02/85

MOUNT MAHON PROJECT

YAHK, B. C.

CHEVRON CANADA RESOURCES LIMITED

GRAVITY SURVEY 1984

Ager, Berretta & Ellis
#606 - 595 Howe Street
Vancouver, B. C.

SUMMARY

A second gravity survey was completed over Chevron's Mount Mahon project, Yahk, B. C. during July 1984. The station interval was 100 metres on lines 400 metres apart. The purpose was to investigate the potential for extensive massive sulphides and to document an open anomaly discovered in the 1983 gravity survey. Data analysis indicates that a rock unit, probably a gabbro sill, is responsible for the anomaly.

Respectfully submitted,

Gregory Paquin

Gregory Paquin

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MOUNT MAHON PROJECT, YAHK, B. C.
GRAVITY SURVEY

At the request of Chevron Standard Limited, Minerals Division, Ager, Berretta & Ellis Inc. returned to Yahk, B.C. to complete an additional gravity survey of the Mount Mahon Grid (Figure 1). The purpose of the work was to assist in the search for massive sulphides and to document an anomaly discovered in the 1983 survey.

SURVEY PROCEDURE

The ABE crew stayed in a hotel in Yahk and used a truck for transportation to and from the job site. The gravity base for the survey was established at the road intersection of line 26+00 N and the access road (17+60 E). The additional grid lines were established along the northern extent of the base line at 400 meter spacings and the base line was extended to 38+00 N. The cross line ran from 5 west to 20 east with line 18+00 N extended to 31 east.

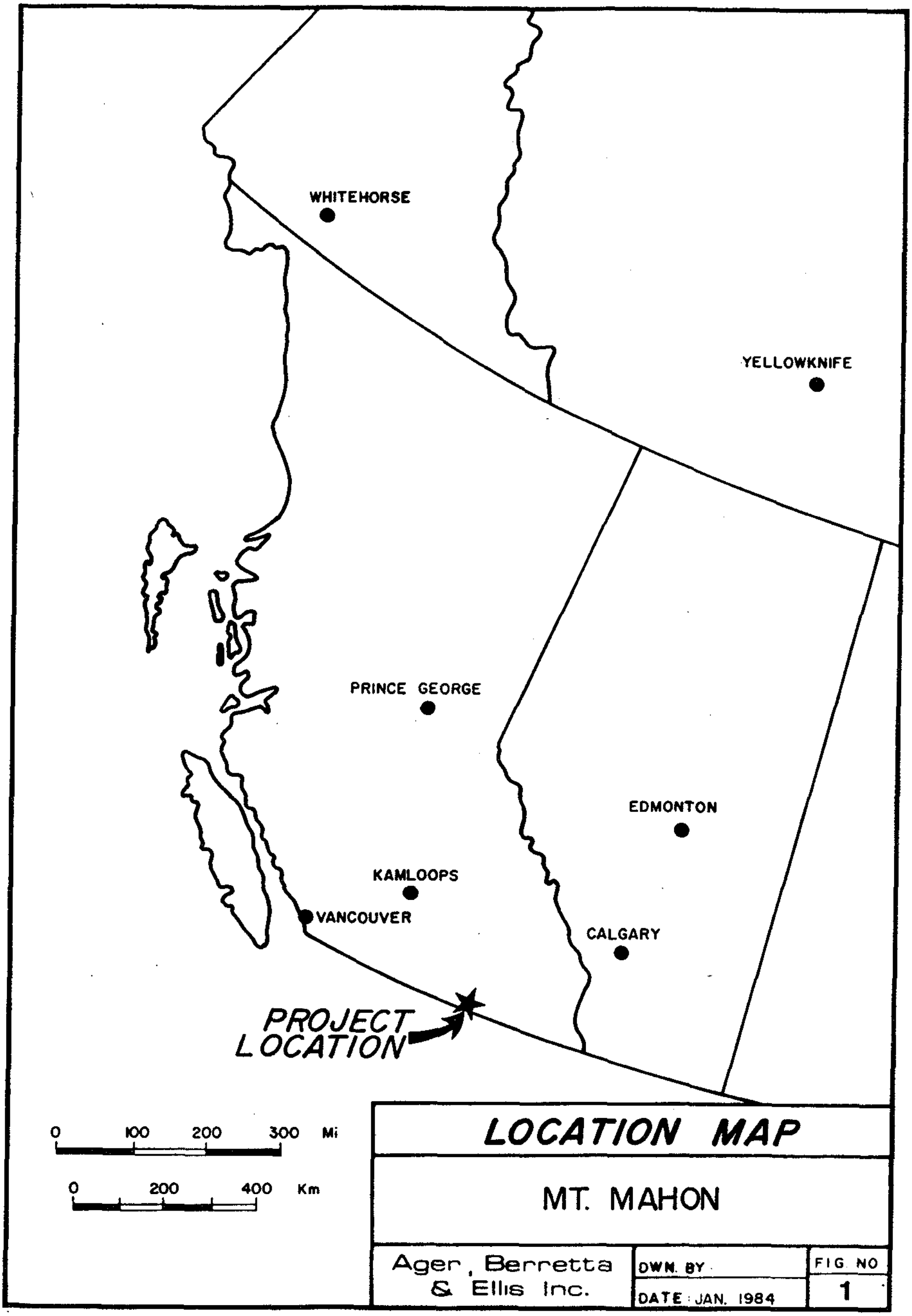
Gravity observations were made using a LaCoste & Romberg model G gravity meter(#728) with a reading accuracy of $\pm$0.01 milligals. Instrument and diurnal drift were accounted for by tying to the base station and to temporary base stations on the grid and drifting the data accordingly.

