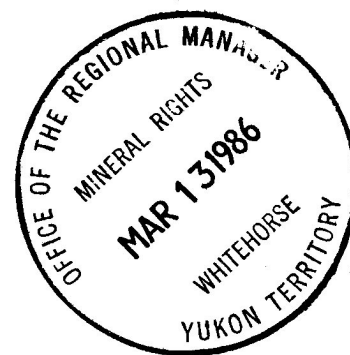




1985 FINAL REPORT ON THE CUZ CLAIMS,
SOUTHEASTERN YUKON TERRITORY
N.T.S. 95D5

091815

G. Prior
N. von Fersen



November, 1985

Vancouver, B.C.

60°28' 127°52'

091815

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This report has been examined by
the Geological Evaluation Unit
under Section 53 (4) Yukon Quartz
Mining Act and is allowed as
representation work in the amount
of \$ 5500.00.

 18 June '86.

Regional Manager, Exploration and
Geological Services for Commissioner
of Yukon Territory.

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SUMMARY

The CUZ 1 to 60 mineral claims, owned by Kidd Creek Mines Limited, are located 64 km northeast of Watson Lake in the southeastern Yukon Territory.

Overburden sampling by Archer, Cathro and Associates Limited in 1982 outlined an area roughly 450 m in diameter containing over 100 ppb Au with approximately coincident As, Sb, and Bi anomalies. The anomalous zone lies on the north slope of Gretchen Peak in the west-central portion of the claim block.

Follow-up work during 1985 focussed upon the area of the overburden anomaly. The program consisted of:

- (a) detailed mapping (1:1000) of a one square km area containing the anomaly,
- (b) overburden sampling to confirm the 1982 results,
- (c) outcrop chip sampling upslope from the anomalous overburden,
- (d) property-scale mapping (1:5000) outward from the anomalous area, and
- (e) I.P., V.L.F., and magnetometer surveys.

189 rock samples, mostly outcrop chips, and 181 overburden samples were collected and analysed by CDN

Resources Labs for Au. Overburden in the area of interest consists essentially of talus fines.

CONCLUSIONS

- (1) A lithogeochemical Au anomaly occurs on the upper north slope of Gretchen Peak in the west-central portion of the CUZ claims. Associated features are sericitic-argillic alteration, limonitic shear zones, pyritic quartz veins, chargeability anomalies, and anomalous Au values in downslope talus fines.
- (2) The CUZ claims are underlain by a north-facing sequence of quartz pebble conglomerates, quartzites, siltstones, phyllites, and limestones of the Hadrydian Grit Unit.
- (3) The north slope of Gretchen Peak, in the west-central area of the property, contains an area approximately 450 m in diameter of greater than 100 ppb Au in overburden. Downslope movement of talus fines forms distinct dispersion trains up to 200 m long containing greater than 300 ppb Au.
- (4) 135 panel chip samples were collected on the upper north slope of Gretchen Peak, in the source area of the anomalous talus fines. The average Au content of these rocks is 74 ppb with only 10 samples containing in excess of 200 ppb.
- (5) The Au content of talus fines has been upgraded by an average enrichment factor of 3.3 relative to source area outcrops on Gretchen's north slope.
- (6) Rocks exceeding 200 ppb Au are accompanied by anomalous As, Bi, and erratic Sb values.

- (7) The north slope of Gretchen Peak is a dip-slope underlain by a coarse grained quartzite and quartz pebble conglomerate unit with an estimated thickness of about 150 m near the base of the slope. Erosion on the upper slope has reduced this thickness to about 50 m.
- (8) The highest Au values are spatially associated with north and northeast trending shear zones. This set of structures is restricted to the quartzites and quartz pebble conglomerates, presumably because these lithologies failed in a brittle manner during deformation.
- (9) Limonitic quartz veins (containing disseminated pyrite, goethite after pyrite, and pyrite casts) are common on the north slope of Gretchen peak, but rare elsewhere on the property.
- (10) Two WNW trending thrust (?) faults pass through the mapped area. Associated quartz veins are unmineralized.
- (11) Rocks on the upper north slope of Gretchen Peak are characterized by sericitic-argillic matrix alteration.
- (12) Two 20 millisecond chargeability anomalies occur within the area of anomalous outcrop samples and northeasterly trending shear zones. The largest is just over 100 m in diameter. Background for the CUZ property is less than 10 milliseconds.
- (13) Tonnage Potential: Given the remote location of the CUZ claims and the lack of high Au values in rock samples (only one sample returned greater than 2

grams/metric ton Au), further exploration expenditures on the property would require a target with large tonnage potential. Two 20 millisecond chargeability anomalies have been outlined associated with high lithogeochemical Au values, sericitic-argillic alteration, limonitic shear zones, pyritic quartz veins, and anomalous Au values in downslope talus fines. An optimistic estimate of the size of the geophysical target, obtained by an arbitrary assumption that the 20 millisecond chargeability contours (as seen in plan view) represent perimeters of two spheres, is 850,000 metric tons. (The calculation used a maximum vertical extent of 50 m, the estimated thickness of coarse grained quartzites and quartz pebble conglomerates above a phyllite contact.) If the chargeability anomalies represent tabular bodies with average thicknesses of 10 m, the tonnage estimate is only 100,000 metric tons.

- (14) Grade Potential: A grade of 3 grams Au/metric ton is considered as an optimistic minimum requirement for a large tonnage target in a remote area. This grade would require an increase in Au content by a factor of 40 over the average for outcrop chip samples on the upper north slope of Gretchen Peak. The probability of such an increase in average grade at depth is considered remote.

RECOMMENDATIONS

No further work is recommended on the property at this time. Sufficient assessment work is available to maintain a key block of claims in good standing for five years.



Nils von Fersen



Glen Prior

1. INTRODUCTION

1.1 PROJECT OBJECTIVES

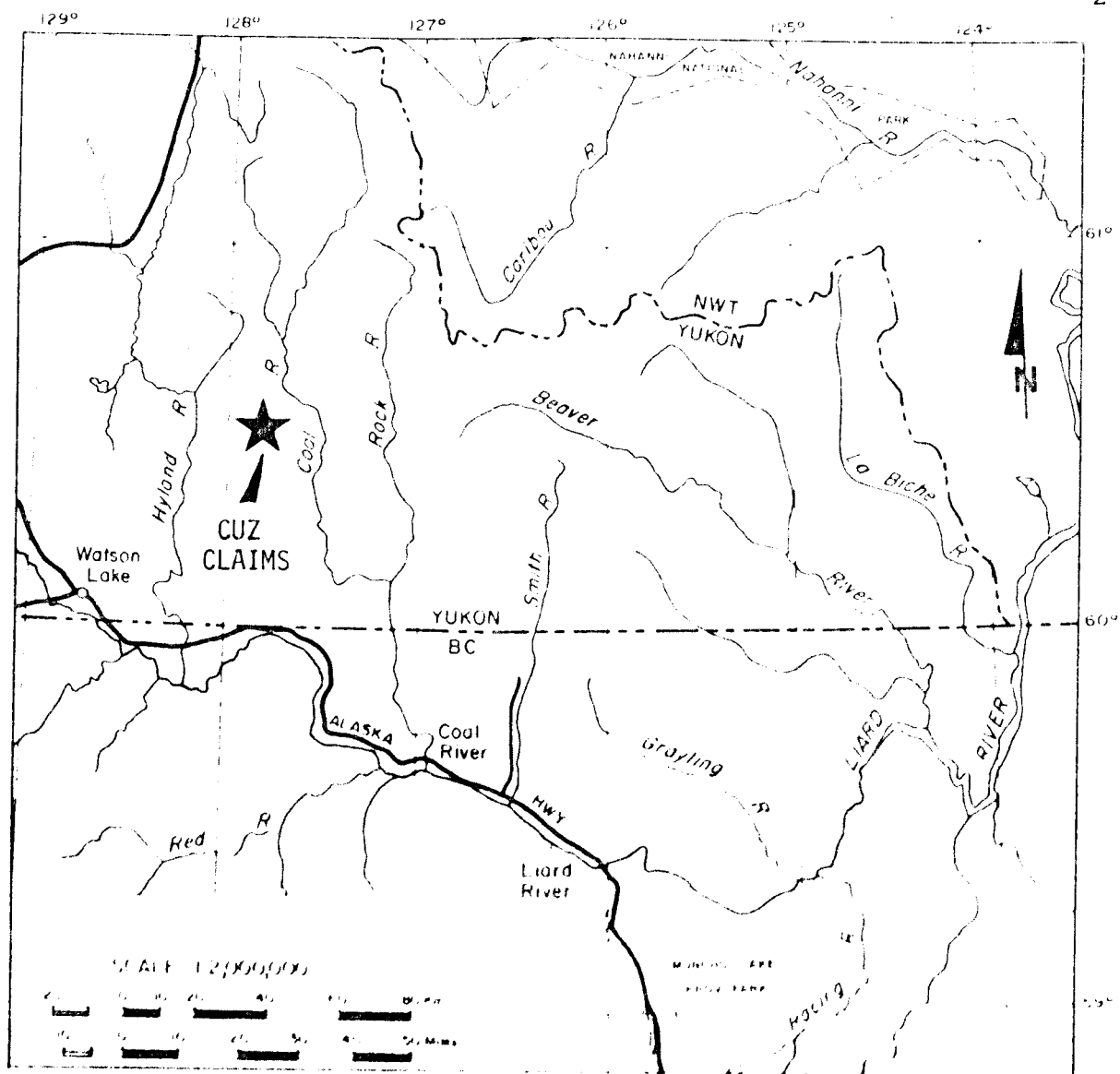
Primary objectives of the 1985 program on the CUZ claims were;

- (1) to confirm the presence of a major overburden gold anomaly on the north slope of Gretchen Peak,
- (2) to evaluate the gold content of outcrops within and upslope from the area of the overburden anomaly,
- (3) to perform detailed geologic mapping of the anomalous zone and surrounding area, and
- (4) to perform geophysical surveys with the goal of detecting sulphide-rich zones and/or favourable structures that might host gold mineralization.

1.2 LOCATION, ACCESS, AND TERRAIN

The CUZ property is located in southeastern Yukon Territory within the boundaries of claim sheet 95D5 at latitude 60 28'N and longitude 127 52' W. The claims lie mid-way between the Hyland and Coal Rivers, 64 km northeast of Watson Lake and 51 km north of the Alaska Highway (figure 1).

Property elevations range from 1150 m (3800') to 1802 m (5913') at the summit of Mt. Reliance on the southern edge of the claim block. Drainage is to the north and east into Quartz Creek then east into the Coal River. The topography varies from gently sloping valley



Kidd Creek Mines Ltd.

**CUZ CLAIMS
LOCATION MAP**

NTS 95D/5

PROJ. 978

WORK BY	DRAWN BY	DATE
		SEPT. 26, 1985

Figure: 1

bottoms to talus covered hillsides with slopes reaching in excess of 30°. Most of the property lies above treeline which occurs at approximately 1400 m (4600').

Access is by helicopter from Watson Lake. Float-equipped, fixed wing aircraft may land on Quartz and Roy Lakes which occupy an east-west trending valley about 7 km north of the CUZ claims.

1.3 HISTORY

The Cuz property was staked as a result of the Quartz Lake Project, a regional gold reconnaissance program initiated by Archer, Cathro and Associates Limited on behalf of Aquitaine Company of Canada Limited in 1981. (At the end of that year, Aquitaine merged with Texasgulf Inc. to form Kidd Creek Mines Limited.)

The program was based on the reanalyses of 5,912 silt and soil samples collected in 1973 from the general Quartz Lake area in southeastern Yukon. Following re-analyses. Au, Ag, As, and Pb values were obtained for all samples. The CUZ 1 to 56 mineral claims were staked south of Quartz Lake late in 1981 to cover anomalous gold and arsenic values obtained in the re-analyses. (Main and Cathro, 1982, Archer and Carne, 1982).

In 1982 Archer, Cathro established a 5 man, helicopter supported camp on Roy Lake to perform both regional and property work in the Quartz Lake area. Work on the Cuz claims consisted primarily of geochemical sampling augmented by property-scale mapping (1:5000) with 22 silt, 856 soil, and 59 rock samples collected. Soil sampling, initially along east-west lines with an

average line spacing of 300 m, was tightened to a 50 m by 50 m spacing over the northern slope of Gretchen Peak to better define an anomaly in that area. Final results indicated overburden gold values of greater than 100 ppb over a roughly circular area, 450 m in diameter, on the north slope of Gretchen Peak with approximately coincident arsenic, bismuth, and antimony anomalies (Archer and Carne, 1982).

1.4 SUMMARY OF WORK COMPLETED IN 1985

From the end of the 1982 field season until 1985 no work was performed on the CUZ property. During the latter half of July and the entire month of August, 1985, a Kidd Creek Mines field party under the supervision of N. von Fersen, with assistance from G. Prior, C. Lindsay, and M. Gerencser, undertook a program of:

- (a) detailed mapping (1:1000) of a one square km area containing the anomaly,
- (b) overburden sampling to confirm and redefine the 1982 results,
- (c) outcrop chip sampling on and above the anomalous slope, and
- (d) property-scale mapping (1:5000) outward from the anomalous area.

Geophysicist Tim Huttemann visited the property for one week during which time I.P., V.L.F., and magnetometer surveys were completed.

