HUDSON BAY EXPLORATION AND DEVELOPMENT COMPANY LIMITED

EUREKA PROJECT

2000 FIELD PROGRAM

Geological, Geophysical and Geochemical Surveys, Trenching, Drilling

On the

BOW 1-27, RON 1-4, KAREN 1-8, NORTH 1-8, ALPHA 1-6, BRAVO 1-12,
CHARLIE 1-5, BOWRON 1-4, LOTTIE 1-4, LOT 1-14 and LOTT 1-3, A-H

Cariboo Mining Division,
British Columbia

Location
NTS 093H/4E, 5E, 6W
Latitude 53 12'N to 53 26'N
Longitude 121 28' to 121 43'W

Owner: Eureka Resources Inc.

Operator: Hudson Bay Expl. & Dev. Co. Ltd.

By

Gerald E. Bidwell, Geoff S. Mulligan, Roger C. Paulen,

January 31, 2001

Plate 1 Two Sisters Mtn. from Lottie clearcut

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A comprehensive program of bedrock and surficial mapping, till and moss mat geochemistry, airborne and ground EM/magnetics, linecutting, backhoe trenching and diamond drilling was carried out by Hudson Bay Exploration and Development Co. Ltd. on the Eureka Project from May to October, 2000. Total field expenditures on the project were $653,553.

The Eureka Project is a VMS exploration program in a block of Upper Paleozoic stratigraphy in the Quesnel area of central B.C. Interest in this mafic volcanic / sedimentary sequence was generated because of base metal discoveries in similar rocks in the Finlayson Lake area of Yukon in the early to mid 1990s. Martin Peter, a prospector, searched the equivalent units (Slide Mountain Terrane) from Wells north to Prince George and discovered three areas of massive sulphide float along logging roads west of the Bowron River. These occurrences, the Bow, Tow and Lottie, had copper values up to 24 %. Peter optioned his properties to Eureka Resources Inc. a Vancouver based company who subsequently carried out an airborne EM/magnetic survey over the two northern prospects and followed with ground geophysics and geochemistry. Hudson Bay Exploration and Development Co. Ltd. ("HBED") optioned the prospect from Eureka in early 2000 under a five-year option agreement with staged payments totaling $375,000 and work commitments of $5.5 million to earn a 60% interest.

The claims are located in the Cariboo area of east central B.C. in NTS areas 093H/4,5 and 6. The property is centered 70 km northeast of Quesnel and 25 km north of Wells. Prince George is 100 km to the northwest. The property is 26 km long and 18 km wide with the eastern flank bordering on the Bowron River. A series of east-west valleys cuts the dominant northerly trend of the claims. The property is all wooded but logging over the last 20 years has cut 75% of the timber. There is an excellent road network except for the higher elevations. The property consists of 104 contiguous claims totaling 1,116 units and covers 26,259 hectares. Upon acceptance of the assessment report for the 2000 program all claims will be in good standing until January 31, 2005.

The field program encompassed 5 months of fieldwork (862 man-days). Systematic till and moss mat sampling surveys covering the claims and adjoining areas were initially undertaken along with bedrock and surficial mapping and the airborne EM/mag survey. This was followed by detailed till sampling on prospective geochem targets and linecutting - ground geophysics on the airborne EM targets. The season was completed with trenching (mainly in the Lottie area) and a six hole (709 meter) diamond drill program testing the area of the Lottie float and EM conductors. No significant bedrock mineralization was encountered but numerous geochemical and geophysical targets remain untested.

The bulk of the property is underlain by the Antler Formation, part of the Slide Mountain Terrane. It is a structurally imbricated oceanic package primarily comprised of Mississippian to Permian pillow basalt and chert-pelite sequences that are cut by diorite, gabbro, and lesser ultramafic intrusions. Greywacke, grit, conglomerate, felsic volcanics, limestone and serpentinite are minor components. Felsic volcanics are not traditionally considered to be part of the package but were located west of the Eureka property this past summer. The package is essentially flat lying with the internal thrusts as well as NE and NW trending normal faults. Folding appears to be minor on a property scale, although on outcrops tight isoclinal folding, probably related to the thrusting, can be observed. An anomaly, in terms of bedrock geology, is the Lottie area, where sediments, particularly argillites, are much more prominent and the volcanic-sediment package dips moderately to the north. In addition to the Bow, Tow and Lottie float previously found the

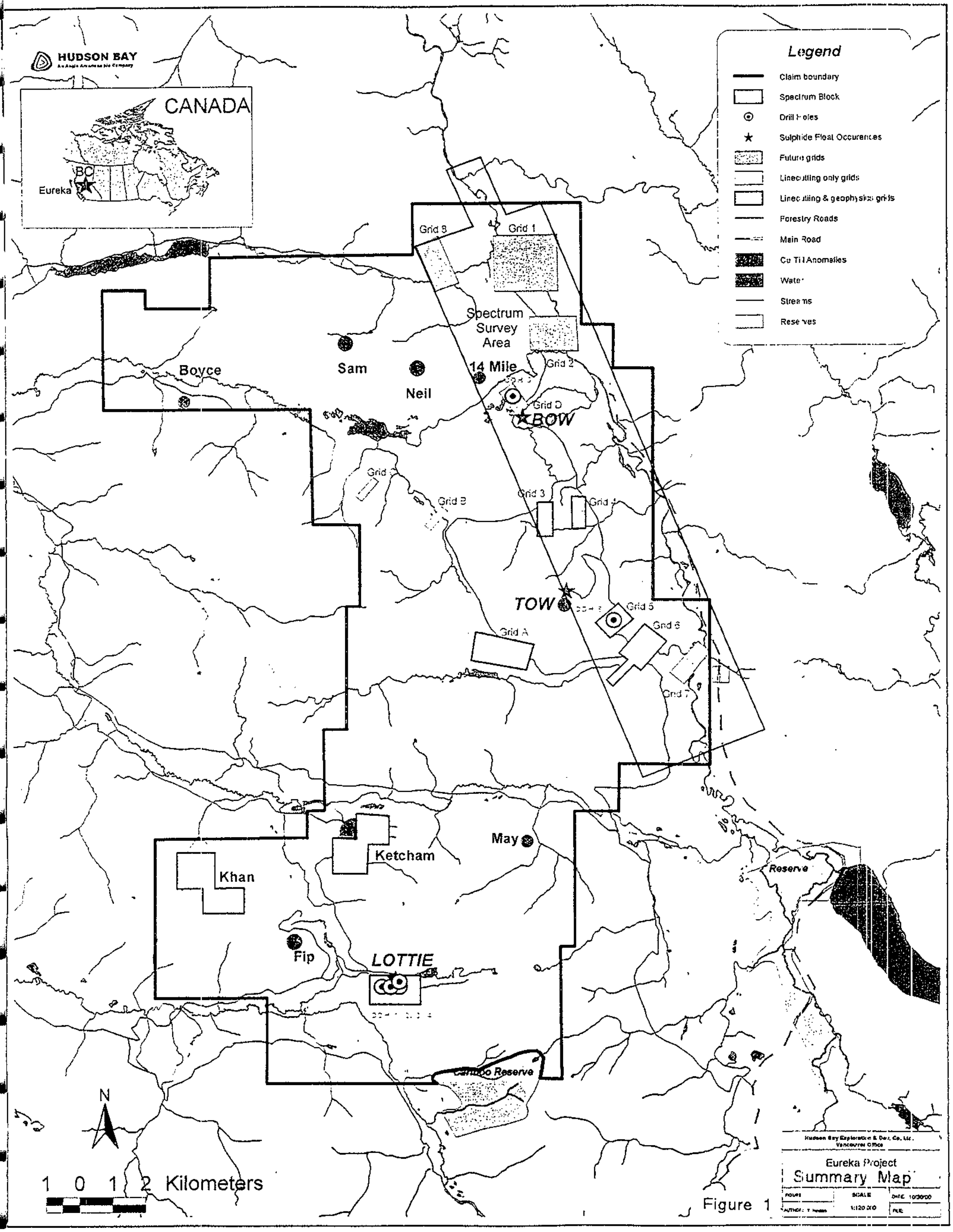

HUDSON BAY
CANADA
BC
Eureka
Legend
Claim boundary
Spectrum Block
Drill Holes
Sulphide Float Occurences
Future grids
Linecutting only grids
Forestry Roads
Main Road
Water
Streams
Grid 8
Grid 1
Spectrum
Survey
Area
Grid 2
Boyce
Sam
Neil
14 Mile
Grid D
BOW
Grid B
Grid 3
TOW
Grid 5
Grid 6
Grid A
Grid 7
Ketcham
May
Khan
Reserve
Fip
LOTTIE
Cariboo Reserve
N
1 0 1 2 Kilometers
Eureka Project
Summary Map

Figure 1

2000 program located copper-bearing float at Khan, Ketcham and Sam (Figure 1) and pyritic felsic volcanics south of the Boyce target.

Several types of surficial deposits were observed in the region. General observations suggest the hills and plateaus are mainly covered by a combination of till and colluvium, whereas glaciofluvial, glaciolacustrine and fluvial sediments occur in valleys. The striation record in the region is generally poor due to lack of preserved outcrop exposure. The majority of striation measurements are bi-directional, that is, they contain no information regarding direction of ice. The thick drift cover, bedrock structure and weathering nature of the bedrock all hamper the observation of striae

A cautious interpretation of ice flow events is given. Cross cutting relationships indicate that the oldest movement was topographically controlled and ice flowed from the Cariboo Mountains west and northwest to the Interior Plateau. During glacial maximum, ice flowed from the Interior Plateau, possibly behaving as an ice sheet with ice divides migrating from the thickest area of ice accumulation. Flow on the Lottie was to the northeast and was deflected to the north and northwest in the vicinity of the Bowron River as the ice sheet converged with mountain glaciers flowing from the Cariboo Mountains. During late glacial times, the ice sheet in the interior would have gradually thinned and topographically controlled ice would again affect the property. Overall, ice flow directions were highly variable and ranged from northward to southwesterly, depending on topography and ice thickness

Property-wide geochemical programs were undertaken in 2000 using both tills and moss mats. Including duplicates, a total of 807 tills were collected, of which 582 were located on the claims. Interpretation of single-element results suggests that many elevated metal concentrations here are more indicative of high background concentration levels than of genuine anomalies that might be related to buried mineralization. In the case of copper for example, there are numerous sites with seemingly high Cu concentrations > 100 ppm. However, examination of histograms and probability plots suggest that copper concentrations less than about 250 ppm constitute a single background population. Only 3 sites have till Cu concentrations > 250 ppm. Similar interpretation of other elemental results suggest that background Co concentrations are similarly high, constituting all sites with about 42 ppm Co or less. Other background element population levels have upper limits of about 110 ppm Zn, 31 ppm Pb, 450 ppb Ag, 0.45 ppm Cd, 7.5% Fe, 1400 ppm Mn, 60 ppm As, 1.20 ppm Se, 28 ppb Au and 150 ppb Hg. Examination of histograms, box plots and probability plots of both single element data and VMS-related geochemical rankings point to two areas in the southern part of the property where additional sampling is suggested; (1) the Two Sisters Mtn. Area east and southeast of the Lottie prospect and, (2) the Holly/Khan area northwest of the Lottie prospect. Two other areas of interest are cobalt-rich tills in the Ketcham area and Au-Sb-As rich tills at the Tow.

A total of 449 moss mats were obtained, of which 158 occur within the claims. Five moss mat sites in the Ketcham area report 135-170 ppm Cu. Tills with high-background Cu concentrations are also present nearby. Three closely spaced samples from the Boyce area also report Cu concentrations of 142-174 ppm in moss mats. Several moss mat sites with elevated Pb concentrations, exceeding 26 ppm, are also found nearby in the extreme northwestern corner of the property.

In September-October a program of four frequency (220, 880, 3520 and 7040 Hz) horizontal loop electromagnetic and magnetics was carried out over eight gridded areas. The Lottie conductor was drill tested and found to be due to conductive graphitic sediments. Other conductors were interpreted to be structural features ie. faulting or due to conductive overburden.

Two days of backhoe trenching were carried out on the Lottie grid. The main Lottie trench (M-7) from 1999 was re-opened along 43 meters. Bedrock was reached along its entire length and more massive sulphide float was located in the cover material. Another seven pits were also dug along the upper road to the south of the Lottie trench. Only the most easterly of these pits reached bedrock. The source of the float was not found but the nature of the overburden indicated that the till was originally upslope from its present location and had moved northerly downslope. One trench was excavated on the Ketcham Creek till anomaly 4 km northwest of the Lottie float. It also had colluviated till complicating the search for a source.

Britton Bros. of Smithers, B.C, carried out diamond drilling. In the period October 1 to 21 six holes totaling 709.4 meters were drilled. Four of the holes were in the Lottie area and proceeded quickly. Three of these holes tested the east-west conductive trend; the other hole was drilled underneath the main trench. All were explained by graphitic sediments. No significant sulphides were intersected but a small chert clast with 0.23% Cu was drilled in one hole and 13,200ppm Mn in a tuffaceous horizon was intersected in a second hole. Two EM conductors in the northern portion of the property were drill tested and explained by conductive overburden.

The results of the 2000 program can be reviewed with two different approaches. From the point of view of a group looking for a large VMS deposit i.e. several tens of millions of tonnes, the results are not particularly encouraging. The bedrock mapping concludes the claim area is mainly underlain by a flat lying succession of mafic volcanics with interbedded cherts and intruded by time equivalent gabbros. This setting is most likely to host Cyprus-type VMS deposits which tend to be small (<5 million tonnes) and therefore not as attractive as the Kuroko or Besshi types, which can reach +30 million tonnes. For exploration companies, particularly larger groups, their thresholds for deposits often preclude looking at the smaller type. However, small and mid-size exploration companies may be content with the small size, as long as the grade is sufficient to make it economically viable. Overall the till and stream sediment (moss mat) geochemical results are disappointing. There are a number of areas with elevated values in cobalt, arsenic, selenium, etc. and even base metals, but no prominent multi-element anomalies that provide strong obvious targets for follow-up. Copper, being the primary element of interest, shows quite a range of distribution, but even till values in the 200-250 ppm range plot at the upper end of the normal distribution and are not considered to be significant.

Consequently, for a larger firm one can conclude that, although no source was found for the different sulphide float concentrations (Lottie, Bow, Tow, Ketcham, Khan, Sam) the indications are, from the geological setting, geochemistry and geophysics, that the mineralization, if local, has either been eroded or is unlikely to be of sufficient size to produce a deposit which would meet Hudson Bay's size criteria. None of the three exploration disciplines have provided encouraging results for the large tonnage scenario. This does not, however, preclude the possibility that the mineralized float has traveled from off the claims and may be sourced in an environment more likely to host the larger deposits, i.e. Kuroko style, in Barkerville Terrane to the south or southwesterly.

With the small-scale deposit model in mind it is recommended to continue till sampling south of the Lottie grid and around Two Sisters Mountain, on a coarse grid pattern. Follow up of the EM conductor south of the grid is also recommended. It is also suggested that the untested ground EM anomalies on grids 3, 4, 6, A, B and C be closely scrutinized on the ground with prospecting/geochemistry.

2. INTRODUCTION (Figures 1, 2)

The Eureka Project is a VMS exploration program in a relatively unexplored block of Upper Paleozoic stratigraphy in the Quesnel area of central B.C. Interest in this mafic volcanic / sedimentary sequence was initially generated because of base metal discoveries in the Finlayson Lake area of Yukon in the early to mid 1990s. These discoveries, Kudz Ze Kayah and Wolverine in felsic rocks of a bimodal sequence, and the Ice and Fyre Lake deposits in mafic volcanic / sedimentary setting, touched off a search for similar settings and occurrences all along the edge of the ancient North America craton from Alaska through to southern B.C.

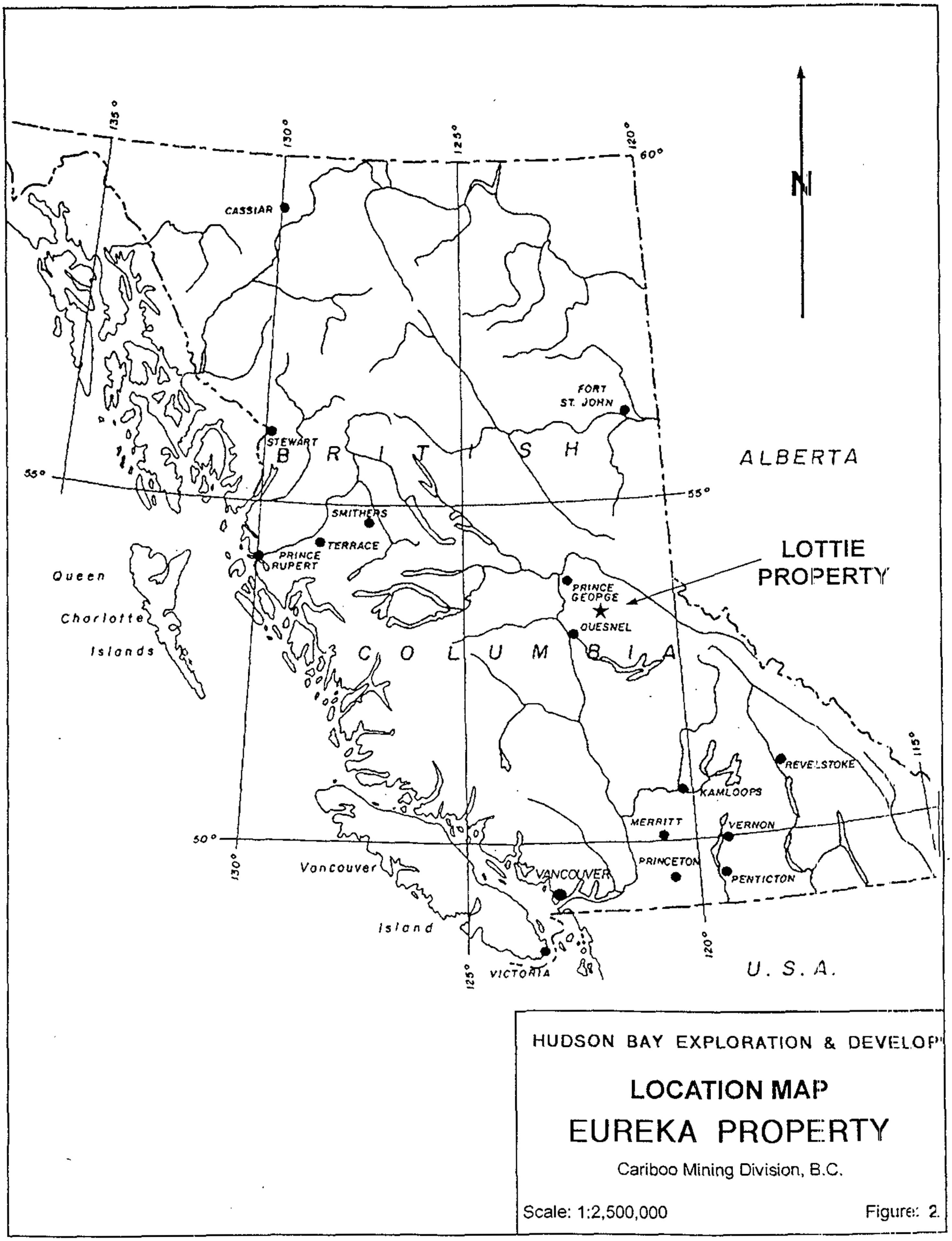
In the Quesnel – Prince George area Martin Peter, a prospector, used this exploration strategy, starting in 1993, to search in the equivalent Slide Mountain rocks from Wells north to Prince George. In 1996 Peter discovered two areas of massive sulphide float along logging roads west of the Bowron River. These occurrences, the Bow and Tow, were mainly pyritic cobbles with low copper values. In 1998 however Peter found the Lottie float, 16 km to the southwest, with values up to 24% copper. Peter optioned his properties to Eureka Resources Inc.; a Vancouver based junior company in 1997 (Bow, Tow) and 1999 (Lottie). Eureka subsequently carried out an airborne EM/magnetic survey over the two northern prospects and followed up with ground geophysics and geochemistry. On the Lottie a program of ground geophysics-geochemistry and trenching was undertaken in 1999. No source of the mineralized float was found but the prospects were upgraded and drill targets were defined.

Hudson Bay Exploration and Development Co. Ltd. ("HBED") examined the property in September 1999 and it was recommended for option. Negotiations between HBED and Eureka produced a five-year option agreement with staged payments totaling $375,000 and work commitments of $5.5 million to earn a 60% interest.

This report describes the program carried out by HBED in 2000. The program's objectives were two-fold: (1) to locate a bedrock source for the Bow, Tow and Lottie boulders, and (2) to explore the property as a whole for additional base metal targets. The 2000 program encompassed 5 months of fieldwork and field expenditures of $653,553 Can. Systematic till and moss mat sampling surveys covering the claims and adjoining areas were initially undertaken along with bedrock and surficial mapping and an airborne EM/mag survey. This was followed by detailed till sampling on prospective geochem targets and linecutting - ground geophysics on the airborne EM targets. The season was completed with trenching (mainly in the Lottie area) and a six hole (709 meter) diamond drill program testing the area of the Lottie float and EM conductors. No significant bedrock mineralization was encountered but numerous geochemical and geophysical targets remain which can be considered for follow-up.

3. LOCATION & ACCESS (Figures 1-4)

The claims are located in the Cariboo area of east central B.C. in NTS areas 093H/4,5 and 6. The property extends from 53-12'N to 53-26'N latitude and from 121-28' to 121-43'W longitude. Trim coverage is on 093H.22, 23, 32, 33, 42 and 43. UTM grid coordinates are 584,700 to 602,500E and 5,896,000 to 5,922,000N in Zone 10. The claims are located in the Cariboo Mining Division



HUDSON BAY EXPLORATION & DEVELOP'

LOCATION MAP

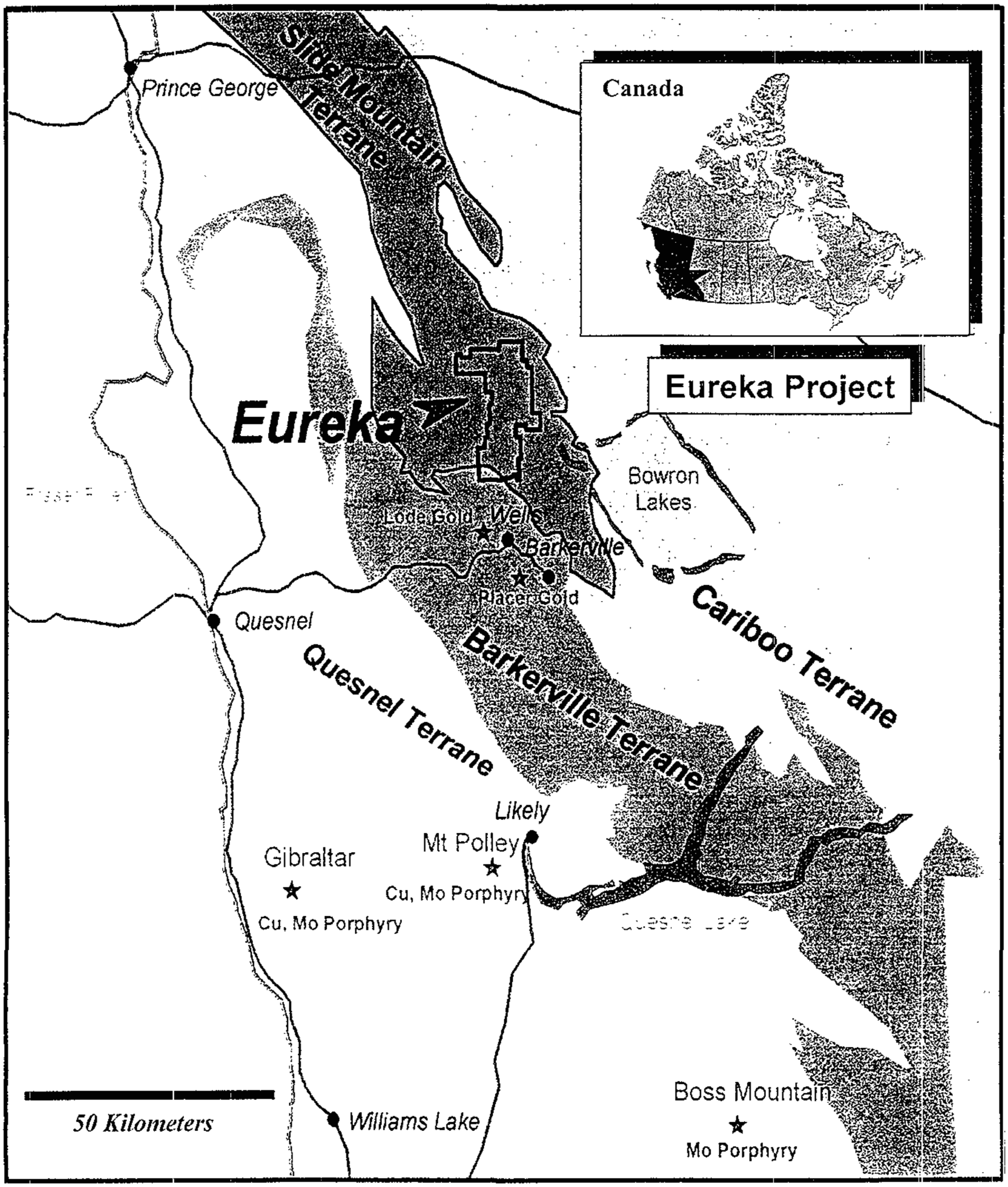
EUREKA PROPERTY

Cariboo Mining Division, B.C.

Scale: 1:2,500,000 Figure: 2.

HUDSON BAY
An Anglo American plc Company

Figure 3



The property is centered 70 km northeast of Quesnel and 25 km north of Wells. Prince George is 100 km to the northwest. There is excellent access into the general area. The paved highway #26 services Wells from Quesnel, a distance of 73 km. Wells has a population of 300 and provides the basic services, e.g. fuel, accommodation, but most supplies are obtained from Quesnel. Daily airline, bus and trucking are available from both Quesnel and Prince George. The main B.C. Rail line passes 55 km west of the property along the main transportation corridor between Quesnel and Prince George.

The property is 26 km long and 18 km wide trending north south along a core of high rounded hills (Figure 4). Extending to the southeast this trend is even more prominent with Two Sisters Mountain, Slide Mountain and Mount Murray. Physiographically the property is situated on the eastern edge of the Interior Plateau with the Cariboo Mountains to the east. The eastern boundary of the property lies along the Bowron River, which drains northerly from the Bowron Lake Provincial Park. A series of east-west valleys cuts the dominant northerly trend of the property. From north to south they are Slender Lake-18 Mile Creek, Boyce-14 Mile Creeks, Towkuh Creek, Ketcham Creek and Lottie Lake-Westpass Creek. Drainage from these valleys is easterly into the Bowron and westerly into the Willow River system. Topographical relief varies from 884 m along the Bowron River to 2104 m on Two Sisters Mtn, but is more commonly between 1050 and 1400 meters.

The property is all wooded (spruce, pine, balsam, cedar with areas of aspen, poplar) except for Two Sisters peak. Logging over the last 20 years has cut 75% of the timber. In general the northern and eastern areas were logged in the 1980's. The western and southern portions are more recently logged by West Fraser Timber, continuing to the present. Logging company maps show more cutting is planned, particularly at higher elevations. All areas recently logged have been replanted. Older cuts have regenerated naturally.

An excellent road network covers the property except for the higher elevations. A main haul road (2300) enters from the southeast, off the Bowron Lake road, and provides access to the eastern claims. The western portion is reached from main haul road #24, which leaves the paved highway 23 km west of Wells. A series of secondary roads (24A, 24K, etc) access the west side of the property along the east-west drainages. For the most part the roads have a good road base of glacial till and are in good condition. Many of the older little used roads have overgrown with alder but could be rehabilitated easily. The northern third of the property lies within the Prince George Forest District, the remainder in the Quesnel District. The ministry generally wishes to restrict access from one district to another. Consequently, although there is a good road network in the northern area, it is difficult to access from Wells. Most of the past field season ATVs were used on a rough connector trail north of Towkuh Lake. In late summer we were permitted to re-open an old road connecting the forest districts, which then allowed us to use regular truck access in the north. The Ministry of Forests and logging companies are beginning to decommission roads no longer in use. Roads are bermed, ditched, water barred and/or bridges removed to prevent access, or at least reduce their use to ATVs. The decommissioning is undertaken to protect the environment, i.e. fish habitat, wildlife, etc. but there is also a liability issue with deteriorating roads. If roads wash out or bridges become dangerous action is taken. An incident occurred in the fall where the drill contractor's cat broke through an old bridge while moving the drill. We were able to remove the cat safely, with no environmental damage, and brought in a temporary bridge allowing us to continue. This temporary bridge was removed at the end of the program. The temporary access route to the northern area remains in place but will require removal if the project is terminated.

