ARIS SUMMARY SHEET

District Geologist, Smithers Off Confidential: 89.04.11

ASSESSMENT REPORT 17257 MINING DIVISION: Omineca

PROPERTY: Al
LOCATION: LAT 57 28 22 LONG 127 16 28
UTM 09 6371117 603488
NTS 094E06W
CLAIM(S): Surprise,Gerome,Tinkle Fr.,Chute
OPERATOR(S): Energex Min.
AUTHOR(S): Eccles, L.
REPORT YEAR: 1988, 31 Pages
COMMODITIES
SEARCHED FOR: Gold,Silver
GEOLOGICAL
SUMMARY: Southwesterly dipping andesitic flows and volcaniclastics of the Early Jurassic Tuff Peak Formation of the Toodoggone Volcanics are altered over a large, roughly circular area. Epidote-bearing propylitic alteration predominates. Two auriferous potassic alteration zones occur within chloritic alteration along the southern boundary of the propylitic alteration. The larger is exposed for 300 metres with widths up to 25 metres.
WORK
DONE: Geochemical,Physical
SOIL 161 sample(s) ;CU,PB,ZN,AU,AG
Map(s) - 2; Scale(s) - 1:2000
TOPO 1400.0 ha
RELATED
REPORTS: 15183,15779

LOG NO: 0414 RD.
ACTION:
FILE NO:

SUB-RECORDER
RECEIVED
APR 11 1988
M.R. # ..... $ .....
VANCOUVER, B.C.

REPORT ON GEOCHEMICAL SAMPLING OF THE SURPRISE 87 CLAIM GROUP

Toodoggone River Area, British Columbia
Liard Mining Division
Lat. 57°28'N Long. 127°16'W

NTS 94E/6W

Prepared by

Louise K. Eccles

Owned by Energex Minerals Ltd.
Work by Energex Minerals Ltd.

GEOLOGICAL BRANCH
ASSESSMENT REPORT

17,257

March 1988

Vancouver, British Columbia

bler303a

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INTRODUCTION

Energex Minerals Ltd. conducted a limited soil geochemical survey on the Surprise 87 Claim Group in August 1987 as part of a major exploration program on the Toodoggone Properties.

The Claim Group straddles Antoine Louis Creek in the Toodoggone River area of north-central British Columbia (see Figure 1).

Geology of the area is comprised of a southwesterly dipping sequence of andesitic flows and volcaniclastics of the Tuff Peak Formation. Rocks are propyllitically altered to argillized. Structurally controlled gold-bearing potassic alteration zones occur within the chloritic volcanics.

Work done in 1987 consisted of air photography, topographic mapping and a soil geochemical grid survey. The geochemical grid baseline was surveyed by a surveyor and cross lines were run using hip chain and compass. Only part of the grid was sampled and only those samples collected within the year following the anniversary date (August 13th) are included in the list of expenditures. All sample results are recorded on the surface plans (Figures 4A and 4B).

A total of 233 soil samples were collected at 50 meter intervals along lines oriented northeast/southwest spaced at 100 meters along a northwest/southeast picketed baseline.

PROPERTY

The Surprise 87 Claim Group is part of the Al Property and is located in the Omineca Mining Division of British Columbia. Claim data are as follows: (See Figure 2)

CLAIM NAME	RECORD NUMBER	RECORD DATE	NO. OF UNITS	EXPIRY DATE
Surprise	4098	August 13	20	August 13, 1989
Gerome	4097	August 13	15	August 13, 1989
Tinkle (Fr)	4093	August 13	1	August 13, 1989
Chute	4100	August 13	18	August 13, 1991
Antoine Louis	4096	August 13	10	August 13, 1988


Toodoggone Property
138°
130°
125°
120°
60°
Cassiar
Juneau
Stewart
Williston L.
Fort St. John
B R I T I S H
55°
135°
55°
Smithers
Prince Rupert
Terrace
ALBERTA
PRINCE GEORGE
Queen Charlotte Islands
C O L U M B I A
N
Revelstoke
Lillooet
KAMLOOPS
Port Hardy
50°
Merritt
50°
130°
Kaslo
Creasbrook
Vancouver Island
Princeton
Penticton
Trail
Hedley
VANCOUVER
120°
Pacific Ocean
VICTORIA
125°
UNITED STATES
energex MINERALS LTD.
PROPERTY LOCATION MAP
100 0 100 200 300 400 Km.
100 0 100 200 Mi.
FEB, 1986

FIG. 1

LOCATION AND ACCESS

The Surprise 87 Claim Group is situated in the Toodoggone River area approximately 300 kilometers north of Smithers at 57°28' N latitude and 127° 16' W longitude.

The area is served by the Sturdee Airstrip which lies about 25 kilometers southeast of the Claim Group. The Omineca Mine Access Road extension, privately owned by Cheni Gold Mines Ltd., passes within ten kilometers of the Surprise 87 Claim Group.

Access to the property from Smithers is presently by fixed wing aircraft to Sturdee Airstrip and by helicopter from there. The Claim Group straddles the proposed northern road extension from the Omineca Mine Access Road.

PHYSIOGRAPHY, VEGETATION AND CLIMATE

The Surprise 87 Claim Group straddles the headwaters of Antoine Louis Creek where topography varies between gently southerly sloping upland plateau to sharp north-facing glacial escarpments and cirques.

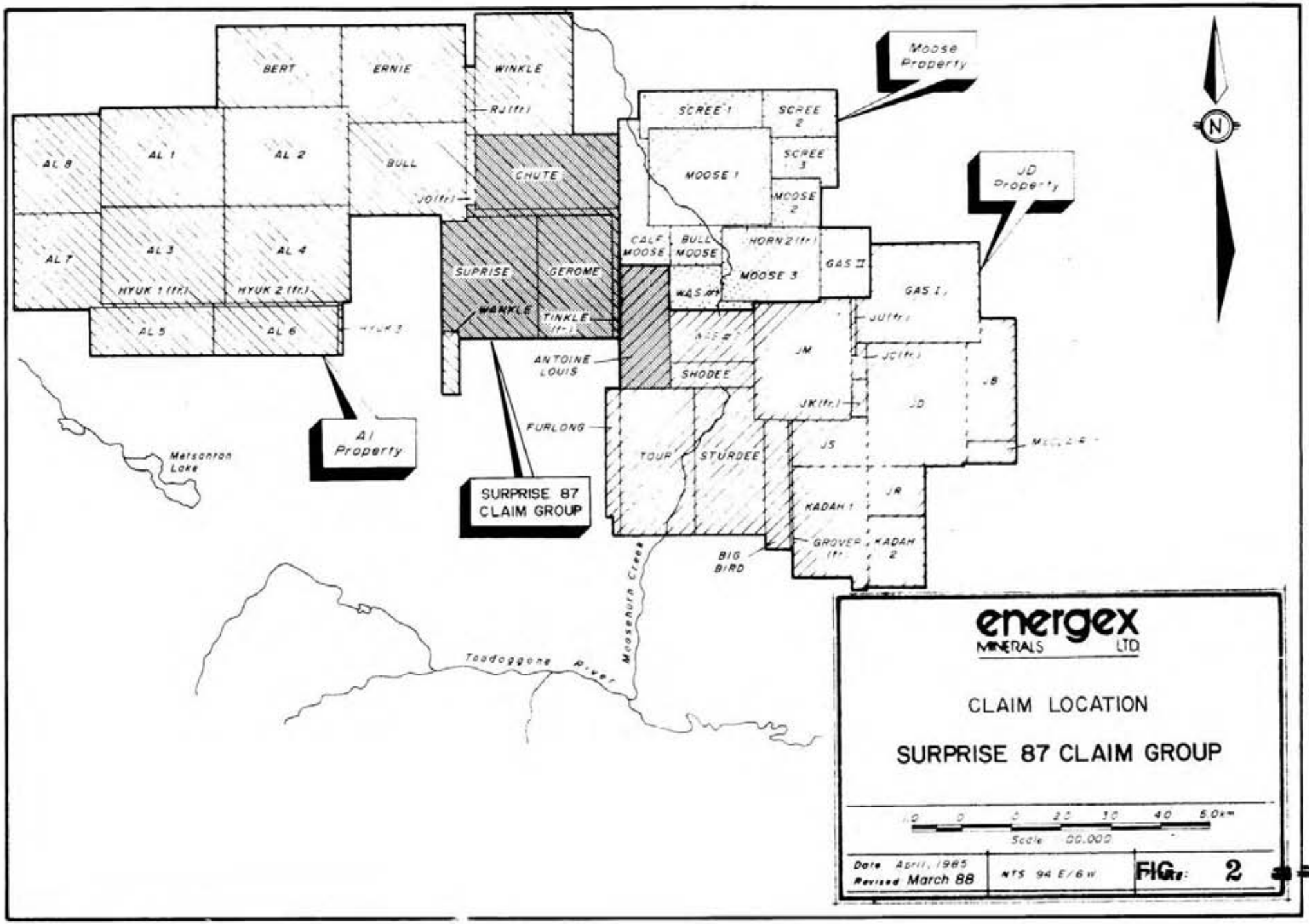
The Claim Group lies in the alpine at elevations of 1,500 to 1,850 meters. Vegetation consists of low scrub and alpine grasses with small stands of stunted coniferous trees and buck brush.

