GENERGICAL BRANCH 04/85

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CASA GRANDE ENERGY & MINES LTD. 100 - 450 WEST GEORGIA STREET VANCOUVER, B.C.

GEOPHYSICAL AND GEOCHEMICAL REPORT on the REEF MINERAL CLAIM

KAMLOOPS MINING DIVISION

N. Latitude 50° 54'

W. Longitude 120° 18'

NTS 92 1/16

by

NIGEL J. HULME, B.Sc.

STRATO GEOLOGICAL ENGINEERING LTD.

103 - 709 DUNSMUIR STREET

VANCOUVER, B. C. V6C 1M9

March 22, 1984



SUMMAR Y

The Reef mineral claim, consisting of 16 units, is situated astride Jamieson Creek in the Kamloops Mining Division, British Columbia, some 15 kilometers due north of Kamloops, B.C.

A recently completed detail very low frequency electromagnetic and total field magnetic survey over the southeastern portion of the claim has indicated faulted sediments and intrusive igneous bodies to underlie the property.

Soils geochemistry has shown gold, silver, copper, lead, arsenic, and antimony anomalies in association with sedimentary-intrusive contacts and fault zones present on the claim.

Detail soils geochemistry over indicated zones of interest and detail geological mapping of the survey grid area, as well as geological, geochemical, VLF electromagnetic, and total field magnetic work over the remainder of the property is recommended.

Respectfully submitted, Strato Geological Engineering Ltd.

Nigel J. Hulme, B.Sc.

Nigel Bulme

Geologist

March 22, 1984

R. J. Englund, B.Sc. Geophysicist



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INTRODUCTION

Pursuant to a request from the Directors of Casa Grande Energy and Mines Ltd., very low frequency electromagnetic, total field magnetic, and geochemical soil sampling was conducted over a portion of the Reef mineral claim during May, 1983. The claim comprises 16 units located on Jamieson Creek, about 15 kilometers due north of Kamloops, British Columbia.

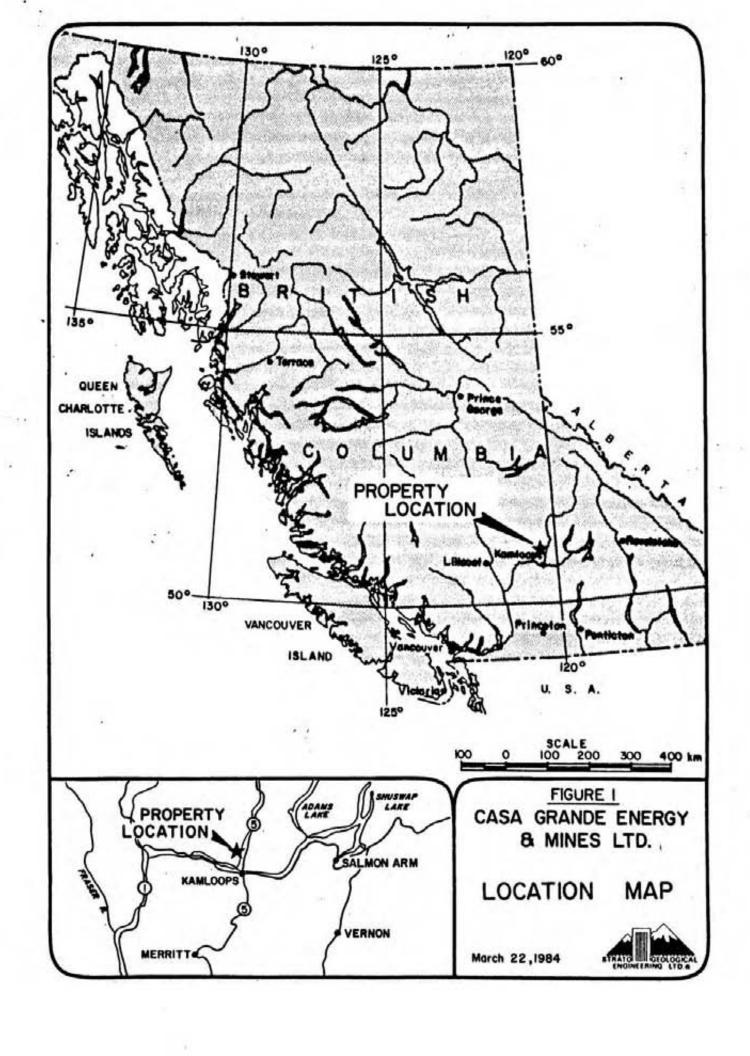
The intent of the survey work was to give greater detail over an area previously surveyed in 1982. The results of detail VLF-EM, magnetic, and soils geochemistry work are presented in this report.