The 1982 grid of Archer, Cathro was re-established in the area of interest but was deemed too inaccurate to use for detailed follow-up, making a new grid in the Gretchen Peak area necessary. A 1000 m north-south base line, labelled 10+00 S to 20+00 S, was established central to 800 m cross lines at 10+00 S and at 50 m intervals from 14+00 S to 20+00 S. This grid provided control for 1:1000 scale mapping, geophysics, and the majority of geochemical sampling. 189 rock samples, mostly outcrop chips, and 181 overburden samples were collected during the 1985 program and analysed by CDN Resources Labs for gold.

1.5 PROPERTY STATUS

The CUZ 1-60 mineral claims are owned by Kidd Creek Mines Limited. The property forms a roughly rectangular block 10 claims north-south by a maximum of 8 claims east-west within the Watson Lake Mining District. As shown on claim sheet 95D/5, the CUZ claims overlap Noranda's STRAT claims to the west and abut the QUIVER claims of the Quartz Lake Project to the northeast. Data pertinent to the CUZ claims, all of which are recorded under the name Archer, Cathro and Associates (1981) Limited, are as follows:

Claim Names	Tag Numbers	Lat. (N)	Long. (W)	Record. Date	Expiry Date
-----	-----	-----	-----	-----	-----
CUZ 1-56	YA67481-67536	60 28'	127 52'	Dec.14/81	Mar.14/86
CUZ 57-60	YA68994-68997	60 28'	127 53'	Aug.30/82	Mar.14/86

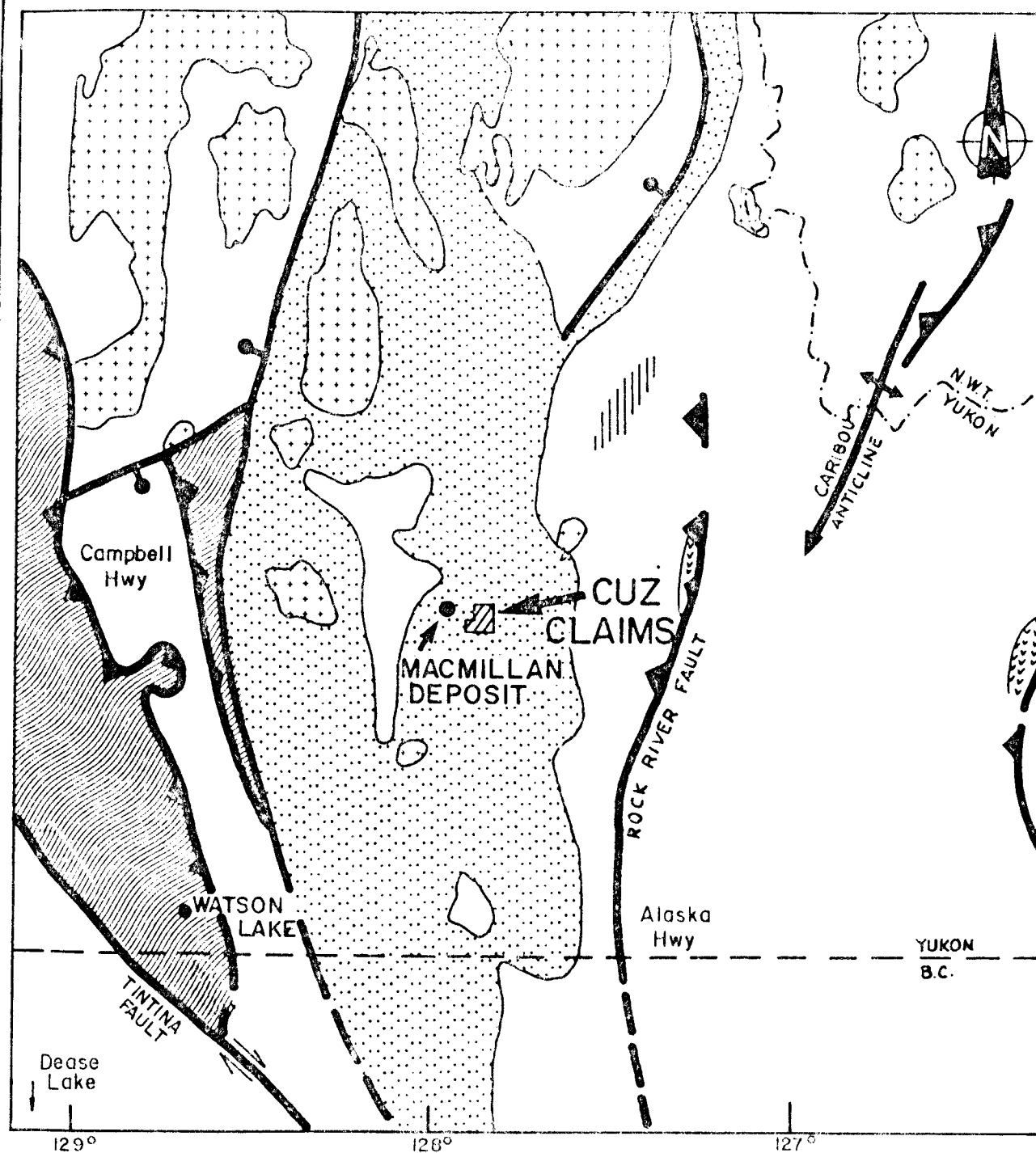
2. GEOLOGY

2.1 REGIONAL GEOLOGY

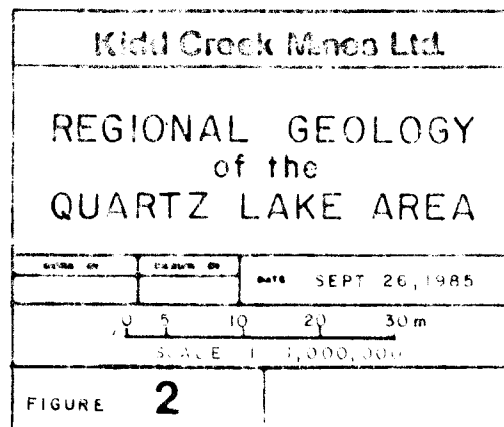
The Quartz-Lake area is underlain by rocks of the Hadrynian Grit Unit, a predominantly fine-grained clastic unit relatively common in the southeastern Yukon (Archer and Carne, 1982; Morin, 1981). The Grit Unit forms the floor of the Selwyn Basin, a major Paleozoic geosyncline trending northwest from the Kechika Trough in northeastern British Columbia to the Alaska border and bounded to the northeast by the MacKenzie Platform and to the southwest by the Pelly-Cassiar Platform and Tintina Trench. Overlying the Grit unit are true basinal facies rocks of the Cambrian-Devonian Road River Formation which are in turn overlain by the Devonian-Mississippian Earn (Black Clastic) Group derived from erosion of the uplifted basin. Both the Road River Formation and the Earn Group host major sedimentary-exhalative deposits (Carne and Cathro, 1981; Coutellier, 1981; Tipper, Woodsworth, and Gabrielse, 1981; Gabrielse, 1967).

Within the Quartz Lake area the Grit Unit outcrops over a north-trending area approximately 70 km wide between the Hyland and Coal Rivers (figure 2). Gabrielse and Blusson, 1968, describe these outcrops as follows:

"Map unit-1 includes several thousand feet of dark weathering interbedded slates and gritty feldspathic rocks with interbedded limestones near the top. Banded maroon and green weathering phyllitic slates form conspicuous members in the upper part of the sequence.



- Cretaceous intrusions
- Paleozoic sedimentary rocks
- Hadrynian-Cambrian volcanic rocks
- Hadrynian Grit Unit
- Metamorphosed zones
- Yukon Cataclastic Terrane
- Fault - dot on downthrown side
- Thrust Fault
- Transcurrent Fault



The finer grained rocks constitute considerably more than half of the total and are typically green-grey or dark grey on fresh surfaces and are commonly banded and laminated. The coarser grained rocks are locally graded or crosslaminated. The recessive nature of these rocks is largely responsible for the lack of comprehensive structural and stratigraphic data for map-unit 1.

Resistant, massive, gritty quartzites and feldspar-quartz-pebble conglomerates are characterized by grains and clasts of opalescent bluish quartz. Locally chips, or fragments of silty argillite as much as 8 inches long, are present in the quartzites. Crossbedding and other primary sedimentary structures are scarce. These resistant rocks occur in units ranging in thickness from a few feet to more than 300 feet.

Near Quartz Lake map-unit 1 includes an interbedded assemblage of thin-bedded to massive, in part graphitic, banded limestone; grey, brown, green, yellow, and buff calcareous argillite; silty argillites and fine-grained quartzite. East of Quartz Lake a prominent limestone member, more than 200 feet thick, has been strongly marmorized. The stratigraphic assignment of the rocks near Quartz Lake is uncertain and they may be in part Lower Cambrian."

Regional mapping by Archer, Cathro has delineated numerous, early mid-Cretaceous granodiorite, quartz monzonite, and quartz diorite bodies cross-cutting older stratigraphy. The nearest of these is some 15 km

northeast of the CUZ property (Archer and Carne, 1982). Drilling at Noranda's McMillan Zn-Pb-Ag deposit 4 km northwest of the CUZ claims intersected a 10 m thick diabase dyke cutting Grit sediments (Vaillancourt, 1982). Over 30 km to the east, dark, amygdaloidal volcanic rocks outcrop along the Rock River Fault (Gabrielse and Blusson, 1968).

Thermal metamorphism of the Grit Unit within the Quartz Lake area is restricted to hornfels zones marginal to the Cretaceous intrusions. Dynamic processes have produced phyllitic cleavage cross-cutting bedding in fine-grained units and local breccia zones are presumably the result of shear movement within competent lithologies (Archer and Carne, 1982).

2.2 PROPERTY GEOLOGY

2.2.1 INTRODUCTION

The CUZ property is underlain by fine-grained clastic rocks of the Hadrynian Grit Unit. Lithologies encountered during the 1985 mapping have been subdivided into 4 units;

- (1) coarse grained quartzites and quartz pebble conglomerates,
- (2) fine grained quartzites,
- (3) phyllites and siltstones, and
- (4) limestones.

Two northwest trending thrust (?) faults and a

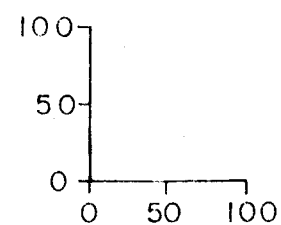
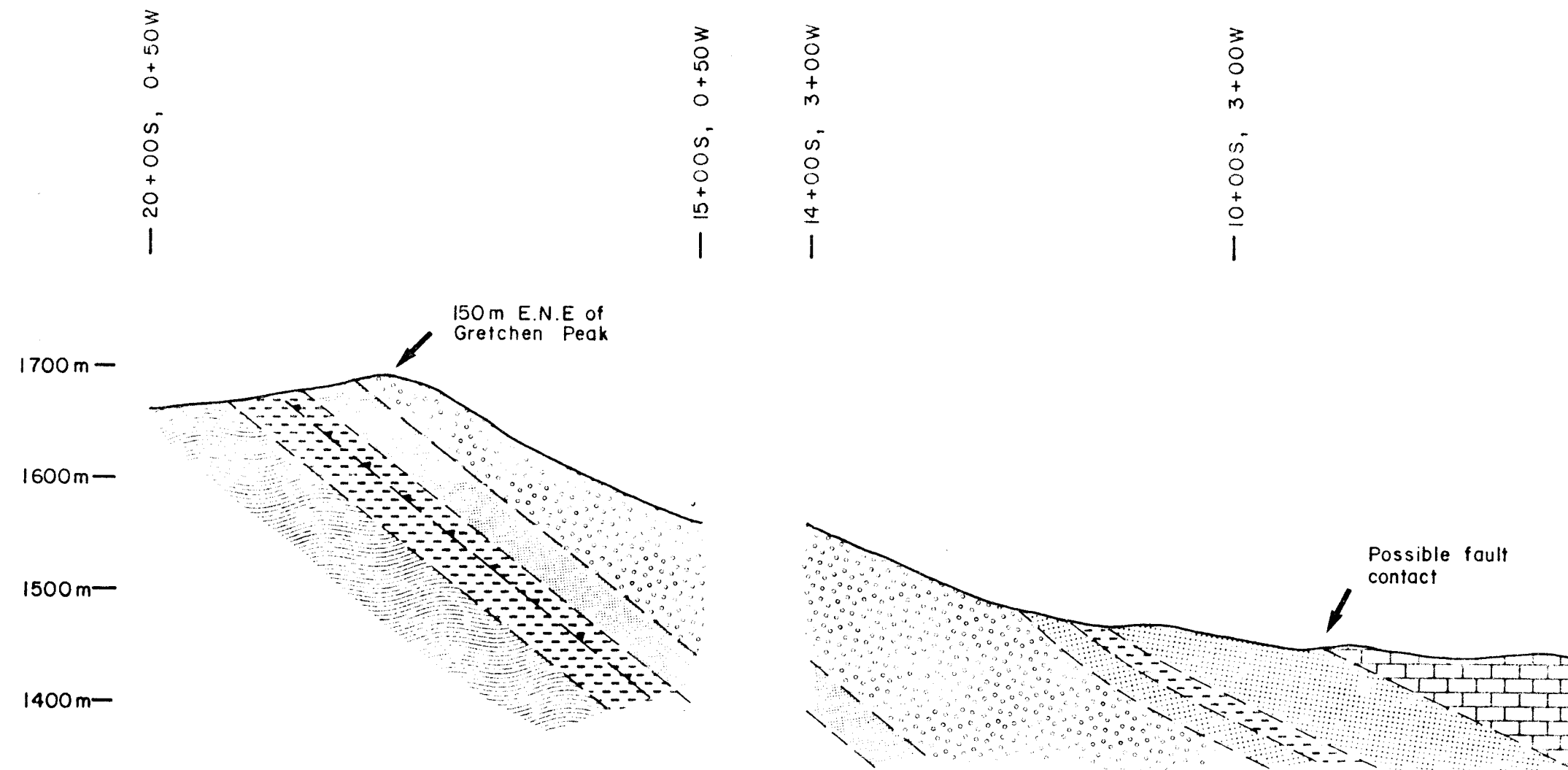
series of north to northeast striking shear zones characterized by limonitic crush breccias occur within the grid area. (Geologic mapping completed during 1985 is presented on figures 3, 4, 5, and 6.)

