2999

REPORT ON AIRBORNE GEOPHYSICAL SURVEYS MENZIES - HORNBY PROJECT COQUIHALLA AREA, HOPE, BRITISH COLUMBIA

92H/6E&W

by

Richard O. Crosby, B.Sc., P.Eng.

&

John P. Steele, B.Sc.

April 26, 1971

CLAIMS:
(See Attached Sheet)

LOCATION:
About 5 miles northeast of
Hope, British Columbia
New Westminster Mining Division
49° 121° NW

DATES:
April 2 and 3, 1971

CLAIMS

EVE 15 to EVE 28 (inclusive)
EVE 62 to EVE 68 FR (inclusive)
TAX 47 to TAX 61 (inclusive)
EBJ 1, 3, 15, 17
MAK 1 to MAK 18 (inclusive)
MAK 21 to MAK 26 (inclusive)
TAX 21, 22
GWH 1 to GWH 10 (inclusive)
EBJ 2, 4, 16, 18
TAX 1 to TAX 20 (inclusive)
TAX 37 to TAX 46 (inclusive)
TOY 11 to TOY 16 (inclusive)
EVE 1 to EVE 14 (inclusive)
EVE 29 FR
GWH 11 to GWH 16 (inclusive)
MLJ 1 to MLJ 8 (inclusive)
TOY 3 to TOY 10 (inclusive)

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SUMMARY

The airborne geophysical survey has indicated an area of intense magnetic relief. By correlation with geological data in the northern part of the area this magnetic activity has been interpreted to originate in a zone of ultrabasic rocks. The magnetic data have been used to follow this ultrabasic body to the south and delimit it there. Several fault traces have been inferred on the basis of their magnetic character.

REPORT ON
AIRBORNE GEOPHYSICAL SURVEYS
MENZIES - HORNBY PROJECT
COQUIHALLA AREA,
HOPE, BRITISH COLUMBIA

INTRODUCTION:

During the period April 2nd and 3rd, 1971 an airborne magnetometer survey was executed on behalf of the Menzies - Hornby Project in the Coquihalla area near Hope, British Columbia covering approximately 15 square miles (see Plate 1). The centre of the area is located 49°40'N, 121°15'W. Basic compilation of the data was carried out in April 1971.

The airborne survey consisted of magnetometer measurements using a Scintrex MAP-2 magnetometer system which measures the earth's total magnetic field.

Appendix 'A', attached, gives full details of the airborne geophysical equipment and the ancillary equipment employed, as well as the treatment of data resulting from these surveys. In the present survey a Bell Jet Ranger helciopter, on charter from Okanagon Helicopters was employed as the basic transport vehicle.

The survey traverses were flown at a nominal 1/8 mile line interval along lines oriented northeast-southwest at a mean terrain clearance of 300'. Flight navigation and flight path recovery have been based upon photomosaics on the scale of 1" = 1/4 mile.

The magnetometer was flown 60' below the helicopter.

The purpose of the geophysical programme was to map the earth's total magnetic field in the survey area. The anomalies recorded on the survey flights were due primarily to the distribution of magnetic material

in the underlying rocks. These anomalies revealed various rock types and structural features.

The value of the earth's total magnetic field in the survey area is approximately 55600 gammas. Its inclination is 75 degrees.

GEOLOGY:

The survey area is thought to overlie an ultrabasic body running approximately northwest to southeast. Outcrops are common in the northern part of the area but are sparce in the central and southern areas and therefore the boundaries of the ultrabasic have been defined by geological reconnaissance only in the north.

In the northern section the eastern margin of the ultrabasic has been mapped in the field where it is in contact with diorite material and it slopes to the east at 80 degrees. Three small diorite bodies and one pyroxenite body have been mapped within the ultrabasic.

PRESENTATION OF DATA

The results of the geophysical survey are presented on Plates 2 and 3 on the scales of 1" = 1/4 mile and 1" = 1/2 mile respectively. The flight lines and some topographic features are shown on the plates. The magnetometer data are contoured at an interval of 100 gammas or less, according to the relief.

