

82-110 -10170

DEKALB 1 TO 6 CLAIMS, MCDAME CREEK

LIARD MINING DIVISION

BRITISH COLUMBIA

NTS: 105P5E  
LATITUDE: 59°15'N  
LONGITUDE: 129°35'W

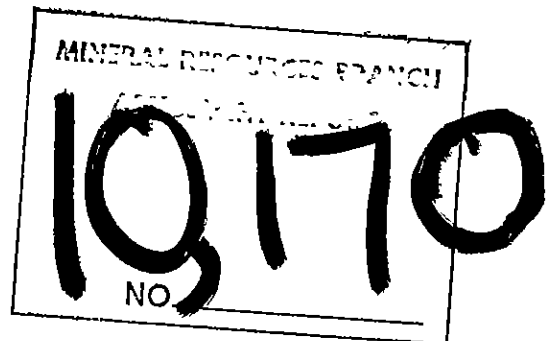
DATE RECORDED: 1980 MARCH 26

1981 EXPLORATION PROGRAM

PROJECT # 4554052

A.J. MORRIS

NOVEMBER, 1981



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DEKALB 1 TO 6 CLAIMS



Plate 1: Quartzrock Creek campsite 1981

## 1.0 INTRODUCTION

The Mcdame Creek - Cassiar area has recently become the focus of attention for several mining companies engaged in the exploration for vein type gold and silver deposits. Several known gold bearing quartz veins are located in this area, particularly in the area between Pooley Creek and the mouth of Quartzrock Creek. Exploration of these veins since 1979 has resulted in four companies going into production with three new surface mills being constructed in the area.

The gold-quartz veins themselves occur in joints in Paleozoic greenstones. A major northeast trending fault system is thought to be the main control for the jointing. Most of the veins strike northeasterly and dip steeply in accordance with the dominant joint trend. Several veins paralleling northeast fracture-shear zones have been identified in this area and they have been labelled the North, Central and South vein systems.

It was mainly on the basis of the projected extensions of the North and Central vein systems that the Dekalb 1 to 6 mineral claims were located in 1980. Work in 1980 consisted of literature research, surface prospecting and sampling.

The 1981 exploration program was designed to further evaluate the claims for the presence of gold bearing quartz veins within greenstones by prospecting and geological mapping, followed by geochemical soil sampling, detailed mapping, trenching, and sampling.



## 2.0 PROPERTY DESCRIPTION

### 2.1 LOCATION NTS 105P/5 East; 59° 18' N, 129° 43' W

The Dekalb 1 to 6 mineral claims are located in the Stikine Range of the Cassiar Mountains approximately 10 kilometres east of the town of Cassiar, B.C. They lie roughly 4 kilometres north of McDame Creek and extend east from Quartzrock Creek for 10 kilometres almost to Hot Creek (Figure 1).

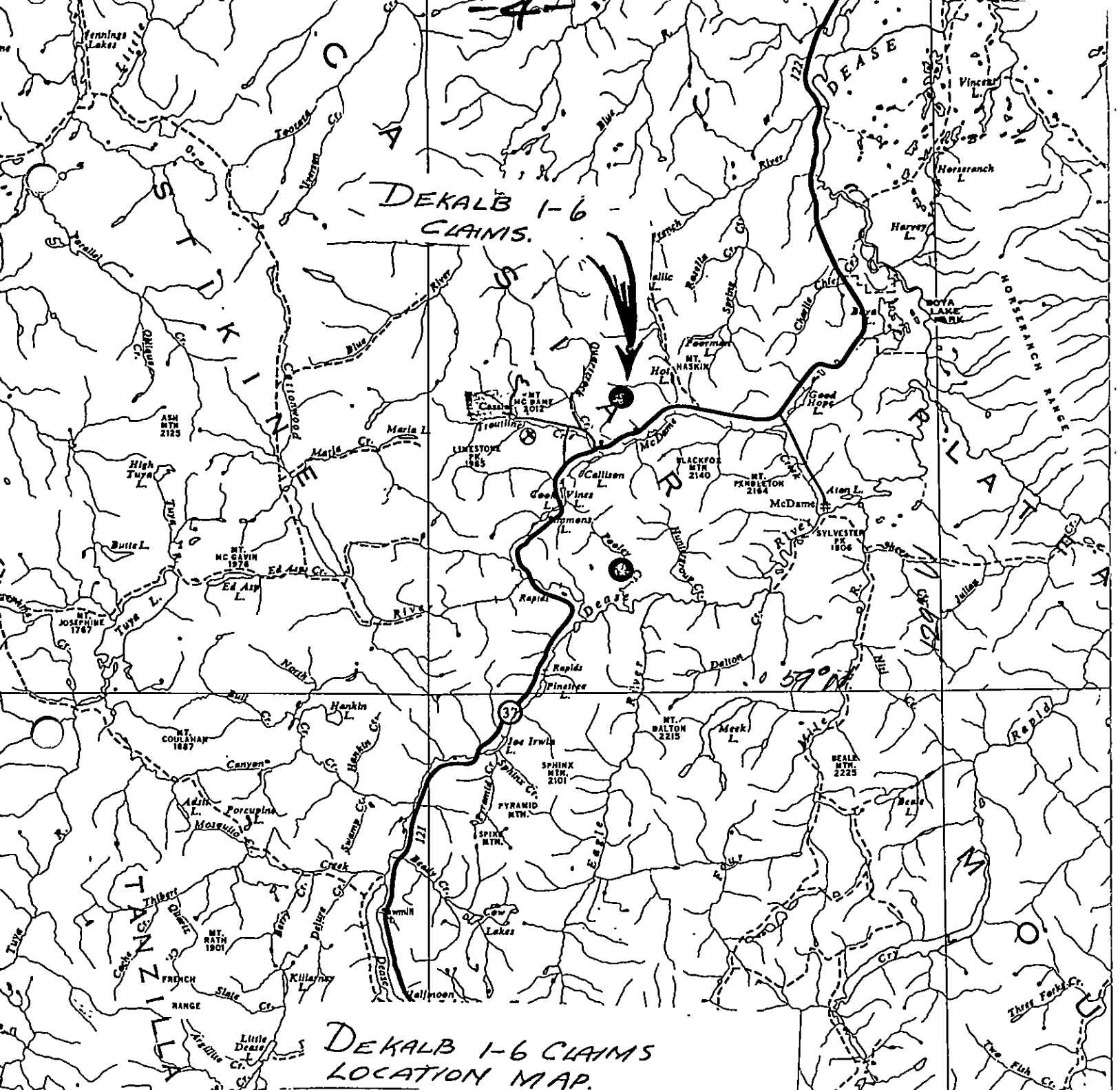
### 2.2 ACCESS

The claims are accessible by motor vehicle via the Dease Lake - Cassiar highway from the south, or via the Alaska Highway and the Cassiar road from the north. They lie about 180 kilometres south of Watson Lake, Yukon Territory via Highway 37 and the Cassiar road. The gravel highway from Cassiar is followed for 4 kilometres to Quartzrock Creek, to a turnoff just north of the bridge. This road follows the west side of Quartzrock Creek for 2 kilometres to the west side of the claims area (Dekalb 1 and 2). This is the only road access to the claims. A dirt road leaving Highway 37 approximately 8 kilometres east of the Cassiar road turnoff follows Hot Creek northward and comes to within 2 kilometres of the eastern side of the Dekalb claims (Dekalb 6).

During the 1981 exploration program the Quartzrock Creek road was used as access to the camp. Transportation to the claims areas east of the Quartzrock Creek valley was by helicopter from Watson Lake.

### 2.3 CLAIMS

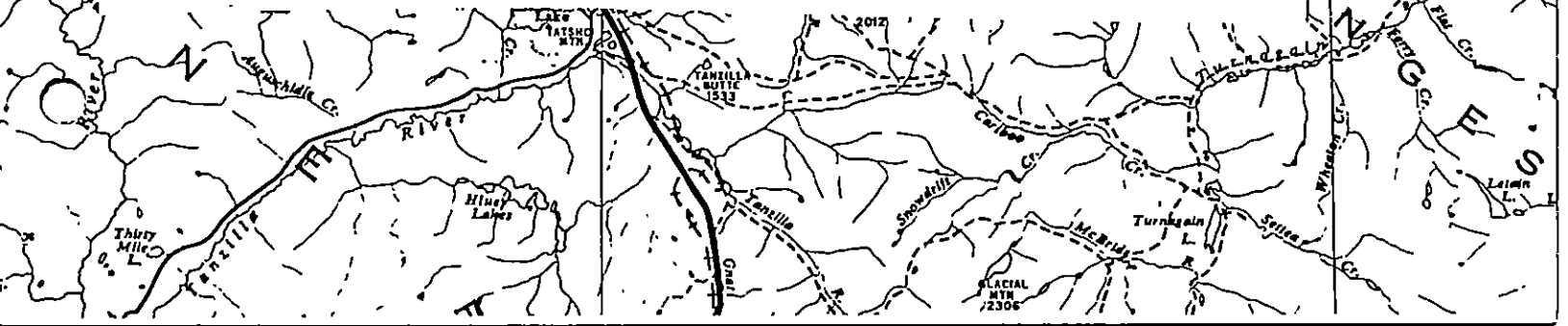
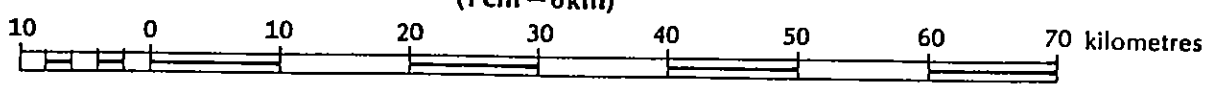
The Dekalb 1 to 6 claims consist of 6 claim blocks each made up of 20 units. Portions of Dekalb 3 & 4 overlap claims to the south so instead of 120 units the property consists of 114 units, or an area of 2,850 ha. Location of the claims is indicated on Figure 2.



DEKALB 1-6 CLAIMS  
LOCATION MAP.

Scale - 1 : 600 000  
(1 cm = 6km)

FIG: 1





### 3.0 PREVIOUS WORK

The Dekalb 1 to 6 claims were located for Dekalb Mining Corporation in March, 1980 by P. Urbanovitch. During the 1980 field season Mr. Urbanovitch was employed to prospect for and sample any quartz veins that might contain gold. The western part of the property was prospected with one vein blasted and sampled (Dekalb 1 claim). The eastern portion was prospected to a lesser extent due to a rain-shortened season. According to Mr. Buckley (the former Dekalb exploration manager) the prospecting program of 1980, although failing to discover gold bearing veins, did discover, sample and map certain typical veins, which should be further explored by trenching and detailed mapping.

## 4.0 GEOLOGY

### 4.1 REGIONAL GEOLOGY

The Dekalb 1 to 6 claims are underlain by a folded series of Upper Devonian metasediments and Lower Mississippian volcanic rocks of the Sylvester Group. The metasediments have been cut by lenses, sills and stocks of ultra-basic rocks believed to be of Lower Mississippian age (Gabrielse, 1954). The Sylvester Group conformably overlies the McDame Group of dolomites and limestones on the limbs of a major synclinorium. Several major longitudinal faults have been recognized, along which some movement has taken place in Tertiary or post-Tertiary time. In the claims area and directly to the south, a major north-northeast trending fault system exists, which may have had a direct control over the occurrence of quartz veins in the area. Quartz veins are found cutting across the ultrabasics and the metasediments in different modes of occurrence. Free gold with tetrahedrite and pyrite has been found in some quartz veins, usually in the joints of volcanic rocks.

### 4.2 LOCAL GEOLOGY

The western half of the Dekalb claims (Dekalb 1 to 3) is underlain primarily by highly folded metasediments of the Sylvester Group. These rocks are cut by lenses and sills of altered ultrabasics (greenstone). The ultrabasic rocks are found to have varying degrees of alteration, with slightly different compositions. The most frequently observed rock type (unit (1) on Figure 3) is a fine-grained medium to dark green altered greenstone streaked by thin veinlets of epidote, with olivine, pyroxene and occasionally serpentinite. Also present as minor constituents are flakes and knots of biotite with chlorite. Occasional quartz-carbonate stringers were noted. A rock type of the same composition, only medium-grained, and with distinct olivine and pyroxene crystals was mapped in several locations (unit (1b)). A less altered rock of similar grain size and composition occurs with no epidote and usually with disseminated pyrite (unit (1c)). A brecciated ultrabasic rock similar to unit (1) occurs in a few isolated areas presumably near fault zones. A fine-grained serpentinite (primarily the lizardite variety) occurs as a sill in the southernmost part of the Dekalb 2 claim, intruding a purple phyllite with brown/grey argillaceous interbeds. In this area at an elevation of 6,000 feet, one or two quartz-carbonate veinlets approximately 2 to 4 inches wide with chrysotile variety serpentine were observed. These veinlets appeared to follow the joint direction within the ultrabasic rock (strike  $135^{\circ}$ , dip  $43^{\circ}$  SW). This

orientation roughly coincides with the plunge direction of a minor fold within the metasediments, the apex of which was mapped only 500 metres to the northeast.

The eastern half of the Dekalb claims (Dekalb 4 to 6) is underlain chiefly by an ultrabasic stock of similar texture and composition as unit (1) in the western half, although variations were noted depending on nearness to contact or fault zones. On Dekalb 6, the easternmost portion of the stock is in contact with an altered light grey quartzite. A body of fine-grained dark green serpentinite was mapped for over 1.5 kilometres along this zone. The light grey quartzite at or very near the contact is altered, and slightly fractured with disseminated pyrite, occasional minor chalcopyrite and a light green alteration mineral (possible mariposite). Quartz and quartz-carbonate veinlets occur within the quartzite.

#### 4.3 LITHOLOGIC UNITS

The following metasedimentary units are described in proposed order of age (youngest to oldest), and correspond to the numbers on the accompanying geology map (Figure 3).

(2) Mapped only on the eastern portion of the Dekalb 2 claim, this is an extremely fine grained light grey (cherty) siliceous rock containing finely disseminated pyrite.

(4) This unit occurs throughout the claims area usually at or near a contact zone between ultrabasics and metasediments (commonly the less competent or softer phyllites). It consists of brecciated quartz fragments with a dolomitic groundmass. The exposed surface was commonly buff-weathered to reddish colored giving the appearance of a "gossan" zone from a distance. Occasional pyrite and chalcopyrite crystals were observed finely disseminated in the groundmass. It is possible that this unit is structurally controlled by north-northwest trending fractures.

(7) Seen primarily at the eastern end of Dekalb 2 and the western part of Dekalb 3, this unit is a light brown to light grey argillite, semi-schistose in places. Occasionally white quartz veinlets were observed cutting the schistosity obliquely.

(5) This unit was mapped over the Dekalb 2 and 3 claims areas. It consists of a purple phyllite with grey, green, and brown argillaceous interbeds.

(6) Mapped over the Dekalb 2, 3, 4, and 5 claims, this fine grained, siliceous, grey to green argillite was exposed along many high ridges (over 6,000 feet elevation).

(3) Usually occurring adjacent to unit (6) this green phyllite with brown argillaceous interbeds was commonly observed highly folded and often in tight chevron folds. On Dekalb 3 at an elevation of 6,000 feet a minor anticline was defined within this unit, plunging towards the southeast.

(8) This grey phyllite with occasional green quartzite interbeds was by far the most widespread and thickest unit mapped (2 - 3,000 metres). It was observed throughout the Dekalb 2, 3, 4 and 5 claims to be highly folded by at least two phases of deformation.

(9) A white to light brown/light green quartzite containing disseminated pyrite was mapped very near an ultrabasic (unit (1)) contact on Dekalb 3.

(10) A small body of light grey chert was mapped in contact with a siliceous body of ultrabasics (unit (1)) on the Dekalb 6 claim.

(11) This unit is an altered light grey quartzite seen contacting a body of serpentinite on Dekalb 6. A greenish alteration mineral (possibly mariposite), malachite, disseminated pyrite and minor chalcopyrite were observed within this rock. Quartz and quartz-carbonate veinlets occur in the quartzite.

It should be noted that on a southern ridge on the Dekalb 3 claim at an elevation of 6,000 feet, several angular boulders of oxidized rhodenite were found. Further investigation revealed the mineral in place a few hundred metres north along the ridge within a brecciated zone of quartzite and chert. Several quartz veins were observed in this zone also.