The Claim Group is snowbound from early October until mid-June. The short summer season is cool and showery. Occasional snow showers occur throughout the summer months but accumulated snow does not linger for long.

PREVIOUS WORK

The Surprise 87 Claim group is part of the Al Property which was extensively explored in the first half of the 1980's by Kidd Creek Mines Ltd. There is no record of grid work done covering the current and proposed grid on the Surprise 87 Claim Group, however, the ground was probably prospected by Kidd Creek at sometime during that period.

In 1986 Energex conducted a program of reconnaissance geological mapping, prospecting and sampling, followed by mapping and chip sampling of two newly discovered potassic alteration zones.


BERT
ERNIE
WINKLE
RJ(fr)
AL 8
AL 1
AL 2
BULL
CHUTE
JO(fr)
AL 7
AL 3
AL 4
HYUK 1 (fr.)
HYUK 2 (fr.)
AL 5
AL 6
SUPRISE
GEROME
WANKLE
TINKLE
ANTOINE
LOUIS
FURLONG
Metsantan Lake
Al Property
SURPRISE 87 CLAIM GROUP
SCREE 1
SCREE 2
SCREE 3
MOOSE 1
MOOSE 2
CALF MOOSE
BULL MOOSE
HORN 2 (fr)
MOOSE 3
GAS II
GAS I
SHODEE
JM
JU(fr)
JC(fr)
JB
JK(fr)
JD
JS
TOUR
STURDEE
JR
KADAH 1
GROVER (fr)
KADAH 2
BIG BIRD
Moose Property
JD Property
Toadoggone River
Moosehorn Creek
N
energex MINERALS LTD
CLAIM LOCATION
SURPRISE 87 CLAIM GROUP
Scale 00,000
Date April, 1985
Revised March 88
NTS 94 E/6 W
FIG: 2

REGIONAL GEOLOGY

The Toodoggone River area lies near the eastern margin of the Intermontane Tectonic Belt. The oldest rocks in the area are late Paleozoic limestones in the vicinity of Baker mine. These are in fault contact with the late Triassic Takla Group volcanic rocks exposed at Baker Mine and east and north of the Moose property.

A volcanic assemblage of Lower Jurassic age, lithologically distinctive from the Hazelton or Takla groups, was first recognized by Carter in 1971, and informally named the 'Toodoggone Volcanics'. These comprise a subaerial pyroclastic assemblage of predominantly andesitic composition (Panteleyev, 1983), which unconformably overlies, or is in fault contact with, older rocks. Toodoggone Volcanic rocks are contained in a 100-by-25 kilometer, northwest-trending belt, extending from Thutade Lake in the south to the Stikine River in the north. Mineral claims owned by Energex straddle the Toodoggone Volcanic Belt.

The Toodoggone rocks have been subdivided into eight units/formations (Panteleyev, 1982; Diakow, 1983) consisting of interlayered lava flows, ash flows and lapilli and crystal tuffs, with subvolcanic equivalents and associated volcaniclastic and epiclastic rocks. Radiometric ages indicate Toodoggone Volcanic rocks were deposited over a 20-million-year span, beginning in earliest Jurassic (Panteleyev, 1983). Regional geology as mapped by Diakow, Panteleyev and Schroeter (1985) is illustrated in Figure 3.

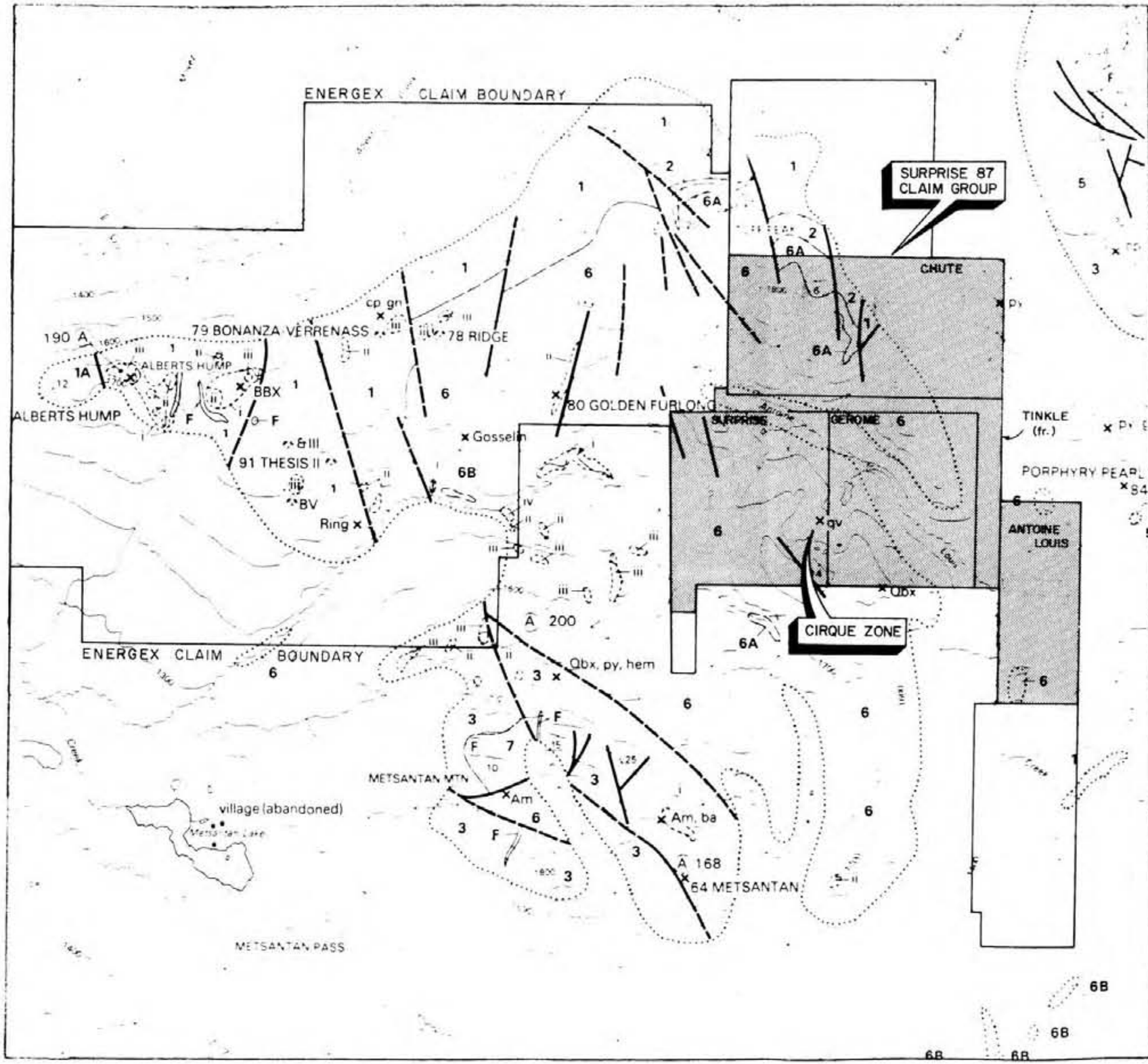
Toodoggone Volcanics and older layered rocks are cut by Omineca granitic intrusives of Early to Middle Jurassic age and by subvolcanic intrusions related to Toodoggone volcanism.