The magnetometer data, altimeter and fiducial records are presented on analog recorder traces. These original traces are on a scale of 1" = 100 gammas with automatic steps of 500 gammas.

DISCUSSION OF RESULTS

The magnetometer data show an area of high magnetic relief running northwest to southeast through the entire survey area. There

is a total magnetic relief of 3000 gammas within the linear feature and there is smaller magnetic relief outside. In the northern section this magnetic feature coincides with the mapped ultrabasic body. This body may be traced to the south by following the zone of high magnetic relief. The probable lateral boundaries of this body are shown on Plate 4.

The magnetic pattern is interrupted in several locations. This interruption probably indicates extensive lateral faulting and shearing along approximately east-southeasterly trending faults. Their inferred locations are shown on Plate 4.

The small diorite body mapped in the vicinity of Line 41 appears to coincide with a small area of magnetic depression.

In the southern area the ultrabasic body appears to separate into two parallel bodies as is indicated by a narrow zone of lesser magnetic relief. This division appears to terminate on one of the fault traces mentioned above.

CONCLUSIONS AND RECOMMENDATIONS

The airborne geophysical survey has indicated an area of intense magnetic relief. By correlation with geological data in the northern part of the area this magnetic activity has been interpreted to originate in a zone of ultrabasic rock. The magnetic data have been used to follow this ultrabasic body to the south and delimit it there. Several fault traces have been inferred on the basis of their magnetic character.

Areas of intersection of faults and lateral contacts of the ultrabasic body are of interest in searching for mineral implacement.

The two small diorite bodies in the north are located at such an intersection point. Geological definition of these intersection points is recommended.

Further geological reconnaissance of the ultrabasic body is required to define mineralized areas. If the lack of outcrop areas prevents this an airborne electromagnetic survey would be warranted to delineate areas of further interest.

Respectfully submitted,

SEIGEL ASSOCIATES LIMITED

Richard O. Crosby

Richard O. Crosby, B.Sc., P.Eng.
Geophysicist

John P. Steele

John P. Steele, B.Sc.,
Geophysicist

Vancouver, B. C.
April 26, 1971

DOMINION OF CANADA:

PROVINCE OF BRITISH COLUMBIA.

TO WIT:

In the Matter of an airborne geophysical survey on behalf of Mr. M. Menzies

I, **L. A. Merrifield, for Seigel Associates Limited**

of **750 - 890 West Pender Street, Vancouver**

in the Province of British Columbia, do solemnly declare that **an airborne magnetometer survey has been executed on some EVE, TAX EBJ, MAK, GWH, TOY and MLJ claims in the Coquihalla area, British Columbia between April 2nd and April 3, 1971. The following expenses were incurred:**

(1)	Wages	$218.75
(2)	Transportation to the job.	33.45
(3)	Food and living expenses.	18.35
(4)	Use of geophysical equipment 2 days @ $60.00/day	120.00
(5)	Transportation on the job: 5:15 hours rented helicopter @ $250.00 / hour	1,312.50
(6)	Paid to Seigel Associates Limited to cover geophysicist's supervision, calculating, plotting and fairdrawing data and preparation of final reports.	2,164.45
		$3,867.50

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

Declared before me at the **City** of **Vancouver**, in the Province of British Columbia, this **6th** day of **May, 1971**, A.D.

L. A. Merrifield

Joan Turner

A Commissioner for taking Affidavits within British Columbia or
A Notary Public in and for the Province of British Columbia.

★o

Sub-mining Recorder

In the Matter of

Statutory Declaration

(CANADA EVIDENCE ACT)

APPENDIX 'A'

MAGNETOMETER - MAP-2

The MAP-2 is a lightweight, one gamma airborne proton-precession magnetometer with a range of 20,000 to 100,000 gammas and an automatic five digit visual display. This new instrument has several significant advantages over other instruments of this type besides its compact size and light weight.

One of its most interesting features is that, unlike other airborne magnetometers which have to be switched manually from one narrow (usually 4000 - 6000 gammas) range to another, the MAP-2 tracks automatically over its full 80,000 gamma range.

