DU PONT OF CANADA EXPLORATION LIMITED

ASSESSMENT REPORT OF GEOLOGICAL, GEOCHEMICAL AND GEOPHYSICAL WORK PERFORMED ON THE

COLE CLAIM

IN 1981

SKEENA MINING DIVISION

LAT. 56°30'N, LONG. 130°38'W

NTS: 104-B-7 & 10

OWNER OF CLAIMS: Du Pont of Canada Exploration Limited
OPERATOR : Du Pont of Canada Exploration Limited

By,

J. A. Korenic

1982 May 5

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COLE CLAIM

I. INTRODUCTION

1. Location and Access

The Iskut River area is situated in Northwestern British Columbia approximately 90 kilometres north of the town of Stewart and 55 kilometres south-west of the Stewart-Cassiar Highway.

The COLE claim is situated along and north of King Creek, 6 kilometres to the northwest of the Unuk River. It occurs within the Skeena Mining Division, NTS: 104-B-7E and 104-B-10E, and is centred by latitude 56°30'N and longitude 130°38'W.

During the past season access into the property was via helicopter from the Snippaker Creek airstrip (camp) located 10-12 kilometres to the northwest. Fixed-wing service into the airstrip was from either Terrace, 260 kilometres to the south or Wrangell, Alaska, 100 kilometres to the west.

2. Physiography

The Iskut River area claims are situated within the Boundary Ranges of the Coast Mountains. This geographic province consists of a mountainous and glaciated terrain that exhibits relief in excess of 2000 metres. Tree-line varies from 1000-1200 metres above sea level and is commonly marked by a thick, intertwined growth of one to two metre tall stunted spruce. Below this point, particularly within the lower valleys, vegetation predominantly consists of a dense growth of conifers. Devil's Club is widely distributed at lower elevations, such as the Iskut River valley. Access within these treed areas proved difficult.

Active glaciation is prevalent in the district. These occur as caps over areas of higher elevation, notably above 1500 metres, and as impressive valley glaciers such as those within the tributaries of Snippaker Creek.

Elevation across the COLE claim varies from 325 metres above sea level along King Creek to 1525 metres in the northwest corner of the claim. King Creek occupies a relatively narrow 'V'-shaped

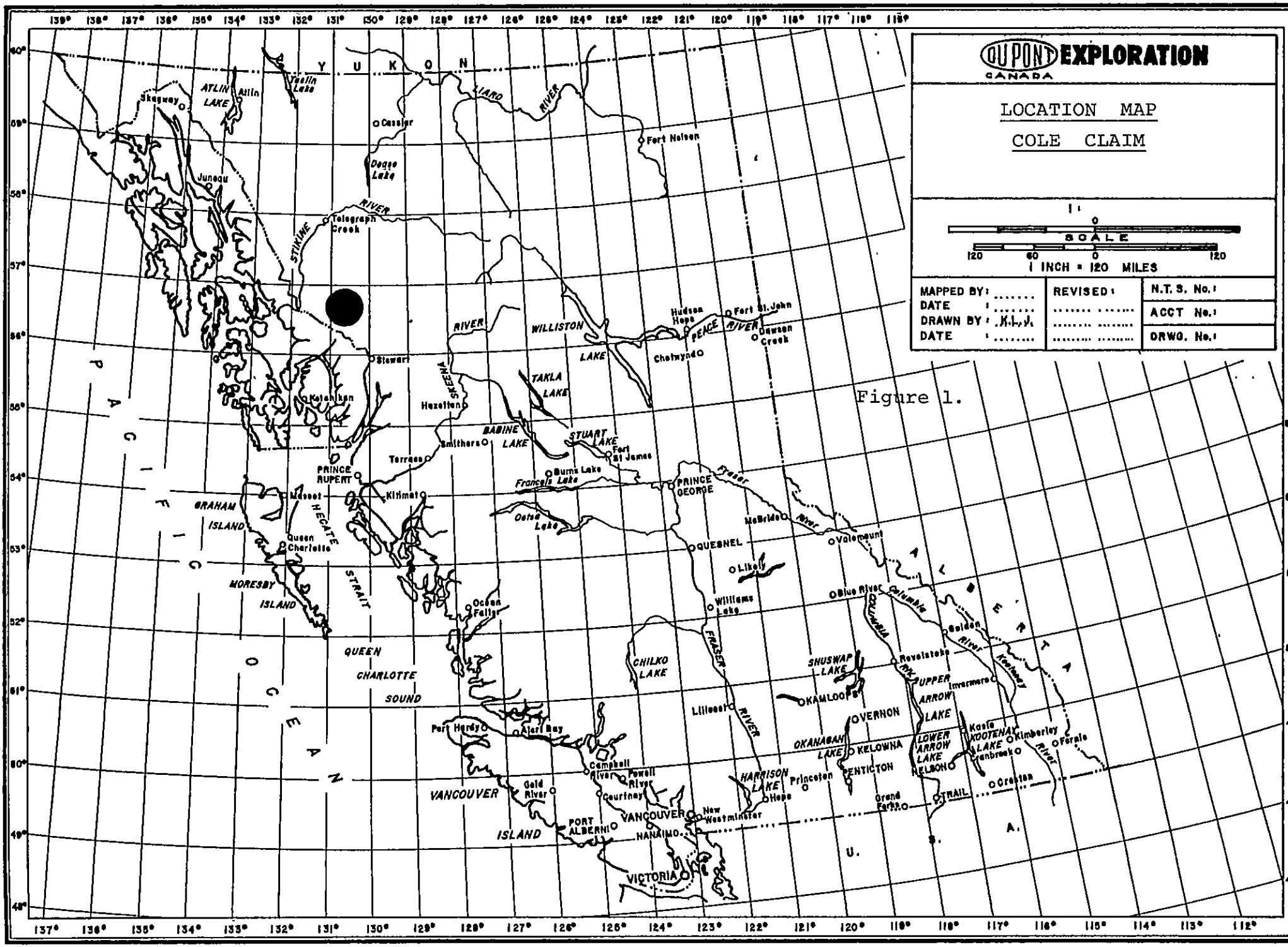

DUPONT EXPLORATION
CANADA
LOCATION MAP
COLE CLAIM
SCALE
120 60 0 120
1 INCH = 120 MILES
MAPPED BY:
DATE
DRAWN BY: K.L.J.
DATE
REVISED:
N.T.S. No.:
ACCT No.:
DRWG. No.:
YUKON
PACIFIC OCEAN
ATLIN LAKE
Atlin
Skagway
Juneau
Teslin Lake
Cassiar
Dease Lake
Telegraph Creek
STIKINE RIVER
LIARD RIVER
Fort Nelson
Stewart
Kelsh an
Hazelton
SKEENA RIVER
WILLISTON LAKE
TAKLA LAKE
Hudson Hope
Fort St. John
PEACE RIVER
Dawson Creek
Chetwynd
BABINE LAKE
Smithers
STUART LAKE
Fort St James
Terrace
PRINCE RUPERT
Burns Lake
Francois Lake
PRINCE GEORGE
Fraser River
McBride
Valemount
Kitimat
Masset
GRAHAM ISLAND
HECATE STRAIT
Queen Charlotte
Ootsa Lake
QUESNEL
Likely
MORESBY ISLAND
Ocean Falls
Williams Lake
Blue River
COLUMBIA
Golden
Revelstoke
QUEEN CHARLOTTE SOUND
CHILKO LAKE
FRASER
SHUSWAP LAKE
Mt. Revelstoke
UPPER ARROW LAKE
Invermere
KAMLOOPS
Lillooet
RIVER
VERNON
OKANAGAN LAKE
KELOWNA
LOWER ARROW LAKE
KOOTENAY LAKE
Kaslo
Nelson
Cranbrook
Kimberley
Fernie
PENTICTON
Princeton
HARRISON LAKE
Hope
Port Hardy
Alert Bay
Campbell River
Powell River
Courtney
Gold River
VANCOUVER
New Westminster
Grand Forks
TRAIL
Creston
PORT ALBERNI
NANAIMO
VANCOUVER ISLAND
VICTORIA
U. S. A.

Figure 1.

valley, occasionally exhibiting precipitous valley walls. The several tributaries of King Creek which drain the property, display very steep, boulder filled courses. The headwaters of these streams commonly end in precipitous gullies and bluffs. Of a relatively minor extent, an ice-cap covers the northwest corner of the claim.

The King Creek valley and indeed the COLE property, to an elevation of 1200 metres consists of a dense growth of conifers and willows. Tree-line particularly in the vicinity of Gossan creek is characterized by a dense, intertwined growth of one-two metre high stunted spruce.

3. Claim Status

The COLE property consists of one claim entailing 20 units. Pertinent data for the claim is outlined below:

Record No.:	2436
Tag No.:	64778
Date Recorded:	1980 July 14
Expiry Date:	1982 July 14

The claim is owned and operated by Du Pont of Canada Exploration Limited.