Quartz veining is ubiquitous in much of the coarse grained unit but the majority of veins are barren, massive, and milky white, often occurring as discontinuous gash veins. A second generation of veining is characterized by associated disseminated pyrite, limonitic stain, and occasional drusy quartz. An extensive zone of matrix sericitization and argillization occurs within coarse grained quartzites and conglomerates on the north slope of Gretchen Peak.

2.2.2 LITHOLOGY AND STRATIGRAPHY

Lithologies on the CUZ claims are divided into 4 units and 9 subunits for the purpose of this report.

MAP UNIT 1: COARSE GRAINED QUARTZITES AND QUARTZ PEBBLE CONGLOMERATES are grouped into 3 subunits; (1a) quartz granule and quartz pebble conglomerates in which greater than 30 % of the large particles have diameters from 2-4 mm and greater than 4 mm respectively, (1b) coarse grained quartzites with grains from 0.5 mm to 2 mm, and (1c) medium grained quartzites having average clast sizes between 0.25 and 0.5 mm. Light gray rocks of map unit 1, which dominate the top and north slope of Gretchen Peak, contain clast-supported, subround to subangular grains of quartz plus or minus pseudomorphs of feldspar and less than 10% intergranular area occupied by a fine grained matrix. The original proportion of feldspar clasts, now strongly altered to yellowish-white clay minerals, rarely exceeds 5 % and is often less than 1 %. Unit 1 rocks are generally well



Scale in metres

— L E G E N D —

- Coarse grained quartzites and quartz pebble conglomerates
- Fine grained quartzites
- Phyllites and siltstones
- Limestones
- Interbedded sequence of fine grained quartzites, phyllites and siltstones with graded bedding (tops facing north)
- Interbedded sequence of coarse grained quartzites, fine grained quartzites, phyllites and siltstones with small scale folding
- Geologic contact
- Thrust fault

Kidd Creek Mines Ltd.

CUZ CLAIMS

Idealized Section through
Grid Area, looking West

NTS 95D/5

1978

W. 1/4	1/4	1/4	1/4
GP	EP	1/4	SEPT. 27, 1985

0 100 200 300

SCALE METRES 1:5000

Figure 5

sorted, an exception occurs south of line 19+00 S where poorly sorted coarse-grained clastic rocks are interbedded with fine grained quartzites, siltstones, and phyllites.

MAP UNIT 2: FINE GRAINED QUARTZITES (0.25 mm to 0.5 mm) are composed predominantly of subround to subangular quartz grains and tend to be dark gray. They are subdivided into (2a) those with a non-calcareous matrix, and (2b) those having a moderately calcareous matrix.

MAP UNIT 3: PHYLLITES AND SILTSTONES are subdivided into (3a) non-calcareous, green and black phyllites, silty phyllites, and greenish-gray siltstones which are rarely calcareous along fractures, and (3b) tan coloured phyllites that are moderately to strongly calcareous along cleavage planes.

MAP UNIT 4: LIMESTONES are of two types; (4a) a thick assemblage of gray, fissile to massive, very fine grained, occasionally fetid limestone with small scale shear folds, kink bands and weak recrystallization along narrow planes, and (4b) a narrow unit, probably less than 10 m thick, of gray, very fine grained, thinly bedded, relatively undeformed limestone.

The units described above may range in thickness from a few centimeters in the case of interbedded lithologies, for example 3b-4b and 2a-3a sequences, to 10's and possibly 100's of m for unit 4a which extends well north of the grid area. Graded bedding within the quartzites was noted at 3 locations between 18+00 S and 19+00 S near the base line and indicates that the beds are right way up with tops facing north. Within the detailed map area there appear to be crude, coarsening upward trends, the best

example of which occurs in the area of graded bedding mentioned above.

Vaillancourt (1982) suggests that Grit Unit sediments at Noranda's McMillan property 4 km northwest of the CUZ claims were deposited under shallow marine conditions and that the coarse grained quartzites represent a near shore, tidal beach environment. A similar setting, possibly with a deltaic component to provide coarsening upward sequences, is also applicable for the CUZ lithologies. (See Miall, 1979, for a discussion of deltas).

2.2.3 STRUCTURE

Two major structures, interpreted to be northeast dipping thrust faults, cross the east-central and southwest portions of the grid. The first of these brings into juxtaposition east-west trending, calcareous sediments in the hangingwall and northwest trending fine grained quartzites in the footwall. The second corresponds with VLF cross-overs from 16+50 S, 4+00 W to 18+50 S, 1+85 W and occurs in a phyllite horizon. The phyllites may have undergone variable tectonic thickening as the width of the unit changes markedly across the top of Gretchen Peak. Lithologies above and below the thrust are similar but the hangingwall beds dip at moderate angles to the north whereas those in the footwall are strongly folded to produce areas of vertical bedding with northerly strikes (figure 4).

A second set of faults have near vertical dips and north to northeast trends. In quartzites they are characterized by limonitic shear zones of crush breccia, generally observed as talus. Faults of this type in the southwest area of the grid appear to end either at the

thrust fault or within the phyllites above and below the thrust. A fault extending from 19+00 S, 0+20 W to 20+00 S, 0+00 W is identified on the basis of a linear VLF response which terminates north of 19+00 S, presumably against the thrust.

Northwest of the grid area quartzites are overlain by a thick sequence of limestones (4a), however, the nature of the contact is uncertain. Archer and Carne (1982) indicate a fault contact and the deformation noted in unit 4a supports this conclusion. Bedding within the mapped area generally dips at moderate angles to the north and northeast with the majority of strike directions lying between 270 and 315 degrees. An extensive dip slope has formed on the north side of Gretchen Peak by the erosion of phyllites overlying resistant, coarse grained quartzites (figure 5).

2.2.4 METAMORPHISM

No thermal metamorphic effects have been recognized on the CUZ property. Dynamic metamorphism occurs in the form of (a) phyllitic cleavage in fine-grained, terrigenous clastic units and (b) as localized crush breccia zones observed in talus associated with north-trending shear zones within competent lithologies.

2.2.5 ALTERATION

Sericitic and argillic alteration occurs over an area approximately 300 m north-south by 400 m east-west on the north slope of Gretchen Peak (figure 6). The alteration zone is coincident with much of the overburden Au anomaly and also extends to the south (upslope; figure 3). Sericitization and argillization occurs within the

intergranular areas of coarse grained quartzites and quartz pebble conglomerates (map unit 1) where soft, very fine grained, white, yellowish white, and light green assemblages often totally replace the original matrix. However, matrix generally occupies less than 10% of the rock's volume making it difficult to assess the alteration capability possessed by the metasomatic fluids. (Thin section descriptions of samples AB17454 and AB17462, collected from the altered zone, are presented in appendix A).

Feldspar grains within the Grit Unit are generally altered to a clay mineralogy on a regional scale (Archer and Carne, 1982). Coarse grained units on the CUZ claims outside of the sericitic-argillic alteration zone often contain a small percentage of feldspar grains that are only partly altered to clay. These grains are relatively hard and often retain a lath-like outline. Within the alteration zone on the north slope of Gretchen Peak all feldspar grains are totally altered to white and yellowish white clays with lath-like outlines being rare.

2.2.6 VEINING AND MINERALIZATION

Barren, massive, milky white quartz veins occur throughout the coarse grained quartzites and quartz pebble conglomerates of the grid area. These often occur as discontinuous gash veins and rarely in an en echelon "S" form. These veins are less common in the fine grained quartzites and are virtually absent in the phyllites and limestones.

A second generation of quartz veins, which cross-cuts the massive veins described above, are most commonly observed on the north slope of Gretchen Peak.

These are identified by associated disseminated pyrite, limonite stain, and occasional drusy quartz. Pyrite occurs in both the veins and wallrock and may exceed 5% of the rocks volume although less than 1% pyrite is much more common. Fine grained pyritohedrons are unusually abundant. Unoxidized pyrite is scarce with the majority of pyrite now represented by fine grained goethite pseudomorphs and equant casts. Limonite, presumably from the oxidation of pyrite, is common along hairline fractures and as a very fine grained matrix component.

A third type of veining occurs in fine to coarse grained quartzites just west of the baseline near 18+50 S. Within this area narrow, quartz-calcite-siderite veins, accompanied by an orange-brown stain, are moderately common.

The last type of veining noted during the 1985 mapping are small, barren, ladder veinlets of quartz located approximately 100 m east of 15+50S, 4+00 E. Veinlets are roughly perpendicular to bedding and are restricted to narrow limestone horizons of an interbedded limestone-calcareous phyllite sequence.

3. GEOCHEMISTRY

3.1 GENERAL

3.1.1 SAMPLING PROCEDURES

During the 1985 program 370 samples were collected for gold analyses; 155 panel chip samples, 7 channel chip samples from Trench-85-1, 27 rock grab samples, and 181 overburden samples composed predominantly of talus fines. Sample number sequences for the rocks are AB17401-500, AB18651-670, and AB18701-769 while overburden samples are SA00401-518 and SA00601-663.

Control for the majority of sampling was provided by a newly established grid covering the top and north slope of Gretchen Peak. Established with compass and chain, grid lines are marked by pickets every 50 m labelled with the station and the year (1985) to avoid confusion with the pre-existing Archer, Cathro grid. The 1982 grid of Archer, Cathro was reestablished and used for control north and west of the 1985 grid. Locations of four rock samples collected during property-scale mapping were determined using a 1:5000 scale contour map.

The overburden sampling program was designed to confirm and better define the main Au anomaly delineated by Archer, Cathro during 1982, and test local geochemical highs on the plateau north of Gretchen Peak. For the most part soil development is negligible and samples consist of talus fines.

Chip sampling was concentrated on the north slope of Gretchen within and uphill from the dominant overburden

gold anomaly. Panel chip samples were collected over widths (heights) of approximately 0.5 m by lengths of 2 to 6 m, the interval length being determined by the intensity of alteration and veining as well as outcrop size. Three of the panel chip samples were collected from areas of limonitic talus while the rest are from outcrops.

3.1.2 ANALYTICAL PROCEDURE

All analyses were performed by CDN Resources Laboratories Ltd. ,#8, 7550 River Road, Delta, B.C. Rock samples were crushed followed by grinding to -100 mesh while overburden samples were sieved to -80 mesh. All samples were submitted for geochemical Au determination by fire assay preconcentration followed by atomic absorption. In addition, 17 rock samples containing in excess of 200 ppb Au underwent atomic absorption analyses for Ag, As, and Sb. Details of the analytical procedures are presented in appendix B.

3.1.3 DATA PRESENTATION

Presentation of geochemical data is in the form of;

- (1) 1:1000 scale maps of sample locations, Au lithogeochemistry, and Au overburden geochemistry (figures 7, 8 and 9 respectively),
- (2) a 1:1000 scale compilation map of geological, geochemical, and geophysical features for the area of the main Au anomaly (figure 6),
- (3) analytical results (appendices C and D)

(4) statistical summaries (appendix E), and

(5) histograms (appendix F).

(Analytical results and field descriptions have been entered into the whole rock and soil overburden data bases of Kidd Creek Mines and can be retrieved using the project code CUZCL.)

3.2 DISCUSSION OF GEOCHEMICAL RESULTS

3.2.1 AU GEOCHEMISTRY

Regional sampling by Archer, Cathro indicates that the Au threshold between background and anomalous sample populations lies at approximately 10 ppb (Archer and Carne, 1982). In this report a more conservative value of 20 ppb Au will be used and only those rock and overburden samples exceeding this value will be termed anomalous.

Overburden sampling reproduced the Archer, Cathro Au anomaly on the north slope of Gretchen Peak. 85 overburden samples from the central portion of the anomalous slope (sample area bounded by lines 14+50 S, 16+50 S, 3+00 W, and 1+00 E) have a mean value of 247 ppb Au and a maximum of 1600 ppb Au. The 300 ppb Au contour outlines elongate, NNE trending trains of anomalous talus fines originating on the upper portion of the slope between 16+00 S and 18+00 S (figure 6).

Nineteen panel chip and rock grab samples collected downslope (north) from line 16+00 S returned a maximum of 30 ppb Au and mean of 8.4 ppb Au. In comparison, 135 panel chip

samples from the upper north slope of Gretchen Peak (sample area bounded by lines 16+00 S, 18+00 S, 3+00 W, and 1+00 E) have a mean value of 74.1 ppb Au and a maximum of 1450 ppb Au. Seventy three percent of these samples are anomalous at a 20 ppb Au threshold but only 13.2 % (18 samples) exceed 100 ppb Au.

