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VICTORIA, B.C.

Mineral  
Potential

of the

# Murphy Lake Porphyry Copper Property

GEOLOGICAL SURVEY BRANCH  
ASSESSMENT REPORT

27,325

Cariboo Mining Division  
British Columbia

prepared by

**R.H. McMillan Ph.D.**

15 December 2003

N.T.S. 093A03

Lat. 52°02'N  
Long. 121°16'W

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# 1 Introduction – Synopsis

The Murphy Lake property is located about 20 kilometres northeast of Lac La Hache in the Cariboo district of central British Columbia. Excellent infrastructure is readily accessible in the form of human resources, railway, highway and power within 20 to 30 kilometres. Physiographically it is a rolling plateau area covered by mixed coniferous forest. Logging companies are operating on and adjacent to the property and the claims are criss-crossed by a network of active logging roads.

Reconnaissance geophysical surveys at 400 metres spacing and diamond drilling (7 holes) by the Regional/GWR resources joint venture in 1995 resulted in a high-grade porphyry-style copper intersection of 1.14% Cu across 9.3 metres within a wider zone which graded 0.34% Cu and 0.04 g/t Au across 53.3 metres of core. The induced polarization anomaly associated with the intersection is open to the north and no follow-up drilling has been undertaken as yet. The former operators recommended a follow-up program of geophysical surveys and drilling at a total cost of \$700,00, the first phase of which would total \$250,000 and entail 1500 metres of diamond drilling.

The author endorses the above recommendations. The report which follows documents a ground magnetic and VLF-EM survey undertaken to partially delineate features associated with the porphyry-style copper-gold mineralization.

## 2 Location and Access

The Murphy Lake property is located approximately 20 kilometres northeast of Lac La Hache in the Cariboo district of central British Columbia (figure 1). The property is centred at about 52°02' latitude, 121°16' longitude on national topographic sheet (NTS) 093A/3. Road access to the claims is excellent with well-maintained gravel logging roads traversing much of the southern portion of the claims. The BC Rail line is located 20 kilometres southeast at Lac La Hache.

The most convenient access to the property is via the road to the village of Forest Grove which turns northeast from provincial Highway 97 two kilometres north of 100 Mile House. Approximately 22 kilometres northeast of Highway 97, and about 1 kilometre beyond Forest Grove, the Bradley Creek 500 road is followed and then the Bradley Creek 100 road for approximately 34 kilometres to the Borthwick Creek road. The centre of the property is at about kilometre 6 on the Borthwick Creek road.



Figure 1

REGIONAL LOCATION MAP  
MURPHY LAKE PROJECT



1:10,000,000

### 3 Physiography and Vegetation

The property is located in the Thompson (or Cariboo) Plateau. Elevations in the area are approximately 1100 metres, dropping to 930 metres at Murphy Lake. The topography is subdued with gentle rolling hills and locally some swampy areas.

Most of the property is mantled by a layer of glacial till which locally exceeds 20 metres in thickness. Sparse outcrop is exposed in the northeast and southwest portions of the MUR2 and the northwest portion of the MUR1 claims. Some 30 to 40 percent of the property has been logged, with the remainder of the claims covered by lodgepole pine forest. Spruce and Douglas fir are confined to the lower elevations closer to Murphy Lake.

The climate is moderate with summer temperatures up to 30<sup>o</sup> and cold winters with snowfall between 1 and 2 metres. Water is available for drilling year-round from Borthwick Creek and numerous smaller creeks and ponds on the property.

### 4 Claim Status

The property consists of two contiguous four-post mineral claims comprising a total of 24 claim units and a total of 600 hectares, all within the Cariboo Mining Division. The claims are owned by R.H. McMillan (FMC # 132841) and R.R. Blusson. The Legal Corner Posts (LCPs) have a common location at 5766051N, 0618035E (Zone 10, NAD83). The claims information is tabulated in the following table:

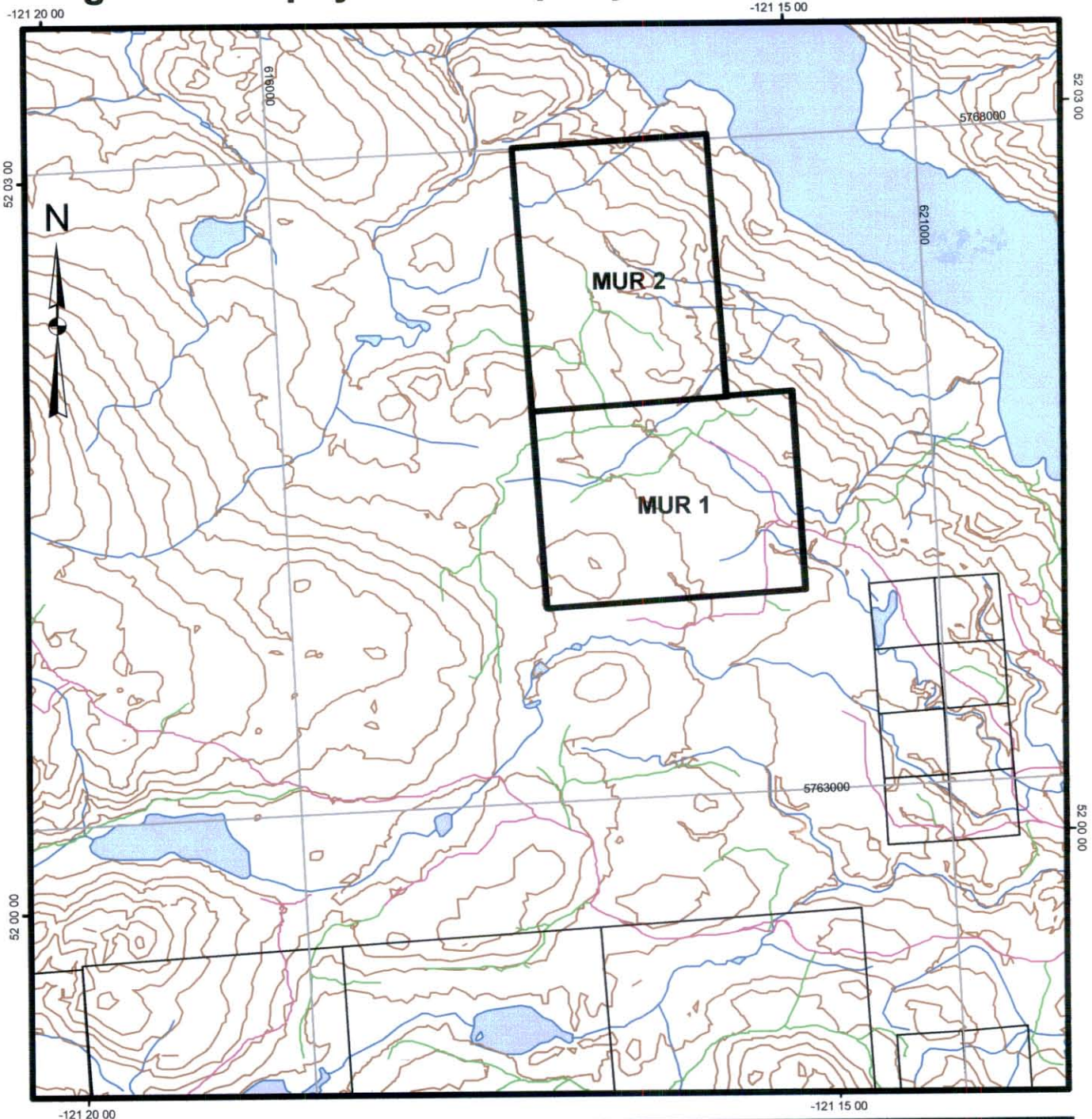
Claim Name	Tag No.	Tenure No.	No. Units	Date Staked	Expiry Date
Mur 1	206874	402246	12	2003/05/09	2004/05/09
Mur 2	206875	402247	12	2003/05/10	2004/05/10

