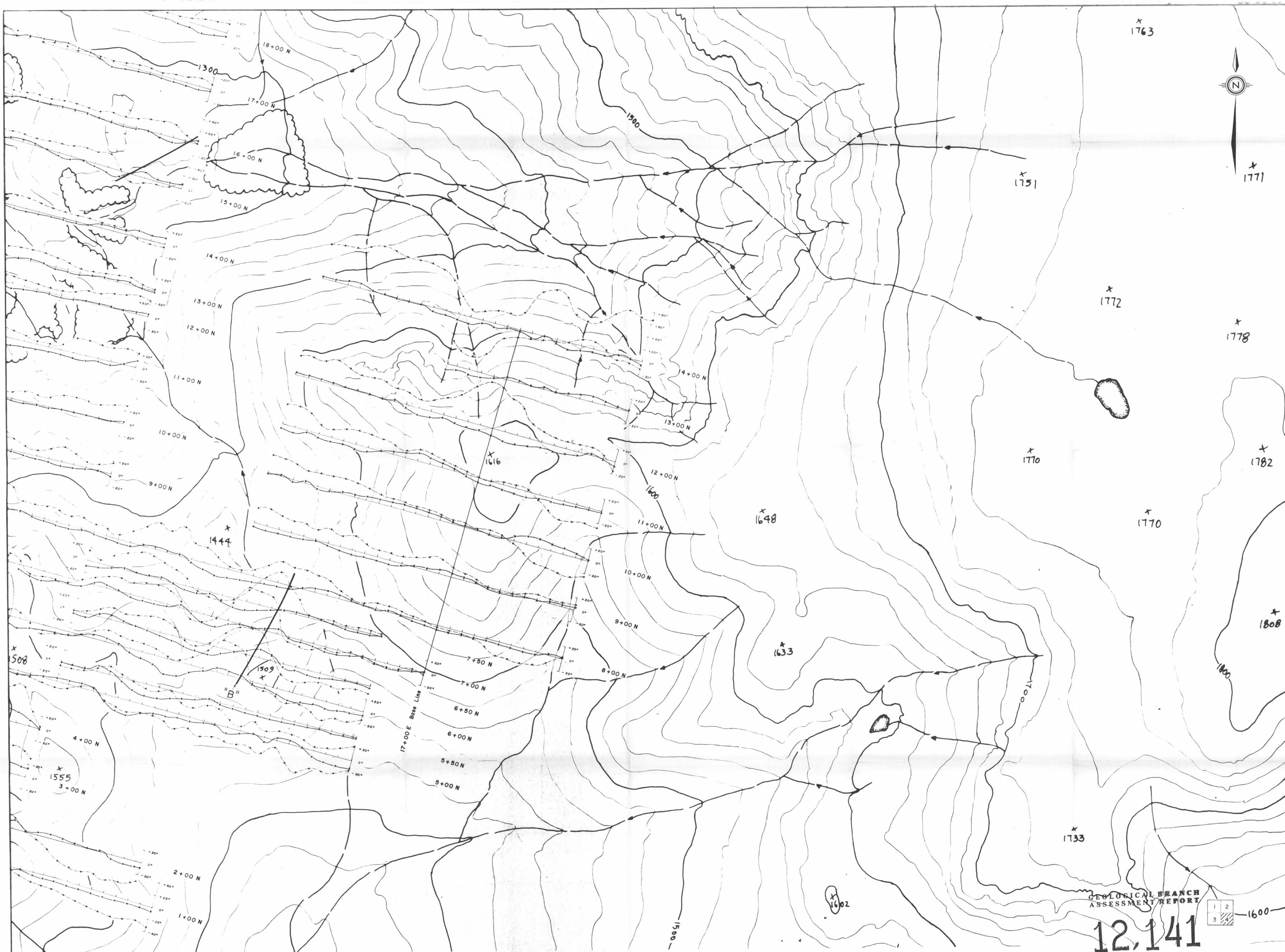
QUADRATURE

STATION USED – HAWAII (NPN), 23.4 KHZ.

VERTICAL SCALE – 1 cm = 20°

CONDUCTOR AXIS

KERR ADDISON MINES LTD	
HART CLAIM GROUP	
VLF-EM 16 SURVEY	
GRID PROFILES SW QUADRANT	
SCALE – 1 : 2500	DATE – JULY, 1983
DRAWN BY – P. HAILLOT	DATA – N. McGarry, F. Daley
NTS – 104 K 9	FIG. No.



LEGEND

ALL READINGS TAKEN FACING EAST

NORTH IS POSITIVE

IN PHASE •- - -•

QUADRATURE ×——×

STATION USED - HAWAII (NPN), 23.4 KHZ

VERTICAL SCALE - 1 cm = 20°

CONDUCTOR AXIS ——

FIG. 9d

0 25 50 100 150 200
METRES

KERR ADDISON MINES LTD	
HART CLAIM GROUP	
VLF-EM 16 SURVEY	
GRID PROFILES SE QUADRANT	
SCALE - 1:2500	DATE - JULY, 1983
DRAWN BY - P. HAILLOT	DATA - N. McGarry, F. Daley
NTS - 104 K 9	FIG. No.

