85-418-13728

GOSSAN 11 MINERAL CLAIM
(Snippaker Creek)

LIARD MINING DIVISION
NTS 104B/10W

C. GRAF April 1985

WORK PERFORMED ON	RECORD NO.	DATE RECORDED	NO. OF UNITS
Gossan 11	2402	24 August 1982	15

Latitude 56°35'N
Longitude 130°57'W

OPERATOR:

ACTIVE MINERALS LTD.

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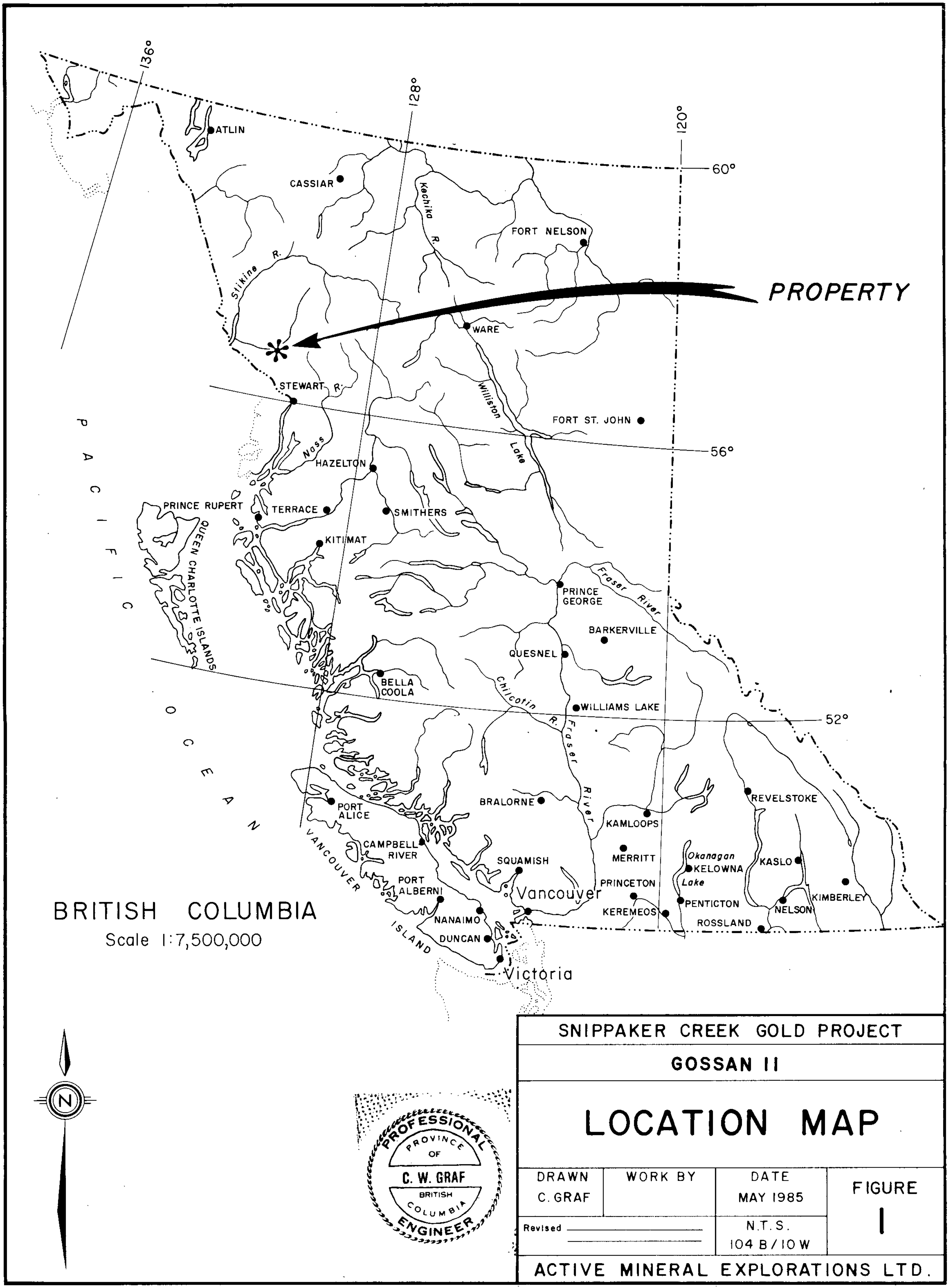


SNIPPAKER CREEK GOLD PROJECT

GOSSAN II

LOCATION MAP

DRAWN	WORK BY	DATE	FIGURE
C. GRAF		MAY 1985	1
Revised		N.T.S. 104 B/10 W	

ACTIVE MINERAL EXPLORATIONS LTD.

GOSSAN 11 CLAIM

Liard Mining Division
NTS 104B/10W

Summary.

During August 1984 the writer spent 10 days prospecting and geologically mapping the Khyber Pass precious-base metals geochemical anomaly situated on the Snippaker Creek-Bronson Creek divide. This mineralized zone was discovered in 1983 during a regional prospecting and silt-soil sampling program to explore the area's extensive gossanous, hydrothermally altered volcanic rocks for precious metal deposits. This exploration was prompted by the discovery of significant gold mineralization on the adjacent Reg claims by Skyline Explorations Ltd. in 1982.

There was no available funding or financial support to conduct a proper follow-up exploration program of the Khyber discovery in 1984 due to the severe recession affecting B.C. mineral exploration. The writer spent 10 days on the claim during 1985 in order to prospect the soil geochem anomaly and geologically map the upper part of the ridge. The previous soil geochem grid was accurately tied into a baseline and the surveyed Inel 4-Gossan 11 claim boundary. The entire Khyber Zone geochem anomaly occurs on the Gossan 11 claim..

Rock samples were taken from 36 separate locations and assayed for gold, silver, copper, lead and zinc. Individual selected samples ranged up to .97 oz. gold, 17.35 oz. silver, 18.09% zinc, 3.45% copper, 8.04% lead.

The geological environment is an intensely bleached phyllic (sericite-pyrite) 3 Km^2 alteration zone peripheral to a small feldspar (orthoclase) porphyry intrusive body which intrudes an overlying sequence of andesitic volcanics and volcaniclastics. The mineralization is believed to have formed contemporaneously in a lower Jurassic age submarine subvolcanic environment, that has possibly been affected by later faulting, a setting which has many similarities to the Stewart mining district 90 km south.

PLATE I

LOCATION OF SOIL GEOCHEM SAMPLE
TRAVERSE ACROSS KHYBER PASS

PLATE 2

KHYBER EAST ZONE BASELINE LOCATION

Introduction

In August 1984, the writer spent 10 days prospecting, sampling and geologically mapping the Khyber zone of mineralization on the Gossan 11 claim at Snippaker Creek in northwestern B.C.

A large coincident gold, silver, arsenic, copper, lead, zinc, manganese soil anomaly (Khyber Zone) was discovered on the Gossan 11 claim in 1983 (figure 4), and the purpose of the 1984 work was to geologically map and explore this mineralization further.

A chained and picketed baseline was placed along the ridge, with pickets every 50 m. The 1983 soil sample grid was tied into this baseline, as were the 1984 mapping and rock sample stations.

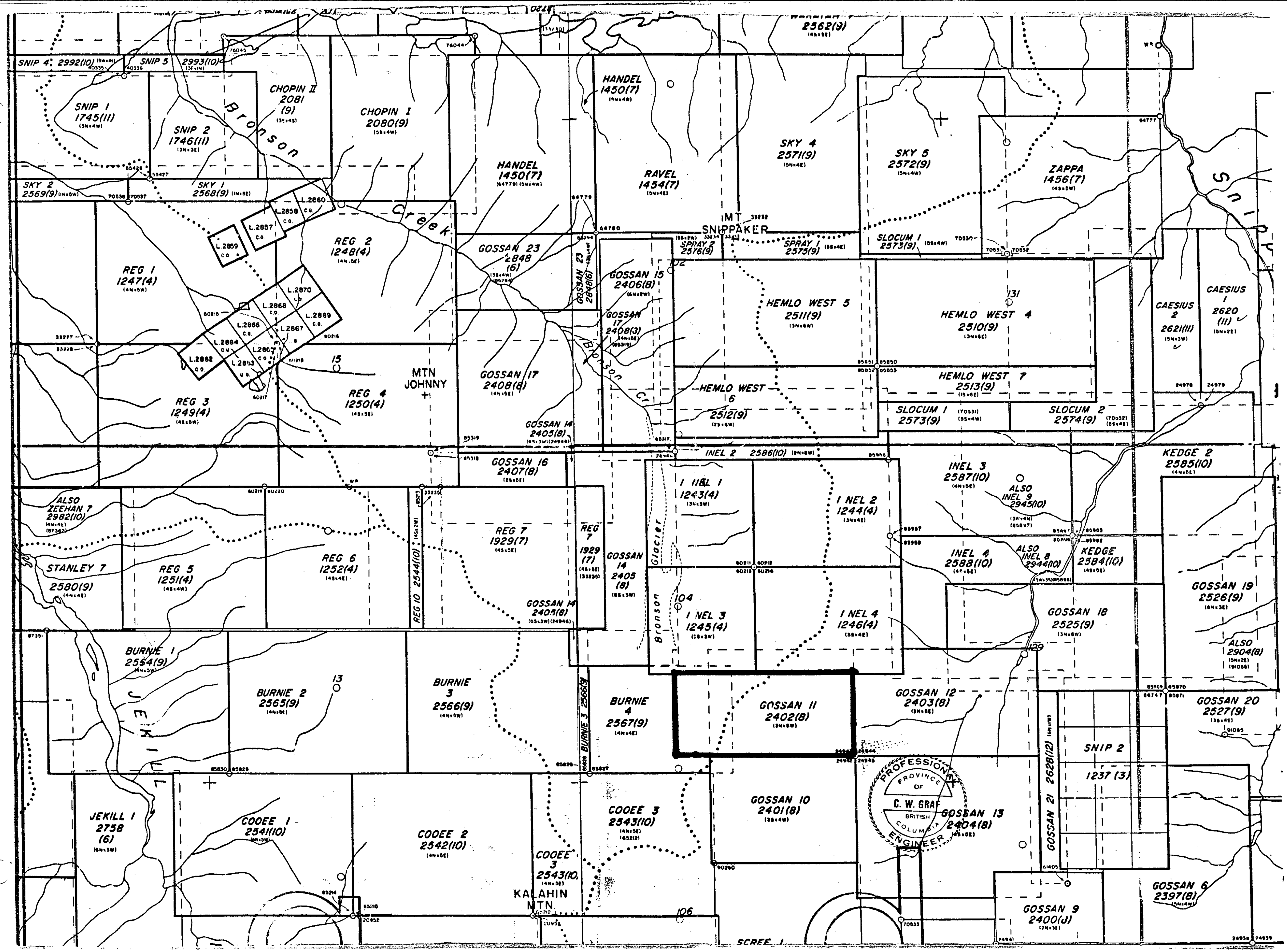
Location and Access

The Gossan 11 mineral claim is located at 56°36'N latitude and 130°57'W longitude on Map NTS 104B/10W (Figure 1). The mineralized zone is above treeline at 5000 feet elevation and is subject to severe weather conditions.

The nearest towns are Stewart, B.C., approximately 90 km in a straight line southeast, and Wrangell, Alaska, 80 km to the west. Presently there is no road access, and all work must be helicopter-supported. A sizeable tent camp has been erected on the Snippaker Creek airstrip which lies 12 km east of the Gossan 11 claim.

A serious development plan would require building a 15 km long road from the Gossan 11 claim to the mouth of Snippaker Creek. From there the mineral products could be barged down the Iskut River to tidewater at Wrangell, Alaska or points beyond.

For years Skyline Explorations has lobbied the B.C. government to build a road from tidewater to their Reg claims which are located on the south side of the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Iskut River, approximately 12 km west of the mouth of Snippaker Creek. They have a one-half million dollar underground development program planned for the Reg property in 1985.

Claim Information

CLAIM NAME	NO. OF UNITS	RECORD NO.	DATE RECORDED
Gossan 11	15	2402	24 August/82

The claims, Gossan 10, 11, 12, and 13, have been grouped as Gossan Group # 2381. This group was recorded August 12, 1983.

History and Previous Work

The Bronson-Snippaker Creek area has a long, discontinuous history of mineral exploration. Early prospectors travelling the Iskut River were attracted to the Bronson Creek tributary by the large gossans and alteration zone along the cliffs near its mouth. The remote location has, and still remains, an obstacle to development.

In 1903 the Iskut Mining Company staked claims on these outcrops and shipped a small amount of high grade copper-gold-silver ore. Dr. F.A. Kerr conducted extensive fieldwork in the Iskut/Stikine river area from 1927 - 1929, from which a geological map and report were published in 1948 (GSC Memoir 246). In this report Dr. Kerr discusses the mineral occurrences at Johnny Mountain and on the moraine of Bronson Glacier, but did not examine the geology of Snippaker Creek.