### 5 Past Exploration Work

#### 5a Spout-Peach Lakes Area


A regional airborne magnetic survey was flown by the Geological Survey of Canada in 1966 and a large annular-shaped positive anomaly 10 kilometres in diameter was delineated west of Murphy Lake (GSC Maps 5232G and 5234G). Several years earlier, a similar aeromagnetic anomaly had been defined on Polley Mountain which

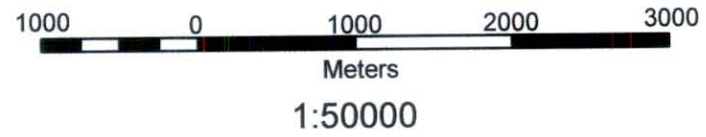
# Figure 2 Murphy Lake Property - MUR 1 and 2 Claims

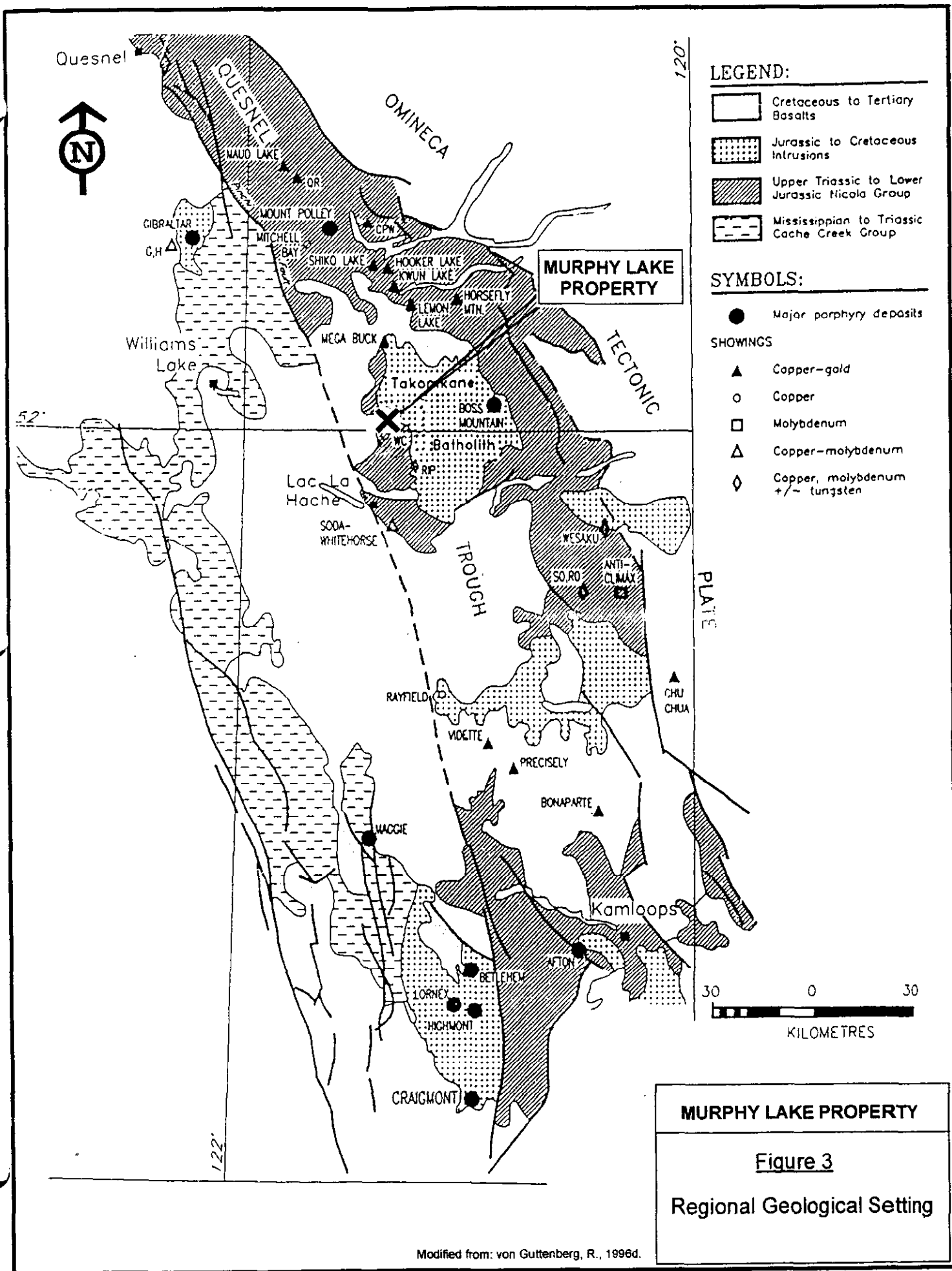


## Murphy Lake Property, Lac La Hache - Williams Lake Area MUR 1 and 2 Claims

- Claims 
- Paved Road 
- Gravel Road 
- Rough Road 
- Contour 

- Lake 
- Stream 





Modified from: von Guttenberg, R., 1996d.

contributed to the discovery of the Cariboo-Bell (Mt. Polley) alkalic copper-gold porphyry deposit (Hodgson et al, 1976). The Murphy Lake anomaly occurs in the same belt of Nicola rocks which is host the Cariboo-Bell Mine, and as a consequence attracted exploration directed towards similar alkalic porphyry deposits. Exploration were initially directed along the southern boundary of the aeromagnetic anomaly, in the area south of Spout and Peach Lakes, in the area covered by the current GWH claims. This early work resulted in the discovery of several porphyry-style Cu-Au and skarn Cu-Au occurrences.