Clastic sedimentary rocks of the Cretaceous-Tertiary Sustut Group overlie older layered rocks near the Stikine River and partly cover the southwestern exposed margin of the Toodoggone Volcanic Belt.

Structurally controlled, northwest-trending lineaments believed responsible for the channelling of ore-bearing fluids can be traced for many kilometers by Landsat and air photo linears connecting many of the area's most significant precious metal deposits (Baker, Lawyers, Moosehorn Canyon, Metsantan, Bonanza, Golden Lion).

LOCAL GEOLOGY AND MINERALIZATION

The Surprise Claim Group is underlain by Toodoggone Volcanics of the Tuff Peak Formation (see Figure 3). These have been sub-divided into flows (Unit 6) and volcaniclastics (Unit 6A), which are generally conformable and dip gently to the southwest.



LEGEND

7

6

6A

6B

LAYERED METSANTAN QUARTZOSE ANDESITE

3 GREEN TO GREY QUARTZOSE PYROXENE (BIOTITE HORNBLENDE) PLAGIOCLASE PORPHYRY FLOWS AND TUFFS. QUARTZ CONTENT RANGES FROM NEAR ZERO TO ABOUT 5 PER CENT. IN THE NORTH FLOWS PREDOMINATE WITH LOCAL FLOW BRECCIA, LAPILLI TUFF AND RARE WELDED TUFF UNITS. TOWARD THE SOUTH ASH FLOWS ARE COMMON, INCLUDING RARE SURGE DEPOSITS. THE UNIT CONTAINS EXTENSIVE ZONES OF EPIDOTIZED, PYRITIC ROCK WITH CHARACTERISTIC SALMON PINK AND ORANGE PLAGIOCLASE CRYSTALS.

MONEZ CREEK VOLCANICLASTICS

2 CONGLOMERATE WITH SOME GRANITIC CLASTS, GRADED, CROSS-BEDDED GREYWACKE, WELL-BEDDED CRYSTAL TUFF, EPICLASTIC SEDIMENTS, LOCAL LAMINATED CALCAREOUS SILT (MARL), RARE THIN LIMESTONE AND CHERT. LOCAL COARSE LANDSLIDE DEBRIS AND LAHAR IN PART OR TOTALLY EQUIVALENT TO UNIT 4.

ADOLOGATCHO CREEK FORMATION

1 PALE REDDISH GREY TO DARK RED-BROWN QUARTZOSE BIOTITE HORNBLENDE PHYRIC ASH FLOWS. THE ROCKS CONTAIN MINOR SANIDINE AND RARE AUGITE. WELDING IS WIDESPREAD AND RANGES FROM INCIPIENT TO EUTAXITIC. LOCAL ORANGE TO BROWN PHYROPHYRIC CLASTS ARE COMMON. INCLUDES LAPILLI TUFF AND BRECCIA UNITS AS WELL AS MINOR LAYERED GROUND SURGE DEPOSITS.

0 1 2 3 4 5 KILOMETRES

Scale 1:50,000

energex MINERALS LTD.

METSANTAN AREA
REGIONAL GEOLOGY
AL PROPERTY

After Diakow, Pantaleyev and Schroeter (1985)

Scale 1:50,000 (Reduce 1:100,000 —)

Date Jan 1987
Revised March 88

NTS 94E/6W

FIG. 3

Unit 6 comprises purple and brown feldspar-biotite-hornblende porphyry flows. The flows are massive and generally fresh in appearance. Hematitic flow-top breccias are rare.

Unit 6A contains grey to grey/brown crystal tuffs, lapilli tuffs, tuff breccias and rare welded tuffs. They are andesitic in composition, generally contain feldspar, biotite and hornblende phenocrysts and appear comagmatic with the Unit 6 flows.

A large, roughly circular alteration zone extends from the eastern half of the Surprise Claim eastward onto the Gerome Claim. Three alteration types have been mapped over an area 2,100 meters in diameter forming a roughly concentric pattern. These alteration types are:

1. Propylitic: Contains up to 10% epidote in matrix along with minor chlorite and rare specularite. Phenocrysts are little altered and primary textures are preserved. Propylitic alteration covers the majority of the altered area.

2. Chloritic: Contains remnant pink feldspar phenocrysts in a medium-grained, green to brown, chloritic matrix with minor magnetite. Epidote is absent. Chloritic alteration is confined to a 400 meter x 600 meter area along the southern boundary of the altered region.

3. Potassic: Contains remnant pink feldspar phenocrysts in a pink Kspar-quartz matrix with 1% fine-grained disseminated pyrite and cut by numerous vuggy quartz veinlets. Intense fracturing accompanies the potassic alteration and influences the orientation and extent of the potassic alteration zones.

Two zones of potassic alteration (collectively termed the 'Cirque Zone') have been mapped within the chloritic alteration. One trends 110° for at least 300 meters with exposed widths up to 25 meters. Alteration intensity increases with fracturing, which is oriented predominantly 110/80 N and 010/70 W. The most intense alteration and the highest precious metal values occur along a small scarp, possibly a fault, which forms the northern boundary of the exposed alteration zone. Grab samples collected from this zone in 1986 contained more than 100 ppb Au. One chip sample ran 2,100 ppb Au and 25.2 ppm Ag over 5.0 meters. Another grab sample ran 2,500 ppb Au and 25.3 ppm Ag.

The second potassic alteration zone trends discontinuously at 005° for 85 meters from a point 75 meters north of the first zone but has yielded no significant precious metal values.

AIR PHOTO CONTROL AND SURVEYING

On August 24, 1987, the entire area covered by Energex Claims in the Toodoggone (Al, Moose and JD properties) was air photographed in colour at a scale of 1:20,000. Photo targets were laid out prior to the photography and later accurately surveyed using a sophisticated infrared electronic distance meter and transit. With the survey data known for specific targeted locations on the air photograph, accurate digital mapping at a scale of 1:2,000 (two meter contour intervals) was accomplished and tied into the Energex Al Property grid control system (established by Kidd Creek in the early 1980's).

As required, digital maps for specific areas within the Energex claim holdings, can be obtained from the Orthoshop who have compiled all the field survey notes for the entire area. Digital maps for the Al property have been produced and are available for work on most of the Surprise 87 group. Portions of these maps were used as the base for plotting the geochemical results found in Figures 4A and 4B.

GEOCHEMISTRY

A total of 233 soil geochemical samples were collected on a grid with cross lines spaced 100 meters apart and with samples collected at 50 meter spacings along cross lines. The collecting and analyses of 161 samples is included for assessment credit in this report. All results are reported on Figures 4A and 4B, located in the pocket of this report.

The baseline for the grid trends at about 120° and crosses adjacent corners of the Surprise, Gerome and Tinkle (Fr) Claims. The northwesternmost picket on the baseline was designated 10,000 E, 10,000 N. All baseline stations are designated 10,000 N. Cross lines with bearings at 90° to the baseline run in both directions from the surveyed baseline. Limited time during 1987 permitted only the northwesternmost portion of the grid to be sampled.

Where possible, samples were collected in gussetted Kraft bags from the 'B Horizon'. All samples were analyzed for copper, lead, zinc, silver and gold by ICP methods (refer to Appendix 2 in the back of this report). Appendix 3 lists the results for each sample collected and analyzed.

So far it has been determined that the northwestern portion of the Surprise Grid carries no significantly anomalous values. The highest value reported for gold was a single sample with 45 ppb collected from Station L10900E 10300N. Silver values ranged up to 5.4 ppm but are also considered to be low. Base metals are at or below threshold values which are around 40 ppm for copper, 25.1 ppm for lead and 126.5 ppm for zinc.

CONCLUSIONS AND RECOMMENDATIONS

The northwesternmost portion of the grid on the Surprise 87 Group of claims covers an area where, in outcrop, rock alteration and evidence of epithermal occurrences are minimal. Despite the large amount of overburden in the area, low base and precious metal geochemical values confirm that this area has a low probability of hosting a precious metal deposit.

Southern cross lines at the southeastern end of the grid, which have not yet been sampled, will cross through the Cirque Zone on the Surprise/Gerome claims. Rock alteration patterns and associated precious metal mineralization in this area appears very similar to the Golden Lion Prospect, located some 12 kilometers to the north and to the Porphyry Pearl deposit 4 kilometers to the east.