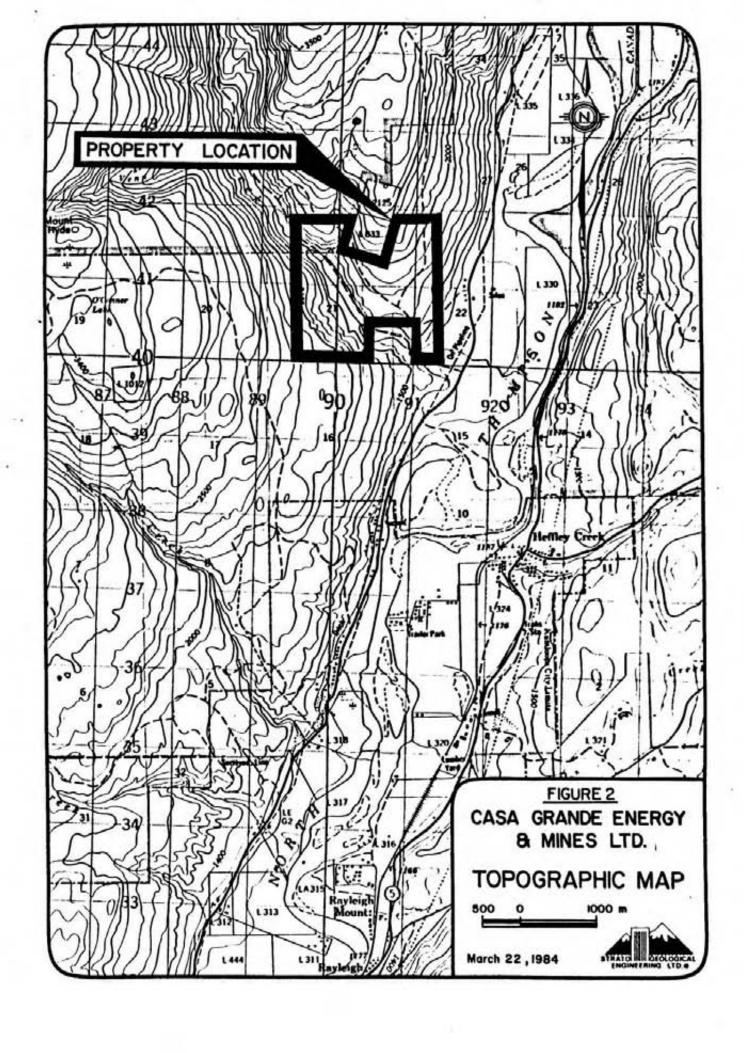
LOCATION, ACCESS, TOPOGRAPHY

The Reef mineral claim is situated some 15 kilometers due north of Kamloops, British Columbia (Figure 1). Access is available by automobile along the west side of the North Thompson River to Jamieson Creek. A road traverses the valley of Jamieson Creek, bisecting the property in a northwesterly direction. The southeast corner of the claim is approximately 500 meters west of the main road (Figure 2).

Topography is fairly steep near the creek, with elevations ranging between 425 and 750 meters above sea level. Drainage from both sides of the property is towards Jamieson Creek, which bisects the claim and flows southeasterly into the North Thompson River.







CLAIMS

The Reef mineral claim is situate in the Kamloops Mining Division, astride Jamieson Creek, about 15 kilometers due north of Kamloops, British Columbia. The claim is recorded as follows:

Name Units Record No.

Reef 16 3415

Assessment work has been filed, this report being a part of the work to maintain the claims in good standing until April 1986.

The claim is shown on British Columbia Ministry of Energy, Mines and Petroleum Resources mineral claim map M 92-I/16W.

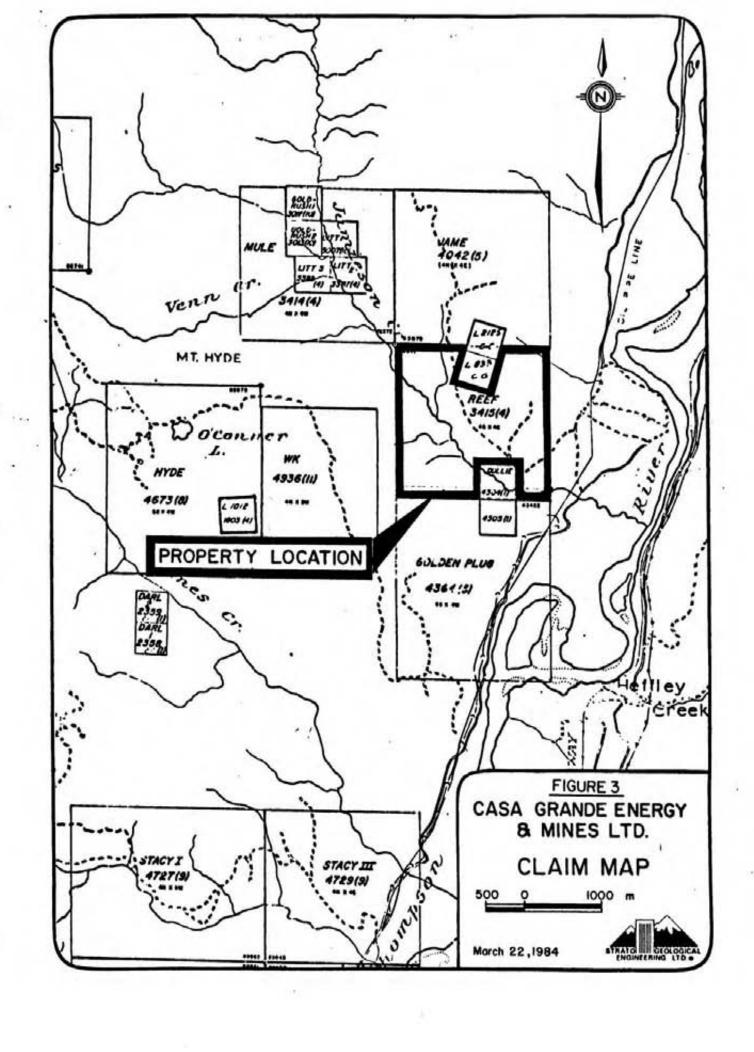
The Reef claim may not contain a full 16 units as it appears to border the Homestake and Molly Gibson crown grant mineral claims in the north and the Dollie mineral claim in the southern property area (Figure 3).