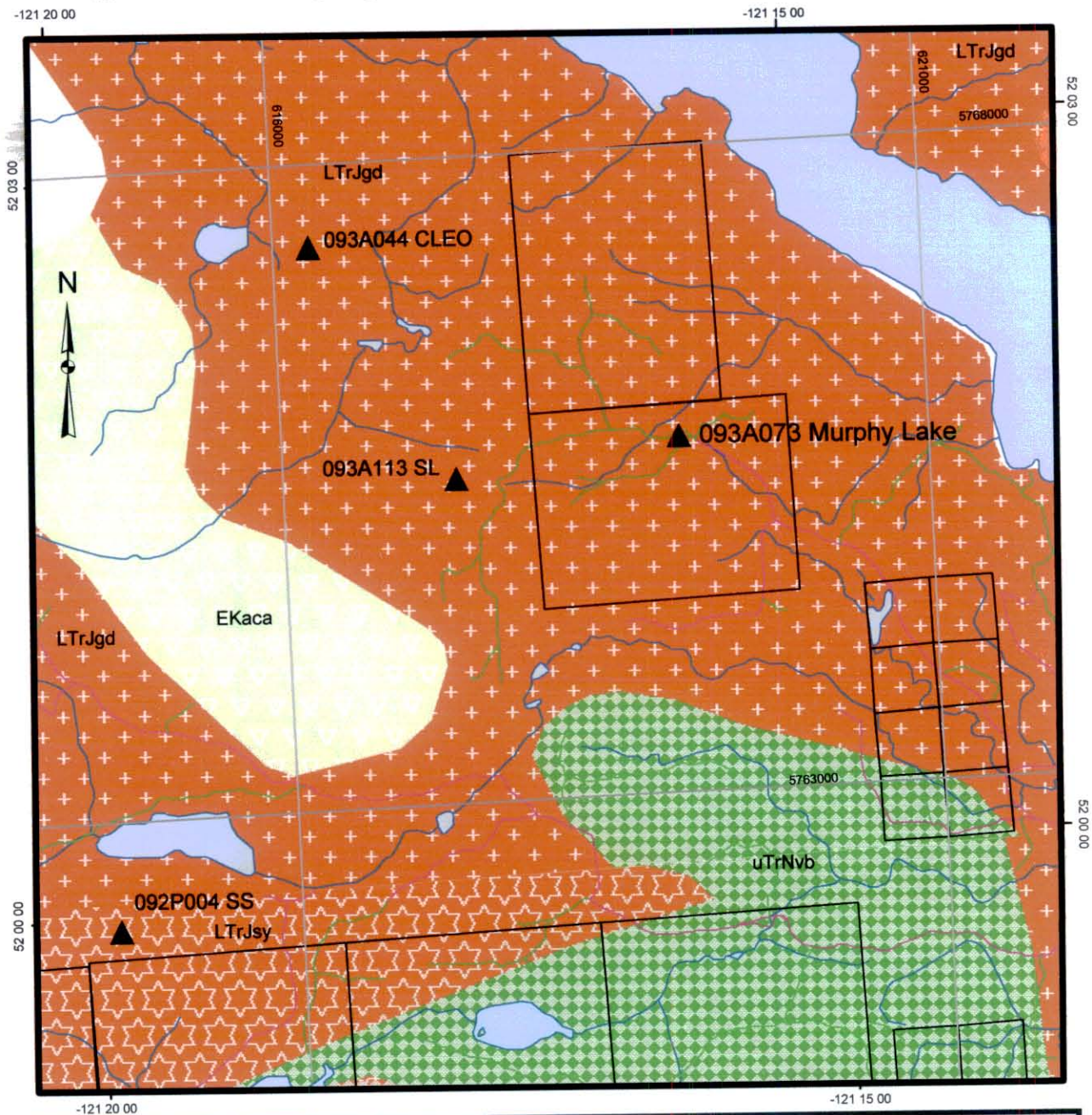
In 1966 and 1967 Coranex Limited investigated the airborne magnetic anomaly and obtained anomalous results in follow-up stream sediment and soil geochemical surveys in the area south of Peach Lake. Programs of geological, soil geochemical, magnetometer, induced polarization and prospecting surveys were undertaken in 1967 in the area south of Peach Lake, leading to the discovery of the Peach #1 (MINFILE 092P001) and several other important occurrences including the Miracle occurrence (MINFILE 092P 124). ASARCO Exploration Company of Canada Limited optioned the Peach #1 property and adjacent area in 1969.

According to Rowan (1990, Assessment Report 20621), Amax Potash Limited learned of the Coranex discoveries south of Peach Lake and completed geological and geochemical work over portions of the airborne magnetic anomaly not held by Coranex and this work resulted in the discovery of magnetite-chalcopyrite veins and stratabound skarn mineralization (MINFILE 092P120) south of Spout Lake and Amax immediately staked the WC claims. Between 1971 and 1973, Amax carried out exploration programs at Spout Lake, which included geological mapping, airborne and ground magnetometer surveys, induced polarization and geochemical surveys and bulldozer trenching. Drilling included 6 packsack holes (136 metres), 10 percussion holes and 7 diamond drill holes (843 metres). The work outlined two deposits at Spout Lake, the North and South Zones. In 1974, Craigmont Mines Limited optioned the property and drilled six diamond drill holes (1210 metres) at Spout Lake. The Tim alkalic porphyry showing (MINFILE 092P122) was outlined in an induced polarization survey by Amax during that period but the high-grade copper mineralization was encountered in 1983 in a program managed by Stallion Resources Limited. An "inventory" of 75,000 tonnes averaging 2.15% Cu and 12 g/t Ag has been reported.

The Spout and Peach Lake area properties were allowed to lapse and were re-staked in 1987 by Peach Lake Resources, who completed soil geochemical, VLF-EM and magnetic surveys and excavator trenching. ASARCO re-optioned the Spout-Peach properties in 1988 and completed induced polarization surveys and percussion drilling in 1991. GWR Resources subsequently acquired the properties and formed a joint venture with Regional Resources in 1993. Diamond drill programs were completed in 1993, 1994 and 1995. A "drill indicated inventory" totalling 554,000 tonnes grading 1.8% Cu and 0.17 g/t Au was calculated for the Spout Lake deposit (MINFILE 092P120). In 1993, the Regional/GWR work led to a new discovery of bornite-chalcopyrite skarn mineralization not associated with a strong magnetic anomaly at the Nemrud occurrence (MINFILE 092P 003).



# Figure 4 Murphy Lake Property - Geological Map



## Murphy Lake Property, Lac La Hache - Williams Lake Area, BC MUR 1 and 2 Claims

### Geology

- |                    |  |  |
|--------------------|--|--|
| Claims             |  |  |
| Gravel Road        |  |  |
| Rough Road         |  |  |
| Lakes              |  |  |
| Stream             |  |  |
| Minfile Occurrence |  |  |
- 
- |                |  |
|----------------|--|
| 500 0 500 1500 |  |
|                |  |
- 
- |   |   |
|---|---|
| <b>PLEISTOCENE TO HOLOCENE</b>          |   |
|   | PIHal alluvium, till                          |
| <b>EOCENE</b>                           |   |
| <i>Kamloops Group</i>                   |   |
|   | EKaca calc-alkaline volcanic rocks            |
| <b>UPPER TRIASSIC TO EARLY JURASSIC</b> |   |
|   | LTrJgd granodioritic intrusive rocks          |
|   | LTrJsy syenitic to monzonitic intrusive rocks |
| <b>UPPER TRIASSIC</b>                   |   |
| <i>Nicola group</i>                     |   |
|   | uTrNvb basaltic volcanic rocks                |



MURPHY LAKE PROPERTY

GWR PROPERTY

TIM PROPERTY

MURPHY LAKE PROJECT

Figure 5

Regional Aeromagnetic Map  
(from GSC maps 5232G, 5234G)

Scale: 1:50,000  
NTS 92P/14 93A/3  
Clinton & Cariboo Mining Divisions

## **5b Murphy Lake Property**

The first work recorded in the area of the current Murphy Lake property was a reconnaissance program by Cyprus Exploration in 1969 involving geological mapping, geochemical sampling and ground geophysics (Assessment Report 2370).

In 1988 the Murphy Lake property area was covered by an airborne VLF-EM and magnetometer by Tide Resources Ltd. (Assessment Report 18,347, Gagne et al, 1989). A magnetic high was delineated in an area underlain by Nicola rocks south of the Mur 1 claim which was believed to indicate the presence of a magnetite-rich alkalic intrusion. A number of VLF-EM conductors were also identified in the area, which was recommended for follow-up work.

In 1993, the Regional Resources/GWR joint venture acquired the ground covered by the Mur 1 and 2 claims following the discovery of the Nemrud occurrence. Reconnaissance geological and geochemical surveys in the Murphy Lake area outlined an area of anomalous copper in monzonite. In 1995, the joint venture completed a program of ground geophysics (27 kilometres of induced polarization and magnetic surveys) and a number of IP chargeability anomalies were detected which were tested with 7 diamond drill holes (ML95-01 to 07) totalling 1146 metres. The drilling results were encouraging and discovered the Murphy Lake occurrence.