Cominco carried out a significant exploration program in 1930, and then the area remained idle until the porphyry copper rush of the 1960's. Kennco, Hudsons Bay Mining, Texasgulf Inc. and Cominco, all did exploration work on the Mt. Johnny-Bronson Creek prospects in the 1960's and early 1970's. In 1965 Silver Standard staked a large block of claims (Betty claims) on the extensive gossans and alteration zones of the Snippaker Creek drainage. This is the first mention of exploration work in the area presently covered by the Gossan claims. There is no indication that Silver Standard Mines Ltd. discovered or did any exploration work on the Khyber zone.

There is no record of any claims or exploration work having taken place on the Khyber zone prior to the Gossan claims which were staked in 1982 by the writer. These claims were optioned to Lonestar Resources Ltd. who carried out a substantial exploration program in 1983. The main result of this program was the discovery of the Khyber mineralized zone. Lonestar could not obtain a financing to further explore the property in 1984 and subsequently returned the claims to the writer. This report discusses the mineral potential of and exploration work carried out on the Khyber zone by the writer in 1984.

Geology

General Geology of the Snippaker-Bronson Creek Area

There is no government geology map for the Snippaker Creek area except for the Operation Stikine GSC Map, 1956, which is 1 inch = 6 mi. and too generalized. The present understanding of the geology comes from previous assessment reports and fieldwork conducted in 1983 and 1984.

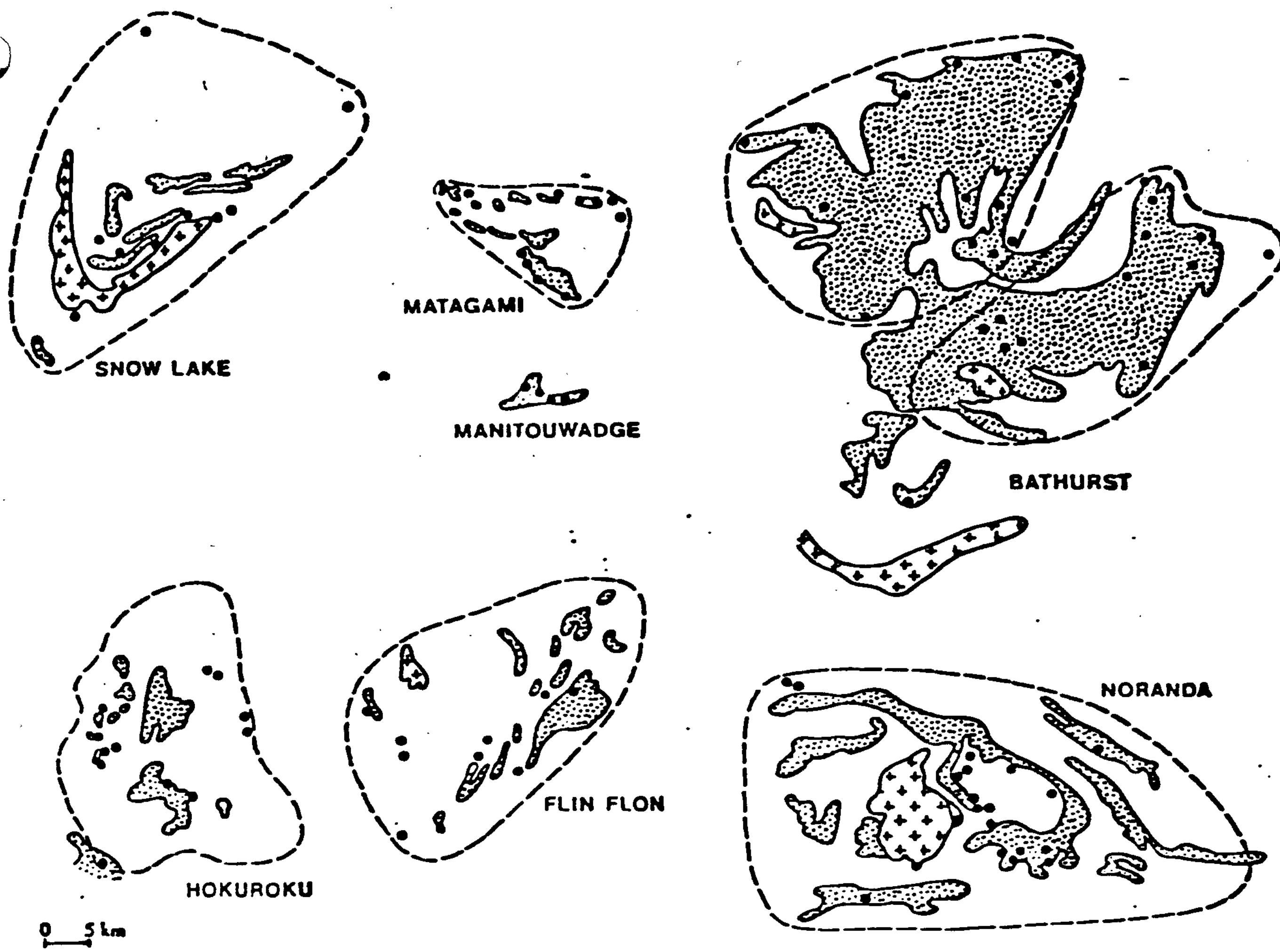
The area is underlain by a thick sequence of Late Paleozoic argillites, which to the north of the Iskut River change into fossiliferous limestones. These argillites are overlain by an extensive, andesitic volcanic sequence that may be regionally correlated with the Hazelton or Stuhini volcanics of Late Triassic-Early Jurassic age. Overlying the volcanics is a sedimentary unit containing turbidites, sandstones, conglomerate breccia and argillite which is believed to be an outlier of the Bowser Group of Cretaceous age.

The Paleozoic argillites and overlying andesite volcanics are cut by numerous dikes, sills and larger bodies of feldspar (orthoclase) porphyry.

Large phyllic alteration zones, and most of the precious-base metals prospects, occur adjacent to these intrusions, which likely represent subvolcanic feeder zones to the overlying andesitic volcanics.

Three main centers of these intrusive bodies and associated alteration and mineralization occur in the Bronson-Snippaker Creeks area. One of these extends from the mouth of Bronson Creek south to Johnny Mountain, and is described by Kerr, below. A second center underlies the Khyber zone and extends north under the mountain, across the Inel claims at the head of Bronson Creek. The third center occurs a few miles southeast of the Khyber zone on which is named Sericite Ridge (Bending 1984). These feldspar porphyry intrusive centres correlate with the outline of the Snippaker volcanics shown by Dr. Sevensma in his paper entitled Johnny Mountain, a Timmis type felsic volcano?

SIMPLIFIED GEOLOGICAL MAPS OF THE DISTRICTS



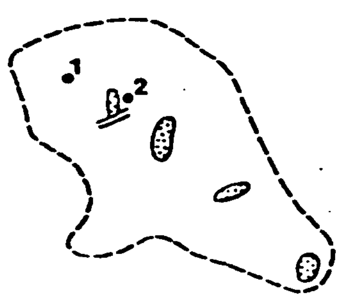
(Source: D.F. Sangster, Bulletin Vol. 73, No. 814 Febr. 1980)

- FELSIC VOLCANICS (including volcanogenic sediments)
- POSSIBLE SUBVOLCANIC INTRUSIONS
- • VOLCANOGENIC MASSIVE SULPHIDE DEPOSITS
- — — FELSIC VOLCANICS AND MASSIVE SULPHIDE DEPOSITS

SNIPPAKER FELSIC VOLCANIC BELT

1 REG
2 INEL

0 5 km



SKYLINE EXPLORATIONS Ltd.

REG & INEL GROUP

Sevensma, 1982

FIG. 6

1.

It is felt that Dr. Kerr's discussions of the alteration zone at the mouth of Bronson Creek and the structural geology of Bronson valley and Johnny Mountain are valuable and are quoted below.

"The small mass in the southern map-area on the south side of Bronson Creek is the one that has caused the intense alterations mentioned above; it does not seem to have been much more than barely unroofed. The coarsest part carries phenocrysts up to 1/2 inch long, of grey, purple, and pink orthoclase, and some rounded grains of quartz, in a matrix of white mica, quartz, and indeterminate feldspars. The grains show peculiar chewed edges, evidencing attack by solutions. As the contacts are approached, the phenocrysts become fewer and smaller, and eventually disappear. The rock has been much sheared and altered, and is cut by quartz veins carrying pyrite with some chalcopyrite, molybdenite, and other sulphides; and from these fissures silica and iron sulphide have seeped out into the surrounding porphyry and impregnated parts of it.

On the hillside above the porphyry, the country rock is highly altered throughout a zone more than 2 miles long, and between 1,000 and 2,000 feet wide, corresponding to a vertical distance of at least 500 feet. Beyond this zone the alteration gradually fades, but some changes were noted as much as a mile from the contact and 2,000 feet or more above it. Alteration was also observed on the northeast side of Bronson Creek, but very little on the lower side of the porphyry mass."

"Besides pyrite, which is by far the most abundant, the sulphides include arsenopyrite, pyrrhotite, chalcopyrite, galena, sphalerite, tetrahedrite, molybdenite, and possibly others. There are also some oxides such as hematite and magnetite. Massive pyrite may occur locally in parallel streaks, and highly mineralized rock also shows a banding. Both are believed to parallel the original shearing."

"The geology of the Bronson Creek area is shown in generalized form on the map of the southern map-area. The creek itself lies within a syncline of Triassic volcanic rocks, which are intruded by a small mass of orthoclase porphyry. To the south, on Johnny Mountain, the strata rise into a compound anticline, at the crest of which erosion has partly removed the volcanic rocks and exposed Paleozoic sedimentary strata beneath them. Actually, the minor folds are more numerous than indicated on the map; if work had been done on a larger scale and in detail, the results would look much more complex. The Paleozoic strata are mainly argillites, quartzites, and schists."

The geological section exposed naturally on the south facing slope of Khyber Pass is over 700 meters thick. On the western portion, across the Khyber saddle, the entire slope is intensely sericitized, pyritized and weathered into a gossanous, bleached color anomaly. The original rock type is difficult to determine due to the intense alteration and much of it is considered to be intrusive.

Immediately west of the Khyber saddle the rocks are fresher in appearance, and although strongly deformed are not strongly altered. To the west the slope steepens quickly into vertical cliffs over 500 meters high. Spectacular icefalls have developed at the top of the cliffs, and provide constant entertainment when carrying out geological fieldwork.

These cliffs extend southeast for 1 km. to Pyramid Peak remaining relatively unaltered. At the base of the cliffs is a saddle (Pyramid saddle), between them and Pyramid Peak. All of Pyramid Peak (which topographically lies 500 m. lower) is strongly altered and weathered into a gossanous, bleached color anomaly in the same manner as at the Khyber saddle.

Since the change from altered to unaltered rocks is remarkably abrupt at the western end of both saddles and because Khyber Pass and Pyramid Peak elevations are

500 meters lower than the slopes immediately west, it is proposed that a large west dipping overthurst fault structure strikes northwest across the saddles. It is not possible to carry out a geological traverse across the hanging wall rocks without using ropes, because of steep cliffs and a large vertical drop.

A 30 meter section of unaltered rocks just above the proposed fault zone is accessible and consists of a uniform medium grained, foliated greenstone. It has an extrusive appearance and is composed of 1/8" to 1/4" feldspar and quartz phenocrysts in a finer grained, dark green colored matrix. The feldspar grains are strongly foliated and aligned parallel to schistosity. These rocks do not have any identical similarities to the volcanic rocks exposed in the eastern portion of Khyber Pass, and may represent a different formation.

Although the original rock types on Pyramid Peak are intensely altered and difficult to recognize, geological mapping in 1983 by Bending indicates that much of it is underlain by intrusive rocks, mainly diorite. Orthoclase porphyry dikes occur along the northeast slope of the peak, and fine grained sedimentary roof pendants and wedges occur randomly throughout the upper slopes. One small area underlain by a roof pendant of volcanics was mapped just east of the peak. Propylitic alteration, shown by intense epidote development, is pervasive and a zone of massive magnetite 10 meters thick is exposed for 200 meters along the cliffs east of the peak.

On the east side of Khyber Pass, 1 km. from Khyber saddle, the upper slopes of the color anomaly become overlain by an eastward thickening section of relatively unaltered, dark green weathering, volcanic rocks and eventually the altered zone disappears. At its widest point, in middle elevations, the alteration zone extends eastward for 1.2 km. from the west side of the Khyber saddle. It also extends for 2 km. south across Pyramid Peak and about 5 km. north across the Inel claims. The entire color anomalous zone of sericitization and pyritization is 7 km.long from the north side of the Inel claims to the south side of Pyramid Peak and is 1.2 km. wide in an eastward direction.

Where the north boundary of the Gossan II Claim trends across the eastern boundary of Khyber Pass, the volcanics are overlain by sedimentary rocks of various lithologies. This sedimentary formation becomes thicker to the north, trending for 12 km. along the east side of Bronson Valley and forming the highest peaks from the Inel Claims to Snippaker Peak. The lithologies include massive bedded, tuffaceous sandstones, conglomerates, volcanic clast breccias, siltstones, rhythmites and black argillites. Near Snippaker Peak these units are well bedded and show various scales of sedimentation cycles from siltstone-argillite couples 1 cm. thick, to conglomerate-sandstone megacycles 200 meters thick.