#### 4.4 STRUCTURE

As previously mentioned, regionally, several longitudinal faults have been recognized along which movement has taken place. In the claims area at least 2 major zones of north-northwesterly trending fracture systems are believed to exist together with a weaker northeast trending system. The first extends diagonally from the south-western corner of the Dekalb 3 claim to the northeastern corner. Evidence is seen in the discontinuity of certain lithological units, the physically shattered appearance of many phyllitic beds, the frequency of brecciated zones, the frequency of jointing in the ultrabasic rocks and the frequency of quartz veins believed to be structurally controlled. This zone also appears to coincide with the most intensely folded zone of metasediments, giving rise to secondary jointing in the

ultrabasics and tension fractures within the metasediments which trend more to the northeast. The second zone of fracture systems is located primarily in the southwestern corner of the Dekalb 5 claim where shattered phyllites and considerable jointing with quartz and quartz-carbonate veining occurs within ultrabasic rocks.

Evidence of at least two phases of folding was seen in highly contorted green phyllite beds exhibiting chevron folding, located within the fracture zone on Dekalb 3. Variations in dip roughly outline a re-folded anticline in this area.

#### 4.5 METAMORPHISM

Although a detailed study of metamorphism and metamorphic mineral assemblages was not conducted during this field season, two regional and local effects are recognizable.

Firstly, the regional fault movements have produced many fractures within the rock units which have become passageways for mineralizing solutions containing silica, carbonates, and sulphides. Silification and carbonatization of the sedimentary units as well as compositional changes within the ultrabasic rocks has resulted.

Secondly, the intrusion of the ultrabasic lenses, sills and stocks themselves has resulted in local contact metamorphic effects, such as chilled margins, reduction in grain size and compositional changes or alteration at the contacts.

#### 4.6 ECONOMIC GEOLOGY

Since the early 1900's the area south of the Dekalb 1 to 6 claims, as far as Pooley Creek, has been known to contain gold bearing quartz veins within greenstone. These veins were believed to be controlled by joints in the greenstone and most strike northeasterly, and dip steeply in accordance with the dominant joint trend. Near the gold bearing quartz veins, the greenstones were reportedly pyritized and carbonatized. The veins also contain pyrite, tetrahedrite and chalcopyrite in minor amounts. However, barren white "bull" quartz veins were also noted in the area.

The 1981 exploration program on the Dekalb 1 to 6 mineral claims was designed primarily to prospect for, map and sample similar type quartz veins. Altogether, a total of 20 quartz veins were mapped varying in width from 8 inches to 50 feet across. The majority of the veins mapped



Plate 2: Primary and secondary jointing in the ultrabasics

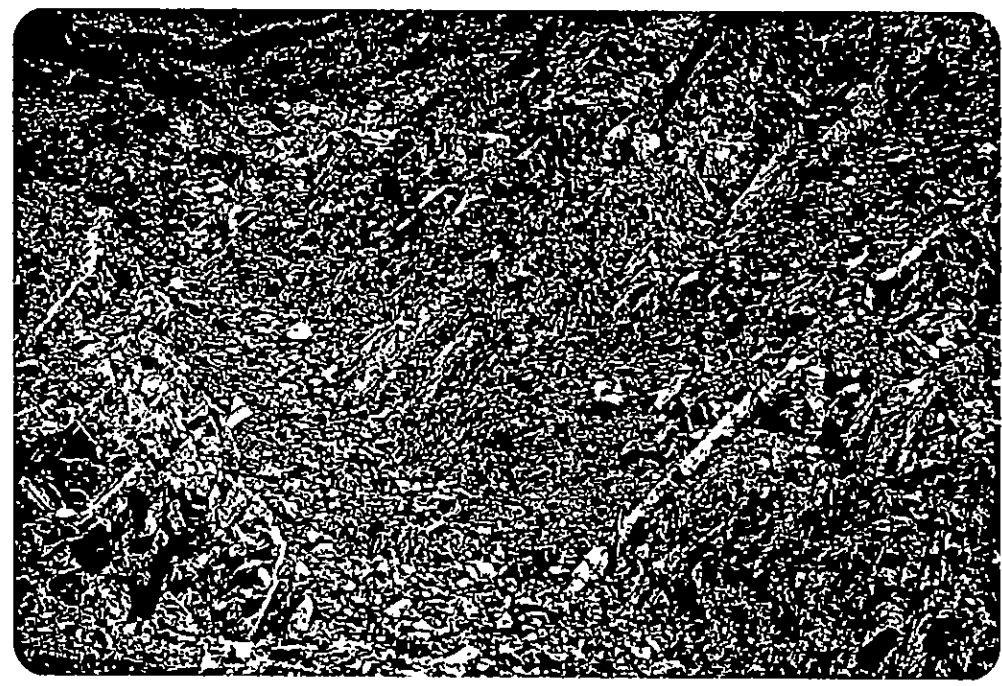


Plate 3: Quartz veins as joint fillings in ultrabasic rocks

occur with carbonate (dolomite) near ultrabasic/metasediment contacts. Other veins mapped are composed solely of white "bull" quartz. These veins are usually well fractured and often display hematite oxidation along fractures or within weathered cavities or vugs near the surface.

Structurally, the quartz veins mapped appear to have four main modes of occurrence:

- (1) As tension crack fillings at or near the apex of a major fold (usually white bull quartz)
- (2) Conformable to bedding within the metasediments which have later been folded and faulted
- (3) As joint fillings within the internally stressed ultrabasics, at or near contacts with the metasediments. On the average, joints trend to the northwest and dip to the southwest although some veins were observed dipping to the southeast. A weaker, secondary jointing was observed trending to the northeast.
- (4) As fracture fillings paralleling major fault zones (trending to the northeast)

Only one quartz vein, approximately 10 feet in width, was found to contain visible sulphide mineralization in the form of pyrite and tetrahedrite with minor malachite. This vein, located on the Dekalb 6 claim, occurs associated with minor carbonate and is in contact, on the east, with an altered light grey/green carbonaceous quartzite containing disseminated pyrite and occasional malachite. A greenish secondary mineral believed to be mariposite occurs in this rock. A grab sample of the rock assayed locally by Erickson Gold Mines contained 0.027 oz. gold per ton. The quartz vein appears to dip at a shallow angle to the southeast and strikes approximately north-northeast. (see Appendix B, page 37) The western contact of the vein is not exposed, although a body of serpentinite lies approximately 50 metres to the west, and a black argillite unit containing disseminated pyrite is exposed in the creek directly below the vein. This vein was blasted and sampled. Assay results are discussed under the Exploration Program section of this report.

## 5.0 EXPLORATION PROGRAM

The 1981 exploration program on the Dekalb 1 to 6 mineral claims commenced August 7, 1981 and was terminated September 21, 1981. It was designed to evaluate the claims for the presence of gold bearing type quartz veins within greenstone and related rocks by prospecting and geological mapping. In addition, a silt sampling program was initiated to collect silt from any major drainage area encountered during prospecting traverses. If significant discoveries were made this would be followed by geochemical sampling, detailed mapping, and possible trenching.

### 5.1 PROSPECTING

Due to the large area to be prospected, the absence of access roads, the relatively late start of the project and due to work commitments on other properties, it was decided to rely on helicopter transportation to and from the prospecting areas. The alpine-type terrain with large areas of exposed outcrop made broad coverage of the ridges possible during a day's prospecting.

Upon completion of the prospecting phase, a total of 39 silt samples and 36 rock samples were collected for assay purposes. The rock samples together with assay results are described on Table 1. The silt sample analyses are listed on Table 2 (Appendix B). Sample locations are indicated on Figure 4.

### 5.2 GEOLOGICAL MAPPING

A geological map was prepared for the claims area on a scale of one to ten thousand (Figure 3). Because transportation was dependent on helicopter service, the lithologies and contacts in certain areas were not mapped due to inaccessibility. Helicopter service did supply a "birds' eye" view of all exposed quartz veins within the claims area which were followed up on foot. Upon completion of the traverses, a total of twenty quartz veins had been mapped. Also the major stratigraphic units and their contacts with ultrabasic sills and stocks were mapped where possible.

Results of the mapping program are described in the Local Geology and Economic Geology sections of this report and can be seen on the accompanying geology map.



Plate 4: Dekalb 6 claim, "old showing"



Plate 5: Dekalb 6 claim, at trench location looking southeast towards McDame Creek and highway 37

Table 1. ROCK SAMPLES, DEKALB, 1 TO 6 CLAIMS, 1981

LOCATION	SAMPLE	DESCRIPTION	AU OZ/TON	CU PPM
DK3 AUG.11-R1	1401	- ultrabasic w/pyrite	-0.003	109
DK3 old showing	1402	- lt. grey qtzite., vuggy, w/pyrite, mal	0.008	132
DK3 AUG.13-R1	1403	- brecciated qtz. - dolomite; limonite	-0.003	-
DK4 AUG.14-R4	1404	- white qtz. hematite (50'x20'vein)	-0.003	-
DK4 AUG.13-R5	1405	- qtz.-carbonate vein, hematite	-0.003	-
DK4 AUG.13-R6	1406	- "gossan", pyrite vein in lt. grey qtzite	-0.003	1130
DK5 AUG.15-R2	1407	- brecciated qtz.- carbonate	-0.003	-
DK5 AUG.15-R1	1408	- 8" white qtz vein, small vugs	-0.003	-
DK5 AUG.15-R4	1409	- altered ultrabasic w/pyrite	0.005	-
DK5 AUG.15-R6	1410	- alt.u/basic, fractured w/vugs, pyrite	-0.003	-
DK5 AUG.15-R7	1411	- lt.grey qtzite breccia w/pyrite	-0.003	-
DK5 AUG.15-R8	1412	- 10" white qtz.vein, frac. w/hematite	-0.003	-
DK3 AUG.17-R3	1413	- 2' white qtz. vein	-0.003	-
DK3 AUG.17-R4	1414	- white "bull" qtz. + carbonate, hematite	-0.000	-
DK3 AUG.17-R6	1415	- 1' white qtz. vein, carbonate, hematite	-0.003	-
DK3 AUG.17-R7	1416	- 1' white qtz. vein, hematite	-0.003	-
DK3 AUG.17-R8	1417	- 2'-3' white qtz. vein, hematite	-0.003	-
DK3 AUG.17-R9	1418	- 1' white qtz. vein w/carbonate	-0.003	-
DK3 AUG.17-R10	1419	- 6' white qtz. veins	-	-
DK3 AUG.17-R10F	1420	- Float-white qtz. w/hem., malachite	0.000	1970
DK1 R-N	1421	- qtz.-carb. breccia, u/basic frags, pyrite	0.029	-
DK2 R-I	1422	- lt.grey/brown dolo- mite, disseminated pyrite	-0.003	-

Table 1 continued.

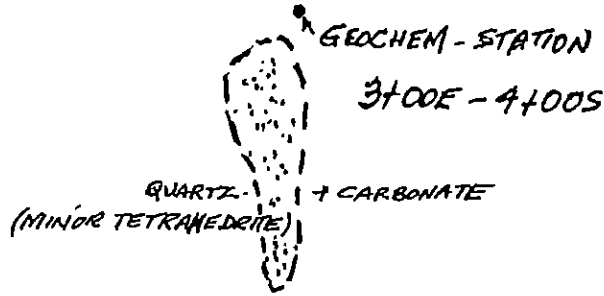
LOCATION	SAMPLE	DESCRIPTION	AU OZ/TON	CU PPM
DK2 R(1)	1423	- 3" white qtz.-carb., w/pyrite cubes	-0.003	-
DK3 R-A	1424	- white qtz.-carb., w/hematite	-0.003	-
DK3 R-D	1425	- white qtz. w/heavy hematite	-0.003	-
DK3 R-F	1426	- green phyllite w/malachite	-0.003	1230
DK3 R-G	1427	- lt.grey altered qtzite.(?),w/carb.,pyr.	0.661	-
DK1 on creek	1441	- qtz.-carb. breccia w/alt.volc frags,pyr.	0.128	-
DK6 3+OOE-4+OOS	1428	- lt.grey qtzite. alt. w/carb.,pyr.,mal.	0.087	52
DK6 3+OOE-4+OOS	1429	- brecciated qtz.vein w/pyr., mal.	-0.003	89
DK6 3+OOE-4+OOS	1430	- alt. black arg. w/qtz.-carb.,pyr.	-0.003	-
DK6 3+OOE-4+OOS	1431	- brecciated qtz. w/black arg. frag,pyr.	-0.003	-
DK6 3+OOE-4+OOS	1432	- alt. black arg. w/qtz.-carb., pyr.	-0.003	-
DK6 3+OOE-4+OOS	1433	- white qtz. vein		79
DK6 3+OOE-4+OOS	1434	- lt.grey qtzite., alt., w/carb.,pyr.,mal.		31
DK6 3+OOE-4+OOS	1435	- white qtz. vein		95
DK6 3+OOE-4+OOS	1436	- white qtz.-carb., w/malachite		6
DK6 3+OOE-4+OOS	1437	- white qtz. vein, w/pyrite		13

### 5.3 TRENCHING

Upon examination of various gold and silver bearing quartz veins in the surrounding area, it was observed that in general, very little mineralization occurs within the upper 2 feet of these veins. Once the vein has been opened up by blasting, significant mineralization has been found. For this reason it was decided to drill and blast the quartz-carbonate (discovery) vein on Dekalb 6 for sampling purposes.

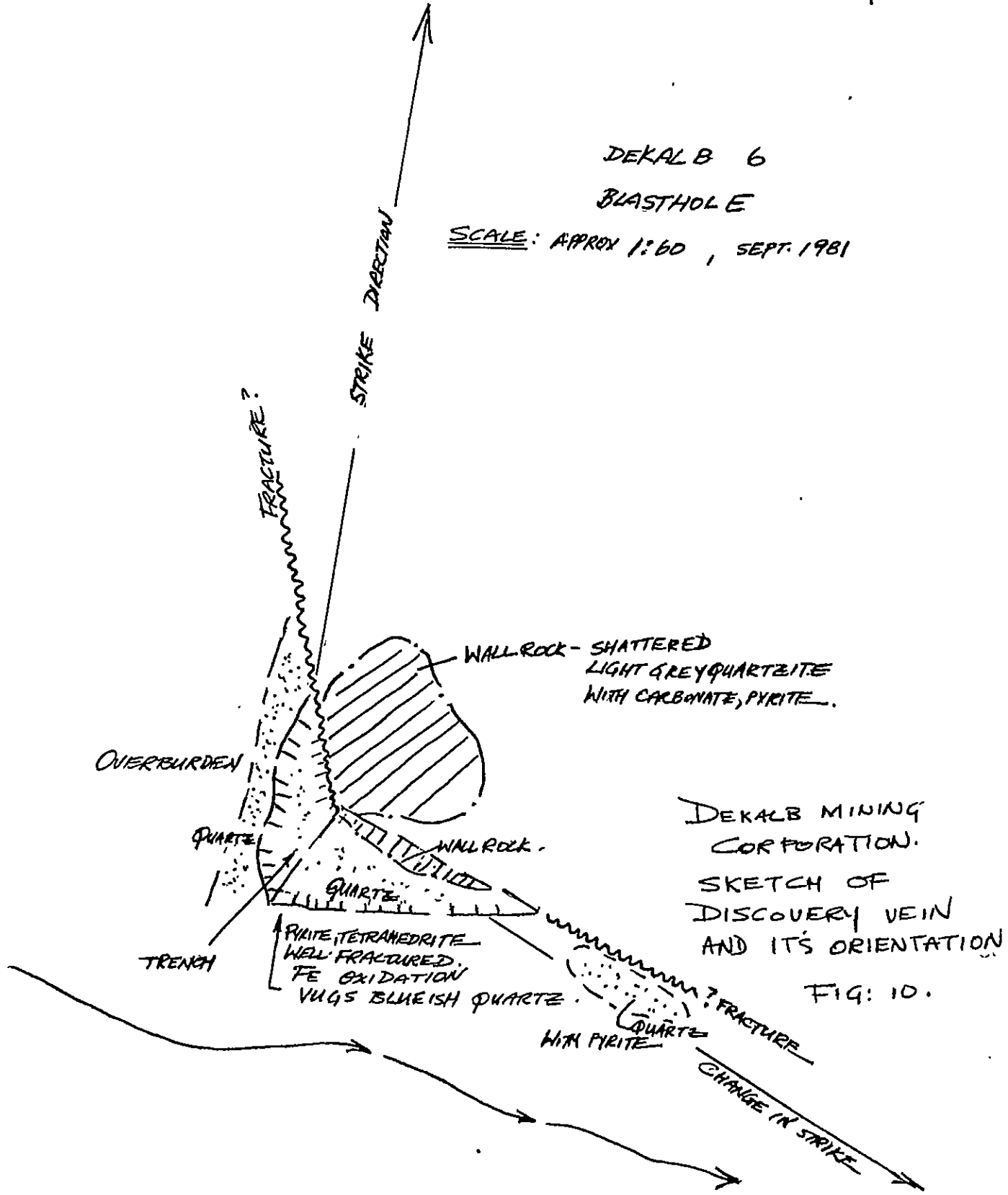
An Atlas-Copco Cobra drill was used to drill holes approximately 2 to 3 feet deep. Difficulty was encountered with drill bits wearing down on the quartz very quickly. However, a small hole approximately 4' x 4' x 3' was blasted and hand mucked directly at the quartz / altered quartzite contact. Results were encouraging. Sulphide mineralization in the form of tetrahedrite, chalcopyrite and pyrite were found in minor quantities disseminated through a well fractured blue-grey quartz within the quartz-carbonate vein. This type of quartz typically contains free gold in this area. A total of 15 chip samples were taken from the blasthole. The assay results are summarized on Table 3. The values are not as high as anticipated considering the amount of observed sulphide mineralization present in the vein. The highest gold value of 0.042 oz/ton was obtained from a grab sample of fractured white quartz containing pyrite along the fracture planes with malachite and iron oxide stain. This was taken from approximately 1 1/2 feet from the surface in the blasthole. The highest copper value of 0.363% was obtained from a fractured white quartz, bluish in places, with carbonate and minor tetrahedrite with pyrite disseminated along fracture planes.