4. PREVIOUS INVESTIGATIONS (Figures 3, 4)

Government geological mapping in the project area dates back to the early 1950's when Sutherland Brown of the B.C. Survey included the southern portion of the claims (Two Sisters Mountain area) in his 1 inch = 1/2 mile mapping of the Wells-Barkerville gold camp. This work was published as the Geology of the Antler Creek Area, B.C. Dept. of Mines Bulletin 38 in 1957. Sutherland Brown also published an adjoining map sheet to the east (B.C. Dept. of Mines Bulletin 47, Geology of the Cariboo River Area) in 1963. Regional 1 inch = 4 mile mapping, encompassing the Antler Formation from Wells to Prince George, was undertaken by R. B. Campbell of the Geological Survey of Canada in the period 1966 to 1968. This work was released as Geol. Surv. Can. Paper 72-35, Geology of the McBride Map-area, British Columbia. The most recent mapping was done by L.C. Struik of the G.S.C. Struik undertook a structural study in the Cariboo Gold mining district, published as Memoir 421 in 1988. This work also just clips the southern portion of the Eureka claim area, covering Lottie Lake and Two Sisters Mountain.

In 2000 the B.C. Geological Survey began a till sampling program in the Bowron and Willow River area north of Wells, B.C. This work, directed by Dr. P.T. Bobrowsky of the B.C.G.S.B., collected approximately 350 tills in the north half of NTS 093H/04 and the south half of 093H/05 (density of 1 sample per 2-3km2). The Eureka property is located in the eastern portion of this area and the tills covers all but the most northern claims. Results of the survey should be released in early 2001.

The Slide Mountain Terrane (Antler Formation) between Wells and Prince George has received little mineral exploration. Up to 1970 activity in the Slide Mountain rocks was mainly limited to spill over from the Barkerville placer gold camp 20 km to the south of the Eureka property. The only other mining activity of significance in the general area was the development of the Bowron River coal resource 50 km to the northwest. Many of the creeks in the southern portion of the property have been explored for placer gold potential, as evidenced by old placer claims in the area along with disturbed creeks and remnant equipment. Presently placer claims are held on Lottie Creek and the headwaters of Stephanie and Ketcham Creeks. Both were sporadically active in 2000. Doug Ecker from Quesnel operates the Lottie Creek placer. This is a small family operation, which has been active for at least two years. Indications are minor placer gold is being recovered on a small tributary south of Lottie Creek, 1 km west of the Lottie float. It is suspected that a small lens of pre-Tertiary gravels may underlie the area and be the source of the placer gold. A second placer operation is located at the top of Stephanie Creek and 1 km west of the property boundary. It was intermittently active in 2000 and is also a small operation.

Assessment files indicate that Noranda Exploration carried out the first base metal work in Slide Mountain package between Wells and Prince George. In 1968 they staked anomalous copper stream sediment samples along the main highway 35 km east of Prince George (Loon Claims). Over the next two years geochemical and geophysical surveys were carried out but there is no record of any drilling. The area was re-staked in 1979 by Vestor Explorations and Comaplex Res. as the Nook Claims. Vestor had discovered the Chu Chua deposit two years earlier in similar rocks near Barriere 300 km to the south and through that summer Comaplex-Vestor undertook a recce geochemical survey in the Slide Mountain rocks from Highway 16 down to Wells, staking a number of base metal silt anomalies. A deal was then brokered with CCH Resources who carried out airborne EM/mag on four of the geochem targets in 1980. One of the targets was on ground now part of the Eureka property, it being on the south side of Ketcham Creek and just east of our Ketcham till anomaly. A second target was just outside the Eureka holdings on the southwest side of Slender Lake. Neither of these two surveys had what was considered to be "suitable conductive responses" and no further work was undertaken. The two other targets flown by CCH were in the northern part of the Slide Mountain terrane, the Purden Mountain area (also "not suitable"), and the Nook prospect. Vestor-Comaplex continued to work the Nook property until 1985 and carried out two drill programs before abandoning the claims. Shell Canada in 1978 and BP Resources in 1983 also explored in the same general vicinity. More recently, in 1996, HBED staked the Mary Claims just to the east of the Nook occurrence and undertook minor geochemistry but nothing further was done.

The first recorded bedrock work in the Eureka area was the Antler claims staked by Esso Minerals in 19881 on the basis of rusty subcrop that assayed 0.36 oz./t Au across 1.1meters. This prospect is 3.5 km northeast of Towkuh Lake. Esso's work is located as the Antler grid on our maps. Soil geochem, mapping and trenching was carried out. Sporadic gold values are associated with two arsenic anomalies along northwest trending fractures. No further work was undertaken.

In 1983 bedrock claims were staked on Sugar Creek, 8 km west of the Lottie float, because of sulphide boulders found during placer mining. No assays are given for the boulders. Noranda carried out test work with EM, magnetic and IP surveys. Two IP anomalies were noted on the creek but there is no record of them being followed up. In the same year Gordon Gunson staked the Neewa Claims 0.5 km west of Westpass Lake to follow up unidentified sulphides in bedrock. Two small soil geochem surveys were carried out which gave some elevated gold, silver and copper values but no further work is recorded.

Government records suggest that BP Resources flew an airborne EM survey in the northern portion of the Eureka area in 1983, at the same time they were active around the Nook prospect, further to the north. Two blocks of claims were staked, one south and east of Slender Lake and one on the southeast side of Stoney Lake. Of particular interest was the Slender block. Reconnaissance geophysics and geochem defined conductors on the ground and mapping outlined a northwest trending belt of rhyolitic – intermediate volcanics flanked by mafic volcanics. A number of trenches were excavated to explain the conductors but only three reached bedrock. They were found to be caused by graphitic argillite. No further BP work was recorded for assessment but DES Exploration restaked the ground in 1990 on the basis of an unreported BP drill hole, which apparently intersected 24 meters of "low grade VMS style mineralization". The collar of the hole is not known but the most likely location is 4 km north of 14 Mile Lake on a conductor trending WNW along a contact between quartz feldspar porphyritic rhyolite and argillite. DES Expl. carried out geochemical surveys in 1990 and a terrain study in 1992 around several of the BP targets but was unable to fund any drilling.

An incentive for exploration in the Wells - Prince George area was the release of government regional geochemical stream sediment survey (RGS) data in 1985 and 1986. The release, at a sample density of 1 sample per 13 km2, was sporadically anomalous in copper, zinc, nickel, barium, cadium and mercury, prompting follow up by a number of companies. Assessment files and minfile records indicate that Noranda Exploration, Shell Canada and several individuals conducted work following the release.

Noranda Exploration acquired ground east of the Bowron River. Massive pyritic boulders north of Bowron Lake Park prompted staking of the CR claims and an airborne EM/mag survey was flown in 1986. It covered a 20 km long NW trend on the east side of the Bowron River and straight east of the present Eureka claims. According to the assessment files follow up work through 1989 concentrated mainly on gold geochemical targets. No drilling is mentioned in the government records.

The present phase of exploration began in 1993. Martin Peter prospected the Prince George-Wells area because of its similarity to rocks in the Finlayson Lake area of central Yukon where VMS deposits were being discovered. The Yukon deposits are base metal massive sulphides in three distinct settings within the Yukon-Tanana Terrane and Campbell Range Belt (Slide Mtn equivalent). Peter's prospecting in 1993 located minor copper bearing float in the Westpass Lake area but he didn't return to the area until 1996. In August 1996 he located the Bow massive sulphide float. The Bow float is located 4 km east of Slender Lake, in an area about 300 meters by 150 meters. The float is mainly fist-sized or smaller ferricrete boulders within glaciofluvial gravels, not till, and is underlain by mafic volcanics of the Antler Formation. Some samples of the thinly bedded massive sulphide did assay up to 3.1 % Cu (and 0.25 gpt Au) but were more normally much lower grade. In late 1996 and 1997 Peter carried out mag and soil surveys in the vicinity but no source was found. The second float location, the Tow, was found in 1997, approximately 5 km to the south of Bow. Here only minor float was found but the copper grade was up to 6.96% along with 4.72 gpt Au. Peter carried out some grid soils and trenching but no source of the float was found. Eureka Resources optioned the Bow-Tow area from Peter in 1997. In 1998 the company conducted an airborne EM/mag survey over the claims and followed up with ground geophysics and geochemistry. Numerous conductors were outlined, some with coincident soil anomalies, and drilling was recommended but no further work was carried out.

The Lottie VMS float was found by M. Peter in July 1998 while following up the Westpass mineralization he had found in 1993. It was discovered in a roadside ditch 800 meters southwest of Lottie Lake. The float consisted of a small angular block of chalcopyrite rich massive sulphide and several larger blocks of mineralized chert and/or silicified volcanic rock. The sulphide boulder ran 24.3% Cu and 19.6 gpt Ag. Eureka Res. also acquired the Lottie from Peter, in early 1999, and conducted soil and till geochemistry, ground EM/mag and backhoe trenching in the general area of the float. The test pitting revealed many more angular blocks of chalcopyrite rich massive sulphide but its source was not found. Several samples of this material averages 8.7% copper, 87 ppm zinc, 145 ppm lead with 145 ppb gold and 9.59 gpt silver.

In September 1999 the property were examined by Hudson Bay Exploration and Development. Negotiations got underway shortly thereafter and a five-year option agreement was signed in March 2000.

5. PROPERTY STATUS (Figure 4)

The Eureka property consists of 104 claims totaling 1,116 units in one contiguous group covering 26,259 hectares (262.6 km2) as shown on Fig. 4. The property is 26 km long and up to 16 km wide trending in a northwesterly direction to the west of the Bowron River. All claims are located in the Cariboo Mining Division and held in the name of Eureka Resources Inc. The earliest expiry date is January 31, 2005, pending acceptance of this report for assessment purposes. All claims have been common dated to January 31st. See accompanying Table 1 for details on individual claims.

During the 2000 field season five blocks of claims were added to the pre-existing package, as follows: (1) in late April eight claims totaling 60 units were added to the east central area to cover the up-ice (southeast) potential of the Tow float, (2) in early July four claims totaling 68 units were added to the northeast to cover Spectrem anomalies located along the Bowron River valley, (3) two claims totaling 32 units were added in early August in the southeast corner to fill in a exposed area, and (4) two blocks totaling 11 claims (54 units) were added to the southwest in late August to cover anomalous tills in the Westpass Lake area.

8a

HUDSON BAY EXPLORATION AND DEVELOPMENT COMPANY LIMITED
Vancouver Office

Table #1

LAND STATUS

22-Mar-01

Project: **EUREKA OPTION (2398)** NTS: 093H04E, 5E, 6W

Mining Division: Cariboo
Province: British Columbia

Claim Name	Tenure No.	Tag No.	Date Staked	Units	Hectares	Expiry	Notes
BOW 1	350849	81120	17-Sep-96	20	500	January 31, 2005	expiry date pending accept. of assess.
RON 1	350850	627413M	15-Sep-96	1	25	January 31, 2005	expiry date pending accept. of assess.
RON 2	350851	627414M	15-Sep-96	1	25	January 31, 2005	expiry date pending accept. of assess.
RON 3	350852	627415M	15-Sep-96	1	25	January 31, 2005	expiry date pending accept. of assess.
RON 4	351101	627416M	17-Sep-96	1	25	January 31, 2005	expiry date pending accept. of assess.
BOW 2	360136	215106	23-Oct-97	20	500	January 31, 2005	expiry date pending accept. of assess.
BOW 3	360137	215107	23-Oct-97	20	500	January 31, 2005	expiry date pending accept. of assess.
BOW 4	360138	215108	24-Oct-97	20	500	January 31, 2005	expiry date pending accept. of assess.
BOW 5	360139	215109	24-Oct-97	20	500	January 31, 2005	expiry date pending accept. of assess.
BOW 6	360140	215110	25-Oct-97	20	500	January 31, 2005	expiry date pending accept. of assess.
BOW 7	360141	215111	25-Oct-97	20	500	January 31, 2005	expiry date pending accept. of assess.
BOW 8	360142	215112	25-Oct-97	8	200	January 31, 2005	expiry date pending accept. of assess.
KAREN 1	360283	667905M	1-Nov-97	1	25	January 31, 2005	expiry date pending accept. of assess.
KAREN 2	360284	667906M	1-Nov-97	1	25	January 31, 2005	expiry date pending accept. of assess.
KAREN 3	360285	667907M	1-Nov-97	1	25	January 31, 2005	expiry date pending accept. of assess.
KAREN 4	360286	667908M	1-Nov-97	1	25	January 31, 2005	expiry date pending accept. of assess.
KAREN 5	360287	667909M	1-Nov-97	1	25	January 31, 2005	expiry date pending accept. of assess.
KAREN 6	360288	667910M	1-Nov-97	1	25	January 31, 2005	expiry date pending accept. of assess.
KAREN 7	360289	667911M	1-Nov-97	1	25	January 31, 2005	expiry date pending accept. of assess.
KAREN 8	360290	667912M	1-Nov-97	1	25	January 31, 2005	expiry date pending accept. of assess.
BOW 9	362313	236392	30-Apr-98	18	450	January 31, 2005	expiry date pending accept. of assess.
BOW 10	362314	236393	30-Apr-98	12	300	January 31, 2005	expiry date pending accept. of assess.
NORTH 1	362315	676061M	30-Apr-98	1	25	January 31, 2005	expiry date pending accept. of assess.
NORTH 2	362316	676062M	30-Apr-98	1	25	January 31, 2005	expiry date pending accept. of assess.
NORTH 3	362317	676063M	30-Apr-98	1	25	January 31, 2005	expiry date pending accept. of assess.
NORTH 4	362318	676064M	30-Apr-98	1	25	January 31, 2005	expiry date pending accept. of assess.
ALPHA 1	362948	208578	24-May-98	18	450	January 31, 2005	expiry date pending accept. of assess.
ALPHA 2	362949	208579	24-May-98	18	450	January 31, 2005	expiry date pending accept. of assess.
ALPHA 3	362950	208580	22-May-98	18	450	January 31, 2005	expiry date pending accept. of assess.
ALPHA 4	362951	208581	23-May-98	20	500	January 31, 2005	expiry date pending accept. of assess.
ALPHA 5	362952	208582	22-May-98	18	450	January 31, 2005	expiry date pending accept. of assess.
ALPHA 6	362953	208583	22-May-98	8	200	January 31, 2005	expiry date pending accept. of assess.
BRAVO 1	362954	208584	25-May-98	18	450	January 31, 2005	expiry date pending accept. of assess.
BRAVO 2	362955	208585	25-May-98	18	450	January 31, 2005	expiry date pending accept. of assess.
BRAVO 3	362956	208586	24-May-98	18	450	January 31, 2005	expiry date pending accept. of assess.
BRAVO 4	362957	208587	24-May-98	18	450	January 31, 2005	expiry date pending accept. of assess.
BRAVO 5	362958	208588	24-May-98	18	450	January 31, 2005	expiry date pending accept. of assess.
BRAVO 6	362959	208589	24-May-98	18	450	January 31, 2005	expiry date pending accept. of assess.
CHARLIE 1	362960	208590	25-May-98	20	500	January 31, 2005	expiry date pending accept. of assess.
CHARLIE 2	362961	208591	25-May-98	20	500	January 31, 2005	expiry date pending accept. of assess.
CHARLIE 3	362962	208592	24-May-98	20	500	January 31, 2005	expiry date pending accept. of assess.
CHARLIE 4	362963	208593	23-May-98	20	500	January 31, 2005	expiry date pending accept. of assess.
CHARLIE 5	362964	208594	22-May-98	20	500	January 31, 2005	expiry date pending accept. of assess.
BOWRON 1	363528	640645M	18-Jun-98	1	25	January 31, 2005	expiry date pending accept. of assess.
BOWRON 2	363529	640646M	18-Jun-98	1	25	January 31, 2005	expiry date pending accept. of assess.
BOWRON 3	363530	640647M	18-Jun-98	1	25	January 31, 2005	expiry date pending accept. of assess.
BOWRON 4	363531	640648M	18-Jun-98	1	25	January 31, 2005	expiry date pending accept. of assess.
BOW 11	364208	208595	15-Jul-98	12	300	January 31, 2005	expiry date pending accept. of assess.
NORTH 5	364209	677019M	15-Jul-98	1	25	January 31, 2005	expiry date pending accept. of assess.
NORTH 6	364210	677020M	15-Jul-98	1	25	January 31, 2005	expiry date pending accept. of assess.
NORTH 7	364211	670221M	15-Jul-98	1	25	January 31, 2005	expiry date pending accept. of assess.
NORTH 8	364212	676060M	15-Jul-98	1	25	January 31, 2005	expiry date pending accept. of assess.
LOTTIE 1	365443	81119	10-Sep-98	20	500	January 31, 2005	expiry date pending accept. of assess.
LOTTIE 2	370289	236627	6-Jul-99	20	500	January 31, 2005	expiry date pending accept. of assess.
LOTTIE 3	370290	236628	6-Jul-99	12	300	January 31, 2005	expiry date pending accept. of assess.

8 b

HUDSON BAY EXPLORATION AND DEVELOPMENT COMPANY LIMITED
Vancouver Office

Table #1

LAND STATUS

22-Mar-01

Project: **EUREKA OPTION (2398)** NTS: 093H04E, 5E, 6W

Mining Division: Cariboo
Province: British Columbia

Claim Name	Tenure No.	Tag No.	Date Staked	Units	Hectares	Expiry	Notes
LOTTIE 4	370291	106843	6-Jul-99	4	100	January 31, 2005	expiry date pending accept. of assess.
LOT 1	373524	203381	12-Nov-99	20	500	January 31, 2005	expiry date pending accept. of assess.
LOT 2	373525	203382	12-Nov-99	20	500	January 31, 2005	expiry date pending accept. of assess.
LOT 3	373526	203383	11-Nov-99	20	500	January 31, 2005	expiry date pending accept. of assess.
LOT 4	373546	203384	11-Nov-99	20	500	January 31, 2005	expiry date pending accept. of assess.
LOT 5	373547	203385	15-Nov-99	16	400	January 31, 2005	expiry date pending accept. of assess.
LOT 6	373548	203386	13-Nov-99	16	400	January 31, 2005	expiry date pending accept. of assess.
LOT 7	373549	203387	14-Nov-99	20	500	January 31, 2005	expiry date pending accept. of assess.
LOT 8	373550	203388	14-Nov-99	20	500	January 31, 2005	expiry date pending accept. of assess.
LOT 9	373551	203389	12-Nov-99	20	500	January 31, 2005	expiry date pending accept. of assess.
LOT 10	373552	203390	13-Nov-99	20	500	January 31, 2005	expiry date pending accept. of assess.
LOT 11	373553	203391	16-Nov-99	20	500	January 31, 2005	expiry date pending accept. of assess.
LOT 12	373554	203392	16-Nov-99	20	500	January 31, 2005	expiry date pending accept. of assess.
LOT 13	373555	203393	16-Nov-99	20	500	January 31, 2005	expiry date pending accept. of assess.
LOT 14	373556	203394	15-Nov-99	20	500	January 31, 2005	expiry date pending accept. of assess.
BOW 12	374715	691859M	1-Mar-00	1	25	January 31, 2005	expiry date pending accept. of assess.
BOW 13	374716	203396	1-Mar-00	12	300	January 31, 2005	expiry date pending accept. of assess.
BOW 14	374717	203397	1-Mar-00	20	500	January 31, 2005	expiry date pending accept. of assess.
BOW 15	374718	203398	28-Feb-00	20	500	January 31, 2005	expiry date pending accept. of assess.
BOW 16	374719	203399	27-Feb-00	20	500	January 31, 2005	expiry date pending accept. of assess.
BOW 17	374720	692757M	1-Mar-00	1	25	January 31, 2005	expiry date pending accept. of assess.
BOW 18	374721	692758M	1-Mar-00	1	25	January 31, 2005	expiry date pending accept. of assess.
BOW 19	374722	692759M	1-Mar-00	1	25	January 31, 2005	expiry date pending accept. of assess.
BOW 21	376197	697286M	26-Apr-00	1	25	January 31, 2005	expiry date pending accept. of assess.
BOW 22	376198	697288M	26-Apr-01	1	25	January 31, 2005	expiry date pending accept. of assess.
BOW 23	376199	697283M	26-Apr-01	1	25	January 31, 2005	expiry date pending accept. of assess.
BOW 24	376200	697285M	26-Apr-01	1	25	January 31, 2005	expiry date pending accept. of assess.
BOW 25	376201	231934	27-Apr-01	10	250	January 31, 2005	expiry date pending accept. of assess.
BOW 20	376202	203395	26-Apr-01	20	500	January 31, 2005	expiry date pending accept. of assess.
BOW 26	376826	697289M	27-Apr-01	1	25	January 31, 2005	expiry date pending accept. of assess.
BOW 27	376827	697290M	27-Apr-01	1	25	January 31, 2005	expiry date pending accept. of assess.
BRAVO 7	378951	237933	08-Jul-01	18	450	January 31, 2005	expiry date pending accept. of assess.
BRAVO 8	378952	237934	07-Jul-01	12	300	January 31, 2005	expiry date pending accept. of assess.
BRAVO 9	378953	237935	06-Jul-01	20	500	January 31, 2005	expiry date pending accept. of assess.
BRAVO 10	378954	237936	07-Jul-01	18	450	January 31, 2005	expiry date pending accept. of assess.
BRAVO 12	380048	237948	18-Aug-01	12	300	January 31, 2005	expiry date pending accept. of assess.
BRAVO 11	380049	237949	18-Aug-01	20	500	January 31, 2005	expiry date pending accept. of assess.
LOTT 1	380283	236769	25-Aug-01	20	500	January 31, 2005	expiry date pending accept. of assess.
LOTT 3	380284	237947	25-Aug-01	6	150	January 31, 2005	expiry date pending accept. of assess.
LOTT 2	380285	236770	24-Aug-01	20	500	January 31, 2005	expiry date pending accept. of assess.
LOTT A	380286	700099M	24-Aug-01	1	25	January 31, 2005	expiry date pending accept. of assess.
LOTT B	380287	700100M	24-Aug-01	1	25	January 31, 2005	expiry date pending accept. of assess.
LOTT C	380288	700101M	24-Aug-01	1	25	January 31, 2005	expiry date pending accept. of assess.
LOTT D	380289	700102M	24-Aug-01	1	25	January 31, 2005	expiry date pending accept. of assess.
LOTT E	380290	700103M	24-Aug-01	1	25	January 31, 2005	expiry date pending accept. of assess.
LOTT F	380291	700104M	24-Aug-01	1	25	January 31, 2005	expiry date pending accept. of assess.
LOTT G	380292	700105M	24-Aug-01	1	25	January 31, 2005	expiry date pending accept. of assess.
LOTT H	380293	700106M	24-Aug-01	1	25	January 31, 2005	expiry date pending accept. of assess.
TOTAL	**104**			**1116**	**27,900**	**January 31, 2005**	**earliest expiry**

The staking rush precipitated by International Wayside's exploration at Wells has resulted in mineral claim staking up to the southern boundary of the Eureka property. All of this activity seems directed at gold potential in Barkerville rocks. There was no sign of any other exploration being done in our general area other than the claim staking itself. It seems likely that juniors acquired the bulk of the ground but have been unable to generate funds for fieldwork. Two small blocks of two-post claims were also staked along the west boundary of the property south of Ketcham Creek. It is believed that these blocks are held by the placer miners in the area.

An option agreement between HBED and Eureka Res. was signed on March 31, 2000. HBED has an option to acquire a 60% interest in the property by making payments totaling $375,000 and incurring expenditures of $5.5 million by January 1, 2005.

A Notice of Work was applied for prior to the field season but was not processed until locations of actual field disturbance i.e. trenching and linecutting, were known. A permit was obtained on August 20th and was modified as more detailed follow up was determined. The district inspector from Prince George toured the property during the field season. Only minor deficiencies were noted. Complete reclamation of trenches and partial reclamation of the drill sites was carried out at the time the work was undertaken.

Two Free Use Permits were also acquired, for the Prince George and Quesnel Forestry Districts. The Prince George inspector carried out two inspections. The first inspection reviewed the application for rehabilitation of the access road. The second inspection reviewed linecutting procedures, the access road and bridge repairs after the drill contractor's cat collapsed an old logging bridge. No deficiencies were noted. The rehabilitated access road was not reclaimed as it will be required if future work is undertaken.

In general environmental concerns on the property are minimal. Logging in the area dates back to the 70s and continues to the present. Approximately 80% of the claimed area is clear-cut; the remaining timber is at higher elevations. The northern portion was logged first and much of it was left to reseed naturally. The southern area was more recently logged, some in the last year, and has been planted.

Contact has been made with two first nation groups in the region, the Red Bluff Band in Quesnel and the Lheidli – Tenneh Band in Prince George. Bill Burbidge of HBED Flin Flon and Gerry Bidwell talked to both groups in early July. Forestry companies are required to carry out initial phase archeological assessment before logging commences. This was done on our area and there is no indication that natives previously inhabited the claim area. However mention was made of a native village on either Bowron Lake or the Bowron River that was decimated by smallpox during the Barkerville Gold Rush in the 1860's. Because of this both groups consider the area to be part of their traditional area. Both groups also indicated that they wished to be informed of our activities. This presently does take place, as native groups are informed through the Notice of Work permitting. The Lheidli - Tenneh group has initiated their land claim process but is still at an early stage and no land selections have been made to date. The Red Bluff band has been advised by their elders not to enter into land claim talks at this time.

Doug Hancock, SHE co-coordinator from HBED Flin Flon visited the project at the start of the field season. Safety and environmental issues were reviewed with all workers on site. A number of suggestions were made and implemented, mainly to do with logging road travel and communications in the field.

In total approximately 1050 man-days of fieldwork were undertaken between May 25 and October 26. No lost time accidents incurred.

6. WORK PERFORMED

A field office for the project was set up in the town of Wells in early May. A doublewide trailer was rented for the office, dry, kitchen and dining facilities with a separate sleeping trailer, which could accommodate twelve people. It was initially planned to start fieldwork in early May but a cold spring delayed the snow melt and the roads were not passable until the latter part of May. The first personnel arrived in Wells on May 23 and by May 27 a full complement of nine field crew and a cook were on site. Fieldwork started on May 28. Throughout most of the summer 4-12 personnel were on site. At the end of the program with geophysical, linecutting and drill contractors all active the total reached a maximum of 21 people.

The bulk of the work undertaken initially was till sampling. It was proposed that samples be collected at one km spacing throughout the property to provide first pass coverage. This was undertaken on the extensive logging road network with a combination of trucks, ATVs and walking. In areas of known sulphide float the sampling was tightened up to twice that density. In the forested areas without logging roads, generally at higher elevations, traverses were run to complete the till coverage although the sampling is not as dense. The till coverage on the property is quite good except in the valley bottoms of the main creeks and rivers where washed material e.g. glaciofluvial gravels and lake sediments, are present. At higher elevations in steep terrain the till is also effected by down slope migration (colluviated till). On the highest ridges a mixture of ablation till and basal till is usually present and often under an organic mat. Coverage was extended outside the property to cover several possible ice directions, which may have produced the mineralized boulder trains. In total 358 tills were collected in the first pass. Upon receipt of first pass results follow-up got underway in July. An arbitrary value of 100 ppm Cu was used as an anomalous threshold pending a more comprehensive evaluation of results. In the larger areas of anomalous till results recce grids were laid out and tills collected at 250 meter spacing. On the smaller targets lines of till samples were collected up-ice of the anomaly and across the direction of ice travel. Further detailing by till work beyond this level did not enhance the targets so recce EM-mag was carried out in an attempt to locate specific drill targets. Over the course of the summer a total of 807 tills were collected, 582 on the claims and the remainder in proximity to the claims.

In late May and June Roger Paulen carried out a nineteen-day surficial mapping program. It covered the Eureka claim block as well as a 3-5 km buffer zone outside the property. The purpose of the program was to (1) determine the glacial history of the area, particularly the ice movements, to help locate the source of the Lottie, Bow and Tow float, and (2) map the surficial geology so that till sampling could be undertaken most efficiently with the proper material being collected. Later in the summer, once till anomalies had been located, fabric pits were dug in the vicinity of the anomalies and any bedrock was closely examined for glacial features i.e. striations, rat tails. The fabric pits gave a detailed look at the nature of the till and the pebble orientations were measured to determine ice direction(s). Till in the backhoe trenches was also closely examined and sampled.