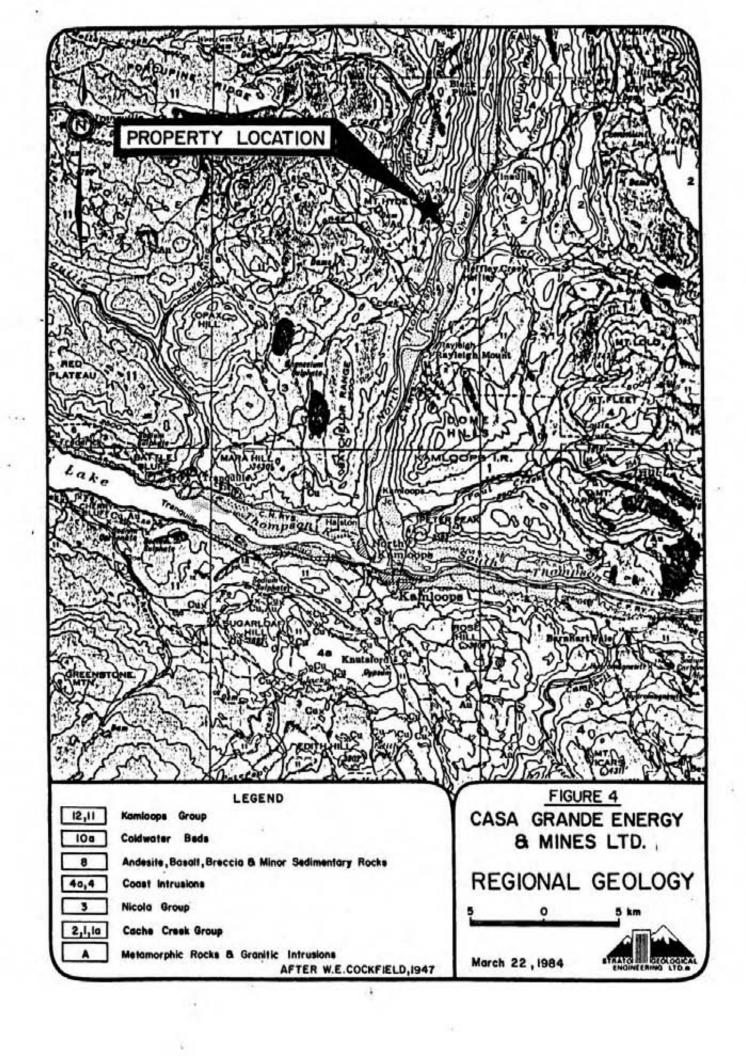
GENERAL GEOLOGY

The Reef claim area is underlain by sediments of the Cache Creek Group consisting of argillite, limestone, and pelitic sediments, and by granites and granodiorites of the Coast Intrusions.

Lineal and planal elements in the rocks trend slightly east of north and dip westward over the claim area. The sediments have been sheared and drag folded and converted to graphitic and sericitic schists. Dykes and small masses of pink granite are also present on the property (Tully, 1981).







HISTORY

A VLF electromagnetic and magnetic survey was completed over the southeastern portion of the Reef claim in February, 1982 and is described in a report dated March 28, 1982 by R. J. Englund, B.Sc.

Two north trending conductive zones with strike lengths of 300 and 400 meters were outlined near the baseline of the survey grid. These conductors were attributed to geological contacts resulting from the intrusion of a granitic body. Another major zone situated east of the conductive zones was interpreted as a possible shear zone or dyke related to the postulated granitic unit.

Several small conductors located within the east-central. survey grid area were attributed to a series of near parallel shear zones and/or dykes. Weak conductors situated west of the postulated granitic unit were interpreted as fractures and/or fault zones.

In his property examination of June 24, 1981, D. W. Tully, P. Eng., noted several test pits of ancient origin which were probably related to the discoveries of mineralization on the Homestake and Molly Gibson crown grant mineral claims. Gold and silver mineralization has been reported in former underground workings on these claims, where quartz veins are present in the granite as a filling of one set of fractures of a conjugate fracture system (Stevenson, 1936). Stevenson also notes that mineralization in the area occurs within quartz veins in irregular lenses in sedimentary rock and in transverse fissures in porphyry dykes. Sulphides present in the veins include small amounts of pyrite, galena, sphalerite, and arsenopyrite.



INSTRUMENTATION AND SURVEY PROCEDURE

A detail survey consisting of VLF electromagnetic, magnetic and geochemical work was conducted over a southeast portion of the Reef claim, utilizing a previously established survey grid. The original line numbering system was used; geophysical work was done at 12.5 meter station intervals and geochemical work was done at generally 50 meter station intervals. The original grid was tied into the east claim boundary and line post 35,4E.