In 1996, Regional Resources underwent re-organization to form Silvertip Mining Corp., and the option on the Lac La Hache properties was not maintained. GWR Resources continued to work on the Spout Lake - Peach properties, while the Murphy Lake property was optioned to Churchill Resources in 1999. Churchill completed a program of linecutting, ground geophysics and reconnaissance geology and geochemistry on the Mur 1 and 2 claims. A total of 47 kilometres of flagged and picketed grid was established and magnetic and VLF-EM surveys completed over the northern portion of the current Murphy Lake property, mainly over the Mur 2 claim. Churchill collected several silt samples, but because of the high organic content of most samples, only five were suitable for analysis. One sample from the northern part of the Mur 2 claim returned a highly anomalous result of 106 ppb gold.

## **6 Regional Geology**

The Murphy Lake property is located within the central part of the Quesnel Trough, within Quesnellia Terrane. The regional geology of the general area is described by Campbell and Tipper (1972), Panteleyev et al (1996) and Bailey (1990) and is shown in Figure 3.

The Quesnel Trough is a northwest-trending eugosynclinal belt underlain by island arc volcanic rocks and related sedimentary and intrusive rocks. The belt is more than 1000 kilometres in length and 30 to 35 kilometres wide. It contains a basal section of Triassic

sedimentary rocks overlain by Upper Triassic to Lower Jurassic arc-related volcanic rocks and co-eval sub-volcanic intrusive rocks. The western boundary of the Quesnel Trough is marked by the high-angle, strike-slip Pinchi Fault system and adjoins Cache Creek Terrane. To the east, Quesnellia rocks are thrust over the Omineca Crystalline Belt by the Eureka Thrust Fault. The Quesnel trough extends from northern Washington State to north-central British Columbia and is host to the most important porphyry and skarn occurrences in British Columbia including the Highland Valley Mine, Afton, Copper Mountain-Ingerbelle, Craigmont, Gibraltar, Mount Polly (Cariboo Belle), Kemess and the QR gold skarn.

In the southern part of the Quesnel Trough the eugosynclinal volcanic, sedimentary and subvolcanic intrusive rocks are assigned to the Nicola Group, which has a total thickness of approximately 7 kilometres. The basal sedimentary sequence consists of shale, argillite, phyllite, siltstone and limestone. The sedimentary sequence is overlain by subaqueous (and lesser subaerial) alkalic volcanic rocks deposited within a series of coalescing volcanic centres. The volcanic sequence includes olivine and pyroxene bearing flows, breccias and tuffs, as well as calcareous tuffs and volcanoclastic sandstone and breccia. Many of the volcanic centres have cores of high-level coeval alkalic rocks of syenitic, monzonitic and dioritic composition. These intrusive rocks are host to the alkalic suite of porphyry Cu-Au deposits within the Quesnel Trough, as well as being related to gold skarn mineralization in the calcareous sediments and volcanoclastic rocks.

Intrusive rocks of Jurassic to Cretaceous age cut the Nicola rocks and range in composition from quartz monzonite to quartz diorite and diorite. Local syenitic and gabbroic phases are also present. The zoned Takomkane batholith, dated at 187 to 198 Ma, is part of this Jurassic to Cretaceous suite. The batholith is 50 kilometres in width and its western margin is located on the eastern edge of the Murphy Lake property. The Takomkane batholith is cut by a younger quartz monzonite dated at 102 million years, which is host to the Boss Mountain molybdenum mine located approximately 50 kilometres east of Murphy Lake.

Flat-lying Tertiary volcanic rocks unconformably overlie the older deformed rocks. These include early Tertiary lavas of Eocene and Oligocene age and Miocene plateau and valley-fill basalts.

## 7 Property Geology

Oucrop is sparse on the property, averaging less than 1%. Most of the property covered by glacial till and glacio-fluvial deposits.

As a consequence of the extensive cover, much of the geological interpretation on the Murphy Lake property is inferred by projections of data from the better-exposed and moderately well-drilled GWR properties south of Spout and Peach Lakes, and from interpretation of geophysical data and drilling by the Regional Resources/GWR joint

venture. According to von Guttenberg (1996, Assessment Report 25,368) the property is underlain by coarse grained monzonitic to gabbroic intrusives containing 1 to 3% primary magnetite. The monzonitic and dioritic rocks are crosscut by steeply-dipping northeast- and east-striking pegmatite dykes as well as steeply-dipping northwest-striking fine grained diabase dykes. Nicola Group rocks outcrop south of the property, however the strong magnetic signature of parts of the Murphy Lake property suggest Nicola rocks could underlie some parts of the grid (Caron (1999), Assessment Report 26221).

## 8 Mineralization

Seven diamond drill holes were drilled on the Murphy Lake property by the Regional/GWR joint venture in 1995 to test anomalous chargeability (induced polarization) highs on the flanks of magnetic anomalies (Klit et al, 1994b; von Guttenberg, 1996b).

Copper mineralization was encountered in the form of fracture-controlled chalcopyrite and pyrite associated with moderate potassic alteration (k-feldspar), chlorite and minor quartz in coarse-grained magnetic monzonite. Mineralization is associated with a relative magnetic low, which indicates destruction of primary magnetite during hydrothermal alteration and sulphidization.

Anomalous copper grades ranging from 200 to 400 ppm are widespread throughout all of the drill holes. Von Guttenberg (1996; Assessment Report 25,368) reports that "anomalous copper ranging from approximately 200 to 400 ppm is widespread in all holes drilled however, higher grades were mainly found to be associated with a weak chargeability anomaly (9.5 milliseconds, 21 point filter) with a relative magnetic low located on line 5800N. This anomaly was tested with hole ML95-01 which intersected 45 metres of 0.2% copper including 15 metres of 0.41% copper at the footwall of the zone under 20 metres of overburden. Hole ML95-06, drilled 115 metres to the north on line 5915N returned 0.34% copper and 0.04 g/t gold over 53 metres of core length, including 1.14% copper and 0.08 g/t gold over 9.3 metres length in the footwall of the zone. The true width of the mineralized zone is 30-35 metres if the interpreted vertical dip is correct. It is open to depth and on strike, and from the IP response may continue as far south as 5400N and to the north beyond line 6600N, the last line on the grid."

## 9 Present Work Program

In July 2003, 6 field days (July 17 to 22) were spent completing a magnetic and VLF-EM survey over the Mur 1 and 2 claims. Line 1800E on the Regional/GWR grid prepared in 1995 was cleaned out and re-chained and then utilized as a baseline for the current work. Eleven east-west lines spaced at 200 metres from 4600N to 6600N were surveyed over a length of 2 kilometres each. The previously-cut Regional/GWR lines

spaced at 400 metres were utilized, as well as flagged fill-in lines spaced at 200 metres between the cut lines. The work was done by the author and Mr. Geoffrey Ingram. Mr. John Osterhagen of Discovery Consultants supervised the survey and prepared figures 7 to 9. The survey totalled 22 kilometres, with data recorded on the lines on stations spaced at 12.5 metres. The magnetic data was collected using a GSM-19 proton precession magnetometer manufactured by GEM Systems of Metropolitan Toronto, Ontario. This instrument measures variations of the earth's magnetic field to an accuracy of +/- 0.2 nanoteslas(nT). Corrections for diurnal variations were made by comparison with readings taken at 10-second intervals on a similar instrument, held fixed at a base station next to the camp. The VLF electromagnetic survey was carried out simultaneously with the magnetometer survey, utilizing a GSM 19 Omni-directional system. The Omni unit consists of a sensor that was attached to the GSM 19 backpack assembly, and is controlled from the same console as the magnetometer. The unit makes use of the VLF-EM transmitting stations operating for communication with submarines for its transmitted signal – the instrument measures the vertical in-phase and out-of-phase components as a percentage of the total field as well as two horizontal components, the date and the time. If a conductor is present, secondary fields are generated and measurements of these secondary fields provide indications as to the size, shape and conductivity of the conductor. In the absence of conductors no secondary fields are obtained. The unit can make automatic three station measurements, but here only the Seattle (24.8 Hz) and Hawaii (21.4 Hz) transmitters were recorded. The basic principle of any electromagnetic survey is that when a conductor is subjected to primary alternating fields, a secondary electromagnetic field is induced.

