Spanish River Carbonatite Complex

Fluxgate Magnetometer and VLF2

Geophysical Survey – North and Central Grids

AGRICULTURAL MINERAL PROSPECTORS INC.
P.O. BOX 866 ERIN, ONTARIO
N0B 1T0
(519) 833-9827
FAX (519) 833-7515

Spanish River Carbonatite Complex –

Fluxgate Magnetometer and VLF2 Geophysical Survey – North and Central Grids

Table of Contents

List of Figures

List of Tables

List of Appendices

INTRODUCTION

The purpose of the geophysical survey was to hopefully outline the contact between the complex and country rock, delineate any structural trends and delineate potential areas of biotite/pyroxenite mineralization. With the demand for organic foods coupled with the increase in potassium fertilizer value the Spanish River Carbonatite could be an excellent source of organic potassium fertilizer. The potassium is found interlayered within biotite mica.

The survey was conducted between the dates of September 12th and September 20th 2008. The survey was conducted over claims S4226779, S1214615, 378893, 378894, 359399 and 359400. The grid was broken into north and central grids. The northern grid covered an area of fractured, fenitized quartz monzonite, with numerous rusty sovite veins and a low enclosed area believed to be part of the complex. Previous trenching was unable to penetrate bedrock. The geophysical survey was conducted in the hope of delineating potential diamond drilling targets.

The central grid started over the current quarry and extended into an area of known vermiculite mineralization. Trenching over this area was unsuccessful in penetrating through the weathered residuum into bedrock. The central survey was completed for two purposes. The first was to delineate the area of vermiculite. This again was to determine potential drill targets over an area that had good biotite potential. The second reason for the central grid was to establish a benchmark for known mineralization so that it could be used to compare geophysical responses over other areas of the property.

The geophysical survey employed a fluxgate magnetometer and a Phoenix VLF. The survey was conducted by John Slack, Peter Slack and Chris Caron. John Slack ran the survey lines utilizing a compass and chain. All stations were then recorded with a Magellan GPS. Peter Slack was responsible for magnetometer readings while Chris Caron operated the VLF. All geophysical information was recorded by John Slack.

PROPERTY DESCRIPTION AND HISTORY

PREVIOUS WORK

In 1955 Johns-Mansville Company performed a ground magnetometer survey over what is now referred to as the Spanish River Carbonatite Complex. The purpose for this survey was to find vermiculite. The Ontario Department of Mines in 1962 reinterpreted this data, which outlined an oval shaped magnetic high, which they believed to be a carbonatite.

In 1968 Union Carbide Exploration made a rough surface geological map and drilled a 1746-foot drill hole in search of niobium, copper and rare earths. Outcrop of the Carbonatite is scarce and the main oval shape and size of the deposit was primarily the result of magnetometer work and the one drill hole.

Jenmac Company Ltd. in 1960 completed a trenching program. This work was the basis of the 1962 ODM work and geological mapping by Union Carbide. It was also the point of reference for the Junior Mine Services Ltd. (JMS) 1996 trenching program ultimately leading to the Burns Mine.

In 1975 International Minerals and Chemical Corp. completed a seismic survey over the complex in an effort to determine overburden thicknesses. This was followed up with four reverse-circulation drill holes in an attempt to locate residual apatite. This work has been reinterpreted and included in JMS's 1996 trenching and stripping work. Of particular significance is the depth of what is referred to in the seismic data as the dense layer. Trenching has revealed that this dense layer represents a residuum capping the bedrock. This work has been used to establish ore reserves for the residuum covering the 1962 bulldozer trenches and 1996 follow-up trenching program. At the present time the residuum, whether carbonatite or biotite-pyroxenite represents the mined product.

Ron Sage from Ministry of Northern Mines and Development completed a geological report on the complex in 1987. Dr Sage has subsequently visited the site on several occasions to review work conducted by AMP.

From 1955 through to 1975 no niobium, uranium and residual apatite mineralization was located. Ironically, this feature of the Spanish River Carbonatite coupled with unusually high sovite content makes it ideal for organic agricultural use.

The original Spanish River property consisted of six mining leases and 5 unpatented claims in Venturi and Tofflemire Townships. All claims originally were 100% owned by Junior Mine Services Ltd. ("JMS"). In 1999 Agricultural Mineral Prospectors Inc. (AMP) was incorporated and optioned the property from JMS. The new company was formed to run all activities associated with the Spanish River Property and is controlled and run by the principles of JMS. Chris Caron and John M. Slack hold the unpatented claims in trust. Subsequent staking has added an additional 6 claims, which are held by either John M. Slack or Chris Caron in trust on behalf of AMP. The list of leases and mining claims that comprise the Spanish River Property are listed in table: 1.

The property was optioned because of the likelihood of locating sufficient reserves of the minerals calcite, apatite, biotite and vermiculite for the purpose of selling to organic farmers, market and backyard gardeners. From 1994 through to 1996, JMS conducted several site visits collecting samples, preliminary geological mapping and assaying. The purpose of the sampling was to determine consistency of material and potential toxic elements. This was critical to ensure Spanish River Carbonatite would be approved under the organic guidelines. The samples collected were crushed, screened and used in garden test plots and fed as mineral supplement to small flocks of layer hens. Coinciding with these activities JMS began extensive market studies and research into organic agricultural practices and accepted soil mineral amendments.

In 1996 JMS conducted a trenching and bulk sample program to delineate potential zones of afore mentioned minerals, either alone our combined. The program was successful in locating three areas that could be used as a source of nutrients and soil amendments for organic agriculture. As a result a 100 tonne bulk sample was taken and shipped to our farms in Southern Ontario. This material was used in test gardens on the farm, turf applications, layer hen mineral supplement and finally field trials in the Chatham-Kent area.