"The area of mapped alteration on the Surprise and Gerome claims is very large. Limited mapping and sampling carried out in 1986 was not sufficient to discard the possibility of other aurifrous potassic alteration zones within the chloritic and propylitic alteration or peripheral gold-silver veins. In particular, quartz veining noted by Diakow, Panteleyev and Shroeter (1985), 400 meters northeast and a quartz breccia 1,200 meters southeast of the Cirque Zone, must be investigated." (Awmack, 1987).

It is recommended that the soil geochemical program, began in 1987 on the Surprise 87 Group, be completed in future. It would also be worthwhile to trench extensions of structures and any areas found to be geochemically anomalous in base and precious metals. Recommendations made by H. Awmack in his Assessment Report, dated February 1987, on the Surprise claim also still hold in effect.

BIBLIOGRAPHY

Awmack, H.J. (1987): Report on Geological Mapping of the Surprise Mineral Claim, Toodoggone River Area, British Columbia, Liard Mining Division; Assessment Report.

Carter, N. (1972): Toodoggone River Area and Chappelle, Geology; Exploration and Mining in British Columbia 1971, p. 63-70.

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Eccles, L., Sivertz, G. and Price, B.J. (1985): 1985 Final Report, Toodoggone Al Project; private report for Energex Minerals Ltd.

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Sutherland, I.G. (1982): Report on Geology, Geochemistry and Diamond Drilling on the Bull, Chute, Surprise and Gerome Claims; British Columbia Ministry of Energy, Mines and Petroleum Resources, Assessment Report 10708.

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APPENDIX 1

EXPENDITURES

STATEMENT OF EXPENDITURES - STURDEE/GEROME

FIELD PERSONNEL

NAME	MAN DAYS	RATE	TOTAL
Bogart Cross (sampler)	August 16, 17, 18, 19, 20	$ 90	$ 450
Andrew Davis (sampler)	August 19	90	90
Denise Lockie (sampler)	August 16, 20	96	192
Jeff Stevens	August 16, 20, 25, 26	180	720
			1,452

Note: Any days worked prior to and including August 13, 1987 are not included in this Statement.

FOOD AND ACCOMMODATION

12 man days at $75/man day	900

HELICOPTER SUPPORT

Northern Mountain Helicopters:

Date:	August 16; Invoice No. 17941	.7 hours	@ $550/hr.	385
	August 25; Invoice No. 19768	.8 hours	@ $550/hr.	440
	August 26; Invoice No. 19773	.8 hours	@ $550/hr.	440

AIRPHOTO/TOPOGRAPHIC SURVEY

Air Photography - Orthoshop:	
August 24; Invoice No. 060183	
Apportioned cost to Surprise 87 Group @ $11/unit	
64 units x $11	704
Air Photo Control Digital Mapping Al Property - Orthoshop:	
October 20; Invoice No. 5027	
Apportioned cost to Surprise 87 Group @ $105.64/unit	
64 units x $105.64	6,761
Computation Field Notes, Al Property - Orthoshop	
Invoice No. 000208; 20% x $1,210	145

STATEMENT OF EXPENDITURES - STURDEE/GEROME (CONT'D)

	TOTAL
LABORATORY ANALYSIS	
Van Geocem Labs: September 30; Invoice 871146 NA; 161 soil samples, analyzed for Cu, Pb, Zn, Ag, Au @ $12.85	$ 2,069
FREIGHT	
161 samples = 40 kg x $2.50	100
REPORT PREPARATION	
L. K. Eccles (3 days @ $200/day)	600
Drafting and materials	500
	$15,948

APPENDIX 2

ANALYTICAL PROCEDURES

VGC

VANGEOCHEM LAB LIMITED

MAIN OFFICE
1521 PEMBERTON AVE
NORTH VANCOUVER, B.C. V7P 2S3
(604) 986-5211 TELEX 04-352578

BRANCH OFFICE
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(604) 251-5656

January 27th, 1987

TO: ENERGEX MINERALS LIMITED
703 - 850 West Hastings St.
Vancouver, B.C. V6C 1E1

FROM: Vangeochem Lab Limited
1521 Pemberton Avenue
North Vancouver, British Columbia
V7P 2S3

SUBJECT: Analytical procedure used to determine Aqua Regia soluble gold in geochemical samples

1. Method of Sample Preparation

(a) Geochemical soil, silt or rock samples were received at the laboratory in high wet-strength, 4" x 6", Kraft paper bags. Rock samples would be received in poly ore bags.

(b) Dried soil and silt samples were sifted by hand using an 8" diameter, 80-mesh, stainless steel sieve. The plus 80-mesh fraction was rejected. The minus 80-mesh fraction was transferred into a new bag for subsequent analyses.

(c) Dried rock samples were crushed using a jaw crusher and pulverized to 100-mesh or finer by using a disc mill. The pulverized samples were then put in a new bag for subsequent analyses.

2. Method of Digestion

(a) 5.00 to 10.00 grams of the minus 80-mesh portion of the samples were used. Samples were weighed out using an electronic micro-balance and deposited into beakers.

(b) Using a 20 ml solution of Aqua Regia (3:1 solution of HCl to HNO3), each sample was vigorously digested over a hot plate.

(c) The digested samples were filtered and the washed pulps were discarded. The filtrate was then reduced in volume to about 5 ml.

VGC

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(d) Au complex ions were then extracted into a di-isobutyl ketone and thiourea medium (Anion exchange liquids "Aliquot 336").

(e) Separatory funnels were used to separate the organic layer.

3. Method of Detection

The detection of Au was performed with a Techtron model AA5 Atomic Absorption Spectrophotometer with a gold hollow cathode lamp. The results were read out onto a strip chart recorder. A hydrogen lamp was used to correct any background interferences. The gold values, in parts per billion, were calculated by comparing them with a set of gold standards.

4. Analysts

The analyses were supervised or determined by Mr. Conway Chun or Mr. Eddie Tang and his laboratory staff.

Eddie Tang
VANGEOCHEM LAB LIMITED

VGC

VANGEOCHEM LAB LIMITED

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January 27th, 1987

TO: ENERGEX MINERALS LIMITED
703 - 850 West Hastings St.
Vancouver, B.C. V6C 1E1

FROM: Vangeochem Lab Limited
1521 Pemberton Avenue
North Vancouver, British Columbia
V7P 2S3

SUBJECT: Analytical procedure used to determine hot acid soluble for Cu, Pb, Zn and Ag in geochemical silt and soil samples.

1. Method of Sample Preparation

(a) Geochemical soil, silt or rock samples were received at the laboratory in high wet-strength, 4" x 6", Kraft paper bags. Rock samples would be received in poly ore bags.

(b) Dried soil and silt samples were sifted by hand using an 8" diameter, 80-mesh, stainless steel sieve. The plus 80-mesh fraction was rejected. The minus 80-mesh fraction was transferred into a new bag for subsequent analyses.

(c) Dried rock samples were crushed using a jaw crusher and pulverized to 100-mesh or finer by using a disc mill. The pulverized samples were then put in a new bag for subsequent analyses.

2. Method of Digestion

(a) 0.50 gram portions of the minus 80-mesh samples were used. Samples were weighed out using an electronic balance.

(b) Samples were heated in testtubes, on a sand bath in a Nitric and Perchloric concentrated acid solution (15% and 85% by volume respectively).

(c) A minimum of 5000 ppm solution of AlCO3 was added to each sample when Mo analyses were required. Digested samples were diluted with demineralized water to a

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fixed volume. The samples were agitated to obtain a homogeneous solution.

Method of Analyses

Cu, Pb, Zn, and Ag concentrations were determined using a Techtron Atomic Absorption Spectrophotometer Model AA5 with their respective hollow cathode lamps. The digested samples were directly aspirated into an air and acetylene mixture flame. The results, in parts per million, were calculated by comparing them to a set of standards used to calibrate the atomic absorption units.

Background Correction

A hydrogen continuum lamp was used to correct the Ag background interferences.

Analysts

The analyses were supervised or determined by either Mr. Conway Chun or Mr. Eddie Tang, and, the laboratory staff.