Just south of Snippaker Peak, the formation includes a thick, vesicular volcanic clast, breccia unit. The base was not seen but the breccia is bedded and over 200 meters thick. A black argillite layer with abundant megafossils occurs in the upper part of this breccia member 350 m. south of Snippaker Peak. A fossil collection was made from which Dr. Tipper of the Geological Survey of Canada determined a "lower Jurassic, probably Toarcian age". Fossils identified were **Weyla** sp. fragments **Trigonia** sp. fragment **Gryphea** sp. **Corals** and **Pelecypods** (Appendix III).

The appearance of the fossiliferous black argillite in the volcanic breccia formation indicates it to have been a kill zone that occurred during a volcanic eruption. One sample contains coral fragments in a volcanic breccia rock. The volcanics and sediments are relatively contemporaneous and occur interbedded throughout the east side of Bronson Valley. Complex facies changes along strike combined with structural complications lead to many discontinuous, lense shaped layers which make geological mapping difficult.

In early Jurassic time (Middle Toarcian and Earlier) the palaeo environment of the Bronson-Snippaker Creeks area was a shallow, submarine line of alkalic andesitic volcanic islands. A regional fossiliferous horizon indicates that the volcanoes were periodically or in part subaerial with fringing coral reefs. It appears that the mineralization formed contemporaneously from submarine hotspring type hydrothermal systems, peripheral to the volcanoes. The altered orthoclase porphyry intrusions represent the throats of the volcanoes.

An alternative proposed model for the origin of the geology and mineral deposits envisages large scale cataclasite zones with K-feldsar alteration and mineralization forming along them. Evidence exists, and has been presented, which supports the existence of a large west dipping overthrust with the fault plane trending northwest across Khyber and Pyramid saddles. More work will be necessary to understand the genesis of these mineral deposits.

Geology of the Khyber Zone-Gossan 11 Claim

Introduction

Geology of the Khyber Pass is shown on Figure 3. The entire area has undergone extensive alteration and bleaching which makes the original rock types difficult to recognize. The lower slopes and western portion of Khyber Pass are altered to an assemblage of sericite-pyrite ± chlorite, quartz, mariposite. It appears that the original rock was an intrusive alaskite body with associated peripheral dikes and sills. The eastern portion of the Khyber zone is made up of volcanic and sedimentary rocks which overlie the main intrusive body, but are cut by feldspar (orthoclase) porphyry dikes. The intrusive suite is distinctly alkaline as they contain a general lack of quartz in the matrix; however, under the microscope occasional rounded quartz grains can be seen.

The volcanic ~~(propyhtic)~~ rocks have suffered extensive chloritic (propylitic) alteration and their K-feldspars have been totally destroyed in places, now forming vugs. A lot of manganese has been introduced into these rocks which in places are steely-blue colored on weathered surfaces. This mineral enrichment is also evident as a large manganese soil geochem halo in the volcanics above the extensive sericite altered areas.

In the lower slopes of Khyber Pass, the contact of the main alaskite intrusive body with Paleozoic? argillites, is marked by extensive sericite-pyrite alteration, wheras the contacts between the overlying volcanics and crosscutting feldspar (orthoclase) porphyry dikes are fresher in appearance but altered to chlorite schist. The intrusions may not all be of the same age. Alternatively, the sericite alteration may represent zones of later shearing and hydrothermal activity.

The large phyllic alteration zone was formed as a result of complex inter-related hydrothermal and intrusive activity along this major N-S fault zone. The mineralization appears to be in part controlled by later N20 - 40°E faults. Similar N20°-40°E faults also control the mineralization of the Inel and Reg claims, where they are visible on airphotos.

i) Volcanic Formation

Volcanic rocks are best exposed in the vicinity of BL 0+00 N. They outcrop from BL 2+30 S to BL 2 + 50 N and the section is best exposed in the south facing slopes of the Peak at BL 0+00 N. West from BL 0+00 N the volcanics form all of the small rock islands that lie in Boundary glacier (Figure 3).

Steep slopes, deformation and general lack of bedding make the thickness of the formation difficult to determine but it is in the order of 150 meters. A suite of rock samples was collected at each 10 m. interval from BL0 + 00N to BL2 + 50 N in order to examine them microscopically in the office. Rock types vary from fine grained green colored tuffs and tuffaceous andesites, to coarse grained, schistose volcaniclastics and agglomerates. Dome like outcrops of coarse orthoclase phenocryst bearing andesites occur in the lower portion of the volcanic formation. These "domes" are lense shaped, and in the order of 20 meters thick and 50 meters long. The groundmass is composed of greenish colored chlorite and sericite +/- biotite, augite. It is difficult to distinguish between

PLATE 3

KHYBER EAST ZONE LOOKING WEST

PLATE 4

WATERLAIN CROSSBEDDED VOLCANOGENIC TUFFS-SILTSTONES
KHYBER EAST ZONE

PLATE 5

VOLCANIC BRECCIA-KHYBER EAST ZONE AREA

PLATE 6

VOLCANOGENIC TUFFS - SILTSTONES KHYBER EAST ZONE intrusive and extrusive varieties of orthoclase porphyry, and the Khyber section exposes a complete subvolcanic through volcanic sequence of rocks.

All of the volcanic rocks have undergone propylitic alteration, and the coarse orthoclase phenocrysts, which have been changed to carbonate, are commonly weathered out leaving conspicuous vugs up to 1 cm across.

The entire volcanic section is roughly 150 meters thick and varies from the orthoclase phenocryst bearing flows near the base, through finer grained andesite with abundant coarse clasts of orthoclase porphyry, into a sequence of andesitic tuffs and agglomerates with fragments up to 20 cm. across. Both the matrix and fragments are identical in composition.

Near the base, a banded, green colored siltstone unit (Banded Siltstone, BS) occurs. It underlies most of the Khyber west zone mineralized area, and also outcrops on the baseline at BL 1+75S and BL 2+50N.

At the top of the volcanic formation is a distinctive "sandy", sheared, recessive agglomerate member 5 meters thick, which shows both graded and cross-bedding and has been waterlain. The clasts, up to 10 cm. long, are flattened, stretched and in part schistose due to a later deformational event. This member marks the top of the volcanic formation exposed across Khyber Pass. It is best exposed at BL 0 + 50 N. on the baseline and in the slopes below.

ii) Intrusive Rocks

There are several locations where intrusive rocks are exposed in the Khyber Pass area. Bending, 1984, considered the entire area to be underlain by Coast Range Intrusives (diorite, granodiorite, syenite) which are barely exposed above North Pyramid Glacier. Generally discontinuous exposures of intrusive rocks occur throughout the rest of the section and were mapped by Bending as dikes. These apparently extend as fingers from the larger intrusive beneath and are of several different ages. In a spatial sense, he also indicated that the Inel and Khyber areas represent two separate intrusive centres and mineralized zones.

The present writer has only mapped the upper portion of the Khyber Pass, where all the intrusive rocks observed were varieties of alkaline orthoclase porphyry alaskite. A 10 meter wide, dark colored, intrusive dike stands out against the bleached rock and strikes N 30°W across the ridge, 200 meters northeast of Khyber Saddle. It consists of 2 cm. long by 5 cm. euhedral orthoclase phenocrysts in a medium to coarse grained matrix of feldspar and sericite. Random laths of biotitized amphibole occur, quartz is absent, and pyrite is ubiquitous.

A similar orthoclase porphyry commonly occurs at the top of the bleached alteration zone near its contact with the volcanics. It appears to underlie much of the mountain at the same stratigraphic level, and may represent a large, strongly sericitized, intrusive body at depth. It is light grey colored, dense and composed of sparse orthoclase phenocrysts in a fine grained matrix of feldspar, sericite pyrite and altered amphibole grains.

A dike of similar orthoclase porphyry rock cuts across the baseline at BL 1+00N where it forms a resistant light grey colored outcrop. This body trends south for over 200 m, and thickens to 30 m where last observed (Figure 3.)

There were two stages of orthoclase porphyry intrusion. The first stage involved the emplacement of a stock of orthoclase porphyry alaskite, with adjacent contemporaneous submarine extrusions of orthoclase porphyry volcanic flows. The second stage involved later intrusive dikes which cut through the entire section, possibly feeding younger volcanic flows in the overlying stratigraphy.

Mineralization and Geochemistry

Introduction

In 1983 a large soil sample grid covering an area 2,000 m. by 350 m. was performed across the Khyber Pass zone. The results from this survey were filed for assessment credit and are contained in a BCDM assessment report by Bending 1984.

During the 1983 survey, a total of 1,189 C-horizon soil samples were taken at 10 m. and 25 m. intervals. These outlined a coincident gold, silver, arsenic, zinc, copper, lead anomaly measuring 1,500 m. by 200 m. along the top of the ridge. The mean gold value of these 1,189 samples was 840 ppb. (see Table 1).

In 1984, twenty mineral showings were discovered within the soil anomaly from which grab samples contained up to .97 oz/ton gold, 17.35 oz/ton silver, 18.5% zinc, 3.45% copper and 8.04% lead. Pyrite and sphalerite veins and replacements are numerous within the large zinc soil anomaly in the eastern portion of Khyber Pass.

Disseminated molybdenite and pyrite mineralization is associated with large zones of mariposite-vuggy silica in several places across Khyber Saddle and in the West Khyber portion of the gold soil anomaly. An electron microprobe study was done on one sample (#B1229) of suspected mariposite mineralization (figure 2). Five separate analyses of fine grained (10 um) green mica samples all contained over .15% C_2O_3 classifying the mica as "chromian muscovite" or mariposite. Ca, Na, Ba and Mn were analyzed for but not detected (Appendix III).

Ankeritic carbonate and manganoferrodolomite veining is common as is a distinctive steely - blue colored manganese stain, which is an indication of zinc sulfide mineralization. The ankerite may have been formed by alteration of hornblende minerals into chlorite and ankerite, ~~produces~~ a chemical alteration equation used to explain the widespread ankerite alteration of the Golden Mile gold district in Australia.

The mineralized system appears to be well zoned, based on the results from the soil geochem survey, and consists of copper and arsenic at depth, and manganese,

Khyber GRID (N = 1189)

Element	Range	Mean	Standard Deviation	Form[1]	Threshold	Anomaly	Criterian 2
Au ppb	5 - 600000	843.67	2341.67	LN, Trimodal	530	1090	PA
Ag ppm	0.0 - 78.2	6.22	6.17	LN, Trimodal	7.8	12.0	PA
As ppm	0 - 1060	188.55	91.83	N,LN,Trimodal	212	330	PA
Sb ppm	0 - 76	10.46	12.66	N, Bimodal	35	50	PA
Mn ppm	51 - 17400	1600.65	2020.69	LN, Bimodal	1220	2696	PA
Pb ppm	8 - 4110	136.36	209.81	LN, Bimodal, Intersecting	91	165	PA
Zn ppm	0 - 37300	877.00	2485.25	LN,N, Complex	220	575	PA
Cu ppm	30 - 3670	303.19	268.63	LN	305	730	PA
Ba ppm	55 - 1500	245.47	129.01	LN, Complex	270	460	PA
Mo ppm	15 - 709	73.03	58.71	LN,Multimodal	120	170	G
Bi ppm	26 - 188	61.77	18.35	LN, Trimodal	65	87	PA

TABLE 1

[1] LN = Lognormal, N = Arithmetic Normal
[2] PA = Probability Plots, applied to significant pathfinder elements
G = Inspection of Histograms
S = Statistic, mean plus two standard deviations

TABLE 2

Khyber Zone Soil Geochem Anomalies

Element	Anomalous Contour	Location	Width(m)	Length(m)	Status
Gold	300 ppb	Entire Zone	200	1,200	open
	1,000 ppb	West Khyber	100	200	
	1,000 ppb	East Khyber	100	250	open
Silver	5 ppm	Entire Zone	250	900	open
	10 ppm	West Khyber	100	150	
	10 ppm	East Khyber	100	400	open
Arsenic	100 ppm	Entire Zone	350	1,500	open
	200 ppm	West Khyber	100	300	
	200 ppm	East Khyber	120	500	open
Zinc	1,000 ppm	East Khyber	200	500	open
	2,500 ppm	East Khyber	180	300	open
Lead	100 ppm	West Khyber	100	150	
	100 ppm	East Khyber	300	500	open
	200 ppm	East Khyber	200	200	open
Copper	200 ppm	West Khyber	200	300	
	200 ppm	East Khyber	300	500	open
	300 ppm	West Khyber	100	300	
	300 ppm	East Khyber	150	450	open
Manganese	2,700 ppm	East Khyber	200	400	open

gold, silver, zinc and lead at the top. The impressive manganese dispersion halo at the top of the mountain possibly indicates extensive base-precious metal mineralization at depth.