4. Summary of Work

In 1981, a total 15 man-days were spent evaluating the property. The programme entailed the following:

a. Obtaining four stream sediment samples from Gossan Creek and two such samples from Creek 'A'.

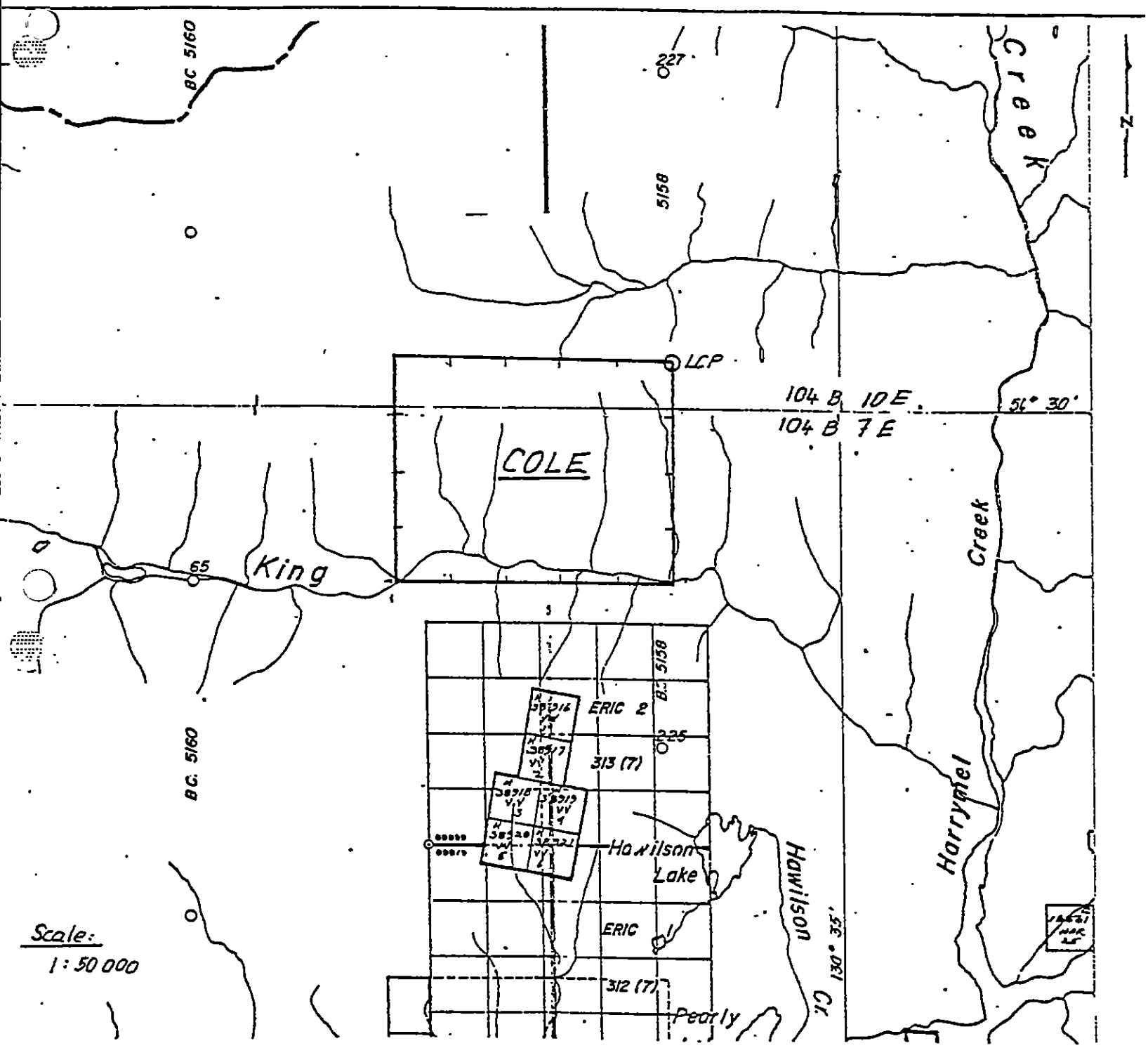
b. Running a ridge top soil survey near the north boundary of the property. Total length of the traverses was approximately 2200 metres.

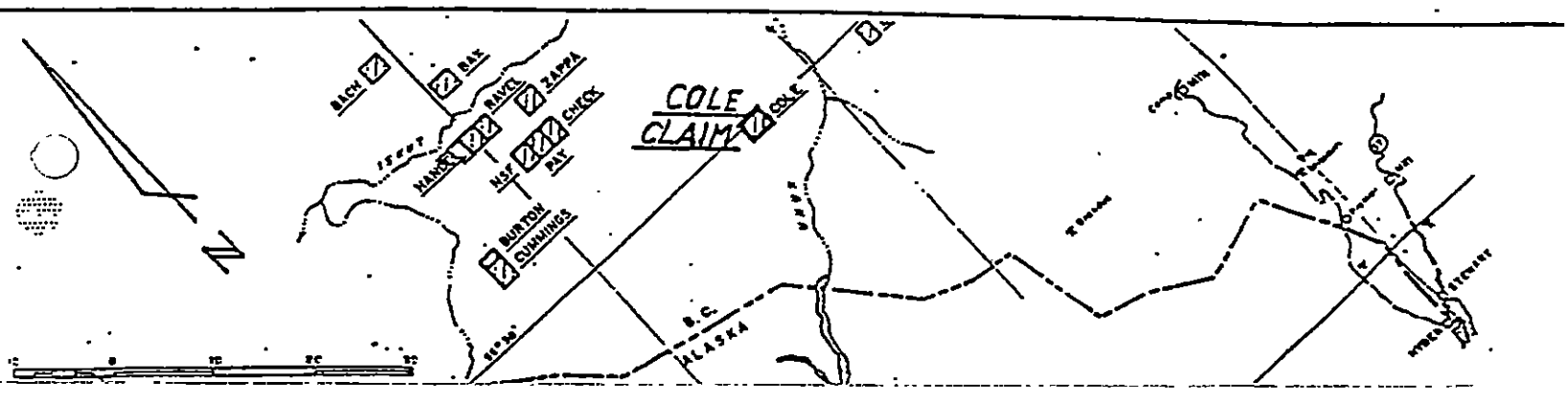
c. A soil sampling traverse adjacent and down Gossan Creek.

d. Establishment of a grid across a gossanous zone which returned anomalous values from the initial ridge traverse. Work across the grid entailed

INDEX MAP

Figure 2





VLF-EM and Magnetometer Surveys in addition to obtaining 154 soil samples.

e. Eighteen rock samples from the ridge, grid area and along Gossan Creek were obtained and assayed.

f. Two climbers spent one day sampling a prominent gossanous zone known as the 'Tower'.

g. Portions of the property were mapped at a scale of 1:10,000. This is depicted on Drawing No. AR.80-215.

In total 6 stream sediments, 201 soil and 18 rock samples were obtained from the property and analyzed.

5. History and Economic Assessment of Property

Exploration in the immediate vicinity of the COLE property dates back to at least 1922. Northeast of COLE in the vicinity of Harrymel Creek, pyrite, galena, sphalerite, chalcopyrite and silver sulphides have been observed to occur within a 2 cm to 1 metre schistose belt along the contact of argillite and volcanics. Immediately south of King Creek and west of Hawilson Lake, chalcopyrite and molybdenite bearing quartz veins are hosted by a diorite stock which has intruded Triassic volcanics and sediments. This prospect is presently held as the ERIC claims.

The COLE property was staked on the basis of a regional stream sediment (heavy mineral) survey conducted in May-June 1980. A limited follow-up programme was performed shortly thereafter.

The evaluation programme undertaken in 1981 tends to suggest that the anomalous copper-gold geochemistry is related to a widespread zone of pyrite-(chalcopyrite) mineralization which is hosted by andesite-rhyolite volcanics, chert and an intermediate intrusive (?) plug. Several features characteristic of a porphyry system are evident. Taking into account the extent and results of the 1981 programme, it appears that the COLE property exhibits limited economic potential.

II. GEOLOGY

1. Regional

The Boundary Ranges of the Coast Mountains occur along the contact of the Intermontane and Coast Crystalline geologic provinces. The latter, the bulk of which occurs across the border in the Alaska Panhandle consists of Tertiary to Triassic foliated quartz diorite, granodiorite and migmatite associated with amphibolite gneiss, discontinuous screens of schist and lenses of marble (Souther et al, 1974). Immediately east of this crystalline complex are large, unfoliated batholiths of younger, Tertiary to Cretaceous quartz monzonite to quartz diorite.

Such plutons intrude and underlie about a third of the Iskut River area. One such batholith located immediately east of McLymont Creek and Snippaker Mountain is 55 by 20 kilometres in extent.

Carboniferous-Permian greenstone, limestone, shale, schists and gneisses underlie the western part of the district particularly in the vicinity of the Craig and Iskut Rivers (downstream from Bronson Creek).