Eddie Tang
VANGEOCHEM LAB LIMITED

APPENDIX 3

ANALYSIS CERTIFICATES

VANGEOCHEM LAB LIMITED

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BRANCH OFFICE
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GEOCHEMICAL ANALYTICAL REPORT

CLIENT: ENERGEX MINERALS LTD.
ADDRESS: PO BOX 12052 2500-555 W.
: Hastings St Vanc, B.C.
: V6B 4N5

DATE: Sept 10 1987
REPORT#: 871003 GA
JOB#: 871003

PROJECT#: TOODOGGONE/SURPRISE CLAIM
INVOICE#: 871003 NA
SAMPLES ARRIVED: Aug 10 1987
TOTAL SAMPLES: 421
REPORT COMPLETED: Sept 10 1987
SAMPLE TYPE: 421 SOIL
ANALYSED FOR: Cu Pb Zn Ag Au
REJECTS: DISCARDED

SAMPLES FROM: JOYCE WARREN
COPY SENT TO: ENERGEX MINERALS LTD.

PREPARED FOR: MR. A. D. BIRKLAND

ANALYSED BY: VGC Staff

SIGNED:

GENERAL REMARK: None

VANGEOCHEM LAB LIMITED

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REPORT NUMBER: 871003 GA JOB NUMBER: 871003 ENERGEX MINERALS LTD.

SAMPLE #	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb
L10000E 9050N	26	17	92	.3	5
L10000E 9150N	12	10	58	.2	5
L10000E 9200N	14	18	68	.2	5
L10000E 9250N	20	22	76	.3	nd
L10000E 9300N	28	24	86	.3	nd
L10000E 9350N	22	25	74	.4	10
L10000E 9400N	12	21	52	.3	nd
L10000E 9450N	14	21	68	.3	nd
L10000E 9500N	28	25	74	.6	nd
L10000E 9550N	30	29	70	.7	nd
L10000E 9600N	24	28	66	.7	nd
L10000E 9650N	34	47	88	.8	nd
L10000E 9700N	38	36	88	.9	nd
L10000E 9750N	14	28	66	.6	nd
L10000E 9800N	14	24	62	.7	10
L10000E 9850N	12	25	52	.7	nd
L10000E 9900N	14	27	64	.7	nd
L10000E 9950N	16	31	90	.6	10
L10000E 10000N	16	35	102	.6	10
L10100E 9050N	12	34	68	.6	5
L10100E 9100N	20	22	96	.6	nd
L10100E 9150N	12	19	34	.8	nd
L10100E 9200N	8	24	32	.9	nd
L10100E 9250N	8	18	30	.9	5
L10100E 9300N	10	23	56	.9	nd
L10100E 9400N	8	17	22	.9	nd
L10100E 9450N	6	17	12	.9	10
L10100E 9500N	6	11	12	.9	nd
L10100E 9550N	6	20	14	.9	nd
L10100E 9600N	8	20	30	.8	10
L10100E 9700N	6	17	14	.9	nd
L10100E 9750N	8	19	24	.9	nd
L10100E 9800N	6	17	16	.9	nd
L10100E 9850N	4	14	2	.9	nd
L10100E 9900N	10	16	14	.9	5
L10100E 9950N	6	16	6	1.1	nd
L10100E 10000N	6	13	8	.9	nd
L10200E 9050N	14	22	28	.9	nd
L10200E 9100N	10	14	22	.9	10
DETECTION LIMIT	1	2	1	0.1	5

nd = none detected -- = not analysed is = insufficient sample

VANGEOCHEM LAB LIMITED

MAIN OFFICE
1521 PEMBERTON AVE.
NORTH VANCOUVER, B.C. V7P 2S3
(604) 986-5211 TELEX: 04-352578

BRANCH OFFICE
1630 PANDORA ST.
VANCOUVER, B.C. V5L 1L6
(604) 251-5656

REPORT NUMBER: 871003 GA JOB NUMBER: 871003 ENERGEX MINERALS LTD.

SAMPLE #		Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb
L10200E	9150N	9	nd	40	.2	5
L10200E	9200N	9	4	49	nd	nd
L10200E	9250N	24	9	85	nd	10
L10200E	9450N	6	10	42	nd	nd
L10200E	9500N	6	11	45	nd	5
L10200E	9550N	13	9	100	1.2	nd
L10200E	9600N	15	16	73	.2	nd
L10200E	9700N	10	6	94	nd	5
L10200E	9750N	13	7	73	nd	nd
L10200E	9800N	9	9	64	nd	nd
L10200E	9850N	16	15	106	nd	nd
L10200E	9900N	10	13	150	nd	nd
L10200E	9950N	9	15	78	.7	30
L10200E	10000N	6	5	60	nd	nd
L10300E	9050N	16	10	66	nd	nd
L10300E	9100N	10	13	54	nd	5
L10300E	9150N	10	4	67	nd	nd
L10300E	9200N	15	16	67	nd	nd
L10300E	9250N	9	2	58	nd	10
L10300E	9300N	13	14	76	.2	10
L10300E	9350N	9	10	63	.4	5
L10300E	9400N	6	13	36	nd	5
L10300E	9450N	9	16	51	.4	nd
L10300E	9500N	4	8	30	.2	nd
L10300E	9550N	4	9	31	.2	nd
L10300E	9600N	6	9	33	.2	nd
L10300E	9700N	10	17	48	.2	nd
L10300E	9750N	10	12	54	.2	nd
L10300E	9800N	12	10	64	.2	nd
L10300E	9850N	10	22	75	.7	10
L10300E	9900N	12	16	73	.7	10
L10300E	9950N	7	19	63	.2	10
L10300E	10000N	15	18	64	.2	nd
~~25750 BL~~		~~15~~	~~26~~	~~94~~	~~.8~~	~~5~~
~~25800 BL~~		~~18~~	~~15~~	~~84~~	~~.8~~	~~15~~
~~25850 BL~~		~~19~~	~~18~~	~~93~~	~~.7~~	~~nd~~
~~25900 BL~~		~~16~~	~~17~~	~~102~~	~~.7~~	~~10~~
~~25950 BL~~		~~15~~	~~12~~	~~64~~	~~.7~~	~~nd~~
~~26000 BL~~		~~9~~	~~17~~	~~52~~	~~.8~~	~~nd~~
DETECTION LIMIT		1	2	1	0.1	5

nd = none detected -- = not analysed is = insufficient sample

VGC

VANGEOCHEM LAB LIMITED

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BRANCH OFFICE
1630 PANDORA ST.
VANCOUVER, B.C. V5L 1L6
(604) 251-5656

GEOCHEMICAL ANALYTICAL REPORT

CLIENT: ENERGEX MINERALS LTD.
ADDRESS: PO BOX 12052 2500-555 W.
: Hastings St Vanc, B.C.
: V6B 4N5

DATE: Sept 30 1987
REPORT#: 871146 GA
JOB#: 871146

PROJECT#: Toodoggone Sur. Cl.
SAMPLES ARRIVED: Aug 24 1987
REPORT COMPLETED: Sept 30 1987
ANALYSED FOR: Cu Pb Zn Ag Au ICP

INVOICE#: 871146 NA
TOTAL SAMPLES: 161
SAMPLE TYPE: 161 Soil
REJECTS: DISCARDED

SAMPLES FROM: ENERGEX MINERALS LTD.
COPY SENT TO: ENERGEX MINERALS LTD.

PREPARED FOR: Mr. A. O. Birkeland

ANALYSED BY: VGC Staff

SIGNED: _____

GENERAL REMARK: None

VANGEOCHEM LAB LIMITED

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(604) 986-5211 TELEX: 04-352578

BRANCH OFFICE
1630 PANDORA ST.
VANCOUVER, B.C. V5L 1L6
(604) 251-5656

REPORT NUMBER: 871146 GA JOB NUMBER: 871146 ENERGEX MINERALS LTD.