Khyber Zone Soil Geochemistry

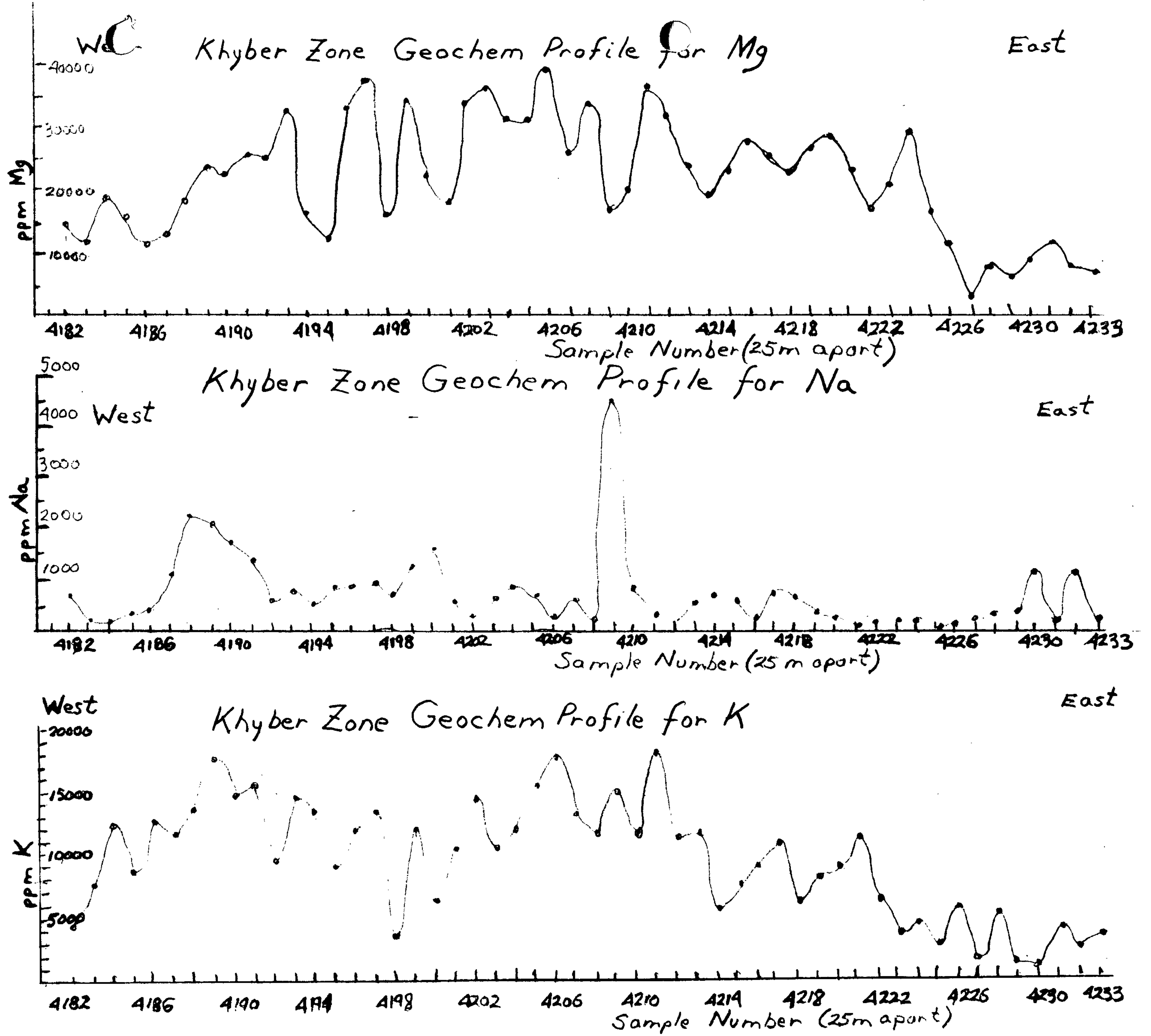
These results were described in the 1983 assessment report, from which the following summary is made. The 300 ppb gold anomaly is 1,200 m. long by 200 m. wide and values range up to 60,000 ppb. The 5 ppm silver anomaly is 900 m. long by 250 m. wide and values range up to 78 ppm. The 100 ppm arsenic anomaly is 1,500 m. long by 300 m. wide and values range up to 1,060 ppm. The 1,000 ppm zinc anomaly is 500 m. long by 200 m. wide and values range up to 37,300 ppm. The 100 ppm lead anomaly is 500 m. long by 300 m. wide with values ranging up to 4,110 ppm. The 200 ppm copper anomaly is 500 m. long by 300 m. wide and values range up to 3,670 ppm. The 2,700 ppm manganese anomaly is 400 m. long by 200 m. wide and values range up to 17,400 ppm. (see Tables 1 & 2)

All samples were analyzed for 26 elements by the (ICP) Inductively Coupled Plasma technique.

A 1.5 km. long soil sampling traverse was made across the Khyber zone, starting at the western end of the Khyber Saddle, from which soil samples were taken at 25 m. spacings. These samples, #4182 to #4233 were also analyzed for 26 elements by the ICP technique. The magnesium, manganese, calcium, sodium, potassium, silver, zinc, and gold values were plotted to show their variation across the altered and mineralized zone. The plots are shown as Figures 5, 6, and 7.

The main purpose of plotting the profiles was to see if sodium depletion or potassium enrichment haloes occurred, and if they could by used to locate gold mineralization. Gold and silver values were plotted to show the distribution of precious metals, and zinc was plotted to indicate the distribution of base metals. The influence of lithology on these values has not been taken into consideration.

FIGURE 7



W
Khyber Zone Geochem Profile for Mg
East
40000
30000
20000
10000
ppm Mg
4182
4186
4190
4194
4198
4202
4206
4210
4214
4218
4222
4226
4230
4233
Sample Number (25m apart)
Khyber Zone Geochem Profile for Na
West
East
5000
4000
3000
2000
1000
ppm Na
4182
4186
4190
4194
4198
4202
4206
4210
4214
4218
4222
4226
4230
4233
Sample Number (25 m apart)
West
Khyber Zone Geochem Profile for K
East
20000
15000
10000
5000
ppm K
4182
4186
4190
4194
4198
4202
4206
4210
4214
4218
4222
4226
4230
4233
Sample Number (25m apart)

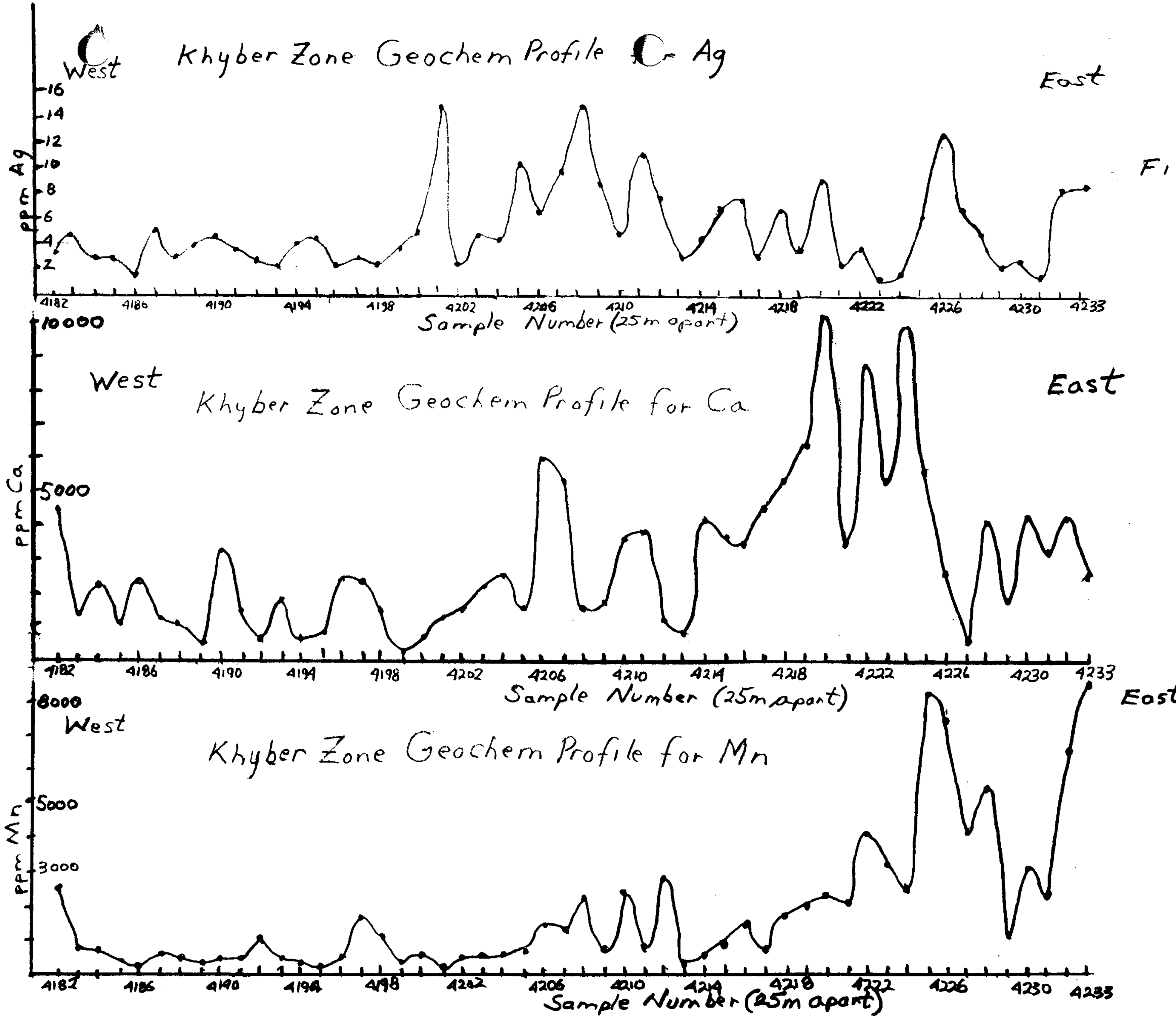
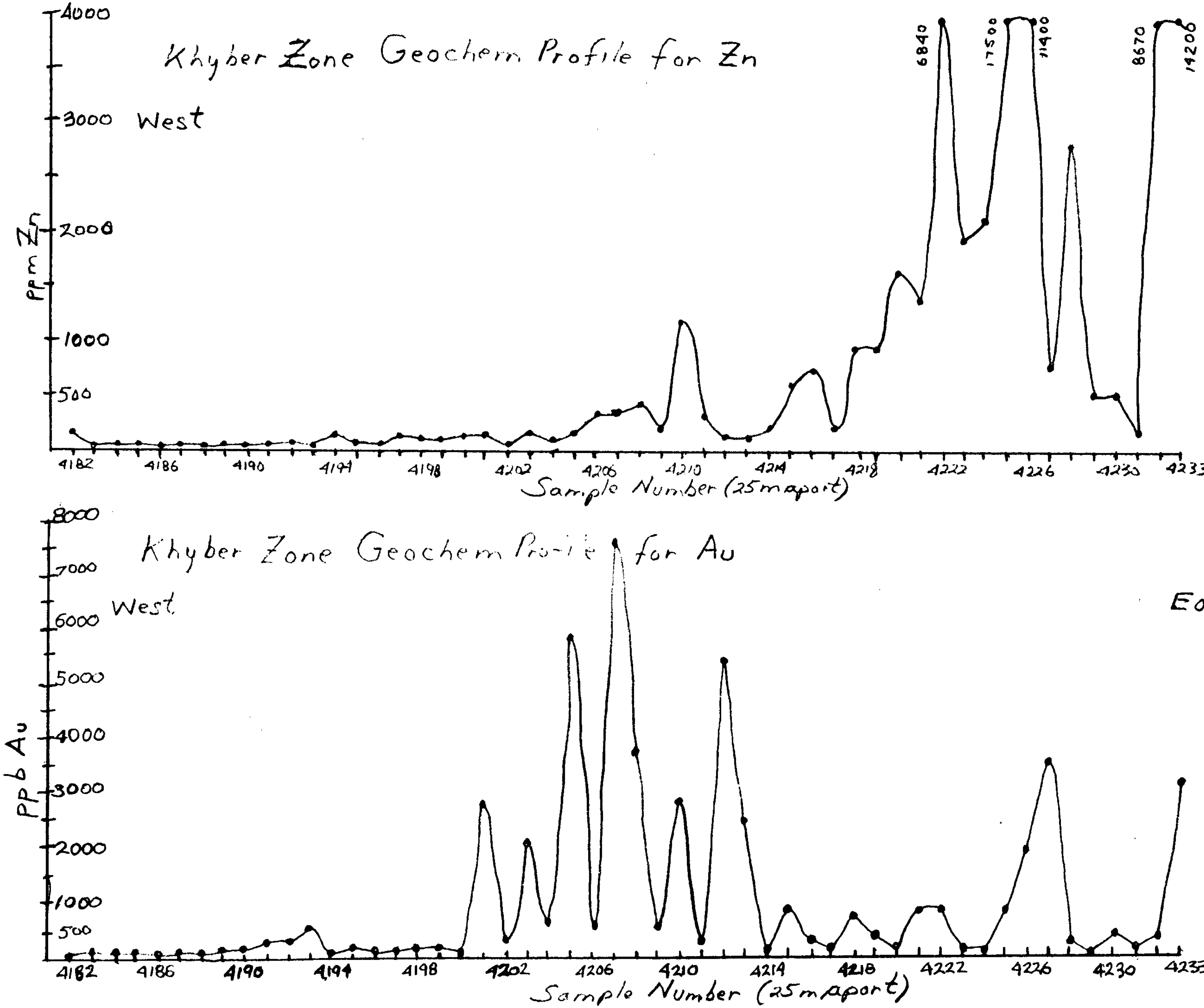

Khyber Zone Geochem Profile Ag
West
East
ppm Ag
16
14
12
10
8
6
4
2
4182
4186
4190
4194
4198
4202
4206
4210
4214
4218
4222
4226
4230
4233
Sample Number (25m apart)
Khyber Zone Geochem Profile for Ca
West
East
ppm Ca
10000
5000
Sample Number (25m apart)
Khyber Zone Geochem Profile for Mn
West
East
ppm Mn
8000
5000
3000
Sample Number (25m apart)

FIGURE 8

FIGURE 9


Khyber Zone Geochem Profile for Zn
West
East
ppm Zn
4000
3000
2000
1000
500
6840
17500
11400
8670
14200
4182
4186
4190
4194
4198
4202
4206
4210
4214
4218
4222
4226
4230
4233
Sample Number (25m apart)
Khyber Zone Geochem Profile for Au
West
East
ppb Au
8000
7000
6000
5000
4000
3000
2000
1000
500
4182
4186
4190
4194
4198
4202
4206
4210
4214
4218
4222
4226
4230
4233
Sample Number (25m apart)

Calcium follows magnesium but interestingly is much higher in absolute values on the east side of sample #4216. The calcium absolute values are much lower than magnesium values on the west side of #4216, but the "highs" and "lows" occur together. Calcium closely mirrors potassium, west of #4216, however between #4216 and #4226 there is a large, significant increase in the calcium absolute values. This pattern continues, though gradually decreasing in absolute values, from #4226 to #4233.