It appears that the intersection of two quartz veins actually occurs at this location. Either two fractures, one trending northeast and the other trending northwest intersect here, or a single fracture makes a deflection at this point, causing a change in strike of the quartz vein. At this time, the exact orientation or geological structure of this zone is not properly understood. Until trenching and mapping can be carried out to provide additional information, the strike of the vein will be considered to be north-northeasterly due to the occurrence of quartz with carbonate and minor tetrahedrite similar to that found in the blasthole approximately 40 feet to the north of the hole. A sketch to show this orientation follows on the next page.



DEKALB 6  
 BLASTHOLE

SCALE: APPROX 1:60, SEPT. 1981



DEKALB MINING CORPORATION.  
 SKETCH OF DISCOVERY VEIN AND ITS ORIENTATION

FIG. 10.



Table 3. DEKALB 6 - DISCOVERY VEIN -  
BLASTHOLE SAMPLE ANALYSES

SAMPLE	DESCRIPTION	AU OZ/TON	AG OZ/TON	CU %
0830	- white, lt.grey quartz-carbonate w/dissem pyr.	-0.003	-0.01	0.015
0831	- white, lt.grey qtz.-carb., frac. w/pyrite, tetrahedrite, Fe oxidation	-0.003	0.01	0.110
0832	- white qtz. bluish, minor carb., frac. w/pyrite, tetrahedrite along fractures	-0.003	0.93	0.363
0833	- white, bluish qtz., minor carb., Fe ox., vugs, pyrite cubes to 1/8", tetrahedrite	-0.003	0.26	0.088
0834	- white, bluish-grey qtz., frac., dissem. pyrite, Fe, Mn oxidation	0.009	0.30	0.152
0835	- as above, with vugs	0.005	0.47	0.080
0836	- white qtz., frac., w/pyr. along fractures, Fe, Mn ox., malachite stain	0.042	0.25	0.127
1443	- hanging wall, alt. grey qtzite. w/lt.-dk.green impurities, striated, dissem. pyrite	-0.003	-0.01	-0.01
1444	- as above, less striated, w/lt.brown qtzite.	-0.003	-0.01	-0.01
1445	- white qtz. frac. w/pyrite, chalco., tetrahedrite from 2 1/2 feet below surface	0.004	0.43	0.191
1446	- qtz.-carb., frac., vugs, w/pyr., tetrahedrite	-0.003	0.26	0.081
1447	- qtz.-carb., bluish qtz., frac., w/pyr., chalco., minor tetrahedrite	-0.003	0.18	0.050
1448	- white, dk.grey qtz., frac., w/dissem. pyr. knots, occ. tetrahedrite	0.008	0.80	0.115
1449	- as above, w/pyr. along fractures	0.005	0.25	0.103
1450	- white, bluish qtz., frac. w/pyr., minor tetrahedrite along fractures, dark striations	-0.003	0.01	0.040



Plate 6: Dekalb 6 claim discovery vein - drilling and mucking trench

Plate 7: Dekalb 6 claim - excavated trench at quartz-quartzite contact



#### 5.4 GEOCHEMICAL SOIL SURVEY

Approximately 500 metres to the northwest of the discovery vein on Dekalb 6, an old "showing" of altered carbonaceous grey quartzite with pyrite and malachite occurs contacting the same serpentinite body mapped above the vein. Due to these occurrences it was felt that there may be a continuous zone of mineralization from the quartz vein to the old showing which is approximately on strike with the vein. Therefore a geochemical soil survey grid was established to sample this area.

Samples were collected wherever possible from the 'B' soil horizon using narrow bladed shovels and kraft paper envelopes. The first stage of sampling established a base line 700 metres long running west to east from a point about 50 metres west of the old showing. Perpendicular compassed lines were run to the north and to the south of the base line for 1,000 metres at 100 metre intervals. Soil samples were collected every 100 metres along these lines for a total of 168 samples. The second or detailed stage of sampling covered the area surrounding the mineralized quartz vein. Samples were collected every 50 metres along compassed lines 50 metres apart. A total of 134 samples were collected during this stage of the program. The resulting 302 soil samples were dried, boxed and shipped to Chemex Labs. Ltd., Calgary, Alberta to be analyzed for gold, silver, copper, lead and zinc. A complete list of these analyses is included in this report (Appendix B).

The soil analyses for copper, nickel and gold were plotted and contoured on the accompanying soil geochemistry maps (Figures 5, 6, and 7 respectively).

##### 5.4.1 COPPER ANALYSES (Figure 5)

Concentrations of copper in the soils ranged from a low of 14 parts per million to a high of 523 parts per million. This high value, however, of 523 ppm. could be considered an erratic but should be field checked in the next exploration season. All other values lie below 203 ppm. Approximately 88% of the values lie below 100 ppm. and 94% below 150 ppm. Thus, values over 200 ppm. could be considered weakly anomalous. Three weakly anomalous zones with values from 100 to 200 ppm. can be seen on the geochemistry contour map. One of these zones, from 4+00S on the line 3+00E to 2+50S on line 2+00E lies approximately on strike with the quartz (discovery) vein where known tetrahedrite and malachite mineralization occurs. A soil sample taken directly above the vein assayed 167 ppm. copper. Although this is a weak anomaly, it does seem to correspond to the underlying

geology. This suggests the possibility of other similarly weakly anomalous zones being target areas for similar vein type, sulphide mineralization. To the southwest of this anomaly, from 9+00S on line 7+00E to 5+00S on line 5+00E, lies a much wider but equally weak anomalous zone roughly on strike with the quartz vein. The highest copper value (523 ppm.) lies within this anomaly at station 6+00E, 6+00S. A third similarly weak anomaly is located at the north west corner of the geochemical grid, lying from 7+00N on line 1+00E to 10+00N on the 0+00E line.

#### 5.4.2 NICKEL ANALYSES (Figure 6)

Nickel concentrations ranged from 13 ppm. to as high as 1696 ppm. A zone of values greater than 200 ppm. extends from line 0+00 eastward to line 6+00E approximately following the creek drainage direction. The highest concentrations of nickel in the soils (greater than 1,000 ppm.) are located from 3+50S to the base line on line 0+00E and at 3+00S on the 1+50E line. Although these values appear anomalous, it is thought that they actually represent changes in lithology of the underlying rocks. It is known that a body of serpentinite lies along the creek west of the discovery vein and also on the north bank of the creek extending to the base line at the 0+00 line. The average composition of ultrabasic rocks commonly includes a certain percentage of nickel. Rock samples of outcroppings in the apparent anomalous zone should be collected for analysis to verify this assumption.

#### 5.4.3 GOLD ANALYSES (Figure 7)

Concentrations of gold in the soils ranged from less than 10 ppb. to a high of 812 ppb. This high, located at station 3+00E - 10+00N was an isolated value with no supporting values. The location should be examined physically to determine the cause of the anomalous value.

Several small zones containing values of greater than 100 ppb. can be seen on the contour map. The strongest zones are located in the vicinity of the discovery quartz vein. From line 6+00E and 7+00S to 3+00E at 1+50S, a continuous 100 ppb. contour exists. A high of 464 ppb. was found at station 3+00E-4+00S directly above the vein. Also, highs of 432 ppb., and 404 ppb., were found to the southeast of the vein on line 5+00E and stations 7+00S and 6+00S. This zone coincides with the broad copper anomaly, which suggests possible continuation of the mineralized vein. At the blasthole, the 100 ppb. contour makes a shift to the north in its orientation. This could be fracture

controlled.

A high of 676 ppb. was found on line 7+00E at 3+00S, and constitutes an "open" anomaly. Further soil sampling to the east of this line would determine the significance of the high value.

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

It is apparent that a north-northeasterly trending fracture system does exist throughout the area covered by the Dekalb 1 to 6 claims. A northwesterly trending system was also recognized within the lithological units. Quartz veins were observed striking both northeast and northwest. It can be concluded then that the northeasterly trending fault system is not the only control over the occurrence of quartz veins on the claims. Quartz veins were observed not only in joints in greenstone, but at ultrabasic-metasediment contact zones and within folded metasedimentary units. The major joint direction in greenstones on these claims is northwesterly, with a weaker secondary joint direction trending northeast.

On the Dekalb 6 claim a mineralized quartz vein containing pyrite and tetrahedrite was found trending north-northeast at an ultrabasic-metasediment contact zone. No ore-grade gold values were found in this vein, but its occurrence provides evidence that another control over mineralized quartz veins exists in this area, other than primarily jointing in greenstone. The northeasterly strike of the vein may be interpreted as a possible extension of the Central Vein System (see Prospecting Map, 1980, R.A. Buckley).

In G.S.C. Memoir 319, Gabrielse reports that grab and channel sampling probably does not identify gold bearing zones. This is due to the erratic distribution of gold; it would best be explored by bulk sampling and diamond drilling. Trenching and bulk sampling may reveal more encouraging results.

Gold values were discovered at two other locations on the Dekalb claims by prospecting. On the Dekalb 3 claim, a sample of light grey altered quartzite with carbonate and pyrite assayed 0.661 oz. gold per Ton. This rock was found on a ridge, in place, at an elevation of approximately 5,700 feet within a fracture zone. This is a significant gold value and the area should be re-examined and re-sampled, possibly by trenching. Since no road access is available to this area, bulldozer trenching is not possible. It is recommended that helicopter assistance be used to transport a Cobra drill to the site, for drilling and blasting a trench.

On the Dekalb 1 claim, on the east bank of Quartzrock Creek, a sample of quartz-carbonate breccia with altered ultrabasic fragments and pyrite was assayed at 0.128 oz. gold per Ton. This occurrence should be investigated. The brecciation may be due to faulting. If so, the possibility for quartz veining exists. This area can be reached relatively simply via the Quartzrock Creek road and then by wading the creek. A trenching program could be undertaken to expose the mineralization for bulk sampling.

Results from the geochemical soil survey indicate that copper analyses as low as 167 ppm. could indicate possible underlying vein-type sulphide mineralization. This value was the concentration of copper found in a soil sample of which assayed 0.363% copper. Three weakly anomalous zones with copper values from 100 - 200 ppm. should be examined more closely by bulldozer trenching and sampling of the exposed rocks. If sulphide mineralization is discovered, a particularly broad zone to the southeast of the discovery vein may represent the continuation of the vein along its strike. Close attention should be paid to copper mineralization as gold often occurs with tetrahedrite and chalcopyrite in this area.

The geochemical analyses indicate that gold values over 400 ppb. exist in the area of the discovery vein, and also to the southeast coinciding with the weakly anomalous copper zone in the same area. This is good evidence that a continuation of the mineralized quartz vein exists in that direction. It is recommended that a trenching and sampling program be initiated in these areas.

A lone silt sample on Dekalb 1 assayed 434 ppb. Au. This was from the same approximate area as was the rock sample which assayed 0.128 oz. gold per ton. The drainage to this location should be explored by detailed silt sampling and prospecting.

## 7.0 PROPOSED WORK PROGRAM

The results of the prospecting, geochemical sampling and trenching programs indicate that exploration should be carried out on the Dekalb claims for gold bearing quartz veins. The program should include road construction to the Dekalb 6 claim, bulldozer trenching, bulk sampling, geological mapping, geochemical sampling, and prospecting.

### 7.1 PROSPECTING

During the 1981 exploration program prospecting was successful in locating, in addition to the discovery vein on Dekalb 6, two other areas with gold occurrences. On the Dekalb 3 claim, a light grey altered quartzite with pyrite and carbonate assayed 0.661 oz. gold per Ton, and on Dekalb 1, an ultrabasic breccia with quartz-carbonate and pyrite that assayed 0.128 oz. gold per Ton. Both of these locations should be re-examined by prospecting, geological mapping, trenching and sampling. On Dekalb 3 helicopter assistance would have to be provided to transport men with drilling and blasting equipment to the 6,000 foot elevation ridge. On Dekalb 1, the trenching location could be reached by motor vehicle. Only hip waders would have to be provided.

In addition, certain areas, particularly along the northerly trending fault zones, could be more closely prospected and sampled. Some mineralization may have been overlooked during the initial prospecting phase. Finally, attempts should be made to prospect some of the unexplored areas that were inaccessible during the 1981 prospecting program.



## 7.2 TRENCHING - BULK SAMPLING

The assay results from sampling the blasthole on Dekalb 6 were relatively low. It is thought that bulk sampling across the entire vein width would determine if erratically distributed high gold values are present in the quartz veins. To accomplish this, a bulldozer would have to be employed to remove overburden from both sides of the vein and to expose the vein itself. Once exposed, the vein should be chip sampled at regular intervals along its width, and assayed to obtain an average bulk composition. The accompanying 'Proposed Work Program' map (Figure 3) shows 3 possible locations along the strike of the vein where trenches should be excavated. In addition, two other locations for trenches are shown to the southeast of the vein. These are designed to explore the copper anomaly in that area. This weakly anomalous zone may indicate a continuation of the quartz vein along its strike.

## 7.3 ROAD CONSTRUCTION

In order to excavate trenches for bulk sampling purposes on the Dekalb 6 claim, a road approximately 4 kilometres long would have to be constructed from highway 37 to the claims. This need only be a four wheel drive road but would serve as a transportation route for men and equipment to the east side of the claims area, and would be considerably less expensive than helicopter transportation. In addition, a camp site could be established on this side of the claims. A proposed route for the road is sketched on the accompanying map (Figure 9).

It can be seen that the first 1.5 kilometres of road must pass through two existing mineral claims - the Duff 1 and the Paul 1 claims. The Duff 1 claim is owned by Kent Energy Ltd. of Calgary, Alberta. The Paul 1 claim, although registered in the name of Paul Urbanovitch, is believed to be optioned to Kent Energy. Before road construction work can commence, it seems necessary that arrangements would have to be made between Dekalb Mining and Kent Energy regarding access to the Dekalb claims. An alternative route going through only the Duff 1 claim is sketched on the map also.

#### 7.4 GEOLOGICAL MAPPING

Detailed geological mapping of each of the excavated trenches should be undertaken in conjunction with the bulk sampling program on the Dekalb 6 claim. In addition, where possible, identification of the lithological units underlying each of the geochemical anomalies should be made. Mapping along the geochemical grid lines is a recommended procedure. Particular attention should be paid to signs of fracturing and alteration, particularly in the light grey quartzite unit. A structural analysis of the joint trends in adjacent ultrabasic rocks may provide information as to the orientation of quartz veins in that particular area.

The areas surrounding and including the other two gold occurrences on Dekalb 3 and Dekalb 1 should be mapped in more detail, attention again being paid to fracture orientation and alteration within the light grey quartzite beds. If trenching seems feasible in these areas, then the blastholes should be geologically mapped and sampled at regular intervals.