Elevations were determined by the use of an electronic level developed by ABE. Standard survey closure methods were used and station elevations were calculated to within a relative accuracy of $\pm$0.03 meters.

Field results were calculated and plotted in the field thru the use of mini-computers. Final data preparation was completed in the Vancouver office.

GEOLOGY

The survey area lies on the eastern flank of a gently folded anticline, with Mount Mahon very near the axis. The formation is plunging to the north. The area contains sandstone, siltstone, argillites and some conglomerates of the Aldridge Formation. A more complete description of the geology can be found in "Geology of Mount Mahon Area (Yahk Claim Group)" as completed by Larry Decker of Chevron Canada Resources Limited.



LOCATION MAP

MT. MAHON

Ager, Berretta & Ellis Inc.

DWN. BY

DATE JAN. 1984

FIG. NO 1

DATA REDUCTION

A brief outline of gravity fundamentals is included as Appendix I.

The survey area crossed several statigraphic layers of varying densities. From correlation of gravity values an average elevation density factor for the area was established at 2.67 grams per cc.

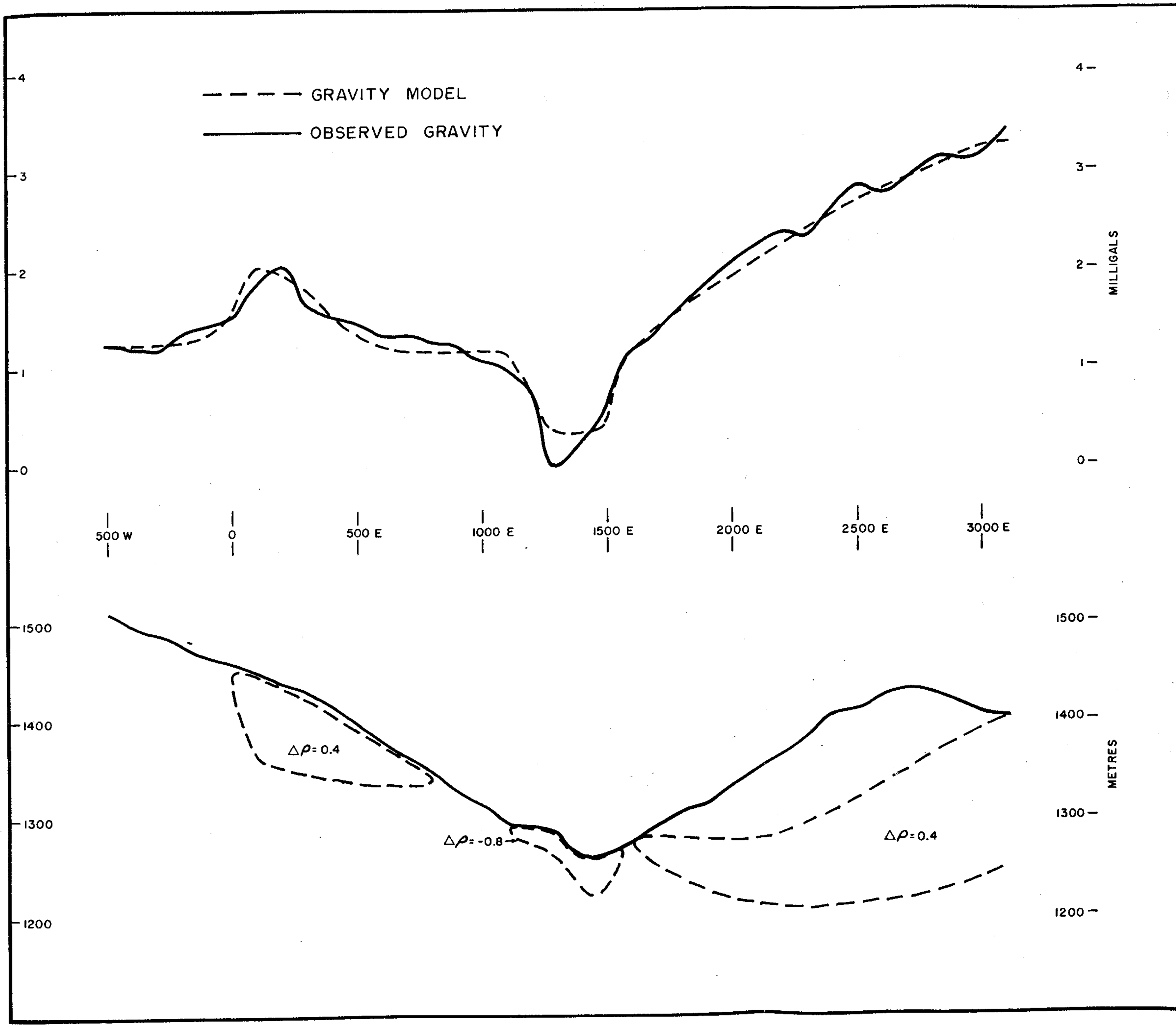
A density of 2.67 grams per cc was used for terrain correction calculations. The resulting Complete Bouguer Gravity Map is given as Figure 3. The terrain correction values were taken from the terrain correction map produced for the 1983 survey. This map covered