Evidently Au values have been upgraded in the talus fines on the north slope of Gretchen Peak. Using the averages for the areas described above (247 ppb versus 74 ppb) there is an enrichment factor of 3.3 between the source rocks and the downslope overburden.

Of the 28 rock grab samples analyzed for Au, all 9 with values greater than 50 ppb Au were collected near the top of Gretchen Peak. The most auriferous of these, containing in excess of 700 ppb Au, are pieces of coarse talus collected on the upper eastern slope of Gretchen Peak. They consist of fractured, strongly limonitic, argillized quartzites cut by drusy, pyritic and/or goethitic quartz veins. (Thin section descriptions of AB18767 and AB18666, which contain 7600 ppb Au and 1360 ppb Au respectively, are presented in appendix A.) The talus is thought to originate from shear zones associated with a NNE trending fault passing near 18+00 S, 1+00W.

Seven channel chip samples were taken across a fracture-controlled silicified zone exposed over a length of 7 m in trench TR-85-1 (figure 7). Values range from 40 to 210 ppb Au. The zone, which has a maximum width of 1 m, consists of numerous, discontinuous, parallel quartz

veinlets containing abundant pyrite casts. The veins are hosted by sericitic quartzite and quartz pebble conglomerate.

Analytical values of nine panel chip samples, from limonitic, sheared, fine grained quartzites near 11+00 S, 3+50 W, range from less than 5 to 240 ppb Au with an average of 72 ppb Au. Eleven overburden samples collected in the same area contain from 60 to 1200 ppb Au. Previous overburden sampling by Archer, Cathro suggests that this anomaly has a limited extent (Archer and Carne, 1982).

3.3.3 AG, AS, SB, AND BI GEOCHEMISTRY

Seventeen rock samples which returned Au values of greater than 200 ppb were reanalysed for Ag, As, Sb, and Bi. Statistical summaries for these analyses are presented in appendix C. (Archer, Cathro's 1982 work indicates As, Sb, and Bi overburden anomalies are approximately coincident with the Au overburden anomaly on the north slope of Gretchen Peak.) As and Bi lithogeochemistry for the 17 samples is strongly anomalous with median values of 810 and 18 ppm respectively. Sb results, which include an erratic high of 39 ppm, have a median of only 2 ppm. Ag has a median is 0.1 ppm and a mean of .19 ppm.

Krauskopf (1979) suggests the following values as representative crustal averages for these elements:

Element	Crustal Average	Average Enrichment In 17 CUZ Claim Samples Exceeding 200 ppb Au
-----	-----	-----
Au	3 ppb	393
Ag	0.07 ppm	2.7
As	1.8 ppm	939
Sb	0.2 ppm	25
Bi	0.15 ppm	387

Comparison with Krauskopf's data indicates trace element enrichments in auriferous CUZ rocks decrease in the order As-(Au,Bi)-Sb-Ag. Although the only metallic mineral observed was pyrite, the elemental suite associated with Au enriched rocks suggests the presence of microscopic arsenopyrite and possibly As-Bi-Sb rich, Ag poor sulfosalts. Sulfosalts have been noted in calcareous Grit Unit quartzites on the Porker claims 2 km north of the CUZ property (Archer, Cathro and Associates, 1985).

Au/Ag ratios for the 17 rock samples containing over 200 ppb Au range from 0.8 to 38 and have an average of 6.1. Au/Ag ratios of greater than 1 are typical of auriferous quartz veins in pre-Tertiary rocks (Boyle, 1979).

Binary plots of Ag, As, Sb, and Bi against Au fail to display significant correlations. This may be partly a function of the small size of the data set (17 samples) and the lack of multielement analyses for rocks with less than 200 ppb Au.

4. METALLOGENESIS

As, Bi, Sb, and Ag are elements typically enriched in auriferous deposits including those associated with quartz veining and shear zones in sedimentary terrains (Boyle, 1979). The source of the fluids which mineralized the north slope of Gretchen Peak are problematical. The lack of regional metamorphism makes a model of fluid and metal transfer from high pressure structural zones (eg. fold axis) to dilatant zones unlikely nor is metamorphic dewatering a possibility. The most likely model is one involving convective fluid flow generated by a Cretaceous intrusion not exposed at surface. The CUZ claims lie near the southern end of a group of early mid-Cretaceous intrusions of granodiorite, quartz monzonite, and quartz diorite (figure 2). CUZ claim sediments were situated outside the thermal metamorphic aureole but inside the zone of convective fluid flow.

No economic Au deposits are known to occur in Grit Unit sediments of the southeastern Yukon (Morin and Downing, 1984).

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APPENDIX A

THIN SECTION DESCRIPTIONS

SAMPLE NUMBER: AB17454
GRID COORDINATES: 16+95 S, 1+85 W
SAMPLE TYPE: Outcrop panel chip
ANALYTICAL RESULTS: 260 ppb Au
THIN SECTION: Coarse grained quartzite consisting of rounded quartz grains with sutured contacts. Matrix, comprising 5 to 10 % of the rock, has been altered to a very fine grained, clay-sericite assemblage. Accessories include fine grained, subeuhedral to anhedral sphene and very fine grained zircon. Less than 5 % fine grained quartz veining.

SAMPLE NUMBER: AB17462
GRID COORDINATES: 16+95 S, 2+20 W
SAMPLE TYPE: Outcrop panel chip
ANALYTICAL RESULTS: 350
THIN SECTION: Oligomictic, quartz granule conglomerate of rounded, sutured, quartz grains and approximately 5 % matrix. Matrix has undergone very fine grained, sericitic-argillic alteration. Accessories include sphene, apatite, and zircon. Less than 5 % fine grained quartz veining.

SAMPLE NUMBER: AB18666
GRID COORDINATES: 18+95 S, 1+05 W
SAMPLE TYPE: Talus grab
ANALYTICAL RESULTS: 1360 ppb Au
THIN SECTION: Brecciated, medium grained quartzite of subrounded to subangular quartz grains with strongly sutured contacts. Rock has been fractured and brecciated at microscopic to lower macroscopic scale. Area between breccia fragments, approximately 50% of the rock, contains an assemblage of clays and very fine grained quartz (the proportion of secondary quartz to that which is the result of milling during brecciation is unknown). Much of the quartz in the area between breccia fragments has recrystallized and contains numerous clay laths as inclusions. A small percentage of the recrystallized quartz grains have roughly hexagonal outlines. The sample contains approximately 5 %, fine grained, limonite and/or goethite crystals, many of which are pseudomorphs of pyrite. As well, the very fine grained material between breccia fragments is strongly limonitic. Quartz veinlets occupy less than 1 % of the thin section.

SAMPLE NUMBER: AB18767
GRID COORDINATES: 18+50 S, 1+00 W
SAMPLE TYPE: Talus grab
ANALYTICAL RESULTS: 7600 ppb Au
THIN SECTION: Coarse grained quartzite of

rounded quartz clasts with sutured grain boundaries. Several grains are cut by hairline fractures containing limonite. 5 to 10 % of the specimen consists of irregular veins and veinlets of very fine to fine grained quartz and fine to medium grained goethite. Goethite, which is also common in the wallrock, replaces pyrite and is generally in the form of pyritohedrons. Goethite after pyrite occupies approximately 5 % of the rock. Strong, very fine grained, argillic and sericitic alteration occurs within the 5 to 10 % of the sample occupied by matrix.

APPENDIX B

ANALYTICAL METHODS

CDN RESOURCE LABORATORIES LTD.

#8, 7550 RIVER ROAD, DELTA, B.C. V4G 1C8 / TEL. (604) 946-4448

ASSAY PROCEDURES

Geochem Au: Fire assay on a 15g sample for rocks (10g for soils).
Bead is parted in 0.5 ml nitric acid, 1.5 ml hydrochloric acid is added to dissolve gold bead. Sample is bulked to 5 ml with water, then presented to AA.

Geochem Ag,Bi: 0.5g sample is digested in 1 ml nitric and 2 ml hydrochloric acids on a water bath at 70°C for an hour and a half. Sample is bulked to 10 ml with water and presented to AA.

Geochem As,Sb: 0.5g sample is digested in 1 ml nitric and 2 ml hydrochloric acids on a water bath at 70°C for an hour and a half. Sample is bulked to 10 ml with water and presented to AA. To obtain lower detection limits, hydride generation is used. If samples are greater than 100 ppm, direct AA is used.

APPENDIX C

ANALYTICAL AU RESULTS

GEOCHEMICAL REPORT

TO: Kidd Creek Mines Ltd
 701 - 1281 West Georgia
 Vancouver, B.C.
 V6E 3J7

FILE NO.: 85-128

DATE: August 12, 1985

ATTENTION: P. Delancey

cc. N. von Fersen

PROJECT: 978

Sample Description	Au ppb		Au ppb
SA 422	<5	SA 421	20
423	5	424	200
467	10	425	230
470	225	426	280
477	105	427	130
608	45	428	340
621	25	429	130
AB 18651	3300	430	350
18652	45	431	330
18653	40	432	170
18654	210	433	410
18655	70	434	130
18656	40	435	230
18657	60	436	210
18658	60	437	180
18659	25	438	110
18660	15	439	310
18661	5	440	110
18662	5	441	80
18663	5	442	25
SA 401	20	443	60
402	90	444	20
403	90	445	70
404	150	446	230
405	160	447	240
406	160	448	40
407	160	449	190
408	160	450	190
409	125	451	420
410	140	452	120
411	110	453	150
412	180	454	680
413	150	455	150
414	150	456	140
415	50	457	60
416	80	458	50
417	75	459	90
418	110	460	50
419	100	461	30
420	60	462	20

Duncan... Sanderson.....

GEOCHEMICAL REPORT

Sample Description	Au ppb		Au ppb
SA 463	20	SA 624	25
464	130	625	250
465	50	626	220
466	110	627	380
468	310	628	210
469	150	629	200
471	470	630	310
472	180	631	180
473	100	632	60
474	180	633	100
475	130	634	370
476	220	635	690
478	250	636	190
479	150	637	480
480	800	638	200
481	<5	639	200
482	<5	640	320
483	<5	641	190
484	10	642	65
601	10	643	100
602	40	644	40
603	70	645	40
604	300	646	70
605	400	647	100
606	180	648	110
607	180	649	340
609	120	650	440
610	130	651	360
611	300	652	180
612	360	653	170
613	450	654	100
614	70	655	160
615	260	656	610
616	130	657	270
617	250	658	1600
618	110	659	920
619	50	660	130
620	20	661	360
622	10	662	40
623	5	663	10

Results of file 85-128 are geochemical determinations:
Au: fire assay, AA.

Duncan... Anderson.....

GEOCHEMICAL REPORT

TO: Kidd Creek Mines Ltd
 701 - 1281 West Georgia
 Vancouver, B.C.
 V6E 3J7

FILE NO.: 85-139

DATE: August 14, 1985

ATTENTION: P. Delancey

cc. N. von Fersen

PROJECT: 978

Sample Description	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Sn ppm
AB 17428	25	0.1	10	2	8	230	1	6
AB 17401	5							
17402	5							
17403	45							
17404	20							
17405	5							
17406	30							
17407	15							
17408	30							
17409	50							
17410	5							
17411	20							
17412	55							
17413	80							
17414	15							
17415	30							
17416	45							
17417	25							
17418	120							
17419	190							
17420	30							
17421	80							
17422	175							
17423	100							
17424	100							
17425	30							
17426	10							
17427	10							
17429	10							
17430	5							
17431	25							

Results of file 85-139 are geochemical determinations:

Au: fire assay, AA.

Ag,Cu,Pb,Zn,As,Sb: aqua regia digestion, AA.

Sn: sublimation with ammonium iodide, extraction with
 TOPO in MIBK, AA.

.....*Paul Delancey*.....

GEOCHEMICAL REPORT

TO: Kidd Creek Mines Ltd.
701 - 1281 West Georgia
Vancouver, B.C.
V6E 3J7

FILE NO.: 85-143

DATE: August 20, 1964

ATTENTION: P. Delancey

cc. N.von Fersen

PROJECT: 978

Sample Description	Au ppb			Au ppb
AB 17432	50		AB 17456	60
17433	70		17457	60
17434	10		17458	140
17435	<5		17459	230
17436	30		17460	70
17437	50		17461	50
17438	10		17462	350
17439	15		17463	90
17440	20		17464	60
17441	100		17465	30
17442	50		17466	80
17443	60		17467	50
17444	25		17468	50
17445	30		17469	40
17446	<5		17470	50
17447	30		17471	30
17448	20		17472	20
17449	10		17473	30
17450	60		17474	20
17451	40		17475	30
17452	40		17476	30
17453	70		17477	20
17454	260		17478	20
17455	40			
	Ba			
	ppm			
AB 17446	30			

Results of file 85-143 are geochemical determinations:

Au: fire assay, AA.

Ba: lithium metaborate fusion, AA.

.....nein-ja

GEOCHEMICAL REPORT

TO: Kidd Creek Mines Ltd.
701 - 1281 West Georgia
Vancouver, B.C.
V6E 3J7

FILE NO.: 85-153

DATE: August 27, 1985

ATTENTION: P. Delancey

cc. N. von Fersen

PROJECT: 978

Sample Description	Au ppb
AB 17479	65
17480	60
17481	10
17482	5
17483	25
17484	10
17485	5
17486	20
17487	10
17488	5
17489	15
17490	5
17491	5
17492	1350
17493	15
17494	10
17495	35
17496	5

Results of file 85-153 are geochemical determinations:
Au: fire assay, AA.