#### 7.5 GEOCHEMICAL SAMPLING

The geochemical sampling grid should be extended as outlined on the accompanying map to check for extensions of "open" anomalies to the west, east and to the south of the existing grid. Every 100 metres is an adequate spacing between samples at this stage of the program. Sampling at 50 metre intervals could be used as a detailed follow-up procedure if mineralization is discovered.

QUALIFICATIONS

A.J. Morris

- A. I, Anthony J. Morris, am by profession a Geologist, residing at Box 1437, Golden, B.C., VOA - IHO, in the Province of British Columbia
  
- B. I graduated in the year 1973 from the British Columbia Institute of Technology, Burnaby, British Columbia, with a Diploma of Mining Technology.
  
- C. I graduated in the year 1975 from the University of Calgary, in the Province of Alberta, with a Bachelor of Science Degree in Geology, with a minor in Zoology.
  
- D. Since graduation I have been employed by a Mining Company in the search for metallic and industrial minerals throughout British Columbia, Yukon Territory, Northern Ontario and the Northwestern United States.



A.J. Morris, B.Sc.

9.0 REFERENCES

1. Buckley, Ronald A., Prospecting Report, McDame Creek, B.C. Dekalb 1 - 6 Mineral Claims, April - September 1980
2. Gabrielse, Hubert, McDame Map Area, Cassiar District, B.C., G.S.C. Memoir 319, 1963
3. Geology and Economic Minerals of Canada, G.S.C., 1970

10.0 COST STATEMENT

BREAKDOWN OF EXPENSES ON THE  
DEKALB 1 TO 6 CLAIMS

Aug 11 - Sep 24 Consultant \$250/day (w/ food)  
x 28 days \$ 7,000

Aug 6 - Aug 21 Cook \$50/day x 16 days \$ 800

CREW

(w/ food)  
Aug 4 - 30 J. Prichard \$90/day x 18 days \$ 1,620  
Sep 1 - 25 \$90/day x 14 days \$ 1,260

Aug 4 - 30 T. Termunde \$90/day x 17 days \$ 1,530  
Sep 2 - 10 \$90/day x 7 days \$ 630

Aug 4 - 30 B. Greenbank \$90/day x 17 days \$ 1,530  
Sep 2 - 25 \$90/day x 15 days \$ 1,350

Aug 4 - 30 F. Fairclough \$90/day x 18 days \$ 1,620  
\$90/day x 14 days \$ 1,260

HELICOPTER

August - September (Invoices attached) \$ 34,632.11

EQUIPMENT

Plugger rental - Sep 11 to Oct 14, 1981 \$ 914.30

Misc. supplies \$ 272.59

Assays \$ 1,487.00

TOTAL

\$ 55,906.00

Do not

Microfilm

TK



AUG 27 1981

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In Account With

Dekalb Mining  
 7th Floor, Bradie Building  
 630 - 6th Avenue S.W.  
 CALGARY, Alberta  
 T2P 0S8

INVOICE No 3069

Date: August 18, 1981

Reference Number: \_\_\_\_\_

TERMS: Due when rendered. An interest charge of 2% per month will be charged on all past due accounts.

ITEM	SERVICES PERFORMED					AMOUNT
	TICKET NO.	REGISTRATION	HOURS		FUEL	
9/8/81	9876	FHK	2.7	1255.50	121.77	1377.27
0/8/81	9434	LKL	3.1	1441.50	139.81	1581.31
1/8/81	11933	FHP	0.9	472.50	70.88	543.38
1/8/81	9881	FHK	1.7	790.50	76.67	867.17
3/8/81	9890	LKL	3.3	1534.50	148.83	1683.33
			11.7	5494.50	557.96	
<p>McDome Crk 4052</p> <p>OK WJ.</p>						
TOTAL AMOUNT OF INVOICE						6052.46



# Frontier

File P. 39A

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*Will Thompson*  
*In Account With*

Dekalb  
7th Floor, 630 - 6th Avenue S.W.  
CALGARY, Alberta

*Will Thompson* →

INVOICE No. 3103

Date: August 18, 1981

Reference Number: \_\_\_\_\_

TERMS: Due when rendered. An interest charge of 2% per month will be charged on all past due accounts.

ITEM	SERVICES PERFORMED					AMOUNT
	TICKET NO.	REGISTRATION	HOURS		FUEL	
/8/81	12208	LKL	3.5	1627.50	157.85	1785.35
<i>OK Phelan</i> <i>McDome</i> <i>W.T.</i> <i>Approval By Phone</i> <i>Sept 2/81</i> <i>OK W.T.</i>						1785.35
TOTAL AMOUNT OF INVOICE						1785.35





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AUG 31 1981

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INVOICE No 3145

Date: August 25, 1981

Reference Number: \_\_\_\_\_

TERMS: Due when rendered. An interest charge of 2% per month will be charged on all past due accounts.

ITEM	SERVICES PERFORMED					AMOUNT
	TICKET NO.	REGISTRATION	HOURS		FUEL	
6/8/81	9893	LKL	4.1	1906.50	184.91	2091.41
7/8/81	9896	FHK	1.5	697.50	67.65	765.15
7/8/81	10218	XGA	1.5	697.50	67.65	765.15
8/8/81	9898	FHK	1.4	651.00	63.14	714.14
10/8/81	11607	XGA	2.8	1302.00	139.78	1441.78
18/8/81	11601	FHP	1.4	735.00	100.45	835.45
			12.7	5989.50	623.58	
<i>McDane Crk 4052.</i> <i>8/2 W.J.</i>						
TOTAL AMOUNT OF INVOICE						6613.08



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P. 40 A

1 1981

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INVOICE No 3163

Date: August 26, 1981

Reference Number: \_\_\_\_\_

TERMS: Due when rendered. An interest charge of 2% per month will be charged on all past due accounts.

ITEM	SERVICES PERFORMED					AMOUNT
21/8/81	TICKET NO.	REGISTRATION	HOURS	2650.50	FUEL	2907.57
	11609	XGA	5.7		257.07	
<p>McDome Creek. 4052. sk W.T.</p>						2907.57
TOTAL AMOUNT OF INVOICE						2907.57

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SEP 10 1981

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Dekalb  
630 - 6th Avenue S.W.  
CALGARY, Alberta  
T2P 0S8

FILE McDane Creek

INVOICE No 3189

Date: August 31, 1981

Reference Number: \_\_\_\_\_

TERMS: Due when rendered. An interest charge of 2% per month will be charged on all past due accounts.

ITEM	SERVICES PERFORMED					AMOUNT
	TICKET NO.	REGISTRATION	HOURS		FUEL	
19/8/81	11604	FHP	1.4	735.00	100.45	835.45
19/8/81	11628	FHK	1.7	790.50	76.67	867.17
23/8/81	11612	XGA	3.7	1720.50	166.87	1887.37
			6.8	3246.00	343.99	
<p>McDane Creek Pooley Creek 45-54052 - 01 - 59 45-54058 - 01 - 59 OK W.L.</p>						
TOTAL AMOUNT OF INVOICE						3589.99

McDane

835.45

867.17

1887.37



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SEP 17 1981

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INVOICE No 3264

Date: September 9, 1981

Reference Number: \_\_\_\_\_

TERMS: Due when rendered. An interest charge of 2% per month will be charged on all past due accounts.

ITEM	SERVICES PERFORMED					AMOUNT
	TICKET NO.	REGISTRATION	HOURS		FUEL	
4/8/81	11637	FHK	3.7	1720.50	166.87	1887.37
6/8/81	9853	YJO	4.9	1225.00	180.81	1405.81
3/9/81	11647	QGP	2.4	1116.00	108.24	1224.24
			<u>11.0</u>	<u>4061.50</u>	<u>455.92</u>	
<p>\$ 1887.37 - Podley creek - 45-54 058 - 08 - 59            \$ 1405.81 M<sup>c</sup>Dame crk }            \$ 4517.42 M<sup>c</sup>Dame crk } 45-54 052 - 05 - 59.</p>						
<p>ok w.f.</p>						4517.42
TOTAL AMOUNT OF INVOICE						4517.42

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SEP 22 1981

In Account With

Dekalb Mining  
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CALGARY, Alberta

INVOICE No 3298

Date: September 14, 1981

Reference Number: \_\_\_\_\_

TERMS: Due when rendered. An interest charge of 2% per month will be charged on all past due accounts.

ITEM	SERVICES PERFORMED					AMOUNT
	TICKET NO.	REGISTRATION	HOURS		FUEL	
4/9/81	11648	QGP	3.5	1627.50	171.85	1799.35
5/9/81	9863	XGA	5.3	2464.50	239.03	2703.53
7/9/81	9866	XGA	0.4	186.00	18.04	204.04
7/9/81	9992	QGP	0.5	232.50	22.55	255.05
			9.7	4510.50	451.47	
<p>McDane Creek.</p> <p>4554 052 -08 - 59.</p> <p>OK WT.</p>						
TOTAL AMOUNT OF INVOICE						4961.97

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SEP 24 1981

In Account With

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INVOICE No 3330

Date: September 18, 1981

Reference Number: \_\_\_\_\_

TERMS: *Due when rendered. An interest charge of 2% per month will be charged on all past due accounts.*

ITEM	SERVICES PERFORMED	AMOUNT
	<p>FREIGHT CHARGES AS PER ATTACHED.</p> <p>McDermott Citk . 4554 0520859</p> <p>OK W.T.</p> <p>Shipping plugger to T. MORRIS.</p>	<p>47.40</p> <hr/> <p>TOTAL AMOUNT OF INVOICE 47.40</p>



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Watson Lake 403-536-7766

In Account With

Dekalb Mining Corp.  
630 - 6th Avenue S.W.  
CALGARY, Alberta  
T2P 0S8

INVOICE No 3362

Date: September 24, 1981

Reference Number: \_\_\_\_\_

TERMS: Due when rendered. An interest charge of 2% per month will be charged on all past due accounts.

ITEM	SERVICES PERFORMED					AMOUNT
19/9/81	TICKET NO.	REGISTRATION	HOURS	1069.50	FUEL	
	11021	XGA	2.3	1069.50	103.73	1173.23
<i>McDAME CREEK. 4554 052-08-59.</i>						
<i>ok WJ.</i>						
TOTAL AMOUNT OF INVOICE						1173.23



# Frontier

P. 43A

OCT 5 1981  
 Frontier Helicopters Ltd.  
 Abbotsford International Airport  
 Box 220, Abbotsford, B.C. Canada V2S 4N9  
 Telephone: Abbotsford 604-853-5887  
 Vancouver 604-526-0400  
 Watson Lake 403-536-7766

*In Account With*

Dekalb Mining Corp.  
 630 - 6th Avenue S.W.  
 CALGARY, Alberta

INVOICE No 3386

Date: September 25, 1981

Reference Number: \_\_\_\_\_

TERMS: *Due when rendered. An interest charge of 2% per month will be charged on all past due accounts.*

ITEM	SERVICES PERFORMED					AMOUNT
12/9/81	TICKET NO.	REGISTRATION	HOURS	1369.50	FUEL	1526.85
	10576	XGA	3.3		157.35	
<p>4554052-08-59            McDemere Corp</p>						
TOTAL AMOUNT OF INVOICE						1526.85



P. 43 B.



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Watson Lake 403-536-7766

OCT 13 1981

In Account With

Dekalb  
7th Floor - 630 - 6th Avenue S.W.  
CALGARY, Alberta  
T2P 0S8

INVOICE No 3412

Date: October 5, 1981

Reference Number: \_\_\_\_\_

TERMS: Due when rendered. An interest charge of 2% per month will be charged on all past due accounts.

ITEM	SERVICES PERFORMED					AMOUNT
	TICKET NO.	REGISTRATION	HOURS		FUEL	
1/10/81	9942	FHL	1.7	790.50	76.67	867.17
2/10/81	11532	FHL	2.4	1116.00	108.24	1224.24
			<u>4.1</u>	<u>1906.50</u>	<u>184.91</u>	
<p>\$ 867.17 - Captain UK. 4554663-01-59.</p> <p>\$ 1224.24 - McDame 4554052-01-59</p> <p>etc w.t.</p>						
TOTAL AMOUNT OF INVOICE						2091.41



# Frontier

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OCT 14 1981

*In Account With*

Dekalb Mining  
 7th Floor, 630 - 6th Avenue S.W.  
 CALGARY, Alberta  
 T2P 0S8

INVOICE No 3427

Date: October 8, 1981

Reference Number: \_\_\_\_\_

TERMS: *Due when rendered. An interest charge of 2% per month will be charged on all past due accounts.*

ITEM	SERVICES PERFORMED					AMOUNT
	TICKET NO.	REGISTRATION	HOURS		FUEL	
20/9/81	11022	XGA	3.1	1441.50	139.81	1581.31
	<p><i>McDane Creek 4454 050 -08-59</i></p> <p><i>Ex wt.</i></p>					
TOTAL AMOUNT OF INVOICE						1581.31

APPENDIX A

EXPLORATION ACTIVITY IN THE MCDAME - CASSIAR AREA

EXPLORATION ACTIVITY IN THE MCDAME-CASSIAR AREA

Placer gold was discovered on McDame Creek in 1874 and on Walker Creek in 1877, but since 1877 only McDame Creek has yielded important amounts of gold. The gold is thought to have originated in quartz veins in the volcanic rocks of the Sylvester group, which carry free gold, pyrite, and tetrahedrite. These veins are particularly abundant in the area between Pooley Creek and the mouth of Quartzrock Creek. (Gabrielse, 1954)

Over the past few years exploration has continued for gold bearing quartz veins in this area. To this date three companies have been successful in bringing into production three small mining and milling operations. During the 1981 field season these companies as well as several other mining and oil companies were actively engaged in exploration programs. The following list gives some but not all of the companies known to have been involved in mineral exploration this year:

(1) SHELL OIL

Shell Oil holds many claims south and west of the town of Cassiar. To this writers' knowledge exploration for molybdenum has been the main activity on these claims which are underlain by the Cassiar batholith.

(2) UNITED HEARNE RESOURCES

The United Hearne (Taurus Project) property is located near Quartzrock Creek, directly south of the Dekalb 1 to 6 claims. Free gold is mined from quartz veins and milled on the property. The tailings pond is 1,900 feet from the mill and the mine adit is only several hundred feet away, making transportation simple. It is believed that a joint partnership exists between this company and Plaza Mining Corporation.

(3) WORTH GOLD MINING

Worth Gold Mining Ltd. is a small placer operation near Snowy Creek approximately 10 kilometres east of Cassiar. The company started production in mid-July employing 11 people but will only stay in operation until freeze-up.

(4) PLAZA MINING CORPORATION

The Plaza gold mining operation is located about 10 kilometres east of Cassiar adjacent to the United Hearne property on Quartzrock Creek. A 650 foot long decline was opened on the east side of Quartzrock Creek just below the Cassiar road. Also, Plaza has an open pit operation underway on Table Mountain. The mill has recently been opened at a cost of \$1.5 million. Ore from both of Plaza's mines and ore from Cusac Industries' mine is being milled here. A reported \$1.7 million was spent on exploration this year. Results from a 1979 diamond drilling program estimated reserves of 19,300 Tons at 0.592 oz./ton gold and 0.35 oz./ton silver.

(5) SNOWY CREEK PLACER

This small placer gold operation located on Snowy Creek experienced some difficulties in starting production but hopes to continue operating until freeze-up. No reserve studies have been made to determine future mining possibilities.

(6) DEKALB MINING CORPORATION

An exploration program consisting of prospecting, geological mapping, geochemical sampling and trenching was carried out on the Dekalb claims east of Quartzrock Creek.

(7) DELLA MINES

The Della mine is an older property located just northeast of Hot Lake. It is believed that some work was done on the claims this season.

(8) ERICKSON GOLD MINES

Erickson Gold Mines, jointly owned by Erickson and Nu-Energy, started production in September 1979. During the first year of production 34,533 tons of ore were processed with a recovery of 21,645 ounces of gold 20,863 ounces of silver, giving an average grade of 0.66 oz./T of gold and 0.72 oz./T of silver. A planned expansion of the 100 Ton per day mill to 200 Tons per day was halted until results of this seasons' diamond drilling program were known. Over one million dollars was spent on the 1981 drilling program. Also approximately 6 kilometres of tunnel were deveoped this summer. Erickson now employs 50 to 60 people in their operation.

(9) ESSO MINERALS CANADA

Esso Minerals have an option agreement with Nu-Energy, Erickson on their Table Mountain Property. Exploration for gold/silver bearing quartz veins during 1981 consisted of geochemical sampling, geological mapping and diamond drilling.