This advantage is particularly significant in surveys flown at low terrain clearances in areas of high magnetic relief, conditions which are common in mineral prospecting.

The instrument is of compact modular design (1/2 standard rack size) and has both digital and analogue outputs. The analogue outputs are either 100 or 1000 gammas full scale, with automatic stepping. During each step, an indication of the new stepping level is recorded, providing a permanent reference identifying each step.

The measuring sequence can either be sequentially triggered internally throught its own programmer or initiated by a suitable command pulse.

In addition while on internal triggering, the instrument provides an external output command pulse enabling other instrumentation to be synchronized with the magnetometer.

SPECIFICATIONS - MAP-2

Range:	20-100.000 gammas (world-wide) continuous range (automatic tracking)
Sensitivity:	± 1 gamma (fully automatic)
Accuracy:	± 1 gamma
Sampling Rate:	Automatic standard 1 second, with provision for external triggering from other equipment with minimum 1 second intervals.
Readout-Visual:	Digital Display by 5 incadescent, 7 bar display lights
Digital Data Output:	BDC 1-2-4-8 DTL, TTL Compatible
Analog Data Output:	5 V full scale for 1000 gammas, 100 gammas; 1 gamma resolution
External Trigger:	Requirement: +4 V to 0 transition (as slave)
Tigger Output:	+4 V to 0 transition at start of cycle (as master)
Power Requirements:	24-30V DC, 3.2 A max.
Temperature Range:	-30 to +50 degrees C
Dimensions and Weights:	Console 8 1/2" X 5 1/4" X 13" (half-rack) (21 1/2 cm X 13 1/2 cm X 33 cm) 12 lbs. (5.4 kg) Tow Bird 7" X 23" (18 cm X 58 cm) 20 lbs. (9 kg)

ANCILLARY EQUIPMENT

1. Altimeter

A Bonzer, high frequency solid state radioaltimeter is employed to continuously indicate the mean terrain clearance of the helicopter or other transporting aircraft. The altimeter is installed in the aircraft (unless otherwise indicated) so that the elevation of the sensing birds (electromagnetic or magnetic) will be less by the usual vertical displacement of these birds below the aircraft.

The output of the Bonzer may be expressed in analogue form on a suitable graphic recorder, or may be, for convenience, converted to a semi-digital form on a recorder side pen. In the latter event the altimeter record is a series of spaced pulses whose separation is proportional to the mean terrain clearance.

2. Positioning Camera

A Vinten Mark 3 16 mm positioning camera is employed with a wide angle lens. Photographs of the ground are taken with sufficient frequency to give a complete record of the flight path of the aircraft or helicopter. The frequency of exposure is controlled by the intervalometer referred to below.

3. Intervalometer

A Scintrex IA-2 intervalometer provides regularly spaced timing pulses which drive the positioning camera exposure mechanism and produces synchronous "fiducial marks" on the side pen of the geophysical graphic recorder or recorders. Because of the synchronization of the geophysical traces and the positioning camera it is then possible to relate the geophysical events of interest to their proper ground location. The timing pulse frequency may be adjusted in accordance with the ground speed of the aircraft so that an adequate flight path record is obtained.

SEIGEL ASSOCIATES LIMITED

DAILY FLIGHT REPORT

JOB: Hornby - Menzies Project

DATE: April 3, 1971

AREA: Coquihalla area, B. C.

OPERATOR: Sheldrake

SURVEY TYPE: MAP-2

PILOT: Evans

SENSITIVITY: 1000 F.S.

NAVIGATOR Cooper

f. 16 T.O. T.D.

FLIGHT NO. 3

LINE NO.	FIDUCIALS START	FIDUCIALS END	TIME START	TIME END	LINE LENGTH	REMARKS
27 E	001	119				N/A)
29 W	119	226				N/A) Fid. Pen N/A
28 E						N/A)

SEIGEL ASSOCIATES LIMITED

DAILY FLIGHT REPORT

JOB: Hornby - Menzies Project

DATE: April 3, 1971

AREA: Coquihalla area, B. C.

OPERATOR: Sheldrake

SURVEY TYPE: MAP-2

PILOT: Evans

SENSITIVITY: 1000 F.S.