The data collected on the eleven lines are presented in Figures 7, 8 and 9. The contoured magnetic data has been presented at a scale of 1:5,000 in figure 7, and at a scale of 1:10,000 in figure 8. Contoured fraser-filtered VLF-EM data at a scale of 1:10,000 are shown on figure 9.

## 10 Discussion and Recommendations

Von Guttenberg (1996; Assessment Report 25,368) states that an economic deposit, mineable by open pit methods, would require a large tonnage, and a grade approaching one percent copper. The induced polarization surveys on lines spaced at 400 metres indicate a continuation and possibly an increase in the chargeability from 9.5 milliseconds to greater than 12 milliseconds on line 6600N, 685 metres north on the high-grade intersection in drill hole ML95-06. Von Guttenberg (1996; Assessment Report 25,368) also states that "there is sufficient room for a large tonnage deposit between hole ML95-06 on Section 5915N, which had the best intersection, and the northern limit of the claim group, close to the boundary of the aeromagnetic anomaly."

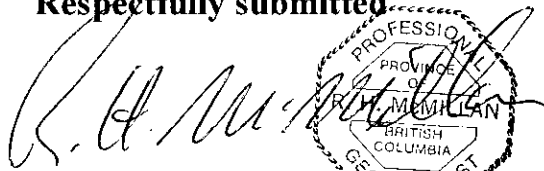
Von Guttenberg (1996; Assessment Report 25,368) recommended a two-stage program. Phase 1 would have entailed 40 kilometres of linecutting, induced polarization

and magnetometer surveying which would have included the western margin of the GSC airborne magnetic anomaly, followed by 1500 metres of diamond drilling at an estimated cost of \$250,000. Phase two would have entailed a second campaign of drilling at an estimated cost of \$450,000.

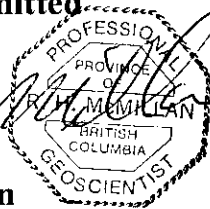
The author endorses the recommendations by von Guttenberg (1996; Assessment Report 25,368) and recommends the following staged program:

<b>Phase 1</b>	-linecutting, -induced polarization and magnetic surveys -diamond drilling (1500 metres)	<b>\$ 250,000</b>
<b>Phase 2</b>	-diamond drilling	<b><u>\$ 450,000</u></b>
<b><u>Total Phases 1 and 2</u></b>		<b><u>\$ 700,000</u></b>

Respectfully submitted



**R.H. McMillan**  
Ph.D, P.Geo.



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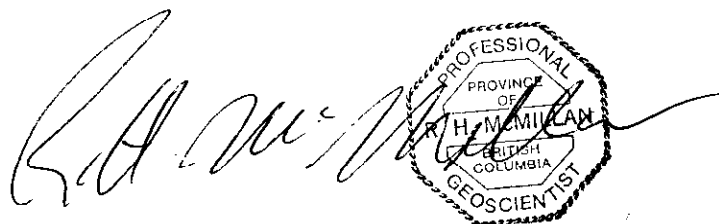


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## Appendix I                      Certificate

I, RONALD HUGH McMILLAN, of 6606 Mark Lane, Victoria,  
British Columbia (V9E 2A1), do hereby certify that:

1. I am a Consulting Geologist, registered with the Association of Professional Engineers and Geoscientists of British Columbia since 1992, and with the Association of Professional Engineers of Ontario since 1981.
2. I am a graduate of the University of British Columbia with B.Sc. (Hons. Geology, 1962), and the University of Western Ontario with M.Sc. and Ph.D. (1969 and 1972) in Mineral Deposits Geology.
3. I have practised my profession throughout Canada, as well as in other areas of the world continuously since 1962.
4. The foregoing report on the Murphy Lake Property is based on a review of the reports listed in the bibliography and on field work the Property and surrounding area on July 17 to 21 in the company of Mr. Geoffrey Ingram.
5. I own a 50% interest in the Mur 1 and 2 claims in partnership with Mr. R.R. Blusson of Vancouver, British Columbia.

The image shows a handwritten signature in black ink that reads "R. H. McMillan". To the right of the signature is a circular professional seal. The seal has a double-line border and contains the text "PROFESSIONAL" at the top, "PROVINCE OF" in the center, "R. H. McMILLAN" in the middle, "BRITISH COLUMBIA" at the bottom, and "GEOSCIENTIST" at the very bottom.

R. H. McMillan Ph.D., P.Eng., P. Geo.

Victoria, B. C.  
15 December 2001

## Appendix II

Expenses - Murphy Lake Project 2003

Date		Cost	GST	Total
July 13	ferry	\$ 44.75		
15	gas	63.85	4.47	
	gas	29.78	2.08	
	toll	10.00		
16	lunch	39.65	2.50	
	fruit	16.39		
	groceries	117.17	.30	
	dinner	15.18	1.06	
22	accommodation	300.00		
	salary G. Ingram	700.00		
	gas	23.36	1.64	
	gas	28.79	2.01	
	dinner	54.49	3.81	
23	gas	12.48	.87	
	toll	10.00		
	gas	80.09	5.61	
	ferry	42.75		
	dinner	6.98	.49	
	copying	16.45	1.07	
	magnetometer rental	125.00	8.75	
	generator rental	120.00		
	truck mileage 1436 km. @ \$0.20	430.00		
Dec. 15	salary R.H. McMillan (8 days \$ 550)	4400.00		
	drafting	225.00		
	copying	44.94	3.15	
	copying	23.06	1.50	
	report (4 days @ \$550)	2200.00		
	Total			9171.38