SAMPLE #	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb
L10000E 10050N	10	10	54	.9	15
L10000E 10100N	3	19	36	.3	nd
L10000E 10150N	9	7	45	.3	20
L10000E 10200N	10	nd	89	.5	5
L10000E 10300N	3	13	74	.3	10
L10000E 10350N	10	9	63	.3	5
L10000E 10400N	13	3	45	.6	5
L10000E 10450N	9	5	67	.3	nd
L10000E 10500N	5	16	48	.5	10
L10000E 10550N	6	20	46	.5	10
L10000E 10600N	7	11	42	.5	10
L10000E 10650N	7	6	53	.3	10
L10000E 10750N	10	10	54	1.1	15
L10000E 10850N	3	18	33	.9	nd
L10100E 10050N	7	9	48	.7	10
L10100E 10100N	6	5	53	.5	5
L10100E 10150N	15	nd	97	1.1	5
L10100E 10200N	13	nd	79	.9	15
L10100E 10250N	7	14	52	.5	20
L10100E 10300N	6	15	62	.5	10
L10100E 10350N	6	20	32	.6	10
L10100E 10400N	3	9	42	.5	25
L10100E 10450N	6	14	57	.7	10
L10100E 10500N	10	13	53	1.1	30
L10100E 10550N	9	14	58	.5	5
L10100E 10600N	5	19	45	.7	nd
L10100E 10650N	7	11	58	.7	5
L10100E 10700N	7	14	61	.7	10
L10100E 10750N	7	18	65	.6	nd
L10100E 10800N	10	9	71	.5	10
L10100E 10900N	7	11	55	.5	15
L10100E 10950N	13	13	57	.6	15
L10200E 10750N	6	14	62	.3	nd
L10200E 10800N	7	11	66	.5	nd
L10200E 10850N	13	10	68	.9	15
L10200E 10900N	7	14	54	.6	15
L10200E 10950N	9	11	59	.5	15
L10400E 10000N	5	11	57	.3	5
L10400E 10050N	2	20	40	.1	5
DETECTION LIMIT	1	2	1	0.1	5

nd = none detected -- = not analysed is = insufficient sample

VANGEOCHEM LAB LIMITED

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BRANCH OFFICE
1630 PANDORA ST.
VANCOUVER, B.C. V5L 1L6
(604) 251-5656

SAMPLE #	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb
L10400E 10100N	11	8	33	.2	10
L10400E 10200N	4	8	26	.7	20
L10400E 10250N	11	7	58	.7	10
L10400E 10300N	5	12	29	.6	25
L10400E 10350N	7	17	37	.9	10
L10400E 10400N	6	7	49	.7	nd
L10400E 10500N	7	9	46	.9	5
L10400E 10550N	3	16	22	.9	nd
L10400E 10600N	6	nd	41	.9	15
L10400E 10650N	3	9	24	.5	nd
L10400E 10700N	7	9	38	.7	nd
L10400E 10750N	5	12	37	1.1	5
L10400E 10800N	5	5	40	.6	5
L10400E 10850N	8	nd	54	.9	nd
L10400E 10900N	9	6	55	.9	5
L10400E 10950N	6	14	49	.9	nd
L10500E 10000N	7	12	47	1.1	5
L10500E 10050N	5	8	60	.9	nd
L10500E 10100N	9	3	59	1.1	10
L10500E 10150N	7	11	38	.9	5
L10500E 10200N	47	nd	72	3.4	nd
L10500E 10250N	4	13	25	1.1	15
L10500E 10350N	8	11	46	.7	10
L10500E 10400N	6	11	52	.9	nd
L10500E 10450N	3	12	23	.9	nd
L10500E 10500N	5	11	41	.7	25
L10500E 10550N	11	7	61	.7	5
L10500E 10600N	15	9	69	.9	10
L10500E 10650N	6	9	34	.7	5
L10500E 10700N	2	8	20	.9	10
L10500E 10750N	6	10	38	.9	10
L10500E 10800N	3	11	22	.7	5
L10500E 10850N	4	10	35	.7	nd
L10500E 10900N	10	8	40	.7	20
L10500E 10950N	4	10	32	.7	nd
L10600E 10000N	6	23	44	1.1	nd
L10600E 10050N	5	7	51	.6	nd
L10600E 10100N	36	nd	93	5.4	10
L10600E 10150N	4	14	32	1.1	20
DETECTION LIMIT	1	2	1	0.1	5

nd = none detected -- = not analysed is = insufficient sample

VANGEOCHEM LAB LIMITED

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NORTH VANCOUVER, B.C. V7P 2S3
(604) 986-5211 TELEX: 04-352578

BRANCH OFFICE
1630 PANDORA ST.
VANCOUVER, B.C. V5L 1L6
(604) 251-5656

REPORT NUMBER: 871146 GA JOB NUMBER: 871146 ENERGEX MINERALS LTD.

SAMPLE #	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb
L10600E 10200N	31	nd	104	1.1	5
L10600E 10250N	11	15	65	.8	nd
L10600E 10300N	nd	8	28	.6	20
L10600E 10350N	8	8	53	.7	20
L10600E 10400N	3	10	33	.8	10
L10600E 10500N	2	7	22	.6	5
L10600E 10550N	4	7	21	.4	5
L10600E 10600N	2	6	24	.6	10
L10600E 10650N	5	8	35	.6	15
L10600E 10700N	5	7	38	.5	10
L10600E 10750N	5	nd	40	.6	10
L10700E 10000N	3	12	49	.6	5
L10700E 10050N	7	7	68	.6	5
L10700E 10100N	14	nd	49	2.6	5
L10700E 10150N	6	11	54	[illegible]	[illegible]
L10700E 10200N	9	nd	53	.7	10
L10700E 10250N	4	12	28	1.1	10
L10700E 10300N	12	nd	65	.5	10
L10700E 10350N	5	7	38	.5	nd
L10700E 10400N	4	9	26	.5	nd
L10700E 10450N	8	8	30	.8	5
L10700E 10500N	3	8	24	.3	5
L10700E 10550N	4	7	41	.6	15
L10700E 10600N	3	7	31	.7	10
L10700E 10650N	4	5	29	.5	nd
L10800E 10000N	4	nd	43	.5	5
L10800E 10050N	6	nd	54	.5	20
L10800E 10100N	3	4	45	.5	20
L10800E 10200N	9	3	59	.9	10
L10800E 10250N	5	3	47	.7	15
L10800E 10300N	5	9	45	.6	30
L10800E 10350N	4	10	32	.6	15
L10800E 10400N	2	5	18	.7	15
L10800E 10450N	2	7	26	.5	10
L10800E 10500N	8	3	46	.6	15
L10800E 10550N	5	6	28	.5	nd
L10800E 10600N	5	6	37	.6	10
L10800E 10650N	7	nd	54	.6	nd
L10900E 10000N	7	nd	53	.5	10
DETECTION LIMIT	1	2	1	0.1	5

nd = none detected -- = not analysed is = insufficient sample

VANGEOCHEM LAB LIMITED

MAIN OFFICE
1521 PEMBERTON AVE.
NORTH VANCOUVER, B.C. V7P 2S3
(604) 986-5211 TELEX 04-352578

BRANCH OFFICE
1630 PANDORA ST.
VANCOUVER, B.C. V5L 1L6
(604) 251-5656

SAMPLE #	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb
L10900E 10050N	5	nd	46	.6	nd
L10900E 10100N	5	3	46	.5	5
L10900E 10150N	8	5	57	.8	nd
L10900E 10200N	8	7	55	.8	nd
L10900E 10250N	7	9	35	.8	nd
L10900E 10300N	3	10	27	.6	45
L10900E 10400N	5	8	42	.8	25
L10900E 10450N	6	10	47	1.1	15
L10900E 10500N	6	12	35	.6	10
L11000E 9000N	5	6	40	.5	nd
L11000E 9050N	4	13	30	.5	10
L11000E 9100N	3	13	22	.5	5
L11000E 9150N	5	6	39	.7	5
L11000E 9250N	5	5	32	.8	5
L11000E 9300N	7	nd	48	.8	15
L11000E 9350N	5	7	36	.7	10
L11000E 9400N	8	nd	54	.6	20
L11000E 9450N	7	5	56	.4	5
L11000E 9500N	6	4	43	.8	10
L11000E 9550N	5	4	42	.7	10
L11000E 9600N	8	12	40	.7	nd
L11000E 9700N	6	4	44	.7	5
L11000E 9750N	4	5	57	.7	10
L11000E 9800N	6	9	40	.7	10
L11000E 9850N	2	8	20	1.1	nd
L11000E 9900N	6	7	61	.5	10
L11000E 10000N	8	nd	77	.5	5
L11000E 10200N	7	8	48	.5	15
L11100E 9000N	6	10	41	.7	5
L11100E 9100N	7	8	54	.8	10
L11100E 9150N	6	10	42	.8	20
L11100E 9200N	8	6	53	.8	5
L11100E 9250N	8	8	56	.8	5
L11100E 9300N	7	11	45	.9	nd
L11100E 9450N	6	nd	52	.5	30
L11100E 9500N	6	4	43	.4	5
L11100E 9600N	7	8	40	.6	15
L11100E 9650N	9	12	66	.8	10
L11100E 9700N	5	9	48	.5	5
DETECTION LIMIT	1	2	1	0.1	5

nd = none detected -- = not analysed is = insufficient sample

VANGEOCHEM LAB LIMITED

MAIN OFFICE
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NORTH VANCOUVER, B.C. V7P 2S3
(604) 986-5211 TELEX: 04-352578

BRANCH OFFICE
1630 PANDORA ST.
VANCOUVER, B.C. V5L 1L6
(604) 251-5656

REPORT NUMBER: 871146 GA JOB NUMBER: 871146 ENERGEX MINERALS LTD.