Following these initial trials we began a comprehensive research and investigation of soil mineral deficiencies, organic and conventional farming practices, weathering characteristics of Spanish River Carbonatite including soil geochemistry and biogeochemistry. From January 1998 until to May 2000 this was the total focus and only business activity carried out by AMP, employing three people full time. In the spring of 2000 AMP commenced an advanced exploration program comprising of stripping, trenching, sampling and a second 1000 metric tonne bulk sample. That same year AMP obtained a quarry permit covering the original six patented claims. To date approximately 24,000 tonnes has been quarried and distributed in Ontario, Quebec, Vermont, New York, Michigan, Pennsylvania and Virginia.

CURRENT EXPLORATION PROGRAMS

In 1996 the original a small test pit on claim 3002843 located an area of massive sovite hosted in fenitized quartz monzonite. The sovite located in this area was of high purity and lacked biotite, apatite and magnetite mineralization. Trenching and prospecting activities in this area started in the fall of 2002.

In 2003 a total of 9 trenches and one test pit have been excavated to define what was referred to as Zone 4. This work was able to cut and delineate numerous sovite veins and seams none of them of any economic significance. The area exposed is predominantly fenitized host quartz monzonite with an abundance of fracture fillings comprised of sovite and pyroxene. The sovite veins, though of high purity are narrow and discontinuous in this vicinity.

2004 explored a series of altered fenite, sovite float boulders, geological mapping and preliminary scintillometer investigations.

2005 exploration activities started to evaluate the rock sovite underneath the residuum layer.

2006 exploration concentrated on biotite mineralization in the hope of finding sufficient quantity to start test plots and develop potential market.

Location and Access

The Spanish River Carbonatite Complex straddles the common boundary of Venturi and Tofflemire Townships just south of a sharp bend in the Spanish River known as the "Elbow". The property is cut by numerous, very well maintained, logging roads.

Access to the property is via the Fox Lake Lodge road, which turns off highway 144 at Cartier. From Cartier it is 25 km to the property. At present AMP and Fox Lake Lodge maintains the main road. All river and creek crossing have had culverts and bridges put in place to handle heavy logging trucks. Road infrastructure is excellent and required very little upgrade.

Spanish River Property Location Map

Figure : 1

Cartier is the closest town, a village with approximately 500 inhabitants. Within the town limits is a rail spur owned by C.P.R. Sudbury is approximately 50 kilometres south of Cartier on highway 144. Total driving time from Sudbury to the property is 1½ hours.

Accommodation was at Saunders Greenhouse located on highway 144 between Chelmsford and Dowling, Ontario.

MINING CLAIMS & LEASES

The Spanish River Carbonatite Complex property consisted of 14 mining claims and 6 leased located in Tofflemire and Venturi townships, district of Sudbury. The mining claims are 100% owned by Agricultural Mineral Prospectors Inc. and held in trust by Chris Caron (C38620) and John Slack.

Table: 1 – Claims and Leases Comprising Spanish River Property

Mining Claims	Township	Ownership	Recorded Holder	Expiry Date	Work Req'd.
1214616	Venturi	AMP Inc.	John Slack	Oct. 30 2008	400
1214615	Venturi	AMP Inc.	John Slack	Oct. 30 2008	800
1198340	Venturi	AMP Inc.	John Slack	Oct. 30 2008	800
3019268	Venturi	AMP Inc.	AMP Inc.	April 25 2009	1600
3019269	Venturi	AMP Inc.	AMP Inc.	Sept. 24 2009	1600
4226778	Venturi	AMP Inc.	AMP Inc.	Oct. 26 2009	400
4226779	Tofflemire	AMP Inc.	AMP Inc.	Oct. 26 2009	1600

Mining Leases	Township	Ownership	Recorded Holder
359399	Venturi	AMP Inc.	AMP Inc.
359400	Venturi	AMP Inc.	AMP Inc.
377231	Venturi	AMP Inc.	AMP Inc.
378212	Venturi	AMP Inc.	AMP Inc.
378894	Tofflemire	AMP Inc.	AMP Inc.
378893	Tofflemire	AMP Inc.	AMP Inc.