the areas of interest but excluded the base line extension, line 26+00 N west of station 1 east and east of station 16 east, line 22+00 N east of station 18 east and line 18+00 N east of station 21 east. Values for these points were extrapolated from topographic maps.

INTEPRETATION

Several features can be observed from the Complete Bouguer Gravity Map.

A gravity high trends across the area from line 8+00 N station 8 east to line 26+00 N station 4 west, with the high maximizing at line 18+00 N. Using geological information supplied by Chevron, line 18+00 N has been modelled. As can be been on Figure 2, variations in gravitational fields can be explained by a higher density rock unit, probably a sill, near surface at station 2 east and at depth from station 17 east to 31 east.

A gravity low can be observed between line 14+00 N station 13 east and line 26+00 N station 12 east. This feature correlates well when modelled as stream sediments.



GRAVITY MODEL LINE 18+00 N

CHEVRON CANADA RESOURCES LTD.
YAHK, B.C.

Ager, Berretta & Ellis Inc.	DWN BY: B.J.C.	FIG. NO.
	DATE: JULY 1984	2

APPENDIX I

GRAVITY FUNDAMENTALS

There are a number of steps required in order to obtain meaningful, relative gravity values from raw field data. The final values are referred to as Complete Bouguer Gravity and are derived from the following components:

- g_o = observed gravity = field observations corrected for drift and adjusted to primary base station gravity datum.