Calcium, manganese and to a lesser extent magnesium all correspond well with zinc, particularly in the East Khyber Zone.

Sodium is generally non-sympathetic with calcium and the large calcium enriched zone east of #4216 is marked by a broad zone of depressed sodium values.

The present data are inconclusive; however further work should be carried out along these lines by analyzing the entire 1189 soil samples for Na, K, Mg, Mn, Ca, etc. It may be possible to locate a buried centre of mineralization through contouring the results.

Khyber Zone Rock Geochemistry

In 1984, a total of 37 rock samples were taken from separate mineralized occurrences throughout the Khyber zone. These samples were analyzed for 26 elements by the inductively coupled plasma technique. Any samples that contained high values in gold, silver or zinc were subsequently fire assayed. These assay values ranged up to .97 oz/ton gold, 17.35 oz/ton silver, 18.5 % zinc, 8.04 % lead, and 3.45 % copper. (Appendix 1)

Several other elements showed consistent enrichment as well. These are cadmium which ranged up to (1,379 ppm), bismuth (493 ppm), arsenic (25,100 ppm), vanadium (184.4 ppm) and antimony (429 ppm).

Pyrite is the dominant sulfide mineral that occurs in the Khyber Pass area and it was introduced during the extensive phyllic (quartz-sericite-pyrite) alteration event. Sphalerite is also common, and it occurs as veins,disseminations and replacements in many places throughout the eastern portion of the Khyber zone. It's widespread distribution is indicated by the large 1,000 ppm zinc soil anomaly. Galena and arsenopyrite mineralization has been located in several areas, and is generally associated with high gold and silver values. Chalcopyrite occurs in the western portion of the Khyber zone, and also in the lower slopes along its eastern end.

The entire mineralized system shows strong zoning with zinc at the top and copper at depth, much like Kuroko type mineralization.

Khyber West Zone Mineralization

The most continuous zone of gold-silver mineralization occurs in the west portion of the Khyber zone, and is reflected by the significant (1ppm gold-10 ppm silver) soil anomaly. A mineralized structure 15-20 m. wide strikes N 30°E for 150 m. across the top of the ridge. A number of brownish-orange colored crystalline "ferrodolomite" veins up to .5 m. wide follow this structure for 100 m. along strike, and dip 85°E. They trend under Boundary glacier to the north and appear to have been eroded to the south. Blades of white barite crystals as well as cubes of pyrite occur throughout the veins, and weak hydrozincite coating is common.

Several, strongly sheared and chloritized zones also follow this structure and parallel the carbonate veins. In places they contain heavily disseminated pyrite, chalcopyrite and gold mineralization. Selected samples #84K003R and #84K006R and #84K007R contained (.567 oz/ton gold, 3.560 oz/ton silver),(.8253 oz/ton gold, 8.4063 oz/ton silver) and .17 oz/ton gold respectively.

A sample of carbonate vein material was also analyzed, but contained low gold and silver values (#84K004R).

Khyber East Zone - 17 oz. Vein Area

This area is near BL 2+00 S on the baseline. A number of quartz-galena-chalcopyrite veins occur here, as well as areas of heavily disseminated fine grained pyrite-arsenopyrite. Samples of the vein material (84K009R) has returned assays of 17.35 oz/ton silver and .21 oz/ton gold. Samples containing disseminated arsenopyrite (84K008R) and 84K010R) contain .04 oz/ton gold, 4.75 oz/ton silver and .356 oz/ton gold, .38 oz/ton silver respectively. A significant enrichment of gold, silver and arsenic occurs in the soil here, and area the from BL 2+30 S to BL 1+50 S should be carefully rock sampled.

Many other gold bearing structures occur across the slopes south of BL 0+00 N and along the baseline particularly at BL 1+30 S, BL 0+00N, BL 0+50 N and north of BL 1+50N. These should be evaluated for gold by a program of systematic rock chip sampling.

Sphalerite mineralization is widespread in the eastern half of the Khyber zone where it occurs in a variety of modes, from fine grained sparse disseminations to massive replacements and veins up to several meters across. The most significant area of sphalerite mineralization is at BL 0+00 N, where frost strewn pieces containing > 10% zinc occur over an area 25 m. long by 10 m. wide.

Conclusions

1. The Khyber zone is an extensive system of hydrothermal alteration and mineralization. This system is vertically zoned, with copper and arsenic at deeper levels, and gold, silver, zinc and lead in its upper part. A significant manganese halo occurs in the volcanic rocks at the top of the mountain and caps the system.

2. The extensive sericite-silica-pyrite (Phyllic) and black chlorite alteration zones as well as the mineralization, occur peripheral to an intrusive body or bodies of alaskite (orthoclase porphyry). The sericite alteration occurs in the alaskite and argillite while the chlorite alteration is in the overlying volcanics. The hydrothermal system formed in a shallow submarine subvolcanic environment as the entire section from intrusive through subvolcanic to volcanic rocks is exposed naturally in the slopes at Khyber Pass. Dating of megafossils from the overlying volcaniclastic sedimentary sequence indicates an Early Jurassic (middle Toarician) age.

3. The mineralization is widespread, and sphalerite is the second most common sulfide mineral after pyrite. Sphalerite occurs as veins, disseminations and massive replacements, mainly in the East Khyber zone. Galena, arsenopyrite, chalcopyrite and molybdenite are other common sulfide minerals, and ankerite (ferrodolomite) veins are abundant. Molybdenite is found in the Khyber Saddle area, and often occurs with abundant fine grained green colored mariposite in 10 m. wide vuggy silica zones (west of the Khyber West zones).

4. Gold occurs with the sulfide minerals sphalerite, chalcopyrite, galena and arsenopyrite, and is seldom found in barren siliceous zones or ferrodolomite veins. The widespread gold-silver-arsenic soil geochem anomalies indicate that these elements may occur within the pyrite grains. The entire mountain side contains disseminated pyrite and potential exists

for a bulk tonnage low grade gold-silver deposit.

5. The gold-bearing structures cutting through the Khyber West zone have a strike length of 150 m., a width of 20 m. and represent a well defined drill target. Its northern extension is lost beneath boundary glacier, but a continuation is indicated by the soil geochem data. A creek which would provide an adequate water supply for drilling occurs 200 m east.

6. There is a significant area of gold-silver mineralization in the Khyber East zone between BL 1+50S to BL 2+00S. Two other areas of significant gold mineralization occur north of BL 1+50N and below (south of) BL 0+00N.

7. The geochemical profiles of a C horizon soil sampling traverse across the Khyber zone show correspondence between calcium, zinc, and manganese. This would seem to indicate the occurence of zinc (sphalerite) in calcite, ankerite (ferrodolomite) veins rather than in alteration halos of calcium or manganese. No patterns such as sodium depletion or potassium enrichment halos were found to occur around mineralization, however a complete study of the entire Khyber C-horizon soil sample grid may show different results.

Recommendations

1. The Khyber West zone gold-bearing structure should be tested by systematic rock chip sampling and a series of five diamond drill holes spaced at 30 m. along strike. They should be oriented S 30° E at -50°, and be drilled to a depth of 100 m. A good source of water occurs in the large gully 200 m east and 150 m vertically below.

2. A VLF or E-M geophysical survey should be done to follow the extension of the Khyber West zone under Boundary Glacier.

3. Many areas in the Khyber East zone soil geochem anomaly should be tested by systematic rock chip sampling, in particular the area from BL 1+50 S to 2+00 S near the 17 oz. vein. Gold-bearing sphalerite mineralization occurs north of BL 1+50 N, and also vertically below (south of) BL 0+00 N. These two areas should also be systematically rock chip sampled and assayed for gold in order to define drill targets.

4. The entire Khyber zone requires more accurate and complete geological mapping. Roughly 20 field days for one competent geologist should be sufficient.

5. A 26 element ICP analysis of all 1189 soil samples should be done, and the values of trace elements Na, K, Mg, Mn, should be contoured. These contours may outline the main zones of hydrothermal fluid flow, and provide a better understanding of the mineralizing system as well as guide diamond drilling.

Cost Statement

All field work and associated expenses are not included below.

Geochemical Analysis	$ 992.00
Photo Reproduction	97.67
Drafting	603.40
Report Typing	283.32
Report Writing 15 days @ $250.00	3,750.00
Electron Probe Analysis	220.00
Orthophoto Base Maps and Enlargements	1,564.79
	$7,511.18

Chris Graf.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
C. W. GRAF

April 1985

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STATEMENT OF QUALIFICATIONS

I, Chris Graf, do hereby declare that:

1. I am a graduate of the University of British Columbia, Vancouver, British Columbia in 1974 with a B.Ap.Sc. Degree in Geological Engineering.

2. That I am a Registered Professional Engineer in the Province of British Columbia.

3. That I have practised my profession for over ten years with numerous mining companies in British Columbia.

PROFESSIONAL ENGINEER PROVINCE OF C. W. GRAF BRITISH COLUMBIA

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APPENDIX I

1984 Rock Geochemical Results, Assays

And

Rock Sample Descriptions

August 27 1984 Khyber Assay Samples (Mineralized)

Sample #	Location	Description	
84K001R	West Lobe Area Vein	qtz vein, cpy, py, malachite, chloritized	
84K002R	West Lobe Area Vein	massive siderite-qtz white (or barite) vein, pyr	
84K003R	West Lobe Area	limonite-malachite chalcopyrite pyrite chloritized	
84K004R	Mn carb. veins West Lobe Area	chloritized wall rock Mn carb-pyrite vein 2" thick	
84K005R	30m south-west of 203 vein	>6" wide qtz vein-malachite chalcopyrite	some carb. vein material
84K006R	203 Vein West Lobe	>3" wide qtz-sph-cpy pyrite vein	
84K007R	(by sample cache) 203 vein area	Chloritized malachite stained hydrozincite, pyrite	
84K008R	arsenopyrite 13m n. of BL 2400S old #3079	limonite stained chloritized pyrite-arsenopyrite disseminated	
84K009R	1703 vein	1703 vein qtz-galena-cpy	
84K010R	1703 vein	disseminated to semi massive fine pyrite-cpy, chloritized wallrock	
84K011R	40m SW Final 3S post	chloritized greenstone fine grained pyrite hydrozincite, sphalerite, magnetite?	
84K012R change to 84K017R	Zn Trench Area	fine grained brown sphalerite in cleavage, fine grained greenstone	
84K013R	Zn Trend Area	semimassive medium grained sphalerite	
84K014R	ZnS at BL 0+50N	hydrozincite-smithsonite stained Mn carb veining, pyrite	

Sample #	Location	Description
84K015R	Zn Trench 0+10N	massive sph. weathered volcanic breccia (pitted sfc.) much smithsonite / hydrozincite + Mn carbonate
84K016R	Zn Trench Ankerite vein	Massive ankerite cemented breccia greenstone fragments to 1" across
84K017R		
[illegible] to 84K012R	10m east and below ~~BL~~ BL 1+00S	much hydrozincite, qtz carb. veining 5% fine pyrite, chloritized weathered ~~chalcopyrite~~
84K018R	Zn-Ars showing along vol. basal sed. contact 30m south of B.L. 1+00N	heavily disseminated to massive brown medium grained sphalerite pyrite, hydrozincite limonite strongly chloritized, some carb vein material
84K019R	talus slope below 1+00N thru 1+70N above glacier (just south of claim boundary)	strongly chloritized, pyrite, sphalerite hydrozincite, gray ~~[illegible]~~ weathering carb. vein >1" thick (sphalerite)
84K020R	30m E of B.L. 1+50N	~~massive vein of sphalerite - pyrite [illegible]~~ 1/2 inch thick, black sphalerite, minor fine grained galena, some qtz and carbonate ~~along~~ as well in the vein which is in total > 2" with a 1/2" band of sph - pyrite.
84K021R	Zn float below summit ~120m ~~east of peak~~	piece of float, massive white carb vein >2" across with diss. grains of pyrite - sph. up to 3/4" across
84K022R	as above "	as above " except is porous and has a lot of limonite in vugs and no observable sulfides.