Spanish River Carbonatite Property - Claim Map

ONTARIO CANADA
MINISTRY OF NORTHERN DEVELOPMENT AND MINES
PROVINCIAL MINING RECORDER'S OFFICE

Mining Land Tenure Map

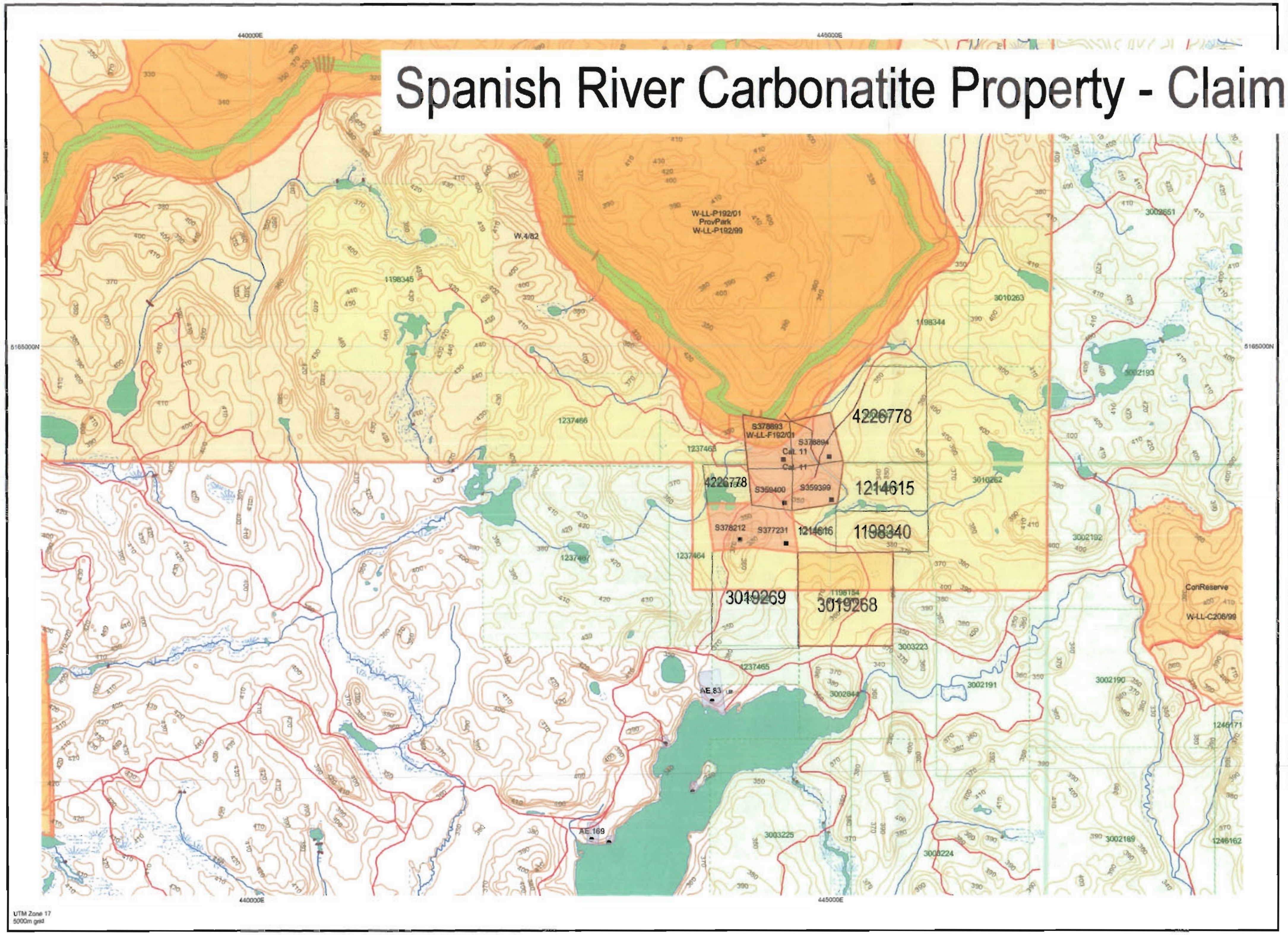
Date / Time of Issue: Thu Dec 04 10:37:35 EST 2003