The VLF electromagnetic survey was conducted with a Sabre Electronics, Model 27 receiver. The transmitter station used was NPG, Jim Creek, Washington at a frequency of 24.8 kHz and a radiated power of 250 kilowatts. Both dip angle and horizontal field strength measurements were recorded; dip angle measurements were filtered using the Fraser Filter Method to permit presentation of data in contour map form.

The magnetic survey was conducted using a Scintrex Model MP-2 proton precession magnetometer. Data was corrected for diurnal drift and plotted in contour map form.

A total of eighty-six soil samples were collected from the survey grid area. Analysis was performed for copper, lead, silver, arsenic, and antimony by the inductive coupled plasma (ICP) method and for gold by the atomic absorption (AA) method.

DISCUSSION OF RESULTS

Geophysical Results

Figure 5 presents the magnetic results in contour map form. The VLF electromagnetic results are presented in Figures 6 (profile plot plan) and 7 (Fraser Filter contour).



The total field magnetic results allow a distinction to be made between rock units. A high magnetic response in the northeast and southeast corners of the survey grid (Lines 2+25N to 4+00N and Lines 6+50N to 8+00N) are interpreted as being due to granitic intrusive bodies.

The northern geological contact between probable Cache Creek sediments and the southeastern granitic unit is outlined by a northwest trending electromagnetic conductor with a 75 strike length at Line 4+50N. 3+00E. electromagnetic conductive zone located at Line 2+25N, 2+00E trends north to northeast for 400 meters attributable, in part, to the western contact of this intrusive body. No conclusions can be made concerning the eastern and southern contacts, as the survey grid does not extend to this area.

Geological contacts between sediments northeastern granitic unit are more difficult to define as the VLF-EM results show low response in this area. However, a very weak electromagnetic conductor located at Line 8+00N, 1+75E and continuing to Line 6+50N, 2+25E may be attributable western contact of this intrusion. A stronger conductive zone striking southwest for 150 meters from Line 7+50N, 3+00E may mark the southern sedimentary-intrusive contact. This zone may also be attributable to dykes and/or shear zones, as the northern half of the conductor is coincident with the magnetic highs which define the granitic unit.

Two major conductors trending northwest from Line 2+50N, 1+00E to Line 7+00N, 0+25E and from Line 2+25N, 0+25E to Line 4+00N, 0+00 (possibly as far as Line 8+00N) are interpreted to outline fault zones within a sedimentary unit. In their southern halves, these conductive zones are coincident with a series of narrow magnetic highs which may be indicative of pyrrhotite mineralization. These electromagnetic conductors were previously interpreted as possible geological contacts on either side of a narrow granitic unit; this interpretation, however, is not supported by results from the magnetic survey.

Several weak electromagnetic conductors of limited strike length situated to the west of the baseline may be due to fractures and/or shear zones associated with the postulated fault zones.



Geochemical Results

A total of eighty-six soil samples were collected from B horizon soils within the survey grid area. Anomalous geochemical results are presented on Figure 6. Statistical analysis was carried out by graphical methods and histogram plots for each element are included as a part of Appendix A. Results of geochemical work (presented as Figures 8 & 9) is as follows:

Copper

Values of 55 ppm and greater are considered anomalous. The highest value of 74 ppm, located at Line 4+00N, 3+00E is coincident with anomalies of arsenic, antimony, silver, and gold. Three other anomalous copper values were found, of which one value of 59 ppm (Line 6+00N, 2+40E) is coincident with an anomalous gold value.

Lead

Values of 15 ppm and greater are considered anomalous. Three of eighty-six samples are considered slightly anomalous, the remainder are at background levels. These three values (15,17,17 ppm) are situated in the area of the postulated fault zones (Figure 6).

Silver

Values of 0.5 ppm and greater are considered anomalous. Iwo values of 0.5 ppm are located near the interpreted eastern fault zone, one value of 0.5 ppm is situated within the northeastern granitic unit, and 2 values of 0.5 ppm and 2.2 ppm are located at the northern boundary of the southeastern granitic unit at Line 4+50N, 3+00E and Line 4+00N, 3+00E respectively. The highly anomalous value of 2.2 ppm is coincident with anomalous values of copper, arsenic, antimony and gold.

Arsenic

Values of 17 ppm and greater are considered anomalous. Five of eighty-six samples showed slightly anomalous values for arsenic. The highest value of 24 ppm is located at Line 4+00N, 3+00E and is coincident with anomalous values of copper, silver, antimony and gold.



Antimony

Values of greater than 2 ppm are considered anomalous. Two values of 4 ppm are slightly anomalous; no highly anomalous values were found.

Gold

Values greater than 10 ppb are considered anomalous. Eighty samples are at background values of 5 ppb, and one sample is slightly above background, at 10 ppb. Three anomalous value of 30 ppb, 45 ppb, and 50 ppb are located at Line 6+00N, 2+40E, Line 4+00N, 0+40W, and Line 4+00N, 3+00E respectively (the anomaly at Line 4+00N, 3+00E is coincident with anomalies in copper, silver, arsenic and antimony). Highly anomalous values of 90 ppb and 350 ppb are located just west of the postulated faults, at Line 6+00N, 0+40W and Line 2+50N, 0+00.

CONCLUSIONS AND RECOMMENDATIONS

The total field magnetic survey results have outlined two interpreted intrusive units in the northeast and southeast 1 ow corners of area. the survey Very frequency electromagnetic results in those areas outline conductive which are attributable sedimentary-intrusive to contacts. Geochemical anomalies in copper, silver, arsenic, antimony, and gold are associated with the contacts of these intrusive bodies.