- g_{fa} = free air effect = correction for the relative distance of the gravity station from the mass of the earth (point source mass). This calculation assumes a normal free air and corrects for relative differences in distance from the elevation datum.

- g_{bs} = Bouguer slab effect = correction for the relative differences in thickness of rock material between gravity stations and the elevation datum. This calculation requires that a mean density for rock types between the lowest and highest grid elevations be established. All stations are then corrected for the gravity effect caused by this assumed slab of the derived density above the elevation datum.

- g_l = latitude effect = correction for change of observed gravity with change in latitude - due primarily to the difference in the earth's radius between the poles and equator.

- g_t = terrain effect = correction for variations caused by local terrain. The vertical component of the gravitational effect exerted by nearby hills, or not exerted by valleys or gullies, will affect the net reading obtained at any one station. The overall effect on a given line profile or grid area will be a function of the station spacing relative to the frequency of the terrain correction.

Accurate and appropriate application of the above corrections yields Complete Bouguer Gravity values which are, in theory, free from all effects except those caused by relative changes in density within rock units below the survey area.

$$G_{cb} = g_o - (g_{fa} + g_{bs} + g_1 + g_t) = \text{Complete Bouguer Gravity.}$$

Changes in relative gravity values which may result in "anomalies" are a function of:

- the difference in densities between rock units;
- the sizes of rock units relative to each other and relative to the grid spacing or "target" size;
- the distance from the area of density contrast to the observation points.

For example: Steeply dipping, near surface massive sulphide deposits or coal seams will give sharp featured gravity anomalies, the former greater than background, the latter less than background. Density contrasts at depth, such as slopes or changes in basement stratigraphy, will result in very low frequency changes, often referred to as gradients.

APPENDIX II

GRAVITY LISTING

Elevation density factor :	2.67 grams per cc
Gravity datum as printed :	arbitrary
Elevation datum :	1524 meters at line 0 station 0
Grid spacing :	100 meter stations on lines offset 400 meters

GRAVITY

Base station at line 0 station 0 :	4069.92 milligals
Base station at line 18+00 N and Road(17+60E) :	4186.00 milligals
Field work :	8 July 1984 thru 12 July 1984
Meter Counter Reading :	4100.00
Pertinent Meter Factor :	1.02676

CREW

Gregory Paquin	Project Geophysicist/ Gravity Observer
Tam Mitchell	Surveyor
Sam Circa	Field Assistant/ Data processor

APPENDIX II

GRAVITY DATA LISTING

LINE 10+00 N

STN. NO.	ELEV. METRES	ELEV. FEET	OBSERVED GRAVITY	LATITUDE COR.	TERRAIN COR.	COMPLETE BOUGUER
10 N 12 E	1339.60	4395.01	179.10	2.48	1.20	446.28
10 N 13 E	1312.07	4304.69	184.41	2.52	1.14	446.15
10 N 14 E	1292.24	4239.63	188.21	2.56	.89	445.84
10 N 15 E	1265.22	4150.99	193.61	2.60	.77	445.85
10 N 16 E	1245.84	4087.40	197.50	2.64	.69	445.89
10 N 17 E	1242.25	4075.63	198.43	2.68	.68	446.14
10 N 18 E	1241.16	4072.04	198.76	2.72	.70	446.32
10 N 19 E	1248.88	4097.39	197.27	2.76	.77	446.46
10 N 20 E	1256.98	4123.94	195.70	2.80	.84	446.59