Upper Triassic andesitic and clastic sedimentary rocks underlie much of the area, particularly east of Bronson Creek and as a wedge in the Unuk and South Unuk River areas. Mid-late Jurassic breccia, tuff, conglomerate, sandstone and greywacke, in part belonging to the Hazelton Group occurs as a peninsular like occurrence east of Snippaker Creek and more prominently east of Harrymel Creek and the South Unuk River. The edge of the Bowser Basin sedimentary package is situated 20-40 kilometres further to the east.

Recent volcanism entailing the extrusion of basalt, cinders and ash is evident along the Iskut Canyon; an east tributary of Snippaker Creek and at Hoodoo Mountain. The latter consists of an impressive 1550 metre ice-capped volcano.

2. Property

The COLE claim as indicated on GSC map 1418A (1974), is underlain by Middle Jurassic volcanic breccias,

rhyolite, andesite, tuff, conglomerate and sandstone which have been intruded by an early Tertiary quartz monzonite stock.

Field work during the past two seasons indicates that the property is underlain by a series of predominantly northeasterly striking andesitic to rhyolitic flows and tuffs, chert and lesser limestone. The central portion of the claim, in the vicinity of Gossan creek hosts a dacite-quartz monzonite. The unit may represent a subvolcanic occurrence, related to the finer grained dacite unit.

The various lithologies are described as follows:

. Dacite (Unit 1)

This lithology predominates along Creek 'A' to the west and at the headwaters of Gossan Creek. It appears to be closely related to the intrusive(?) equivalent - Unit 8. The dacite is greenish grey in colour, displays fine (1a) and coarse (1b) grained equivalents and is often pyritic as evidenced by a marked gossanous appearance.

. Andesite (Unit 2)

This unit occurs as minor interbeds within the dacite and as a 100 metre section along the ridge, west of Gossan Creek. It is buff to grey in colour, weathers a green to pink colour and exhibits a mottled weathered surface. The andesite is commonly moderately fractured, slightly chloritic and hosts minor disseminated pyrite.

. Andesite Tuff (Unit 3)

This unit occurs in apparent contact with and immediately west of the andesite occurrence described above (ridge). It is quite highly fractured, siliceous and consists of 3-5 centimetre (lapilli) andesitic fragments within a mafic (?) matrix.

. Chert (Unit 4)

The lithology is black in colour, fine grained, and locally quite argillaceous. It underlies an area immediately west of the headwaters of Gossan Creek and in part, displays a gossanous

appearance. A limited occurrence in the vicinity of the 'Tower' was described as being pinkish in colour, fine-grained, siliceous and characterized by a 'crackled' texture.

. Limestone (Unit 5)

Two limestone occurrences have been recorded on the property - 1) on the ridge along the westernmost part of the traverse and, 2) along a narrow ravine above the 'Tower' on Gossan Creek. Within the latter, it appears to be associated with a conglomeratic horizon. The limestones are dark grey in colour, and occur as limestone pods interbedded with andesitic lapilli tuffs or as banded massive outcrop.

. Rhyolite (Unit 6)

Two rhyolite outcrop are described within a gossanous area above Gossan Creek, immediately adjacent the north claim boundary. It is greyish in colour, fine grained, pyritic and in part, cherty. It appears to be a more siliceous phase of the dacite (Unit 1b).

. Dacite - Quartz Monzonite (Unit 7)

This unit underlays an area from approximately the 'Tower' down Gossan Creek for a distance of at least 1100 metres. No such occurrence was encountered on stream 'A'. The unit varies from being a relatively fine grained dacitic unit within the central portion of this section to that of coarser grained equivalent at both margins. This unit may represent a subvolcanic intrusive phase to the dacite-rhyolite described earlier. It is massive, with no bedding features, quite siliceous and greenish grey in colour. Particularly in the vicinity of the 'Tower', the unit contains feldspars up to 1 cm in size, trace to 2% disseminated pyrite and exhibits a gossanous appearance.

The structural style of the property is not well understood. Attitudes obtained above Gossan Creek tend to suggest a northeast trending anticlinal feature which exhibits dips of 64-67°S on the south flank and 32-38°N on the north side. As indicated on Dwg. AR.81-42, the axis of this structure is

either kinked, or perhaps more likely fault offset. Measurements obtained along stream 'A' indicate a northeasterly trending synclinal feature. Within unit 8a-c, a number of measurements were obtained. To the individual mapping and obtaining these measurements, it was unclear whether these attitudes represented bedding or more likely fracture planes.

3. Mineralization

Several prominent gossanous areas are observed on the COLE claim. These include areas along stream 'A' and from the upper reaches of Gossan Creek north and across the ridge.

The main gossanous area, at the headwaters of Gossan Creek trends approximately NNE and is approximately 1000x200-400 metres in size. Within this area, up to 5-10% pyrite occur as disseminations and fracture fillings. No significant quartz veining is associated. One observation indicates that the chert hosts disseminated sulphides, whereas the dacitic volcanics tend to display pyrite along fractures. Minor chalcopyrite with associated malachite and lesser azurite are commonly associated. Chip sampling across precipitous, gossanous faces known as the 'Tower' averaged 0.078% Cu. Such sampling was conducted across widths of 8-18 metres (9554C-9557C). Zinc, silver and gold assays within this section returned background values.

A traverse down Gossan creek encountered several massive pyrite (-chalcopyrite/malachite) bearing float samples. Of these, sample 0251E returned 0.208 oz/ton Au. This sample was obtained from a boulder that contained massive pyrite (-malachite) mineralization. Additional details are not available.

The following is a compilation of rock samples that were obtained and assayed:

Sample	Cu(%)	Zn(%)	Ag oz/t	Au oz/t	Description
0250 E	.005		.01	.001	Grab
0251	.032		.05	.208	Float
0252	.428		.28	.016	Float
0253 E	.132		.13	.001	Float

Sample	Cu(%)	Zn(%)	Ag oz/t	Au oz/t	Description
9554 C	.041	.01	.18	.008	Chip over 8 m
9555	.069	.01	.10	.002	Chip over 18m
9556	.102	.01	.11	.003	Chip over 12m
9557	.104	.01	.07	.001	Chip over 9 m
9558 C	.021	.01	.02	.001	Grab
9567 C	.017		.03	.002	Grab
9568	.083		.14	.003	Grab
9623 C	.017		.02	.001	Grab
9624	.089		.01	.001	Grab
10738C	.323		.38	.003	Grab
10739	.007		.02	.002	Grab
10740	.011		.01	.001	Grab
10741	.032		.03	.002	Grab
10742	.034		.04	.002	Float

Along stream 'A', several gossanous areas were noted. These hosted trace to 2 percent pyrite as disseminations and fracture fillings within dacite. Details on a deep red gossanous zone south of and near the mouth of stream 'A' are not available.

Mapping along the ridge, west of Gossan Creek contained several barren, one centimetre quartz (-carbonate) veins hosted by black chert. One set of veins were orientated at 090° with a 77° North dip. Nothing of interest was noted.

4. Conclusions

Mineralization in the vicinity of main gossan area appears to be of a 'porphyry' character. Mineralization consists of widespread pyrite with lesser chalcopyrite as disseminations and fracture fillings hosted by dacite, rhyolite, chert and a dacite-quartz monzonite (intrusive?). Samples (18) obtained within this area average 0.086% Cu with 0.09 oz/ton Ag. With the exception of one sample, gold values were of a background nature. Sample 0251E (float) assayed 0.208 oz/ton Au.

III. GEOCHEMISTRY

1. Procedure

Geochemical sampling in 1981 entailed:

- Reconnaissance soil sampling along the ridge near the north boundary of the claim. Samples were obtained at 50 metre intervals and covered a length of 1600 metres. A total of 43 soil samples were obtained.

- Stream sediment sampling along both stream 'A' and Gossan creek. A total of 6 samples were collected.

- A soil sampling traverse down and adjacent Gossan Creek at 30 metre intervals. Twenty-two samples were obtained.

- Establishment of a grid across a ridge above Gossan Creek. The baseline is 350 metres long, lines are up to 500 metres in length and spaced 50 metres apart. Stations are set at 25 metre intervals. A total of 154 samples were collected.

The stream sediment and soil samples were deposited in wet strength bags. The soil samples were, where possible, obtained from the 'B' or 'C' horizon. Each individual station was flagged revealing its appropriate sample number.

The samples were submitted to Min-En Laboratories in North Vancouver for preparation and analysis. The specific procedure is outlined in Appendix A - Geochemical Analytical Procedure. The stream sediments were analyzed for Cu, Pb, Zn, An, Ag, As and Sb for both the -80 and -20+80 mesh fractions. The soil samples were geochemically analyzed for Cu, Zn, Au and Ag in the -80 mesh fraction.

Rock samples (18) were assayed for Cu (%), Ag (oz/ton) and Au (oz/ton). The chip samples 9554C-9558C) were also assayed for Zn (%).