NAVIGATOR Cooper

f. 16 T.O. T.D.

FLIGHT NO. 4

LINE NO.	FIDUCIALS START	FIDUCIALS END	TIME START	TIME END	LINE LENGTH	REMARKS
27 E	001	006				Off Nav. N/A
27 E	009	84				Start Again
28 W	88	143				
29 E	147	175				N/A Fid Pen Still N/A

SEIGEL ASSOCIATES LIMITED

DAILY FLIGHT REPORT

JOB: Hornby - Menzies Project

DATE: April 3, 1971

AREA: Coquihalla area, B. C.

OPERATOR: Sheldrake

SURVEY TYPE: MAP-2

PILOT: Evans

SENSITIVITY: 1000 F.S.

NAVIGATOR Cooper

f. 16 T.O. T.D.

FLIGHT NO. 5

LINE NO.	FIDUCIALS START	FIDUCIALS END	TIME START	TIME END	LINE LENGTH	REMARKS
29 E	274	366				
32 W	270	426				
33 E	430	513				
34 W	517	568				
35 E	572	634				
36 W	638	678				
37 E	682	747				
38 W	751	796				
39 E	800	861				
40 W	864	906				
41 E	910	968				
42 W	972	1007				
43 E	1011	1075				
44 W	1079	1118				
45 E	1122	1180				
46 W	1184	1217				
47 E	1221	1275				
46 W	1279	1307				
49 E	1311	1359				
50 W	1363	1391				
51 E	1395	1430				
52 E	1437	1468				
53 W	1472	1492				
54 E	1496	1520				
55 W	1524	1544				
56 E	1548	1569				
57 W	1574	1589				
						FLIGHT: 2 HOURS

SEIGEL ASSOCIATES LIMITED

DAILY FLIGHT REPORT

JOB: Hornby - Menzies Project

DATE: April 3, 1971

AREA: Coquihalla area, B. C.

OPERATOR: Sheldrake

SURVEY TYPE: MAP-2

PILOT: Evans

SENSITIVITY: 1000 F.S.

NAVIGATOR Cooper

f. 16 T.O. T.D.

FLIGHT NO. 6

LINE NO.	FIDUCIALS START	FIDUCIALS END	TIME START	TIME END	LINE LENGTH	REMARKS
26 E	1667	1795				
25 W	1799	1973				
24 E	1977	2124				Loop at 2083 For Alt.
23 W	2129	2249				
22 E	2353	2377				
21 W	2381	2468				
20 E	2472	2603				
19 W	2607	2700				
18 E	2705	2849				
17 W	2853	2951				
16 E	2955	3061				
15 W	3065	3201				
14 E	3205	3300				Mag U/S
14 W	3304	3423				
13 E	3427	3504				
12 W	3508	3615				
11 E	3619	3683				
10 W	3687	3798				
9 E	3802	3865				
8 W	3870	3951				
7 E	3955	4013				
6 W	4017	4097				
5 E	4101	4165				
4 W	4169	4233				
3 E	4237	4288				
2 W	4292	4348				
1 E	4352	4387				
TL 1	4391	4754				South
TL 2	4758	5158				North
						FLIGHT: 1 HR. 50 MIN.

Client: Hornby - Menzies File # 817

Area: Coquiballa area, B. C.