Bedrock mapping and sampling was carried out in conjunction with the surficial program. This initial work concentrated on the roads and was completed by June 20. Later in June and July traverses were run along ridges at the higher elevations or in any area where outcrop was known. In general bedrock exposure is very poor, probably in the order of 1-2%. Even at high elevations

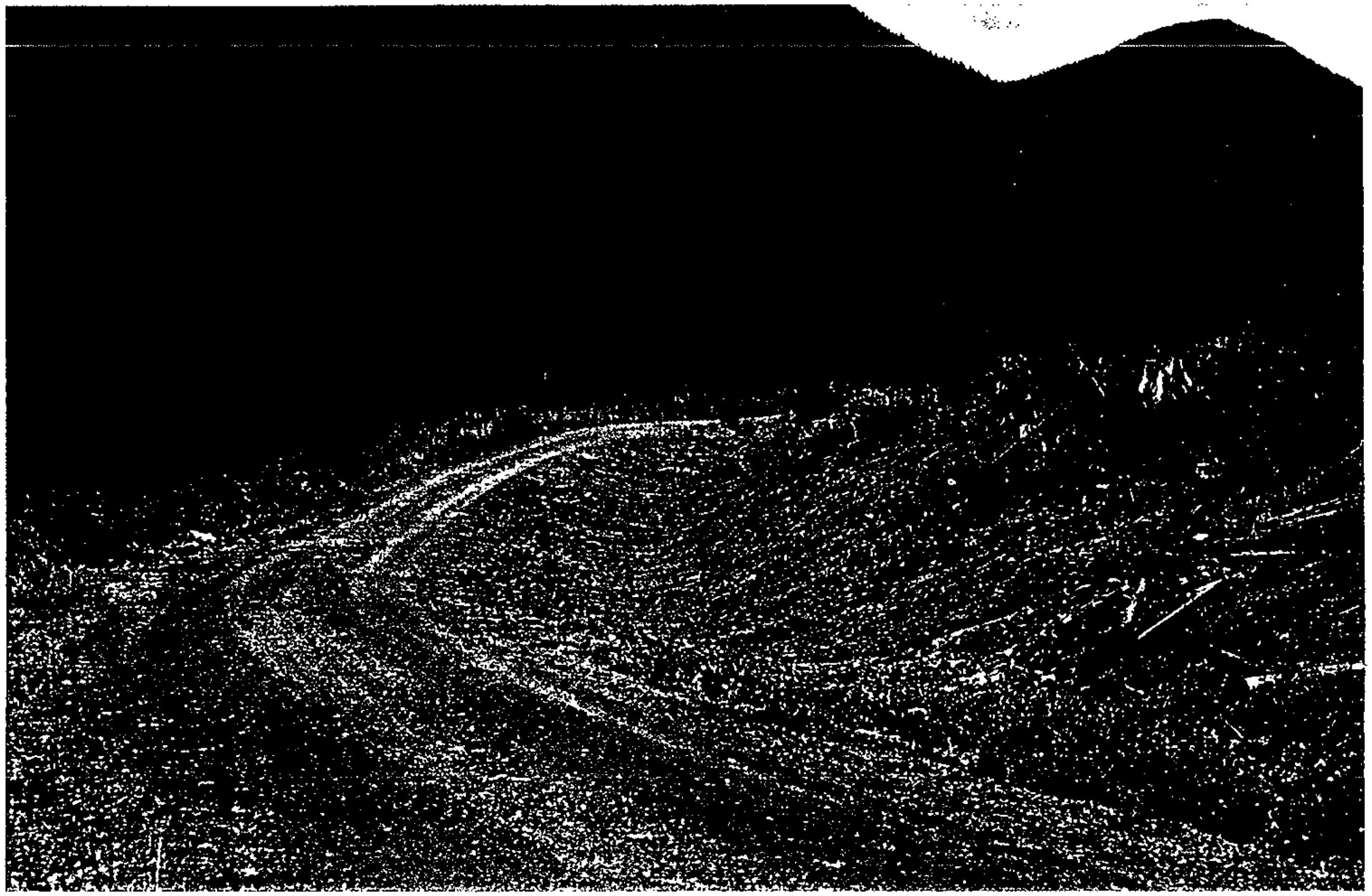


Plate 2 Lottie Main Trench reclaimed

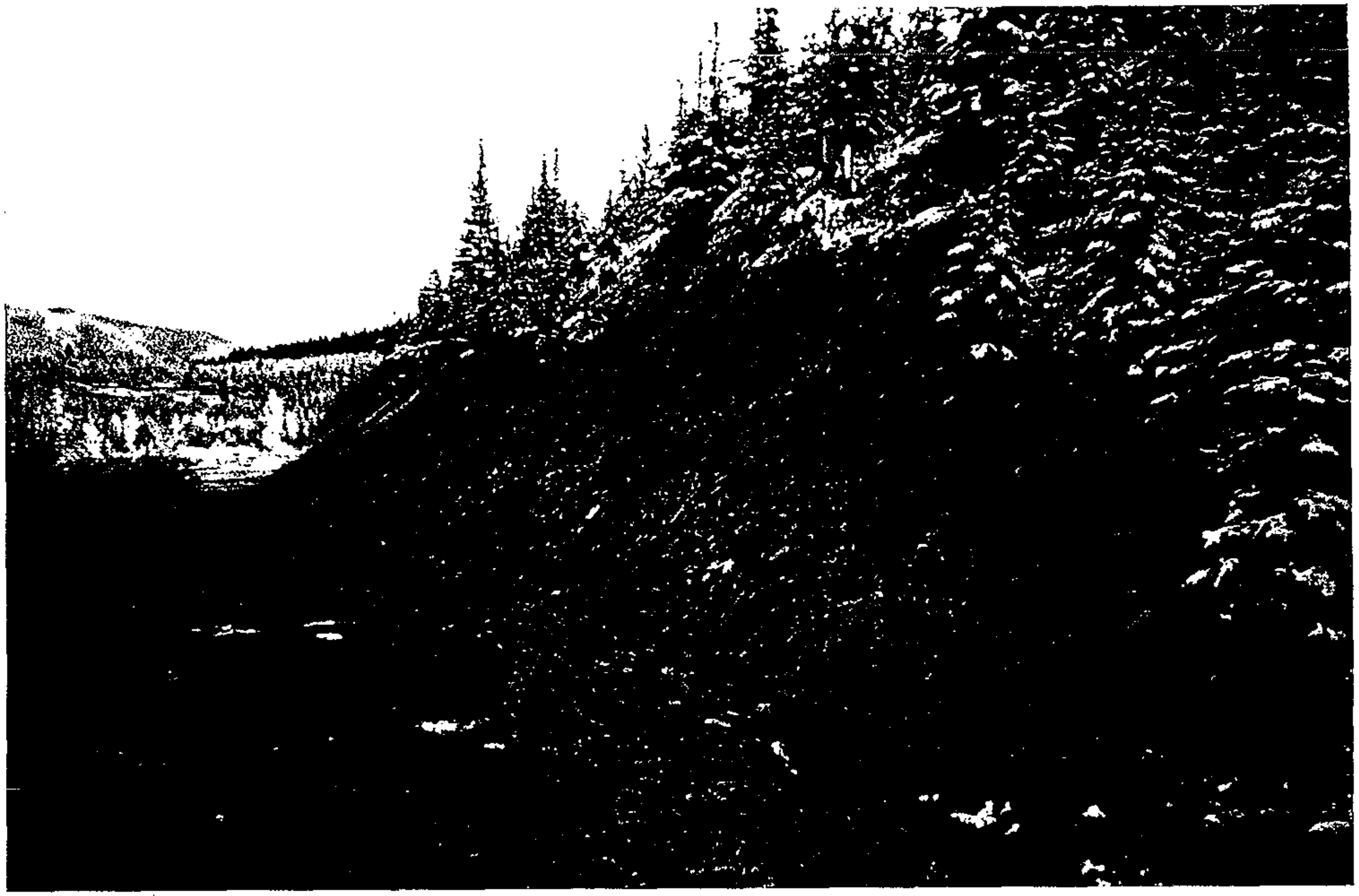


Plate 3. Ketcham Trench reclaimed

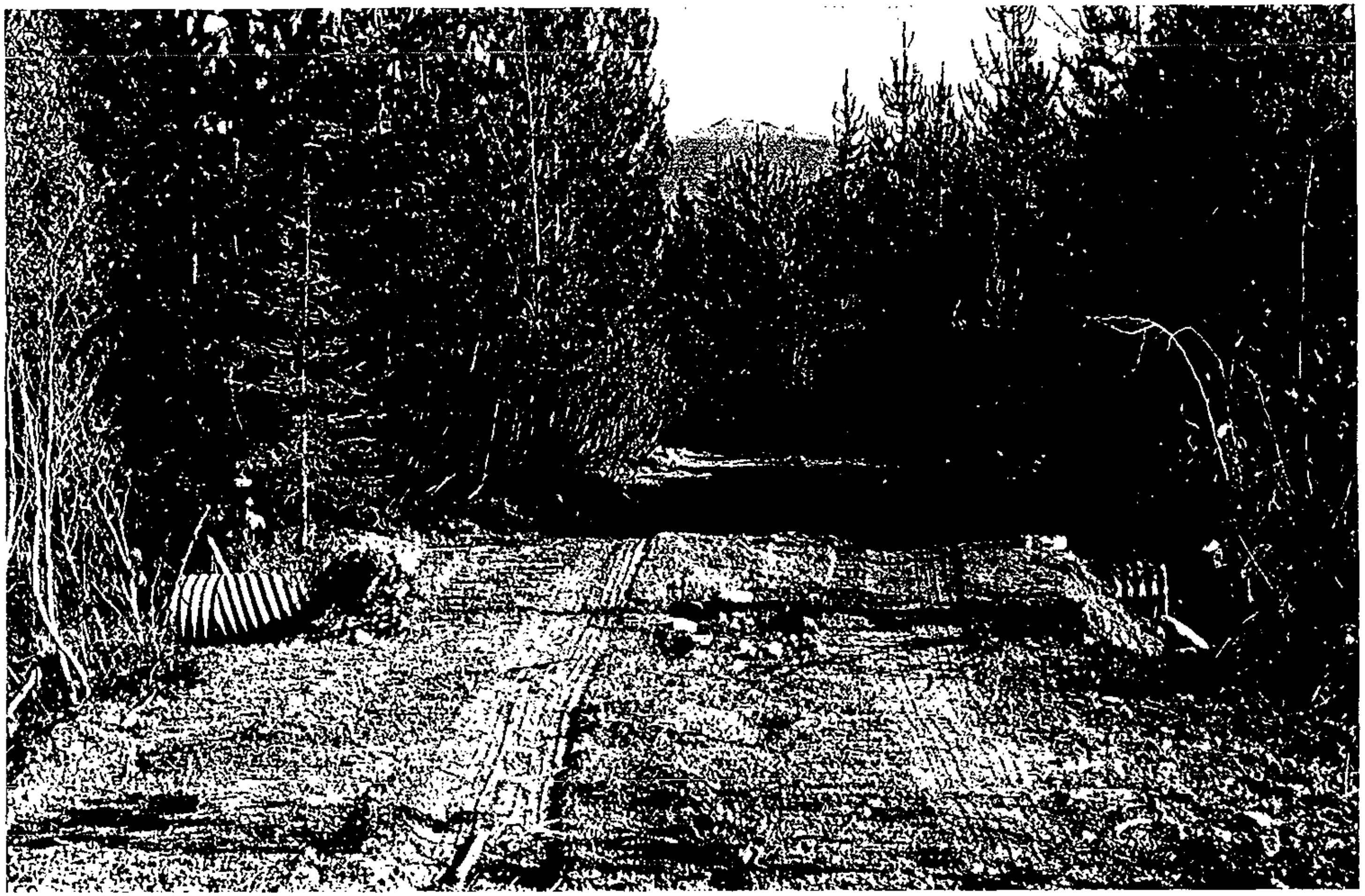


Plate 4. Rehabilitated access road (Grid 5 area)

a 0.1-0.3 meter organic layer masks the surface exposures. Once geochemical and geophysical targets were established any bedrock located by these surveys was also mapped.

Moss mat sampling was also initiated in June. The sampling covered all drainages on the claims and included a buffer zone three kms wide outside the property. The moss mats are collected from the stream bed itself, not the bank, and provides finer sediment than can be collected from the regular stream bed. In total 256 moss mats were collected to the end of July. Any follow-up on moss mats was integrated with till samples for detailed evaluation. In total 449 moss mats were collected, 158 samples on the claims and the remainder in the surrounding area.

Linecutting got underway in late September. To the end of October nine grids totaling 81.5 km were cut. Four of the grids were Spectrem targets, two were re-oriented grids from Eureka Res' Dighem 1998 airborne survey and three grids were recce layouts on till targets. The linecutting was contracted out to Sabre Exploration Services of Prince George with minor cutting by HBED crews as well. The lines were cut 1.0-1.5 meters wide to allow easy passage for Max-Min and mag crews. The terrain varied considerably from 20-year-old clearcuts with natural regrowth of pine/spruce and dense alder to 2 year old clearcuts with new seedlings and debris from recent logging. Only 11 kms on the Lottie, Ketcham and "A" grids were in timbered areas.

Geophysics consisted of Max-Min HLEM and magnetic surveys on all grids as well as some detailing (short cable lengths) on the Lottie grid. The work was contracted out to SJ Geophysics of Delta, B.C. From Sept 26 to Oct 22 a total of 71.6 kms of EM and 62.9 kms of magnetics was carried out on eight grids. All but three of these grids were airborne EM targets

Two days of backhoe trenching were carried out on the Lottie grid (Plates 2, 3). The main Lottie trench (M-7) from 1999 was re-opened along 43 meters. Bedrock was reached along its entire length and more massive sulphide float was located in the cover material. Another seven pits were dug along the upper road to the south of the Lottie trench. Only the most easterly of these pits reached bedrock. Our Notice of Work permit would not allow us to dig backhoe pits in the main clear-cut; we had to stay on the roads. Consequently we could not trace the massive sulphide float directly up-ice. One trench was also excavated on the Ketcham Creek till anomaly 4 km northwest of the Lottie float

Britton Bros. of Smithers, B.C, carried out diamond drilling. In the period October 1 to 21 six holes totaling 709.4 meters were drilled. Four of the holes were in the Lottie area and proceeded quickly but excessive overburden on two EM conductors in the north slowed progress and one hole was abandoned in overburden.

Additional work performed over the summer was the staking of an additional 90 claim units onto the property. Claims were added to the northeast, east and southwest of the property. Permission was also obtained to rehabilitate a 150-meter portion of an old logging road to allow easier truck access to the northern portion of the claim group (Plate 4).

Field expenditures for the 2000 program were $653,553. Individual work types and their costs can be summarized as follows:

Work Type	Direct Cost	Camp Cost	Travel Cost	Total
Bedrock Mapping	50,899	11,442	15,738	78,078
Surficial Mapping	19,360	4,697	6,475	30,531
Till Geochem	109,210	23,907	26,949	160,066

Moss Mat Geochem	39,038	5,906	9,138	54,083
Claim Staking	22,610	-	-	22,610
Linecutting	86,464	25,349	6,057	117,870
Airborne Geophysics	26,765	94	477	27,336
Ground Geophysics	41,045	6,557	2,210	49,813
Trenching	12,955	1,673	1,537	16,165
Drilling	74,691	12,743	9,568	97,003
TOTAL	**483,036**	**92,368**	**78,149**	**653,553**

For detailed information on program expenditures, work statistics and assessment calculations see Appendix X.

7. REGIONAL GEOLOGY (after Lane, 1999) (Figures 3, 5, 6)

The Eureka property is located in the Cariboo region of east-central British Columbia. The Cariboo region is underlain by four fault-bounded geological terranes or subterranes: Quesnel, Barkerville, Slide Mountain and Cariboo. Furthest east is the Cariboo Terrane, a displaced segment of the North American continental margin. It consists of Precambrian to Permo-Triassic clastic and lesser carbonate rocks. The Barkerville Subterrane is part of the pericratonic Kootenay Terrane that was probably deposited along the western margin of ancestral North America. It is dominated by Precambrian and Paleozoic grit, quartzite, pelite and less limestone and volcaniclastic rocks. The westerly directed Pleasant Valley thrust separates the Cariboo and Barkerville Subterranes. The Slide Mountain Terrane is a structurally imbricated oceanic package faulted into position on the eastern margin of the Barkerville Subterrane along the Eureka thrust. North of Wells, in the vicinity of the property, it overlies the Cariboo and Barkerville subterranes on the Pundata thrust. It is primarily comprised of Mississippian to Permian basalt and chert-pelite sequences that are cut by diorite, gabbro, and lesser ultramafic intrusions (Struik, 1988). Greywacke, grit, conglomerate, felsic volcanics, limestone and serpentinite are minor components. Felsic volcanics are not traditionally considered to be part of the package but were located west of the Eureka property this past summer. The Quesnel Terrane structurally overlies Barkerville and Slide Mountain rocks along the Eureka fault. It is mainly an island arc assemblage consisting of basal Upper Triassic black clastic rocks overlain by basic to intermediate volcanics (Lane, 1999).

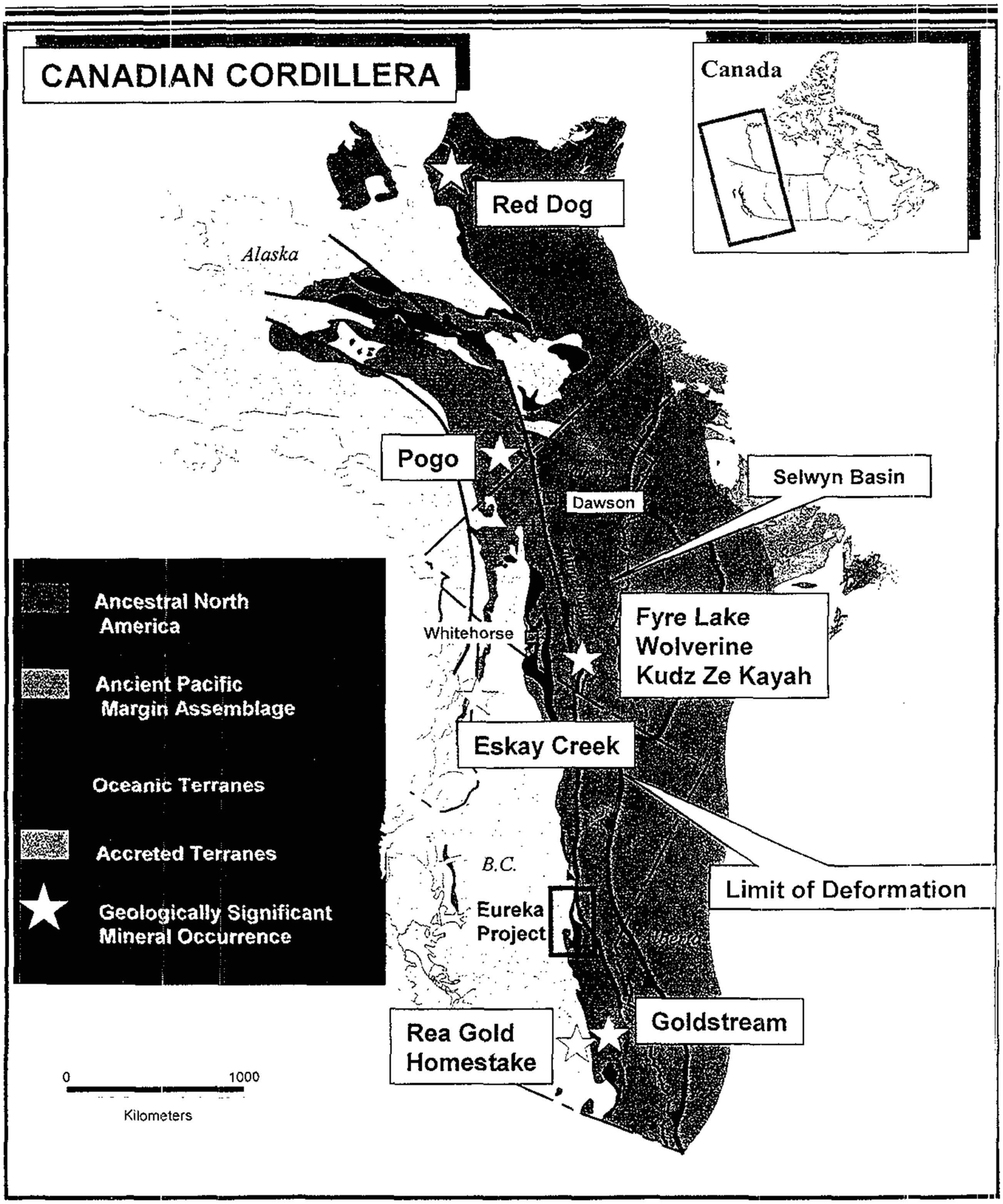
7.1 Barkerville Terrane

Rocks of the Barkerville Subterrane have been assigned largely to the Late Proterozoic to mid-Paleozoic Snowshoe Group (Struik, 1983,1988). They consist mainly of fine-grained siliciclastic and pelitic metasediments with lesser carbonate and volcanic rocks. The Snowshoe Group has 14 subdivisions, several of which contain a significant mafic and/or felsic volcanic component. Intense deformation and moderate to high-grade regional metamorphism make interpretation of the primary lithologies of the Snowshoe Group rocks difficult.

The Snowshoe rocks resemble, in part at least, the Eagle Bay assemblage of the Adams Plateau – Clearwater area. They have also been correlated with the Lower Paleozoic Lardeau Group and the Carboniferous Milford Group of the Kootenay Arc. In the Selkirk Mountains of southeastern B.C. phyllites and quartzite of the Lardeau Group hosts the Goldstream stratabound copper-zinc deposit (1.86 million tonnes @ 3.1% Zn, 4.8% Cu and 21 gpt Ag). Goldstream and other occurrences in the area have characteristics of Besshi-type bedded cupriferous iron sulphide deposits. The Snowshoe Group also correlates with Yukon-Tanana rocks in Yukon and Alaska.

HUDSON BAY
An Anglo American plc Company

Figu'e 5



In the Finlayson Lake area of Yukon this package hosts the Kudz Ze Kayah deposit (11.1 million tonnes @ 5.6% Zn, 1.6% Pb, 0.9% Cu, 140 gpt Ag, 1.3 gpt Au), the Wolverine deposit (3.5 million tonnes @12.4% Zn, 1.4% Pb, 1.4% Cu, 337 gpt Ag, 1.6 gpt Au) and the Fyre Lake deposit (8.2 million tonnes @ 2.1% Cu, 0.1% Co, 0.7 gpt Au). The occurrence of significant base metal deposits in equivalent rocks elsewhere makes the Barkerville Terrane an excellent target for copper-zinc massive sulphides.

To date the Cariboo is best known for its placer gold in the Barkerville area, where two million ounces of gold have been recovered since 1858. Lode mining, principally of mesothermal vein and pyrite replacement mineralization from the Cariboo Gold Quartz, Mosquito Creek and Island Mountain mines, produced an additional 1.8 million ounces. These deposits are primarily located on a NW-SE trending quartzite-carbonate contact in the Downy succession (Snowshoe Group). The recent discoveries by International Wayside Gold Mines, the Cow Mountain and Bonanza Ledge Zones, are a continuation of these deposits to the southeast. Base metal exploration in the Snowshoe Group, until recently, has been intermittent at best. In the last few years however Barker Minerals has located several prospects in the Cariboo Lake area. Frank Creek was sulphide float only until trenching in 1999 located 1.92% copper across 1.0 meter in bedrock. The Ace and Mae showings are also possible VMS occurrences being actively explored by Barker Minerals. It is expected that considerate more base metal work will be undertaken in the Barkerville Terrane in the next few years. In the Eureka area Barkerville units are located just south of the property. Unfortunately because of its proximity to the Wells gold camp all ground in this area is staked.

7.2 Slide Mountain Terrane

The Slide Mountain terrane is found intermittently along the entire length of the Canadian Cordillera and occurs between rocks of ancestral North America and volcanic and peri-cratonic terranes of unknown origin further west. In British Columbia there are five principal areas with exposures of this terrane: the Cassiar (Sylvester Group), Omineca (Nina Creek Group) and Cariboo Mountains (Antler Formation), the Shuswap Highlands (Fennell Formation) and the Selkirk Mountains (Kaslo Group). In the Yukon's Finlayson Lake area the Slide Mountain terrane is called the Campbell Range Belt. Although structurally interleaved, Slide Mountain along its length has been generally divided into two structural packages: a lower unit dominated by deep water sediments with lesser mafic plutonic and volcanic rocks, and a upper unit of massive to pillowed basalt containing thin intervals of chert and argillite.

In the Cariboo Mountains, north of the Pundata thrust fault, stratigraphy of the internally imbricated Slide Mountain Terrane is assigned to the Mississippian-Permian Antler Formation. The Antler Formation, according to Struik (1988), consists mainly of intermediate to mafic pillowed, flow and pyroclastic volcanic rocks, chert and black shale. It is exposed in a belt, 15 to 37 km wide, on a northwesterly trend from Barkerville in the southeast to McLeod Lake in the northwest, a distance of 250 km. The Crooked Amphibolite, a sheared and metamorphosed equivalent of the Antler Formation, forms a thin discontinuous map unit along the eastern margin of Quesnellia. Mapping in the Antler Formation is quite sparse. Campbell (1973) mapped most of the formation in 1966-68 as part of the 250,000 scale mapping in the McBride map sheet. Campbell does not show any internal differentiation in the formation. In the southeast portion of the belt both Sutherland Brown (1953) and Struik (1688) studied the Antler Formation west of Bowron Lake in the Two Sisters Mtn.- Slide Mtn.- Mount Murray area. Sutherland Brown, following up on earlier GSC work (Johnston and Uglow, 1926), divided the Slide Mountain Group into two formations. Lowermost, unconformably overlying the Cariboo and Barkerville Terranes was the Guyet Formation. This formation is characterized by a cherty conglomerate but also contains other sediments, including lithic greywacke, argillite and crinoidal limestone. The limestone was called the Greenberry member and occurs at the top of the formation. Sutherland Brown had the Antler Formation volcanics conformably overlying the Guyet Formation and the two units combining to form the Slide Mountain Group. Struik, mapping in the 1980s, concluded the Guyet was part of the underlying Barkerville Terrane and reduced the Slide Mountain back to the Antler Formation only. Struik (1985), after studying conodonts in the chert horizons concluded that the exposed section on Slide Mountain contains at least three major thrust contacts. He estimates the Antler Formation may have been as thin as 300 metres. Sutherland Brown estimated the Antler section at 3,600 ft. (1,100 m.) but did not recognize the repetition due to thrusting. The northeast boundary between the Cariboo Terrane and Slide Mountain rocks is well defined by a major northwest trending thrust fault. However the southwest contact is not well located. This is due the extensive drift of the Interior Plateau masking the bedrock. Consequently government regional mapping shows various interpretations with generous use of inferred faulted contacts.

Mapping in the Eureka area this past summer as well as prior work by BP Resources (Farmer, 1986) and Peter (1987) has noted the presence of some felsic volcanics within the Antler Formation, which had not been noted by earlier surveys.

Perhaps the most well known VMS deposit hosted by rocks assigned to the Slide Mountain terrane is Chu Chua, in the Fennell Formation northeast of Kamloops. Chu Chua, a Cyprus or Besshi type VMS deposit, consists of several stratiform, massive cupiferous pyrite lenses and associated massive talc, magnetite-talc and siliceous alteration zones within basalts of the upper Fennell Formation (Aggarwal and Nesbitt, 1984). Its drill indicated resource totals approximate 2 million tonnes averaging 2.0% Cu, 0.4% Zn, 0.1% Co, 0.4 gpt Au and 8.0 gpt Ag although work by Minnova (Inmet) apparently increased its near surface open pittable resource.

In Yukon the Ice Deposit is located in the Campbell Range Belt, the Slide Mountain equivalent. This deposit is hosted by pillowed, massive and brecciated mafic volcanic rocks interlayered with mudstone and chert. Two main sulphide horizons are hosted within the "active" basalt unit, an upper massive sulphide horizon and a lower stockwork sulphide horizon with semi-massive to massive sulphides. A resource of 4.1 million tonnes @ 1.5 % Cu has been defined to date.

In the Prince George- Wells area no significant base metal occurrences have been located to date within the Antler Formation although a number stream sediment anomalies and float occurrences are present. See the section on Previous Investigations for a review of industry work in the area.

8. PROPERTY GEOLOGY (G. S. Mulligan) (Figure 6)

8.1 Lithologies

Volcanic Rocks:

On a property scale, volcanic rocks are dominantly mafic basalts, with lesser amounts of intermediate to felsic volcanics. Mafic volcanics can be subdivided into two units, amygdaloidal pillow basalt and aphanitic basalt.

Amygdaloidal pillow basalt (Plates 5 & 6)

This unit forms an excellent marker unit that is easily distinguishable from the more aphanitic basalt. It is exposed predominantly within the Westpass Valley and in the clear-cut north of Lottie Lake, as well as in isolated outcrops to the west along Ketcham Valley and southeast of 14 Mile

Plate 5 - Basalt pillow flow, unit is weakly chloritic, pillow tops are to the northeast, weathered surface is brownish in colour, pillows are relatively undeformed, local cherty patches minor quartz veins, centimeter scale. (NWR R-10198)

Plate 6 - Pillow basalts with altered selvages, centimeter scale, pillow facing direction is southwest, brownish weathering surface, relatively undeformed. (NWR 005)

Lake. Rocks are weathered to a light tan-orange brown and have a medium green fresh surface. They form pillows up to one meter in diameter and are filled with spherical amygdules of clay-calcite up to one centimeter in diameter. Pillows can be well preserved, although more commonly they are indistinct, and show little evidence of flattening. Concentrically rimmed amygdules define pillows selvages but are generally poorly developed. In the northern portion of the property, pillow basalts have less abundant, smaller amygdules, and smaller pillows, indicative of a different, perhaps deeper subaqueous depositional environment.

Aphanitic basalt
Basalts of this variety dominate the property geology. They are characterized by being aphanitic, medium green to dark grey, and locally faintly pillowed. They are typically massive, locally autobrecciated, and locally magnetic (north of Lottie Lake). Interbedded within this unit are ribbon cherts.

Intermediate volcanic rocks
Based on field observations, these rocks are distinguished from basalts because of their colour and hardness. Typically intermediate volcanics are fine grained, light grey to light green, and are slightly harder than their basalt counterparts. They are exposed in the Lottie area (Figure 6a) and more abundantly in the northern half of the property between Towkuh and 14 Mile Lake, and in the Bow Canyon (see Bow geology).