2. Results

a. Stream Sediments

Two samples collected from stream 'A' revealed no significant values in terms of Cu, Ag and Zn. In the fine fraction lead varies from 54-56 ppm. Sample 10923C analyzed 760 ppb Au in the -80 mesh fraction. The coarse fraction contained less than 5 ppb.

In 1980, a Heavy Mineral Concentrate at the mouth of Gossan Creek contained the following:

	Au ppb	As ppm	Pb ppm	Cu ppm	Ag ppm	%HM
#2219D, -20+100 mesh	900	-	-	-	-	1.97
-100 mesh	1025	55	44	328	2.2	-

This season's follow-up results collaborated these values.

Gossan Creek exhibits strongly anomalous values in terms of Au and Cu and slightly elevated concentrations for Pb, Zn, Ag, As and Sb. Gold varies from 540-900 ppb in the fine fraction and 60-110 ppb in the -20+80 mesh fraction. An overall decreasing trend is evident downstream. Au (-80 mesh):Au(-20+80 mesh) averages 9.4:1.

Copper also reflects an overall decreasing trend downstream in the -20+80 mesh fraction, ranging from 215 ppm (0090E) to 131 ppm (110E). The fine fraction displays no significant pattern. By analyzing the fine:coarse fraction ratios for copper, it clearly displays an increasing value downstream - 1.23, 1.85, 2.07, 2.19, 2.25.

This may reflect an increase in distance to the source downstream thereby perhaps suggesting that at least the bulk of the anomaly is derived from the gossanous zone at the upper reaches of Gossan Creek. No other significant trends are evident. The following is a summary of results obtained for the other various elements:

Pb	-80 mesh	42-49 ppm
	-20+80 mesh	32-24 ppm
Zn	-80 mesh	144-188 ppm
	-20+80 mesh	84-104 ppm
Ag	-80 mesh	1.8-3.1 ppm, sample #1101E analyzed 4.6 ppm.
	-20+80 mesh	1.3-1.7 ppm
As	-80 mesh	46-72 ppm
	-20+80 mesh	10-41 ppm

Sb	-80 mesh	38-62 ppm
	-20+80 mesh	20-45 ppm

b. Soil

Two anomalous zones containing up to 1200 ppb Au and 4.7 ppm Ag were indicated on a ridge-top traverse in 1980. A similar traverse was performed in 1981. Results indicated an 800 metre zone containing up to 260 ppb Au and a coincident anomalous copper response of greater than 100 ppm, up to 480 ppm. Silver, with concentrations of greater than 2 ppm (up to 3.6 ppm) occurs as a 600-700 metre wide zone, partially coincident with the anomalous Cu-Au response although slightly offset to the east. Soils containing greater than 100 ppm Zn occur within a 600 metre section immediately west of the Cu-Au response. This may be attributed to either a change in lithology (background) or possibly due to a zonal feature peripheral to a hydrothermal (porphyry) system.

Subsequent to obtaining the results from this seasons ridge-top traverse, a grid was established across the anomalous Cu-Au response which also coincides with a widespread gossanous zone (pyrite-limonite bearing). Results reveal that most of the samples analyzed greater than 100 ppm Cu. A well developed copper response of greater than 250 ppm, including values of up to 950 ppm, extend from the baseline, 1+25S and L0+50S, 2+20E to L2+00N, 1+40W. Overall, it is 400 by 150 metres in size and is open on three sides. A 150 by 500 metre core within this zone gave a higher response - 510-950 ppm.

Along the southern segment of the south ridge traverse from #10775C to 10773C, copper concentrations of 327-403 ppm were obtained. In the northeast corner of grid, several samples contained values of up to 435-1270 ppm Cu.

Gold analyses, in large part, correlate reasonably well with the copper response. A widespread zone of greater than 40 ppb gold is dispersed over much of the grid (Dwg.AR.81-44). Due to the predominance of anomalous gold (and copper) samples, 30 percent of which analyzed $\geq$ 100 ppb, statistical analyses are questionable.

By excluding values which are $\geq$ 100 ppb, a mean value (b) of 27 ppb Au is calculated. An anomalous response is determined to be greater than 80 ppb ($b+S_2$). Taking into account the 100 ppb Au contour, a north-south zone with of widths of 100->250 metres is defined. To the northeast several spotty highs are evident. By overlapping the >100 ppb response to that of copper (>250 ppm) a fair degree of coincidence is noted.

Silver varies from 0.7-4.0 ppm. Statistics include:

Mean (b)	:	1.6 ppm
Standard Deviation (S_1)	:	0.67
Threshold ($b+S_2$)	:	2.9 ppm

Response across the property is weak and in large part, does not bear any relationship to the gold or copper values. Along the southern segment of the south ridge traverse, anomalous silver values of up to 4 ppm do appear to coincide with significant gold and copper values.

The zinc response is relatively flat. A subtle antipathetic relationship with copper is apparent. This may be indicative of a lithologic variation or more likely, be related to the hydrothermal zonation of zinc peripheral to a porphyry system (AR.81-43 & 45).

Soil sampling adjacent Gossan Creek returned highly anomalous values in terms of copper (202-1280 ppm); gold (60-2050 ppb) and to a lesser extent zinc (up to 421 ppm) and silver (up to 3:6 ppm). The two uppermost samples, in the vicinity of the most intense gossan analyzed 1220 and 1280 ppm Cu with 600 and 780 ppb Au. Down gully sample 1100E analyzed 1025 ppm Cu whereas sample #1107E contained 1050 ppb Au. In general terms, gold varies in relation to copper. Silver, to very subtle degree, follows the same relationship. Between sample 0085E and 0092E, a distance of 200 metres, zinc analyses varied between 240-421 ppm. Even though samples were sampled well away from debris along Gossan Creek, it is suspected that a degree of

contamination due to material from up above may have affected the results.

3. Conclusions

The geochemical sampling and results that were obtained from the 1981 programme indicate that a gossanous zone above Gossan Creek displays anomalous gold and copper values. Gold and copper concentrations appear to exhibit a mutual relationship. Zinc content is, in general, inversely proportional to copper. Taking into account the geology, mineralization, the widespread nature of the anomalous copper and gold response and several other geochemical characteristics, it is concluded that gold and copper likely owes its source to a porphyry Cu-Au system.

IV. GEOPHYSICS

1. Procedure

A VLF-EM and magnetometer survey was performed over the grid, excluding areas south of L1+50S. A Sabre Model 27 VLF-EM Receiver produced by Sabre Electronic Instruments Ltd., of Burnaby, B.C. was used for the VLF-EM Survey. The transmitter station received was from Seattle. A 'Fraser Filter' was applied to the dip angle readings (Dwg.Ar.81-47).

The magnetometer survey was run using a Scintrex MP-2 portable proton precession magnetometer. The survey was always tied in to a reference station every 15-20 minutes so as to correct for diurnal variations in the magnetic field.

Both surveys were run on 1982 August 16 and 18.

2. Results

a. Magnetometer

With a couple of exceptions, the survey revealed a relatively flat magnetic response. To the northeast, two north-south anomalies of 300-500 gammas relief are indicated. The 'westerly' zone has dimensions of 30 by 150 metres whereas the eastern 'L-shaped' zone is 20-40 by 160 metres in size, and open. No geochemical coincidence is noted. A relatively strong Cu-Au

anomaly occurs immediately west and adjacent the 'L' zone. The source of this magnetic response is unknown, it may reflect an unseen magnetic body, or maybe indicative of a contact zone (ie. skarn) (Dwg. AR.80-48).

To the west, at L0+50N, 1+80W, a small open anomaly (300 relief) is shown. No correlation with anomalous geochemistry is present.

b. VLF-EM

The VLF-EM survey has outlined several very weak conductive zones, notably in coincidence with the 'L' magnetic anomaly and as a zone from L2+00N, 0+50W to L0+50N, 0+40W. In the latter case, dip angles range from +2° to +11° (Fraser Filtered). A corresponding increase in field strength is noted (16-65 percent increase). This zone correlates well with a very weak and subtle magnetic low and an anomalous gold response. To the east, a zone with dip angles of up to +5° coincides reasonably well with the 'L' anomaly. No variation in field strength readings is associated. Anomalous Cu-Au geochemistry occurs immediately adjacent and west of this geophysical response.

3. Conclusion

A moderate magnetic and weak VLF-EM response is outlined within the northern corner of the grid. Anomalous Cu-Au geochemistry occurs immediately west and adjacent to this zone. This geophysical response may be indicative of a contact margin, possibly that of a skarn.

Immediately west of the baseline, a weak VLF-EM conductor coincides with anomalous gold geochemistry and a subtle magnetic low. This response may be indicative of an alteration zone similar to that along a structural feature. Neither of these geophysical features appear to be significant.