Sample #	Location	Description
84K023R	bedded qtz vein 25 m east of #11609	qtz vein > 1" across, carb. in vein, some diss. pyrite, ~~chlor~~ strongly chloritized
84K024R	Zn showing at #11609	chloritized massive fine grained greenstone, much diss. brown sphalerite, porous weathering rock, hydrozincite, white-grey carb. veining 1/4" wide
84K025R	10m south of #11609	massive finegrained greenstone coarse pyrite, fine sphalerite hydrozincite
84K026R	as above (sandbag)	vein of massive pyrite-chalcopyrite some malachite, fine cockade qtz veining with recessive light brown colored carb. patches
84K027R	10m ne. of BL 2+00 N	massive lump of white qtz veined rock with light brown coloured recessive ~~[illegible]~~ carb. patches very similar in style to 026 above
84K028R	BL 2+40N	one sfc has a weathered white vein that is bladed like barite, other veining in rock, light grey matrix not greenstone

Sample #	Location	Description
84K029R	150m west of BL 0+00N	greenstone fault or solution breccia with pyrite-qtz veining 1/16" across, strongly chloritized + Mn stained
84K030R	Hi grade 100m north of BL 2+50N	massive - semi massive medium to fine grained black sph - galena pyrite in a white carb vein. matrix.
84K031R	Mariposite-qtz north of orthoclase porphyry dike 40m	
84K032R	BL 0+00N (7m west of BL 0+00N) along edge of snow	greenstone agglomerate - some sphalerite, hydrozincite
84K033R	Khyber Saddle	- white porous crystalline qtz with some mariposite and molybdenite also ferrimolybdite
84K034R	for assay BL 0+40N	greenstone schist with ankerite veins and patches and some hydrozincite pyrite, qtz veinlets and fine grained sphalerite

	Location	Description
84K035R	Khyber Saddle Rock Type + veining	dense silicified green rock (massive + fine grained) which has pyrite strings + qtz veinlets
84K036R	Smithsonite? Carbonate tuff? BL 0+45N	porous weathering sfc with buff recessive patches which may be ank-siderite carbonate zones, or smithsonite
84K037R	Mariposite Silicified zone South of oth. porphyry dike 10m	white - clear massive qtz, some vugs, much disseminated pyrite

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PHONE:(604)980-5814 OR (604)988-4524 TELEX: 04-352828

GEOCHEMICAL ANALYSIS CERTIFICATE

COMPANY: ACTIVE MINERALS
PROJECT: KHYBER ZONE/SHIPPAKER PROJECT
ATTENTION: C. GRAF

FILE: 4-949
DATE: SEPT.19/84
TYPE: ROCK GEOCHEM

We hereby certify that the following are the results of the geochemical analysis made on 30 samples submitted.

SAMPLE NUMBER	AU PPB
84K001R	385
2R	790
3R	16000
4R	190
5R	225
7R	3950
8R	1375
9R	280
10R	10000
11R	5000
12R	175
17R	1800
18R	140
19R	855
20R	3350
21R	350
22R	37
23R	5
24R	175
25R	38
26R	630
27R	36
28R	4
29R	42
31R	35
32R	12
33R	29
34R	62
35R	155
84K0036R	6

Certified by [signature]

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FOMPANY: ACTIVE MINERALS
PROJECT: KHYBER ZONE/SHIPPAKER PROJECT
ATTENTION: C. GRAF

FILE: 4-949
DATE: SEPT. 19/84
TYPE: ROCK GEOCHEM

We hereby certify that the following are the results of the geochemical analysis made on 1 samples submitted.

SAMPLE NUMBER	AU PPB
84K037R	110

Certified by

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PHONE:(604)980-5814 OR (604)988-4524 TELEX: 04-352828

CERTIFICATE OF ASSAY

COMPANY: ACTIVE MINERALS
PROJECT: KHYBER ZONE/SHIPPAKER PROJECT
ATTENTION: C. GRAF

FILE: 4-949
DATE: SEPTEMBER 12/84
TYPE: ROCK ASSAY

We hereby certify that the following are assay results for samples submitted.

SAMPLE NUMBER	AG G/TONNE	AG OZ/TON	AU G/TONNE	AU OZ/TON
84K001R	28.7	0.84	.34	0.010
84K003R	122.0	3.56	19.45	0.567
84K007R			4.80	0.140
84K008R	163.0	4.75	1.36	0.040
84K009R	17.3	0.50		
84K010R	13.0	0.38	12.20	0.356
84K011R	25.5	0.74	4.15	0.121
84K017R			1.62	0.047
84K019R	34.3	1.00	1.02	0.030
84K020R	18.1	0.53	2.80	0.082
84K026R	42.4	1.24	.59	0.017

Certified by [signature]

MIN-EN LABORATORIES LTD.

MIN-EN Laboratories Ltd.

Specialists in Mineral Environments
705 WEST 15th STREET NORTH VANCOUVER, B.C. CANADA V7M 1T2

PHONE:(604)980-5814 OR (604)988-4524 TELEX: 04-352828

CERTIFICATE OF ASSAY

COMPANY: ACTIVE MINERALS
PROJECT: KHYBER ZONE/SHIPPAKER PROJECT
ATTENTION: C. GRAF

FILE: 4-949
DATE: SEPTEMBER 12/84
TYPE: ROCK ASSAY

We hereby certify that the following are assay results for samples submitted.

SAMPLE NUMBER	AG G/TONNE	AG OZ/TON	AU G/TONNE	AU OZ/TON
84K006R	290.0	8.46	28.30	0.825
84K009R	595.0	17.35	7.21	0.210
84K013R	13.8	0.40	1.18	0.034
84K014R	156.0	4.55	10.65	0.311
84K015R			1.60	0.047
84K030R			33.25	0.970

Certified by [signature]

MIN-EN LABORATORIES LTD.

MIN-EN Laboratories Ltd.

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SAMPLE NUMBER	CU %	PB %	ZN %
84K001R	.389		
84K003R	3.450		1.97
84K008R		.83	
84K010R			5.51
84K011R	.302		9.77
84K012R			.60
84K017R			7.03
84K018R			9.97
84K019R		1.20	4.77
84K020R			12.53
84K021R			7.43
84K022R			.71
84K024R			5.78
84K025R			2.46
84K026R	1.125		
84K032R			1.02
84K034R			2.89

Certified by [signature]

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PROJECT: KHYBER ZONE/SHIPPAKER PROJECT
ATTENTION: C. GRAF

FILE: 4-949
DATE: SEPTEMBER 12/84
TYPE: ROCK ASSAY

We hereby certify that the following are assay results for samples submitted.

SAMPLE NUMBER	CU %	PB %	ZN %
84K006R	3.187		
84K009R	.896	3.38	
84K013R			12.12
84K014R		8.04	17.35
84K015R			18.50
84K030R			18.09

Certified by [signature]

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APPENDIX II

Geochemical Results For a Soil Sample

Line Taken at 25 m. Intervals Across

The Entire Khyber Zone

COMPANY: ACTIVE MINERALS
PROJECT No: SNIPPAKER
ATTENTION: CHRIS GRAF

MIN-EN LABS ICP REPORT
705 WEST 15th ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524

(ACT:GE03A+)
FILE No: 3-615/P11A+B
DATE: JULY 30, 1983e

(REPORT VALUES IN PPM)	AG	AL	AS	B	BI	CA	CD	CO	CU	FE	K	MG
4182S	3.3	45400	0	35	68	4640	3.7	38	362	168000	4910	15000
4183S	4.5	24700	193	25	98	1260	7.0	25	353	180000	7890	12000
4184S	2.5	34900	20	28	62	2140	3.5	23	247	164000	12400	18900
4185S	2.5	31100	16	25	52	1010	3.5	17	195	142000	8860	16400
4186S	1.7	20500	83	22	55	2280	2.7	19	97	169000	12500	11300
4187S	5.2	21700	119	24	69	1270	5.9	24	157	225000	11700	13300
4188S	2.7	31600	44	26	59	1080	3.4	18	140	157000	13400	18600
4189S	3.9	34000	103	29	62	448	5.7	19	213	171000	17700	24100
4190S	4.4	29400	46	25	62	3130	5.6	20	235	180000	14800	22500
4191S	3.6	38100	66	34	60	1530	6.5	19	136	144000	15200	25100
4192S	2.4	38600	131	39	71	548	7.7	38	526	197000	9430	25000
4193S	2.0	44100	7	32	50	1910	6.9	16	103	123000	14400	33200
4194S	4.0	27600	66	25	54	509	4.3	18	205	137000	13900	16100
4195S	4.4	20100	119	23	60	836	4.5	23	231	155000	9890	12200
4196S	2.1	42100	0	30	55	2480	4.6	22	195	146000	11800	33500
4197S	2.8	52100	0	41	69	2450	6.6	61	574	185000	13700	37700
4198S	2.2	42100	0	32	65	1680	4.2	33	407	159000	3690	15300
4199S	3.5	36000	195	33	96	218	9.8	24	116	199000	12200	34700
4200S	5.0	43100	102	35	70	742	7.5	23	85	178000	6340	21800
4201S	14.9	27000	248	35	258	1120	8.3	32	87	259000	10400	17200
4202S	2.1	45700	0	37	82	1540	0	28	40	282000	14700	34000
4203X	4.5	39600	9	32	100	2150	5.7	29	148	215000	10200	36000
4204S	4.1	39600	0	30	67	2610	.8	27	110	235000	11900	30900
4205S	10.5	41500	0	34	110	1720	.6	28	159	259000	15200	30300
4206S	6.5	54600	0	42	103	6000	2.9	29	128	231000	17800	39000
4207S	9.7	38000	0	32	84	5470	2.9	38	263	238000	12700	25300
4208S	14.9	52800	150	44	126	1690	11.2	43	472	220000	11600	33600
4209S	8.6	24100	317	25	104	1790	10.7	35	209	264000	15000	16300
4210S	5.0	30800	109	27	88	3640	12.8	55	352	215000	11800	19600
4211S	11.3	44300	0	36	71	3960	6.6	28	246	186000	18200	36300

(REPORT VALUES IN PPM)	AG	AL	AS	B	BI	CA	CD	CO	CU	FE	K	MG
4212S	7.8	40900	96	37	97	1050	8.1	80	585	213000	11100	31500
4213S	3.1	27900	79	23	64	928	6.0	19	122	130000	11500	24200
4214S	4.1	32600	0	26	60	4120	2.6	29	193	156000	5610	19700
4215S	6.4	34200	0	26	68	3800	4.7	38	217	174000	7340	23300
4216S	7.4	37800	25	30	71	3570	7.3	45	265	189000	8790	27400
4217S	2.8	33600	17	22	45	4610	3.6	28	120	164000	10700	25400
4218S	6.7	35600	105	25	49	5220	12.6	44	306	145000	6580	22900
4219S	3.5	41300	250	29	55	6450	17.3	59	264	201000	7980	26700
4220S	9.0	42300	38	30	54	10200	15.8	67	241	232000	8620	28200
4221S	2.2	38400	305	27	86	3520	20.8	45	240	196000	11200	23400
4222T	3.8	32100	77	23	44	8930	53.1	55	363	147000	6710	17100
4223S	1.4	42200	0	31	42	5300	11.2	41	180	170000	3750	20900
4224S	1.8	46600	0	33	39	12300	16.8	49	217	140000	4540	29300
4225S	6.1	31000	0	25	49	5740	136.0	55	305	172000	2870	16600
4226T	12.8	23600	109	21	60	2730	94.9	61	571	176000	6020	12100
4227T	6.8	10900	352	13	65	653	14.8	49	279	180000	1980	3280
4228T	5.1	20700	62	16	35	4060	28.8	40	192	136000	5600	7880
4229S	2.1	29800	0	19	24	1880	1.6	18	84	112000	1960	5390
4230S	2.8	18500	69	10	26	4270	10.2	37	249	101000	1790	9460
4231S	1.5	25900	14	16	25	3310	5.5	42	241	116000	4800	12000
4232T	8.2	18900	63	16	41	4280	77.6	56	493	146000	2840	7690
4233T	8.4	17600	372	19	61	2670	124.0	76	738	156000	3740	6580