LINE 14+00 N

STN. NO.	ELEV. METRES	ELEV. FEET	OBSERVED GRAVITY	LATITUDE COR.	TERRAIN COR.	COMPLETE BOUGUER
14 N -5 E	1547.10	5075.78	138.59	1.52	1.19	445.61
14 N -4 E	1532.05	5026.41	141.58	1.56	1.18	445.67
14 N -3 E	1518.14	4980.76	144.30	1.60	1.16	445.68
14 N -2 E	1512.05	4960.81	145.74	1.64	1.18	445.98
14 N -1 E	1509.48	4952.35	146.61	1.68	1.19	446.40
14 N 0 E	1506.44	4942.39	147.14	1.72	1.24	446.42
14 N 1 E	1487.85	4881.40	150.77	1.76	1.24	446.43
14 N 2 E	1468.40	4817.59	154.78	1.80	1.23	446.64
14 N 3 E	1465.03	4806.54	155.26	1.84	1.21	446.48
14 N 4 E	1458.09	4783.75	156.70	1.88	1.21	446.60
14 N 5 E	1444.30	4738.51	159.48	1.92	1.19	446.68
14 N 6 E	1425.64	4677.29	162.92	1.96	1.18	446.48
14 N 7 E	1406.64	4614.96	166.76	2.00	1.18	446.63
14 N 8 E	1390.15	4560.86	169.86	2.04	1.19	446.53
14 N 9 E	1372.68	4503.55	173.02	2.08	1.21	446.32
14 N 10 E	1349.65	4428.00	177.37	2.12	1.23	446.20
14 N 11 E	1327.42	4355.04	181.39	2.16	1.21	445.86
14 N 12 E	1308.35	4292.48	185.40	2.20	1.11	446.06
14 N 13 E	1280.06	4199.67	190.89	2.24	.91	445.83
14 N 14 E	1265.26	4151.11	194.06	2.28	.75	445.97
14 N 15 E	1254.08	4114.44	196.22	2.32	.66	445.88
14 N 16 E	1251.26	4105.19	197.09	2.36	.61	446.18
14 N 17 E	1253.19	4111.50	196.58	2.40	.61	446.09
14 N 18 E	1270.39	4167.96	193.61	2.44	.66	446.60
14 N 19 E	1283.17	4209.86	191.10	2.48	.74	446.72
14 N 20 E	1292.91	4241.84	189.23	2.52	.95	447.02

LINE 18+00 N

STN. NO.				ELEV. METRES	ELEV. FEET	OBSERVED GRAVITY	LATITUDE COR.	TERRAIN COR.	COMPLETE BOUGUER
18	N	-5	E	1510.43	4955.47	146.58	1.24	1.31	446.23
18	N	-4	E	1498.14	4915.17	148.96	1.28	1.28	446.20
18	N	-3	E	1487.45	4880.07	151.06	1.32	1.23	446.19
18	N	-2	E	1475.35	4840.38	153.61	1.36	1.19	446.36
18	N	-1	E	1467.43	4814.39	155.21	1.40	1.18	446.43
18	N	0	E	1456.90	4779.86	157.32	1.44	1.16	446.49
18	N	1	E	1448.89	4753.58	159.22	1.48	1.15	446.85
18	N	2	E	1438.83	4720.57	161.35	1.52	1.14	447.03
18	N	3	E	1430.45	4693.09	162.59	1.56	1.12	446.64
18	N	4	E	1414.50	4640.76	165.60	1.60	1.12	446.55
18	N	5	E	1392.66	4569.11	169.79	1.64	1.10	446.47
18	N	6	E	1376.70	4516.73	172.79	1.68	1.06	446.33
18	N	7	E	1362.60	4470.48	175.56	1.72	1.04	446.34
18	N	8	E	1342.67	4405.07	179.36	1.76	1.04	446.26
18	N	9	E	1328.36	4358.14	182.10	1.80	1.02	446.21
18	N	10	E	1311.81	4303.84	185.17	1.84	1.03	446.07
18	N	11	E	1294.17	4245.95	188.65	1.88	.89	445.98
18	N	12	E	1292.27	4239.72	188.95	1.92	.70	445.76
18	N	13	E	1287.15	4222.94	189.17	1.96	.68	444.99
18	N	14	E	1262.50	4142.05	194.21	2.00	.68	445.22
18	N	15	E	1265.50	4151.89	193.84	2.04	.73	445.53
18	N	16	E	1279.47	4197.74	191.56	2.08	.85	446.16
18	N	17	E	1295.66	4250.85	188.33	2.12	1.00	446.31
18	N	18	E	1309.01	4294.66	185.76	2.16	1.20	446.60
18	N	19	E	1317.38	4322.12	184.20	2.20	1.30	446.83
18	N	20	E	1338.50	4391.42	180.24	2.24	1.27	447.03
18	N	21	E	1351.11	4432.78	177.87	2.28	1.29	447.20
18	N	22	E	1367.91	4487.90	174.64	2.32	1.32	447.35
18	N	23	E	1384.48	4542.25	171.27	2.36	1.35	447.31
18	N	24	E	1406.75	4615.33	167.08	2.40	1.38	447.57
18	N	25	E	1409.75	4625.18	166.68	2.44	1.39	447.81
18	N	26	E	1425.42	4676.58	163.49	2.48	1.40	447.75
18	N	27	E	1428.15	4685.53	163.01	2.52	1.42	447.87
18	N	28	E	1426.66	4680.65	163.45	2.56	1.44	448.07
18	N	29	E	1417.58	4650.85	165.18	2.60	1.46	448.08
18	N	30	E	1407.65	4618.29	167.13	2.64	1.48	448.14
18	N	31	E	1403.04	4603.16	168.22	2.68	1.50	448.38