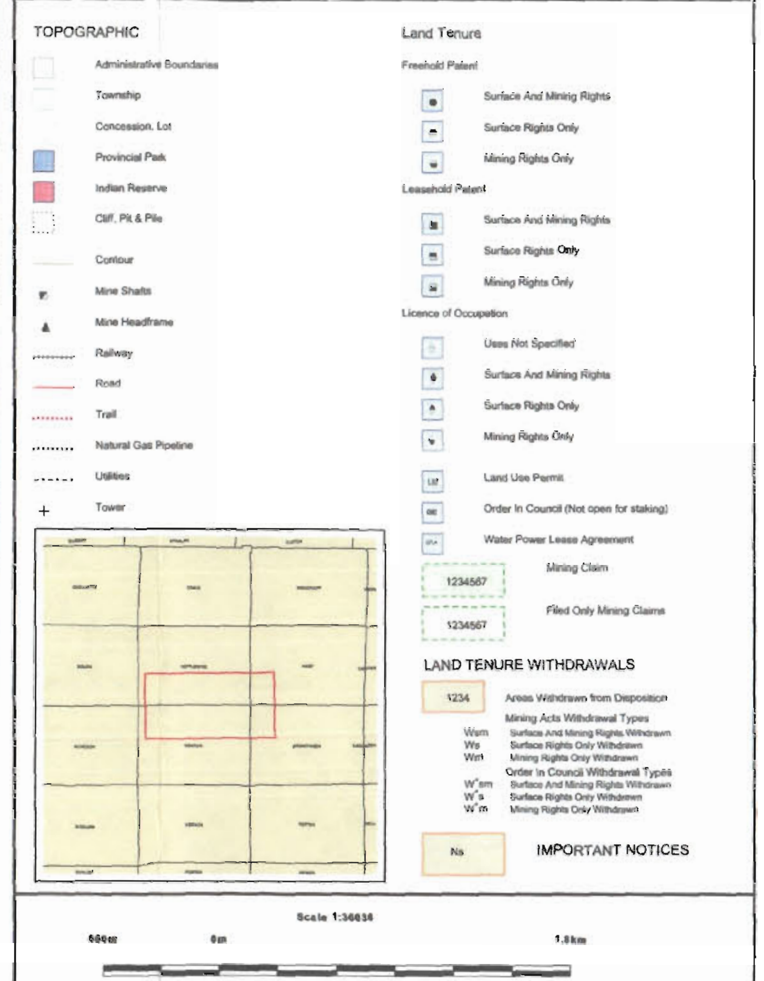
TOWNSHIP / AREA **VENTURI**

PLAN **G-4118**

[...]IVE DISTRICTS / DIVISIONS

	Sudbury
Division	SUDBURY
Ministry of Natural Resources District	SUDBURY





LAND TENURE WITHDRAWAL DESCRIPTIONS

Identifier	Type	Date	Description
Cat. 11	Wsm	May 16, 2001	Aggregate Permit #55336 for Bedrock
ConReserve	Wsm	Dec 21, 2000	Centre Creek Old Growth White Pine Conservation Reserve
W-LL-C206/99	Wsm	May 12, 1999	SEC. 35 W-LL-C206/99 ONT MAY 12/99 M&S - Notice, this withdrawal area has
W-LL-F192/01	Wsm	Jul 21, 2001	SEC. 35 W-LL-F192/01 ONT JULY 21/01 M+S
W-S-07/01	Wsm	Feb 1, 2001	Sec. 35 W-S-07/01 2001/02/01 M+S 195150
ProvPark	Wsm	Oct 20, 2001	Spanish River Provincial Park
W-LL-P192/01	Wsm	Jul 20, 2001	SEC 35 W-LL-P192/01 ONT JULY 20/01 M+S
W-LL-P192/99	Wsm	May 17, 1999	SEC 35 W-LL-P192/99 ONT MAY 17/99 M+S (200 m FROM WATERS EDGE)
W.4/82	Ws	Jul 14, 1982	SEC.36/80 W.4/82 14/07/82 S.R.O. 137635

Figure: 2

Those wishing to stake mining claims should consult with the Provincial Mining Recorders' Office of the Ministry of Northern Development and Mines for additional information on the status of the lands shown hereon. This map is not intended for navigational, survey, or land title determination purposes as the information shown on this map is compiled from various sources. Completeness and accuracy are not guaranteed. Additional information may also be obtained through the local Land Titles or Registry Office, or the Ministry of Natural Resources.

The information shown is derived from digital data available in the Provincial Mining Recorders' Office at the time of downloading from the Ministry of Northern Development and Mines web site.

General Information and Limitations

Contact Information:
Provincial Mining Recorders' Office
Willet Green Miller Centre 933 Ramsey Lake Road
Sudbury ON P3E 6B5
Home Page: www.mndm.gov.on.ca/MNDM/MINES/LANDS/mlsmnpge.htm

Toll Free
Tel: 1 (888) 415-9845 ext 57
Fax: 1 (877) 670-1444

Map Datum: NAD 83
Projection: UTM (6 degree)
Topographic Data Source: Land Information Ontario
Mining Land Tenure Source: Provincial Mining Recorders' Office

This map may not show unregistered land tenure and interests in land including certain patents, leases, easements, right of ways, flooding rights, licences, or other forms of disposition of rights and interest from the Crown. Also certain land tenure and land uses that restrict or prohibit free entry to stake mining claims may not be illustrated.

GENERAL GEOLOGY OF SPANISH RIVER COMPLEX

The Spanish River Carbonatite emplacement occurred between 1790 ± 90 Ma to 1883 ± 95 Ma the same time as the Sudbury norite. This suggests that the to alkalic magmatic events are related and the Sudbury eruptive may account for the alkaline glasses of the Onaping Formation.

The Spanish River Carbonatite Complex is enveloped in a halo of fenitized granitic rocks. Carbonatite rocks with a high silicate mineral content occur along the periphery of the body. Lower silicate carbonatite occurs toward the core. The contact between fenitized wall rock and carbonatite appears to be over a maximum thickness of 300 metres. This observation is based on the trenching program and the Union Carbide drill hole. This area is referred to as the "Transition Zone" and is a banded and brecciated assemblage of layered biotite sovite, fenite and mafic rocks. The transition zone appears to be a result of contact metamorphism and metasomatism. Discreet lenses bands and veins of high purity sovite have been located in this zone. The sovites in this area appear to have higher quantities of magnetite, vermiculite and apatite. The second classification of the complex is referred to as the "Outer Core". This classification is used for the purpose of describing the trenching program and is adopted from a drill hole completed in 1968, by Union Carbide. The outer core is very similar to the transition zone with exception of a marked increase in sovite (calcite). The third and last classification of the complex is the "Inner Core", comprised almost entirely of sovite.

The main characteristic that distinguishes the Spanish River Carbonatite from other carbonatite complexes in northern Ontario is the very high content of sovite verses mafic rock components.

REGIONAL STRUCTURAL GEOLOGY

The Spanish River Complex Carbonatite Complex lies within the Abitibi Subprovince of the Superior Province of the Canadian Shield. The complex occurs along a north-south striking fault zone along the west side of the Sudbury Basin. According to the 1987 O.G.S. Study 30 this fault system maybe a graben structure branching off the Ottawa-Bonnechere graben, a system hosting carbonatite-alkalic rock complexes in the Nipissing area.

Airphotos of the region also suggest the complex occurs at the point of intersection of a number of regional lineaments.

SPANISH RIVER COMPLEX STRUCTURE

Shearing and brecciation of the enveloping quartz monzonite is common. Fractures are commonly filled with mafic pyroxenes, amphiboles and calcite. There is evidence in the trenching and the Union Carbide drill hole that blocks of fenite have peeled of the walls and are incorporated into the complex. Banding of fenites and sovite is common.

Post faulting has not been encountered at this time. The heterogeneous mixture and lack of outcrop makes it very difficult at this time to suggest that post faulting has occurred.

FENITIZED QUARTZ MONZONITE

The host rock enclosing the Spanish River Complex is massive, medium grained pink quartz monzonite. In contact with the complex the quartz monzonite has been fenitized. The granitic rock becomes mottled pink and green-blue in colour. Sodic amphibole and pyroxene have replaced the quartz in the quartz monzonite.

The fenitized quartz monzonite is brecciated and intruded by dark green mafic veins. Carbonate is commonly associated with the veins and fracture fills. The closer to the intrusive the greater the number of mafic and calcite filled fractures and veins.