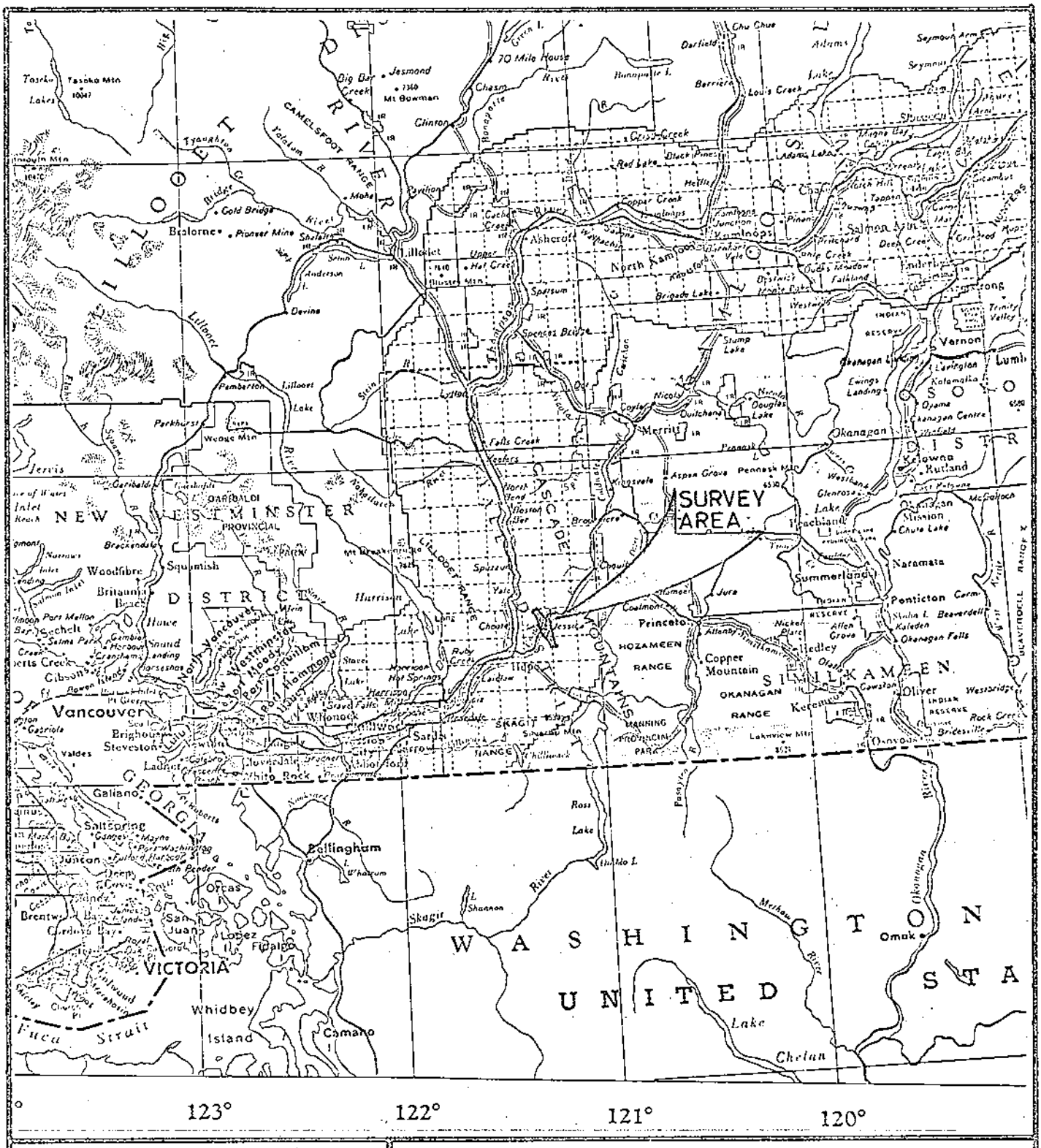
Flight Line #	First Fid. # NORTH								First or Last Fid. SOUTH
	WEST								EAST
57	1574								1591
56	1549								1570
55	1524								1545
54	1496								1519
53	N/A								
52	1435								1466
51	1396								1428
50	1363								1390
49	1311	1319							1356
48	1279								1307
47	1221								1274
46	1184								1216
45	1123								1180
44	1080								1119
43	1012								1074
42	972								1008
41	910								967
40	865								904
39	800								860
38	757								796
37	683	700							743
36	638	662							678
35	572	596							634
34	520	531							567
33	435	448	485						498
32	370								419
29	285								365
28	88								143
27	11	23							82
Tie 1	4391	4457	4485	4561	4600	4636	4664	4692	4754
Tie 2	4770	4887	4915	5008	5038				5157