(10) KENT ENERGY CORPORATION

A Calgary-based company, Kent Energy owns a block of 80 claims near Allan Lake just east of the Dekalb claims. Activity on these claims during 1981 consisted of exploration for gold bearing quartz veins by prospecting and geological mapping.

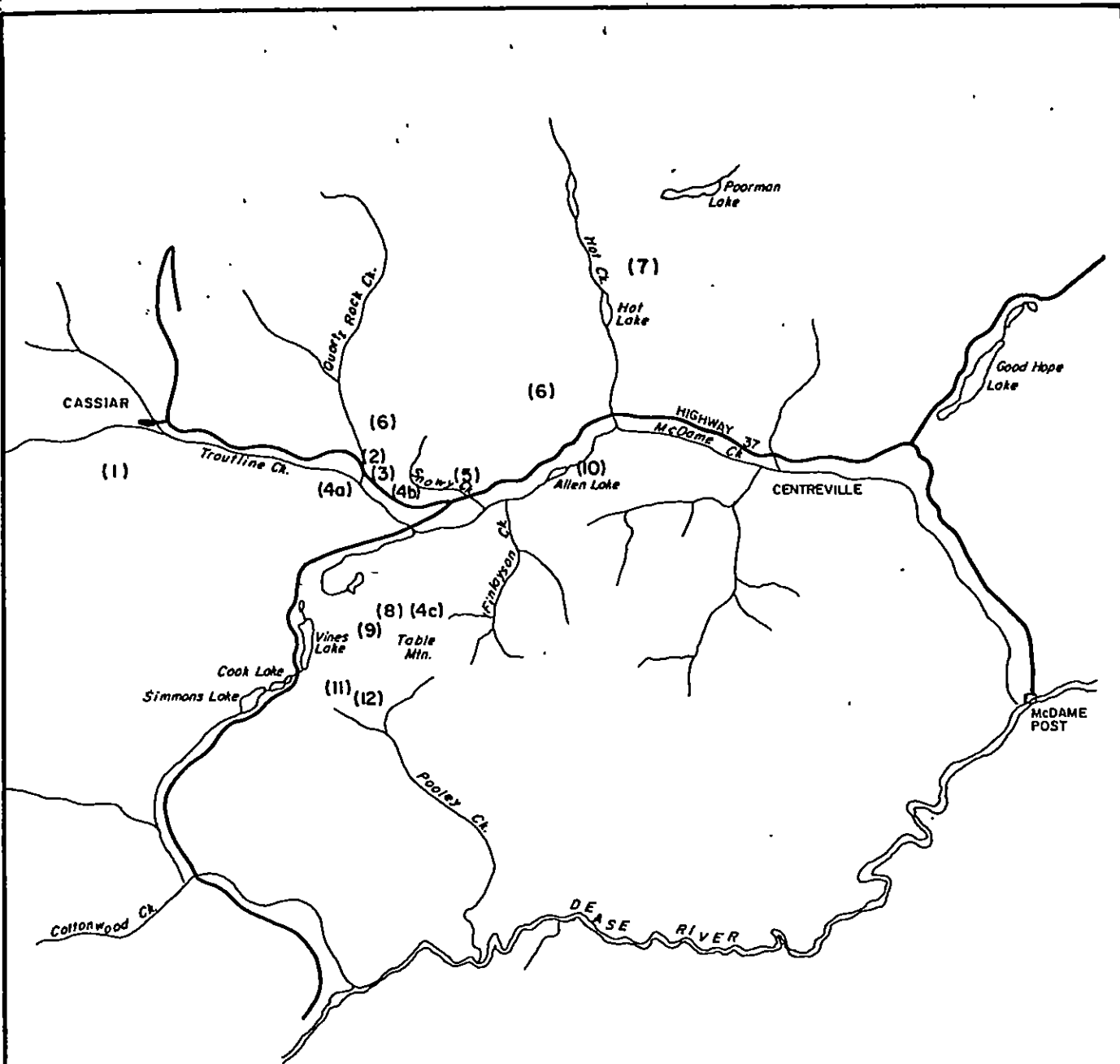
(11) CUSAC INDUSTRIES

The Cusac property covers the area from Vines Lake to Pooley Creek about 12 kilometres southeast of Cassiar. Free gold up to 4 oz./ton was found in the "Dino" vein, discovered in 1979 by geochemistry. This quartz vein is believed to be the richest ever found in Western Canada.

Over the past two summers extensive diamond drilling and geochemical soil surveys have been undertaken. This year over 3,000 feet of drilling has been carried out. A stripping operation to expose the "Dino" vein was undertaken this summer and ore has been stockpiled ready to be milled. Some of this ore has been milled at the Plaza mill. Plans are underway to develop an underground mine on the Pete claim situated on Pooley Creek.

(12) GULF TITANIUM

Gulf Titanium owns the Jack Pine claims adjacent to Cusac on Pooley Creek. Prospecting and geochemistry have led to a new zinc discovery. Further work is expected on the claims to determine the extent of the zinc mineralization.



- (1) Shell Oil
- (2) United Hearne
- (3) Worth Gold Mining
- (4a) Plaza Mining - Decline
- (4b) Plaza Mill
- (4c) Plaza Mining - Table Mtn. Pit
- (5) Snowy Creek Placer
- (6) Dekalb Mining
- (7) Della Mines
- (8) Erickson Gold Mines
- (9) Esso Minerals Canada
- (10) Kent Energy Corporation
- (11) Cusac Industries
- (12) Gulf Titanium



**DEKALB MINING CORPORATION**

**ACTIVE MINING COMPANIES IN CASSIAR AREA**

SCALE 1:250,000

0                      5                      10 KM.

BY: \_\_\_\_\_

DATE: SEPT. 1981

9  
FIGURE A

**APPENDIX B**

**ASSAYS**





CALGARY 2021 - 41 AVE. N.E. CALGARY, CANADA T2E 6P2  
 TELEPHONE (403) 276-9627 TELEX 038-25541  
 EDMONTON 8764 - 50TH AVE. EDMONTON, CANADA T6E 5K8  
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CERTIFICATE OF ANALYSIS

• MINERAL • GAS • WATER • OIL • SOILS • VEGETATION • ENVIRONMENTAL ANALYSIS

DEKALB MINING CORP.

DATE NOV. 4, 1981

SILT ANALYSIS

PROJECT NO. 0147-1-7.1.1

LOCATION	CU PPM	ZN PPM	AG PPM	AU PPB	PT PPB
DKI TS-1	36.0	31.0	-0.1	430	<50
S-1-B	95.0	80.0	-0.1	62	<50
TS-2	35.0	50.0	-0.1	30	<50
S-2-B	67.0	76.0	-0.1	40	<50
TS-3	30.0	59.0	-0.1	35	<50
S-3-B	43.0	58.0	-0.1	34	<50
S-1	52.0	73.0	-0.1	39	<50
S-2	40.0	64.0	-0.1	27	<50
S-3	47.0	49.0	-0.1	27	<50
S-4	75.0	58.0	-0.1	45	<50
S-5	54.0	58.0	-0.1	48	<50
S-6	100.0	87.0	-0.1	81	<50
S-7	34.0	63.0	-0.1	37	<50
S-8	37.0	58.0	-0.1	19	<50
S-9	42.0	47.0	-0.1	59	<50
S-10	53.0	60.0	-0.1	127	<50
S-11	50.0	48.0	-0.1	51	<50
S-12	41.0	50.0	-0.1	19	<50
S-13	53.0	46.0	-0.1	30	<50
S-14	40.0	44.0	-0.1	34	<50
DKII S-15	49.0	50.0	-0.1	32	<50
S-16	61.0	51.0	-0.1	47	<50
DKIII TS-1	60.0	41.0	-0.1	27	<50
TS-2	54.0	66.0	-0.1	32	<50
TS-3	55.0	55.0	-0.1	35	<50
DKIV S-1	42.0	67.0	-0.1	35	<50
S-2	73.0	77.0	-0.1	55	<50
S-3	37.0	56.0	-0.1	30	<50
TS-1	39.0	61.0	-0.1	30	<50
TS-2	76.0	81.0	-0.1	70	<50
TS-3	51.0	56.0	-0.1	55	<50
TS-4	110.0	75.0	1.4	48	<50
TS-5	39.0	59.0	1.0	26	<50
TS-6	68.0	78.0	-0.1	43	<50
DKVI TS-1 (1)	43.0	43.0	-0.1	48	<50
TS-1 (2)	87.0	93.0	1.5	30	<50
S-1 IIR	83.0	111.0	1.9	57	<50
S-1 IVB	34.0	36.0	-0.1	36	<50
S-4-B	45.0	46.0	-0.1	30	<50



CERTIFIED BY *[Signature]*



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DEKALB MINING CORP.  
TABLE - 4.  
SOIL ANALYSIS

DATE NOV. 4, 1981

PROJECT NO. 0147-1-5151

LOCATION	CU PPM	ZN PPM	AG PPM	NI PPM	AU PPB
BL 0+00/10+00S	61.0	247.0	-0.1	34.0	12.0
9+00S	22.0	45.0	-0.1	22.0	-10.0
8+00S	48.0	65.0	-0.1	101.0	-10.0
7+00S	44.0	85.0	-0.1	71.0	12.0
6+00S	22.0	39.0	-0.1	34.0	-10.0
5+50S	44.0	88.0	-0.1	69.0	-10.0
5+00S	36.0	56.0	-0.1	44.0	-10.0
4+50S A	27.0	90.0	-0.1	85.0	-10.0
4+50S B	30.0	65.0	-0.1	46.0	-10.0
4+00S	62.0	55.0	-0.1	368.0	-10.0
3+50S A	31.0	55.0	-0.1	142.0	-10.0
3+50S B	37.0	57.0	-0.1	593.0	68.0
3+00S	55.0	42.0	-0.1	633.0	32.0
2+50S A	29.0	52.0	-0.1	650.0	12.0
2+50S B	92.0	46.0	-0.1	806.0	68.0
2+00S	38.0	37.0	-0.1	945.0	-10.0
1+50S A	38.0	89.0	-0.1	92.0	-10.0
1+50S B	27.0	73.0	-0.1	439.0	-10.0
1+00S	49.0	119.0	-0.1	161.0	12.0
0+50S A	156.0	113.0	-0.1	428.0	-10.0
0+50S B	87.0	68.0	-0.1	564.0	-10.0
0+00	119.0	51.0	-0.1	860.0	-10.0
0+50N A	50.0	88.0	-0.1	267.0	32.0
0+50N B	37.0	74.0	-0.1	70.0	-10.0
1+00N	41.0	63.0	-0.1	148.0	-10.0
1+50N	60.0	99.0	-0.1	103.0	32.0
1+50N B	61.0	56.0	-0.1	765.0	-10.0
2+00N	52.0	76.0	-0.1	455.0	-10.0
2+50N A	41.0	66.0	0.5	121.0	80.0
2+50N B	67.0	104.0	-0.1	357.0	-10.0
3+00N	34.0	74.0	-0.1	59.0	-10.0
3+50N A	47.0	65.0	-0.1	114.0	224.0
3+50N B	27.0	75.0	-0.1	86.0	32.0
4+00N	64.0	88.0	-0.1	112.0	-10.0
5+00N	80.0	102.0	-0.1	147.0	-10.0
6+00N	104.0	123.0	0.3	258.0	-10.0
7+00N	57.0	87.0	-0.1	122.0	-10.0
8+00N	190.0	108.0	-0.1	425.0	288.0
9+00N	128.0	143.0	0.6	252.0	12.0
0+50E/6+00S	68.0	78.0	-0.1	110.0	-10.0



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DEKALB MINING CORP.

DATE NOV. 4, 1981

SOIL ANALYSIS

PROJECT NO. 0147-1-5151

LOCATION	CU PPM	ZN PPM	AG PPM	NI PPM	AU PPB
0+50E/5+50S	50.0	86.0	-0.1	86.0	-10.0
5+00S	41.0	74.0	-0.1	55.0	-10.0
4+50S	33.0	43.0	-0.1	28.0	-10.0
4+00S	57.0	56.0	-0.1	111.0	-10.0
3+50S	31.0	44.0	-0.1	1021.0	252.0
3+00S	21.0	31.0	-0.1	1696.0	300.0
2+50S	44.0	151.0	-0.1	177.0	-10.0
2+00S	34.0	62.0	-0.1	148.0	-10.0
1+50S	32.0	43.0	-0.1	854.0	32.0
1+00S	47.0	51.0	-0.1	981.0	68.0
0+50S	54.0	81.0	-0.1	1036.0	32.0
0+00S	72.0	36.0	-0.1	1407.0	80.0
0+50N	24.0	56.0	-0.1	425.0	12.0
1+00N	40.0	88.0	-0.1	73.0	-10.0
1+50N	65.0	126.0	-0.1	193.0	-10.0
2+00N	25.0	69.0	-0.1	90.0	-10.0
2+50N	29.0	72.0	-0.1	98.0	-10.0
3+00N	30.0	58.0	-0.1	74.0	-10.0
3+50N	22.0	49.0	-0.1	33.0	-10.0
4+00N	28.0	62.0	-0.1	52.0	-10.0
1+00E/10+00S	98.0	98.0	-0.1	44.0	68.0
9+00S	67.0	79.0	-0.1	166.0	-10.0
8+00S	55.0	77.0	-0.1	89.0	-10.0
7+00S	48.0	68.0	-0.1	56.0	-10.0
6+00S	69.0	76.0	-0.1	160.0	-10.0
5+00S	48.0	86.0	-0.1	101.0	-10.0
4+00S	65.0	110.0	-0.1	187.0	32.0
3+00S	32.0	56.0	-0.1	531.0	-10.0
2+00S	32.0	49.0	-0.1	560.0	12.0
1+00S	38.0	76.0	-0.1	932.0	12.0
0+00S	26.0	66.0	-0.1	214.0	-10.0
1+00N	36.0	104.0	-0.1	167.0	-10.0
2+00N	38.0	81.0	-0.1	81.0	-10.0
3+00N	54.0	68.0	-0.1	193.0	-10.0
4+00N	17.0	21.0	0.3	18.0	-10.0
5+00N	47.0	60.0	-0.1	38.0	-10.0
6+00N	74.0	89.0	-0.1	187.0	-10.0
7+00N	131.0	104.0	-0.1	313.0	-10.0
8+00N	58.0	84.0	-0.1	215.0	-10.0
9+00N	25.0	39.0	-0.1	65.0	-10.0

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DEKALB MINING CORP.

DATE NOV. 4, 1981

SOIL ANALYSIS

PROJECT NO. 0147-1-5151

LOCATION	CU PPM	ZN PPM	AG PPM	NI PPM	AU PPB
1+50E/6+00S	61.0	65.0	-0.1	128.0	-10.0
5+50S	59.0	67.0	-0.1	122.0	-10.0
5+00S	56.0	68.0	-0.1	141.0	-10.0
4+50S	54.0	64.0	-0.1	147.0	-10.0
4+00S	79.0	85.0	-0.1	322.0	-10.0
3+50S	49.0	64.0	-0.1	419.0	-10.0
3+00S	43.0	50.0	-0.1	1074.0	-10.0
2+50S	19.0	94.0	-0.1	88.0	-10.0
2+00S	23.0	102.0	-0.1	55.0	-10.0
1+50S	30.0	52.0	-0.1	90.0	-10.0
1+00S	60.0	194.0	-0.1	320.0	96.0
0+50S	54.0	108.0	-0.1	44.0	-10.0
0+00S	45.0	103.0	-0.1	43.0	-10.0
0+50N	67.0	86.0	-0.1	102.0	-10.0
1+00N	45.0	70.0	-0.1	102.0	-10.0
1+50N	39.0	69.0	-0.1	95.0	-10.0
2+00N	40.0	64.0	-0.1	102.0	-10.0
2+50N	40.0	62.0	-0.1	94.0	-10.0
3+00N	38.0	63.0	-0.1	57.0	-10.0
3+50N	34.0	55.0	-0.1	50.0	-10.0
4+00N	32.0	59.0	-0.1	49.0	32.0
2+00E/10+00S	39.0	58.0	-0.1	91.0	12.0
9+00S	37.0	61.0	-0.1	52.0	-10.0
8+00S	40.0	48.0	-0.1	40.0	-10.0
7+00S	41.0	107.0	-0.1	39.0	-10.0
6+00S	39.0	74.0	-0.1	44.0	-10.0
5+50S	47.0	63.0	-0.1	109.0	-10.0
5+00S	45.0	77.0	-0.1	70.0	-10.0
4+50S	39.0	44.0	-0.1	94.0	-10.0
4+00S	63.0	61.0	-0.1	645.0	-10.0
3+50S A	17.0	66.0	-0.1	54.0	-10.0
3+50S B	44.0	56.0	-0.1	91.0	-10.0
3+00S	68.0	91.0	-0.1	181.0	-10.0
2+50S	203.0	192.0	-0.1	507.0	-10.0
2+00S	70.0	104.0	-0.1	270.0	68.0
1+50S	53.0	98.0	-0.1	97.0	-10.0
1+00S	34.0	142.0	-0.1	93.0	-10.0
0+50S	48.0	83.0	-0.1	120.0	32.0
0+00S	36.0	63.0	-0.1	85.0	-10.0
0+50N	78.0	115.0	-0.1	119.0	-10.0



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## CERTIFICATE OF ANALYSIS

• MINERAL • GAS • WATER • OIL • SOILS • VEGETATION • ENVIRONMENTAL ANALYSIS

DEKALB MINING CORP.