LINE 22+00 N

	STN. NO.	ELEV. METRES	ELEV. FEET	OBSERVED GRAVITY	LATITUDE COR.	TERRAIN COR.	COMPLETE BOUGUER
22 N	-5 E	1505.86	4940.48	148.46	.96	1.59	447.21
22 N	-4 E	1492.80	4897.65	150.92	1.00	1.41	446.96
22 N	-3 E	1474.36	4837.13	154.49	1.04	1.29	446.83
22 N	-2 E	1463.66	4802.02	156.60	1.08	1.18	446.76
22 N	-1 E	1452.41	4765.13	158.65	1.12	1.15	446.61
22 N	0 E	1440.77	4726.94	160.91	1.16	1.12	446.59
22 N	1 E	1427.02	4681.81	163.46	1.20	1.10	446.46
22 N	2 E	1402.87	4602.59	168.10	1.24	1.06	446.34
22 N	3 E	1383.33	4538.48	172.06	1.28	1.02	446.46
22 N	4 E	1373.65	4506.73	173.80	1.32	.95	446.27
22 N	5 E	1370.90	4497.71	174.42	1.36	.89	446.33
22 N	6 E	1367.86	4487.73	174.91	1.40	.83	446.20
22 N	7 E	1346.28	4416.92	178.86	1.44	.79	445.90
22 N	8 E	1314.90	4313.99	184.92	1.48	.78	445.82
22 N	9 E	1303.13	4275.37	187.38	1.52	.75	445.98
22 N	10 E	1312.69	4306.73	185.66	1.56	.73	446.16
22 N	11 E	1311.89	4304.11	185.77	1.60	.74	446.16
22 N	12 E	1298.02	4258.60	188.19	1.64	.75	445.90
22 N	13 E	1290.72	4234.63	189.45	1.68	.82	445.84
22 N	14 E	1270.46	4168.18	192.67	1.72	1.03	445.32
22 N	15 E	1283.56	4211.17	190.06	1.76	1.28	445.58
22 N	16 E	1303.88	4277.81	186.53	1.80	1.30	446.10
22 N	17 E	1324.69	4346.11	182.75	1.84	1.32	446.48
22 N	18 E	1341.85	4402.41	179.79	1.88	1.39	447.00
22 N	19 E	1364.51	4476.75	175.79	1.92	1.46	447.57
22 N	20 E	1380.97	4530.75	172.46	1.96	1.50	447.56