(REPORT VALUES IN PPM)	MN	MO	NA	NI	P	PB	SB	SR	TH	U	V	ZN
4182S	2560	43	718	41	1540	32	0	127	11	63	154.0	163
4183S	944	256	240	33	1400	60	7	102	16	51	178.0	60
4184S	909	169	209	38	1490	25	0	99	8	43	337.0	51
4185S	478	170	391	40	1340	36	0	91	9	45	179.0	45
4186S	248	135	402	25	1660	23	0	102	10	47	169.0	30
4187S	645	212	1060	31	1660	59	0	219	11	48	158.0	60
4188S	461	96	2230	46	1710	41	0	163	14	44	120.0	49
4189S	357	98	2010	94	2060	59	6	140	20	40	169.0	46
4190S	414	146	1730	97	2190	35	0	146	12	43	140.0	62
4191S	473	172	1410	86	3000	62	12	218	22	61	162.0	53
4192S	1070	296	585	62	3840	93	23	144	33	53	144.0	92
4193S	530	61	771	68	2280	47	0	142	16	42	179.0	53
4194S	359	107	541	25	2110	42	0	292	13	52	94.2	133
4195S	305	268	919	31	2340	83	13	209	18	53	116.0	88
4196S	582	34	965	90	1800	43	0	126	14	53	197.0	71
4197S	1870	44	957	190	2310	44	0	145	18	53	195.0	133
4198S	1010	42	669	63	1720	37	0	94	14	61	115.0	116
4199S	326	31	1150	134	1330	103	15	141	31	42	176.0	108
4200S	604	33	1660	91	758	76	5	77	37	58	102.0	142
4201S	161	68	507	28	3300	244	20	99	35	51	182.0	164
4202S	501	6	317	1	1360	0	0	88	0	33	274.0	92
4203X	538	21	652	23	2260	47	0	114	11	51	255.0	187
4204S	616	7	902	6	987	0	0	127	0	36	376.0	110
4205S	872	4	708	0	1530	0	0	144	0	27	267.0	183
4206S	1420	13	389	10	2660	20	0	205	3	44	357.0	321
4207S	1390	9	573	17	2160	21	0	148	0	47	291.0	374
4208S	2160	23	280	42	3030	151	7	180	25	58	261.0	453
4209S	406	23	4620	19	2650	54	3	396	18	61	251.0	217
4210S	2390	21	830	44	2500	191	0	198	12	60	176.0	1130
4211S	978	17	473	24	3540	57	0	193	13	53	235.0	303

(REPORT VALUES IN PPM)	MN	MO	NA	NI	P	PB	SB	SR	TH	U	V	ZN
4212S	2980	68	321	109	2560	125	12	125	26	60	132.0	188
4213S	339	85	637	57	1410	66	5	135	17	41	132.0	125
4214S	583	21	755	59	1830	56	0	99	9	50	140.0	223
4215S	949	19	680	49	1830	66	0	124	8	48	164.0	613
4216S	1570	21	295	47	2440	86	0	123	10	51	204.0	780
4217S	891	17	793	36	1550	37	0	176	7	0	207.0	236
4218S	1880	23	700	52	1870	269	0	160	21	6	185.0	932
4219S	2000	17	401	92	1870	269	0	158	8	0	191.0	930
4220S	2350	13	334	41	2210	310	0	144	0	0	200.0	1650
4221S	2090	22	86	41	2330	479	0	223	17	4	195.0	1360
4222T	4120	20	184	44	2760	154	0	153	16	15	138.0	6840
4223S	3290	15	140	48	1730	54	0	127	5	9	191.0	1980
4224S	2560	19	192	34	1840	79	0	204	17	7	242.0	2130
4225S	8180	24	50	97	2150	148	0	132	10	25	138.0	17500
4226T	7520	21	120	82	1340	273	0	113	9	18	92.3	11400
4227T	4060	36	186	57	2780	287	9	100	23	15	69.7	801
4228T	5480	15	309	51	1910	218	0	92	6	17	78.0	2810
4229S	1010	12	476	14	942	75	0	78	9	20	58.6	545
4230S	3100	11	1280	49	1510	140	0	85	7	0	56.5	531
4231S	2390	14	245	51	1650	84	0	86	11	0	88.9	260
4232T	6600	19	1100	77	1560	2100	0	119	10	11	73.6	8670
4233T	8610	27	268	110	1770	8360	25	156	18	23	76.2	14200

(REPORT VALUES IN PPM)	BA	SE	AU-PPB
4182S	269	0	40
4183S	264	56	190
4184S	381	0	50
4185S	161	0	140
4186S	199	0	60
4187S	317	0	80
4188S	136	15	85
4189S	136	47	140
4190S	139	0	235
4191S	158	82	310
4192S	227	95	360
4193S	143	0	560
4194S	789	0	65
4195S	455	56	210
4196S	349	0	65
4197S	316	0	135
4198S	195	0	150
4199S	170	96	200
4200S	80	49	90
4201S	192	164	2750
4202S	270	0	395
4203X	171	0	2150
4204S	159	0	670
4205S	215	0	5800
4206S	381	0	560
4207S	250	0	7600
4208S	264	48	3750
4209S	268	41	550
4210S	335	0	2800
4211S	315	0	335

(REPORT VALUES IN PPM)	BA	SE	AU-PPB
4212S	168	87	5400
4213S	265	51	2650
4214S	180	0	130
4215S	233	0	920
4216S	244	0	385
4217S	144	0	225
4218S	402	74	770
4219S	246	0	435
4220S	270	0	165
4221S	228	54	825
4222T	217	49	880
4223S	164	0	120
4224S	256	51	105
4225S	456	38	830
4226T	435	21	1950
4227T	83	117	3600
4228T	238	7	270
4229S	87	0	40
4230S	68	21	435
4231S	106	30	140
4232T	143	97	305
4233T	175	176	3200

APPENDIX III

Electon Probe Analysis

Of

Khyber West Zone Mariposite-Bearing Rock

Electron Probe Analysis of Snippaker Creek sample B1229

Sample: deformed, recrystallized and silicified (?) volcaniclastic sediment (see petrog. descr. no. 25, 09 July 1984).

Analysis: C-coated sample was analysed on 14 July 1984 with ETEC Autoprobe at Univ. of Toronto. Energy-dispersive analyses of B1229 (5 analyses) and of U. of T. muscovite PS-06 (2) (alias D/S 83, 3 analyses) were obtained (GCW 213-220).

Results: Of the five analyses on the SNIP sample, three gave oxide totals of c. 97%, and 2 of c. 88%. The only major difference in the two groups lies in the silica value. Possibly an analytical artifact correlated with the occurrence of major grain boundaries within the x-ray take-off volume of the low analyses. The higher totals are from rel. large grains (218-219) and from a vfgr (<<10 um) micaceous aggregate some 10x40 um in size (217).

Ca, Na, Ba and Mn were analysed for, but not detected. No peaks of elements not listed in the table were seen in the spectra. Relative to typical muscovite analyses (ref. 1, pp.16-18) this mica is rich in Si,Mg and K and poor in Al. Low Na is probably an analytical artifact, as is te very high K (stoichiometric muscovite would not be expected to exceed c. 11.0 oxide %), although the STD gave good K results, about 10.7 oxide %.

The green mica is a 'chromian muscovite', all 5 analyses showing at least 0.15% Cr_2O_3. A mean value for analyses 215,218,219 is given below, plus range and 1 s.d. of the mean.

1. Deer,WA, Howie,RA and Zussman,J (1962) Rock-Forming Minerals
Vol. 3, Sheet Silicates. Wiley, 270pp.

Oxide	Range (wt.%)	Mean (±1 s.d.)
SiO_2	49.18-51.51	50.06 ±1.27
TiO_2	0.34-0.56	0.42 ±0.12
Al_2O_3	30.34-32.48	31.21 ±1.12
FeO	0.86-1.02	0.94 ±0.08
Cr_2O_3	0.20-0.38	0.29 ±0.09
MgO	1.98-2.66	2.34 ±0.34
K_2O	11.80-12.24	11.97 ±0.24
Partial totals		
(exc. H_2O etc)	96.79-97.47	97.23

NB; qualitative probe of opaque phase showed Si (from surrounding phases), Ti and Ba peaks, the latter an overlap problem. TiO_2 (rutile).

APPENDIX IV

GSC Report on Snippaker Peak Jurassic Megafossils Collection

Field No.	84AT-SP-F (collected by Chris Graf, Active Minerals)	C-101262

Loc. 0.2 km southeast of Snippaker Mtn. Zone 9; 379500E 6280250N, 56°39'10", 130°57'56"

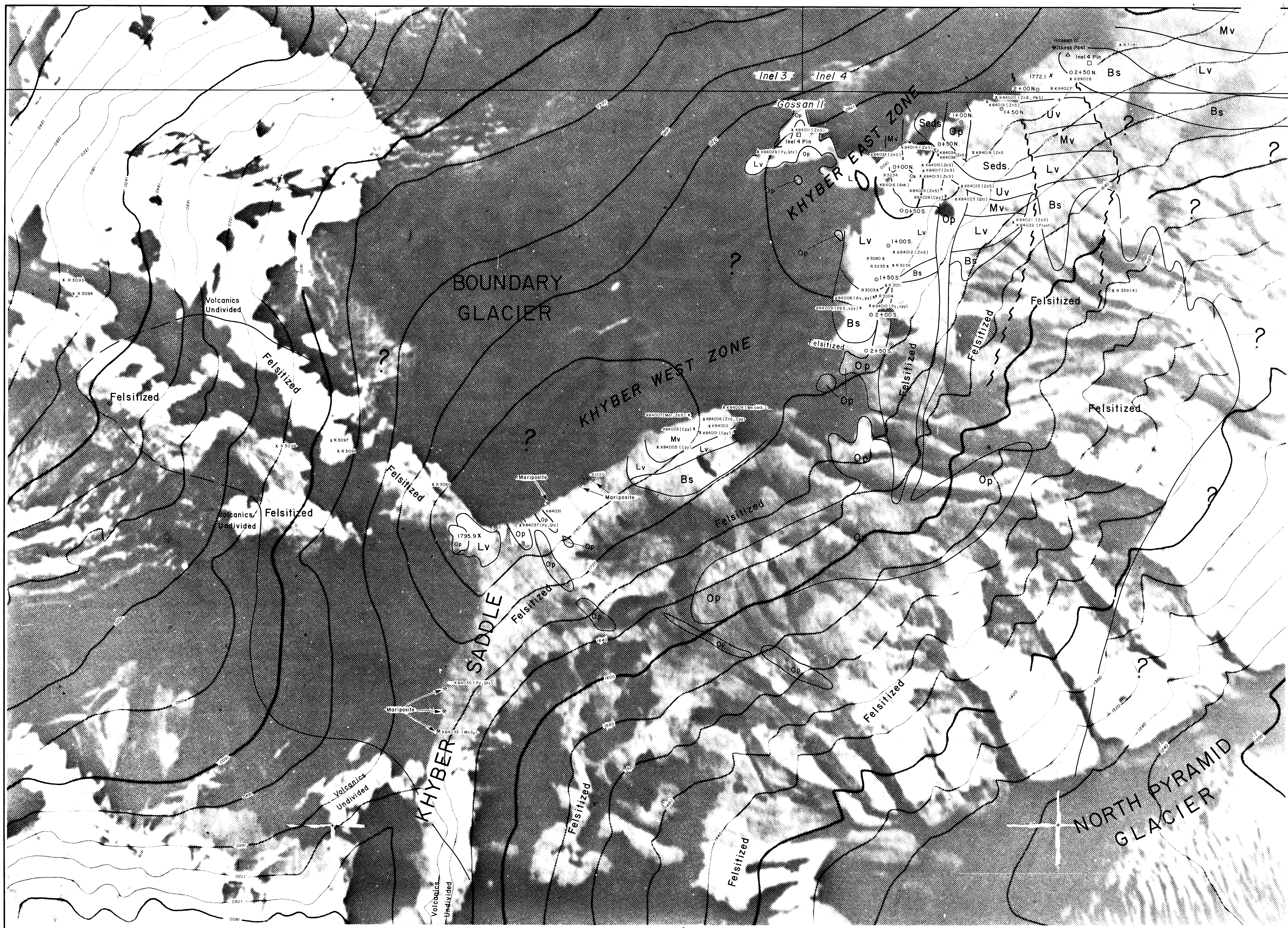
Identifications:

- Weyla sp. fragments
- Trigonia sp. fragment
- Gryphea sp.
- Corals
- pelecypods

Age and Correlations: Lower Jurassic, probably Toarcian.

The coarse pelecypods, the corals, the volcanogenic lithology all suggest a similarity with middle Toarcian localities in Spatsizi and Telegraph Creek map-areas.

CHRIS
this is the report for the samples you gave me.
Bob.