SAMPLE #	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Au ppb
L11100E 9750N	5	8	35	1.1	nd
L11100E 9800N	6	4	45	.5	5
L11100E 9850N	5	9	35	.6	5
L11100E 9900N	6	8	41	.5	10
L11100E 10000N	7	nd	50	.7	5
DETECTION LIMIT	1	2	1	0.1	5

nd = none detected -- = not analysed is = insufficient sample

APPENDIX 4

CERTIFICATE OF QUALIFICATIONS

CERTIFICATE

I, Louise Eccles, residing at Port Moody, British Columbia, do hereby declare that:

1. I am a geologist and have practised my profession for fourteen years.

2. I received a Bachelor of Science (Honors) degree in Geology from the University of British Columbia in 1976.

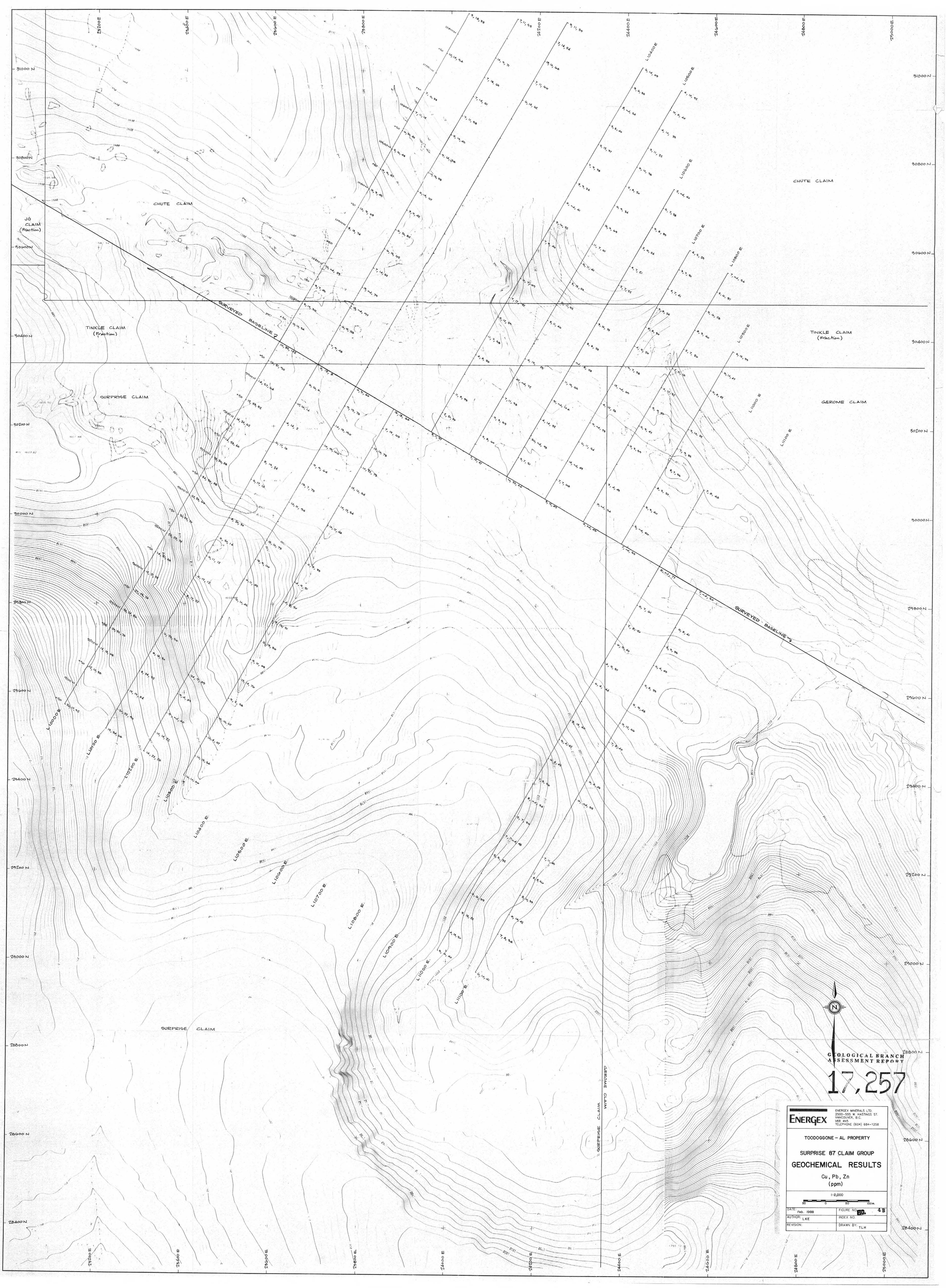
3. I am a Fellow of the Geological Association of Canada.

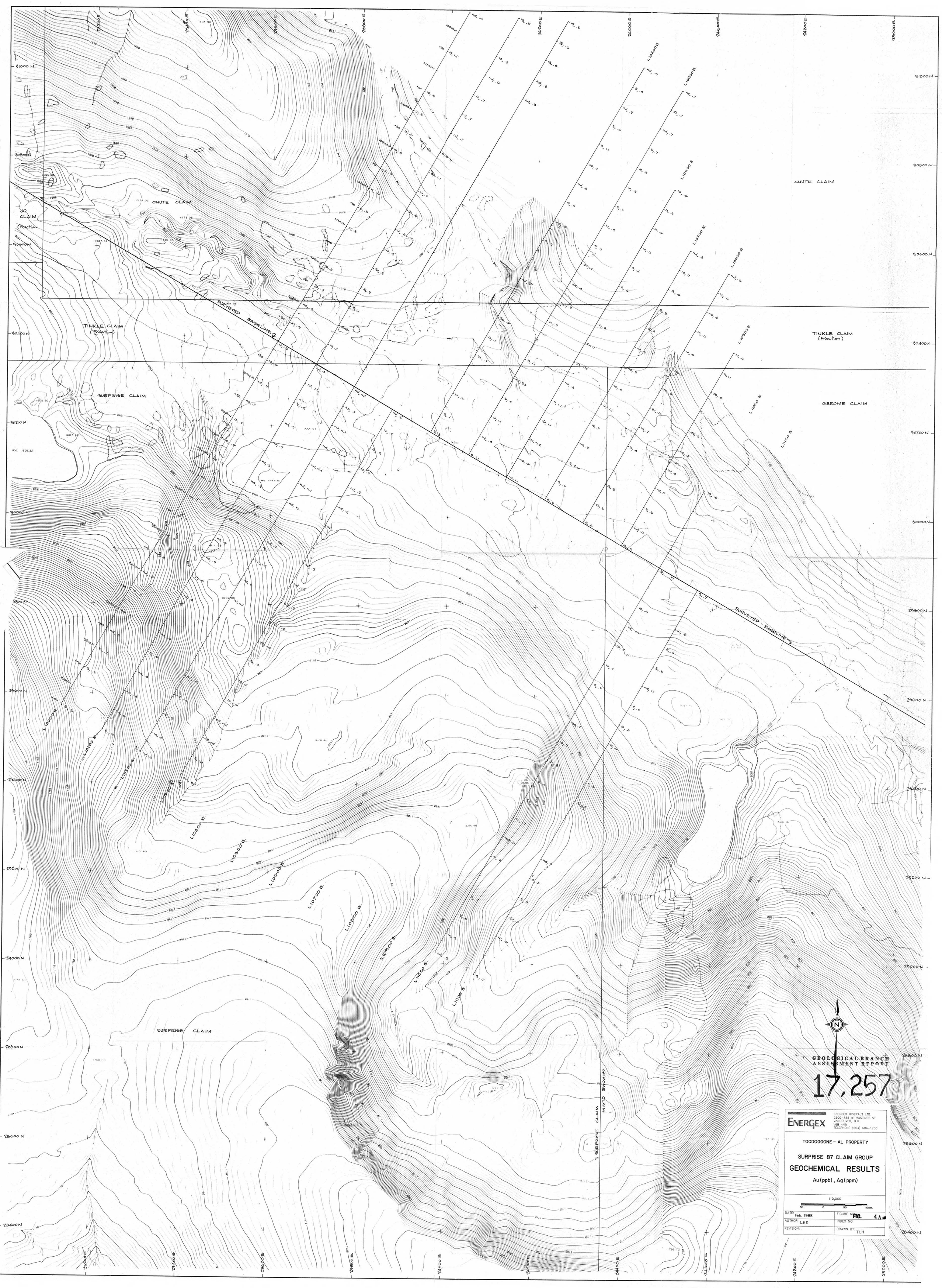
4. I am the author of this report and supervised the described work program.