Duncan... Sanderson.....

GEOCHEMICAL REPORT

TO: Kidd Creek Mines Ltd.
 701 - 1281 West Georgia
 Vancouver, B.C.
 V6E 3J7

FILE NO.: 85-164

DATE: September 6,

ATTENTION: P. Delancey

cc. N. von Fersen

PROJECT: 978

Sample Description	Au ppb		Au ppb
AB 17497	20	AB 18737	35
17498	35	18738	60
17499	25	18739	60
17500	30	18740	1450
AB 18701	50	18741	90
18702	25	18742	230
18703	10	18743	25
18704	20	18744	60
18705	45	18745	5
18706	5	18746	5
18707	50	18747	5
18708	30	18748	5
18709	15	18749	5
18710	40	18750	10
18711	110	18751	5
18712	10	18752	5
18713	40	18753	5
18714	30	18754	5
18715	420	18755	10
18716	105	18756	20
18717	50	18757	20
18718	50	18758	70
18719	30	18759	240
18720	35	18760	190
18721	120	18761	75
18722	70	18762	15
18723	340	18763	5
18724	450	18764	10
18725	20	18765	5
18726	5	18766	10
18727	5	18767	7600
18728	5	18768	120
18729	45	18769	25
18730	30	AB 18664	10
18731	5	18665	920
18732	10	18666	1360
18733	5	18667	710
18734	5	18668	120
18735	5	18669	40
18736	5	18670	660

Duncan.....Sanderson.....

GEOCHEMICAL REPORT

Sample Description	Au ppb
SA 485	1200
486	280
487	160
488	560
489	530
490	60
491	220
492	210
493	140
494	80
495	280
496	20
497	220
498	80
499	70
500	40
501	30
502	30
503	20
504	20
505	25
506	110
507	70
508	380
509	60
510	150
511	20
512	20
513	60
514	280
515	40
516	720
517	230
518	60

Results of file 85-164 are geochemical determinations:

Au: fire assay, AA.

[Handwritten signature]

APPENDIX D

AU, AG, AS, SB, AND BI ANALYSES AND FIELD DESCRIPTIONS
OF ROCKS CONTAINING GREATER THAN 200 PPB AU

SAMPLE NO: AB17454
SAMPLE TYPE: Outcrop panel chip over 3 m interval
GEOCHEM-PPB: 260 Au
GEOCHEM-PPM: 0.1 Ag, 680 As, 2 Sb, 11 Bi
FIELD DESCR: Coarse grained quartzite, moderate argillic alteration of matrix, moderate fracture controlled silicification. Less than 1 % disseminated pyrite. (See appendix A for thin section description.)

SAMPLE NO: AB17459
SAMPLE TYPE: Outcrop panel chip over 6 m interval
GEOCHEM-PPB: 230 Au
GEOCHEM-PPM: 0.1 Ag, 690 As, 1 Sb, 10 Bi
FIELD DESCR: Medium grained quartzite with strong SiO₂ veining, moderate matrix argillization and sericitization, and weak limonite along hairline fractures. Less than 1 % pyrite now represented by equant, often cubic, fine to medium grained casts.

SAMPLE NO: AB17462
SAMPLE TYPE: Outcrop panel chip over 6 m interval
GEOCHEM-PPB: 350 Au
GEOCHEM-PPM: 0.1 Ag, 140 As, 1 Sb, 9 Bi
FIELD DESCR: Coarse to medium grained quartzite with strong SiO₂ veining, moderate argillic and sericitic alteration of matrix, and weak matrix limonite. 1-5 % pyrite, generally associated with quartz veining, represented by equant casts. (See appendix A for thin section description.)

SAMPLE NO: AB17492
SAMPLE TYPE: Outcrop panel chip over 3 m interval
GEOCHEM-PPB: 1350 Au
AU ASSAY: 1.6 g/tonne
GEOCHEM-PPM: 0.2 Ag, 360 As, 2 Sb, 14 Bi
FIELD DESCR: Coarse grained quartzite and quartz granule conglomerate. Moderate SiO₂ veining, moderate argillization +/- sericitization of matrix, and weak matrix limonite. Less than 1 % disseminated pyrite.

SAMPLE NO: AB18651
SAMPLE TYPE: Talus grab
GEOCHEM-PPB: 3300 Au
AU ASSAY: 3.7 g/tonne
GEOCHEM-PPM: 0.3 Ag, 480 As, 1 Sb, 178 Bi
FIELD DESCR: Quartz vein float, very spongy appearance due to weathering out of sulphides.

SAMPLE NO: 18654
SAMPLE TYPE: Chip sample across 1.6 m in trench 85-1
GEOCHEM-PPB: 210 Au
GEOCHEM-PPM: 0.1 Ag, 70 As, 1 Sb, 18 Bi
FIELD DESCR: Vuggy quartz veining cutting altered

quartzite.

SAMPLE NO: 18665
SAMPLE TYPE: Talus grab
GEOCHEM-PPB: 920 Au
GEOCHEM-PPM: 0.3 Ag, 2600 As, 3 Sb, 12 Bi
FIELD DESCR: Medium grained quartzite, matrix completely clay altered. Strong Fe staining, abundant quartz veinlets, pyrite (pyritohedrons), and goethite.

SAMPLE NO: AB18666
SAMPLE TYPE: Talus grab
GEOCHEM-PPB: 1360 Au
AU ASSAY: 1.7 g/tonne
GEOCHEM-PPM: 0.2 Ag, 2600 As, 5 Sb, 50 Bi
FIELD DESCR: Medium grained quartzite, strong clay alteration and Fe staining. Approximately 10 % disseminated pyritohedrons. Very porous due to altered pyrite. Quartz veining common. Some goethite (?). (See appendix A for thin section description.)

SAMPLE NO: AB18667
SAMPLE TYPE: Talus grab
GEOCHEM-PPB: 710 Au
GEOCHEM-PPM: 0.1 Ag, 5000 As, 8 Sb, 18 Bi
FIELD DESCR: Medium to fine grained quartzite, strongly altered matrix (clay) and strong limonite development. Quartz veinlets abundant. Vugs after pyritohedrons. Slickensides.

SAMPLE NO: 18670
SAMPLE TYPE: Outcrop grab
GEOCHEM-PPB: 660 Au
GEOCHEM-PPM: 0.3 Ag, 4800 As, 1 Sb, 28 Bi
FIELD DESCR: Quartz breccia in fault zone. Brecciated and silica cemented quartz (drusy), abundant pyrite casts.

SAMPLE NO: AB18715
SAMPLE TYPE: Outcrop panel chip over 3 m interval
GEOCHEM-PPB: 420 Au
GEOCHEM-PPM: 0.1 Ag, 810 As, 4 Sb, 40 Bi
FIELD DESCR: Coarse grained quartzite with strong argillic alteration of matrix. Quartz veinlets common, vuggy, common pyritohedrons. Silicification of host adjacent to veinlets.

SAMPLE NO: AB18723
SAMPLE TYPE: Outcrop panel chip over 3 m interval
GEOCHEM-PPB: 340 Au
GEOCHEM-PPM: 0.1 Ag, 340 As, 1 Sb, 13 Bi
FIELD DESCR: Medium grained quartzite - silicified. Quartz veinlets common, vuggy (altered pyrite), and

occasional druse. Limonite and sericite near veinlets.

SAMPLE NO: AB18724
SAMPLE TYPE: Outcrop panel chip over 3 m interval
GEOCHEM-PPB: 450 Au
GEOCHEM-PPM: 0.1 Ag, 460 As, 1 Sb, 38 Bi
FIELD DESCR: Medium to coarse grained quartzite. Quartz veinlets moderately abundant, sericite and clay in proximity to veinlets. Quartz veinlets are vuggy (after pyrite). Weak limonite on fractures.

SAMPLE NO: AB18740
SAMPLE TYPE: Talus panel chip over 6 m interval
GEOCHEM-PPB: 1450 Au
AU ASSAY: 1.8 g/tonne
GEOCHEM-PPM: 0.5 Ag, 5000 As, 11 Sb, 420 Bi
FIELD DESCR: Coarse grained quartzite. Strongly limonitized, completely clay altered matrix. Quartz veining common, vuggy and drusy.

SAMPLE NO: AB18742
SAMPLE TYPE: Outcrop Panel chip over 3 m interval
GEOCHEM-PPB: 230 Au
GEOCHEM-PPM: 0.1 Ag, 2400 As, 3 Sb, 17 Bi
FIELD DESCR: Coarse grained quartzite, strongly limonitized, matrix completely clay altered. Common quartz veinlets are vuggy (after pyrite).

SAMPLE NO: AB18759
SAMPLE TYPE: Outcrop panel chip over 5 m interval
GEOCHEM-PPB: 240 Au
GEOCHEM-PPM: 0.3 Ag, 1280 As, 4 Sb, 25 Bi
FIELD DESCR: Fine grained quartzite. Moderate to strong fracture controlled limonite (earthy) and minor granular goethite. Weak SiO₂ veining (narrow veinlets). Less than 1 % fine grained pyritohedrons of goethite replacing pyrite.

SAMPLE NO: AB18767
SAMPLE TYPE: Talus grab
GEOCHEM-PPB: 7600 Au
AU ASSAY: 9.0 g/tonne
GEOCHEM-PPM: 0.2 Ag, 1040 As, 39 Sb, 86 Bi
FIELD DESCR: Coarse grained quartzite. Moderate SiO₂ veining with fine to medium grained drusy quartz common in intervein openings. Pyrite in unoxidized core gives way to goethite (after pyrite) and moderate matrix limonite in oxidized zone. Pyritohedrons common. (See thin section description in appendix A.)

APPENDIX E

STATISTICAL SUMMARIES

AU STATS-OVERBURDEN SAMPLES

NUMBER OF SAMPLES	:	181
MINIMUM	:	3.
MAXIMUM	:	1600.
MEAN	:	186.
STANDARD DEVIATION	:	205.
MEDIAN	:	130.
MODE	:	20.
SKEWNESS	:	1.
KURTOSIS	:	18.
NUMBER OF CLASSES	:	20
CLASS INTERVAL	:	80.

AU STATS-ALL ROCK SAMPLES

NUMBER OF SAMPLES	:	189
MINIMUM	:	2.
MAXIMUM	:	7600.
MEAN	:	139.
STANDARD DEVIATION	:	625.
MEDIAN	:	30.
MODE	:	5.
SKEWNESS	:	1.
KURTOSIS	:	111.
NUMBER OF CLASSES	:	20
CLASS INTERVAL	:	380.

PPB AU-ROCKS OVER 200 PPB AU

NUMBER OF SAMPLES	:	17
MINIMUM	:	210.
MAXIMUM	:	7600.
MEAN	:	1181.
STANDARD DEVIATION	:	1772.
MEDIAN	:	450.
MODE	:	230.
SKEWNESS	:	1.
KURTOSIS	:	10.
NUMBER OF CLASSES	:	20
CLASS INTERVAL	:	370.

PPB AG-ROCKS OVER 200 PPB AU

NUMBER OF SAMPLES	:	17
MINIMUM	:	100.
MAXIMUM	:	500.
MEAN	:	188.
STANDARD DEVIATION	:	113.
MEDIAN	:	100.
MODE	:	100.
SKEWNESS	:	2.
KURTOSIS	:	4.
NUMBER OF CLASSES	:	20
CLASS INTERVAL	:	21.

PPM AS-ROCKS OVER 200 PPB AU

NUMBER OF SAMPLES	:	17
MINIMUM	:	70.
MAXIMUM	:	5000.
MEAN	:	1691.
STANDARD DEVIATION	:	1693.
MEDIAN	:	810.
MODE	:	2600.
SKEWNESS	:	2.
KURTOSIS	:	3.
NUMBER OF CLASSES	:	20
CLASS INTERVAL	:	247.