GEOLOGICAL BRANCH
ASSESSMENT REPORT

12,141

1	2
3	4

FIG. 9e

0 25 50 100 150 200

METRES

0° - 30°	
30° - 50°	
+ 50°	

KERR ADDISON MINES LTD

HART CLAIM GROUP

VLF-EM 16 SURVEY

FRASER FILTER DATA

SCALE - 1:2500	DATE - JULY, 1983
DRAWN BY - P. HAILLOT	DATA - N. McGarry, F. Daley
NTS - 104 K 9	FIG. No

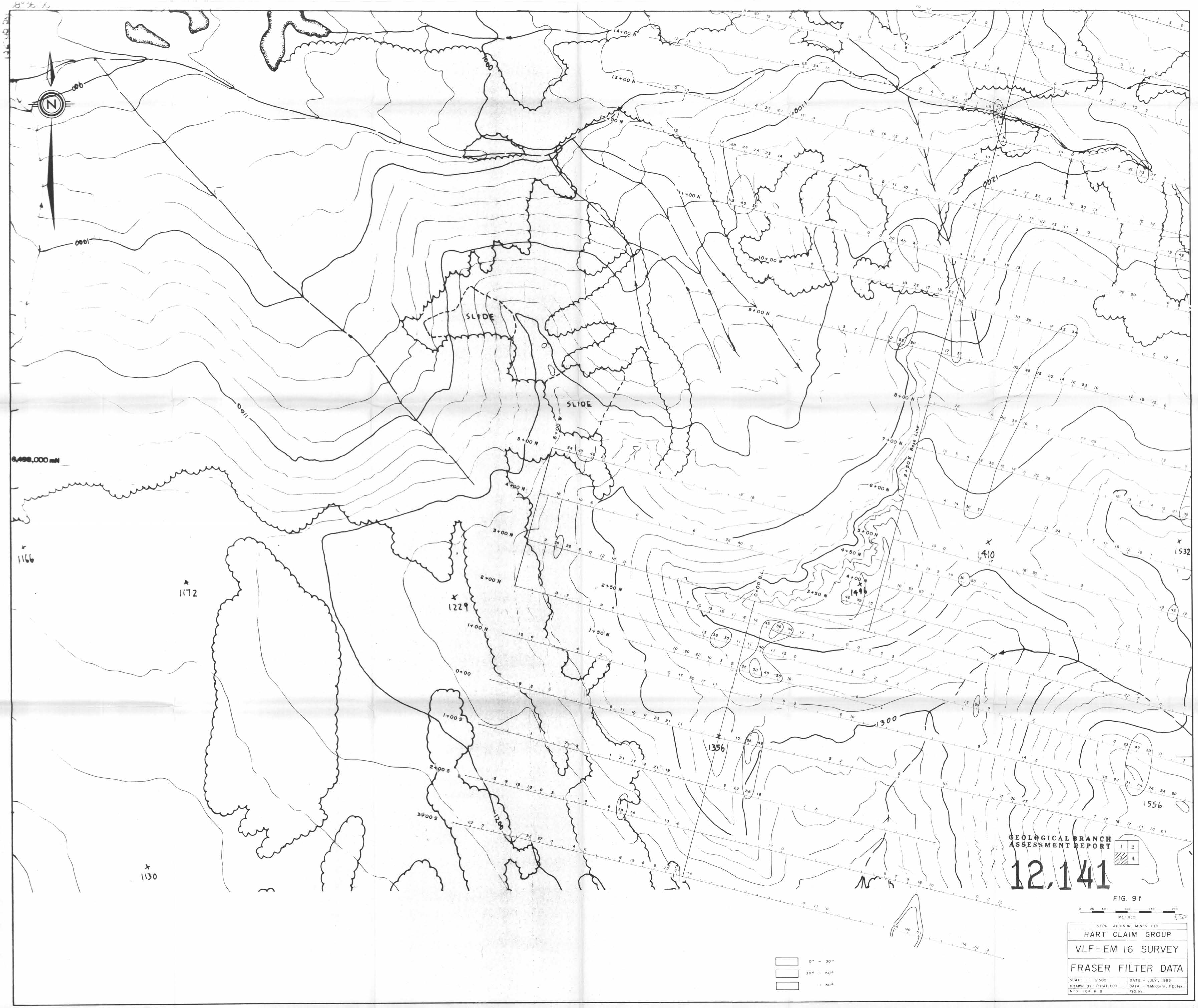

N
14+00 N
13+00 N
12+00 N
11+00 N
10+00 N
9+00 N
8+00 N
7+00 N
6+00 N
5+00 N
4+50 N
4+00 N
3+50 N
3+00 N
2+50 N
2+00 N
1+50 N
1+00 N
0+00
1+00 S
2+00 S
3+00 S
2+50 E Base Line
0+00 B.L.
5+00 W
SLIDE
SLIDE
6,498,000 mN
1000
1100
1200
1300
1166
1172
1229
1130
1356
1410
1496
1532
1556
GEOLOGICAL BRANCH
ASSESSMENT REPORT
12,141
FIG. 9f
METRES
KERR ADDISON MINES LTD
HART CLAIM GROUP
VLF-EM 16 SURVEY
FRASER FILTER DATA
SCALE - 1 2500
DATE - JULY, 1983
DRAWN BY - P. HAILLOT
DATA - N. McGarry, F. Daley
NTS - 104 K 9
FIG. No
0° - 30°
30° - 50°
+ 50°