Rhyolite (felsic volcanics)
Felsic volcanics are rarely identified in previous literature of the Slide Mountain Terrane. Mapping in the 2000 field season identified felsic volcanics in four areas:
(1) in the northwest corner of the map sheet, southeast of Stephen Lake, rhyolite is massive and weathers white with a grey-blue fresh surface. In the immediate area is subcrop of quartz-feldspar porphyry, the assumed subvolcanic equivalent as well as subcrop and boulders of quartz-eye rhyolite and pyritic rhyolite breccia. These rhyolites are on trend with volcaniclastic rocks described in the Stephanie map sheet geology.
(2) in the Bow area, a steep incised canyon has exposures of rhyolite, as previously noted by Peter (1987). These rhyolites are fault bounded and several units were mapped; a purplish dark green variety, an olive green variety, and a light purple grey variety. Small exposures of felsic volcanics are also noted in the Antler grid south of the Tow float.
(3) at the Lottie area near the placer operation is a suspect rhyolite. It is medium grey and sugary textured, shot through by large bull quartz veins up to one meter thick. It is possible it represents an intensely silica flooded sediment. It contains up to 5% euhedral pyrite.
(4) there is a small outcrop on the north side of Ketcham Creek of rhyolite/intermediate volcanic. It is light medium grey and quite siliceous. This unit is also seen locally on the south side of the valley in a very steep devil's club-ridden gully.

<u>Volcaniclastic rocks</u>
Minor volcaniclastic units were observed as outcrops in the Stephanie Ck. area and in drill core at the Lottie (LOT-1, LOT-3). Volcaniclastics in the Stephanie area consist of lapilli tuffs to agglomerates with elongate lapilli ranging from basalt, chert, pyrite, and obsidian (rhyolite). See Stephanie map (Figure 6e) and geology write-up for more detail. Similar textures were observed in lapilli tuffs at Lottie (see drilling section).

<u>Sediments</u>
Sediments on the property consist primarily of cherts and argillites, with minor wackes, limestone, cherty argillites, quartz-pebble conglomerates, shale and phyllite. These sediments are exposed throughout the property and interbedded within thicker volcanic packages. More detailed

Plate 7 - Contact between rhyodacite / felsite dyke and basalt flows, very sharp contact centimeter scale, picture looking north. (NWR R-10156)

descriptions of several of these areas can be found in the detailed geology write-ups of the Westpass and Lottie map sheets.

Chert

Cherts make up the dominant sedimentary lithology, perhaps due to their more resistant nature, and are typically the ribbon chert variety with beds ranging in thickness from 1-3cm separated by thin argillite beds, Mapped chert units can be tens of meters thick. Cherts range in colour from white to pink to green and locally contain radiolarian (Slide Mtn)

Argillites

Argillites also range in colour, are well bedded, and are mapped in the western portion of the Westpass map sheet (Figure 6b), at Lottie in the drill core, and to the east on the 2300 road where they are interbedded with wackes and minor limestone. South of the Antler grid, red argillite grades up into chert, all interbedded within basalt.

Limestone

Rare limestone is found on the property within Slide Mountain Terrane rocks. It is observed in outcrop near the Lottie showing as a medium grey gritty calcareous wacke with light blue grey weathering, and as a limestone bed lying within a deformed package of foliated siltstones on the 2300 road. Limestone is also present within the flat lying package of sediments exposed on the west side of the Westpass area map (Figure 6b).

Wackes

Wackes are found primarily within the Lottie drill core and in the sediment package in the western portion of the Westpass area. See Westpass geology for a detailed description.

Intrusions

Intrusions mapped on the property consist dominantly of gabbro stocks, dykes, and sills, accompanying ultramafic intrusives, and later felsic dykes.

Gabbro

Gabbros are prevalent throughout the entire property and are fairly homogeneous. They are massive, fine to coarse crystalline, medium green, and primarily composed of plagioclase and clinopyroxene. They tend not to be as fractured and jointed as the rocks they intrude suggesting they intruded the volcanic sequence late, although some are gradational with the mafic volcanics and are presumably subvolcanic equivalents of the main basalt package.

Ultramafic rocks

Ultramafic intrusives are exposed one kilometer south of the Lottie showing, on the Stephanie map sheet, and in the far northeast corner of the property. South of the Lottie are subcrops of altered ultramafic (?) These rocks feature thick (up to 10cm) limonitic rinds with light grey crystalline cores. These cores are dolomitic and contain 1-3% specks of fuchsite. Subcrop further north is indicative of a talcose-serpentinized highly sheared mafic-ultramafic intrusive. Medium crystalline black amphibolite and serpentinite are exposed on a new logging road two kilometers west of Towkuh Lake. Locally this ultramafic is highly serpentinized and sheared. It has been postulated this area might represent the root zone of the Slide Mountain Terrane. In the northeastern-most extent of the property a suspect ultramafic was mapped. It was fine grained, grey and was talc-chlorite altered.

Felsic Intrusions

In the Westpass Lake area and extending to the mountain north of Lottie Lake are dykes and sills of felsic composition (Plates 8, 9). These intrusive bodies are generally light grey to light green and have a bleached white to pink to green colour. They are very fine grained (approaching cryptocrystalline), aphanitic, and contacts are sharp and conformable and/or intrusive with the basalts.

Other minor intrusive bodies on the property include coarse crystalline feldspar-phyric intermediate porphyry near the placer operation and a hornblende-phyric porphyry on the Stephanie map sheet.

8.2 Structure

In general, rocks in the property consist dominantly of mafic volcanic flows with minor interbedded sediments, which have been thrust imbricated, and normally/transversely faulted. Folding appears to be minor and is seen predominantly within the less competent sediments.
Within the "sea" of basalt are interbedded sediments that were deposited conformably during hiatuses of volcanic activity. Bedding from these sediments was assumed comparable to flow contacts and was therefore used to map otherwise massive flow packages. Marker units for property scale mapping were absent except perhaps for the amygdaloidal pillow basalt unit. This unit proved useful for mapping in the Lottie/Westpass Lake area but was used with caution to the north. Pillow basalts in the north of the property were also amygdaloidal but had subtle differences, and as amygdules (vesicles) are a function of many criteria, including confining pressure, water depth, viscosity, etc. direct correlations between the basalts cannot be made with certainty.
Mapping in the Westpass Lake and near the Bow float was used to construct a stratigraphic column, based on the assumption that the amygdaloidal pillow basalt in both areas was correlative. In the Westpass Lake area, amygdaloidal pillow basalt underlies more aphanitic basalt. This contact, while not exposed, is believed to be depositional and might represent a change in depositional environment between flows (water depth?) The contact is moderately to steeply W-NW dipping north of Lottie Lake and shallows substantially to the northwest where it is west dipping. In the Bow canyon, amygdaloidal pillow basalts are in fault contact with underlying intermediate to felsic volcanics. Since these faults are assumed to be normal, with down-dropped hanging walls to the north, it is thought that prior to faulting basalts depositionally overlaid a package of intermediate to felsic volcanics. This hypothesis is also supported by exposures of structurally lower intermediate to felsic volcanics located at the Antler Grid. Combining the stratigraphy of these two areas, a generalized stratigraphic column is proposed: an intermediate to felsic volcanic package, overlain by the amygdaloidal pillow basalt unit, and in turn overlain by the aphanitic basalt.

Thrust Faulting

It is generally assumed that the entire SMT is highly thrust imbricated. With such limited exposure it is reasonable to assume that the property geology is much more complicated due to thrusting and accompanying brittle deformation.
Several shallow thrust faults were inferred within the Lottie and Westpass area. They account for repetition of stratigraphy and the juxtaposition of steeply and shallowly dipping units. Between the Khan and the Holly, is a mylonitic thrust detachment surface dipping shallowly to the northwest. See the Westpass and Lottie geology sections for more detail.

Normal/Transverse (?) Faulting

In general the property is faulted by at least two sets of steeply dipping faults trending east west and NW-SE. These faults are based on geophysical interpretation, air photo lineaments, and field mapping. Of local interest is the Westpass Lake fault system trending approximately north south and possibly swinging east into the Lottie Creek Valley. Intense shearing and accompanying serpentinization occurs within the ultramafic intrusive in the center of the property. It has been suggested this ultramafic might represent the "root zone" of the Slide Mountain Terrane. If so, this shearing might be part of a more regional detachment surface (?) See Westpass, Stephanie, and Bow geology for more information on faulting.

Folding

Ductile deformation in the form of folding occurred predominantly in the less competent sediments. It is probable the mafic volcanics were folded during thrusting, however, their massive nature and lack of exposure makes recognition of structures problematic. An openly folded syncline-anticline pair within the mafic volcanics was mapped two kilometers north of Westpass Lake, with axial traces trending approximately east west. West of the Khan, shallow water sediments are folded into a synclinal structure with two generations of strongly developed axial planar cleavage, indicating multiple stages of deformation.

8.3 Mineralization

On the ridge system to the southeast of **Stephen Lake** (south of Boyce Creek) many angular mineralized rhyolite boulders were discovered. The area they were found in covers approximately nine square kilometers, and the size and angularity of the boulders indicate a proximal source. Massive rhyolites mapped nearby to the east and volcaniclastics along trend at the Stephanie map sheet further substantiate the presence of felsic volcanism. The lithologies include:

(1) Feldspar-quartz porphyry.

This rock is light grey and weathers purple-red to yellow. Feldspar laths are altered to clay and range up to 1cm long and quartz phenocrysts are up to 3mm long. The matrix is finely crystalline and consists of quartz and plagioclase. This rock is found in subcrop along a road cut and is likely a subvolcanic equivalent of a rhyolite-rhyodacite. Mineralization in these boulders is semi-massive to massive and ranges up to 50% finely disseminated pyrite. No significant base metals values were obtained.

(2) Rhyolite:

Rhyolite boulders are light grey with quartz phenocrysts (eyes). They contain up to 40% finely disseminated semi-massive pyrite.

(3) Rhyolite Breccia:

One of many boulders found was up to 1.5 meters long and quite angular. Clasts were light grey, subangular to subrounded, aphanitic, and contained 1% disseminated euhedral pyrite. The quartz-rich matrix was white and creamy to mottled, and contained disseminated pyrite. On average the rhyolite breccia contained 5-10% pyrite. As with the above units base metals were at background levels.

Two Sisters:

Copper mineralization cited in previous literature on the top of Two Sisters Mountain is accounted for by mineralized gabbros. Coarse crystalline rusty gabbros contain 2-5% pyrrhotite associated with tr-1% chalcopyrite. Grab sample GSMR10036 assayed 0.3% Cu with anomalous values of Ni, Pb, Zn, Se, Ag, and Co.

Khan:

Angular mineralized float boulders were found along the road-cut at the Khan till anomaly. Float consists of two rock types:

(1) boulders of gossanous dark grey mafic intrusive (subvolcanic), possibly slightly sheared, contained up to 5% chalcopyrite, 1% pyrrhotite, and trace bornite. Assays returned values of 0.4 – 0.56% Cu, with low Ag, Ni, Co credits.
(2) rusty basalt boulders and outcrop in the immediate area contained finely disseminated trace bornite, chalcopyrite, and pyrrhotite, but failed to yield significant assay results.

Ketcham:
Float from within the ferricrete layer at the Ketcham trench was sampled previously by Martin Peter (1997). Mineralized rusty basalt contains up to 40% finely disseminated semi-massive pyrite locally, and trace to 1% disseminated chalcopyrite. Assays returned 0.15% - 0.38% Cu, and up to 0.13% Zn, 0.43% Ag, with anomalous Sb, Hg, Se.
A rusty subangular boulder of basalt float (20 cm long) was discovered one kilometer E-SE above the ferricrete. It contained 2-3% pyrrhotite, trace to 1% chalcopyrite, and assayed 0.12% Cu.

Sam:
Dark grey-black chert float with 1-2% chalcopyrite in fractures was discovered in a till fabric pit and assayed 0.2% Cu, 186 ppm Zn.

8.4 Lottie Area Geology (Figure 6a)

The Lottie area is geologically complex, consisting dominantly of mafic volcanic flows and shallow water basinal sediments. It lies within Slide Mountain Terrane rocks immediately to the east of the Pundata Thrust (Struik, 1988).

The Pundata Thrust juxtaposes Slide Mountain Terrane rocks to the east on top of Cariboo Terrane rocks to the west. Lower Mississippian crinoidal limestone of the Greenberry Formation is exposed immediately to the west of the map sheet and Permian to Triassic slates and greywackes are exposed 200 meters northwest of the placer operation, indicating the thrust lies further to the east than previously mapped.

Within the Slide Mountain Terrane, in the southern portion of the property, rocks are dominantly mafic volcanic flows dipping shallowly to the NW. Rocks within the Lottie area, as defined by the detailed Lottie map however, are markedly different both structurally and compositionally. They are dominantly composed of sediments interbedded with mafic volcanics striking E-W and dipping steeply to the north.

To the north of Lottie Creek lies the amygdaloidal pillow basalt unit, which was further delineated with use of the magnetic data. To the south of the creek is a package of west striking steeply north-dipping fine to medium crystalline basalts interbedded with minor chert and intermediate volcanics. Underlying these basalts stratigraphically is a sedimentary package of cherts, cherty siltstones, argillites and graphitic argillites interbedded with altered basalts and minor volcaniclastics (see drilling for more detail). Based on limited exposure and drill hole correlation these sediments strike to the west and dip steeply to the north. Geophysical interpretation suggests a shallowing of dip for the graphitic argillite from drill hole LOT-1 easterly. South of the placer operation a small outcrop of pyritic rhyolite/silicified sediment (?) was noted. Its relation to stratigraphy is unknown but its present position suggests it underlies the sedimentary succession.

Intruding all units are gabbro dykes and stocks. A large gabbro stock trending approximately E-W is located south of the sedimentary sequence at the Lottie. An exposure of gabbro is also located west of the Pundata thrust contact. As the thrust postdates the gabbro there is no spatial relationship between these gabbro units. Just northwest of the placer operation an intrusive plug of intermediate composition with large 1cm crystals of plagioclase intrudes the sedimentary/volcanic package. Subcrop along the upper road of the Lottie (southeast corner of the Fig. 6a) is composed of altered ultramafic intrusive. This intrusive has a thick limonitic rind and a grey dolomitic (?) crystalline core with specks of fuchsite. Further north along the road, and just south of the main conductive trend, is subcrop of highly sheared talcose-serpentinized mafic intrusive.

Structurally, the Lottie area is complex. In the northwest corner of the map sheet a shear zone trends NNW up the Westpass Valley. Exposures along the road in this area indicate the rocks are highly faulted and sheared. The majority of the faults are steeply dipping and trend NNW. Localized displacement of a chert bed indicates normal fault displacement down dropping stratigraphy to the west. Regional mapping in the Westpass Valley indicates minor normal displacement along the fault system. Based on steeply dipping shear zones in the drill core and reidel shear fabrics in ribbon cherts exposed near the placer operation, the Westpass fault system swings east into the Lottie Creek Valley. This most likely took the form of flexural shearing between less competent sedimentary stratigraphy (i.e., graphitic argillite). This flexural shearing might explain the apparent open folding of the sedimentary package and the strong shearing within the talcose-serpentinized mafic intrusive.

For the amygdaloidal pillow basalt unit to stratigraphically overlie the steeply dipping volcanic/sedimentary package at the Lottie requires some unlikely fold geometry. It is more likely that there exists a shallow thrust fault between the amygdaloidal unit and the basalt to the south of Lottie Creek. It is also likely a thrust or a series of thrusts exit at the base of Two Sisters Mountain to account for the extreme change in dip between flat lying stratigraphy on the flank of the mountain and the steeply dipping stratigraphy at the Lottie.

8.5 Westpass Geology (Figure 6b)

The Westpass map sheet contains dominantly flat lying mafic volcanic flows intruded by late gabbroic intrusives. On the west side of the map sheet are shallow water sediments of no clear affinity to the Slide Mountain Terrane juxtaposed against a mylonitic thrust detachment surface.

Rocks in the area of the Westpass Creek Valley consist of two flow basalt units, amygdaloidal pillow basalt and aphanitic basalt. The amygdaloidal pillow basalt has amygdules up to one centimeter in diameter and underlies the aphanitic basalt that is best exposed on the mountain north of the Lottie Lake. The amygdaloidal pillow basalt is exposed dominantly in the creek valley north of Westpass Lake and regional mapping indicate it dips shallowly (approx. 10°) to the W-NW. Pillow topping direction is also to the west. This unit undergoes gentle open folding as indicated by a syncline-anticline pair two kilometers north of Westpass Lake. The fold axis trends NE-SW and plunges shallowly to the W-SW.

Both units are also locally thrust faulted immediately to the west of Westpass Lake. The thrusts are interpreted based on repetition of stratigraphy and knowledge of the stratigraphic section to the north of Westpass Lake.

A late deformational event superimposed on the aphanitic basalt unit and late gabbroic intrusives is evident from two distinct foliations mapped to the west of Westpass Lake. The earliest foliation (S_1) trends between 300-335° and is vertically dipping. It is a 1-3 centimeter spaced anastamosing foliation. The S_2 foliation, which crosscuts S_1 is also a spaced anastamosing foliation trending between 195-245° and is approximately vertically dipping. S_2 offsets S_1 by 1-2 centimeters in places. These two foliations might represent conjugate fracture sets, although it appears S_1 has accommodated the majority of the shearing and might be related to a more regional deformation event such as faulting along Westpass Valley, which is evident on road cut exposures further south of the map sheet.

At the far western extent of the map sheet lies a shallow water sequence of rocks including quartz-pebble conglomerate, lithic wacke, laminated argillites and limestone (Plate 10). This sequence is folded into a syncline plunging shallowly to the west and displaying vertical axial planar cleavage. A steeply dipping N-S trending shear zone separates these E-W striking steeply dipping sediments from N-S striking moderately dipping basalts and interbedded cherts to the east. Intruding the sediments to the west of the shear zone is a gabbro intrusive that is foliated. Gabbros bearing a foliation are not recognized in rocks on the property or elsewhere in the typical Slide Mountain rocks, suggesting the entire package is a different entity than that on the other side of the shear zone. SJ Geophysics also identified this shear zone on lines 14N and 16N on the Khan grid.

To the east of the shear zone lies basalt and minor interbedded chert. Basalt is highly sheared to the point of being mylonitized from the Khan float SE to the Holly. The mylonite is a light cream green, has a strongly epidotized fine-grained matrix with elongate stretched clasts of basalt and hydrothermal epidote and siderite. The contact between the aphanitic basalt/chert and the mylonitized basalt is relatively flat lying (striking E-W) and dipping moderately to the north. It projects uphill to the Holly, suggesting it represents a shallowly dipping thrust detachment surface. The N-S steeply dipping Khan shear zone postdates this thrust surface.

8.6 Tow Geology (Figure 6d)

Lithologies

Rock units in the Tow area consist of basalt, felsic dykes, intermediate volcanics, gabbroitic/mafic intrusives as well as locally intercalated chert within the basalt. The basalt/mafic volcanics occur in two different descriptive units. A greenish-gray to dark green, sugary massive basalt occurs in the vicinity of the Tow float, mainly exposed west, southwest and immediately to the south of the Tow float. The main outcrop of the unit can be seen over top of the hill some 500 metres south of the Tow float. The unit is weakly to moderately chloritized with trace to <1% pyrite and weathers grayish-green to brown. Bedded chert is intercalated with the basalt. Bedding in the chert indicates an ENE to NE strike direction with moderate dips to the west and northwest. Locally quartz-epidote veinlets and veins occur in this unit. The unit is crosscut by several felsic dykes and intruded by gabbroic intrusive.

The second mafic volcanic unit is a dark greenish-gray to black, fine grained brecciated basalt with pervasive patches and streaks of quartz epidote alteration. The unit has several small exposures that infer an extension from the south to southeast and eastern parts of the Tow area. This brecciated unit is composed of mainly angular dark greenish-black basalt clasts with a quartz-epidote matrix.

No pillowed structures were observed with the exception of the well-developed amygdaloidal brecciated basalt from one float sample found at the south end of the Tow area. However, the colour and grain size of this unit suggests a similarity between this unit and the pillow basalt found in other areas.

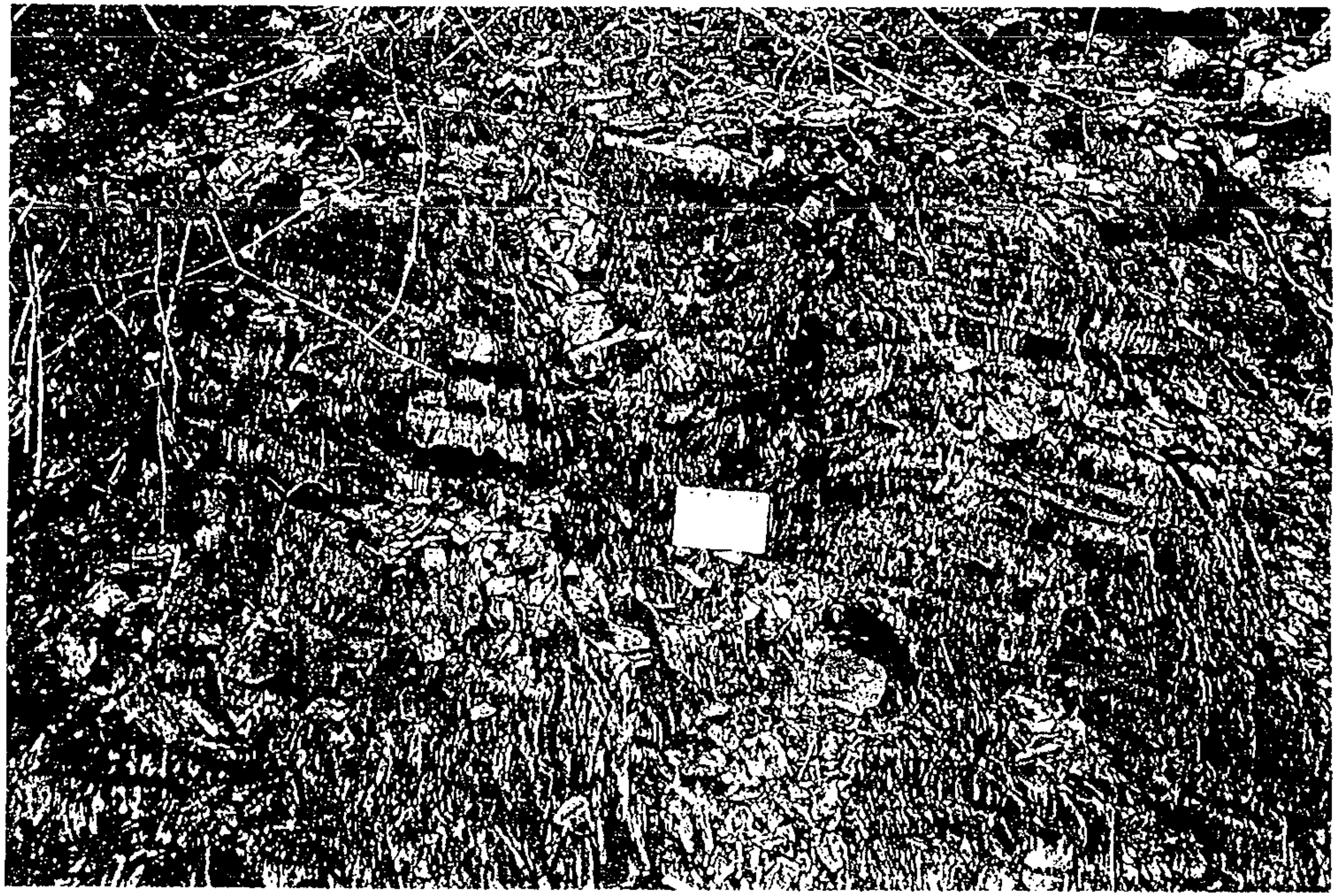


Plate 9 - Gentle open folded siltstones with axial planer cleavage ,centimeter scale, looking westward., gentle dipping beds with chloritic (green) beds, possible a tuffaceous unit?, picture looking westward. (NWR 003)

The felsic dykes are light grayish-green and fine grained which weather to a whitish-gray-light gray. The dyke's weathered colour is very similar to the chert bands in the area and requires good exposures to differentiate them. The unit crosscuts basalt and gabbro and generally trend E-W to SW-NE.

The intermediate volcanics are massive, fine grained and light green-gray. There are two main exposures on grid 5, about 5 kilometres southeast of the Tow float. The first exposure is located along and between a parallel set of NE shear structures. The second area is composed of several small outcrops juxtaposed by brecciated basalt.

The gabbroic/mafic intrusives appear as greenish-black, fine to medium grained, massive crystalline units, which weather to a brownish gray. The unit intrudes the mafic volcanics and occurs in small patches to large outcrops, mainly to the south of the Tow float.

The chert is a light green bluish gray, very fine grained, massive to locally well-bedded unit. Bedding is generally ENE to NE with dips moderately toward the NW. The weathered surface is light pinkish-white in colour. The chert is mainly intercalated with basalt, and in a few locations occurs at contacts with basalt and gabbro. In addition to the banded chert in basalt, some chert subcrop is observed over 250 metres southeast of Tow float. The subcrop is extremely fractured and altered including carbonatization and limonitization.

Structures

Few structures are visible with the restricted exposure in the Tow area; however, with the aid of air photos the following structures are interpreted. Two WSW-ENE faults are interpreted 400 metres and 600 metres south of Tow float, at the north and south boundaries of the main exposure in Tow area. The southern fault crosscuts basalt, gabbro and chert units. Ground evidence indicates it is a normal, late structural feature. The northern fault structure is not evident on surface and is mainly interpreted on air photo lineaments and subcrop exposure. Most of the felsic dykes and major quartz-epidote veins lie along this trend. A NE-SW shearing/fault structure is also present. This set is more local and is observed mainly as a small-scale shear structure.

Mineralization

The Tow massive sulphide float was found in 1997 by Martin Peter. A sample taken from massive chalcopyrite-pyrite float located 50 metres west of the switchback, located in till, ran 6.96 % Cu and 4.72 gpt Au. Chert boulders along the road 50-100 metres to the south have up to 15% pyrite but no significant base metal content. Trace to <1% pyrite is ubitiquous in the general Tow area, regardless of the lithology, but no significant copper mineralization has been observed in place.

8.7 Bow Geology (Figure 6e)

The "Bow Canyon" is situated 300 meters NE of the Bow float and displays a 500 metre section of bedrock in an area typified by extreme lack of exposure. Rocks in the Bow Canyon consist of fault-bounded basalts, intermediate volcanics, and rhyolites with minor late gabbroic intrusives. Based on regional scale geologic mapping of the property it is believed that basalts are either structurally or depositionally overlying a more intermediate to felsic package of volcanics. The Bow Canyon is essentially a highly faulted cross section through that geology.

In the Bow Canyon at least three generations of faulting have been recognized. The first set of faults (F1) separate individual volcanic lithologies. This generation of faults trend NE-SW and dip shallowly to moderately (20-60°) to the NW. Movement along these faults appears to be normal. Later faults (F2, F3) trend N-S and NNW-SSE and are generally steeply dipping. Displacement on these faults appears to be minimal.

Basalts in the canyon consist of two varieties, amygdaloidal pillow basalt and dark green-grey aphanitic basalt, which was referred to in the field as "black basalt". This black basalt is interpreted, based on regional mapping, to underlie the amygdaloidal pillow basalt exposed on the mountain to the west. At the eastern end of the canyon the amygdaloidal pillow basalt is exposed structurally overlying a fault-bounded package of intermediate volcanics and rhyolites. It is assumed this basalt is correlative to the pillow basalt exposed on the mountain to the west, therefore supporting the interpretation it was down-dropped along NE trending faults.

Rhyolites and intermediate volcanics exposed in the canyon were dominantly separated by F1 faults. However, one contact exposed on both sides of the canyon illustrates the flat lying nature of the rhyolite-intermediate units. Intermediate volcanics are dominantly light grey-green, whereas rhyolites varied in colour from purplish/dark green, to olive green, to light purple grey. This variety of colour might suggest multiple flows or a change in chemical composition.

No mineralization was found in the Bow Canyon area.

8.8 Stephanie Geology (Figure 6c)

Lithologies

The Stephanie map sheet (figure 6e) is situated approximately 4-5 kilometers west of Towkuh Lake and straddles the Lottie claim boundary. Rocks are comprised of mafic volcanics with interbedded cherts and volcaniclastics, which are in turn intruded by gabbroic and ultramafic bodies. With the exception of minor folding, the dominant trend of lithologies is NW which also corresponds to the regional magnetic signature in the area. Hydrothermal alteration and the presence of vent proximal volcaniclastics in the westernmost portion of the map sheet may be of interest to future VMS exploration.

In the eastern portion of the map sheet rocks are dominated by coarse crystalline gabbro and ultramafic intrusives. These ultramafics are amphibolite to serpentinite in composition and are locally highly sheared. Aside from mapping of the Crooked Amphibolite by Struik, ultramafics are unrecognized in the Slide Mountain Terrane. It is possible these ultramafics represent the "roots" of the Slide Mountain Terrane. Gabbro is also present in the western portion of the map sheet where stocks and dykes intrude a complex package of mafic volcanics, cherts and volcaniclastics.