PPM SB-ROCKS OVER 200 PPB AU

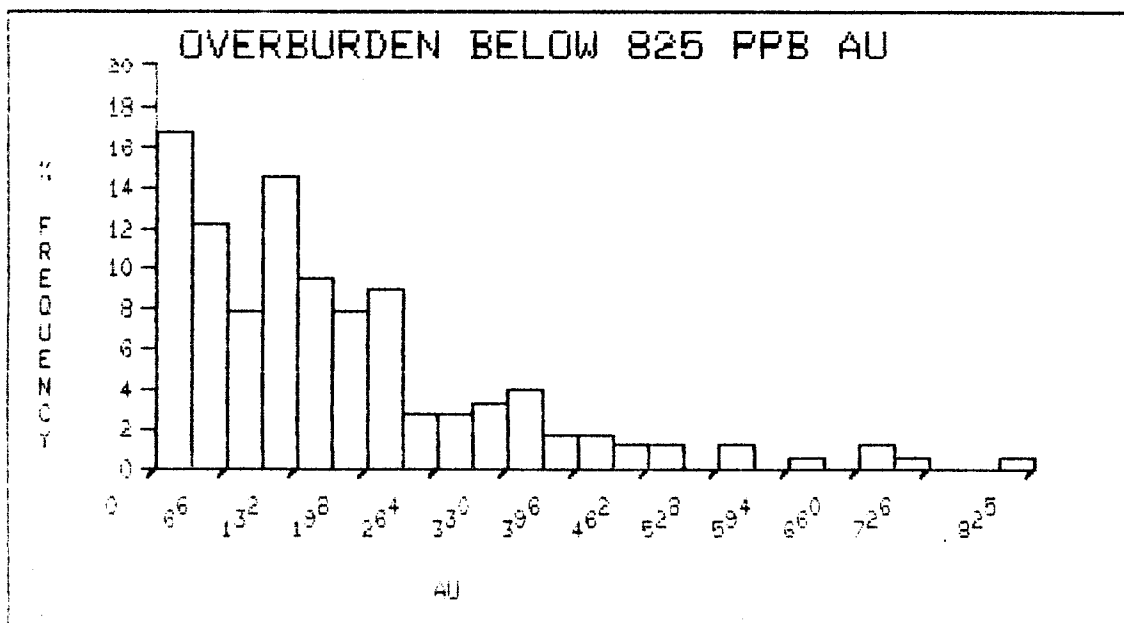
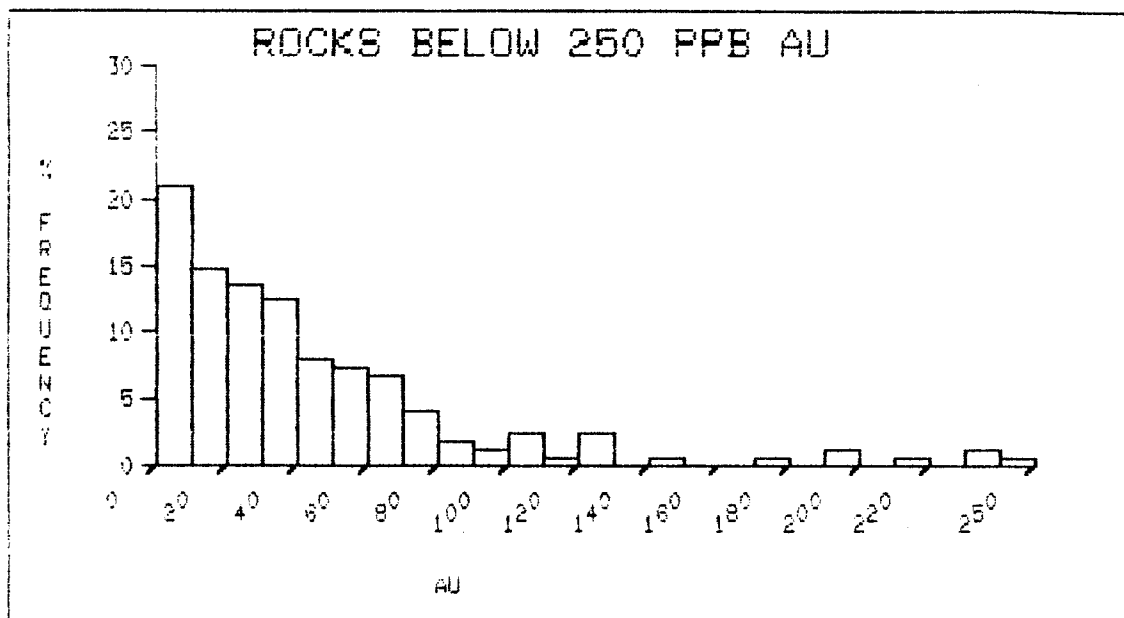
NUMBER OF SAMPLES	:	17
MINIMUM	:	1.
MAXIMUM	:	39.
MEAN	:	5.
STANDARD DEVIATION	:	9.
MEDIAN	:	2.
MODE	:	1.
SKEWNESS	:	1.
KURTOSIS	:	12.
NUMBER OF CLASSES	:	20
CLASS INTERVAL	:	2.

PPM BI-ROCKS OVER 200 PPB AU

NUMBER OF SAMPLES	:	17
MINIMUM	:	9.
MAXIMUM	:	420.
MEAN	:	58.
STANDARD DEVIATION	:	99.
MEDIAN	:	18.
MODE	:	18.
SKEWNESS	:	1.
KURTOSIS	:	11.
NUMBER OF CLASSES	:	20
CLASS INTERVAL	:	21.

APPENDIX F

HISTOGRAMS



APPENDIX G

Geophysical Report on the CUZ CLAIMS

by

G. Hendrickson

and

T. Hutteman

GEOPHYSICS

Introduction

The purpose of this geophysical work was to outline the spatial position and strength of sulphide zones and related geologic structures. A possible correlation between sulphides and gold mineralization has been suggested from rock geochemistry and soil sample results. In all, 10.5 kilometres of Induced Polarization and Magnetometer/VLF survey were completed on the Cuz claim group.

A grid of thirteen lines, separated by fifty metres and oriented east-west, were established over the anomalous rock geochemistry/soil sample locations. The grid is on steep terrain almost completely above the tree line so that no line cutting was necessary. Loose rubble and talus covered approximately twenty-five percent of the grid. Twenty-five metre stations were chained and picketed, but not corrected for slope variations from the horizontal.

Personnel

GERENCSE, Mike	- Field Assistant, Lethbridge, Alberta
LINDSAY, Charles	- Field Assistant, Oakville, Ont.
HUTTEMAN, Tim	- Junior Geophys., Richmond, B.C.
PRIOR, Glen	- Geologist, Massey, Ontario

Equipment

- 1 - Scintrex IPR-10 time-domain receiver
- 1 - Scintrex IPC-8 250 watt time-domain transmitter
- 1 - Scintrex MP-3 base station total field magnetometer
- 1 - Scintrex IGS-2 systems control console - a portable combination VLF/total field magnetometer.

Data Presentation

Geophysical data are given on property grid maps which indicate an ideal grid. The plan maps are at a distance scale of 1:1000 to correspond directly to the geology plan map. The chargeability (first slice plotted) data has the vertical in-phase VLF cross-over location superimposed on it. The horizontal field strength and vertical quadrature VLF data are computer plotted as profiles and are included at the the back of this report along with the magnetic data.

Survey & Procedures

For the Induced Polarization survey, current electrodes (AB) were stainless steel rods while potential electrodes (MN) were copper electrodes contained in porous ceramic pots filled with copper sulphate. These more elaborate potential electrodes are considered necessary to prevent undesirable electrode polarization in a high accuracy survey. This type of potential electrode works on the principle that an electrode immersed in a solution of one of its own salts cannot be polarized.

The Schlumberger electrode array was used for the following reasons:

- a) simple anomaly shape
- b) provides some information on dip
- c) least affected by topography
- d) better signal-to-noise ratio for a given depth of investigation (important when using a small portable transmitter).
- e) operational ease in rough topography
- f) good lateral resolution provided MN is kept small

- g) fast and inexpensive reconnaissance method for determining sulphide zones.

Current electrode separation on the survey was fixed at 175 m slope-distance and potential electrode separation was fixed at 25 m slope-distance. The current dipole (AB), while remaining parallel to, was separated from the receiving dipole (MN) by one to two metres. This separation avoided or reduced any inductive and/or capacitative coupling problems. In addition, three slices of the voltage decay curves were monitored on the receiver to ensure curve shapes were normal. Extra effort was made to ensure that potential electrode contacts with the ground were under 50 k ohms. However, on the west side of the grid the amount of coarse talus present occasionally made good pot contact difficult. The readings taken at stations with poor pot contacts are marked with an asterisk on the plan maps. Since the stations were not corrected for slope variations, the horizontal distances are not constant and therefore, the chargeabilities and resistivity plan maps may have some minor distortions due to topography.

The survey tested the 10 to 80 metre depth with prime emphasis on the upper 30 metres. A curve showing the typical depths of investigation characteristics for the Schlumberger array (assuming homogenous ground) is included as Appendix .

For the magnetic survey, a base station magnetometer was run continuously (sampling every 60 seconds) to monitor the diurnal shift of the earth's magnetic field. The base station was situated to isolate it from cultural effects and it's location was checked prior to the survey to ensure against a steep magnetic

gradient in the area. A portable magnetometer was used with the sensor mounted on a back-frame. Accuracy per reading is plus or minus five nanotesla.

Both instruments were total-field measuring, microprocessor-controlled instruments capable of performing automatic diurnal corrections and plotting when connected to each other and a suitable printer.

A base station standard of 58,000 nanotesla was assumed for all diurnal corrections, by taking several measurements prior to the actual magnetic survey.

The VLF survey was conducted simultaneously with the magnetic survey, by using the VLF receiver mounted in the same console as the magnetometer and a sensor mounted below the mag. sensor. Since the assumed trends of the anomalous zone(s) and structures were approximately north/south, the VLF communication station of Seattle (24.8 kHz) was used. Seattle is approximately due south of the Cuz claims and provides a good signal strength at the grid location. The Seattle station would not be suitable for any East to West trending structures.

Three components of the VLF-magnetic field were measured. These include the vertical in-phase, the vertical quadrature and the horizontal field strength. The sign convention for the vertical in-phase is as follows; when facing the station a field dipping to your right will be positive.

The magnetometer and VLF data were stored in the 32k memory of the systems control console. The combination of the VLF receiver and magnetometer effectively halved the time taken to complete the VLF/magnetometer survey and proved to be convenient, reliable and durable.

Discussion of Results

A modest (approximately 35 m sec) chargeability anomaly exists at one station; 1+37.5W on line 17+50S. A few parallel bands around this anomaly show that it exists weakly on line 17+00 from around 0+90W to approximately 1+60W and on line 17+50S from approximately 0+80W to 2+00W. This anomaly is in the midst of blocky quartzite rubble. No sulphides are visible, though some of the rubble exhibits limonite staining. A weaker chargeability zone exists on line 17+00S from the baseline to approximately 0+40W. Some short, north-south trending lines over the main chargeability responses would help in the interpretation of these zones.

The resistivity plan shows the quartzite to be very resistive (/8000 ohm-m) which is normal for quartzite in permafrost areas. Some parts of the quartzite are very resistive which may indicate silicification. This quartzite exists west of the baseline and north of line 18+50S. Finer grained sediments probably occur in the areas where the resistivities range from 2000 ohm-m to under 500 ohm-m. The resistivity data effectively indicates the nature of the underlying geology.

The magnetic survey revealed that no magnetic anomalies coincide with the previously mentioned chargeability anomalies. Aside from a few very weak magnetic 'spikes', none larger than 40 nanotesla, there was no magnetic activity on the Cuz grid. The base station data revealed no major diurnal fluctuations over the 1.5 days needed to complete the survey. There are weak indications in the magnetic data to indicate that the quartzites have a slightly lower magnetic susceptibility than the surrounding rock. This may be due to silicification of the quartzite.

The VLF survey indicated that weak, vertical in-phase 'cross-overs' exist along the baseline from line 20+00S to line 19+00S. This weak anomaly trend has no coinciding magnetic or chargeability anomaly. Furthermore, the resistivity plan gives no indication of a contact between different rock types. The horizontal field strength, which should be at a maximum directly over an anomaly, peaks at each vertical in-phase 'cross-over' location, but decreases in strength as the anomaly is followed north from line 20+00S. This weak anomaly is probably a fault zone. No north-south trending vertical in-phase or horizontal field strength V.L.F. anomalies coincide with the anomalous chargeability zones.

Conclusions

In general, sufficient signals were transmitted during the Induced Polarization survey to establish the chargeability data as reliable. The steepness of the voltage-time decay curve over three slices in the anomalous chargeability zone may be caused by small particle size.

The magnitude of the chargeability anomaly is typical for epithermal sulphide zones.

The lack of a north, south trending VLF anomaly directly associated with the I.P. anomaly is discouraging, however, there could be east, west trending structures, not detected by this VLF survey.

Some short, north-south trending lines over the main chargeability anomaly would help in the interpretation of this zone.

The main chargeability anomaly should be closely correlated with the geochemical and geological results to see if further work is warranted.