LEGEND

Sedimentary Formation - Early Jurassic (Toarcian)

☐ ······ (Black argillite, siltstone, sandstone, conglomerate, breccia)

Volcanic Formation

Uv ······ Upper volcanics (agglomerate)

Mv ······ Middle volcanics

Lv ······ Lower volcanics

Bs ······ Banded siltstone - tuff

Intrusive

Op ······ Orthoclase porphyry

☐ ······ Felsitized zone (Quartz - sericite - pyrite alteration)

Symbols

———, — — — ······ Geological contact : defined, approximate

〰〰〰 ······ Fault

SCALE 1:2000

50 0 50 100 150 Metres

GEOLOGICAL BRANCH
ASSESSMENT REPORT

13,728

SNIPPAKER CREEK GOLD PROJECT

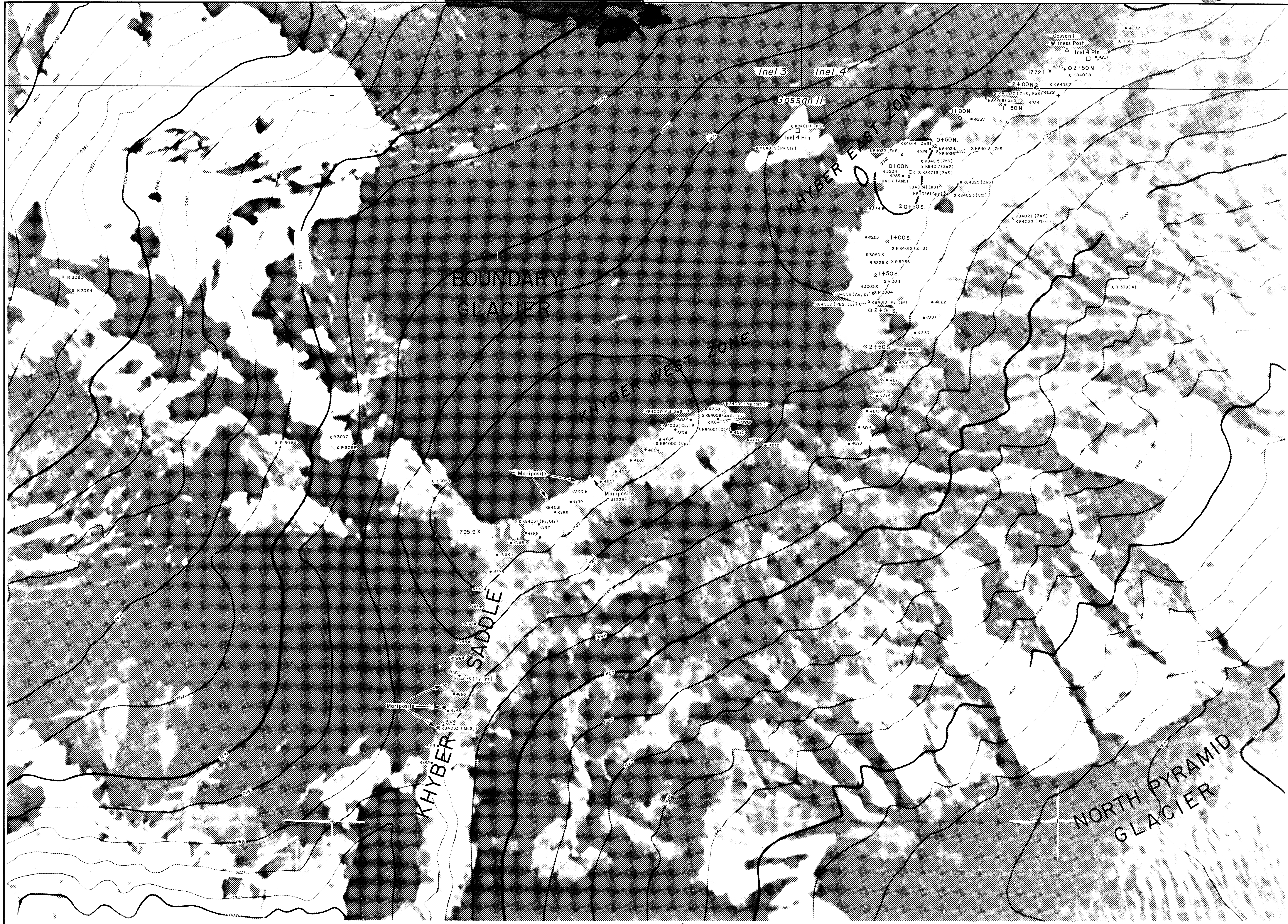
GOSSAN II

GEOLOGY

WORK BY C. GRAF		DATE MAY 1985	FIGURE 3
REVISED		N.T.S. 104 B/10W	

ACTIVE MINERAL EXPLORATIONS LTD

EXCLUSIVE DRAFTING SERVICES LTD.



LEGEND

o ······ Baseline stations

□ ······ Claim posts

• 4216 ······ Soil sample locations and numbers

x K84012 ······ Rock sample locations and numbers

SCALE 1:2000

50 0 50 100 150 Metres

GEOLOGICAL BRANCH ASSESSMENT REPORT

13,728

SNIPPAKER CREEK GOLD PROJECT

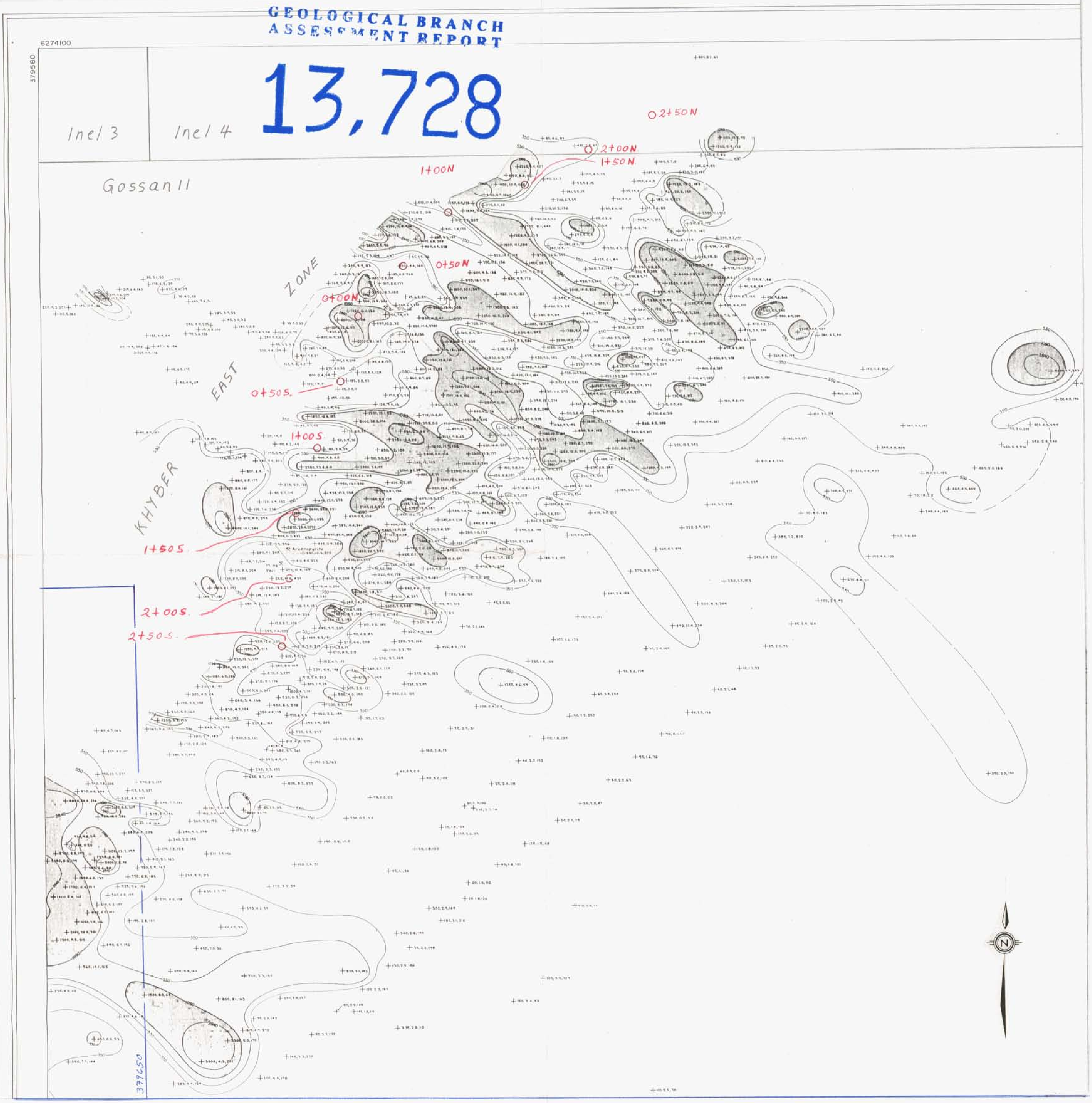
GOSSAN II

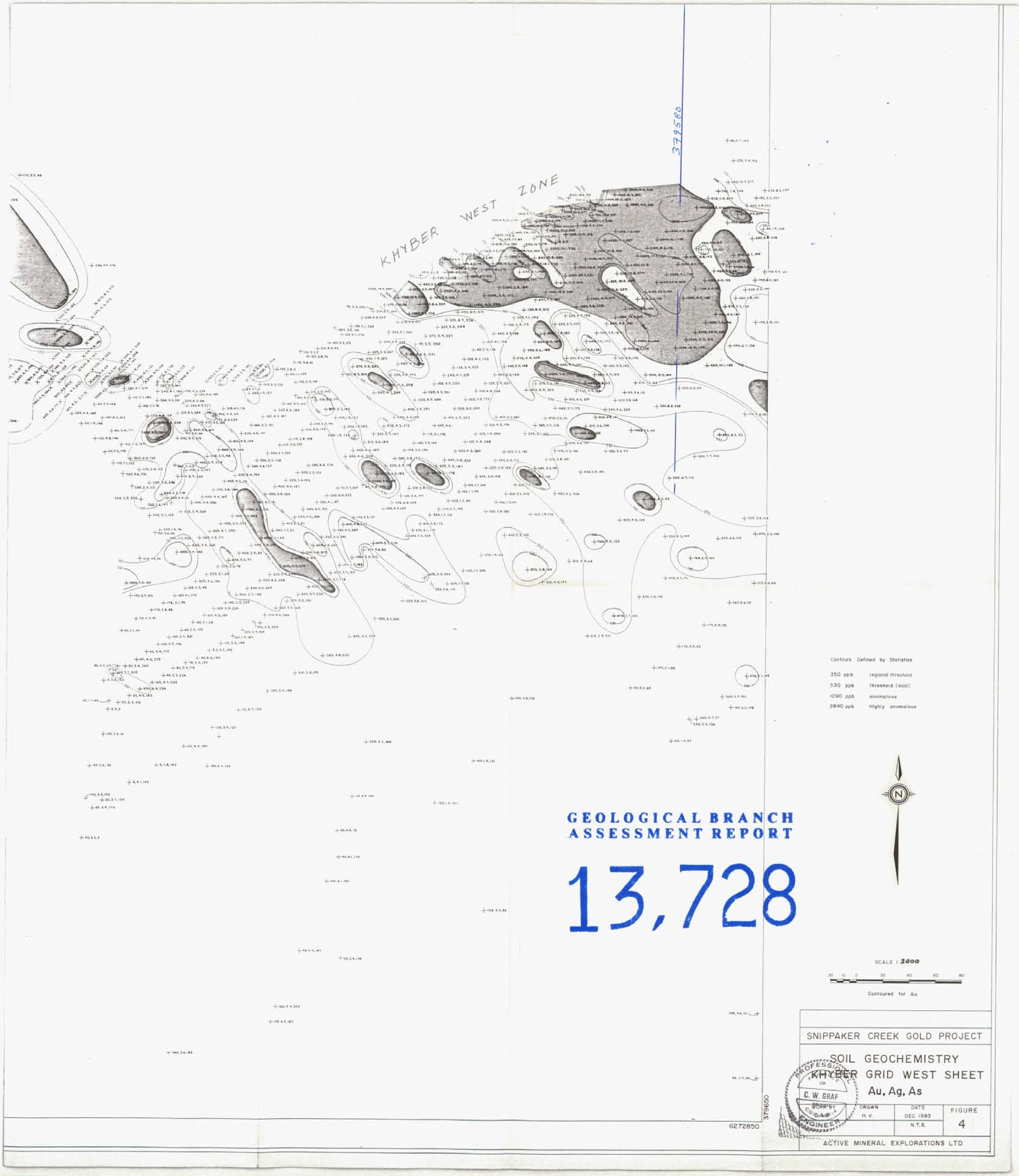
ROCK and SOIL SAMPLE LOCATION and NUMBER IN KHYBER PASS AREA

WORK BY C. GRAF	DATE MAY 1985	FIGURE 2
REVISED	N.T.S. 104 B/10W	

ACTIVE MINERAL EXPLORATIONS LTD

EXCLUSIVE DRAFTING SERVICES LTD.


GEOLOGICAL BRANCH
ASSESSMENT REPORT
13,728
6274100
379580
Inel 3
Inel 4
Gossan II
KHYBER EAST ZONE
2+50N
2+00N
1+50N
1+00N
0+50N
0+00N
0+50S
1+00S
1+50S
2+00S
2+50S
379650
N


KHYBER WEST ZONE
379580
Contours Defined by Statistics
350 ppb regional threshold
530 ppb threshold (local)
1090 ppb anomalous
2840 ppb Highly anomalous
GEOLOGICAL BRANCH
ASSESSMENT REPORT
13,728
SCALE 1:2000
20 10 0 20 40 60 80
Contoured for Au
SNIPPAKER CREEK GOLD PROJECT
SOIL GEOCHEMISTRY
KHYBER GRID WEST SHEET
Au, Ag, As
PROFESSIONAL ENGINEER
C. W. GRAF
WORK BY
DRAWN H.V.
DATE DEC. 1983
N.T.S.
FIGURE 4
ACTIVE MINERAL EXPLORATIONS LTD
379650
6272850