Electromagnetic conductive zones, with strike lengths of 275 and 400 meters and trending north to northwest, are situated just west of and over the baseline. These conductors are postulated to outline fault zones within a sedimentary unit. Total field magnetic highs in the southern portions of these postulated fault zones suggest that pyrrhotite mineralization may be present. Geochemical anomalies in gold, arsenic, lead, silver, and antimony are also present in this area. Small conductive zones west of the postulated faults may be due to associated fractures and/or shear zones.

Geological mapping over the survey grid area and geochemical soil sampling at a maximum 25 x 50 meter grid



system over the outlined zones of interest is recommended. Relationships between the geology and the geophysical and geochemical results should then outline any targets of good mineral potential.

A program consisting of geological, geochemical, VLF-EM, and total field magnetic work should be conducted over the remainder of the Reef claim to determine the extent of the indicated zones and to locate other zones of interest.

Respectfully submitted, Strato Geological Engineering Ltd.

Nigel J. Hulme, B.Sc. Geologist

Nigel Kuline

March 22, 1984

R. J. Englund, B.Sc. Geophysicist

REFERENCES

Stevenson, J. S. (1936)
Special Report in Annual Report of the Minister of Mines for 1936, British Columbia.

Tully, D. W. (1981)

Report on the Reef Mineral Claim; Don Tully Engineering Ltd., West Vancouver, B.C.

Englund, R. J. (1982)
 Assessment Report on a VLF-EM and Magnetometer Survey on the Reef Mineral Claim; Strato Geological Engineering Ltd., Vancouver, B.C.

CERTIFICATE

- I, NIGEL J. HULME, of the City of Vancouver, Province of British Columbia, hereby certify as follows:
 - I am a Consulting Geologist with offices at 103 709 Dunsmuir Street, Vancouver, B. C., Canada.
 - I graduated with a degree of Bachelor of Science, Geology, from Carleton University, Ottawa, Ont. in 1982.
 - 3. I have worked as a Geological Assistant each summer from May 1980 with the Ontario Geological Survey, Gold Fields Mining Corporation, and St. Joe Canada Incorporated.
- I have worked as a Geologist in Canada since December 1982.
 - I have no direct, indirect, or contingent interest in the securities of Casa Grande Energy and Mines Ltd., or the Reef Mineral Claim, nor do I expect to receive any such interest.

Dated at Vancouver, Province of British Columbia, this 22 nd day of March, 1984.

N. J. Hulme, B.Sc.

Nigel Hulme



CERTIFICATE

I, Ralph J. Englund, of 1112 Grover Ave., Coquitlam, British Columbia, do hereby certify as follows:

- I am a Consulting Geophysicist with offices at 103 709 Dunsmuir Street, Vancouver, B. C. V6C 1M9
- I graduated in 1971 from the University of British Columbia, with a degree of Bachelor of Science.
- I have been engaged in the study, teaching, and practice of exploration geophysics continuously for a period of 11 years. I have worked as a geophysical consultant on numerous projects in Western North America since 1972.
- I am a member in good standing of the British Columbia Geophysical Society.
- The field work and the interpretation of results in this report were done under my direct supervision.
- That I am a director and have an interest in Casa Grande Energy and Mines Ltd.

Dated at Vancouver, Province of British Columbia, this 22nd day of March, 1984.

R.J. Englund, B.Sc.

TRATO GEOLOGICAL ENGINEERING LTD

TIME-COST DISTRIBUTION

The geophysical and geochemical surveys were conducted over the Reef mineral claim (3415) by Strato Geological Engineering Ltd. during the period May 25th to 31st, 1983. A listing of personnel and distribution of costs are as follows:

Personnel

J. Gibson

Project Supervisor and Geophysical Operator

N. McGary, C.E.T.

Field Assistant and Geophysical Operator

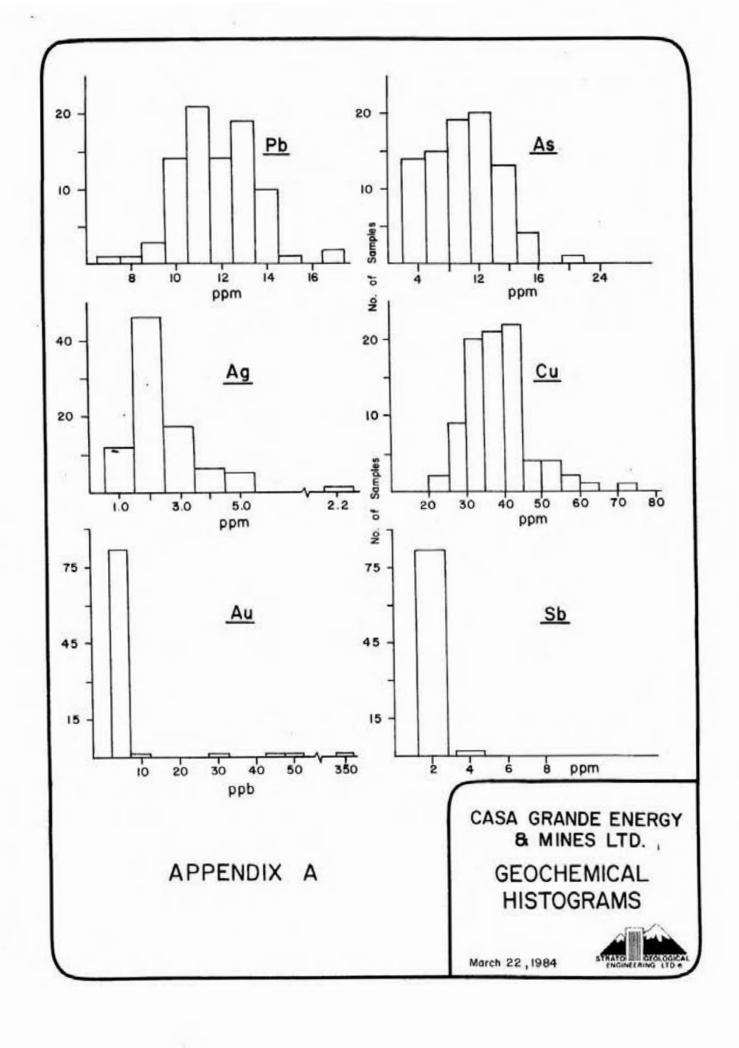
Cost Distribution

Field Work (6 crew days)	\$1,950.00
Room and Board	660.00
Transportation - 4WD (incl. gas, oil, mob-	
demob, etc.)	540.00
Geophysical Equipment Rental	330.00
Field Supplies	63.50
Geochemical Analysis	850.80
Maps and Report - Drafting, Reproduction,	
Copying, etc.	572.00
Report - Data Reduction, Interpretation, etc.	1,550.00
Total	\$6,516.30

Signed

Strato Geological Engineering Ltd.

APPENDIX A



ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS, VANCOUVER B.C. PH: 253-3158 TELEX: 04-53124

DATE RECEIVED MAY 31 1983

ICP GEOCHEMICAL

A .500 GRAM SAMPLE IS DIGESTED WITH 3 ML OF 3:1:3 HCL TO HNO3 TO H20 AT 90 DEG.C. FOR 1 HOUR. THE SAMPLE IS DILUTED TO 10 MLS WITH WATER. THIS LEACH IS PARTIAL FOR: Ca,P,Mg,AI,Ti,La,Ma,K,W,Ba,Si,Sr,Cr AND B. Au DETECTION 3 ppm. AU+ ANALYSIS BY AA FROM 10 GRAM SAMPLE. SAMPLE TYPE - SOIL

ASSAYER DEAN TOYE, CERTIFIED B.C. ASSAYER

STRATO GEOLOGICAL	PROJECT	# 504	FILE #	# 83-06	74	PAGE#	1
SAMPLE	bbw CN	PB ppm	AG ppm	AS ppm	SB	Au*	
7+50N 0+40W 7+50N 0W 7+50N 0+50E 7+50N 1E 7+50N 1+5QE	21 30 39 31 22	13 12 10 12 13	.2	4 7 14 14	2 2 2 2 2 2	55555	391
7+50N 2E 7+50N ; 2+50E 7+50N ; 3E 7+50N 3+50E 7N 0+40W	34 37 52 33 48	11 10 10 10	.2 .5 .2 .2	18 5 16 3 15	22222	ກກທກກ.	
7N DW 6+50N D+40W 6+50N DW 6+50N D+50E 6+50N 1E	30 37 40 27 37	10 10 12 10	.3	12 13 14 7 7	2222	មានមាន ស្រុមមាន	
6+50N 1+50E 6+50N 2E 6+50N 2+50E 6+50N 3E 6+50N 3+50E	28 42 29 45 32	12 13 11 10 14	.2	12 9 7 7 3	2 2 2 2 2 2 2 2	សសហសភ	
6N D+40W 6N DW 6N D+40E 6N D+80E 6N 1+20E	43 40 32 28 43	11 9 11 10 11	.3	10 14 11 11	2 2 2 2 2 2 2	90 5 5 5	
6N 2E 6N 2+40E 6N 2+80E 5+50N 0+80W 5+50N 0+40W	43 59 33 37 42	13 11 11 12 9	.2 .2 .4 .3	11 14 8 12 11	22222	5 30 5 5 5	
5+50N DW 5+50N D+50E 5+50N 1E 5+50N 1+50E 5+50N 2E	39 37 44 25 39	12 13 12 11 13	.2	13 13 3 11	2 2 2 2 2	55555	i
5+50N 2+50E STD A-1/AU 0.5	31 29	12 44	:2	9	2 2	5 525	