Tim Hutteman
Junior Geophysicist

G. Hendrickson
Grant Hendrickson
Staff Geophysicist,
Supervisor

**CUZ CLAIMS
PROJECT PERSONNEL**



<u>NAME</u>	<u>Title</u>	<u>Address</u>
N. von Fersen	Project Supervisor (geologist)	701-1281 W. Georgia St Vancouver V6E 3J7
G. Prior	Project Geologist	Box 389, Massey, Ont. P0P 1P0
C. Lindsay	Senior Assistant	2-1213 McCraney St. East Oakville, Ont. L6H 3A3
M. Gerencser	Junior Assistant	3755 Lemoyne Crescent Lethbridge, Alta T1K 4E7

CUZ CLAIMS
STATEMENT OF EXPENDITURES
Rock chip sampling and outcrop stripping



Labour

M. Gerencser	17 days @ \$50/day	
C. Lindsay	15 days @ \$74/day	
G. Prior	1 day @ \$88/day	
	Total	\$2,048.00

Geochemistry

(Au, Ag)	162 samples @ \$10.25/sample	1,660.50
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Room and Board

34 man-days @ \$50/day	1,700.00
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Helicopter Transportation

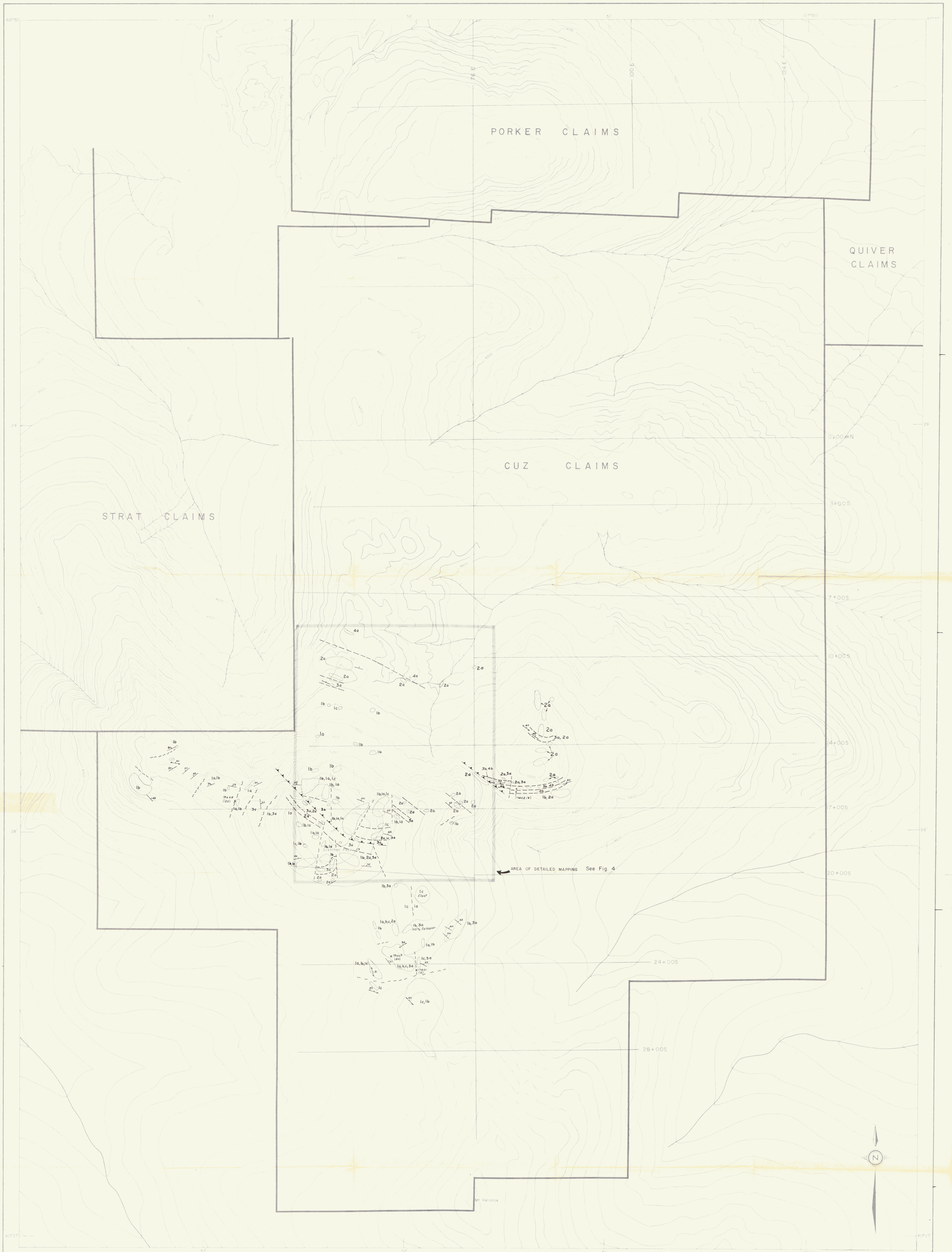
4 trips at 1 hr/trip, \$500/hr	<u>2,000.00</u>
--------------------------------	-----------------

Total cost \$7,408.50

E&OE

Signed: _____

N. von Fersen
N. von Fersen



LEGEND

- | | | | |
|----|---|--|---------------------------------------|
| 1a | Quartz pebble and quartz granule conglomerates | | Area of outcrop |
| 1b | Coarse grained quartzites | | Bedding |
| 1c | Medium Grained quartzites | | Foliation |
| 2a | Fine grained, non-calcareous quartzites | | Geologic contact |
| 2b | Fine grained quartzites with moderately calcareous matrix | | Thrust fault (Teeth on down-dip side) |
| 3a | Non-calcareous, green and black phyllites, silty phyllites, and greenish-grey siltstones | | High angle fault |
| 4a | Fissile to massive, grey, very fine grained, occasionally fetid limestone, shearing and kink banding are common | | Off-grid rock sample (ppb gold) |
| 4b | Thinly bedded, grey, very fine grained, relatively undeformed limestone, may be interbedded with 3b | | 1982 Grid of Archer, Catho |
| | | | Property boundary |

Kidd Creek Mines Ltd.

CUZ CLAIMS

GEOLOGY

OF THE

GRETCHEN PEAK AREA

NTS 95 /

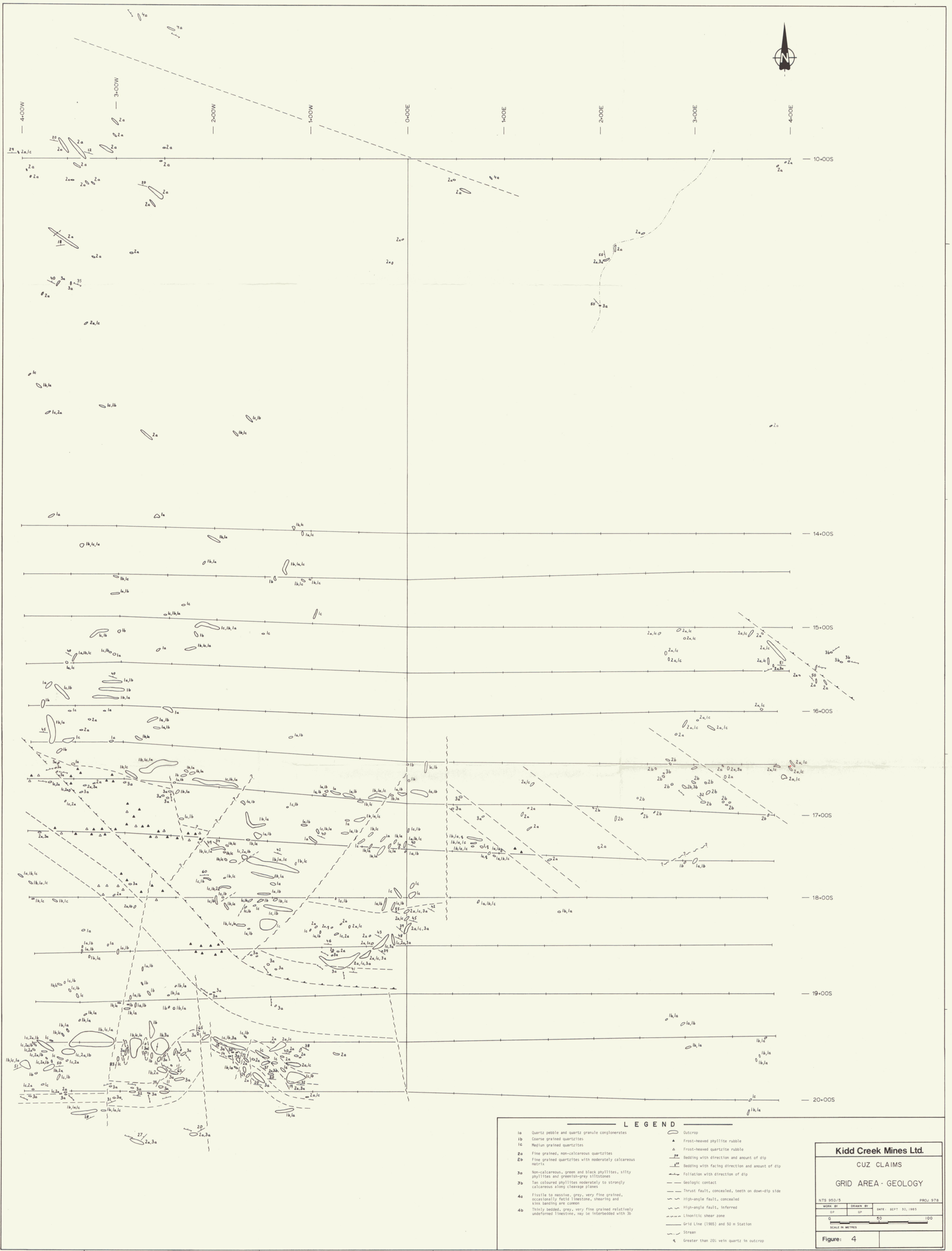
WORK BY: DRAWN BY: DATE: SEPT. 20, 1985 PROJ. 978

GP, NFP ER

100 0 100 200 300 400

SCALE IN METRES 1 : 5000

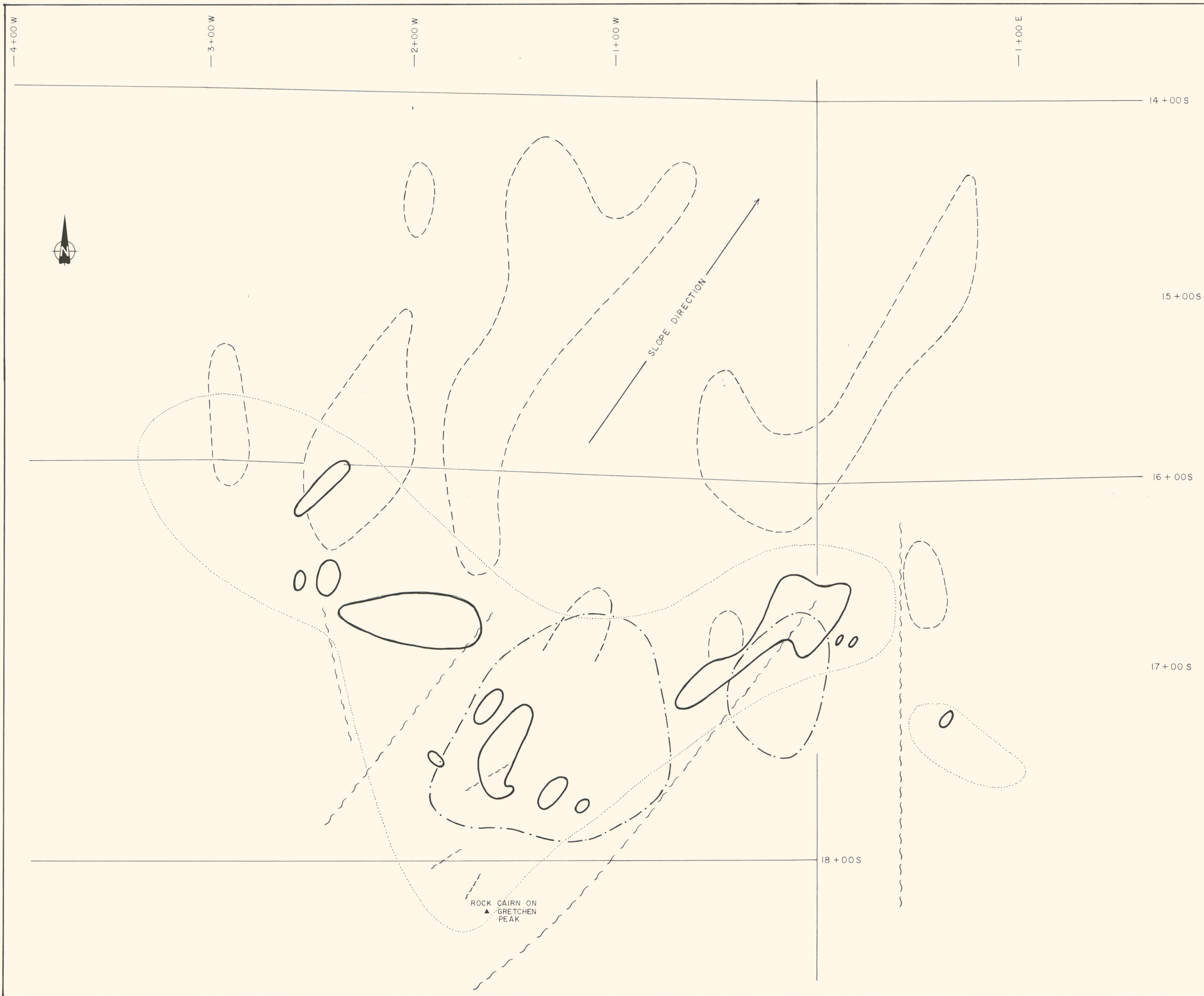
Figure: 3



- LEGEND**
- | | | | |
|----|---|---|---|
| 1a | Quartz pebble and quartz granule conglomerates | ○ | Outcrop |
| 1b | Coarse grained quartzites | ▲ | Frost-heaved phyllite rubble |
| 1c | Medium grained quartzites | △ | Frost-heaved quartzite rubble |
| 2a | Fine grained, non-calcareous quartzites | — | Bedding with direction and amount of dip |
| 2b | Fine grained quartzites with moderately calcareous matrix | — | Bedding with facing direction and amount of dip |
| 2c | Non-calcareous, green and black phyllites, silty phyllites and greenish-grey siltstones | — | Foliation with direction of dip |
| 3a | Tan coloured phyllites moderately to strongly calcareous along cleavage planes | — | Geologic contact |
| 3b | Fissile to massive, gray, very fine grained, occasionally fetid limestone, shearing and kink banding are common | — | Thrust fault, concealed, teeth on down-dip side |
| 3c | Thinly bedded, gray, very fine grained relatively undeformed limestone, may be interbedded with 3b | — | High-angle fault, concealed |
| 4a | | — | High-angle fault, inferred |
| 4b | | — | Limonitic shear zone |
| 4c | | — | Grid Line (1985) and 50 m Station |
| | | — | Stream |
| | | + | Greater than 20% vein quartz in outcrop |