**Appendix III**

**Murphy Lake Property July 2003 Magnetometer and VLF-EM Data**























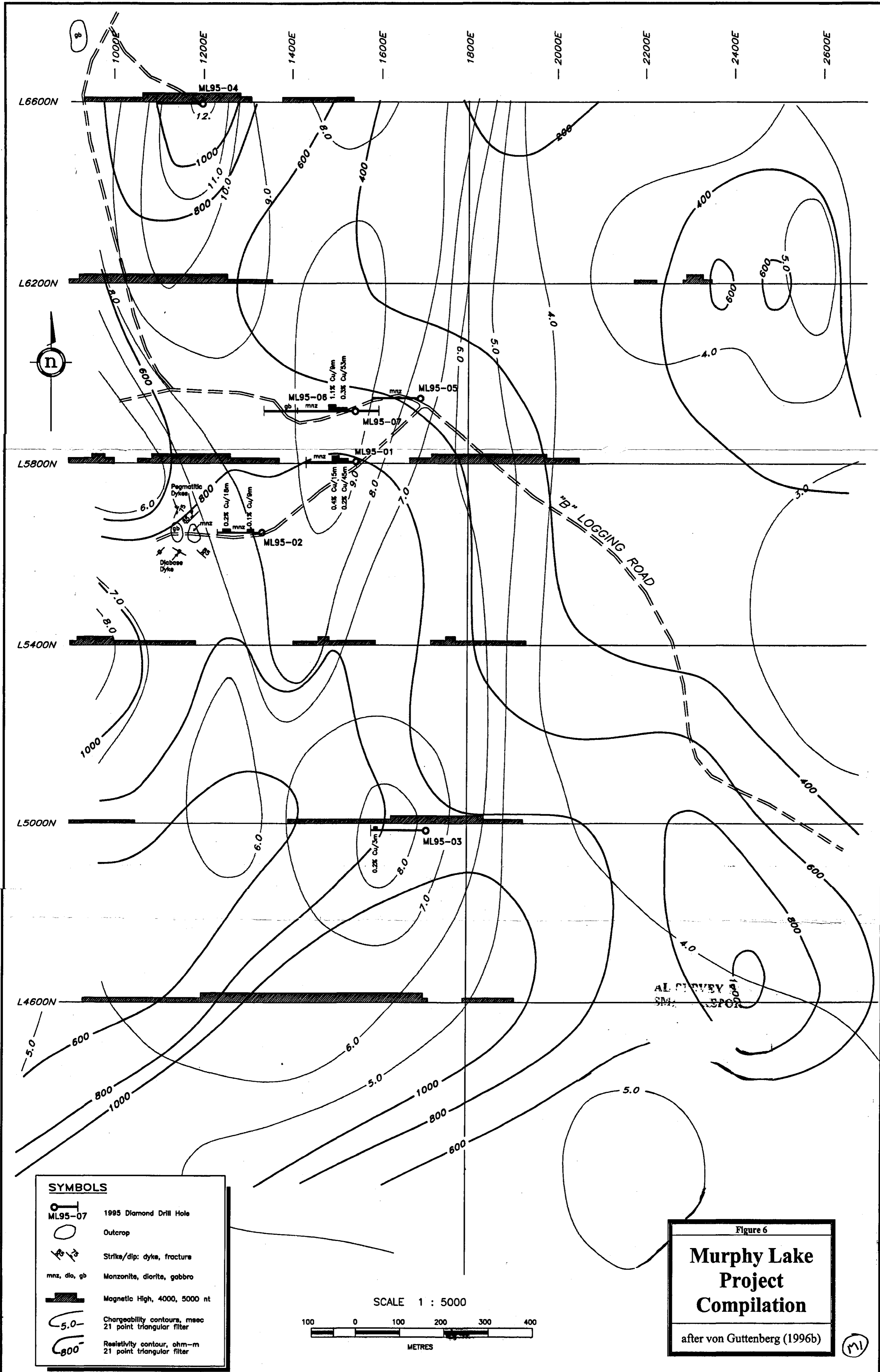


# MURPHY LAKE property

## July 2003 magnetometer and EM-VLF data

line(N)	station(E)	mag-corr	s.q.	freq	i-p	ff	o-p	h-comp	v-comp	fld str	freq	i-p	ff	o-p	h-comp	v-comp	fld str
4600	1125	57207	99	21.4	3.6		-4.1	88	25	3.3	24.8	17		-15.2	18	55	56.8
4600	1150	57267	99	21.4	46.4		-45	67	8	4.8	24.8	19.6		-14.3	14	57	57.7
4600	1175	57076	99	21.4	2.1		-5.6	39	18	3.1	24.8	19.7		-14.2	5	55	54.7
4600	1200	56912	99	21.4	40.4		-41	115	24	4.2	24.8	28.6		-11.5	12	54	55.1
4600	1225	57587	99	21.4	3.9		-4.1	40	15	3.1	24.8	30.1		-6.8	10	49	49.1
4600	1250	57644	99	21.4	12.7		-3.1	70	42	2.9	24.8	18.2		-9.5	-2	48	47.4
4600	1800	56441	99	21.4	43.5		-26.3	53	-1	7.6	24.8	13.7		1.7	14	59	59.6
4600	1825	57093	99	21.4	44.8	-25.5	-17.2	50	3	7.2	24.8	3.2	-22.4	3.8	-24	55	59.0
4600	1850	56722	99	21.4	50.1	-71.3	-23.8	47	-2	6.8	24.8	-0.7	-13.6	4.8	-7	61	60.5
4600	1875	57118	96	21.4	12.7	-22.5	-3.6	35	-9	5.2	24.8	-4.8	-3.2	5.9	-22	60	62.9
4600	1900	56772	78	21.4	10.9	33.3	-5.3	70	-11	5.1	24.8	-6.3	3.1	7.8	-31	61	68.0
4600	1925	55759	99	21.4	29.4	14.9	-15.9	86	1	6.2	24.8	-2.4	-1.9	9.8	-40	57	68.5
4600	1950	55576	99	21.4	27.5	-5.9	-18.3	82	-12	5.9	24.8	-5.6	-1.3	10.9	-23	60	63.5
4600	1975	55517	99	21.4	27.7	-12	-16.9	82	-14	6.0	24.8	-5	6	10.1	-22	62	64.8
4600	2000	55501	99	21.4	23.3	-7.3	-18.1	81	-21	6.0	24.8	-4.3	8.5	10.3	-16	64	65.0
4600	2025	55338	99	21.4	19.9	-2.1	-14.4	79	-24	5.9	24.8	-0.3	3.2	8.9	-14	66	66.2
4600	2050	55086	99	21.4	23.8	-1.6	-16.2	90	5	6.4	24.8	-0.5	-2.2	6.7	-46	52	66.7
4600	2075	55037	99	21.4	17.3	5.7	-15.7	41	-11	6.1	24.8	-0.9	-2.3	7.1	-17	64	65.6
4600	2100	55114	99	21.4	24.8	13.8	-22.1	78	-29	6.0	24.8	-2.1	3.9	8.3	0	66	65.5
4600	2125	55229	99	21.4	22	24.2	-18.3	84	-25	6.3	24.8	-1.6	12.5	6.2	-6	66	65.9
4600	2150	55475	99	21.4	33.9	19.8	-23.5	97	-14	7.0	24.8	2.5	15.9	2.9	-4	71	70.2
4600	2175	55646	99	21.4	37.1	15.5	-30.3	53	-4	7.6	24.8	6.3	13.4	-0.5	-9	69	68.7
4600	2200	55769	99	21.4	38.6	20.1	-32.5	52	-6	7.5	24.8	10.5	13.1	-1.2	0	66	65.3
4600	2225	55832	99	21.4	47.9	8.1	-36	53	-4	7.6	24.8	11.7	14.8	-6.9	4	69	67.9
4600	2250	56053	99	21.4	47.9	4.6	-34.5	56	-3	8.0	24.8	18.2	7.2	-12.7	1	65	64.5
4600	2275	56431	99	21.4	46.7	7.8	-38.7	54	-4	7.8	24.8	18.8	2.6	-16.1	4	65	64.3
4600	2300	56245	99	21.4	53.7	-1.6	-39.9	53	-3	7.7	24.8	18.3	0.7	-12.6	-6	63	62.2
4600	2325	56140	99	21.4	48.7	-9	-40.5	56	-2	8.0	24.8	21.3	-12.6	-11.3	-10	59	59.3
4600	2350	56156	99	21.4	50.1	-2.6	-40.9	56	0	8.1	24.8	16.5	-24.1	-9.3	-11	57	57.9
4600	2375	56327	99	21.4	43.3	13.2	-44.1	57	-3	8.1	24.8	10.5	-20.2	-6.8	-13	58	58.3
4600	2400	56322	99	21.4	52.9	11.5	-41.3	53	-3	7.7	24.8	3.2	-10.9	-3.3	-4	60	59.6
4600	2425	56253	99	21.4	53.7	2.4	-43.5	53	-3	7.7	24.8	3.6	-8.6	-0.2	5	59	59.0
4600	2450	55499	99	21.4	54	-2.5	-39.1	55	-3	8.0	24.8	-0.8	-1.8	1.5	2	61	60.8
4600	2475	55053	99	21.4	55	-7.9	-43.5	55	-3	8.0	24.8	-1	10.2	3	0	64	63.0
4600	2500	54626	99	21.4	50.2	-0.5	-42.9	56	-2	8.1	24.8	2	18.6	2.8	-11	64	64.6
4600	2525	54744	99	21.4	50.9	9.8	-41.8	53	-4	7.6	24.8	6.4	18.6	3.3	-5	67	66.8
4600	2550	55007	59	21.4	53.8	8.5	-42	53	-4	7.7	24.8	13.2	9.8	3	-1	62	61.6
4600	2550	55008	99	21.4	57.1	1.9	-43.2	58	-2	8.3	24.8	13.8	2.5	2.9	0	64	63.4
4600	2575	54960	99	21.4	56.1		-42.5	58	0	8.3	24.8	15.6		3.7	-15	59	60.4
4600	2600	55071	99	21.4	56.7		-43.4	57	-1	8.3	24.8	13.9		6.4	-20	56	59.3