SPANISH RIVER CARBONATITE COMPLEX – TRANSITION ZONE

The transition zone is predominantly fenite, but exhibits less brecciation and more banding. There is a marked increase of sovite veins, lenses and bands. The purity of the sovite in this zone varies from 45% $CaCO_3$ to nearly pure. The variations and types of accessory mineral found in the sovite is as follows:

- Vermiculite – 0 to 15%
- Biotite – 0 to 15%
- Magnetite – 0 to 5%
- Pyrrhotite – 0 to 5%
- Apatite – 0 to 5%

Numerous lenses and veins of clean calcite (sovite) have been located through the trenching program, which occur in what previously would have been described as the transition zone. It is from one of these lenses that the 1996 bulk sample was taken.

SPANISH RIVER CARBONATITE COMPLEX - OUTER CORE

The actual contact between the transition zone and outer core is not well defined and is based on the degree of sovite verses fenite present and overburden thickness. Where there is a sharp increase in overburden is the logical location for the contact between the complex and altered host rock. The approximate thickness of the outer core based on the above observations would be 200 metres. The outer core appears only to outcrop along the road where Vein No.3 is located. A vertical rotary percussion hole (TP-2) drilled, in 1975, in this vicinity encountered 15 feet of overburden. This is also in the vicinity of test pits, which exposed decomposed sovite very similar to TP-2.

In the O.G.S. Study, "*Spanish River Carbonatite Complex*" the outer core is described as the Outer Phase. The outer phase based on this report is comprised of syenite, pyroxenite, ijolite and biotite sovite.

For the purpose of this report the description of the composition for the outer core is from the Union Carbide drill hole.

"The Outer Core of the carbonatite-filled diatreme, composed of biotite amphibole sovite with some phyrrhotite and minor chalcopyrite and gramphite. There is no appreciable magnetite between 1066'4" and 1339'. Between 1339' and 1495' coarse magnetite is present in both sovite and the gramphite. For the purpose of logging this core, 3 rock types are recognized, gramphite, sovite inclusions, which may be either sovite with a high proportion of inclusions, or gramphite, which has been carbonated. In either case, the dark minerals constitute up to 50% of the rock. The proportions of sovite, inclusions and gramphite in this section are: 22%, 32% and 46% respectively."

All previous trenching, geological mapping, bulk sampling has been located in the outer core. Outcrop exposure was poor. Trenching has located sovite mineralization in four separate areas. Prospecting and geological mapping has located sovite bedrock in two localities.

The 1996 trenching program was carried out almost entirely over this zone covering 800 metres of strike length along the western contact of the complex. The approximate thickness of the transition zone – outer core is approximately 300 metres.

The trenching program located several areas of economic interest. For the purpose of describing these areas they will be described as follows:

- Zone No. 1 – area where the 100 tonne bulk sample was taken and the best continuous high grade $CaCO_3$ has been located to date.

- Zone No. 2 – area that had been stripped for a potential bulk sample in 1996, contained a blend of calcite, apatite, biotite, vermiculite with minor silicocarbonatite and pyroxenitic rocks. In 2000 a 1000 tonne bulk sample was taken. In 2001 the area is the Burns Mine current quarry location.

- Zone No. 3 – area that was originally sampled in 1993 and contained mineral composition similar to Zone No.2. The main difference is a marked increase in biotite and vermiculite content. This area contains large reserves of residuum.

- Zone No. 4 – area of fracture filled sovite and pyroxenite veins within well fenitized quartz monzonite. Large sovite reserves anticipated under fine stratified sand along borders of this zone.

- Road Zone – area of high purity calcite banded with magnetite, pyroxene rich sovite.

- Residual Vermiculite – this area measures 82m x 32m and is comprised of at least 50% fine vermiculite.

SPANISH RIVER COMPLEX – INNER CORE

The inner core of the Spanish River Complex is entirely covered by a thick layer, +100 feet, of overburden. Descriptions provided from various sources all relate back Union Carbide diamond drill hole. All descriptions use calcite content to describe and classify the inner core. Concentrations of calcite (sovite) increase closer to the centre of the complex.

For the purpose of this report Union Carbide's description (refer to Appendix 8) was used to describe the inner core. Union Carbide describes the inner core being comprised almost entirely of biotite/magnetite sovite, with minor sections of gramphite. Accessory minerals found were pyrrhotite, chalcopyrite and apatite.