STRATO GEOLOGICAL	PROJECT	# 504	FILE	# 83-06	74	PAGE#	2
SAMPLE	₽₽m CN	PB ppm	AG ppm	AS ppm	SB	Au*	
5+50N 3E 5+50N 3+50E 5N 0+40E 5N 0+80E 5N 1+50E	53 43 34 35 43	11 12 14 11	.4	14 3 11 9	2222	55555	
4+40N 0+80W 4+40N 0+40W 4+40N 0W 4+40N 0+50E 4+40N 1E	36 37 30 42 37	11 7 11 12 15	.2 .3 .2 .3	13 8 13 9	4 2 2 2 2 2	55555	
4+40N 1+50E 4+40N 2E 4+40N 2+50E 4+40N 3E • 4+40N 3+50E	41 37 34 40 52	13 14 14 11 13	.3	7 7 3 10 8	22222	55555	
4N 0+80W 4N 0+40W 4N 0W - 4N 0+40E 4N 1+50E	51 40 37 45 33	13 13 14 14 10	.3	16 16 9 12 6	2 2 2 2 2 2 2	5 45 55 5	
4N 2E 4N 2+50E 4N 3E 3+50N 0+80W 3+50N 0+40W	44 44 74 31 33	14 12 11 13	.3 2.2 2.2 .2	8 5 24 6 10	2 2 4 2 2 2	5 5 5 5 5 5	
3+50N OW 3+50N O+50E 3+50N 1E 3+50N 1+50E 3+50N 2E	43 47 38 32 40	12 14 13 11	.2 .4 .2	7 12 8 2 6	2 2 2 2 2 2	សសសសស	
3+50N 2+50E 3+50N 3E 3N 0W 3N 0+50E 3N 0+40E	30 42 35 43 40	13 13 14 13 17	.1 .2 .2 .2	16 17 8 7	2 2 2 2 2	55555	
STD A-1/AU 0.5	29	44	.3	9	2	500	

STRATO GEOLOGICAL	PROJECT	# 504	FILE #	83-06	74	PAGE#	3
SAMPLE	CO CO	PB PB	AG ppm	AS ppm	SB	Au*	
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2+50N OW 2+50N 0+50E 2+50N 1E 2+50N 1+50E 2+50N 2E	39 29 40 29 27	13 11 11 8 9	.2 .1 .1 .1	10 11 2 4	22222	350 5 5 5	
2+50N 2+50E 2+50N 3E 2+25N 0+80W 2+25N 0+50W 2+25N 0W	38 56 39 29 34	12 13 11 10 12	.1 .1 .2 .1	17 17 12 7	2222	ភភភភភ	
STD A-1/AU 0.5	29	44	.3	9	2	500	