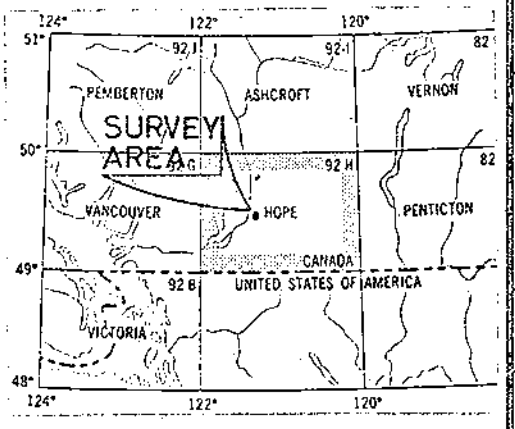
Client: Hornby - Menzies P

File # 817

Area: Coquihalla area, B. C.

Flight Line #	First Fid. # NORTH								First or Last Fid. SOUTH
	WEST								EAST
26	1697	1727							1771
25	1800	1867	1918						1971
24	1997	2025	2083	2087					2122
23	2129	2200							2243
22	2251	2301							2377
21	2381	2429							2464
20	2474	2546							2603
19	2612	2637							2696
18	2710	2799							2848
17	2860	2887							2950
16	2966	3009	3034						3061
15	3065								3159
14	3206	3240							3300
14 W	3320								3422
13	3433	3450							3504
12	3513								3610
11	3621	3633							3682
10	3689								3792
9	3803	3834							3864
8	3871								3951
7	3969	4001							4013
6	4019	4063							4092
5	4106								4161
4	4171	4209							4233
3	4239								4288
2	4295								4348
1	4353								4386