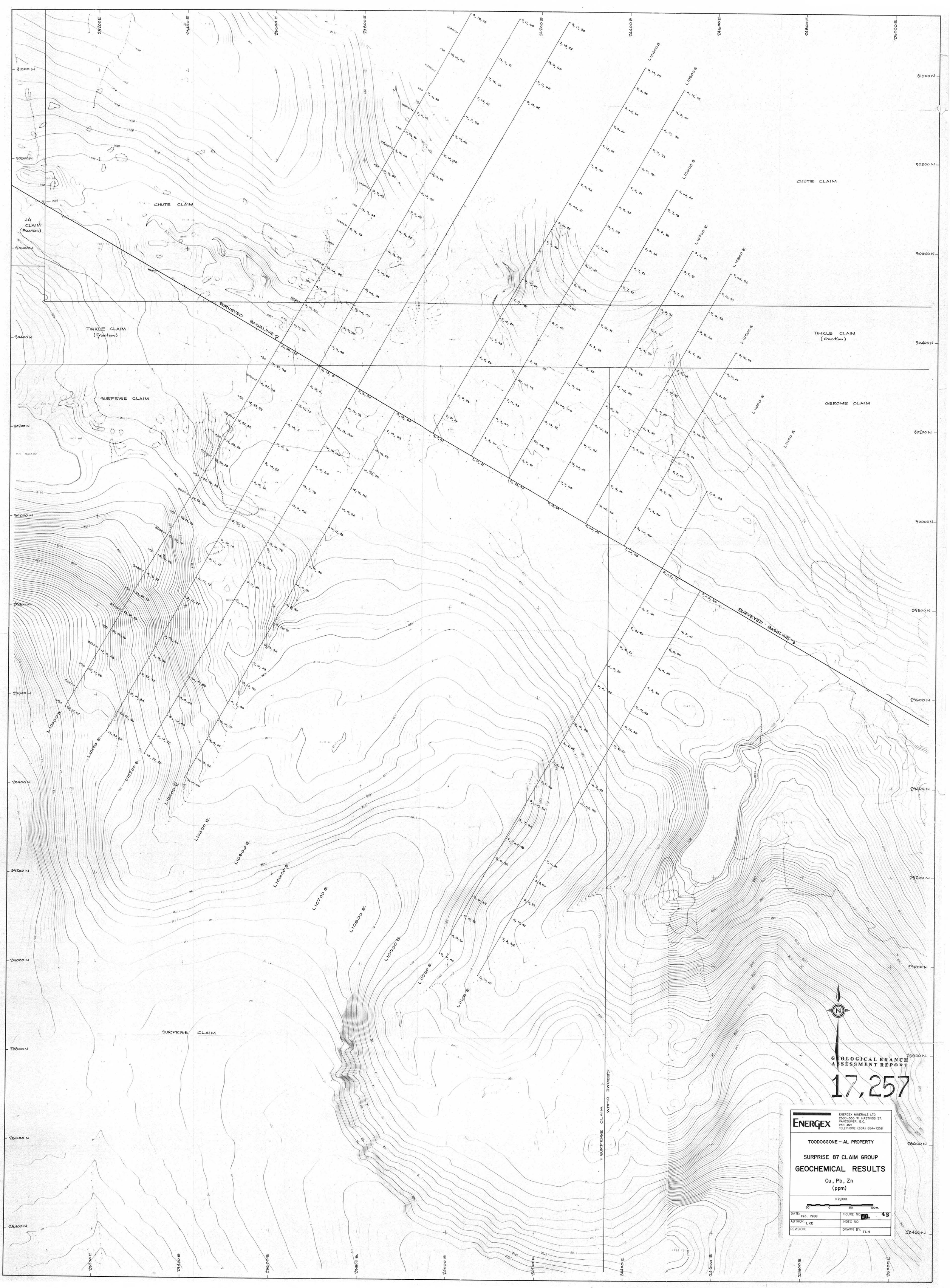
Dated at Vancouver, British Columbia, this 31 day of March, 1988.

L. Eccles

Louise Eccles


CHUTE CLAIM
JO CLAIM (Fraction)
TINKLE CLAIM (Fraction)
SURVEYED BASELINE
SURPRISE CLAIM
GEROME CLAIM
SURVEYED - BASELINE
SURPRISE CLAIM
GEROME CLAIM
N
GEOLOGICAL BRANCH
ASSESSMENT REPORT
17,257
ENERGEX
ENERGEX MINERALS LTD.
2500-555 W. HASTINGS ST.
VANCOUVER, B.C.
V6B 4N5
TELEPHONE (604) 684-1258
TOODOGGONE - AL PROPERTY
SURPRISE 87 CLAIM GROUP
GEOCHEMICAL RESULTS
Cu, Pb, Zn
(ppm)
1:2,000
50 0 50 100m.
DATE: Feb. 1988
FIGURE NO. FIG. 4B
AUTHOR: LKE
INDEX NO.
REVISION:
DRAWN BY: TLH


CHUTE CLAIM
JO CLAIM (Fraction)
TINKLE CLAIM (Fraction)
SURPRISE CLAIM
GEROME CLAIM
SURVEYED BASELINE
GEOLOGICAL BRANCH ASSESSMENT REPORT
17,257
ENERGEX
ENERGEX MINERALS LTD.
2500-555 W. HASTINGS ST.
VANCOUVER, B.C.
V6B 4N5
TELEPHONE (604) 684-1258
TOODOGGONE – AL PROPERTY
SURPRISE 87 CLAIM GROUP
GEOCHEMICAL RESULTS
Au (ppb), Ag (ppm)
1:2,000
50 0 50 100m.
DATE: Feb. 1988
FIGURE NO. FIG. 4A
AUTHOR: LKE
INDEX NO.
REVISION:
DRAWN BY: TLH


CHUTE CLAIM
JO CLAIM (Fraction)
TINKLE CLAIM (Fraction)
SURPRISE CLAIM
GEROME CLAIM
SURVEYED BASELINE
L10000 E
L10100 E
L10200 E
L10300 E
L10400 E
L10500 E
L10600 E
L10700 E
L10800 E
L10900 E
L11000 E
L11100 E
31000 N
30800 N
30600 N
30400 N
30200 N
30000 N
29800 N
29600 N
29400 N
29200 N
29000 N
28800 N
28600 N
28400 N
23200 E
23400 E
23600 E
23800 E
24000 E
24200 E
24400 E
24600 E
24800 E
25000 E
GEOLOGICAL BRANCH
ASSESSMENT REPORT
17,257
ENERGEX
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2500-555 W. HASTINGS ST.
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V6B 4N5
TELEPHONE (604) 684-1258
TOODOGGONE - AL PROPERTY
SURPRISE 87 CLAIM GROUP
GEOCHEMICAL RESULTS
Cu, Pb, Zn
(ppm)
1:2,000
50 0 50 100m.
DATE: Feb. 1988
FIGURE NO. 4B
AUTHOR: LKE
INDEX NO.
REVISION:
DRAWN BY: TLH