DATE NOV. 4, 1981

SOIL ANALYSIS

PROJECT NO. 0147-1-3151

LOCATION	CU PPM	ZN PPM	AG PPM	NI PPM	AU PPB
2+00E/1+00N	77.0	133.0	0.4	115.0	<10
1+50N	76.0	83.0	-0.1	118.0	<10
2+00N	48.0	103.0	-0.1	139.0	128
2+50N	44.0	55.0	-0.1	90.0	<10
3+00N	33.0	60.0	-0.1	140.0	<10
4+00N	50.0	69.0	-0.1	92.0	<10
5+00N	31.0	55.0	-0.1	56.0	<10
6+00N	43.0	59.0	-0.1	95.0	<10
7+00N	56.0	79.0	-0.1	206.0	<10
8+00N	40.0	58.0	-0.1	114.0	<10
9+00N	38.0	68.0	-0.1	155.0	<10
10+00N	39.0	57.0	-0.1	91.0	<10
2+50E/6+00S	28.0	71.0	-0.1	50.0	<10
5+50S	43.0	54.0	-0.1	57.0	12
5+00S	107.0	102.0	-0.1	355.0	80
4+50S	84.0	74.0	-0.1	71.0	<10
4+00S	38.0	56.0	-0.1	122.0	<10
3+50S	151.0	93.0	-0.1	530.0	<10
3+00S	150.0	105.0	0.6	412.0	108
2+50S	17.0	48.0	-0.1	30.0	<10
2+00S	52.0	117.0	-0.1	280.0	<10
1+50S	52.0	113.0	-0.1	93.0	<10
1+00S	39.0	115.0	-0.1	60.0	<10
0+50S	37.0	80.0	-0.1	139.0	<10
0+00S	60.0	67.0	-0.1	120.0	<10
0+50N	53.0	73.0	-0.1	74.0	<10
1+00N	60.0	97.0	-0.1	52.0	68
1+50N	36.0	43.0	-0.1	40.0	<10
2+00N	29.0	39.0	-0.1	56.0	<10
2+50N	28.0	53.0	-0.1	96.0	<10
3+00N	49.0	60.0	-0.1	142.0	<10
3+50N	42.0	58.0	-0.1	185.0	<10
4+00N	71.0	63.0	-0.1	168.0	<10
3+00E/10+00S	26.0	60.0	-0.1	32.0	<10
9+00S	40.0	98.0	-0.1	115.0	<10
8+00S	34.0	53.0	-0.1	40.0	<10
7+00S	49.0	61.0	-0.1	52.0	<10
6+00S	30.0	59.0	-0.1	33.0	<10
5+50S	35.0	70.0	-0.1	40.0	<10
5+00S	140.0	93.0	-0.1	430.0	32



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### CERTIFICATE OF ANALYSIS

• MINERAL • GAS • WATER • OIL • SOILS • VEGETATION • ENVIRONMENTAL ANALYSIS

DEKALB MINING CORP.

DATE NOV. 4, 1981

SOIL ANALYSIS

PROJECT NO. 0147-1-5151

LOCATION	CU PPM	ZN PPM	AG PPM	NI PPM	AU PPB
3+00E/4+50S	75.0	89.0	-0.1	447.0	312
4+00S	167.0	112.0	-0.1	500.0	464
3+50S	14.0	47.0	-0.1	22.0	<10
3+00S	30.0	101.0	-0.1	49.0	<10
2+50S	140.0	112.0	0.7	115.0	156
2+00S	40.0	126.0	-0.1	76.0	144
1+50S	34.0	106.0	-0.1	68.0	192
1+00S	34.0	103.0	-0.1	67.0	68
0+50S	44.0	100.0	-0.1	69.0	236
0+00S	42.0	78.0	-0.1	60.0	156
0+50N	56.0	84.0	-0.1	85.0	108
1+00N	47.0	64.0	-0.1	36.0	128
1+50N	59.0	77.0	-0.1	134.0	<10
2+00N	46.0	75.0	-0.1	139.0	<10
2+50N	37.0	57.0	-0.1	82.0	<10
3+00N	63.0	77.0	-0.1	96.0	32
3+50N	24.0	60.0	-0.1	45.0	<10
4+00N	48.0	55.0	-0.1	113.0	<10
5+00N	43.0	61.0	-0.1	120.0	96
6+00N	62.0	56.0	0.7	197.0	32
7+00N	88.0	100.0	-0.1	274.0	32
8+00N	48.0	75.0	-0.1	131.0	32
9+00N	27.0	52.0	-0.1	53.0	<10
10+00N	38.0	84.0	-0.1	142.0	812
3+50E/6+00S	71.0	63.0	-0.1	65.0	68
5+50S	45.0	61.0	-0.1	44.0	32
5+00S	45.0	55.0	-0.1	303.0	156
4+50S	38.0	48.0	-0.1	103.0	80
4+00S	40.0	63.0	-0.1	69.0	236
3+50S	47.0	81.0	-0.1	60.0	108
3+00S	72.0	106.0	-0.1	153.0	208
2+50S	59.0	115.0	0.4	101.0	144
2+00S	29.0	104.0	0.6	42.0	<10
1+50S	43.0	174.0	-0.1	47.0	156
1+00S	42.0	111.0	0.6	71.0	<10
0+50S	31.0	59.0	0.4	55.0	<10
3+50E/BL	46.0	69.0	0.6	79.0	68
0+50N	59.0	142.0	0.3	94.0	108
1+00N	37.0	65.0	-0.1	81.0	32
1+50N	49.0	64.0	-0.1	120.0	32



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## CERTIFICATE OF ANALYSIS

• MINERAL • GAS • WATER • OIL • SOILS • VEGETATION • ENVIRONMENTAL ANALYSIS

DEKALD MINING CORP.

DATE NOV. 4, 1981

SOIL ANALYSIS

PROJECT NO. 0147-1-5151

LOCATION	CU PPM	ZN PPM	AG PPM	NI PPM	AU PPB
3+50E/2+00N	37.0	59.0	-0.1	65.0	192
2+50N	52.0	58.0	-0.1	174.0	<10
3+00N	54.0	60.0	-0.1	188.0	<10
3+50N	62.0	81.0	0.4	99.0	68
4+00N	52.0	69.0	-0.1	136.0	128
4+00E/10+00S	64.0	69.0	-0.1	54.0	<10
9+00S	129.0	116.0	-0.1	317.0	68
8+00S	70.0	86.0	-0.1	155.0	32
7+00S	82.0	93.0	-0.1	43.0	<10
6+00S	56.0	74.0	-0.1	59.0	96
5+50S	41.0	54.0	-0.1	26.0	144
5+00S	65.0	57.0	-0.1	128.0	32
4+50S	59.0	56.0	-0.1	244.0	<10
4+00S	46.0	65.0	-0.1	77.0	144
3+50S	45.0	51.0	-0.1	89.0	<10
3+00SA	61.0	75.0	-0.1	266.0	32
3+00SB	36.0	121.0	0.7	58.0	32
2+50S	42.0	73.0	0.4	93.0	144
2+00S	28.0	147.0	0.6	56.0	128
1+50S	29.0	91.0	0.3	48.0	80
1+00S	75.0	177.0	2.6	370.0	68
0+50S	43.0	118.0	0.4	41.0	32
4+00E/BL	21.0	53.0	-0.1	32.0	80
0+50N	31.0	67.0	-0.1	68.0	<10
1+00N	103.0	122.0	1.6	271.0	128
1+50N	47.0	67.0	-0.1	128.0	96
2+00N	76.0	73.0	-0.1	205.0	96
2+50N	61.0	97.0	-0.1	172.0	108
3+50N	57.0	58.0	-0.1	170.0	<10
4+00N	54.0	76.0	-0.1	105.0	80
5+00N	48.0	51.0	-0.1	59.0	192
6+00N	48.0	64.0	-0.1	211.0	<10
7+00N	40.0	77.0	-0.1	112.0	32
8+00N	46.0	58.0	-0.1	117.0	<10
9+00N	35.0	62.0	-0.1	81.0	<10
10+00N	36.0	66.0	-0.1	100.0	<10
5+00E/10+00S	134.0	110.0	-0.1	43.0	80
9+00S	42.0	60.0	-0.1	21.0	332
8+00S	42.0	74.0	-0.1	36.0	<10
7+00S	118.0	100.0	-0.1	118.0	432

**CERTIFICATE OF ANALYSIS**

• MINERAL • GAS • WATER • OIL • SOILS • VEGETATION • ENVIRONMENTAL ANALYSIS

DEKALB MINING CORP.

DATE NOV. 4, 1981

SOIL ANALYSIS

PROJECT NO. Q147-1-U151

LOCATION	CU PPM	ZN PPM	AG PPM	NI PPM	AU PPB
5+00E/6+00S	126.0	64.0	-0.1	117.0	404 ✓
5+00S	104.0	125.0	-0.1	131.0	108
4+00S	55.0	62.0	-0.1	243.0	68
3+00S	45.0	82.0	-0.1	84.0	12
2+00S	33.0	172.0	-0.1	44.0	<10
1+00S	33.0	63.0	-0.1	87.0	80
5+00E/BL	44.0	88.0	-0.1	93.0	<10
1+00N	42.0	62.0	-0.1	68.0	<10
2+00N	26.0	47.0	-0.1	54.0	<10
3+00N	62.0	150.0	0.7	131.0	80
4+00N	53.0	84.0	-0.1	80.0	80
5+00N	45.0	94.0	-0.1	38.0	12
6+00N	52.0	100.0	-0.1	96.0	32
7+00N	42.0	83.0	-0.1	127.0	<10
8+00N	17.0	60.0	-0.1	13.0	<10
9+00N	53.0	95.0	-0.1	151.0	<10
10+00N	80.0	62.0	-0.1	133.0	<10
6+00E/10+00S	98.0	77.0	-0.1	190.0	<10
9+00S	127.0	66.0	-0.1	158.0	68
8+00S	108.0	84.0	-0.1	201.0	32
7+00S	102.0	72.0	-0.1	135.0	96
6+00S	523.0	102.0	-0.1	78.0	<10
5+00S	48.0	71.0	-0.1	316.0	<10
4+00S	52.0	80.0	-0.1	31.0	<10
3+00S	17.0	176.0	-0.1	17.0	<10
2+00S	34.0	141.0	0.3	23.0	<10
1+00S	48.0	253.0	0.4	43.0	<10
6+00E/BL	35.0	148.0	-0.1	28.0	108
1+00N	33.0	104.0	-0.1	63.0	12
2+00N	27.0	53.0	-0.1	31.0	192
3+00N	51.0	76.0	-0.1	86.0	<10
4+00N	70.0	84.0	0.3	91.0	224
5+00N	28.0	61.0	-0.1	45.0	<10
6+00N	37.0	67.0	-0.1	70.0	<10
7+00N	57.0	73.0	-0.1	96.0	156
8+00N	16.0	97.0	-0.1	22.0	32
9+00N	35.0	63.0	-0.1	32.0	144
10+00N	88.0	75.0	-0.1	170.0	<10
17+00E/10+00S	88.0	88.0	-0.1	100.0	<10
9+00S	87.0	93.0	-0.1	134.0	32



## CERTIFICATE OF ANALYSIS

• MINERAL • GAS • WATER • OIL • SOILS • VEGETATION • ENVIRONMENTAL ANALYSIS

DEKALB MINING CORP.,

DATE NOV. 4, 1981

SOIL ANALYSIS

PROJECT NO. 0147-1-5131

LOCATION	CU PPM	ZN PPM	AG PPM	NI PPM	AU PPB
L7+00E/8+00S	110.0	82.0	-0.1	114.0	80
7+00S	31.0	69.0	-0.1	16.0	12
6+00S	65.0	69.0	-0.1	80.0	<10
5+00S	34.0	68.0	-0.1	27.0	<10
4+00S	62.0	91.0	0.5	73.0	<10
3+00S	28.0	95.0	-0.1	15.0	676
2+00S	18.0	115.0	-0.1	17.0	128
1+00S	68.0	117.0	0.6	87.0	96
L7+00E/BL	93.0	333.0	1.4	75.0	<10
1+00N	125.0	180.0	0.7	75.0	<10
2+00N	60.0	84.0	0.4	119.0	<10
3+00N	49.0	80.0	0.5	90.0	<10
4+00N	30.0	46.0	-0.1	34.0	<10
5+00N	30.0	53.0	-0.1	35.0	<10
6+00N	32.0	54.0	-0.1	45.0	<10
7+00N	15.0	37.0	-0.1	17.0	<10
8+00N	64.0	95.0	-0.1	105.0	12
9+00N	17.0	76.0	-0.1	19.0	<10
10+00N	25.0	65.0	-0.1	27.0	<10
DKIV TR4	160.0	114.0	0.4	15.0	1200
DKV T1	96.0	208.0	-0.1	40.0	<10

27



P - 60 -



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TELEPHONE (403) 465-9877

### CERTIFICATE OF ANALYSIS

• MINERAL • GAS • WATER • OIL • SOILS • VEGETATION • ENVIRONMENTAL ANALYSIS

DEKALB MINING CORP.

DATE NOV. 4, 1981

ROCK ANALYSIS

PROJECT NO. 0147-1-5151

LOCATION	AU OZ/TON	PT OZ/TON
1401	-0.003	
1402	0.008	
1403	-0.003	
1404	-0.003	
1405	-0.003	
1406	-0.003	
1407	-0.003	
1408	-0.003	
1409	0.005	
1410	-0.003	
1411	-0.003	
1412	-0.003	
1413	-0.003	
1414	-0.000	
1415	-0.003	
1416	-0.003	
1417	-0.003	
1418	-0.003	
1420	0.000	
1421	0.029 ←	
1422	-0.003	
1423	-0.003	
1424	-0.003	
1425	-0.003	
1426	-0.003	
1427	0.661 ←	
1428	0.087 ←	
1429	-0.003	<0.003
1430	-0.003	<0.003
1431	-0.003	<0.003
1432	-0.003	<0.003
1433		<0.003
1434		<0.003
1435		<0.003
1436		<0.003

*Brom*



CERTIFIED BY *[Signature]*

APPENDIX C

GEOCHEMICAL PREPARATION AND ANALYTICAL PROCEDURES

## LAB PREPARATION OF GEOLOGICAL, GEOCHEMICAL AND BIOLOGICAL MATERIALS

Sample handling and preparation procedures are as important as field sampling techniques. A poorly prepared sample is neither representative of the material obtained in the field nor can it be analysed with any degree of confidence. For this reason we spend considerable time studying handling and preparation procedures for each project. The quality of our analytical services depends on the care we take with your sample materials.