MENZIES-HORNBY PROJECT

LOCATION MAP

AIRBORNE GEOPHYSICAL SURVEY

0 32 64 96 MILES

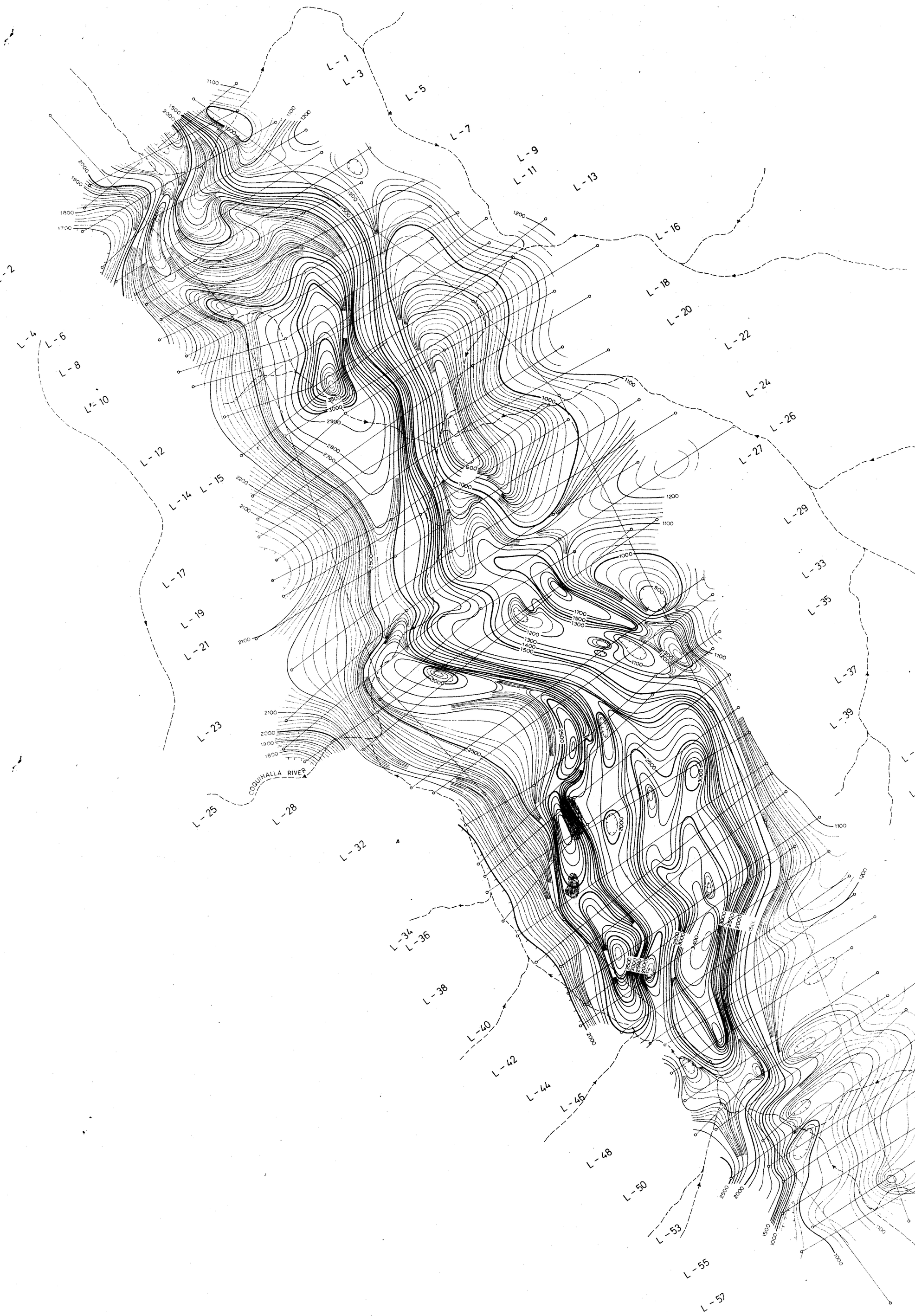
SURVEY BY
SEIGEL ASSOCIATES LIMITED
APRIL 1971

PLATE 1

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

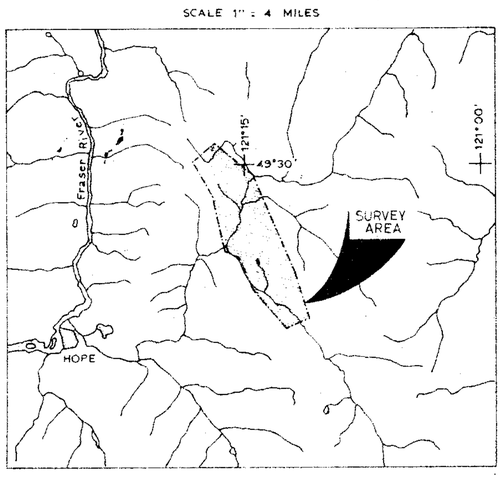
NO. 3000 MAP #1

2999



LOCATION MAP

SCALE 1" = 4 MILES



LEGEND

L-2 — FLIGHT LINE, FLIGHT LINE NUMBER AND NUMBERED FIDUCIAL POINTS.

500 GAMMA ISOMAGNETIC CONTOUR INTERVAL

100 GAMMA ISOMAGNETIC CONTOUR INTERVAL

20 GAMMA ISOMAGNETIC CONTOUR INTERVAL

MAGNETIC LOW

AIRCRAFT TERRAIN CLEARANCE 300 FEET

FLIGHT LINE SPACING 1/8 MILE

BASE INTENSITY ARBITRARY

DRAINAGE

TO ACCOMPANY A GEOPHYSICAL REPORT
BY RICHARD O. CROSBY AND
JOHN P. STEEL, DATED: APRIL 26. 1971

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PLATE 2

MENZIES - HORNBY PROJECT

COQUIHALLA AREA, HOPE B.C.

AIRBORNE GEOPHYSICAL SURVEY

MAGNETOMETER CONTOUR PLAN

APPROX. SCALE 1" = 1/4 MILE

0 1/2 1 MILE

SURVEY BY SEIGEL ASSOCIATES LIMITED

FLOWN AND COMPILED APRIL 1971

SHEET 1 OF 1

L-1 L-3 L-5 L-7 L-9 L-11 L-13 L-16 L-18 L-20 L-22 L-24 L-26 L-27 L-29 L-33 L-35 L-37 L-39 L-41 L-43 L-45 L-47 L-49 L-51 L-52 L-54 L-56