Mafic volcanics can be divided into two lithologies, (1) vesicular/amygdaloidal pillow basalt and, (2) dark green, medium crystalline aphanitic basalt. The vesicular/amygdaloidal basalt is locally pillowed with highly vesicular pillow centers and remnant green clay amygdules. Both basalts are interbedded with locally sheared white-pink ribbon chert, intermediate volcanics, phyllite, and cherty argillite/shale.

Interbedded with the mafic volcanics are various volcaniclastic units, which form an anticlinal core, trending NW-SE. At the base of the volcaniclastic succession is a carbonate altered light grey fine-grained ash (?). It is overlain by an ignimbrite with a very fine-grained light green grey matrix and augen shaped clasts parallel to flow foliation. Clasts range in size up to 1.5 cm and are composed of calcite, mudstone, basalt, and pyrite. This unit appears to coarsen up to a clast size of 5 cm where chert and vesicular basalt become present. Overlying the graded ignimbrite is a coarse grained sedimentary unit containing rounded clast-supported poorly sorted clasts up to 10 cm in diameter. This unit most likely resulted from down slope movement of material into a basin or off a flank of a volcanic center. To the SE, the volcaniclastic unit is markedly different. Clasts include hematite-altered basalt, anhedral blobs of plagioclase, and obsidian (rhyolite). Some clasts weather to an apple green oxide (?) and might account for anomalous nickel values (294 ppm).

Structure

Apart from an anticlinal structure apparent in the volcaniclastic unit, the majority of the volcanic and sedimentary lithologies all strike SE and dip moderately to steeply to the SW. Two normal faults have been inferred to account for repetition of stratigraphy. Minor shearing and small scale folding seems to be accommodated by ribbon cherts and fissile sediments such as shale and phyllite.

Mineralization

Hydrothermal alteration in the form of locally intense hematite stockwork to brecciation and quartz-epidote veining are observed in volcanics in the westernmost portion of the map sheet. Vesicular to amygdaloidal basalts are locally intensely veined and pervasively altered with hematite. This alteration appears epigenetic hydrothermal as the basalt is locally intensely brecciated. Veining ranges in intensity from hematite fracture-fill to veined hematite with accompanying hematite alteration envelopes to intense hydrothermal brecciation whereby angular basalt clasts are completely altered to hematite and are supported by a fine grained dark matrix of specular hematite. Pervasive hematite alteration also occurs locally in the volcaniclastic unit. However, in the volcaniclastic unit there is no evidence of hydrothermal fracturing or brecciation indicating the volcaniclastic acted as a more permeable lithology than did the vesicular basalt. Spatially associated with the pervasively hematite altered basalts are an anomalous concentration of quartz-epidote veins. Locally basalt has been completely altered to epidote in the form of patches. Malachite staining was observed locally throughout the hematite breccia but assays failed to report any anomalous copper values.

Approximately 9-10 kilometers NW along strike of the lithologies at Stephanie are outcrops of rhyolite and subcrops of quartz-feldspar porphyry (subvolcanic equivalent). Boulders in the area consist of pyritic rhyolite breccias (5-7% py), and quartz-feldspar porphyries with up to 50% massive pyrite. It is assumed, due to the abundance, size, and angular nature of the boulders that they are of a fairly local source. All assay results to date give only background levels of base metals with one sample at 300ppm copper.

The area between Stephanie and Stephen Lake is lithologically very interesting. Both felsic and mafic volcanics are present, as well as volcaniclastics with felsic and mafic clasts. Pyrite is quite prevalent, particularly in the felsic rocks, and occurs in both massive and disseminated forms. Hydrothermal alteration, in the form of hematite and quartz-epidote, is also present in the area. To date neither the tills nor moss mats in the area are anomalous

9. SURFICIAL GEOLOGY (from Paulen, Appendices V & VI, this report) (Figure 7)

9.1 Mapping

Work on the property consisted of three components:

(1) mapping the nature and distribution of the surficial sediments,
(2) recognition of landforms and striations in the region to confirm and outline the local and regional ice flow history,
(3) outlining and discussing the properties and nature of the surficial sediments on the property and their implications for continuing drift prospecting.

Surficial Deposits
Several types of surficial deposits were observed in the region including: ground moraine (basal and ablation till), colluvial, glaciofluvial, glaciolacustrine, fluvial, organic and anthropogenic. General observations suggest the hills and plateaus are mainly covered by a combination of till and colluvium, whereas glaciofluvial, glaciolacustrine and fluvial sediments occur mainly in valleys.

Till (Plate 11)
Throughout the region, the bedrock topography is mantled by various amounts of massive, very poorly sorted matrix supported diamicton. Deposits range in thickness from thin (<1 meter) veneers to thick (>10 meters) blankets. The till is compact, fissile and clast content ranges from 10 to 25%. Clasts are often faceted and striated, and commonly have subangular to subrounded shapes. Characteristics of the diamicton suggest it is most likely the result of a lodgement depositional environment. The basal till facies also tend to be variable with respect to the underlying bedrock. The till directly overlies bedrock except in the larger valleys, where sediments from the last glaciation overlie older fluvial gravels, which are often the targets of placer gold operations.

Till is ubiquitous throughout the region, occurring in varying degrees of thickness and usually directly overlies bedrock. In the valleys meltwaters from deglaciation and intense early Holocene erosion have reworked and subsequently overlain the tills with various types of glaciofluvial, glaciolacustrine, colluvial and fluvial sediments. Till can generally be found exposed at surface above 1169 meters ASL. Meltwater activity and perched gravel deposits, such as kames and deltas, can occur above this elevation.

Glaciofluvial Sediments
Meltwaters from retreating and mass wasting glaciers flowed into the bedrock-controlled valleys, depositing glaciofluvial sands and gravels. The meltwaters coalesced into larger valleys and formed glaciolacustrine lakes. Associated sediments such as subaqueous fans, deltas and terraces were formed in the meltwater channels. Often, small deposits are perched above the terraces, formed from tributary channels flowing into larger valleys. These sediments range from poorly sorted immature gravels to well-sorted pea gravel and fine sand. They are commonly stratified and are very susceptible to erosion. Blocks of ice were sometimes trapped in the rapidly deposited sediments and their subsequent melting formed kettle depressions and lakes.

Glaciolacustrine Sediments
Deposits of glaciolacustrine sand and silt occur in the Bowron River and Lottie Creek valleys. Lower terraces have developed in these valleys during peak glacial meltwater flow. These sediments are thick, often exceeding tens of meters and consist of massive to rhythmically bedded very fine sand and silt with minor clay. These sediments are highly susceptible to erosion once the vegetation mat is disturbed.

Colluvium
Colluvium is a genetic term to describe sediment that has been affected by gravity. This includes talus, soil creep, slope wash and mass movements such as debris flows. Factors that control

Plate 10. Regional till sample pit #17834 where a value of 366 ppm Cu was obtained from the <63μm fraction (Sam anomaly). A thin sorted layer between the two till units is gossanous and iron-cemented.

down slope movement include the slope angle and the nature (stability) of the sediment or bedrock on the slope.

Various types of colluvium occur on the steeper slopes of the property. Rock talus can be found below bedrock ridges. Colluviated till is common on the steeper hill slopes and occurs locally throughout the property, often as a thin layer overlying till unaffected by gravity. The glaciofluvial and glaciolacustrine terraces were subjected to intense erosion prior to the establishment of vegetation and formed coalescing colluvial fans in the valleys

Fluvial Sediments

Modern streams and rivers are locally depositing small areas of fluvial sands and gravels. Fluvial sedimentation was most intense during the Holocene and modern drainage patterns were formed as the vegetation established itself. Large broad fluvial fans occur in every valley. These sediments include river gravels, sands and occasionally are mixed with organics

Organics

Organic deposits occur locally in all types of terrain. Areas with poor drainage can have up to 0.5 meters of organic deposits. These deposits commonly form in depressions in the bedrock topography but also form on slopes where compact silty till is impermeable to surficial drainage.

Anthropogenic

Anthropogenic deposits are not widespread and can be found only near past and present placer operations. Extensive workings can be found at the southern end of the study area and minor placer work is taking place in the vicinity of the Lottie showing.

Ice Flow Indicators (Plate 12)

The striation record in the region is generally poor due to lack of preserved outcrop exposure. Striations can be observed at locations where logging operations have exposed bedrock. The majority of striation measurements are bi-directional, that is, they contain no information regarding direction of ice that gouged the outcrops. Crosscutting relationships are rare, only a few sites with multiple ice directions were observed. Other directional indicators, such as rat-tails and large-scalê landforms were used to aid in ice flow reconstruction. The thick drift cover, bedrock structure and weathering nature of the bedrock all hamper the observation of striae.

Deglaciation was typically ice down wasted at the higher elevations and flowing locally in the valleys. Striae and ice flow indicators are poorly preserved due to the thick sediment pile in the valleys and the erosion of bedrock by glacial meltwaters.

Conclusions

At the eastern edge of the property and in the vicinity of the Bowron River Valley, large glacially streamlined landforms can be seen in air photos and clear cuts. These large-scale features indicate a north to north-northwest ice flow direction. However fabric pits at the Tow float area also indicate a regional northeasterly ice flow. Landforms east of the Bowron River show the strong north to north-northwest trend.

At the western edge of the property, large glacial landforms and striations indicate a strong regional northeasterly ice flow direction. These features occur at the highest elevations and possibly suggest ice flow to the northeast during the Fraser glacial maximum.

In the central area of the property, ice flow indicators can be found with a wide range of bi-directional striae and a few landforms. Fabric studies around several of the till anomalies

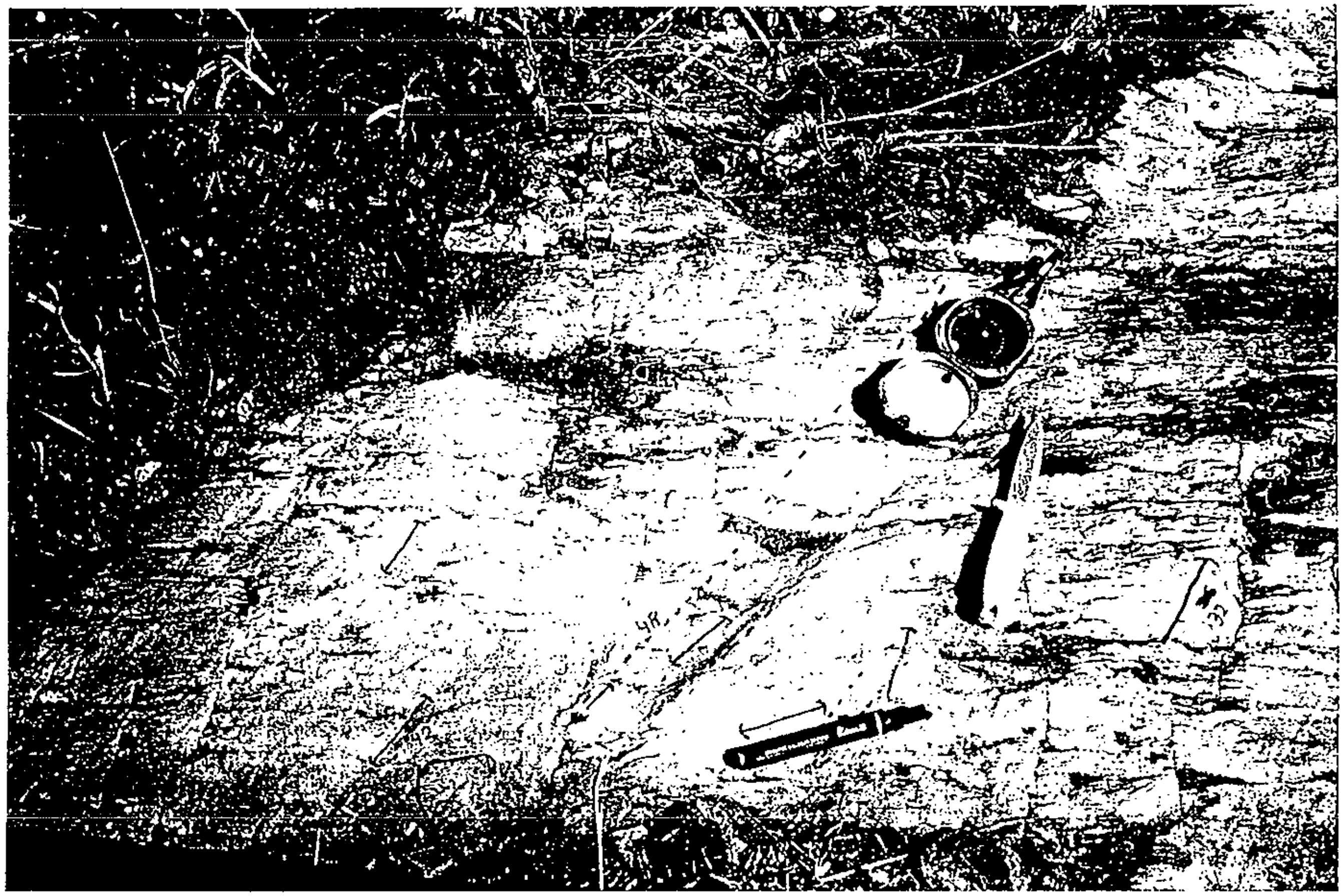


Plate 11. Sheared pebbly mudstone schist at the Khan anomaly with three sets of striae. Large grooves are gouged into the schist, with rat-tails formed around psammite clasts, from ice flowing towards the northeast (see compass above). Subsequent ice flowing to the north-northeast has lightly polished the outcrop and inside the older grooves (see knife) and the last ice flow event that affected the area left very light striae on the outcrop top, with no directional indicators (see marker).

generally show an early ice flow from east to west, originating in the Cariboo Mountains, followed by a stronger regional flow to the northeast which, presumably, was sourced in the Interior Plateau.

9.2 Fabric Studies (Plate 13)
Fabric work conducted in the Lottie area by Paulen for Eureka Resources in 1999 and for HBED in 2000 shows several factors at work. The Lottie is situated within a zone between ice accumulation in the Cariboo Mountains and regional ice flow from the Interior Plateau. Cirque glaciation on Two Sisters Mountain may have also obliterated or deflected a potential dispersal train as well. Detailed ice flow studies in several areas to the north and west provide evidence for the strong regional northeasterly ice flow direction. There is a possibility that there was an early westerly ice flow parallel to the Lottie Creek and Ketcham Creek valleys

Given the known striation observations, interpreted landforms and published regional glacial ice flow, a cautious interpretation of ice flow events that affected the property is given here. Cross cutting relationships indicate that the oldest ice flow in the region was topographically controlled and ice flowed from the Cariboo Mountains west and northwest to the Interior Plateau. During glacial maximum, ice flowed from the Interior Plateau, possibly behaving as an ice sheet with ice divides migrating from the thickest area of ice accumulation. Flow here was to the northeast and was deflected to the north and northwest in the vicinity of the Bowron River as the ice sheet converged with mountain glaciers flowing from the Cariboo Mountains. During late glacial times, the ice sheet in the interior would have gradually thinned and topographically controlled ice would again affect the property. Ice flow directions were highly variable and ranged from northward to southwesterly flowing ice, depending on topography and ice thickness. Cirque glaciation on Two Sisters Mountain extended into the Holocene as ice flowed from the mountain into the valleys below. The maximum extent of this mountain glacier likely only reached the bottom of Big Valley Creek.

10. GEOCHEMISTRY (S. Cook)

10.1 Till (Figures 9, a-h)

Field Methods
Collection of basal till samples offer several advantages over collection of 'traditional' B horizon soils, notably a greater physical consistency across a survey area, and a greater proportion of fine clay-sized mineral particles with which many trace metals are associated.

Survey Design
Regional survey design involved the initial collection of basal till samples at a density of approximately 1 site per 1 square kilometre, or approximately 250 tills. In the end, including duplicates (1 every 20 samples) and the fill-in, a total of 807 tills were collected, of which 582 were located on the claims.

Sampling (Appendix Ib)
Till samples were collected from road cuts, dug pits, stream cuts and tree blow-down sites, stream cuts and road cuts. A 3-5 kg oxidized basal till sample was collected at each site, typically at a depth of generally about 50-100 cm, below any near-surface A or B horizon soils present. Slightly larger samples were obtained from sandy tills, which have a relatively lower silt+clay content. Samples were collected in large plastic bags, secured with a zap strap to prevent any

Plate 12. Pebble fabric measurements in basal till. Aluminium knitting needles are placed in pebble casts parallel to the long axis and plunge of the pebbles.

potential contamination, and shipped directly to the preparation lab. One pair of field duplicate samples was collected in each batch of 20.

Sample Preparation (Appendix II)

Till samples were prepared at Acme Analytical Laboratories, Vancouver. Samples were air dried at a temperature less than 40°C. The samples were then split into two vertical halves, with one half used for analysis and the other half retained for archiving should additional work be required at a later date.

The entire sample was then sieved to completion, using stainless steel sieves, to –230 mesh (< 63 microns). This material represents the silt+clay-sized fraction, and excludes coarser mineral grains and lithic fragments. No ring milling was required prior to analysis of this material, eliminated a potential source of contamination. A 40-50 g split of the –230 mesh material was then transferred to a small envelope, and all samples randomized prior to subsequent analysis. Remaining –230 mesh pulp material was retained, together with oversize material from intermediate sieve fractions (e.g. –80 + 230 mesh).

Sample Analysis (Appendix IIIb)

Till samples were analyzed at Acme Analytical Laboratories, Vancouver, using the following analytical packages:

51-element aqua regia digestion/ICP-MS suite (30 g sample; Acme Group 1F).
Major element oxides by $LiBO_2$ fusion/ICP (Acme Group 4A).

Refer to Appendix II for further details on sample analytical procedures

Methods (Table 2)

Interpretation of element populations (N=767 samples) was based on examination of summary statistics, histograms, box plots and probability plots of, i) single element data, and ii) a variety of element sun ranking indicators characteristic of VMS deposits.

Subdivision of till geochemical data into their constituent populations for each element is the basis for the class interval bounds used in the accompanying geochemical plot maps. This method is preferable to the use of arbitrary class intervals or percentile values. Lower-concentration populations, which typically contain the bulk of the data for any element, are interpreted as representing the geochemical background population. Separate populations at the upper end of the concentration range are interpreted to represent anomalous populations, while those that fall between the two extremes are interpreted to represent potentially anomalous populations. The only exception to this concerned barium, where two background populations, a lesser one and greater one, appear to exist.

The method used for element sum ranking of the till data was as follows. Data for individual elements were summed using the following algorithms:

Cu-Co	*Cu + Co*
Ba-Mn	*Ba + Mn*
Cu-Zn-Ag	*Cu + Zn + Ag*
Cu-Zn-Pb-Ag	*Cu + Zn + (Pb*10) + Ag*
Cu-Zn-Pb-Ag-Co	*Cu + Zn + (Pb*10) + Ag + Co*
Cu-Zn-Pb-Ag-Co-Fe-As	*Cu + Zn + (Pb*10) + Ag + Co + (Fe*10) + (As*10)*

Table 2. Summary Statistics: Till Geochemical Results

Element		N of cases	Minimum	Maximum	Median	Mean	Std. Error	Standard Dev	Variance	C.V.	Skewness (G1)	SE Skewness	Kurtosis(G2)	SE Kurtosis
MO	ppm	767	0.09	78.31	0.43	0.617	0.102	2.831	8.012	4.585	27.071	0.088	743.822	0.176
CU	ppm	767	15.46	1470.59	56.82	66.805	2.248	62.264	3876.816	0.932	15.479	0.088	338.617	0.176
PB	ppm	767	1.04	106.81	6.16	8.242	0.275	7.621	58.085	0.925	6.452	0.088	67.634	0.176
ZN	ppm	767	20.6	293.1	61.6	66.954	0.937	25.945	673.169	0.388	2.697	0.088	14.059	0.176
AG	ppm	767	1	1664	42	67.712	3.922	108.627	11799.733	1.604	7.47	0.088	80.333	0.176
NI	ppm	767	11.2	562.5	51	58.516	1.349	37.358	1395.637	0.638	6.02	0.088	57.913	0.176
CO	ppm	767	5.5	74.7	21.2	23.237	0.353	9.772	95.494	0.421	1.874	0.088	5.026	0.176
MN	ppm	767	183	2551	759	816.051	11.293	312.763	97820.403	0.383	1.215	0.088	2.601	0.176
FE	ppm	767	1.62	12.44	3.64	3.758	0.033	0.923	0.852	0.246	1.829	0.088	10.9	0.176
AS	ppm	767	0.05	276	5.5	10.11	0.755	20.909	437.197	2.068	7.491	0.088	68.375	0.176
U	ppm	767	0.05	4.3	0.3	0.38	0.01	0.286	0.082	0.753	5.483	0.088	55.715	0.176
AU	ppm	767	0.1	135.6	3.4	5.608	0.303	8.378	70.197	1.494	7.393	0.088	86.989	0.176
TH	ppm	767	0.4	11.7	2.3	2.838	0.065	1.812	3.283	0.639	1.832	0.088	4.177	0.176
SR	ppm	767	1.1	192	19.1	22.501	0.605	16.756	280.773	0.745	5.404	0.088	41.03	0.176
CD	ppm	767	0.01	2.01	0.14	0.16	0.004	0.116	0.013	0.727	7.069	0.088	90.889	0.176
SB	ppm	767	0.02	5.4	0.45	0.572	0.017	0.475	0.225	0.83	4.71	0.088	33.382	0.176
BI	ppm	767	0.03	4.9	0.09	0.113	0.007	0.183	0.033	1.615	23.536	0.088	614.796	0.176
V	ppm	767	26	256	106	109.417	1.197	33.161	1099.672	0.303	0.612	0.088	1.268	0.176
CA	ppm	767	0.01	12.57	0.85	0.946	0.026	0.72	0.518	0.761	8.969	0.088	120.204	0.176
P	ppm	767	0.012	0.215	0.051	0.055	0.001	0.023	0.001	0.419	2.033	0.088	8.053	0.176
LA	ppm	767	2.7	60.7	9.4	11.268	0.243	6.732	45.315	0.597	2.512	0.088	9.726	0.176
CR	ppm	767	20.9	335.2	68	71.086	0.902	24.991	624.548	0.352	2.732	0.088	19.428	0.176
MG	ppm	767	0.02	4.74	1.07	1.187	0.018	0.508	0.258	0.428	2.31	0.088	9.237	0.176
BA	ppm	767	12.4	2378.3	215.4	277.815	8.438	233.684	54608.141	0.841	4.149	0.088	26.377	0.176
TI	ppm	767	0.015	0.724	0.261	0.265	0.004	0.097	0.009	0.367	0.413	0.088	1.287	0.176
B	ppm	767	0.5	12	2	1.952	0.041	1.14	1.3	0.584	1.769	0.088	9.382	0.176
AL	ppm	767	0.58	5.86	2.48	2.525	0.024	0.652	0.425	0.258	0.822	0.088	2.324	0.176
NA	ppm	767	0.001	0.05	0.013	0.015	0	0.008	0	0.553	1.269	0.088	1.716	0.176
K	ppm	767	0.01	0.28	0.04	0.053	0.001	0.039	0.001	0.726	2.498	0.088	8.274	0.176
W	ppm	767	0.1	1	0.1	0.112	0.002	0.062	0.004	0.554	8.822	0.088	99.846	0.176
TL	ppm	767	0.01	0.19	0.03	0.033	0.001	0.019	0	0.576	2.16	0.088	9.801	0.176
HG	ppm	767	7	489	41	50.864	1.487	41.186	1696.269	0.81	4.795	0.088	38.709	0.176
SE	ppm	767	0.05	9.4	0.4	0.396	0.014	0.394	0.155	0.996	15.921	0.088	357.174	0.176
TE	ppm	767	0.01	0.96	0.02	0.029	0.001	0.039	0.002	1.339	17.792	0.088	416.21	0.176
GA	ppm	767	1.7	16.1	7.1	7.238	0.068	1.886	3.555	0.261	0.874	0.088	2.116	0.176
CS	ppm	767	0.26	4.34	0.8	0.933	0.019	0.517	0.267	0.554	2.252	0.088	7.604	0.176
GE	ppm	767	0.05	0.3	0.1	0.079	0.001	0.035	0.001	0.436	1.626	0.088	4.675	0.176
HF	ppm	767	0.01	0.66	0.23	0.233	0.004	0.115	0.013	0.493	0.439	0.088	-0.022	0.176
NB	ppm	767	0.03	3.46	0.41	0.54	0.016	0.443	0.197	0.821	1.631	0.088	4.6	0.176
RB	ppm	767	0.7	14.2	3.6	3.891	0.069	1.911	3.653	0.491	1.456	0.088	3.619	0.176
SC	ppm	767	2.3	33	6.4	7.178	0.114	3.152	9.934	0.439	1.986	0.088	8.477	0.176
SN	ppm	767	0.2	16.6	0.6	0.638	0.022	0.617	0.381	0.967	22.783	0.088	586.442	0.176
S	ppm	767	0.005	0.07	0.01	0.013	0	0.012	0	0.862	1.991	0.088	4.655	0.176
TA	ppm	767	0.025	0.08	0.025	0.025	0	0.003	0	0.13	14.262	0.088	206.298	0.176
ZR	ppm	767	0.9	24	10	10.136	0.151	4.184	17.505	0.413	0.313	0.088	-0.054	0.176
YT	ppm	767	3.08	74.74	11.66	12.544	0.193	5.336	28.478	0.425	4.163	0.088	34.782	0.176
CE	ppm	767	9.2	108.4	21.7	25.11	0.44	12.187	148.531	0.485	2.252	0.088	7.275	0.176
IN	ppm	767	0.01	0.21	0.04	0.042	0.001	0.022	0	0.531	2.211	0.088	9.47	0.176
RE	ppm	767	0.5	5	0.5	0.793	0.024	0.662	0.439	0.835	2.835	0.088	9.188	0.176
BE	ppm	767	0.1	1.4	0.4	0.403	0.005	0.139	0.019	0.345	1.457	0.088	6.011	0.176
LI	ppm	767	3.9	67.9	16	17.368	0.222	6.161	37.962	0.355	1.977	0.088	8.802	0.176

Amce Group 1F Aqua regia digestion ICP-MS

Co/Ni	*Co/Ni*
Cd/Zn	*(Cd/Zn)* * *100*

Lead, Fe and As results were multiplied by a factor of 10 to bring all elements to equivalent orders of magnitude, as based on regional median concentrations. The distributions of the resulting multi-element scores were examined using histograms, box plots and probability plots, and discrete background, potentially anomalous and anomalous populations defined as with single-element data.

Summary Statistics
Group 1F (aqua regia digestion/ICP-MS) summary statistical results are given in Table 2. In general, tills here have a high Cu background (median: 56.8 ppm) and Co background (median: 21.2 ppm), and relatively low Zn content (median: 61.6 ppm). Median concentrations of other elements such as Pb (6.2 ppm), As (5.5 ppm), Sb (0.45 ppm) and Au (3.4 ppb) are undistinguished relatively to most Cordilleran tills.

Data Interpretation
The following is a brief interpretation of single and multi-element till geochemical results. Interpretation of single-element results for 767 till samples suggests that many elevated metal concentrations here are more indicative of high background concentration levels than of genuine anomalies that might be related to buried mineralization. In the case of Cu, for example, there are numerous sites with seemingly high Cu concentrations > 100 ppm. However, examination of histograms and probability plots suggest that Cu concentrations less than about 250 ppm constitute a single background population. Only 3 sites have till Cu concentrations > 250 ppm:

1) Lottie area	sample 18193	1470.6 ppm	*anomalous*
2) Sam area	sample 17834	348.5 ppm	*potentially anomalous*
3) Ketcham area	sample 18225	316.3 ppm	*potentially anomalous*

Similar interpretation of other elemental results suggest that background Co concentrations are similarly high, constituting all sites with about 42 ppm Co or less. Conversely, anomalous Co values are interpreted as being those with > 53.1 ppm Co. Other background element population levels have upper limits of about 110 ppm Zn, 31 ppm Pb, 450 ppb Ag, 0.45 ppm Cd, 7.5% Fe, 1400 ppm Mn, 60 ppm As, 1.20 ppm Se, 28 ppb Au and 150 ppb Hg.

Examination of histograms, box plots and probability plots of both single element data and VMS-related geochemical rankings point to two areas of interest in the southern part of the property:
The Two Sisters Mtn. Area, east and southeast of the Lottie prospect, and
The Holly/Khan area, northwest of the Lottie prospect.

Two other areas worthy of mention are the large number of Co-rich till sites in the Ketcham area, and the Au-Sb-As rich tills in the Tow area. Further comments will be confined, however, to the two multi-element VMS targets:

1) Two Sisters Mountain area
This relatively large area (5 km x 2 km) centered on Two Sisters Mountain includes till samples from the Lottie float prospect, which have highly elevated concentrations of Cu (1471 ppm), Co (75 ppm), As (144 ppm), Sb (5.1 ppm), Fe (12.4%), Se (9.4 ppm) and Mo (78 ppm). Conversely, there are relatively low concentrations of Zn (49 ppm) and Ag (202 ppb) here, a trend that parallels the regional distribution of these elements in till. Lead concentrations, although

seemingly high at up to 25 ppm, are in fact within the upper part of the 31 ppm Pb background of the area, as defined by analysis of histograms and probability plots.