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CUZ CLAIMS
GRID AREA - GEOLOGY

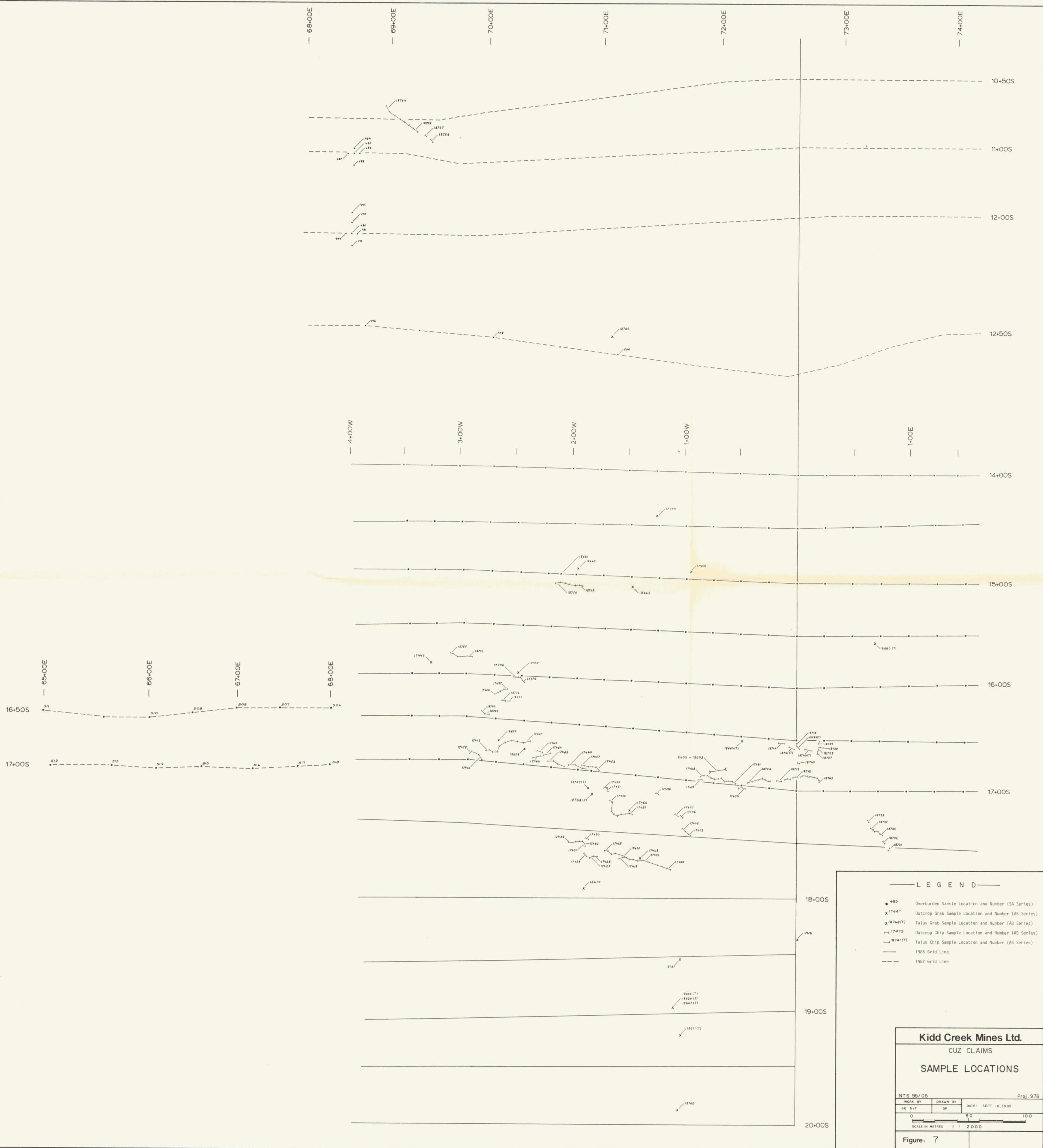
NTS 95D/5
PROJ 978
WORK BY: SP
DRAWN BY: SP
DATE: SEPT 30, 1985
SCALE IN METRES
0 50 100
Figure: 4

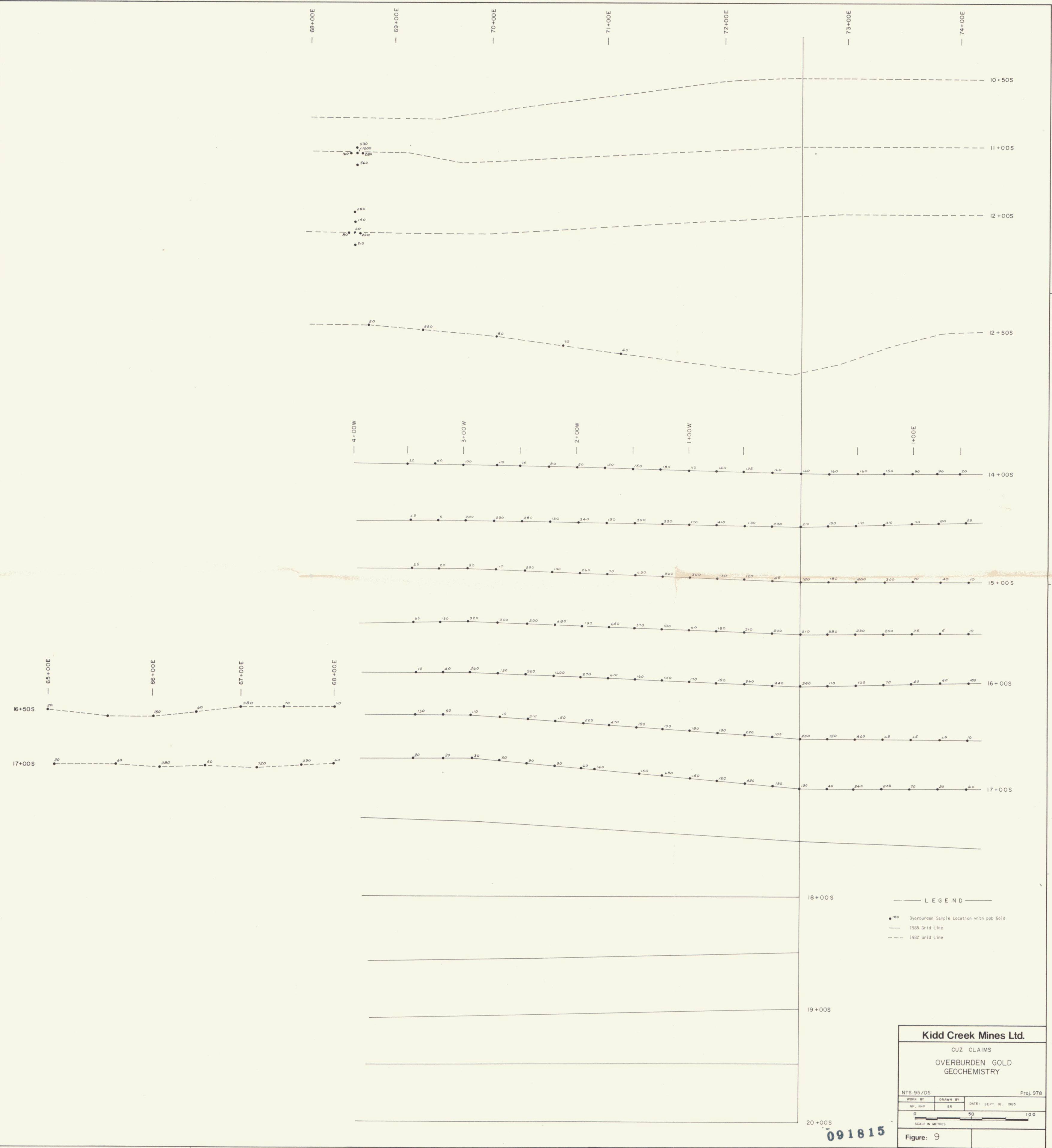


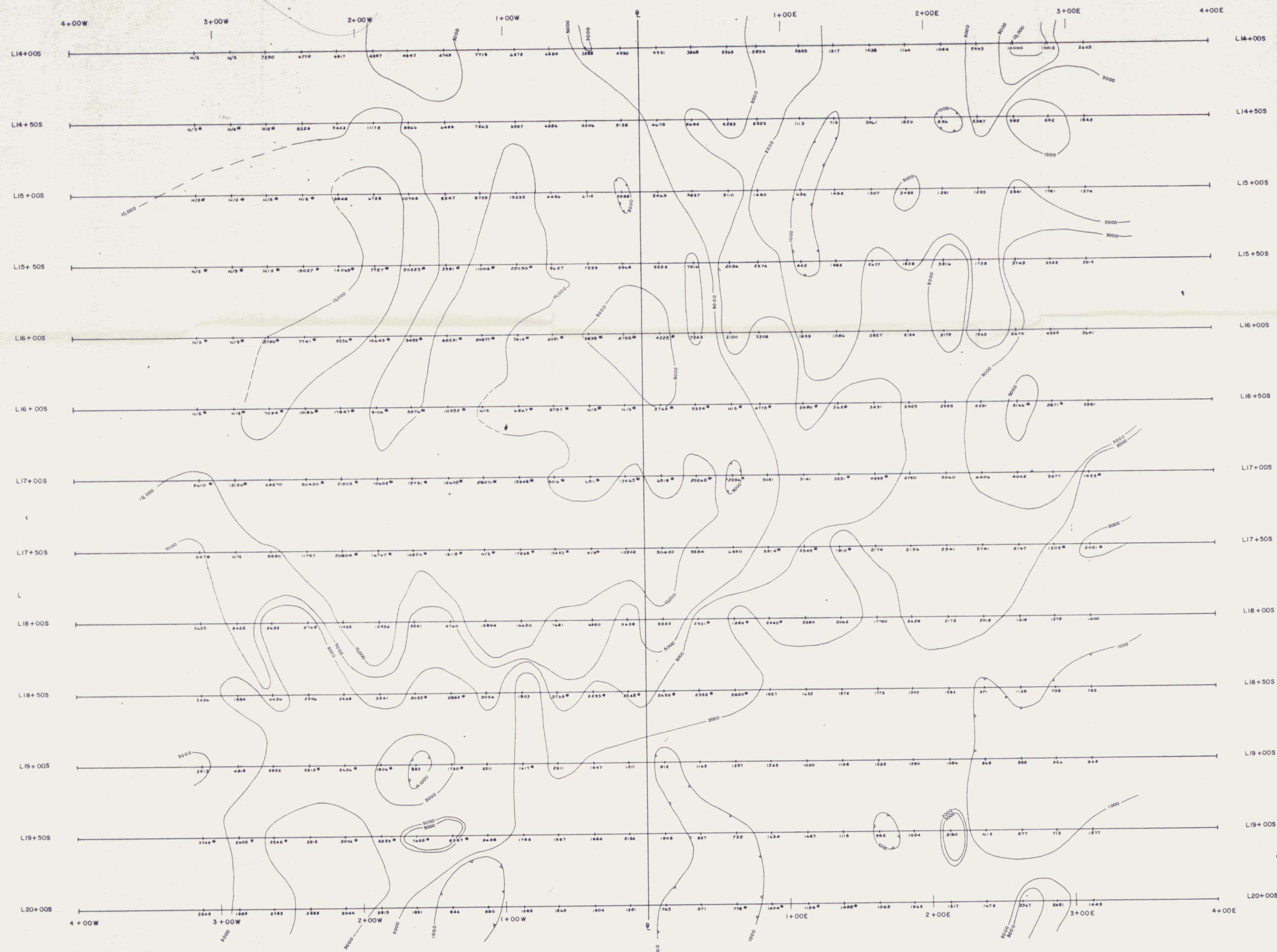
— L E G E N D —

50 ppb Au contour for Panel Chip Samples
 300 ppb Au Contour for Overburden Samples
 29 Millisecond Chargeability contour
 Approximate boundary of sericitic - argillic alteration
 Shear zone

Kidd Creek Mines Ltd.		
CUZ CLAIMS		
COMPILATION MAP SOUTH-CENTRAL GRID AREA		
NTS 95D/5		Proj. 978
WORK BY	DRAWN BY	DATE: NOV. 18, 1985
	GP	
SCALE IN METRES 1 : 1000		
Figure: 6		







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CUZ CLAIMS

RESISTIVITY PLAN MAP

Proj. 974

WORK BY: 7/4/81 ER DATE: DEC. 3, 1985

0 20 40 60 80 100

SCALE IN METRES 1 : 1000

Figure: 10

091815



Contour Interval 5.0 msec, 1st slice plotted
 Method: Continuous profiling Schlumberger Array
 AB = 175 m MN = 25 m
 * Visible Talus at No. 1 Pot. Elec.
 • VLF Cross-Over (Station: Seattle)
 N/S No reading taken due to talus

Kidd Creek Mines Ltd.

CUZ CLAIMS

CHARGEABILITY PLAN MAP

Proj. 978

WORK BY	DRAWN BY	DATE
T.M.S.H.	ER	DEC. 4, 1985
SCALE IN METRES 1 : 1000		

Figure: 11

Kidd

091815