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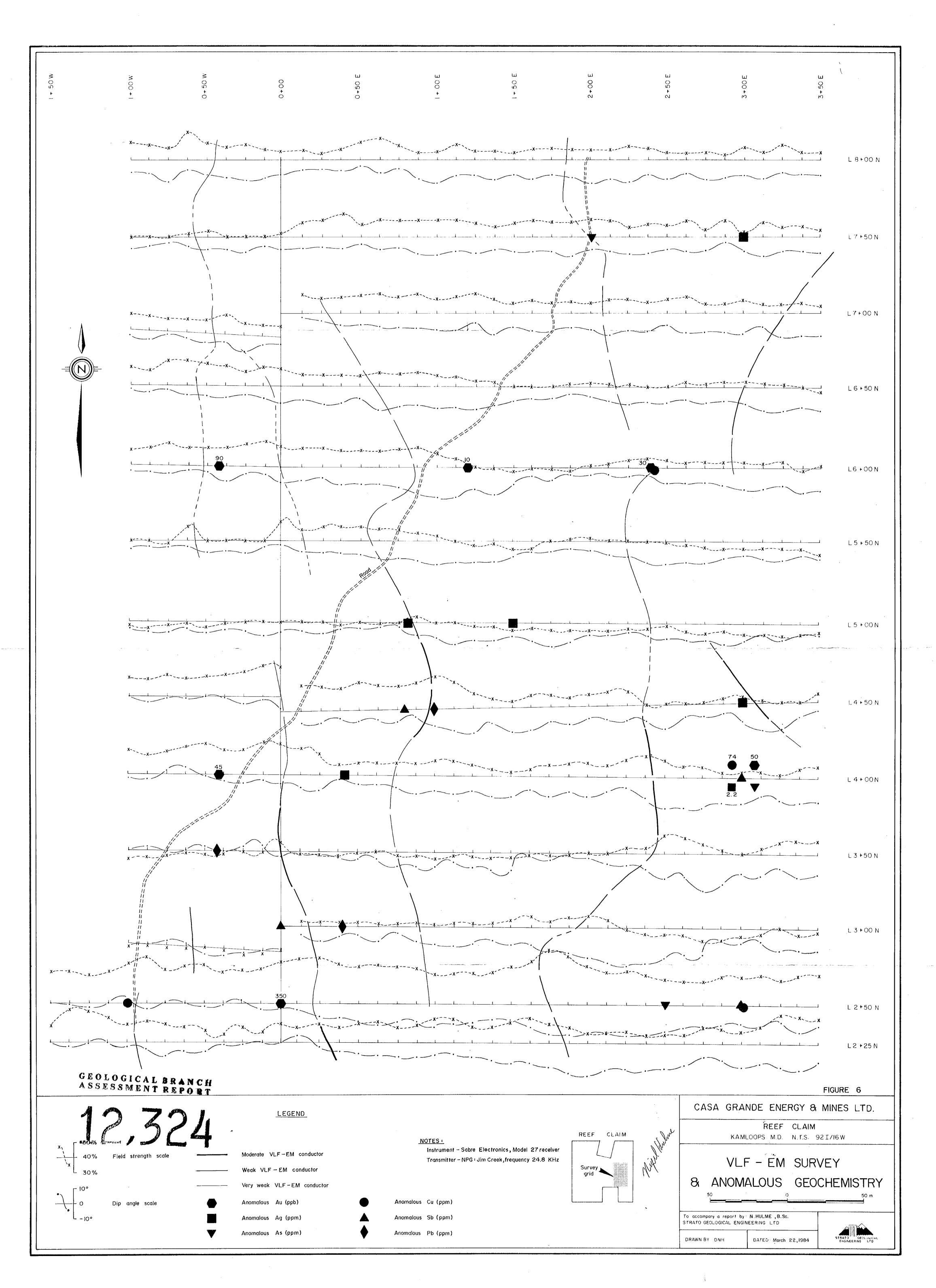
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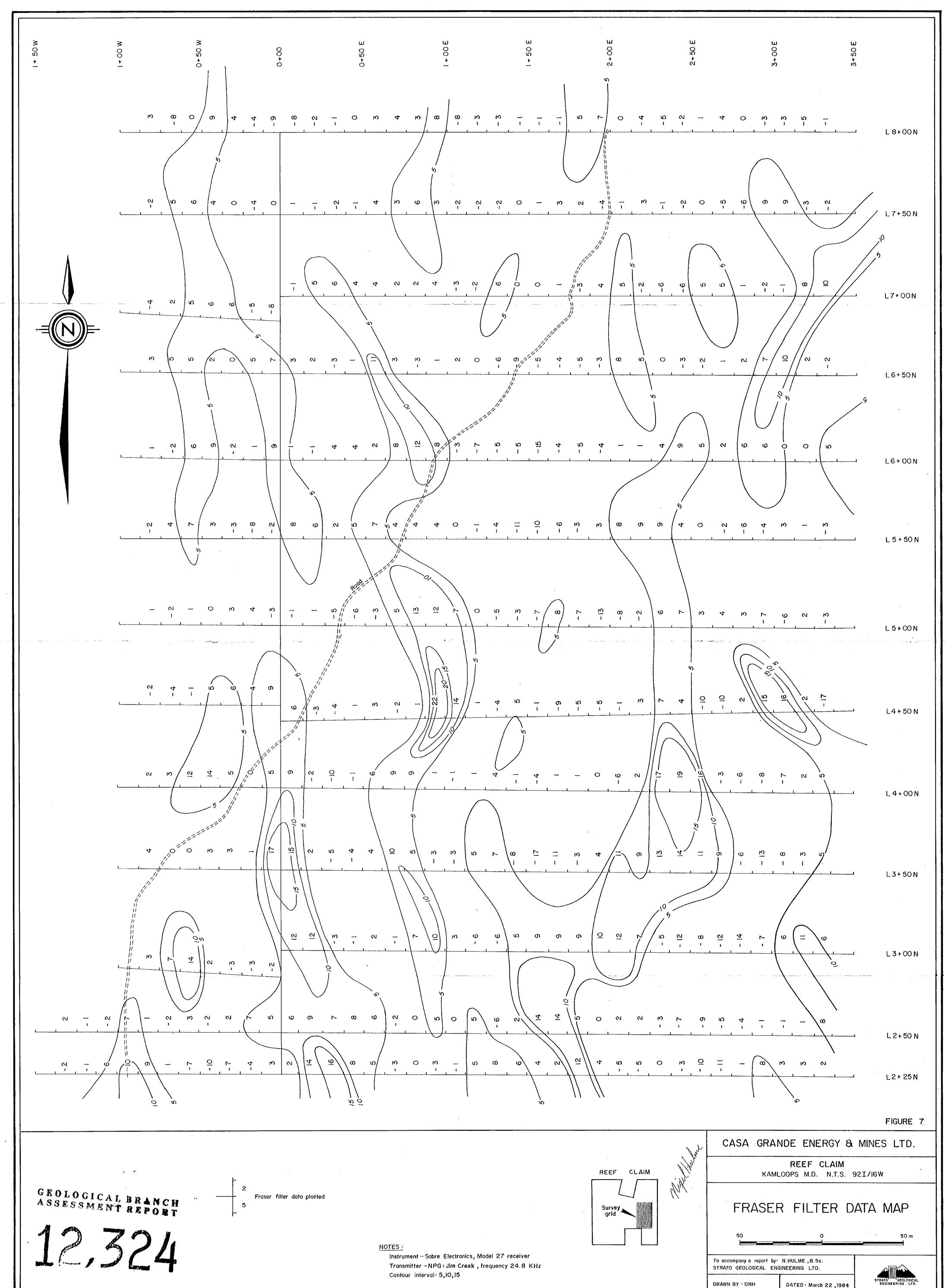
L6+50 N L6+00N L5+50N 757 122 L5+00N L4+50 N L4+00N L3+50N L3+00 N L 2+50 N L2+25N FIGURE 5 CASA GRANDE ENERGY & MINES LTD. REEF CLAIM REEF CLAIM KAMLOOPS M.D. N.T.S. 921/16W NOTES: GEOLOGICAL BRANCE Instrument - MP 2 Proton Magnetometer ASSESSMENT REPORT Total field magnetic survey: Datum 57,000 gammas MAGNETIC DATÁ Contour interval 20 gammas 12,324 MAP

To accompany a report by: N.HULME, B.Sc. STRATO GEOLOGICAL ENGINEERING LTD.

DRAWN BY : DNH DATED: March 22,1984







RATO "GEOLOGICA Engineering Ltd.