A relatively small number of till sites were sampled in this area of steep terrain, where colluvial surficial deposits are more common. Widely spaced tills in the area have locally anomalous concentrations of Cu, Co, Fe, Se, Cu-Co and Co/Ni, as well as both anomalous and potentially anomalous concentrations of Cd, Zn and all derivations of the Cu-Zn-Pb-Ag-Co-Fe-As multi-element anomaly rankings. Some of these are in till of the Lottie prospect alone while others, including the highest Cd value in the property (2.01 ppm), are present among two sites (17859, 17948) in the extreme southeastern corner of the property. Potentially anomalous concentrations of Ag, As, Hg, and Mn are also present at these two sites. The area is notable for having several sites with both anomalous (3 sites) and potentially anomalous (3 sites) Cd/Zn rankings, and for the presence of elevated Se levels (up to 12 ppm) in moss mat samples from the south, east and in particular the north side of Two Sisters Mountain. These parallel, in part, the till geochemical signature of the Lottie site, where elevated Cd/Zn and Se levels are both present.

2) Holly/Khan Area

Till sites in this area have anomalous and potentially anomalous concentrations of Co, Zn and Ba, and potentially anomalous concentrations of Ag, Cd, Mn and Hg. Both anomalous and potentially anomalous Co/Ni concentrations are present, as is a single anomalous Ba-Mn site. This area also includes sites with potentially anomalous levels of combined Cu-Zn-Ag, Cu-Zn-Pb-Ag, Cu-Zn-Pb-Ag-Co, Cu-Zn-Pb-Ag-Co-Fe-As, and Cd/Zn.

Recommendations for Future Geochemical Work

A small program of additional geochemical work in the Two Sisters Mountain area is recommended for 2001, with the objective of vectoring toward any potential bedrock sources of the till geochemical anomalies. Geochemical exploration work here should include property-scale base of slope soil/colluvium/talus fines sampling to complement existing geochemical data for the few till sites obtained in 2000, and the sampling of any stream, lake and base of slope slough waters which drain this area.

10.2 Moss Mats (Figures 10, a-f)

Field Methods

Moss mats are typically present atop exposed boulders, outcrop and logs in the streambed. Collection of moss mat samples in stream drainages is often preferable to collection of traditional stream sediment samples because of the high proportion of fine-grained mineral particles, which are invariably present in moss mats.

Survey Design

Regional survey design involved collection of moss mat samples at a density of approximately 1 site per 1.7 square kilometres over the property. A total of 449 moss mat samples were obtained in the area, of which 158 were located on the claims.

Only first-order or second-order drainages stream drainages were generally sampled, in order to standardize collection methods and minimize potential downstream dilution of any sediment geochemical anomalies. Sizes of individual catchments basins were kept as uniform in area as possible. Samples were typically collected within 100-200 metres of a stream confluence, beyond any potential influence of overbank flood sediment from the adjacent stream.

Sampling (Appendix Ic)

Table 3. Summary Statistics: Moss Mat Geochemical Results

Element		N of cases	Minimum	Maximum	**Median**	Mean	Std. Deviation	Variance	C.V.
MO	*ppm*	425	0.16	5.79	**0.75**	0.879	0.523	0.273	0.595
CU	*ppm*	425	6.91	487.49	**44.17**	54.037	44.346	1966.585	0.821
PB	*ppm*	425	2.29	124.94	**7.88**	9.611	7.448	55.48	0.775
ZN	*ppm*	425	19.5	338.3	**76**	89.008	45.867	2103.799	0.515
AG	*ppb*	425	38	1560	**206**	262.073	217.18	47167.091	0.829
NI	*ppm*	425	4.8	260.6	**38.9**	45.105	26.746	715.332	0.593
CO	*ppm*	425	1.8	135	**17.9**	22.147	15.829	250.542	0.715
MN	*ppm*	425	265	52017	**1396**	3376.014	5529.6	30576500	1.638
FE	%	425	0.54	9.71	**2.77**	2.9	1.014	1.029	0.35
AS	*ppm*	425	0.8	86	**5.4**	7.88	9.298	86.445	1.18
U	*ppm*	425	0.1	10.8	**0.7**	1.035	1.087	1.182	1.05
AU	*ppb*	425	0.2	395.7	**3.3**	17.191	50.523	2552.53	2.939
TH	*ppm*	425	0.1	8.1	**0.9**	1.314	1.322	1.748	1.006
SR	*ppm*	425	7.8	124.9	**31**	35.164	17.839	318.247	0.507
CD	*ppm*	425	0.08	3.18	**0.36**	0.475	0.377	0.142	0.795
SB	*ppm*	425	0.05	9.17	**0.44**	0.585	0.725	0.526	1.239
BI	*ppm*	425	0.03	0.52	**0.1**	0.118	0.064	0.004	0.546
V	*ppm*	425	2	190	**71**	70.471	30.746	945.325	0.436
CA	%	425	0.1	3.51	**1.11**	1.145	0.535	0.286	0.467
P	%	425	0.029	0.218	**0.085**	0.092	0.033	0.001	0.362
LA	*ppm*	425	3	56.1	**12.2**	14.569	8.403	70.616	0.577
CR	*ppm*	425	4.5	120.8	**55.2**	53.743	21.25	451.576	0.395
MG	%	425	0.09	2.28	**0.66**	0.688	0.31	0.096	0.451
BA	*ppm*	425	32.3	2171.6	**258.6**	327.485	265.497	70488.73	0.811
TI	%	425	0.004	0.38	**0.106**	0.113	0.073	0.005	0.645
B	*ppm*	425	1	12	**2**	2.831	1.94	3.764	0.685
AL	%	425	0.34	3.26	**1.77**	1.767	0.546	0.298	0.309
NA	%	425	0.002	0.022	**0.008**	0.009	0.004	0	0.433
K	%	425	0.02	0.47	**0.09**	0.104	0.06	0.004	0.579
W	*ppm*	425	0.2	0.7	**0.2**	0.202	0.027	0.001	0.135
TL	*ppm*	425	0.02	0.28	**0.05**	0.054	0.031	0.001	0.566
HG	*ppb*	425	25	428	**126**	138.664	75.308	5671.309	0.543
SE	*ppm*	425	0.1	12.3	**0.8**	1.364	1.574	2.478	1.154
TE	*ppm*	425	0.02	0.14	**0.02**	0.026	0.013	0	0.508
GA	*ppm*	425	0.9	8.6	**4.4**	4.469	1.425	2.032	0.319
CS	*ppm*	425	0.21	3.71	**0.62**	0.723	0.409	0.167	0.565
GE	*ppm*	425	0.1	0.3	**0.1**	0.102	0.017	0	0.163
HF	*ppm*	425	0.02	0.32	**0.04**	0.06	0.05	0.002	0.831
NB	*ppm*	425	0.06	2.13	**0.6**	0.639	0.307	0.094	0.481
RB	*ppm*	425	1.6	10	**4.4**	4.586	1.536	2.36	0.335
SC	*ppm*	425	0.6	36.1	**5**	5.495	3.379	11.415	0.615
SN	*ppm*	425	0.1	1.1	**0.4**	0.38	0.149	0.022	0.392
S	%	425	0.01	0.28	**0.08**	0.092	0.055	0.003	0.605
TA	*ppm*	425	0.05	0.07	**0.05**	0.05	0.001	0	0.019
ZR	*ppm*	425	0.1	12.3	**2.3**	2.787	2.172	4.716	0.779
YT	*ppm*	425	1.28	98.58	**18.64**	20.775	12.612	159.066	0.607
CE	*ppm*	425	4.8	118.5	**20**	24.138	15.344	235.445	0.636
IN	*ppm*	425	0.02	0.14	**0.02**	0.028	0.013	0	0.456
RE	*ppb*	425	1	9	**1**	1.609	1.363	1.857	0.847
BE	*ppm*	425	0.1	1.3	**0.4**	0.389	0.174	0.03	0.448
LI	*ppm*	425	1.4	27.6	**12.2**	12.527	4.586	21.034	0.366
LOI	%	425	4.6	78.2	**27**	29.288	15.91	253.121	0.543

Acme Group 1F Aqua regia digestion ICP-MS

Unlike traditional stream sediments, moss mat samples are not easily field-sieved on site due to their relatively large proportion of fine-grained mineral particles. They are best sampled in whole to avoid any loss of fine sediment. At each site, approximately 3 kg of live moss mat material was obtained from atop rocks and boulders exposed in the active channel, completely filling a large fabric sample bag. Sampling was confined to the central parts of the stream bed, and only those moss mats occurring in a horizontal position were collected, where possible, in order to standardize sampling methods. Moss mats present on or near the stream banks were avoided in order to prevent the inadvertent collection of material derived from local bank slumping of adjacent soils. These materials are not representative of the composition of the drainage basin as a whole. Similarly, organic-rich materials were avoided, as the contained metal contents are not directly comparable with inorganic drainage sediments.

As with standard stream sediments, the moss mat sample was composited by collecting small amounts of material at numerous locations (at least 10-15 individual sites) along an up to 25 metre stretch of the stream bed. The entire moss mat was obtained, as the organic and mineral components are not readily separable in the field. The fabric bag was placed inside a plastic bag for the trip back to the field camp to prevent accidental sample cross-contamination. One pair of field duplicate samples was collected in each batch of 20.

Sample Preparation (Appendix II)
Moss mat samples were removed from their protective plastic outer bag at the field camp, allowed to air dry, and later shipped to Acme Analytical Laboratories, Vancouver, where samples were completely dried at less than 40°C. Mineral grains in the sample were then removed from the moss fronds by disaggregating the entire sample in a large bowl using a nylon or porcelain pestle. The sample was sieved in entirety to –140 mesh (<106 microns) using stainless steel sieves. The use of such finer size fractions is generally preferable to coarser size fractions (*e.g.* –80 mesh, or <180 micron) which have traditionally been used in many stream sediment geochemical surveys. Use of larger sieve size fractions typically include a large proportion of coarser-grained particles (lithic fragments, quartz, silicate grains) in the fine sand-size range, which serve to dilute any fine fraction-associated geochemical anomalies which may be present. An approximately 30 g split of the sieved material was taken, and all samples randomized prior to subsequent analysis.

Sample Analysis (Appendix IIIc)
Moss mat samples were analyzed at Acme Analytical Laboratories, Vancouver, using the following analytical packages:

51-element aqua regia digestion/ICP-MS suite (30 g sample; Acme Group 1F).
Loss on Ignition (LOI).

Refer to Appendix II for further details on sample analytical procedures

Methods and Summary Statistics (Table 3)
Moss mat geochemical data for the Eureka property and adjacent areas to the west (N=425 sites) were ranked with five intervals based on percentile levels (50th, 70th, 90th, 95th). Group 1F (aqua regia digestion/ICP-MS) summary statistical results are given in the accompanying Table 3. Moss mats here, like tills, have a slightly higher Cu background (median: 44.2 ppm) and Co background (median: 17.9 ppm). Maximum concentrations of Cu and Co in moss mats here are 487.5 ppm and 135 ppm, respectively. Median concentrations of Zn (76 ppm) and Ag (206 ppb) are undistinguished, but concentrations as high as 338.3 ppm Zn and 1560 ppb Ag are locally present. Loss on ignition (LOI) results are relatively high here (median: 27%) compared to most

Cordilleran moss mats; this might be related to the extensive logging activity that has taken place in the area.

Interpretive Comments
There are 32 moss mat sites with Cu concentrations > 100 ppm (95th percentile: 129.3 ppm). Similarly, there are 4 moss mat sites with Zn concentrations > 300 ppm, 37 sites with Co > 40 ppm, and 9 sites with Ag > 1000 ppb. The corresponding 95th percentile values for Zn, Co and Ag here are 165.3 ppm, 47.7 ppm and 641 ppb, as shown in the accompanying plot maps.

The following is a brief commentary of single-element geochemical results for Cu and Zn. In the case of Cu;

1) Five moss mat sites in the Ketcham area report 135-170 ppm Cu. Tills with high-background Cu concentrations are also present nearby. In addition, another moss mat site to the southwest returned 219 ppm Cu and 1449 ppb Ag, the highest moss mat Ag concentration within the property.

2) A single site, in the southern part of the property, in a stream draining Two Sisters Mountain returned just over 200 ppm Cu.

4) Three closely-spaced samples from the Boyce area report Cu concentrations of 142-174 ppm in moss mats. Several moss mat sites with elevated Pb concentrations, exceeding 26 ppm, in the upper ten percentiles of data are also found nearby in the extreme northwestern corner of the property.

There are fewer moss mat sites with elevated Zn concentrations > 95th percentile which are located within or immediately adjacent to the property. Noteworthy are the following:

1) A single site, near the Lottie prospect, with 338.3 ppm Zn in moss mats. A second site at the 95th percentile level (165.3 ppm) is also located nearby. Up to 30 ppm Pb was reported from a single moss mat site southwest of the Lottie, in the southwestern corner of the property.

2) Three sites at the Flip area, to the northwest of the Lottie prospect, contain 195-306 ppm Zn in moss mats. Elevated Ag levels up to 667 ppb also occur here.

In addition to the foregoing, there are several single moss mat sites with elevated Zn levels > 95th percentile which occur throughout the property. Also, there are three sites northwest of the Boyce area, in the northwest part of the property, which contain elevated Zn concentrations (148-165 ppm) that are within the 90-95th percentile of data.

10.3 Rocks (Figures 6, a-e)

Field Methods
Survey Design
Rock samples were collected for both assay as well as whole rock purposes. Because of the lack of bedrock sampling in many areas is quite sparse. A total of 254 samples were collected. of which 170 were located on the claims. This total does not include the 27 drill core samples.

Sampling (Appendix Ia)
Surface rock samples (float, outcrop, chip or channel samples, lithogeochemical samples, assay samples) are typically in the range 0.3 – 4 kg in size. One pair of field duplicate samples were

collected in each batch of 20. Samples were collected in large plastic bags, split at the source to provide a field reference sample, and then secured with a zap strap and shipped directly to the preparation lab.

Sample Preparation (Appendix II)
Rock samples were prepared at Acme Analytical Laboratories, Vancouver. Samples were briefly air-dried, if necessary, at less than 40°C, and then crushed in entirety to at least 75% -10 mesh (< 2 mm). The crushed –10 mesh material was riffle split to 250 grams, and this amount pulverized in a steel ring mill to at least 95% -150 mesh (~ < 100 microns). A sufficient split of the resulting powder was then taken for various analytical procedures, as required. Rock samples were not randomized prior to analysis. All –150 mesh pulp and –10 mesh coarse reject material was retained.

Preparation duplicates were prepared at the ring milling stage, at the rate of one in every block of 20 samples (5%), as a measure of sample preparation variation. An additional 250 gram sub sample was riffle split from the crushed –10 mesh material and ring milled as a separate sample. In all, five prep duplicate pairs were prepared and re-inserted in each 100-sample sequence. Prep duplicates were split, where possible, from the first sample of each field duplicate pair. In addition, a single check sample was similarly prepared at the ring-milling stage in each block of 20 samples (5%), and retained for submission to a second analytical laboratory.

Sample Analysis (Appendix IIIa)
Rock samples were analyzed at Acme Analytical Laboratories, Vancouver, using the following analytical packages:
51-element aqua regia digestion/ICP-MS suite (30 g sample; Acme Group 1F).

Samples for lithogeochemical analysis were analyzed, where required, for the following:
Major element oxides and whole rock trace elements by $LiBO_2$ fusion/ICP (Acme Group 4A + 4B).

Assay samples were analyzed, where required, for the following:
Precious metals and multi-element assays (Acme Groups 6 and 7).

Refer to Appendix II for further details on sample analytical procedures

11. GEOPHYSICS (M. Zang)

11.2 Ground Electromagnetics and Magnetics (Figures 12a-h)
Summary
From the period of September 26 through October 22, 2000 a program of four frequency (220, 880, 3520 and 7040 Hz) horizontal loop MAXMIN electromagnetic and Total Field Magnetics was carried out over eight gridded areas. A description of the ground geophysical survey instruments can be found below.

The geophysical maps included with this report outline the coil separations used and the results for each survey area and method.

The only significant target derived from the ground geophysics was found on the Lottie Grid. This conductor was drill tested and found to be due to conductive graphitic sediments.

11.3 Method & Interpretation of Results

Max-Min I --EM Survey

A grid system was established as shown on the plan, with base lines parallel to the local geological strikes and section lines were run perpendicular to the base lines. Observations were recorded at 25 metre intervals along the section lines.

The survey was carried out with the Max Min I portable horizontal loop Slingram EM system, designed to measure the vertical in-phase and out-of-phase components of the anomalous field from electrically conductive zones.

The system has eight operating frequencies, 110 Hz, 220 Hz, 440 Hz, 880 Hz, 1760 Hz, 3520 Hz, 7040 Hz, 14080 Hz, and eleven coil separations: 12.5, 25, 50, 75, 100, 125, 150, 200, 250, 300, and 400 metres. This gives the system the capability of dealing with a wide range of overburden and bedrock conditions and to search for large deep conductive zones, or resolve shallow, parallel conductive zones. The frequency, coil spacing and configuration used are indicated on the attached plans.

The readings plotted on the map are the in-phase and out-of-phase components of the resultant field as detected at the receiving coil, and are expressed in percentage changes with reference to the primary field from the transmitting coil. The in-phase readings are plotted left of the line and the out-of-phase readings, right of the line.

The typical anomalous result for relatively thin, dike like conductors is as follows: Positive readings when approaching a conductor, followed by negative readings when the conductor lies between the coils, and a second positive section when both coils have traversed beyond the conductor. Both in-phase and out-of phase components show the same general response, however, the ratio of these two readings gives an indication of the conductivity of the zone.

A ratio of in-phase/out-of-phase greater than 3 would indicate high conductivity. Ratios of 1 up to 3 would indicate medium conductivity, while a ratio of less than 1 would indicate poor conductivity. The dip of the conductor may be indicated by a higher positive shoulder on the down dip side.

Anomalous responses from conductive lake bottom, clay beds, etc., appear as areas of positive in phase with an irregular pattern of negative responses on both in and out of phase showing poor conductivity with in-phase/out-of-phase ratios ranging from 1 to 0.2.

Vertical conductors situated beneath horizontal conductive beds are often indicated by a negative deflection of the in-phase components, sometimes but not necessarily strong enough to appear as negative responses. Such anomalies should only be considered important if they have a relatively small negative out-of-phase response, and can often be more clearly distinguished by profiling the readings.

EDA Magnetometer

This instrument is known as a Proton Precession magnetometer and is so named because it utilises the precession of spinning protons or nuclei of the hydrogen atom in a sample of hydrocarbon fluid to measure the total magnetic intensity. The spinning protons in a sample of water, kerosene, alcohol, etc. behave as small, spinning magnetic dipoles. These magnets are temporarily aligned or polarised by the application of a uniform magnetic field generated by a current in a coil of wire. When the current is removed, the spin of the protons causes them to process about the direction of the ambient magnetic field. This precession generates a small signal in the same coil used to polarise them, the frequency of which is precisely proportional to the total magnetic field intensity and independent of the orientation of the coil i.e. sensor head. The constant which relates frequency to field intensity is the gyromagnetic ratio of the proton. A digital counter measures the precession frequency as the absolute value of the total magnetic field intensity to an accuracy of one gamma.

A base station Magnetometer was established to correct for diurnal variation. Readings were taken at 25 metre intervals along the section lines. The readings were plotted on a map scale of 400' to 1 inch for imperial grids and 1:5000 for metric grids, and contoured at an interval suitable to the local magnetic relief. The EDA Magnetometer has a built-in computer that automatically registers the observed readings as the survey progresses. The internal computer then compensates for diurnal variations.

12. TRENCHING (after R. Paulen) (Appendix VI)

12.1 General
Wright Contracting of Barkerville, B.C. was contracted to carry out a small trenching program on the Lottie grid and at a site within the Ketcham anomaly. A Hitachi EX200LC excavator was used to carry out the work. The primary purpose of the program was to trace the mineralized float at these locations back to a bedrock source. However, our work permit did not allow us to leave the immediate area of the road, i.e. we were confined to working in ditches of the existing roads. A total of nine trenches were excavated over three days. Detailed mapping and geochemical profile sampling were conducted, on both surficial and bedrock material, to gain insight of the geological environment and the distribution of base metals and pathfinder elements proximal to an unknown mineralized source.

12.2 Lottie Area (Plates 2, 13-17)
A total of eight trenches were excavated in the general Lottie area, and numbered TR-1 to 8 (Figures 6a & Tables 4,5). The first work was carried out at the site of the discovery float south of Lottie Creek, previously designated M-7 by Eureka Resources. The purpose was to search for additional massive sulphide boulders and describe their density within the overburden, their shape and their stratigraphic and sedimentologic setting. The remaining trenches were located upslope to the south along the road in the direction where interpretation suggested the most likely source was located.

The following discussion is a summary of the trenching program and its main conclusions. For details of the individual trenches, profiles and sample locations the reader is referred to Appendix VI.

Previous observations had noted that the Lottie float was situated in basal till, so the discovery site was excavated to confirm this and to take ice-flow observations. A large trench was dug along the ditch (ENE-WSW) to bedrock, which was located at 3.0 metres depth at the west end and 5.2 metres deep at the east end (Plates 16-18). Massive sulphide cobbles and boulders were encountered intermittently in a partially cemented ferricrete zone, but mainly concentrated in the central portion of the trench and at or near the bedrock surface. The large section of surficial material exposed was characterized by poorly sorted beds of colluvium and colluviated till dipping towards Lottie Creek, sub parallel to the slope. The bedding and stratigraphy is quite subtle, due to the poorly sorted nature of the colluvium. This hosting sediment changes the perspective of potential source directions, as an obvious down slope vector compounds the direction to a bedrock source.

Table 4. Trench Data

	Location (UTM)		Length	Width	Depth	Volume	Bedrock	Rock Type	Surficial	Sample Numbers		Sulphides
	easting	northing	(metres)	(metres)	(metres)	(m3)			Material	Tills	Rocks*	in float
Lottie (T-1)	592984	5898977	44.0	max 10.0	5.50	275	yes	int-mafic volc.	colluvium	18191 - 18196	14146-47,14149,14152	yes
Lottie (T-2)	593314	5898756	9.0	4.0	3.40	45	yes	argillite	till	18198, 18199	14154, 14155	no
Lottie (T-3)	593117	5898776	4.0	4.0	10.70	80	yes?	tuff ?	colluvium/till	18204 - 18206	14156	no
Lottie (T-4)	593024	5898794	3.0	3.0	4.60	27	no	n/a	colluvium/till	18211, 18207	n/a	no
Lottie (T-5)	592980	5898815	3.0	3.0	4.25	27	no	n/a	colluvium/till	18208, 18209	n/a	no
Lottie (T-6)	592951	5898831	3.0	3.0	3.95	27	no	n/a	colluvium/till	18210, 18212, 18213	n/a	no
Lottie (T-7)	592927	5898885	6.0	4.0	3.50	60	no	n/a	colluvium/till	18214- 18216	n/a	no
Lottie (T-8)	592937	5898921	4.0	3.0	5.72	27	no	n/a	colluvium/till	18217 - 18220	n/a	no
Ketcham	590904	5902514	76.0	4.0	3.00	228	yes	mafic volc.	colluvium	14221-25,14163-67,18106-08,14103	14164, 14167	yes

796

* bedrock samples only (for mineralzed float see Table 5)

Table 5. LOTTIE TRENCH MINERALIZED SAMPLES

Sample Number	type	Copper (%)	Lead (ppm)	Zinc (ppm)	Silver (ppb)	Gold (ppb)	Cobalt (ppm)	Barium (ppm)	Moly (ppm)	Mercury (ppm)	Bismuth (ppm)	Tungsten (ppm)	Selenium (ppm)	Thallium (ppm)	Tellurium (ppm)	Manganese (ppm)	Tin (ppm)
14130	chalco-rich MS	9.25	119	80	8960	173	203	118	304	251	16	1.4	33	1.94	1.18	67	108
14131	chalco-rich MS	8.34	143	54	9112	154	197	84	385	250	23	4.2	28	1.59	0.95	77	123
14132	chalco-rich MS	10.35	151	92	11839	172	185	145	381	318	24	4.3	26	2.58	0.68	81	134
14148	chalco-rich MS	7.03	166	120	8442	80	86	406	720	184	25	3.9	24	0.69	1.63	107	104
BCGSB	chalco-rich MS	4.59			6000	115	98		120	<1							
10083	pyrite-rich MS	0.53	35	83	688	15	265	545	137	174	11	4.1	85	0.44	5.03	98	20
14134	pyrite-rich MS	0.10	13	9	525	8	1345	348	100	312	12	0.9	204	0.19	9.11	1	5
14135	altered chert	0.02	6	4	47	2	35	1068	8	11	0.7	0.6	5	0.05	0.30	24	4
10084	altered chert	0.22	6	10	177	2	39	761	8	5	1.0	3.8	6	0.04	0.47	228	8
10085	altered chert	0.03	6	28	100	3	29	712	4	18	0.5	2.8	6	0.05	0.19	380	8
ave.	chalco-rich MS	7.91	145	87	8871	139	154	188	382	251	22	3.5	28	1.70	1.11	83	117
ave.	pyrite-rich MS	0.32	24	46	607	12	805	447	119	243	12	2.5	145	0.32	7.07	50	13
ave.	altered chert	0.09	6	14	108	2	34	847	7	11	1	2.4	6	0.05	0.32	211	7

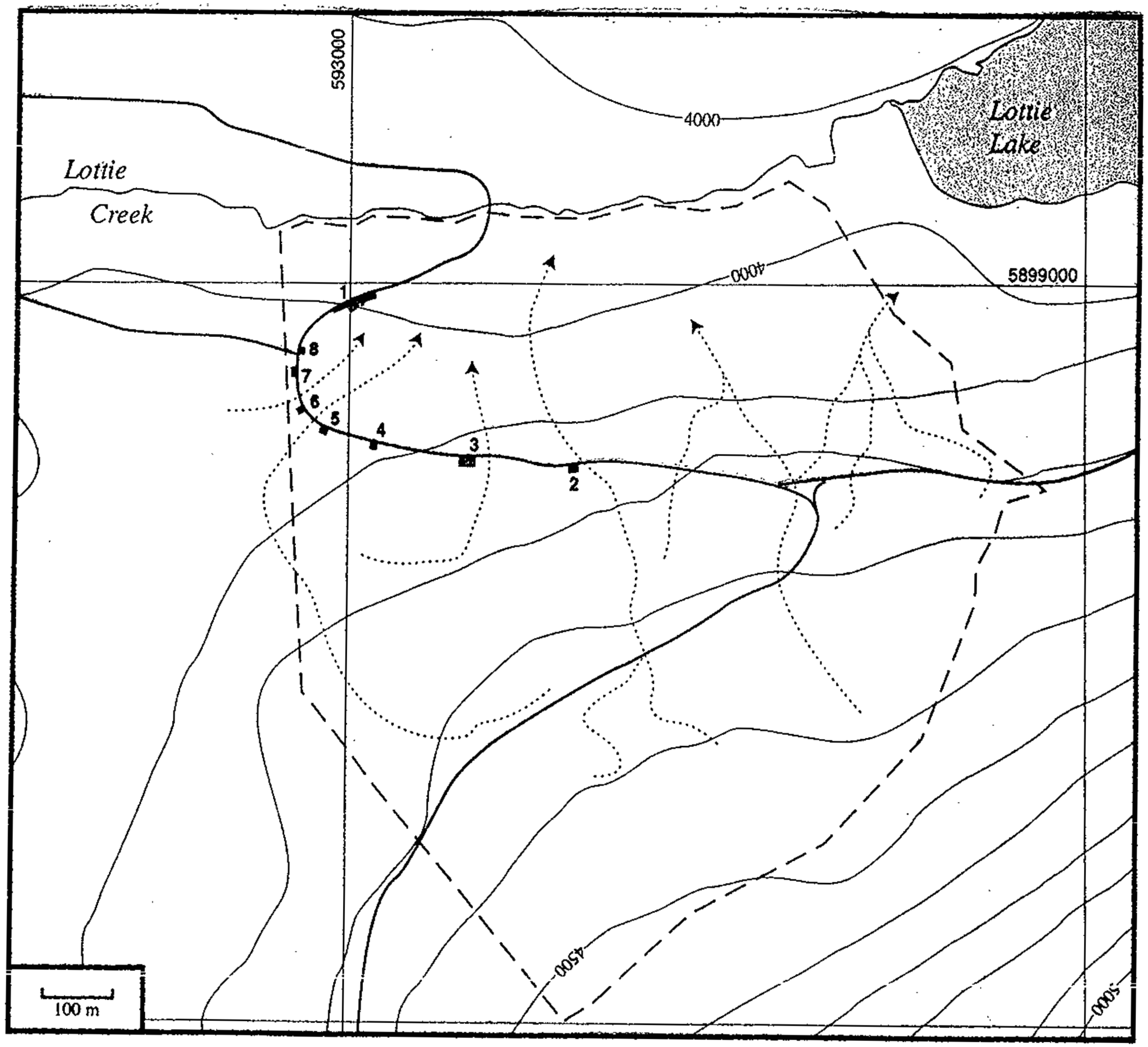


Plate 14. Trenching sites

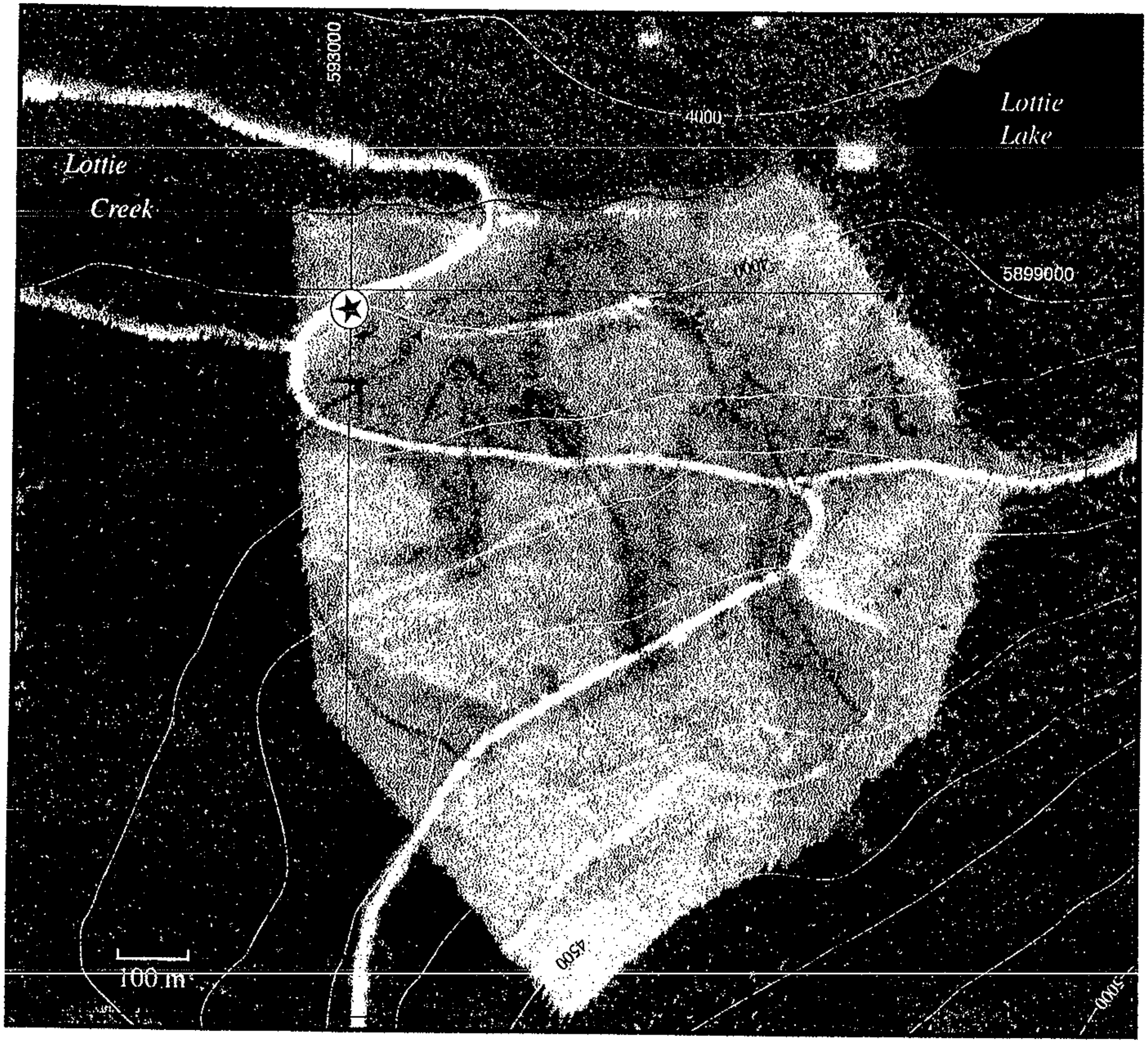


Plate 13. An airphoto of the Lottie site showing modern drainage patterns. The star marks the site of the Lottie float which occurs within deposits of colluvium (consisting of moderate to poorly sorted colluviated till).