SYMBOLS	
	1995 Diamond Drill Hole
	Outcrop
	Strike/dip: dyke, fracture
	Monzonite, diorite, gabbro
	Magnetic High, 4000, 5000 nt
	Chargeability contours, msec
	Resistivity contour, ohm-m

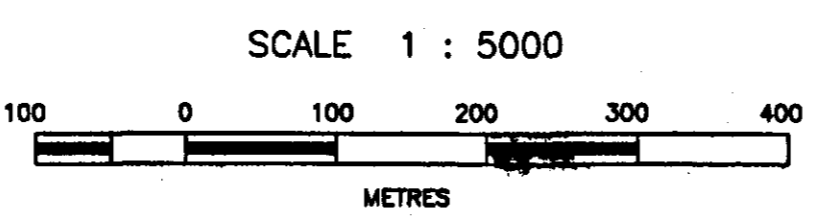
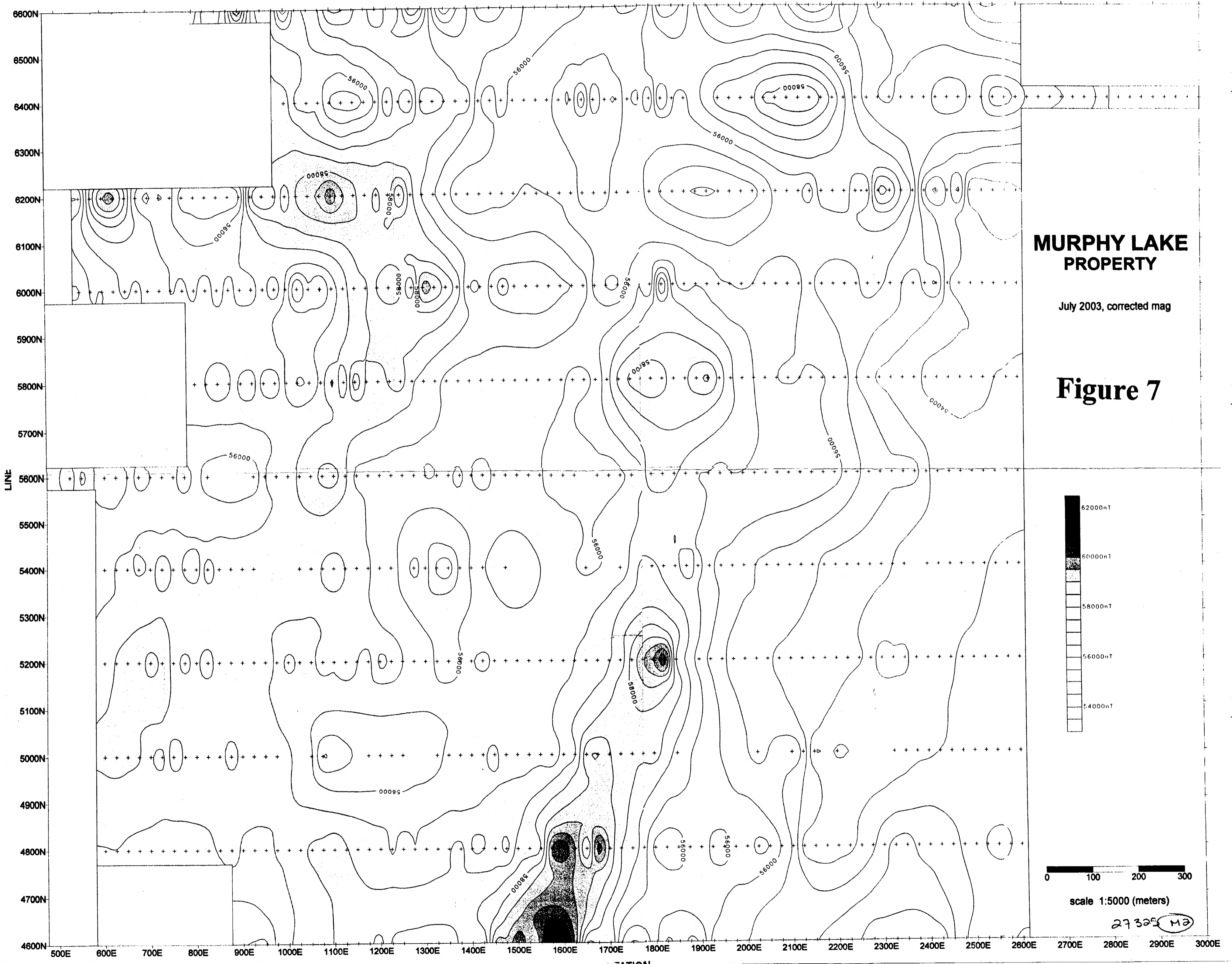


Figure 6  
**Murphy Lake Project  
 Compilation**  
 after von Guttenberg (1996b)

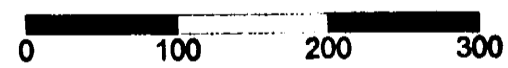
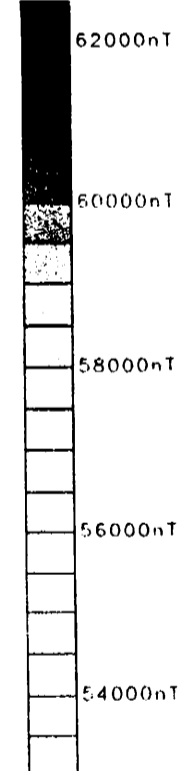
(M)