LINE 26+00 N

	STN. NO.	ELEV. METRES	ELEV. FEET	OBSERVED GRAVITY	LATITUDE COR.	TERRAIN COR.	COMPLETE BOUGUER
26 N	-5 E	1506.26	4941.80	149.09	.68	1.03	447.08
26 N	-4 E	1493.09	4898.59	151.64	.72	1.25	447.30
26 N	-3 E	1475.22	4839.95	155.22	.76	1.20	447.36
26 N	-2 E	1458.13	4783.88	158.60	.80	1.15	447.36
26 N	-1 E	1443.80	4736.88	161.26	.84	1.10	447.20
26 N	0 E	1427.33	4682.84	164.39	.88	1.05	447.08
26 N	1 E	1406.62	4614.88	168.48	.92	1.02	447.10
26 N	2 E	1394.89	4576.41	170.76	.96	1.00	447.10
26 N	3 E	1386.34	4548.35	172.37	1.00	.95	447.01
26 N	4 E	1376.53	4516.18	174.10	1.04	.85	446.75
26 N	5 E	1360.46	4463.46	177.09	1.08	.71	446.48

26 N 6 E	1343.00	4406.17	180.40	1.12	.64	446.33
26 N 7 E	1329.87	4363.08	182.80	1.16	.61	446.16
26 N 8 E	1318.20	4324.82	185.02	1.20	.68	446.19
26 N 9 E	1320.06	4330.92	184.59	1.24	.76	446.25
26 N 10 E	1310.44	4299.33	186.30	1.28	.89	446.23
26 N 11 E	1302.11	4272.00	187.68	1.32	.99	446.12
26 N 12 E	1284.76	4215.09	190.56	1.36	1.15	445.78
26 N 13 E	1294.73	4247.81	188.60	1.40	1.23	445.90
26 N 14 E	1303.31	4275.96	187.03	1.44	1.27	446.10
26 N 15 E	1310.68	4300.14	185.56	1.48	1.30	446.15
26 N 16 E	1345.79	4415.32	179.09	1.52	1.30	446.63
26 N 17 E	1364.33	4476.15	175.61	1.56	1.23	446.76
26 N 18 E	1391.62	4565.68	170.61	1.60	1.20	447.14
26 N 19 E	1407.61	4618.13	167.66	1.64	1.18	447.36
26 N 20 E	1432.76	4700.66	163.00	1.68	1.15	447.65

LINE BASE LINE

STN. NO.	ELEV. METRES	ELEV. FEET	OBSERVED GRAVITY	LATITUDE COR.	TERRAIN COR.	COMPLET BOUGUE
0BL 26 N	1427.33	4682.84	164.38	.88	1.05	447.07
0BL 27 N	1420.60	4660.77	165.82	.81	1.01	447.07
0BL 28 N	1418.37	4653.46	166.23	.74	.97	446.93
0BL 29 N	1407.64	4618.23	168.39	.67	.93	446.87
0BL 30 N	1404.23	4607.04	168.92	.60	.89	446.62
0BL 31 N	1394.16	4574.00	170.82	.53	.85	446.43
0BL 32 N	1400.08	4593.44	169.86	.46	.81	446.53
0BL 33 N	1404.35	4607.44	168.99	.39	.77	446.39
0BL 34 N	1406.21	4613.56	168.93	.32	.74	446.59
0BL 35 N	1406.75	4615.33	168.79	.25	.71	446.46
0BL 36 N	1408.78	4621.98	168.28	.18	.68	446.25
0BL 37 N	1413.90	4638.77	167.27	.11	.64	446.13
0BL 38 N	1415.65	4644.52	166.92	.04	.60	446.02

115°59'
58'
116°00'
49°07'
49°06'
49°05'
116°00'
59'
58'
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ERI
Y-12-81
Y-13-81
Mt Mahon
0+00 N Baseline
0+00E Baseline
TOURM LCP
TOP LCP
Y-6
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0+200 N
0+200 E
0+400 E
0+600 E
0+800 E
0+800 S
1+000 S
1+800 S

GEOLOGICAL BRANCH
ASSESSMENT REPORT

14,240

Chevron Canada Resources Limited
Minerals Staff

MOUNT MAHON

COMPLETE BOUGUER GRAVITY

ρ = 2.67

Ager, Berretta & Ellis Inc.		PROJECT No	M525
JULY 1984			