LITHOLOGIC UNITS FOR THE SPANISH RIVER CARBONATITE

CENOZOIC

PLEISTOCENE AND RECENT

River deposits, stream and swamp deposits, Glacial Deposits – sand and gravel

Unconformity

PROTEROZOIC

SPANISH RIVER CARBONATITE COMPLEX

Inner Core

Outer Core

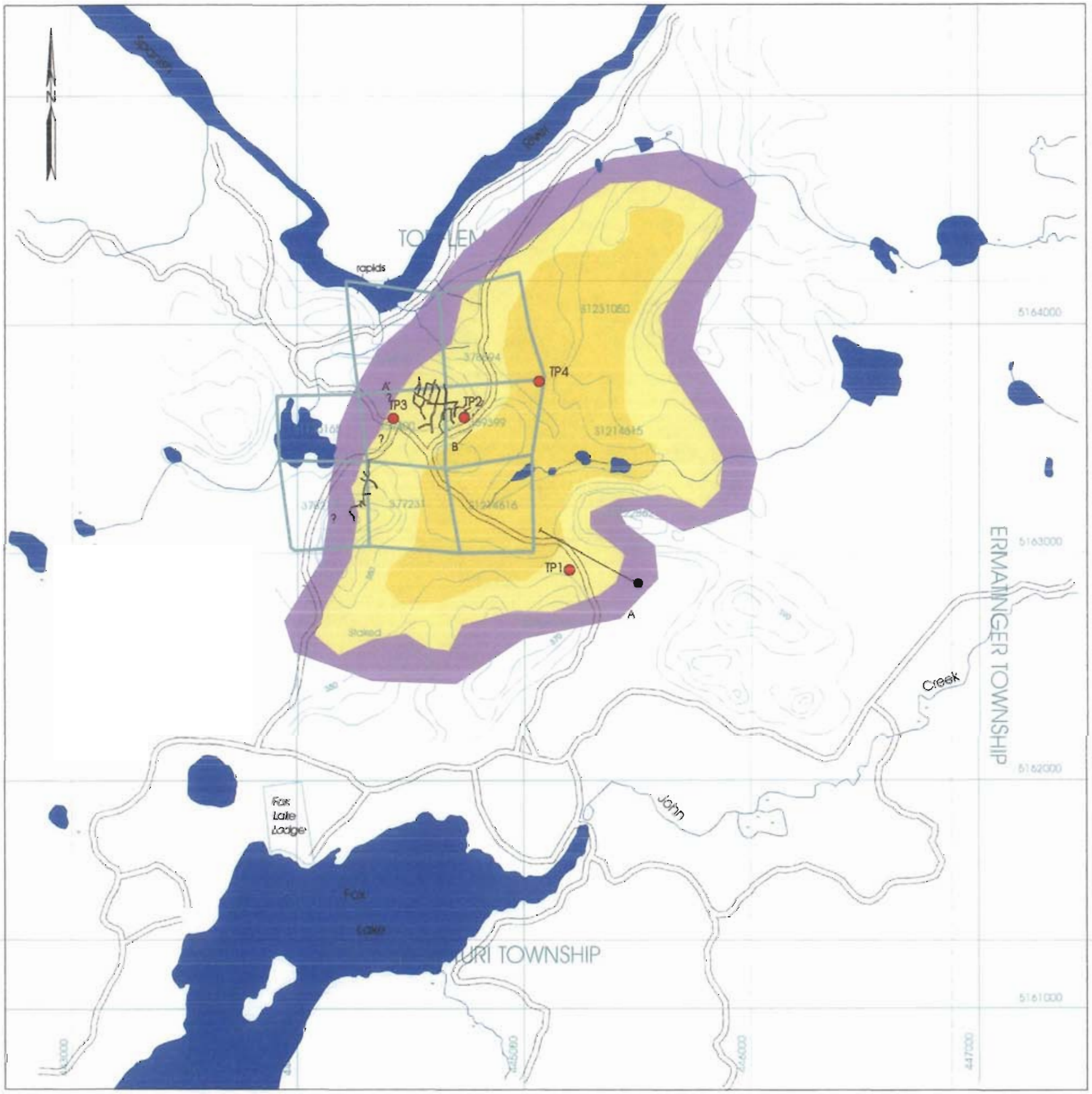
Fracture fillings

ARCHEAN

Fenitized and brecciated quartz monzonite

Quartz monzonite

(Adapted from Table: 1 pg 10, OGS Study 30, Spanish River Carbonatite Complex, Ron Sage, 1987)



LEGEND

Carbonatite Complex - Inner Core
Clean sovite - white massive, fine to coarse grain, greater then 50% $CaCO_3$. Minor iron oxides, .5% to 12% P_2O_5, minor to abundant biotite & vermiculite.

Carbonatite Complex - Outer Core
Biotite Sovite - white to grey with black banding, moderate to abundant biotite & vermiculite, 5% iron oxide, 2% to 5% P_2O_5. Often interbanded with biotite pyroxene.

Alteration Zone - Transition Zone
Fenite - altered quartz monzonite interbended with iron stained sovite.

SYMBOLS

Road

Trail

Trench

Diamond Drill Hole

TP3 Reverse Circulation Drill Hole

Claim Number

Claim Boundary

Township Boundary

Venturi Tp. - Tofflemire Tp.

Property Geology Map

Agricultural Mineral Prospectors Inc.

Metres 200 0 200 400 metres

Figure: 3

FLUXGATE MAGNETOMETER SURVEY

The magnetometer survey relied on a looping grid, taking base station readings on a consistent basis throughout the day. Like the 1955 Johns Manville survey our study outlined a magnetic high. The original magnetic anomaly was trenched in 1996 and corresponds with the vermiculite zone northeast of our current quarry.

The original interpretation was that this high represented the carbonatite complex and was caused by magnetite. More likely the anomaly is the result of the thick bed of vermiculite that overlies the deposit in this area. The current survey outlined a broad anomaly that measures 215 metres long by 100 metres in width. The intensity of the anomaly is 53000 gammas. The highest reading, 53800 gammas, occurred above the road zone in an area where past trenching programs was unable to penetrate the overburden.

The northern grid survey in comparison was relatively flat until the southern lines. The survey was stopped at line 500W. This was due to the anticipated depth of overburden due to the Cartier moraines and the seismic survey results of 1975 seismic survey. Continued magnetic survey work is recommended in this area, tying into the central grid and extending existing lines further to the west and east. Overburden depths in this area may not be as thick as anticipated; test trenching once the survey has been completed would be of value.

The northern grid covered an area where sporadic veins of sovite have been previously located. The area where the complex was anticipated is covered with deep stratified glacial outwash. The depth is unknown and further work is required before diamond or reverse circulation drilling is recommended. A seismic survey would be of value.