**MURPHY LAKE  
PROPERTY**

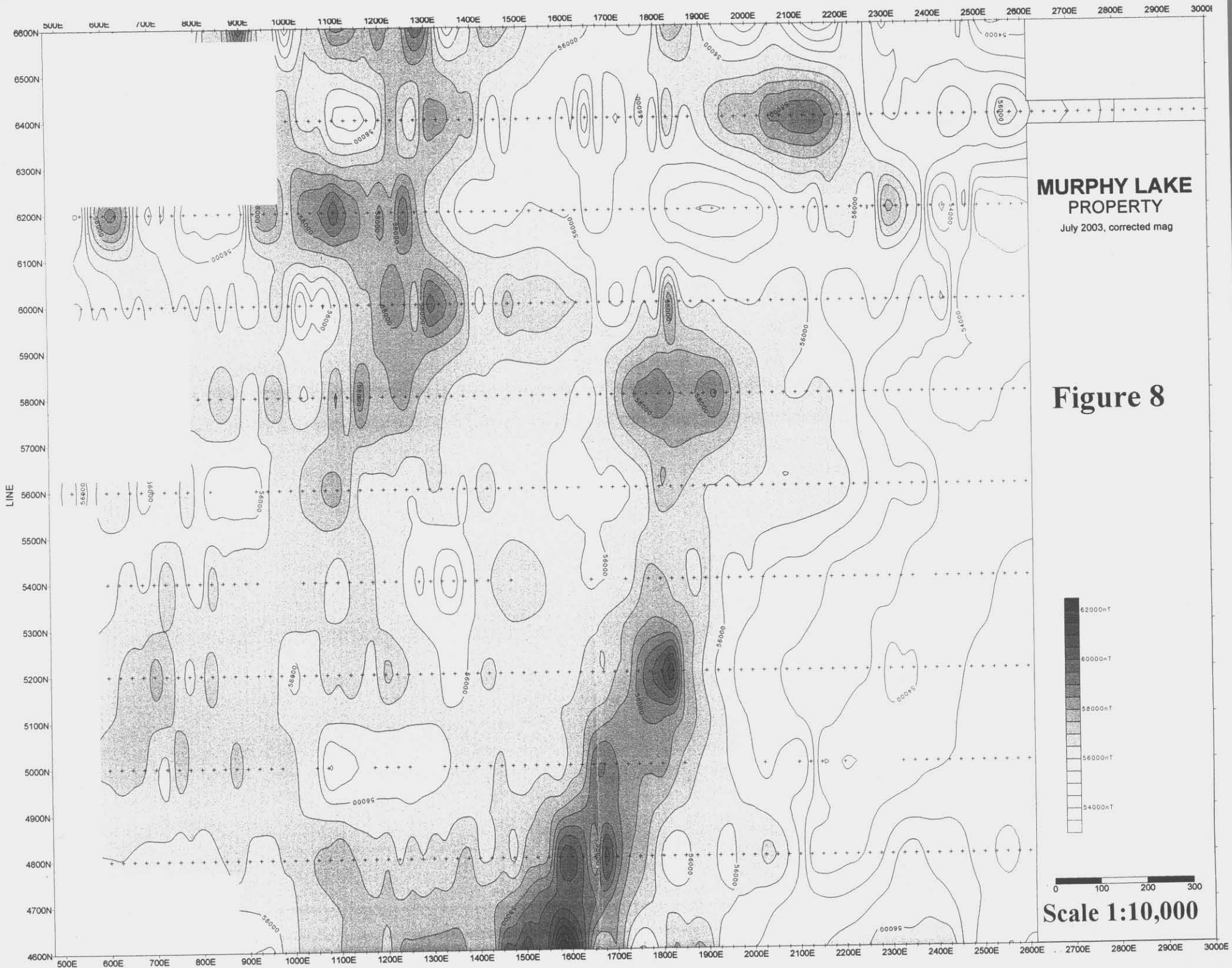
July 2003, corrected mag

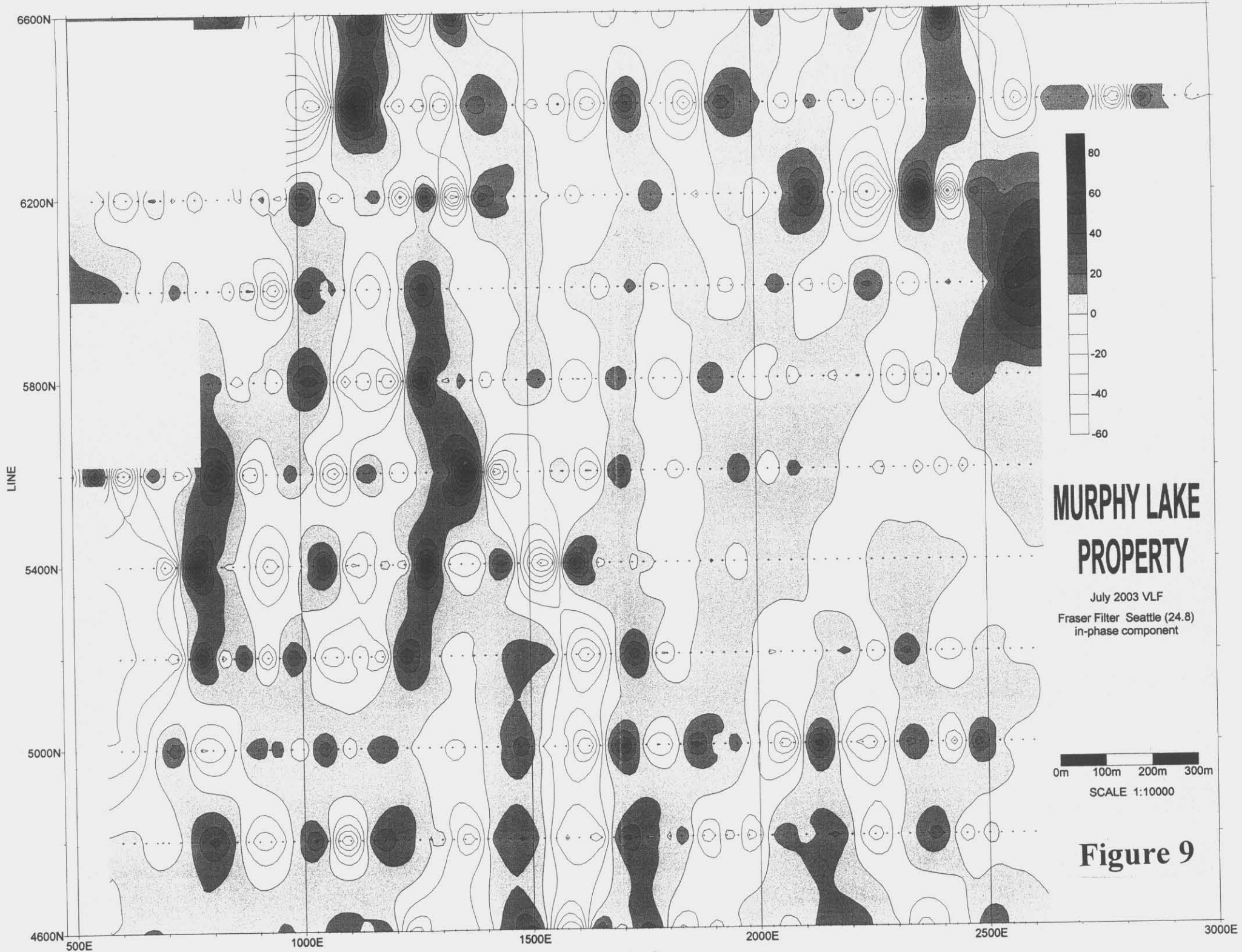
**Figure 7**



scale 1:5000 (meters)

27325 MA





# MURPHY LAKE PROPERTY

July 2003 VLF  
Fraser Filter Seattle (24.8)  
in-phase component

0m 100m 200m 300m  
SCALE 1:10000

## Figure 9