Prep. Code*	Sample Type	Description Prep. Procedure	Price/Sample
201	Soil or Sediment	Dry, sieve through an ASTM 80 mesh screen (0.18mm).	\$ 0.60
203	Soil or Sediment	Dry, sieve through an ASTM 35 mesh screen (0.50mm). The -35 mesh fraction is pulverized and homogenized in a ring grinder to approx. -100 mesh.	\$ 1.50
204	Soil or Sediment	Dry, sieve through an ASTM 80 mesh screen. The -80 mesh fraction is pulverized and homogenized in a ring grinder to approx. -100 mesh.	\$ 1.25
205	Rock chips (geochem analysis)	Crush entire sample. Subsample if necessary. Pulverize in a ring grinder to approximately -100 mesh (0.15mm).	\$ 2.00
206	Lake bottom sediment	Dry, pulverize in a ring grinder to homogenize sample and reduce particle size to approximately -200 mesh (0.075mm).	\$ 2.00
207	Drill core, Rock chips (assay)	Assay Prep. — Primary and secondary jaw crushing, tertiary cone crushing. Pulverize approx. 250 gm subsample in a rotary pulverizer. Pulp for precious metals are screened to -100 mesh (0.15mm) and examined for 'metallics'.	\$ 3.50
208	Drill core, Rock chips (assay)	Assay Prep. — Primary and secondary jaw crushing, tertiary cone crushing. Pulverize approx. 200 gm. subsample in a ring grinder.	\$ 3.00
209	Drill core, Rock chips (assay)	Assay Prep. — For High Grade Materials. Preparation same as 208 except pulp is screened to -100 mesh.	\$ 3.50
210	Vegetation	Dry, chop in a cutter mill to pass a -20 mesh (0.84mm) screen.	\$ 4.00
213	Stream sediments Pan concentrates	Separation of Heavy Minerals having a specific gravity greater than 2.96.	\$12.00
214	Pulp	As received (dry and -100 mesh)	\$ N/C
251	Drill core, Rock chips (geochem analysis)	Overweight charge on excess weight over 10 lbs. on drill core samples and over 2 lbs. on rock chip samples.	\$ 0.25/lb
261	Sample Pulps	Compositing charge	\$ 0.75 per included sample

CRUSHED SAMPLE REJECT STORAGE CHARGE — By Quotation

\*Occurs in the first column of each certificate.

GEOCHEMICAL PREPARATION  
AND  
ANALYTICAL PROCEDURES

GROUP A PERCHLORIC-NITRIC ACID EXTRACTION

1. Geochemical samples (soils, silts) are dried at 80°C for a period of 12 to 24 hours. The dried sample is sieved to -80 mesh fraction through a nylon and stainless steel sieve. Rock geochemical materials are crushed, dried and pulverized to -100 mesh.
2. A 1.00 gram portion of the sample is weighed into a calibrated test tube. The sample is digested using hot 70% HClO<sub>4</sub> and concentrated HNO<sub>3</sub>. Digestion time = 2 hours.
3. Sample volume is adjusted to 25 mls. using demineralized water. Sample solutions are homogenized and allowed to settle before being analyzed by atomic absorption procedures.
4. Detection limits using Techtron A.A. 5 atomic absorption unit..

Copper	- 1 ppm
Molybdenum	- 1 ppm
Zinc	- 1 ppm
* Silver	- 0.2 ppm
* Lead	- 1 ppm
* Nickel	- 1 ppm
* Chromium	- 5 ppm
* Cobalt	- 1 ppm
Manganese	- 5 ppm
Iron	- 2 ppm

\* Ag, Pb, Co and Ni are corrected for background absorption.

5. Elements present in concentrations below the detection limits are reported as one half the detection limit, i.e. Ag - 0.1 ppm.

## GEOCHEMICAL ANALYSES

Soil, sediment and biogeochemical materials.

### INSTRUMENTAL AND CHEMICAL ANALYSES

Element	Detection Limit	Price
<b>Group A — Perchloric-nitric acid extraction *</b>		
Copper	1 ppm	1st element — \$1.75/sample Each additional element — \$0.75/sample
Molybdenum	1 ppm	
*Lead	1 ppm	
Zinc	1 ppm	
*Silver	0.1 ppm	*Background correction applied at no additional cost.
*Cadmium	0.1 ppm	
*Nickel	1 ppm	
*Cobalt	1 ppm	
Iron	2 ppm	
Manganese	5 ppm	
Chromium	1 ppm	

\*Other extraction techniques by request

### Group B — Elements requiring individual and specific extraction techniques.

*Antimony	0.2 ppm	\$3.75
Arsenic	1 ppm	3.25
Beryllium	0.2 ppm	4.00
*Bismuth	0.2 ppm	3.75
Fluorine	20 ppm	3.75
Gold — A.A.	10 ppb	4.50
Gold — F.A. & A.A.	5 ppb	5.50
Gold — F.A. & N.A.A.	1 ppb	5.75
L.O.I.	0.1 %	2.50
Mercury	5 ppb	3.50
Palladium — F.A. & A.A.	5 ppb	15.00
pH	0.1 pH unit	2.00
Phosphorus	5 ppm	3.50
Platinum — F.A. & A.A.	20 ppb	15.00
Platinum & Palladium — F.A. & A.A.		20.00
Selenium	1 ppm	5.00
Sulfur	20 ppm	5.00
Tantalum — Neutron Activation	1 ppm	6.00
Tellurium	0.1 ppm	5.00
Thorium — Neutron Activation	1 ppm	6.00
Tin	2 ppm	3.75
Tungsten	2 ppm	3.75
Uranium — Fluorometric	0.5 ppm	3.00
Uranium — Neutron Activation	0.5 ppm	3.00

\*Background correction applied

### Group C — Perchloric-nitric-hydrofluoric acid extraction

Aluminum	10 ppm	1st element — \$3.75/sample Each additional element — \$2.00/sample
Barium	10 ppm	
Calcium	10 ppm	
Lithium	5 ppm	
Magnesium	10 ppm	Note: Upper limit for Group C elements — 10000 ppm.
Potassium	10 ppm	
Rubidium	10 ppm	
Sodium	10 ppm	
Strontium	10 ppm	
Vanadium	5 ppm	

GROUP B ELEMENTS REQUIRING INDIVIDUAL AND SPECIFIC EXTRACTION TECHNIQUES

1. PPM Arsenic:

A 1.0 gram sample is digested with a mixture of perchloric and nitric acid to strong fumes of perchloric acid. The digested solution is diluted to volume and mixed. An aliquot of the digest is acidified, reduced with KI and mixed. A portion of the reduced solution is converted to arsine with  $\text{NaBH}_4$  and the arsenic content determined using flameless atomic absorption.

Detection limit: 1 ppm

2. PPB Gold:

5 gm samples ashed @  $800^\circ\text{C}$  for one hour, digested with aqua regia - twice to dryness - taken up in 25% HCl -, the gold then extracted as the bromide complex into MIBK and analyzed via A.A.

Detection limit: 10 ppb

3. PPM Tungsten:

0.50 gm sample is fused with potassium bisulfate and leached with hydrochloric acid. The reduced form of tungsten is complexed with toluene 3,4 dithiol and extracted into an organic phase. The resulting color is visually compared to similarly prepared standards.

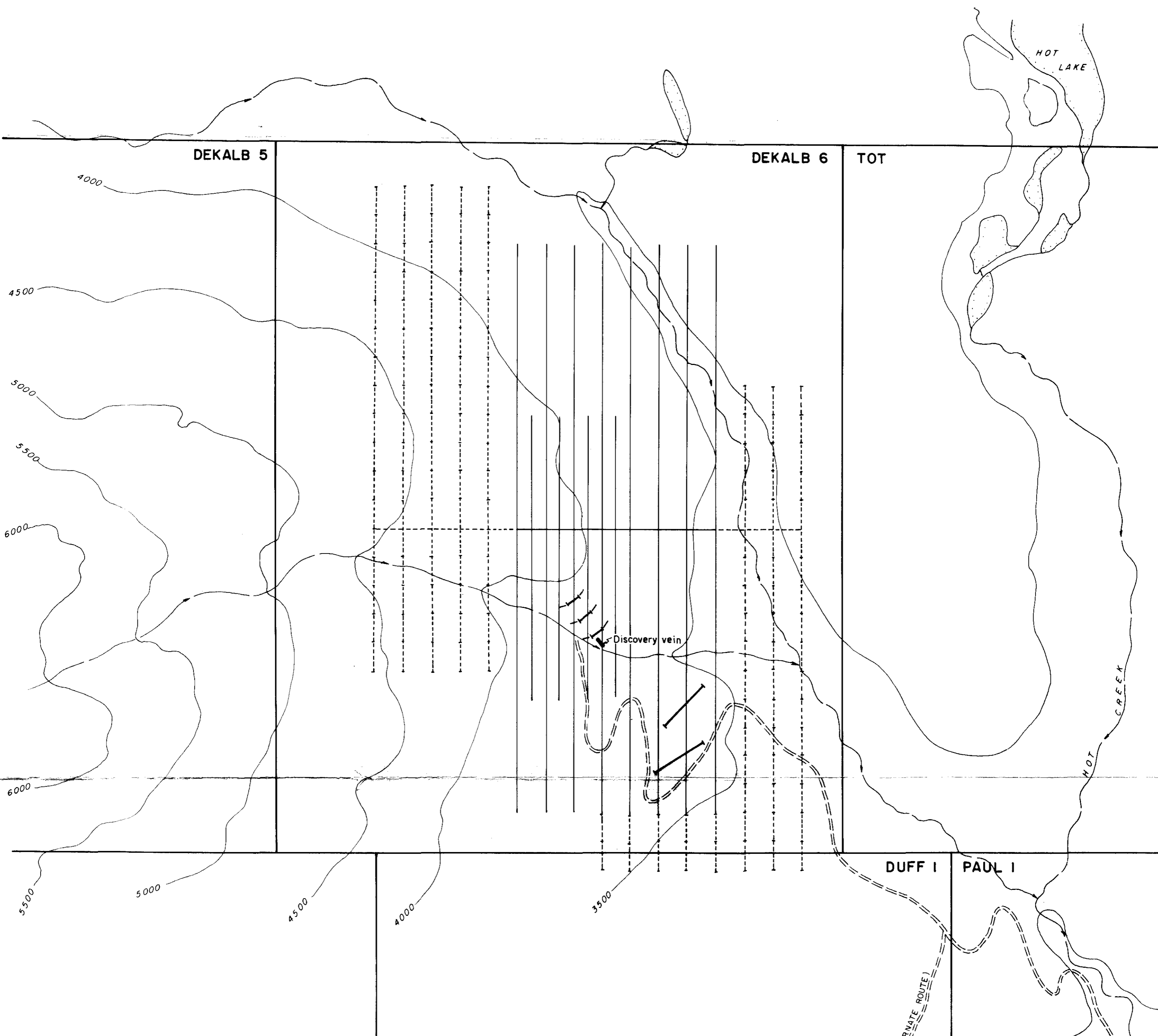
Detection limit: 2 ppm W

4. PPM Tin:

1.00 gm of sample is sintered with ammonium iodide. The resulting tin iodide is leached with a dilute HCL - ascorbic acid solution. The TOPO complex is then extracted with MIBK and analyzed via A.A.

Detection limit: 1 ppm Sn



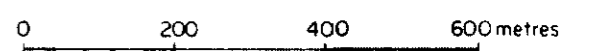


**LEGEND**

- Existing geochemical grid lines
- - - Proposed extension lines
- == Proposed roads
- Proposed trenches
- Creeks
- Contours at 500' interval
- Lakes

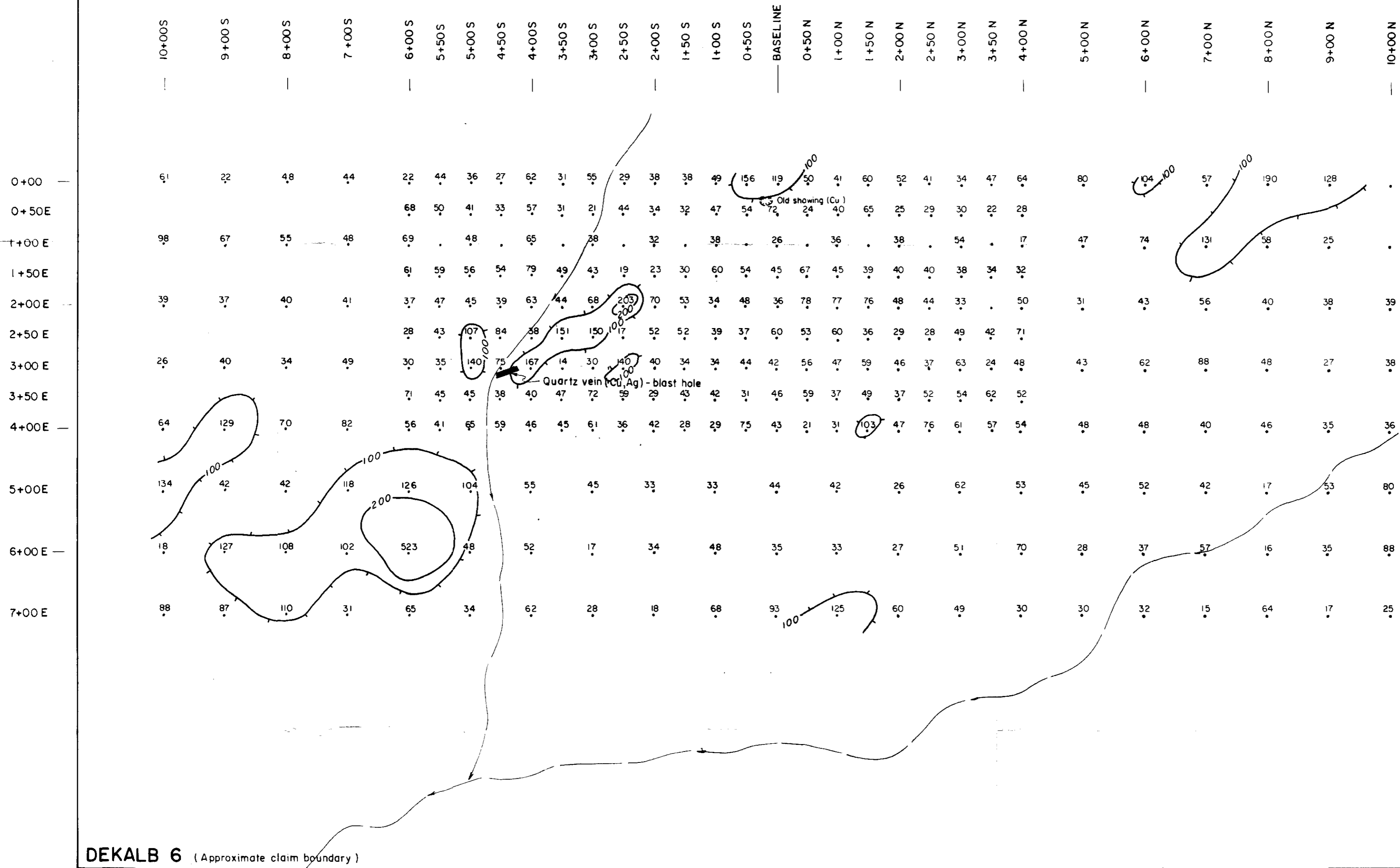
**10,170**

**DEKALB MINING CORPORATION**  
 DEKALB 6 MINERAL CLAIM  
 McDAME CREEK, CASSIAR B.C.  
**PROPOSED WORK PROGRAM**  
**(1982)**  
 SCALE 1:10,000



JANUARY 1982  
 A.J.M.