VLF-2 SURVEY

The station used for the VLF survey was Cutler Maine. This was the strongest station and perpendicular to the northeast trending complex.

On the northern grid cross over points were shallow and horizontal field intensity was flat. The anomalies occurred along the contact with fenitized to unaltered quartz monzonite and the topographical low possibly representing the complex. A number of smaller trends occurred in the centre of the topographical low.

On the central grid the strongest anomaly occurs with the magnetic high. Like the magnetic survey the survey was stopped at line 500W. Further work is recommended in this area.

CONCLUSIONS AND RECOMMENDATIONS

At the time of the survey trenching over Zone 3 was completed to reevaluate biotite potential. Preliminary investigations suggest the sovite mineralization sits and a thin veneer overlying fenitized host rock. The geophysical surveys should be completed over this area. As mentioned infill geophysics should be completed in the central area of the property. On completion a number of the anomalous area should be trenched.

Trenching has been unsuccessful at delineated the potential of the magnetic high. Reverse circulation or diamond drilling is recommended over this zone that measures 200 by 100 metres.

Table: 1 Fluxgate Magnetometer and VLF2 Data

Line	Station	Dip	Out of Phase	Level	HFS	Time	Corrected mag (gammas)	Remarks
0	0	14N	0.10	0	1.00	10:43	50900	
0	27S	8N	0.10	0	1.10	10:53	50400	
0	50S	0	0.10	30S	1.00	10:58	50400	On edge of complex
0	75S	5S	0.10	0	0.80	11:03	50900	
0	104S	7S	0.15	0	1.30	11:07	50400	Minor wetland area
0	127S	8S	0.15	0	1.30	11:10	50600	Minor wetland area
0	151S	7S	0.20	0	1.30	11:13	50200	Minor wetland area
0	178S	7S	0.20	0	1.30	11:17	50600	Minor wetland area
0	200S	7S	0.20	0	1.30	11:19	50800	Minor wetland area
0	225S	4S	0.20	0	1.40	11:21	50400	Minor wetland area
0	276S	4N	0.15	0	1.40	11:27	50800	Getting out of damp moss & wet area
0	300S	4N	0.15	0	1.40	11:29	50600	
0	327S	4N	0.15	10N	1.40	11:32	50600	Climbing hill. dense vegetation
								Angular unaltered granitic float; other edge of complex
0	25N	10N	0.15	5N	1.30	11:56	51200	In Trench with alltered fenite with numerous shears
0	44N	8N	0.20	0	1.20	11:59	51200	Massive sovite grading into foliated rusty sovite
0	78N	8N	0.15	5N	1.30	12:03	50800	On the edge of Spanish River Drainage Basin
0	104N	8N	0.10	5N	1.30	12:07	50400	
0	143N	8N	0.15	0	1.30	12:11	50200	Bottom road
0	182N	10N	0.15	0	1.30	12:16	51600	On edge of final gravel bank before Spanish River
50W	182N	14N	0.10	0	1.40	12:24	51000	On edge of final gravel bank before Spanish River
50W	134N	8N	0.15	0	1.30	12:29	50600	Bottom road before hill
50W	42N	8N	0.15	0	1.30	12:34	51000	Top of hill; fenitized granite outcrop
50W	9N	8N	0.20	0	1.20	12:37	51200	
50W	24S	6N	0.20	0	1.40	12:42	51000	
50W	52S	7N	0.20	0	1.40	12:47	51200	
50W	70S	8N	0.20	0	1.40	12.52	51000	Trench grading from unaltered granite to oxidized crumbly
								fenite with sulfide veins, arsenopyrite?

Table: 1 Fluxgate Magnetometer and VLF2 Data Con't

Line	Station	Dip	Out of Phase	Level	HFS	Time		Remarks
50W	100S	0	0.20	20S	1.50	12:56	50800	On edge of hill representing edge of pipe
50W	125S	0	0.20	0	1.40	13:00	51200	
50W	177S	2S	0.20	0	1.50	13:04	50800	
50W	226S	2S	0.20	0	1.40	13:07	51000	
50W	280S	2N	0.20	0	1.40	13:11	51000	
50W	325S	5N	0.20	0	1.40	13:14	50800	
50W	351S	10N	0.20	0	1.40	13:16	51000	Base of granite hill representing south edge of complex
50W	376S	2N	0.20	5N	1.50	13:19	51200	Boulder field
100W	376S	6N	0.20	3N	1.40	13:24	51200	Boulder field
100W	350S	0	0.20	0	1.40	13:29	51200	Base of granite hill representing south edge of complex
100W	325S	4N	0.20	0	1.40	13:32	51400	
100W	275S	8N	0.20	0	1.40	13:35	51400	
100W	225S	3S	0.20	0	1.40	13:38	51400	
100W	175S	4S	0.20	0	1.40	13:41	51400	Edge of Complex
100W	125S	7S	0.20	0	1.40	13:46	51000	Abundant fenitized granite with calcite and amphibole veins
100W	0	4N	0.20	0	1.40	13.52	51000	
100W	27N	10N	0.30	0	1.40	16:09	50260	Walking along trench of fenitized, sheared granite with minor calcite veins
100W	52N	2N	0.10	0	1.50	16:15	50450	
100W	104N	8N	0.20	3N	1.50	16:19	50200	Gradual slope to Spanish River Valley; gravel ridge
100W	152N	8N	0.20	0	1.40	16:26	50200	At bottom road following river
100W	208N	0	0.20	0	1.50	16:30	50450	Edge of Spanish River Valley; gravel ridge
150W	208N	4N	0.20	0	1.50	16:30	50460	Edge of Spanish River Valley; gravel ridge
150W	157N	6S	0.20	0	1.50	16:40	50720	
150W	102N	8S	0.20	5N	1.30	16:46	50320	
150W	96N	2S	0.20	0	1.40	16:49	50320	Top of hill; gravel ridge
150W	70N	14S	0.30	0	1.40	16:53	50240	
150W	28S	12S	0.20	0	1.50	16:57	50280	
150W	50S	6S	0.15	0	1.50	16:59	50760	Outcrop of fractured, fenitized granite with calcite veining
150W	100S	4S	0.20	0	1.50	17:07	50740	Outcrop of fractured, fenitized granite with calcite veining