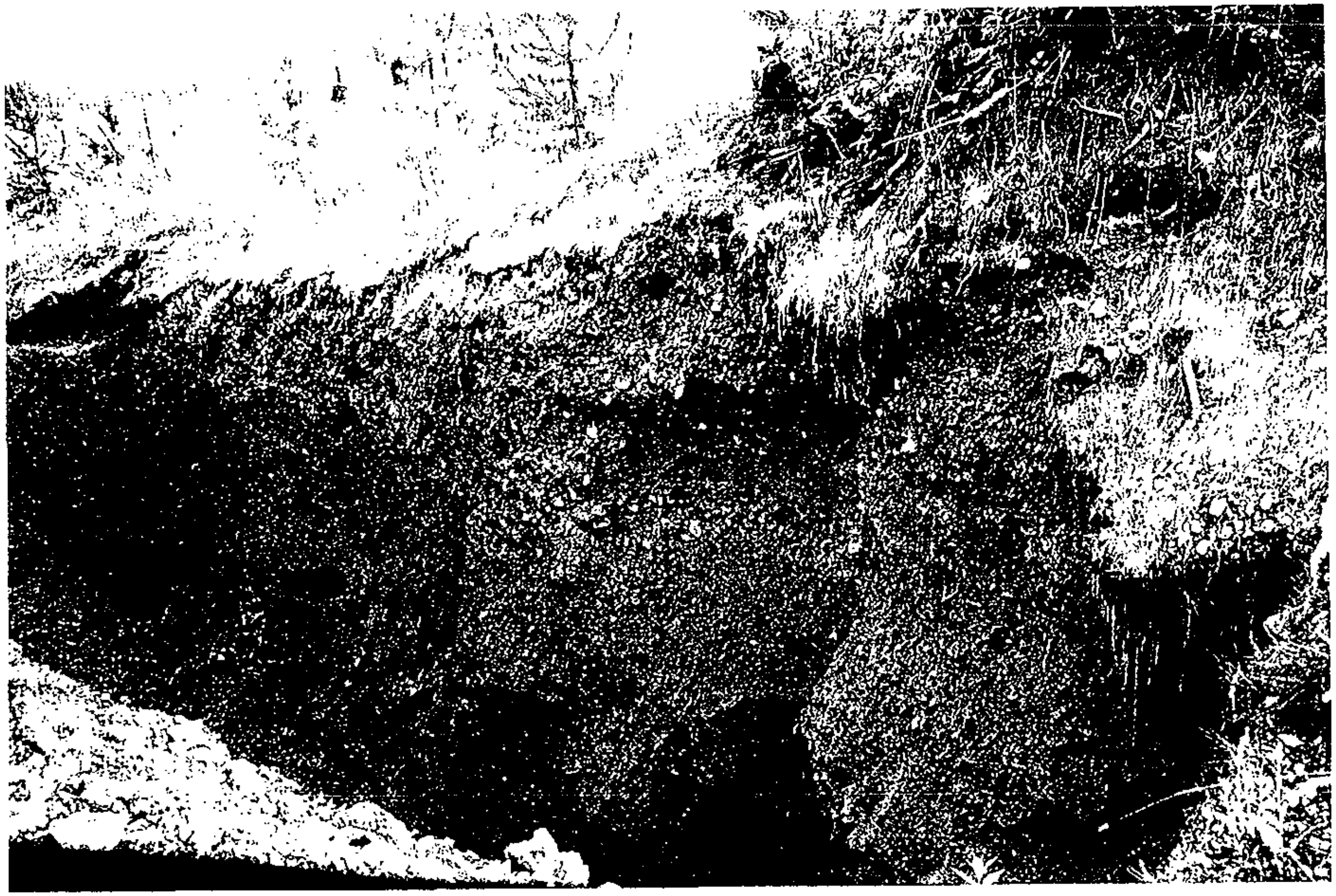


Plate 15. View of Trench 1 at the Lottie site, looking towards the southeast. Note the poor sorting and the crude bedding of the colluvium, which comprises both shattered rock and colluviated basal till. The beds dip downslope towards Lottie Creek to the north, subparallel to slope topography.

The trench was extended to 43.4 metres in length and up to 10 metres wide at one point in order to document the distribution of massive sulphide cobbles and pebbles within the colluvium. Several profiles were described and sampled to give a geochemical perspective on the colluviated material. At profile D, the overburden was the thinnest and the gossanous layers were concentrated in a 25 cm thick veneer directly overlying bedrock. The sulphide cobbles in the gossanous layer were generally subangular in form, with a crust of iron-cemented colluvium around them.

This led to two possible scenarios for potential sources: 1) the gossanous material directly overlying bedrock in trench 1 may have a proximal mineralized bedrock source directly upslope of the underlying topography; or 2) the sulphide cobbles were initially part of a dispersal train, and subsequently carried down slope following post-glacial erosion. Follow-up trenching (TR-2 to 8) was established based upon current drainage patterns, to see if sulphide-bearing clasts had derived from a bedrock source up-slope. Several drainage patterns were noted from air photo analysis, as shown on Plate 14, and were used to determine the locations of the trenches. The trenches were described in detail and several samples were taken from each trench to provide a vertical distribution profile of the geochemistry of the overburden. Trench descriptions and sample sites are shown in Appendix VI. No massive sulphide pebbles were found in any of the other trenches and only the most easterly trench had confirmed bedrock.

This still led to two possible answers for the Lottie float. The first possibility is that the massive sulphide source is very proximal to the initial discovery site, and the other trenches were upslope of the bedrock source, ie. the source is between the discovery site and the upper road. Drilling was subsequently undertaken to verify if this was the case. The second possibility is that the mineralized source is several hundred metres, or more, to the southwest. The regional ice flow dispersed the sulphide-bearing rocks down-ice, placing them at surface some distance down-ice from the original source. Stagnant ice sitting in Lottie Creek would have melted during the latter stages of deglaciation, possibly during or after the glacial lake that occupied Big Valley Creek had drained. This would have caused over steepening of the lower slopes of Lottie Creek valley and intense early Holocene erosion likely occurred depositing colluvial fans until vegetation was established in the region. This colluvial deposition would have washed the upper layer of the dispersal train first, carrying it down slope and depositing the sulphide-rich debris directly over bedrock in the bottom of Lottie creek valley. Further erosion upslope continued to produce debris flows that were deposited in the lower valley. Subsequent down cutting of the colluvial fan by Lottie Creek and its tributaries occurred and is still occurring today.

Bedrock in the main Lottie trench (Tr-1) is a package of intermediate to mafic volcanic rocks. The west end of the trench is a massive, dark green typical mafic volcanic (samples GEBR14146, 52). The unit does not contain sulphides. At the east end of the trench is a light grey-green intermediate volcanic (samples GEBR14147, 49). A faint foliation within the unit can be seen in places with the usual E-W trend and northerly dip that is prevalent in the area. Like the mafic rocks, this unit is also not mineralized and there is no indication the sulphide float is sourced in the immediate area.

The sulphide-rich float from the Lottie trench is composed of three types, 1) fine grained chalcopyrite-rich massive sulphide, 2) fine grained pyrite-rich massive sulphide, and 3) hydrothermally altered chert (?) with a mottled dark alteration. The chalcopyrite-rich massive sulphide is fine-grained and generally massive but sometimes faintly foliated on the basis of grain size. The accompanying Table 5 gives assay values for five composite grab samples of the copper-rich sulphide collected during the 2000 season. As can be seen the material normally ranges between 7-10% Cu with 8-12gpt silver and trace gold, lead, zinc. Only a few pieces of

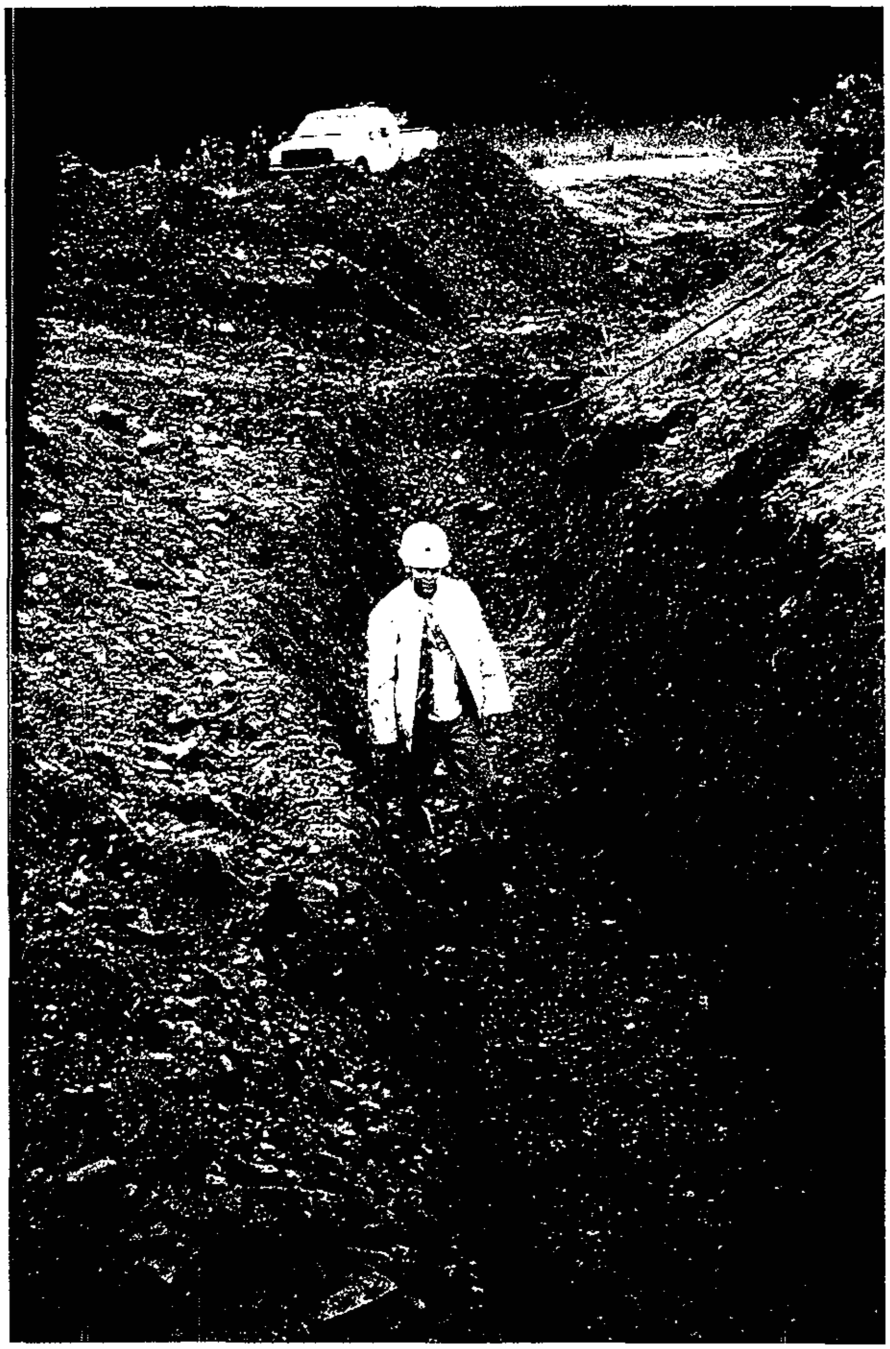
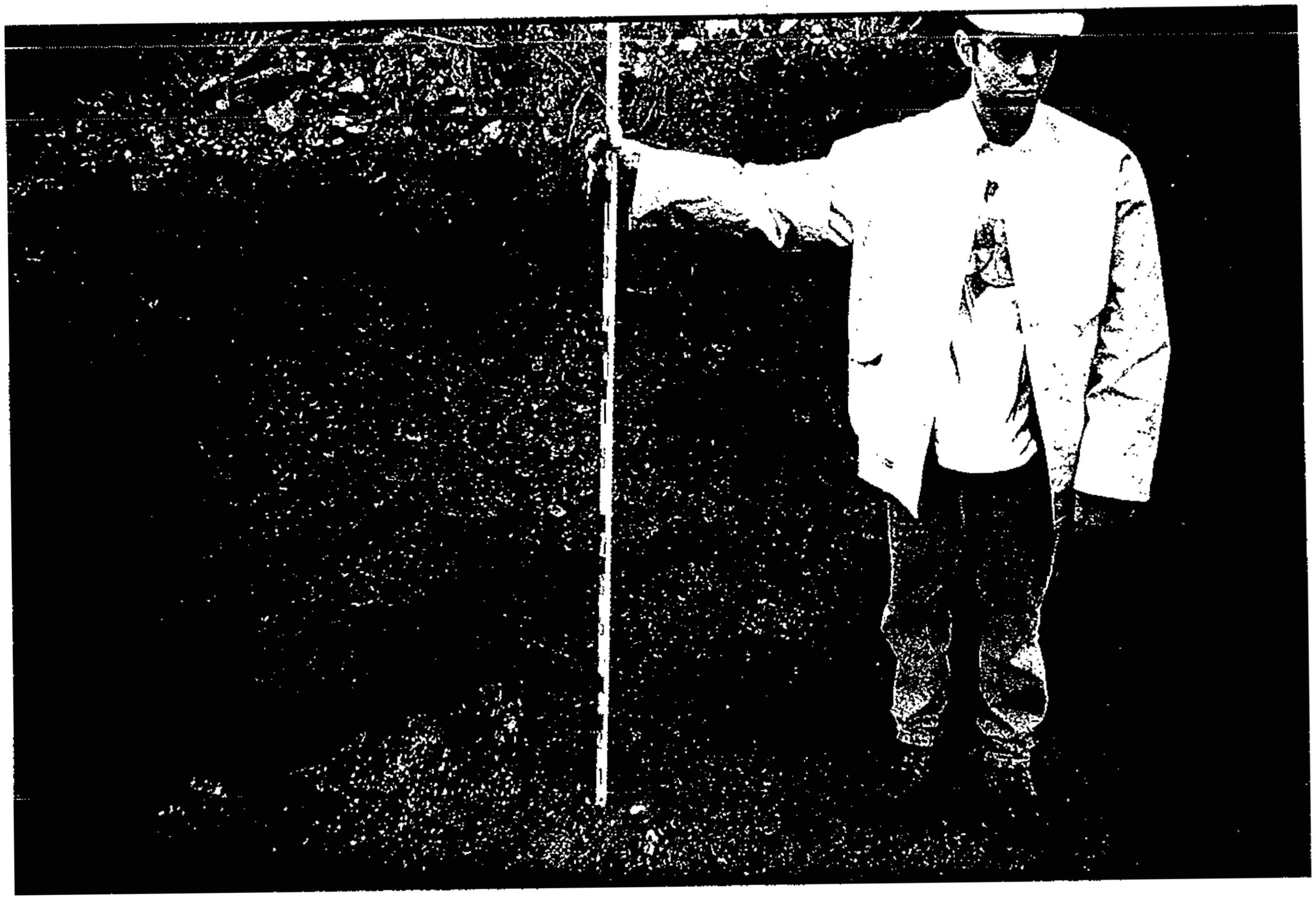


Plate 16. View of Trench 1 from the west end, looking towards the east. Bedrock lies at the base of the trench with orange gossanous colluvium cemented to bedrock behind Geoff Mulligan.



36b

Plate 17. Profile D, Trench 1 at the Lottie site. Note the orange gossanous veneer overlying bedrock in the base of the trench.

fine-grained pyrite-rich sulphide were present in the trench. The chalcopyrite-rich material out numbers the pyrite-rich sulphide 10 to 1. The pyrite-rich samples have a very fresh light bronze appearance and are not tarnished. Assay values are elevated in copper but low in the other base metals; cobalt, selenium and tellurium may be slightly enriched over the chalcopyrite-rich material. The chert comes in large blocks (up to 0.5 metres in dia.). This rock may also be a silicified volcanic. Its geochemistry should be reviewed to determine its protolith. In some specimens the chert has a dark grey to black mottled appearance, thought to have been manganese, but geochemistry does not support the suggestion.

Most of the sulphide–rich material recovered from the trench was concentrated in its middle portion. Looking at the relative positions of the 1999 and the 2000 trenches it seems most likely that the bulk of the massive sulphide as well as the pyritic siliceous rock accompanying it came from a 3-metre section within the trench. The sulphide float being dominantly confined to a small area would support the idea that it was brought in as a large ice-rafted boulder, or that it may have a small local source.

As the additional trenches (T-2 to 8) above T-1 did not encounter sulphide float and only one instance of bedrock (argillite in T-2) drilling of the EM conductors was the next logical step.

12.3 Ketcham Area (Plates 3, 18)

An exposure of iron-cemented glacial sediments with minor chalcopyrite and a copper value of 164 ppm provided the impetus for trenching within the Ketcham Creek area. The exposed section is about 40 metres in length, with gossanous material confined along a zone about I metre thick at various depths for about 30 metres in length. The strongest iron-cementation occurs near the base of the section, and was the site of samples #17865 and 17867. The section was scraped clean by backhoe to determine the nature of sulphide distribution in the overburden.

Initial mapping and sampling of the section indicated that the gossan was contained within a thick sequence of basal lodgement till. Excavation of the section shows otherwise. Although up to 8 metres of overburden is exposed along the section face, vertical overburden thickness does not exceed 3 metres. The surficial material is colluvium, comprised of colluviated till and some sand layers. The iron-cemented gossan zone is, in fact, a wedge-shaped body that occurs within the colluvial stratigraphy, approximately 30 cm thick upslope and almost 45 cm thick near the base. The sulphide-bearing pebbles are contained only within a single colluvium bed. Bedrock occurs at the base of the section and the colluvium blankets the bedrock, with bedding sub parallel to slope.

Vertical sampling profiles were taken along the section face and are summarized in Table 2 of Appendix VI. This detailed sampling is redundant for finding this specific source, but for defining a buried dispersal train in horizontal and vertical profiles it is invaluable for tracking down other anomalies in areas with considerably less access to the surface materials. A vertical profile will help establish the rate of diffusion from the mineralized subcrop to the section. A horizontal profile can be used to calculate diffusion rates and how they vary in cross section. Again, this information can be applied to perplexing surface anomalies in order to aid in estimation of local two-vector transport elsewhere in the Slide Mountain Terrane.

As the surficial material in the Ketcham trench was colluviated till the source for the mineralized float has the same two scenarios as at Lottie, either directly upslope, or else a more distal source with a glacial dispersal component. Subsequent to the trenching ground EM and magnetic surveys were carried out on the Ketcham till target.

Plate 18. Gossanous bed exposed in a section south of Ketcham Creek valley and site of the Ketcham anomaly trenching.

13. DRILLING (G. Mulligan) (Figures 13a-d)

Diamond drilling was undertaken in the period October 1 to 21. Six holes (including 6 and 6A) totaled 709.4 metres. Britton Brothers Diamond Drilling of Smithers, B.C. was contracted to perform the work. Four holes were drilled in the Lottie area and two holes in the northeastern portion of the property. All holes but one were targeted on EM conductors. The exception was a "geology" hole in the vicinity of the Lottie mineralized float. The drill core (NQ) has been left on the property. It is located 1.5 km west of Lottie Lake on the road to the placer operation. It is cross-piled and stacked on the north side of the road. Following is a brief summary of each drill hole. Detailed drill logs are included in Appendix IX.

LOT-1 (Lottie area):
This hole was drilled to test an HLEM conductor identified by Eureka Resources in 1999 and confirmed in 2000. The hole is located on L1+00E at 1+39S on the Lottie grid, approximately 150 metres south of the main Lottie trench, and was the most obvious source of the copper-rich float. The hole reached a depth of 134.3 meters and did not encounter significant mineralization, however a 4cm chert clast in a siltstone breccia contained disseminated and veinlet pyrite and chalcopyrite, assaying 2250ppm Cu (0.23%) over a 0.15m interval (50.98-51.13). The geophysical conductor was explained by graphitic argillite from 20.5 – 37.5 meters. Lithologies include minor hydrothermally sericite-altered basalts overlying a thick sedimentary package of dominantly siltstone and argillite. A large gabbro intrusion occurs from 65.9 to 99.5 meters and might dyke out a second geophysical HLEM conductor picked out by the 50 meter cable.

LOT-2 (Lottie area):
This hole basically drilled tested the same conductive trend as hole LOT-1 a further 200 metres westerly along strike. This hole reached a depth of 109.7 meters and did not encounter significant sulphide mineralization. The geophysical conductor was explained by strongly sheared graphitic argillites from 69.65 – 80.30 meters. Hydrothermally altered basalts with alteration assemblages of sericite (40.6 – 49.4 meters), and chlorite-sericite (55.8 – 64.1 meters) were found intercalated with sedimentary packages of chert, cherty siltstone, argillite, wacke, and minor volcanic tuff-lapilli tuff. A massive pyritic chert(?) at the top of the hole (12.2 – 18.3 meters) might in fact be a rhyolite. A single sample from a tuffaceous horizon (@18.6m) did assay 13,200ppm Mn, an order of magnitude above background. The only other sample from the area with anomalous manganese is 11,800ppm from a banded chert near the placer operation, 900 metres west of the drill hole (sample NWRR10118, see Plate 20). These two samples may in fact be on the same horizon. Manganese is often found in anomalous amounts distal to VMS systems. Further sampling of surface bedrock and drill core (LOT-1 to 3) should be undertaken to confirm this manganese anomaly.

LOT-3 (Lottie area):
This hole tested a further westerly extension on the main E-W conductive trend. The hole was spotted on Line 5+00W, 400 metres from LOT-2. This hole reached a depth of 134.1 meters and did not encounter significant mineralization. The geophysical conductor was explained by sheared graphitic argillites, with wackes and altered basalts (50.3 – 81.3 meters). Lithologies include cherts, altered basalts, sheared argillites and wackes, and cherty siltstones intruded by gabbro from 81.3 – 94.9 meters. The stratigraphy in LOT-3 can be roughly correlated with that of LOT-2. This hole should be re-examined for the same manganese-rich horizon found in LOT-2 and on the placer road.