V. CONCLUSION

Anomalous copper-gold geochemistry emanates from an extensive gossanous zone along and above the upper reaches of Gossan creek. Mineralization consists of pyrite and minor chalcopyrite, as disseminations and

fracture fillings and is hosted by andesitic-dacitic volcanics, chert and an intermediate plug(?). The nature of the mineralization and the host rocks suggest a porphyry (Cu-Au) model for this occurrence. Various geochemical and geophysical surveys appear to support this contention.

VI. PERSONNEL

During the period 1982 August 12-23, the following personnel worked on the COLE property:

Supervisors:	J. A. Korenic J. M. Kowalchuk
Field Geologists:	M. Davies G. Price
Field Assistants:	C. Hamilton L. Harland J. Kurtenacker T. Skinner
Climbers:	H. Bluer K. Poehnell

VII. COST STATEMENT

1. Personnel

1 Supervisor, 1 man-day	$ 146.92
2 Field Geologist, 4 man-days	228.70
4 Field Assistants, 10 man-days	545.52
2 Climbers, 2 man-days	400.00
	$ 1,321.14

2. Room & Board

Per diem rate of $55.46, 17 man-days $ 942.82

3. Transportation

Costs to and from the project area (Sections A & B) during the months of July, August and September pertinent to this claim, are split amongst claims that had work conducted upon.

A.	To/From Project Area - scheduled carriers crew departed during the period Aug.22 - Sept.18 from either Snippaker airstrip, Wrangell, Alaska, Stewart, Terrace or Smithers.	
	Total Airfares:	$ 3,198.18
	COLE Portion: (15/185 man-days):	$ 259.31
B.	To/From Project Area - Chartered	
	July 23, TPA, Inv.#67473, (4/14 of invoice)=	$ 4,994.00
	July 24, Air North, Inv.#9824=	4,012.11
	July 25, Viking Helicopters Ltd., Report #009263 (3.3 hrs @ $480/hr)=	1,584.00
	Aug. 28, Viking Helicopters Ltd., Report #13339 (1.25 hrs)=	600.00
	Aug. 29, Viking Helicopters Ltd., Report #13341 (1.0 hrs)=	480.00
	Sept. 7, Viking Helicopters Ltd., Report #010321 (1.5 hrs)=	720.00
	Sept. 11, Viking Helicopters Ltd., Report 010327 (1.5 hrs)=	720.00
	Sept. 7 & 11, Du Pont Twin Otter (DOX) @ $660/hr	2,450.00
		$15,560.11
	COLE portion (15/185 days) =	$ 1,261.63
C.	To/On claims	
	Viking Helicopters Ltd, Report #	
	. Aug.12, #9294 (0:45 @ $480/hr)	$ 360.00
	. Aug.14, #9298 (0:40)	320.00
	. Aug.16, #13322 (0:35)	280.00
	. Aug.17, #13323 (0:40)	320.00
	. Aug.18, #13325 (0:30)	240.00
	. Aug.19, #13326 (0:50)	400.00
	. Aug.23, #13334 (0:35)	280.00
		$ 2,200.00
TOTAL Transportation:		$ 3,720.94

4. Analytical Services

Min-En Laboratories, North Vancouver, B.C.
Invoice #s 8864 & 8992

205 stream sed/soil - Preparation (@ $0.85 ea) =	$ 174.25
4 Stream sed. (-80 mesh): Cu, Pb, Zn, Au, Ag, As, Sb (@ $16.45 ea)	65.80
4 Stream Sed. (-20+80 mesh): Cu, Pb, Zn, Au, Ag, As, Sb (@ $16.45 ea)	65.80
201 soil - Cu, Zn, Au, Ag (@ $8.80 ea)	1,768.80
18 rock - Preparation (@ $2.75 ea)	49.50
18 rock - Assay: Cu, Ag, au (@ $23.00 ea)	414.00
5 rock - Assay: Zn (@ $7.50 ea)	37.50
	$ 2,575.65

5. Report Preparation

Preparation/compilation, 3 1/2 days	$ 514.22
Drafting, 6.6 days	1,060.82
Typing, 1.5 days	90.00
	$ 1,665.04

6. Miscellaneous

Cook's wages @ $88.10 (July 24-Sept. 11)	$ 4,405.00
COLE portion (15/185 man-days)	$ 357.16
Room & Board: Cook & Pilot - Per diem rate of $55.46 (50 days)	$ 5,546.00
COLE portion (15/185 man-days)	$ 449.68
	$ 806.84

GRAND TOTAL: $11,032.43

VIII. QUALIFICATIONS

I, John A. Korenic, do hereby certify that:

1. I am a geologist residing at 11758 Wildwood Crescent, Pitt Meadows, British Columbia and employed by Du Pont of Canada Exploration Limited.

2. I am a graduate of the University of Calgary with a B.Sc. degree in geology (1975).

3. I am a Fellow of the Geological Association of Canada.

4. I am a Member of the Canadian Institute of Mining and Metallurgy.

5. I have practised my profession in geology continuously for the past 7 years in the Yukon, British Columbia and various other provinces in Canada.

6. During 1982 August 12 - August 23, I supervised/directed a field programme on the COLE claim on behalf of Du Pont of Canada Exploration Limited.

John A. Korenic
1982 May

JAK/krl

PHONE 980-5814

APPENDIX A

MIN-EN Laboratories Ltd.
Specialists in Mineral Environments
Corner 15th Street and Bewicke
705 WEST 15th STREET
NORTH VANCOUVER, B.C.
CANADA

ANALYTICAL PROCEDURE REPORTS FOR ASSESSMENT WORK

PROCEDURE FOR GOLD GEOCHEMICAL ANALYSIS.

Geochemical samples for Gold processed by Min-En Laboratories Ltd., at 705 W. 15th St., North Vancouver Laboratory employing the following procedures.

After drying the samples at 95°C soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed and pulverized by ceramic plated pulverizer.

A suitable sample weight 5.0 or 10.0 grams are pre-treated with HNO_3 and $HClO_4$ mixture.

After pretreatments the samples are digested with Aqua Regia solution, and after digestion the samples are taken up with 25% HCl to suitable volume.

At this stage of the procedure copper, silver and zinc can be analysed from suitable aliquote by Atomic Absorption Spectrophotometric procedure.

Further oxidation and treatment of at least 75% of the original sample solutions are made suitable for extraction of gold with Methyl Iso-Butyl Ketone.

With a set of suitable standard solution gold is analysed by Atomic Absorption instruments. The obtained detection limit is 5 ppb.

PHONE 980-5814

APPENDIX A

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Specialists in Mineral Environments
Corner 15th Street and Bewicke
705 WEST 15th STREET
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CANADA

ANALYTICAL PROCEDURE REPORTS FOR ASSESSMENT WORK

PROCEDURES FOR Mo, Cu, Cd, Pb, Mn, Ni, Ag, Zn, As, F

Samples are processed by Min-En Laboratories Ltd., at 705 W. 15th St., North Vancouver Laboratory employing the following procedures.

After drying the samples at 95°C soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed by a jaw crusher and pulverized by ceramic plated pulverizer.

1.0 gram of the samples are digested for 6 hours with HNO_3 and $HClO_4$ mixture.

After cooling samples are diluted to standard volume. The solutions are analyzed by Atomic Absorption Spectrophotometers.

Copper, Lead, Zinc, Silver, Cadmium, Cobalt, Nickel and Manganese are analysed using the CH_2H_2-Air flame combination but the Molybdenum determination is carried out by C_2H_2-N_2O gas mixture directly or indirectly (depending on the sensitivity and detection limit required) on these sample solutions.

For Arsenic analysis a suitable aliquote is taken from the above 1 gram sample solution and the test is carried out by Gutzit method using Ag CS_2N $(C_2H_5)_2$ as a reagent. The detection limit obtained is 1.2 ppm.

Fluorine analysis is carried out on a 200 milligram sample. After fusion and suitable dilutions the fluoride ion concentration in rocks or soil samples are measured quantitatively by using fluorine specific ion electrode. Detection limit of this test is 10 ppm F.

SABRE ELECTRONIC
INSTRUMENTS LTD.

4245 EAST HASTINGS STREET • BURNABY, B.C. V5C 2J5 • TELEPHONE: 291-1617

SABRE MODEL 27 VLF-EM RECEIVER

The model 27 EM unit was designed originally for a large Canadian mining company to overcome the deficiencies inherent in existing units.

The instrument is so stable and selective that completely reliable measurements can be made on distant stations without interference from nearby powerful transmitters. Stability and selectivity are especially important when making field-strength measurements, which are now being emphasized as a means of locating conductors.

This EM receiver is very compact, requires no earphones or loudspeakers and is housed in a heavy scotch saddle leather case. All of these features add up to make an ideal one-man EM unit of unexcelled electrical performance and mechanical ruggedness.

SPECIFICATIONS -

Source of Primary Field - VLF radio stations (12 to 24 KHz.)

Number of Stations - 4, selected by switch; Cutler, Main on 17.8 KHz. and Seattle, Washington on 18.6 KBz. are standard, leaving 2 other stations that can be selected by the user.