FIGURE 8



10,170

LEGEND

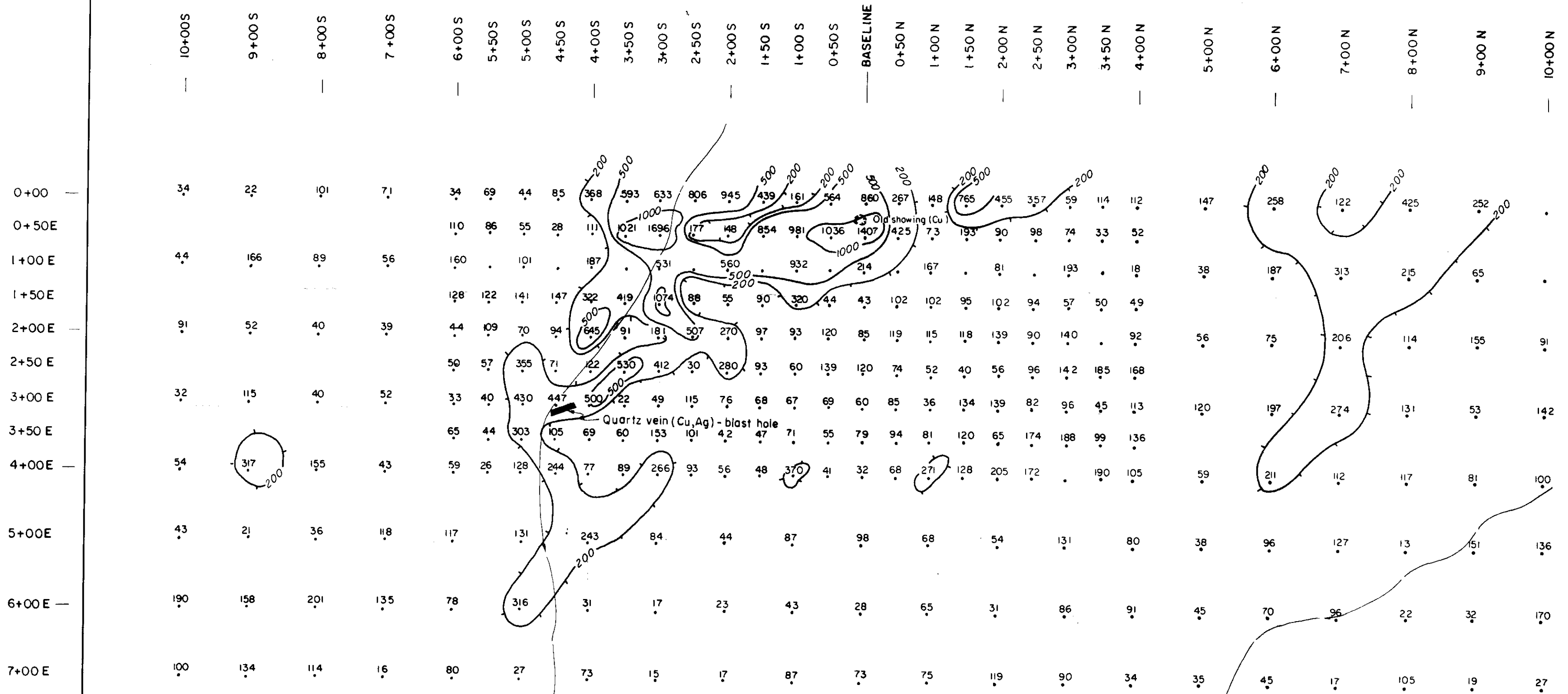
- Sample station
- Creek
- ~ Contour in ppm



**DEKALB MINING CORPORATION**  
 DEKALB 6 MINERAL CLAIM  
 McDAME CREEK, CASSIAR B.C.  
**SOIL GEOCHEMISTRY-COPPER**  
 (PPM)  
 SCALE 1:5000

JANUARY 1982  
 A.J.M. FIGURE 5

DEKALB 6 (Approximate claim boundary)



DEKALB 6 (Approximate claim boundary)

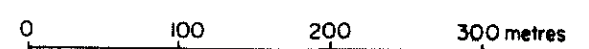


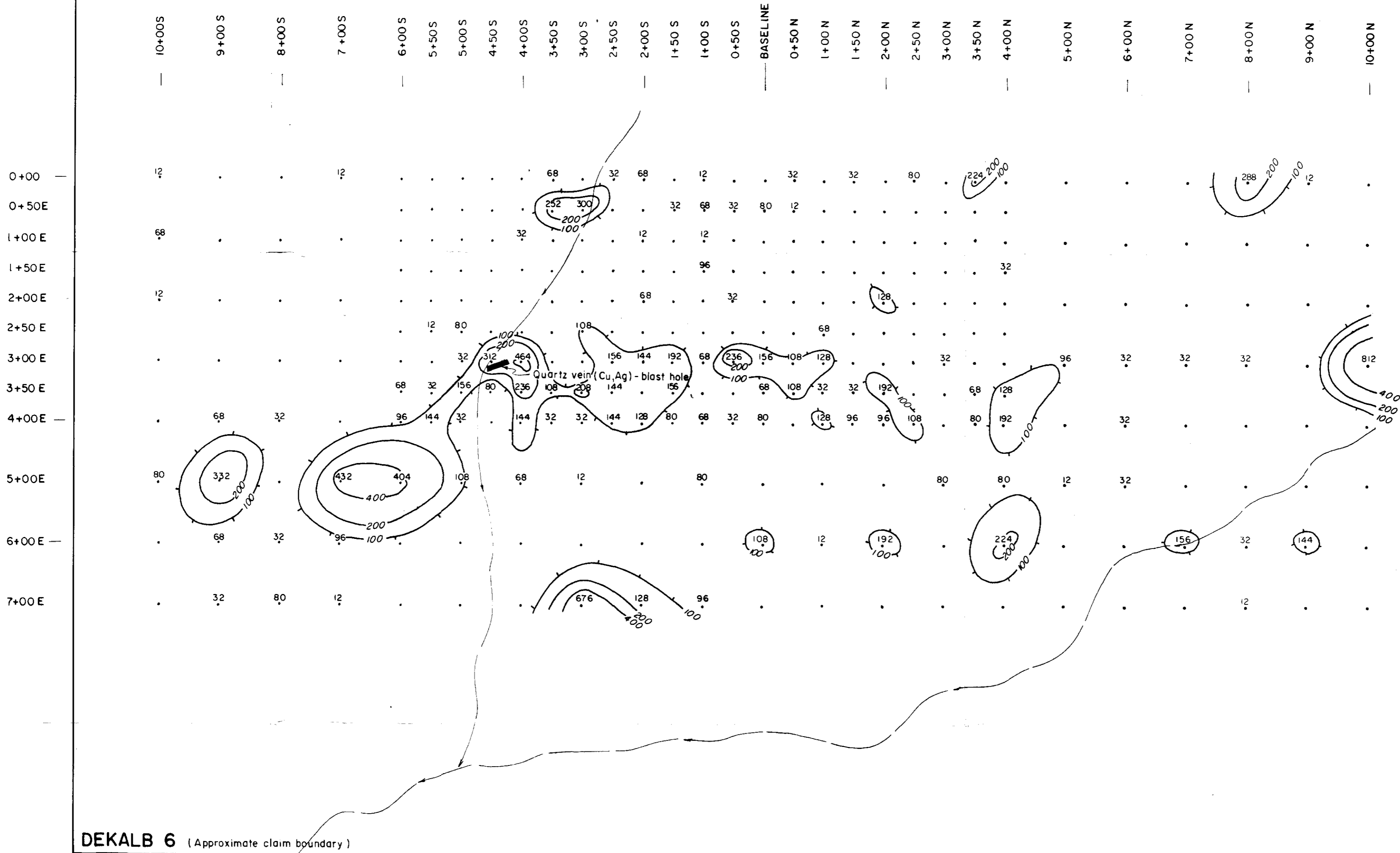
LEGEND

- Sample station
- Creek
- Contour in ppm

19170

DEKALB MINING CORPORATION  
 DEKALB 6 MINERAL CLAIM  
 McDAME CREEK, CASSIAR B.C.  
 SOIL GEOCHEMISTRY-NICKEL  
 (PPM)  
 SCALE 1:5000





**LEGEND**

- Sample station
- Creek
- Contour in ppb

NOTE: Gold value <10 ppb are not shown

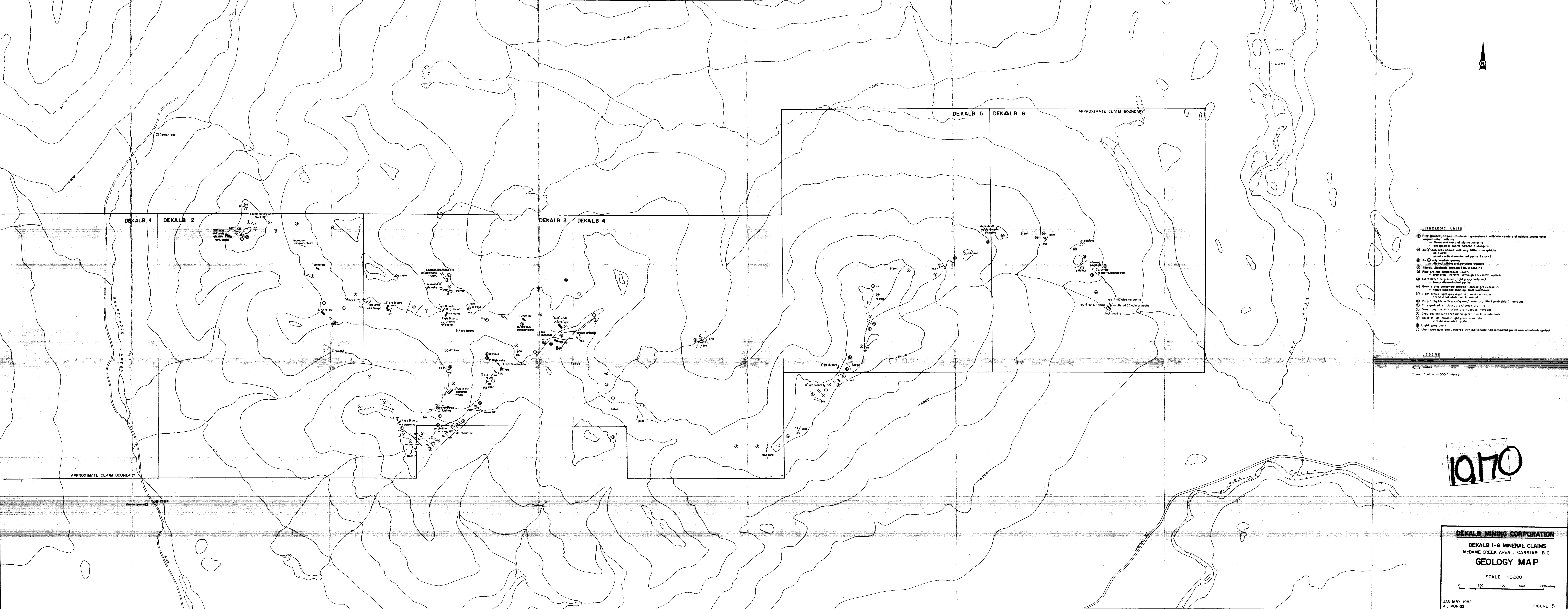
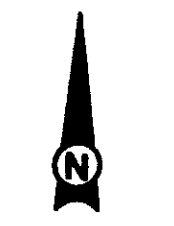


10,170

**DEKALB MINING CORPORATION**  
 DEKALB 6 MINERAL CLAIM  
 McDAME CREEK, CASSIAR B.C.  
**SOIL GEOCHEMISTRY - GOLD**  
 (PPB)  
 SCALE 1:5000

0 100 200 300 metres

JANUARY 1982  
 A.J.M. FIGURE 7



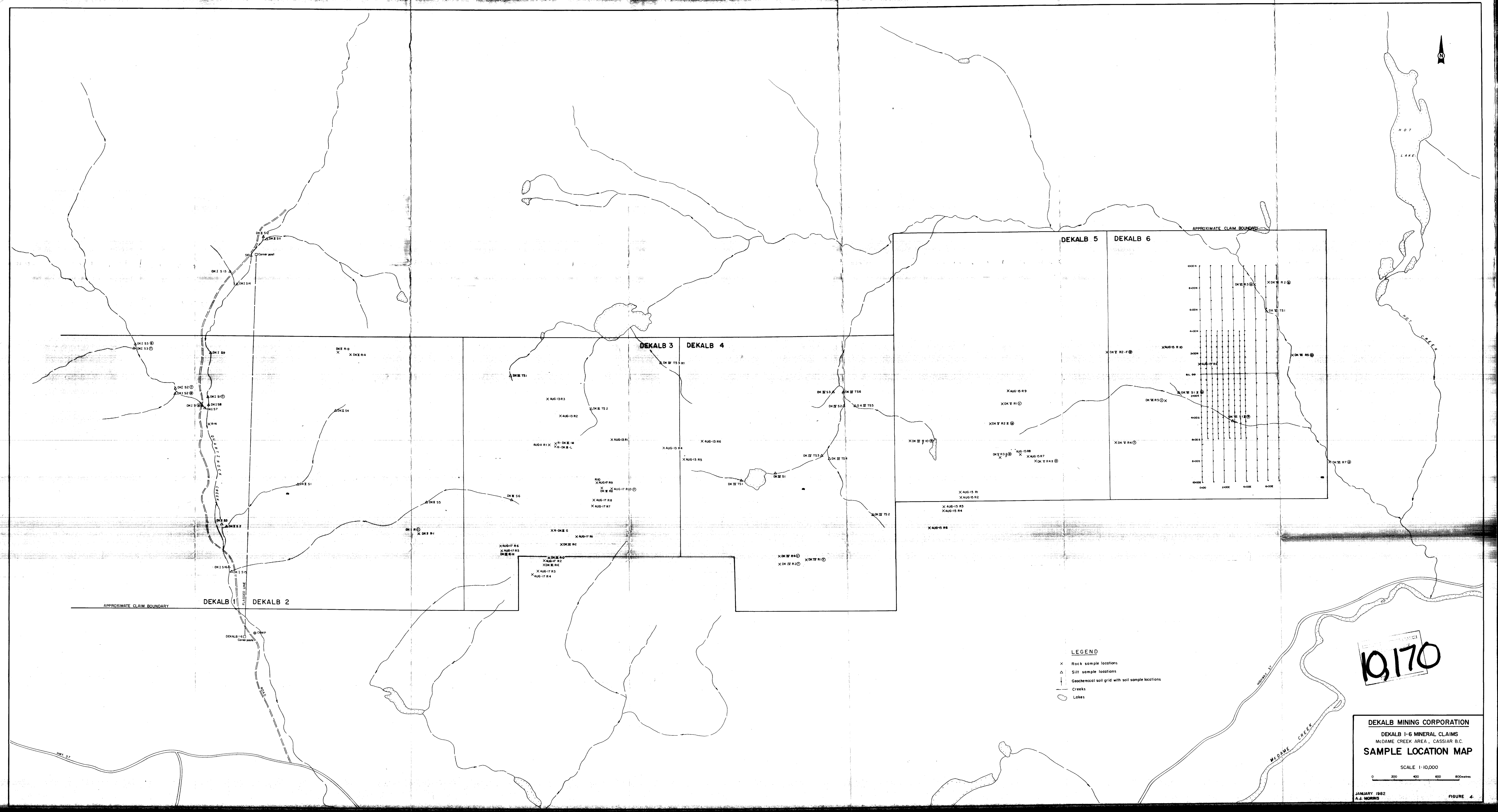
- LITHOLOGIC UNITS**
- ① Fine grained, altered ultrabasic (greenstone), with thin veinlets of epidote, occur most abundant - altered
  - ② Flakes and bits of biotite, chlorite - occasional quartz carbonate stringers
  - ③ Altered ultrabasic breccia (fault zone?) - usually with disseminated pyrite (stock)
  - ④ Altered ultrabasic breccia (fault zone?) - distinct albite and pyroxene crystals
  - ⑤ Fine grained serpentinite (zone?) - primarily lizardite, although chrysotile in places
  - ⑥ Extremely fine grained, light gray, cherty rock - finely disseminated pyrite
  - ⑦ Quartz plus carbonate breccia (Cassia greywacke?) - heavy limonite staining, shaly weathered
  - ⑧ Light brown, light gray argillite; semi-schistose - occasional white quartz veins
  - ⑨ Purple phyllite with grey/green/brown argillite (semi-shist) interbeds
  - ⑩ Fine grained, siliceous, grey/green argillite
  - ⑪ Green phyllite with brown argillaceous interbeds
  - ⑫ Grey phyllite with occasional green quartzite interbeds - with disseminated pyrite
  - ⑬ White to light brown/light green quartzite - with disseminated pyrite
  - ⑭ Light grey chert
  - ⑮ Light grey quartzite, altered with malpaisite, disseminated pyrite near ultrabasic contact

- LEGEND**
- Contour
  - Contour at 500 ft interval

19170

**DEKALB MINING CORPORATION**  
 DEKALB 1-6 MINERAL CLAIMS  
 McDAME CREEK AREA, CASSIAR B.C.  
**GEOLOGY MAP**  
 SCALE 1:10,000  
 0 200 400 600 800metres  
 JANUARY 1982  
 A.J. MORRIS





10,170

- LEGEND**
- X Rock sample locations
  - Δ Silt sample locations
  - Geochemical soil grid with soil sample locations
  - Creeks
  - Lakes

**DEKALB MINING CORPORATION**  
 DEKALB 1-6 MINERAL CLAIMS  
 McDAME CREEK AREA, CASSIAR B.C.  
**SAMPLE LOCATION MAP**

SCALE 1:10,000

0 200 400 600 800 METERS

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FIGURE 4