L-2 L-4 L-6 L-8 L-10 L-12 L-14 L-15 L-17 L-19 L-21 L-23 L-25 L-28 L-32 L-34 L-36 L-38 L-40 L-42 L-44 L-46 L-48 L-50 L-53 L-55 L-57

COQUIHALLA RIVER

TIE LINE 1

TIE LINE 2

OUTLINE OF CLAIM GROUP

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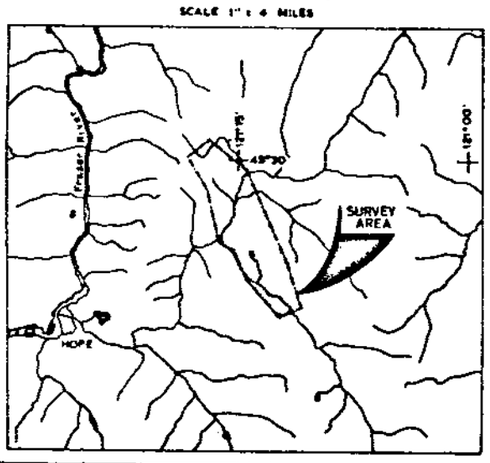
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2999 MAP #3

LOCATION MAP
SCALE 1" = 4 MILES



LEGEND

L-2 — FLIGHT LINE, FLIGHT LINE NUMBER AND NUMBERED FIDUCIAL POINTS
500 GAMMA ISOMAGNETIC CONTOUR INTERVAL
100 GAMMA ISOMAGNETIC CONTOUR INTERVAL
20 GAMMA ISOMAGNETIC CONTOUR INTERVAL
MAGNETIC LOW
AIRCRAFT TERRAIN CLEARANCE 300 FEET
FLIGHT LINE SPACING 1/8 MILE
BASE INTENSITY ARBITRARY
DRAINAGE

TO ACCOMPANY A GEOPHYSICAL REPORT
BY RICHARD O. CROSBY AND
JOHN P. STEELE, DATED APRIL 28, 1971

PLATE 3

MENZIES - HORNBY PROJECT

COQUIHALLA AREA, HOPE B.C.

AIRBORNE GEOPHYSICAL SURVEY

MAGNETOMETER CONTOUR PLAN

APPROX SCALE 1" = 1/2 MILE
0 1/2 1 MILE

SURVEY BY SEIGEL ASSOCIATES LIMITED

FLOWN AND COMPILED APRIL 1971

SHEET 1 OF 1

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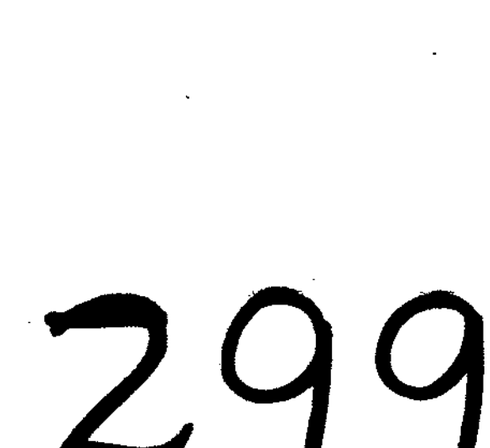
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2999 MAP #4

LOCATION MAP
SCALE 1" = 4 MILES



LEGEND

PROBABLE GEOLOGICAL CONTACT
MAGNETIC AXIS
PROBABLE FAULT

TO ACCOMPANY A GEOPHYSICAL REPORT
BY RICHARD O. CROSBY AND
JOHN P. STEELE, DATED APRIL 28 1971

PLATE 4
MENZIES - HORNBY PROJECT
COQUIHALLA AREA, HOPE B.C.

AIRBORNE GEOPHYSICAL SURVEY
MAGNETOMETER CONTOUR PLAN
GEOPHYSICAL INTERPRETATION

APPROX. SCALE 1" = ½ MILE
0 ½ 1 MILE

SURVEY BY SEIGEL ASSOCIATES LIMITED
FLOWN AND COMPILED APRIL 1971

SHEET 1 OF 1