Types of Measurement

1. Dip angle in degrees, read on a meter-type inclinometer with a range of $\pm$ 60° and an accuracy of $\pm$ ½°.
2. Field strength, read on a meter and a precision digital dial with an accuracy exceeding 1%.
3. Out of phase component, read on the field strength meter as a residual reading when measuring the dip angle.

LEGEND

2.0 + 143 — SURVEY GRID LINE STATION WITH VALUE FOR GOLD IN P.P.B. TO THE LEFT. COPPER IN P.P.M. TO THE RIGHT.

100 P.P.B. GOLD CONTOUR

250 P.P.M. COPPER CONTOUR

L 200 N — 200 W — L 150 N — L 100 N — 100 W — L 50 N — 00 BASE LINE Az. 045° — 100 E — 200 E — L 00 — L 50 S — L 100 S — L 150 S — L 200 S — L 250 S — L 270 S — 300 E

100 P.P.B. AU — 250 P.P.M. CU — N.S. — Lake — SOUTH RIDGE TRAVERSE

NOTE: FOR GRID LOCATION SEE DRWG AR.81-43

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
10,474
NO.

DUPONT CANADA EXPLORATION

ARGONAUT PROJECT
COLE CLAIM
DETAIL GRID
GEOCHEMISTRY
Au IN P.P.B. & Cu IN P.P.M.
ISKUT RIVER AREA, BRITISH COLUMBIA

1:1000
m 30 20 10 0 30 60 m
SCALE
0
1 INCH = 83.33 FEET

MAPPED BY	JAK.CH.L.H.J.K.J.S.	REVISED	N.T.S. No. 104 B 7E & 10E
DATE	81 08 16-23		ACCT No. 347-55
DRAWN BY	K.L.J.		DRWG. No. AR.81-44
DATE	82 04 27		

LEGEND

0.9 | 131 SURVEY GRID LINE STATION WITH VALUE FOR SILVER IN P.P.M. TO THE LEFT ZINC IN P.P.M. TO THE RIGHT.

L 200 N — 200 W — L 150 N — L 100 N — 100 W — L 50 N — 00 BASE LINE Az.045° — 100 E — 200 E — 300 E

L 00 — Lake — L 50 S — L 100 S — L 150 S — L 200 S — L 250 S — L 270 S

1.2 + 43

SOUTH RIDGE TRAVERSE

N

MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
10,474
No.

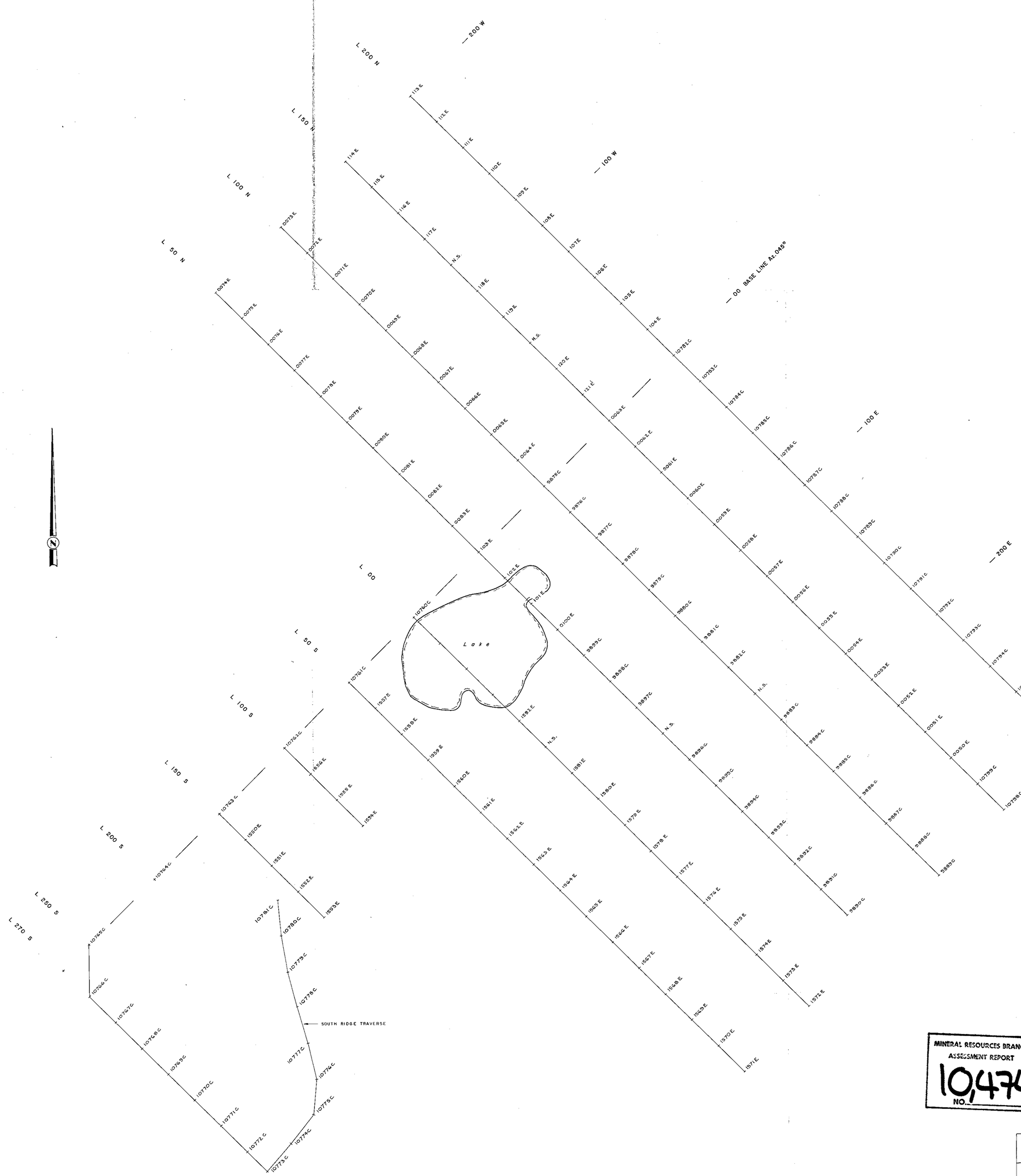
NOTE: FOR GRID LOCATION SEE DRWG AR.81-43

DUPONT CANADA EXPLORATION

ARGONAUT PROJECT
COLE CLAIM
DETAIL GRID
GEOCHEMISTRY
Ag & Zn IN P.P.M.
ISKUT RIVER AREA, BRITISH COLUMBIA

SCALE 1:1000
m 30 20 10 0 30 60 m
0 1 INCH = 83.33 FEET

MAPPED BY	JAK, CH, LH, KTS	REVISED	N.T.S. No.: 104 B 7E & 10E
DATE	81.08.15-23		
DRAWN BY	K.L.J.		ACCT No.: 347-55
DATE	82.04.27		DRWG. No.: AR.81-45



MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
10,474
NO.

NOTE: FOR GRID LOCATION SEE DRWG AR.81-43

DUPONT CANADA EXPLORATION

ARGONAUT PROJECT
COLE CLAIM
DETAIL GRID

SAMPLE LOCATION MAP

ISKUT RIVER AREA, BRITISH COLUMBIA

1:1000
m 30 20 10 0 30 60 m
SCALE
0
1 INCH = 83.33 FEET

MAPPED BY	J.A.K.	REVISED	N.T.S. No.: 104 B 7E & 10E
DATE	81 08 16-23		ACCT No.: 347-55
DRAWN BY	K.L.J.		DRWG. No.: AR.81-46
DATE	82 04 23		

KCI-128

LEGEND

- SURVEY GRID LINE STATION
- 3 — FILTERED NULL DIP READING (POSITIVE°)
- 33 — FIELD STRENGTH
- 51 — FILTERED NULL DIP READING (NEGATIVE°)
- DIP ANGLE CONTOURED FOR ZERO DEGREES

L 200 N
L 150 N
L 100 N
L 50 N
L 00
L 50 S
L 100 S
L 150 S
L 200 S
L 250 S
L 270 S

— 200 W
— 100 W
— 00 BASE LINE At. 045°
— 100 E
— 200 E
— 300 E

Lake

SOUTH RIDGE TRAVERSE

NOTE: FOR GRID LOCATION SEE DRWG AR.81-43

DU PONT CANADA EXPLORATION

ARGONAUT PROJECT
COLE CLAIM
DETAIL GRID

RADEM (VLF) SURVEY

ISKUT RIVER AREA, BRITISH COLUMBIA

1:1000
m 30 20 10 0 30 60 m
SCALE
0
1 INCH = 83.33 FEET

MAPPED BY : J.A.K., C.H.T.S.	REVISED :	N.T.S. No. : 104 B 7E & 10E
DATE : 81.08.16-23		
DRAWN BY : K.L.J.		ACCT No. : 347 - 55
DATE : 82.04.28.		DRWG. No. : AR.81 - 47