LOT-4 (Lottie area)

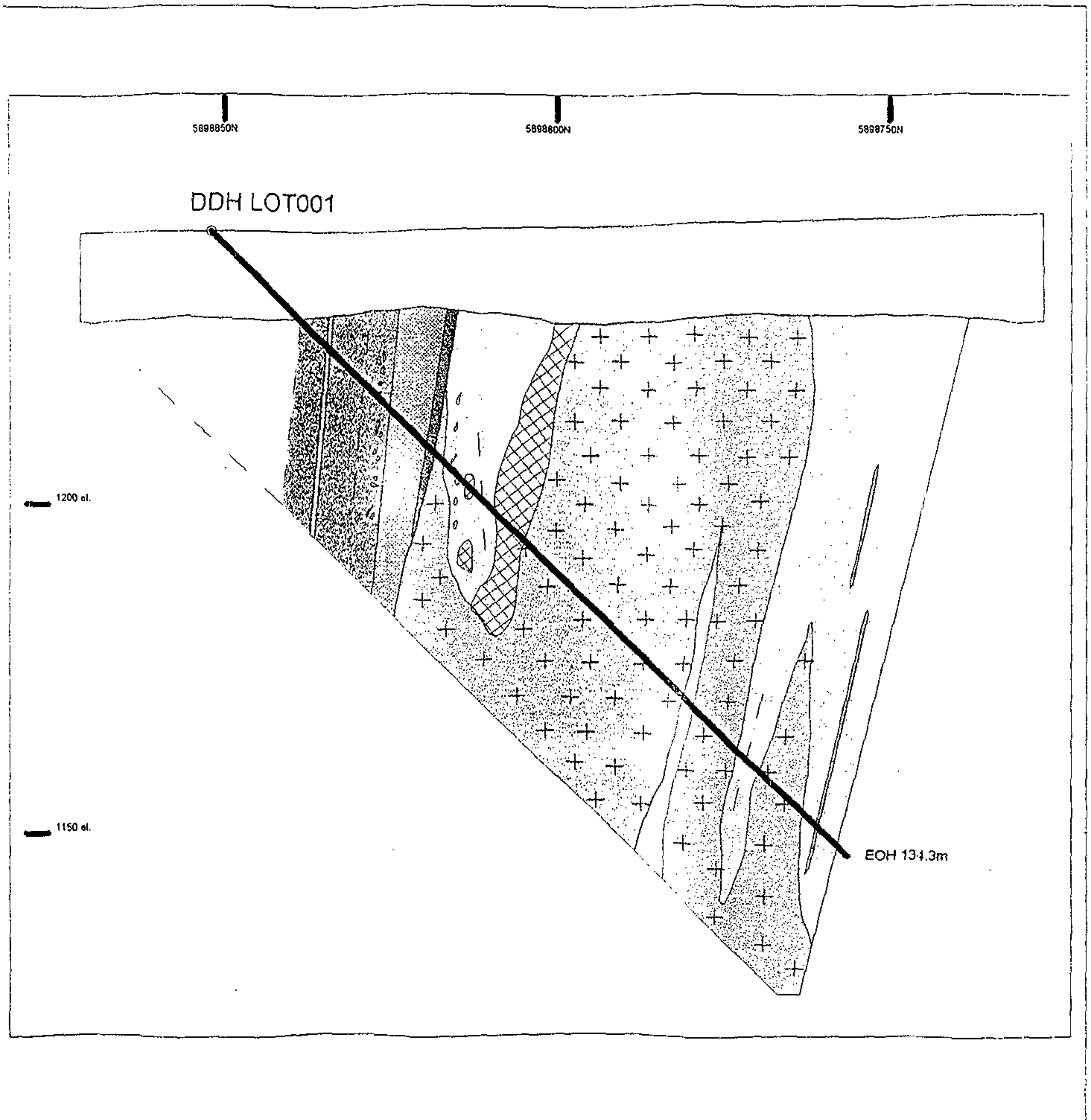
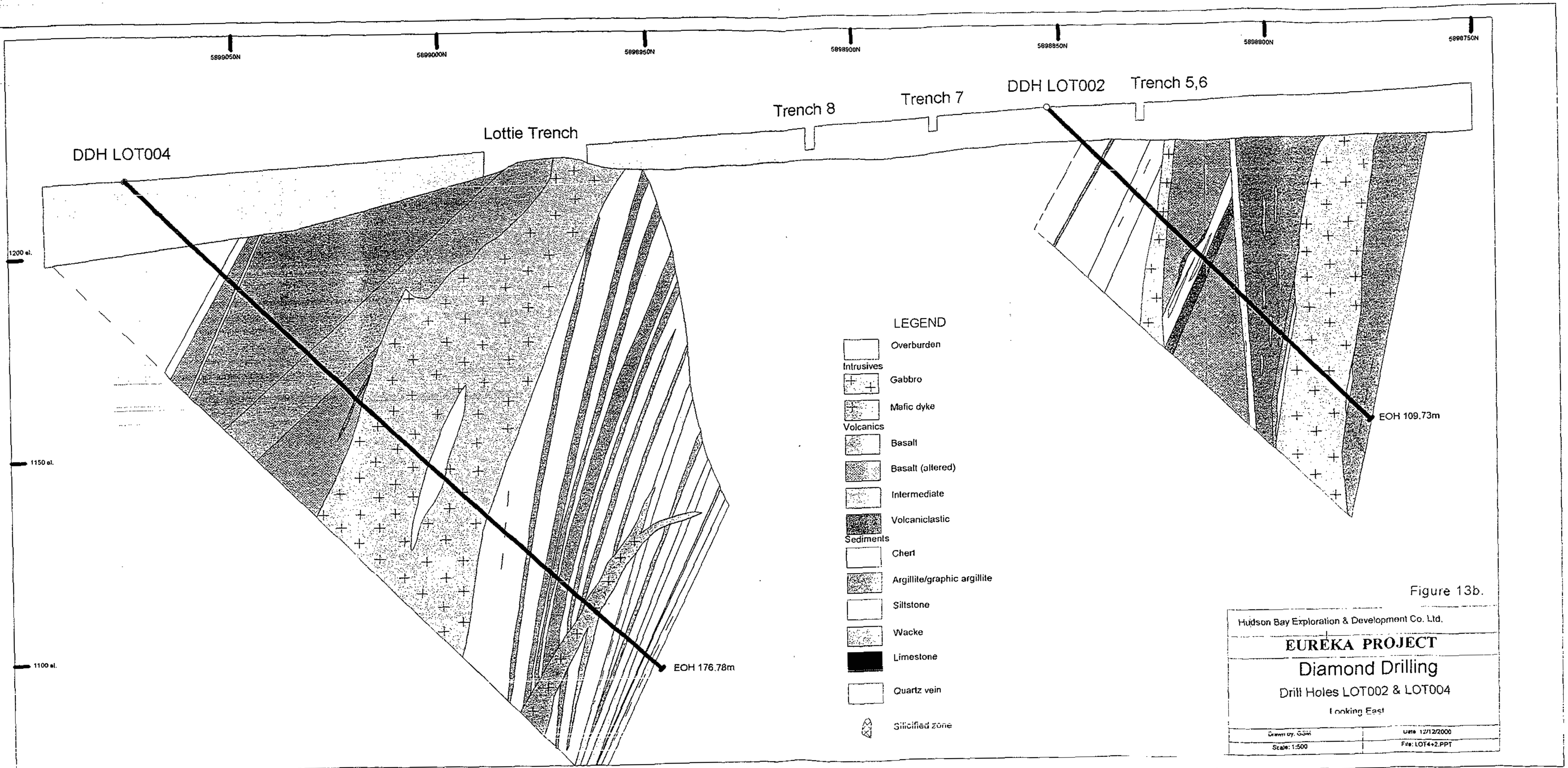


Figure 13a. Eureka Project DDH LOT#1 section looking east



5899050N
5899000N
5898950N
5898900N
5898850N
5898800N
5898750N
DDH LOT004
Lottie Trench
Trench 8
Trench 7
DDH LOT002
Trench 5,6
1200 el.
1150 el.
1100 el.
EOH 176.78m
EOH 109.73m
LEGEND
Overburden
Intrusives
Gabbro
Mafic dyke
Volcanics
Basalt
Basalt (altered)
Intermediate
Volcaniclastic
Sediments
Chert
Argillite/graphic argillite
Siltstone
Wacke
Limestone
Quartz vein
Silicified zone
Hudson Bay Exploration & Development Co. Ltd.
EUREKA PROJECT
Diamond Drilling
Drill Holes LOT002 & LOT004
Looking East
Drawn by: GSM
Date 12/12/2000
Scale: 1:500
File: LOT4+2.PPT

Figure 13b.

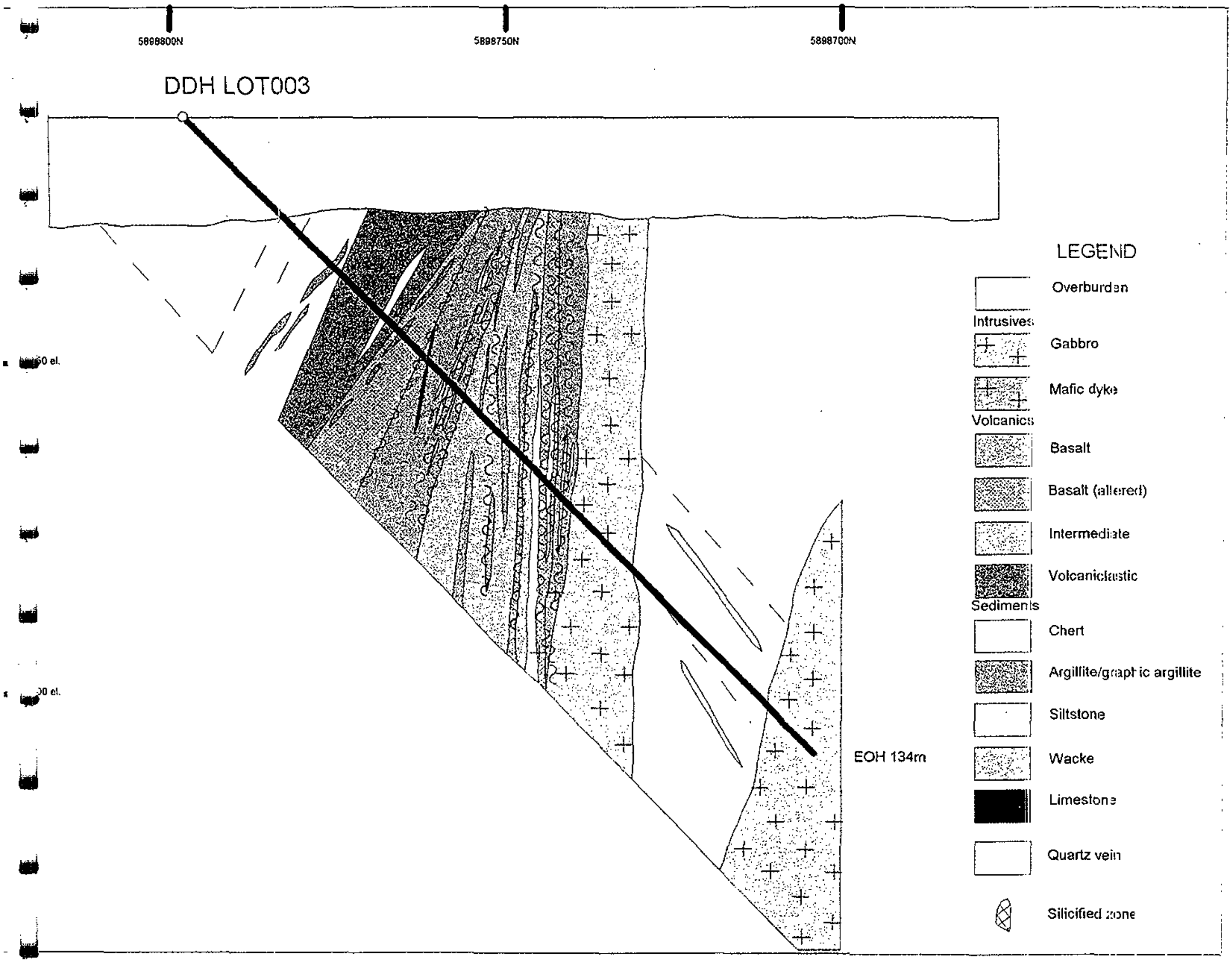


Figure 13c. Eureka Project DDH LOT#3 section looking east

Plate 19. - Banded chert / incipient iron formation? in contact with argillite, hammer for scale, picture looking eastward, trace to 4% disseminated pyrite in chert unit, moderately dipping unit. (NWR R-10118)

This was the "geology" hole referred to earlier. The hole was drilled to the north of LOT-1 and LOT-2 to test a basalt/sediment contact and to obtain a stratigraphic section in the Lottie area. LOT-4 failed to hit significant mineralization with the exception of a weakly mineralized mafic dyke with trace pyrrhotite, chalcopyrite, and pyrite. Lithologies include a thick package of unaltered basalts and intermediate volcanics overlying a sedimentary package of intercalated cherts, argillites, and siltstones. A large gabbro intrusion occurs from 79.0 – 100.6 meters.

LOT-5 (Grid 5):
This hole was drilled on Grid 5 to test a broad flat lying ground EM conductor located on follow-up from a Spectrem target. The conductor profile was not particularly encouraging but it is located 1.5 km up-ice (presumably) of the Tow float. Although there is outcrop in the near vicinity the hole failed to hit bedrock after 35.1 metres and had to be abandoned due to poor ground conditions. A shallow drill angle (-45) and clay lenses in the overburden contributed to the difficult drilling. These clay lenses in colluviated till cover were taken to explain the flat lying conductor.

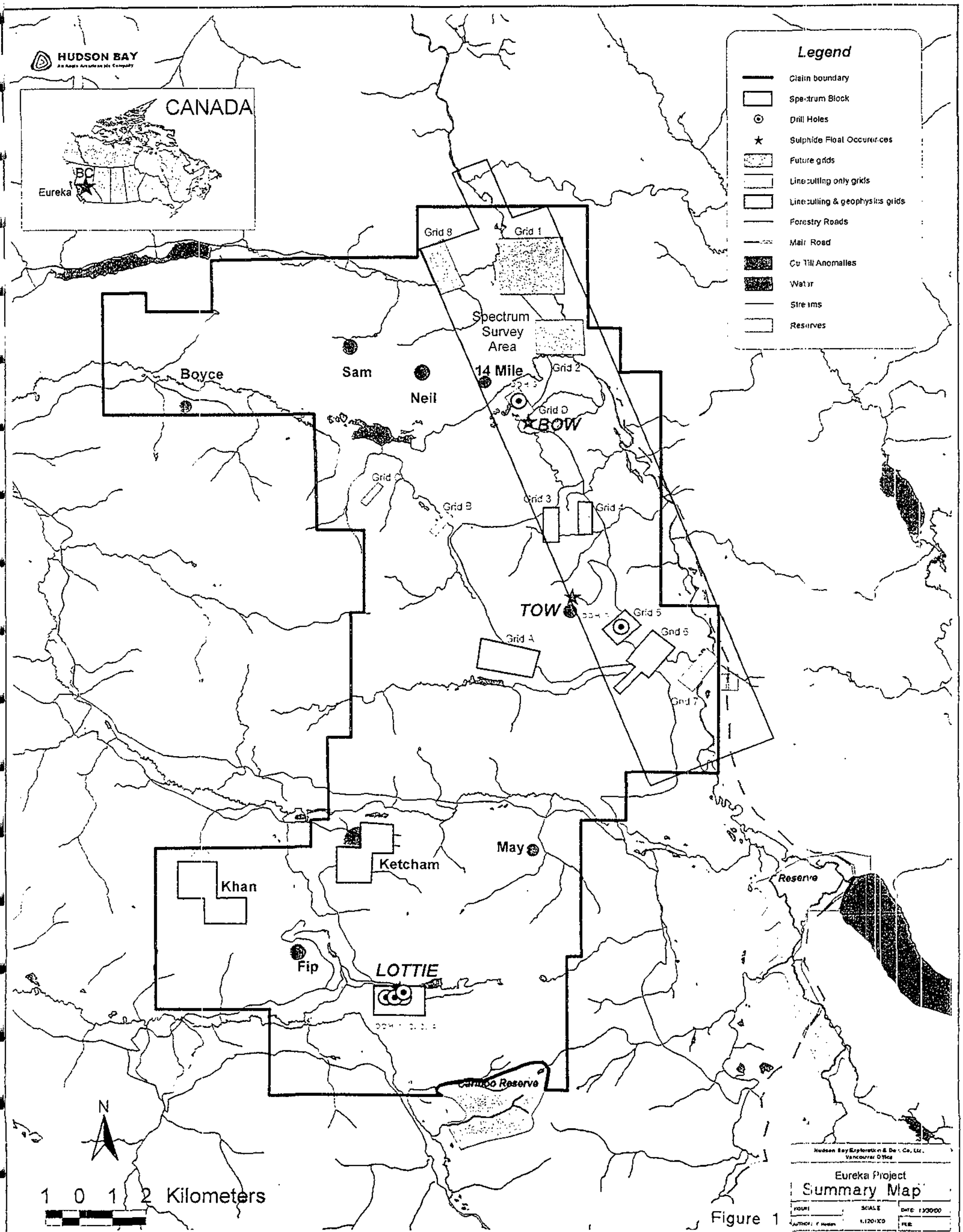
LOT-6 (Grid D):
The hole drilled a steeply dipping HLEM conductor on Eureka's grid D, approximately 1 km northwest of the Bow float location. The hole was drilled to a depth of 102.7 meters and failed to hit significant mineralization. Poor ground conditions slowed drilling through thick overburden. The initial drill hole was abandoned and the BB2500 drill was replaced with a larger Longyear 38. The angle of the collar was subsequently steepened and drilling progressed slowly through 51 meters of overburden. The source of the conductor was not evident in the bedrock and several clay lenses within the overburden were taken to explain the conductor. Lithologies in this hole were dominantly mafic volcanics with minor intercalated cherts.

14. DISCUSSIONS & CONCLUSIONS (Figure 1)

14.1 Bedrock Mapping

i) For the most part the Slide Mountain Terrane consists dominantly of mafic volcanics with minor intermediate/felsic volcanics and minor sediments. The mafic flows are relatively flat lying. Detailed mapping of the Westpass Lake area, immediately north of the Lottie, revealed shallow to moderate NW dipping massive and pillow basalt flows. Detailed mapping immediately SE of the Lottie on the ridges of Two Sisters Mountain revealed flat lying massive basalt and interbedded ribbon cherts. Lying between the two is the Lottie, a complex area with rocks ranging in lithology from ultramafics to sediments. Further complicating the geology is the Pundata Thrust to the south and a localized shear zone trending NNW up the Westpass Lake Valley. Based on detailed mapping within the immediate Lottie area and drill hole interpretation, lithologies in the Lottie area strike E-W and strike steeply to the north. This is the only area on the property where this type of dip is recorded.

ii) Exposures of shallow dipping sediments west of the Kahn target (Figure 6b) suggest a shallow water sedimentary sequence exists within the Slide Mountain package. The sequence has a basal limestone overlain by chert, shale, phyllite and coarse pelitic sediments. This package may be Sutherland Brown's Guyet Formation, which he postulated as conformably underlying the Antler Formation. In the Westpass area the two packages are separated by a north trending fault. Struik believed the Guyet Fm. belonged in the Barkerville Terrane. Our mapping suggests Sutherland Brown's interpretation may have been correct. The nearest location of this unit on government maps is on the southwest side of Two Sisters Mountain, a distance of 12 km to the southeast.


HUDSON BAY
CANADA
BC
Eureka
Legend
Claim boundary
Spectrum Block
Drill Holes
Sulphide Float Occurences
Future grids
Linecutting only grids
Linecutting & geophysics grids
Forestry Roads
Main Road
Cu Till Anomalies
Water
Streams
Reserves
Grid 8
Grid 1
Spectrum
Survey
Area
Grid 2
Boyce
Sam
Neil
14 Mile
Grid D
BOW
Grid
Grid B
Grid 3
Grid 4
TOW
Grid 5
Grid 6
Grid A
Grid 7
Ketcham
May
Khan
Reserve
Fip
LOTTIE
Cariboo Reserve
N
1 0 1 2 Kilometers
Eureka Project
Summary Map
Figure 1

14.2 Surficial Geology

i) The additional data collected during the second phase of fieldwork was invaluable in sorting out the complicated ice flow history of the region. Detailed studies of outcrops and fabric data provide a new outlook on the relationship between glacial ice flowing from the Cariboo Mountains and ice flowing in the Interior Plateau during peak glacial periods. Although there is absolute proof of northeasterly flowing ice at several sites throughout the property, the northeasterly regional flow interpreted to have affected the Lottie area is strictly speculative and is inferred from the aforementioned sites.

ii) The Tow area is an example where detailed surficial work was necessary to document both the northeasterly regional ice flow and the later local ice flow. Initially, regional work convinced the author that the Tow float did not come from the Spectrem target that lies to the southeast. However, fabric analysis and detailed striation measurements indicate that indeed the Spectrem target may be a potential source of the Tow float.

iii) The Lottie float represents a true challenge for sorting out ice flow and float transport directions. The Lottie is situated within a zone between ice accumulation in the Cariboo Mountains and regional ice flow from the Interior Plateau. Cirque glaciation on Two Sisters Mountain to the south also may have obliterated or deflected a potential dispersal train as well. Detailed ice flow studies in several areas to the north and west provide evidence for a regional northeasterly ice flow direction. There is a possibility that there was an early westerly ice flow parallel to the Lottie Creek and Ketcham Creek valleys but the major ice flow event that scoured the outcrops and formed the landforms is considered to be one of a reverse direction. This directly contradicts the author's earlier work in the area for Eureka Resources and provides an example that regional implications cannot be deciphered from a single detailed study area, such as the Lottie.

iv) the Lottie is also an excellent example of the importance of sedimentological observations and the time necessary to make such observations. The fact that the Lottie float occurs within colluvium rather than basal till provides a sobering example of the importance of detailed observation of stratigraphy and sedimentology. Interpretation from a shallow hand dug pit and quick glance at a backhoe pit in 1999 differs remarkably from the trenching that is described in this report.

14.3 Geochemistry

Interpretation of the results of 767 tills suggests that many of the elevated metal concentrations are more indicative of high background concentration levels than of genuine anomalies that might be related to buried mineralization. In the case of copper, there are numerous sites with copper levels of greater than 100 ppm. However examination of histograms and probability plots suggest that copper levels of less than about 250 ppm constitute a single background population. Only three sites have till with greater than 259 ppm copper. Similar interpretations can be made for other elements.

Examination of the till geochemical data points to two areas of interest: (1) the Two Sisters Mtn. area east and southeast of the Lottie area, and (2) the Holly-Khan area northwest of Lottie.

The moss mat geochemical data was grouped into five intervals based on percentile levels (50, 70, 90, 95). Moss mats, like till, have a higher background in copper, as well as cobalt. There are

32 sites with copper concentrations greater than 100 ppm, most notably the Ketcham, Two Sisters Mtn and Boyce Creek areas. There are also areas with elevated lead and/or zinc.

14.4 Geophysics

In September-October ground EM (Max-Min) and magnetics was carried out on eight gridded areas, a number of which were located on the basis of copper till anomalies. The only conductor from the groundwork considered to be significant was found on the Lottie grid. Drilling found it to be due to graphitic sediments.

14.5 Diamond Drilling

i) Rocks in the Lottie area consist dominantly of subaqueous mafic volcanic flows and interbedded sediments. Tuff-lapilli tuffs are found interbedded within basalts and cherts, illustrating that explosive volcanism was taking place between relative periods of quiescence where sediments were allowed to accumulate. Sediments consist of chert, siltstone, argillite, wacke, and limestone, which are found highly interbedded with each other. Rapid facies changes between sedimentary lithologies and the presence of soft sediment deformation, rip-up clasts, and matrix to clast supported coarse-grained wackes are indicative of unstable slopes and local relief. This relief might be related to synvolcanic fault structures within a shallow water basin/graben.

ii) Stratigraphically above the mafic volcanic flows and interbedded sediments is a package of intermediate and mafic volcanics. This sequence was intersected in the top of LOT-4, at bedrock in the main Lottie trench (T-1) and found in Lottie Creek just north of the Lottie float. The only evidence of possible felsic volcanics in the Lottie area are two small outcrops approximately 10 metres apart near the placer operation where rhyolite? (m. grey with 5% euhedral pyrite cubes, quartz veins) was located (Figure 6a). Upon discovery it was debated whether it was a silica flooded sediment or a rhyolite. It is quite low in the stratigraphic column and juxtaposed against a large gabbro body. Its geochemistry should be reviewed.

iii) Tuff-lapilli tuff is observed in all drill holes at the Lottie. Tuff beds are typically very fine grained and display wispy fine (1-10mm) laminations. Overall, these tuff-lapilli tuffs are found intercalated with cherts, cherty argillites, and basalt flows. The presence of large lapilli fragments (up to 5+ cm) might represent proximity to a vent.

iv) Altered basalts within the Lottie drill holes display variable alteration assemblages of chlorite, sericite, carbonate, and leucoxene. Chlorite is patchy in occurrence, dark green, and commonly intergrown with sericite and leucoxene. Sericite occurs pervasively throughout the massive basalt and is creamy tan in colour. Carbonate replaces feldspar locally and is associated with sericite-chlorite alteration. Carbonate also accompanies quartz as veins and veinlets. Silicified zones are observed within cherts and siltstones. Rocks take on a light grey to white bleached colour and primary textures are obliterated. Silicification occurs in amoeboidal patches and is locally associated with epidote. A more in-depth look should be taken at the geochemistry of the drill core, surface exposures (especially along the placer road) and the Lottie trench specimens, both for classification of the lithologies as well as for possible distal indicators of VMS systems.

v) Correlations between drill holes LOT-1, LOT-2, and LOT-4, which are within relative proximity to each other and the Lottie trench are difficult. In LOT-2 a large shear zone is present which is not evident in any form in LOT-1. Geophysical interpretation suggests that the graphitic argillite conductor observed in Eureka Resources trenches as well as HBED trenches to the east of LOT-1 are much more shallowly dipping than that to the west and that somewhere between

LOT-1 and LOT-2 an inflection point exists. This inflection point most likely takes the form of a fault.

vi) Drilling failed to intersect any significant sulphide intervals but the following are of interest:

a) A single sample from a tuffaceous unit in LOT-2 assayed 13,200ppm Mn, indicating perhaps it is distal to a VMS system.

b) A rip-up clast within a matrix of cherty siltstone in LOT-1 ran 0.23% Cu over 0.15 meters. This rip-up clast contained disseminated pyrite and chalcopyrite (tr-1%) and 1-2mm thick stringers of chalcopyrite (1%). These stringers are parallel to quartz-carbonate veinlets approximately 1-2mm thick which crosscut the clast. When these veinlets crosscut the argillite clast it is likely a redox boundary is encountered and chalcopyrite + pyrite is precipitated in the form of stringers and disseminations.

c) A weakly mineralized mafic dyke in LOT-4 (152.0 – 152.7 meters) contained remobilized trace chalcopyrite, trace to 1% pyrrhotite, and minor late pyrite coming in along 1cm quartz-carbonate veins although assays were negative.

vii) Although drilling was unsuccessful at locating the source of the mineralized Lottie float, it was successful at defining stratigraphy and alteration. A more detailed evaluation of the geochemistry is needed to, 1) substantiate the presence of hydrothermal alteration of the basalts within the drill core and, 2) to compare trace element geochemistry of the rock suite accompanying the mineralized float to altered sections within the drill core.

15. RECOMMENDATIONS

1. The results of the 2000 program can be reviewed with two different approaches. From the point of view of a group looking for a large VMS deposit i.e. several tens of millions of tonnes, the results are not particularly encouraging; at least not in the immediate area of the claims. As is mentioned in the Conclusions above, the bedrock mapping concludes the claim area is mainly underlain by a flat lying succession of mafic volcanics with interbedded cherts and intruded by time equivalent gabbros. This setting can host Cyprus-type VMS deposits, but these occurrences tend to be small (<5 million tonnes) and therefore not as attractive as the Kuroko or Besshi types, which can reach +30 million tonnes. For exploration companies, particularly larger groups, their thresholds for deposits often preclude looking at the smaller type. However, small and mid-size exploration companies, may be content with the small size, as long as the grade is sufficient to make it economically viable.

2. Geophysically the results are mixed. Many of the airborne EM anomalies, from both Dighem and Spectrem, seem to be related to flat lying features or faults. The flat lying features can be related to overburden, ie. conductive clays, or may originate in the bedrock as graphitic sediments (or massive sulphides) within the dominantly flat lying mafic volcanics. As the magnetic signature is generally neutral these targets are not rated highly. Also important with the EM conductors is whether the anomalies have a long consistent strike length, indicating perhaps a formational, e.g. graphitic, source, as opposed to shorter, more finite conductors, which may be sourced from massive sulphides.

3. The overall till and stream sediment (moss mat) geochemical results for the property are disappointing. There are a number of areas with elevated values in cobalt, arsenic, selenium, etc. and even base metals, but no prominent multi-element anomalies that provide strong obvious targets for follow-up. Copper, being the primary element of interest, shows quite a range of distribution, but even till values in the 200-250 ppm range plot at the upper end of the normal

distribution and are not considered to be significant. From the point of view of exploring for a large VMS deposit one would have expected more promising geochemistry, whether from the base metals themselves or alteration assemblages, indicator elements or trace elements.

4. Consequently, for a larger firm one can conclude that, although no source was found for the different sulphide float concentrations (Lottie, Bow, Tow, Ketcham, Khan, Sam) the indications are, from the geological setting, geochemistry and geophysics, that the mineralization, if local, has either been eroded or is unlikely to be of sufficient size to produce a deposit which would meet Hudson Bay's size criteria. None of the three exploration disciplines have provided encouraging results for the large tonnage scenario. This does not, however, preclude the possibility that the mineralized float has traveled from off the claims and may be sourced in an environment more likely to host the larger deposits, i.e. Kuroko style in Barkerville Terrane to the south or southwesterly.

5. The following recommendations are made with the viewpoint of a small-scale deposit model:

i) The drill results were largely negative in that no significant sulphides were intersected, but the elevated manganese should be pursued. The drill core and bedrock along the placer road should be re-examined in light of these anomalous values. If a manganese-rich horizon can be documented this will provide an excellent vector for a bedrock source of the massive sulphides.

ii) Paulen in his October report concluded that the most likely source for the float is from the southwest. The present till coverage in a southwesterly direction is only 500 metres (Line 5W, station 5+00S). Therefore continued till sampling southwesterly is recommended. This should be at a 250-metre spacing similar to the fill-in sampling undertaken on the Ketcham anomaly. Coverage should extend to Big Valley Creek. A line of samples (NW trend) is also suggested between Big Valley Creek and the Nine Mile-Sugar Ck road along higher ground where the drift cover may be less. Obviously care must be taken to ensure till is being sampled and not washed material. If encouraging results are obtained sampling should continue up-ice with tight spaced sampling along lines at right angles to the ice direction. At present the area southwesterly of the Eureka property is staked. Status of these claims should be reviewed and consideration given to the acquisition of additional ground.

iii) A small program of additional geochemical work in the Two Sisters Mountain area is recommended for 2001, with the objective of vectoring toward any potential bedrock sources of the till geochemical anomalies. Geochemical exploration work here should include property-scale base of slope soil/colluvium/talus fines sampling to complement existing geochemical data for the few till sites obtained in 2000, and the sampling of any stream, lake and base of slope slough waters which drain this area.

iv) Extension of the EM coverage is also recommended to the southwest of the present survey. The most obvious unexplained conductor is located on the logging road 2 km south of the float. It was concluded that this conductor may be the thrust contact between the Slide Mountain and Cariboo Terranes but with only one line just barely over the anomaly (and perhaps intersecting at a shallow angle) its orientation and dip cannot be determined. Two short lines of EM should be run southwesterly, assuming a southeasterly trend, on each side of the conductor at 50-metre spacing to determine the orientation. Additional lines can then be added to define it along strike. Ultimately, if it is concluded it is indeed the thrust contact then it can be disregarded. However, if its strike and/or dip suggest a different origin then it would be an obvious drill target.

vi) The ground EM conductors on grids 3, 4, 6, A, B and C have not been drill tested. The conductors on 3, 4 and 6 are flat lying and are speculated to be of overburden origin but, as the bedrock is also flat lying, they may have a bedrock source. The main conductor on the A grid (northwest trending) is most likely a fault. However, detailed prospecting and soil sampling is recommended around these targets.

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