FIG. 9g

GEOLOGICAL BRANCH
ASSESSMENT REPORT

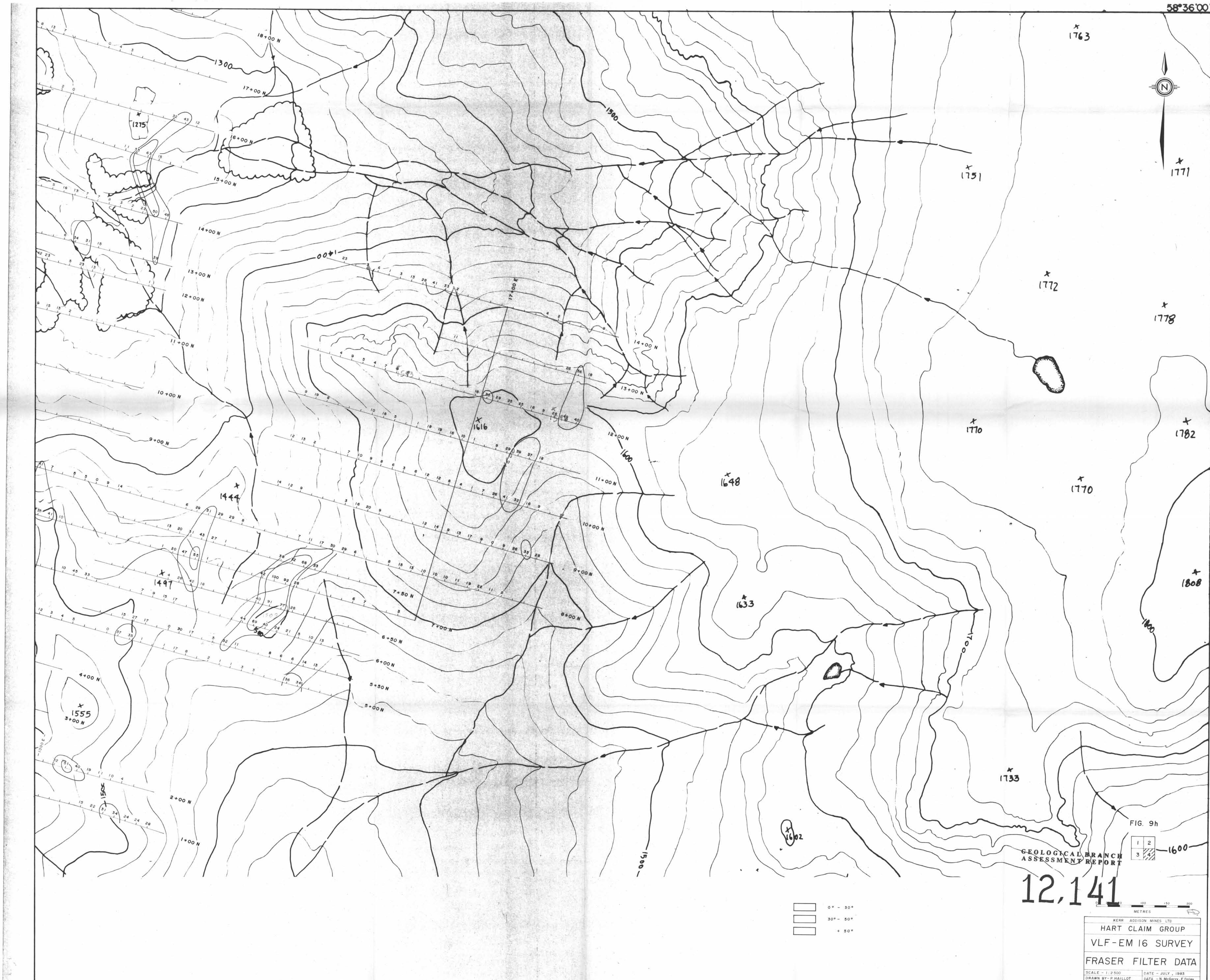
1	2
3	4

12,141

0 25 50 100 150 200
METRES

0° - 30°	
30° - 50°	
+ 50°	

KERR ADDISON MINES LTD	
HART CLAIM GROUP	
VLF-EM 16 SURVEY	
FRASER FILTER DATA	
SCALE - 1 : 2500	DATE - JULY, 1983
DRAWN BY - P. HAILLOT	DATA - N. McGarry, F. Daley
NTS - 104 K 9	FIG. No.



KERR ADDISON MINES LTD

HART CLAIM GROUP

VLF-EM 16 SURVEY

FRASER FILTER DATA

SCALE - 1:2500	DATE - JULY, 1983
DRAWN BY - P. HAILLOT	DATA - N. McGarry, F. Daley
NTS - 104 K 9	FIG. No