LEGEND

57751 SURVEY GRID LINE WITH MAGNETOMETER READING IN GAMMAS

MAGNETIC CONTOURS AT 100 GAMMA INTERVALS

L 200 N — 200 W — L 150 N — L 100 N — L 50 N — 00 BASE LINE Az. 045° — 100 W — 100 E — 200 E — 300 E — L 00 — L 100 S — L 150 S — L 200 S — L 250 S — L 270 S

Lake

SOUTH RIDGE TRAVERSE

N

NOTE: FOR GRID LOCATION SEE DRWG AR.81-43

DU PONT CANADA EXPLORATION

ARGONAUT PROJECT
COLE CLAIM
DETAIL GRID

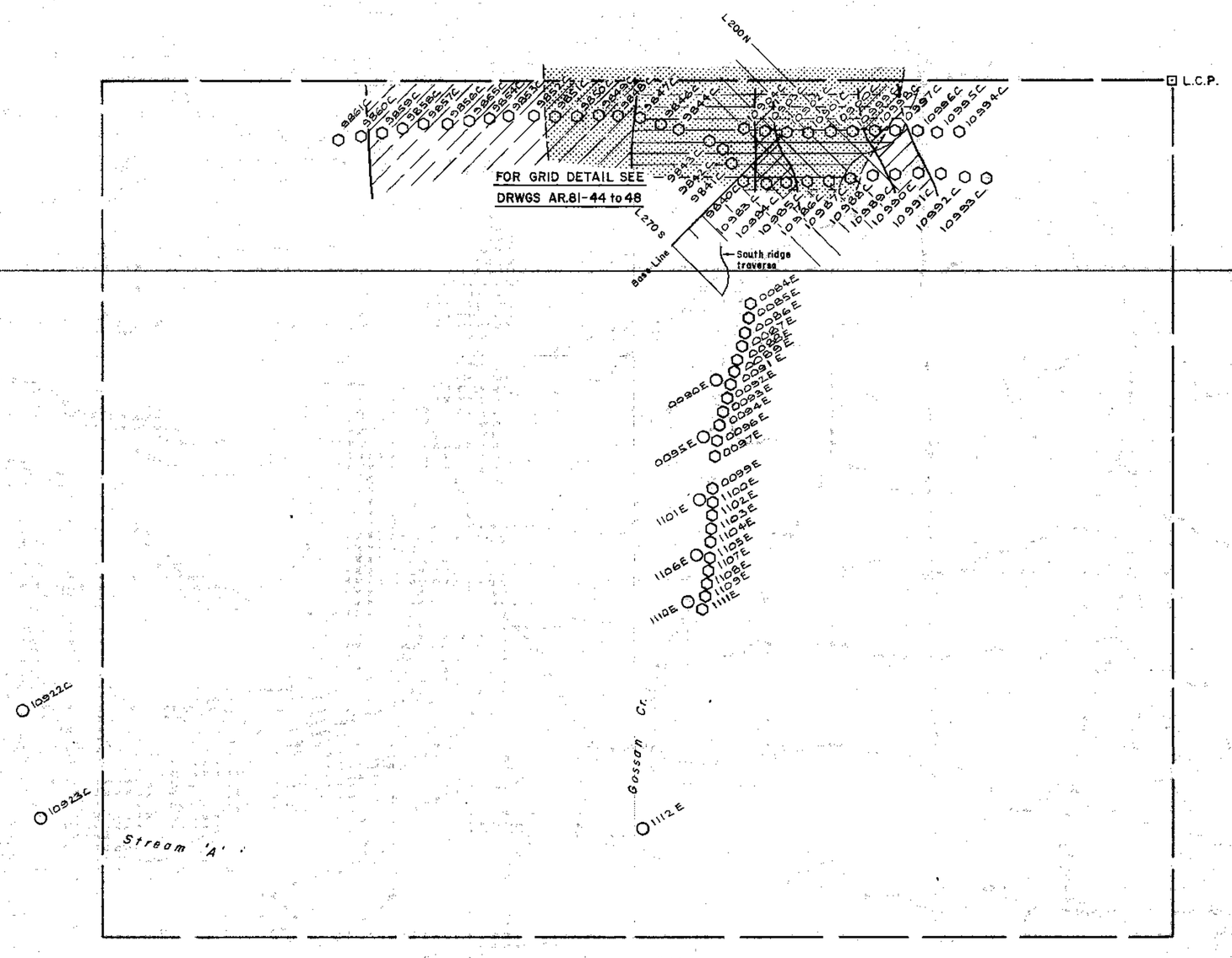
MAGNETOMETER SURVEY

ISKUT RIVER AREA, BRITISH COLUMBIA

1:1000
m 30 20 10 0 30 60 m
SCALE
0
1 INCH = 83.33 FEET

MAPPED BY	J.A.K., C.H., T.S.	REVISED	N.T.S. No.: 104 B 7E & 10E
DATE	81 08 16-23		ACCT No.: 347-55
DRAWN BY	K.L.J.		DRWG No.: AR.81-48
DATE	82 04 29		

KCI - 28



1981 SAMPLE RESULTS

Sample		Cu ppm	Zn ppm	Ag ppm	Au ppb
-80 Mesh					
Soil					
0084	E	1280	82	2.8	780
0085		1220	97	3.0	600
0086		168	278	2.0	90
0087		292	252	1.7	185
0088		565	421	3.6	730
0089		440	292	2.6	350
0091		240	240	2.2	390
0092		320	263	2.5	200
0093		253	106	1.7	620
0094		865	151	3.3	740
0096		690	156	2.6	465
0097		202	90	1.6	60
0099	E	685	147	2.5	875
1100	E	1025	131	2.0	585
1102		680	190	2.7	580
1103		860	138	2.6	490
1104		890	137	2.5	375
1105		640	167	2.5	370
1107		320	181	2.0	2050
1108		760	148	2.2	340
1109		510	134	1.9	215
1111	E	420	158	1.9	265
9840	C	175	72	2.0	120
9841		120	50	1.1	60
9842		480	48	3.0	5
9843		154	69	1.3	260
9844		108	84	1.5	125
9846		120	99	1.6	95
9847		28	39	0.7	15
9848		105	154	1.6	30
9849		73	98	1.4	10
9850		68	166	1.3	5
9851		74	112	1.6	70
9852		70	136	1.8	20
9853		69	126	1.9	10
9854		36	105	1.7	5
9855		21	94	1.3	5
9856		43	100	1.4	5
9857		50	95	1.5	5
9858		56	103	1.6	5
9859		82	96	1.4	5
9860		17	58	1.4	20
9861	C	30	64	1.1	5
10900	C	65	60	1.5	10
10901		350	70	1.4	55
10902		129	86	1.3	40
10903		150	123	1.6	30
10904	C	270	94	2.1	225
10983	C	323	151	1.7	110
10984		99	192	1.4	5
10985		112	83	1.3	95
10986		97	62	1.6	80
10987		70	86	1.3	40
10988		43	54	1.3	20
10989		39	96	1.2	5
10990		59	100	1.3	5
10991		40	77	1.3	5
10992		25	46	1.9	5
10993		17	47	1.2	5
10994		32	106	1.5	10
10995		24	72	1.1	15
10996		27	58	1.0	5
10997		107	195	1.2	10
10998		220	105	1.6	165
10999	C	60	64	1.3	10

Sample		Cu ppm	Pb ppm	Zn ppm	Ag ppm	As ppm	Au ppb	Sb ppm
-20+80 Mesh								
Sediment								
0090	E	215	31	90	1.7	10	110	32
0095	E	170	32	104	1.7	41	70	45
1101	E	146	28	86	1.6	25	70	38
1106		150	24	94	1.7	30	60	45
1110		131	26	84	1.3	14	70	20
1112	E	167	29	95	1.6	22	90	34
10922	C	35	39	106	1.4		5	
10923	C	31	36	98	1.5		<5	
-80 Mesh								
0090	E	265	42	158	2.5	46	860	62
0095	E	315	46	188	2.9	72	620	48
1101	E	302	49	148	4.6	46	900	45
1106		329	48	146	3.1	46	665	38
1110		295	46	144	2.6	59	670	45
1112	E	318	67	143	3.1	67	540	30
10922	C	45	56	144	1.8		5	
10923	C	49	54	130	2.1		760	

LEGEND

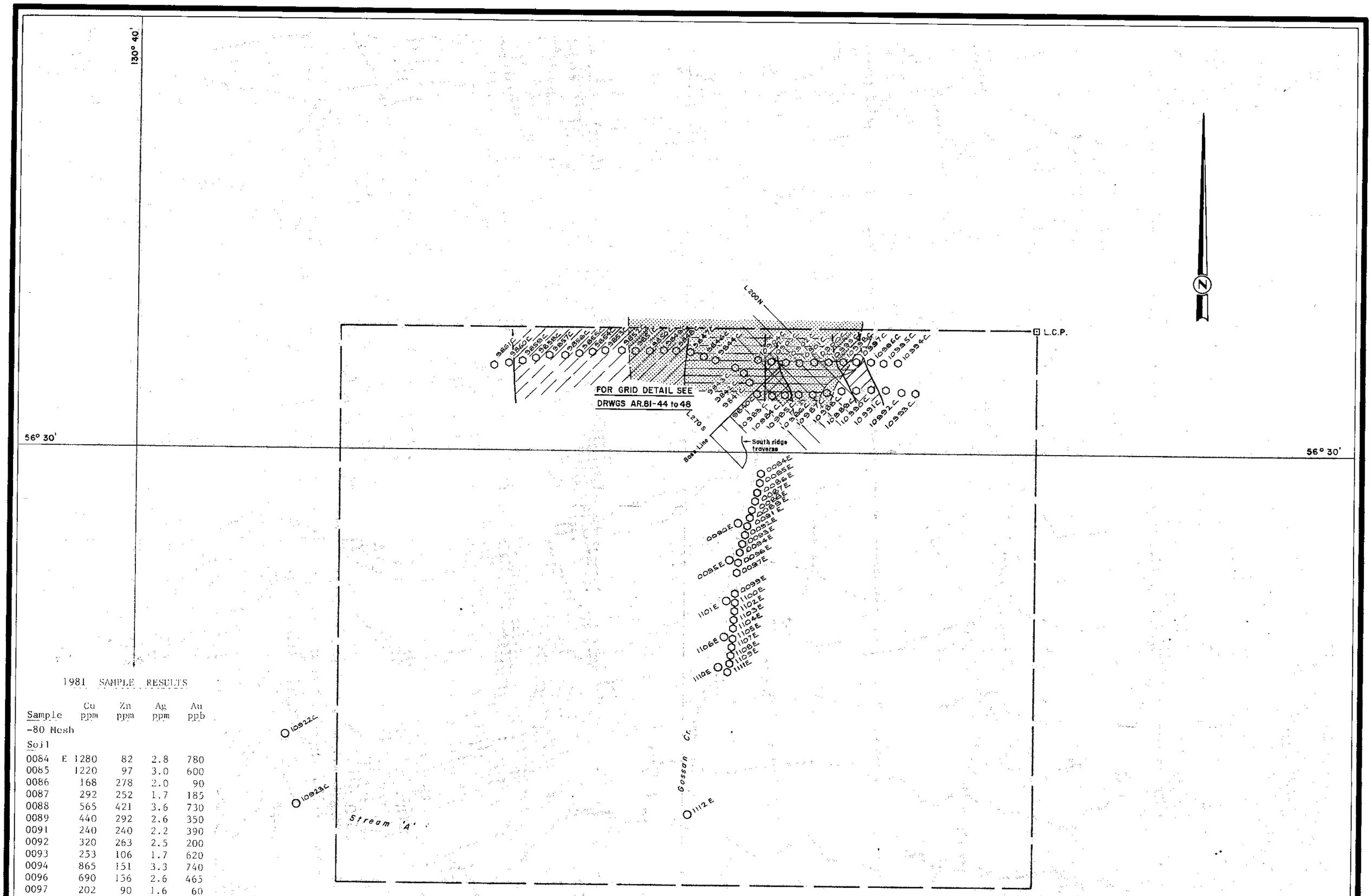
- 1106E ○ — STREAM SEDIMENT SAMPLE LOCATION & No.
- 10985C ○ — SOIL SAMPLE LOCATION & No.
- GOLD — ANOMALOUS ZONE (> 30 P.P.B.)
- ZINC — ANOMALOUS ZONE (> 100 P.P.M.)
- COPPER — ANOMALOUS ZONE (> 100 P.P.M.)

DUPONT CANADA EXPLORATION

ARGONAUT PROJECT
COLE CLAIM
GEOCHEMISTRY
Au IN P.P.B. & Ag, Cu, Pb, Zn, As, Sb IN P.P.M.
ISKUT RIVER AREA, BRITISH COLUMBIA

1:10 000
m 300 0 300 600 m
SCALE
ft. 1000 0 1000 2000 ft.
1 INCH = 833 FEET

MAPPED BY	JAK, CHLH, JKTS	REVISED	N.T.S. No.: 104 B 7E & 10E
DATE	81 08 14-23		
DRAWN BY	K.L.J.		ACCT No.: 347-55
DATE	82 04 22		DRWG. No.: AR.81-43



1981 SAMPLE RESULTS

Sample	Cu ppm	Zn ppm	Ag ppm	Au ppb
-80 Mesh				
Soil				
0084 E	1280	82	2.8	780
0085	1220	97	3.0	600
0086	168	278	2.0	90
0087	292	252	1.7	185
0088	565	421	3.6	730
0089	440	292	2.6	350
0091	240	240	2.2	390
0092	320	263	2.5	200
0093	253	106	1.7	620
0094	865	151	3.3	740
0096	690	156	2.6	465
0097	202	90	1.6	60
0099 E	685	147	2.5	875
1100 E	1025	131	2.0	585
1102	680	190	2.7	580
1103	860	138	2.6	490
1104	890	137	2.5	375
1105	640	167	2.5	370
1107	320	181	2.0	2050
1108	760	148	2.2	340
1109	510	134	1.9	215
1111 E	420	158	1.9	265
9840 C	175	72	2.0	120
9841	120	50	1.1	60
9842	480	48	3.0	5
9843	154	69	1.3	260
9844	108	84	1.5	125
9846	120	99	1.6	95
9847	28	39	0.7	15
9848	105	154	1.6	30
9849	73	98	1.4	10
9850	68	166	1.3	5
9851	74	112	1.6	70
9852	70	136	1.8	20
9853	69	126	1.9	10
9854	36	105	1.7	5
9855	21	94	1.3	5
9856	43	100	1.4	5
9857	50	95	1.5	5
9858	56	103	1.6	5
9859	82	96	1.4	5
9860	17	58	1.4	20
9861 C	30	64	1.1	5
10900 C	65	60	1.5	10
10901	350	70	1.4	55
10902	129	86	1.3	40
10903	150	123	1.6	30
10904 C	270	94	2.1	225
10983 C	323	151	1.7	110
10984	99	192	1.4	5
10985	112	83	1.3	95
10986	97	62	1.6	80
10987	70	86	1.3	40
10988	43	54	1.3	20
10989	39	96	1.2	5
10990	59	100	1.3	5
10991	40	77	1.3	5
10992	25	46	1.9	5
10993	17	47	1.2	5
10994	32	106	1.5	10
10995	24	72	1.1	15
10996	27	58	1.0	5
10997	107	195	1.2	10
10998	220	105	1.6	165
10999 C	60	64	1.3	10

Sample	Cu ppm	Pb ppm	Zn ppm	Ag ppm	As ppm	Au ppb	Sb ppm
-20+80 Mesh							
Sediment							
0090 E	215	31	90	1.7	10	110	32
0095 E	170	32	104	1.7	41	70	45
1101 E	146	28	86	1.6	25	70	38
1106	150	24	94	1.7	30	60	45
1110	131	26	84	1.3	14	70	20
1112 E	167	29	95	1.6	22	90	34
10922 C	35	39	106	1.4		5	
10923 C	31	36	98	1.5		<5	
-80 Mesh							
0090 E	265	42	158	2.5	46	860	62
0095 E	315	46	188	2.9	72	620	48
1101 E	302	49	148	4.6	46	900	45
1106	329	48	146	3.1	46	665	38
1110	295	46	144	2.6	59	670	45
1112 E	318	67	143	3.1	67	540	30
10922 C	45	56	144	1.8		5	
10923 C	49	54	130	2.1		760	

LEGEND

- 1106E ○ — STREAM SEDIMENT SAMPLE LOCATION & No.
- 10985C ○ — SOIL SAMPLE LOCATION & No.
- GOLD — ANOMALOUS ZONE (> 30 P.P.B.)
- ZINC — ANOMALOUS ZONE (> 100 P.P.M.)
- COPPER — ANOMALOUS ZONE (> 100 P.P.M.)

DUPONT CANADA EXPLORATION

ARGONAUT PROJECT
COLE CLAIM
GEOCHEMISTRY
Au IN P.P.B. & Ag, Cu, Pb, Zn, As, Sb IN P.P.M.
ISKUT RIVER AREA, BRITISH COLUMBIA

1 : 10 000
m 300 0 300 600 m
SCALE
ft 1000 0 1000 2000 ft.
1 INCH = 833 FEET

MAPPED BY :	J.A.K.,C.H.L.H.,J.K.,T.S.	REVISED :	N.T.S. No.: 104 B 7E & 10E
DATE :	81.08.14-23		ACCT No.: 347-55
DRAWN BY :	K.L.J.		DRWG. No.: AR.81-43
DATE :	82.04.22		