Table: 1 Fluxgate Magnetometer and VLF2 Data Con't

Line	Station	Dip	Out of Phase	Level	HFS	Time		Remarks
150W	150S	2S	0.20	0	1.50	17:07	50420	
150W	200S	2S	0.15	0	1.40	17:11	50650	
150W	250S	8N	0.10	0	1.50	17.17	50640	
150W	300S	7S	0.10	3N	1.50	17:23	50840	Starting up granite boulder hill
200W	300S	8S	0.10	3N	1.40	17:29	50640	Starting up granite boulder hill
200W	250S	15N	0.10	0	1.40	17:33	50640	
200W	200S	11N	0.10	0	1.40	17:37	50840	
200W	150S	2S	0.10	0	1.40	17:40	50780	
200W	100S	6N	0.10	0	1.40	17:44	50940	
200W	50S	6S	0.15	0	1.30	17:45	50560	Walking trench that was unable to penetrate overburden
200W	0	7S	0.10	0	1.40	17:53	50700	Rotted fenite at base of hill; edge of complex
200W	58N	5S	0.10	0	1.40	17:56	50600	
200W	100N	3S	0.10	0	1.50	11:01	50500	Gravel pit
200W	200N	7S	0.10	0	1.50	11:07	50400	
200W	250N	4S	0.10	0	1.40	11:10	50400	
200W	300N	4S	0.10	0	1.40	11:13	50340	Edge of Spanish River Basin: gravel ridge
250W	300N	3S	0.10	0	1.50	11:17	50700	Edge of Spanish River Basin; gravel ridge
250W	250N	5S	0.10	0	1.40	11:20	50620	
250W	200N	3S	0.10	10N	1.50	11:22	50500	Road to gravel pit
250W	150N	5S	0.10	0	1.50	11:28	50180	
250W	100N	6S	0.10	0	1.40	11:30	50180	
250W	50N	10S	0.10	0	1.30	11:34	50400	On trench with fenitized granite
250W	0	12S	0.10	0	1.40	11:37	50660	
250W	50S	6S	0.10	0	1.40	11:39	50880	On edge of complex
250W	100S	0	0.10	0	1.50	11:44	50960	Walking trench that was unable to penetrate overburden
250W	150S	8N	0.10	0	1.40	11:49	50800	Walking trench that was unable to penetrate overburden
250W	180S	12N	0.10	0	1.40	11:53	50980	Edge of granite bluff, unaltered

Table: 1 Fluxgate Magnetometer and VLF2 Data Con't

Line	Station	Dip	Out of Phase	Level	HFS	Time		Remarks
300W	180S	6N	0.10	0	1.40	11:58	50560	Edge of granite bluff, unaltered
300W	130S	4N	0.10	0	1.50	12:04	50800	
300W	100S	0	0.10	0	1.50	12:07	50800	
300W	50S	6S	0.10	0	1.50	12:09	50900	
300W	0	16S	0.10	0	1.50	12:18	50460	
300W	50N	16S	0.10	0	1.50	12:21	50500	
300W	100N	14S	0.10	0	1.40	12:24	50540	Edge of gravel hill
300W	150N	10S	0.10	0	1.40	12:28	50940	
300W	177N	7S	0.10	0	1.40	13:31	50620	Road
360W	200N	6S	0.10	0	1.50	13:16	50820	Road
360W	150N	7S	0.10	1N	1.60	13:20	51850	Hummocky disturbed gravel
360W	100N	8S	0.20	0	1.60	13:23	50700	Gravel
360W	50N	11S	0.10	10W	1.60	13:26	50300	
360W	0	13S	0.10	0	1.50	13:30	50620	
360W	50S	9S	0.15	0	1.60	13:33	51200	
360W	100S	2S	0.15	0	1.50	13:36	50420	
360W	150S	4N	0.20	0	1.60	14:41	51250	
360W	200S	7N	0.15	0	1.50	13:45	51100	
360W	245S	4N	0.10	1.4	1.40	13:48	50800	Base of granite hill
400W	245S	1N	0.10	0	1.40	13:54	50800	Base of granite hill
400W	200S	7N	0.15	0	1.40	13:57	51100	
400W	150S	2N	0.15	0	1.40	14:05	51400	
400W	100S	2S	0.20	0	1.50	14:11	51500	
400W	50S	5S	0.20	0	1.50	14:14	51450	Gravel terraine

Table: 1 Fluxgate Magnetometer and VLF2 Data Con't

Line	Station	Dip	Out of Phase	Level	HFS	Time		Remarks
450W	50S	2S	0.15	15N	1.50	14:20	51500	Sidehill, lower terrace of deep unsorted morainal gravel
450W	100S	2N	0.15	0	1.40	14:23	51600	
450W	150S	2N	0.15	0	1.40	14:26	51400	
450W	200S	0	0.10	0	1.40	14:29	51100	
450W	245S	0	0.10	0	1.40	14:32	n/r	Base of granite hill
450W	275S	4S	0.10	3N	1.40	14:35	50780	
450W	325S	2S	0.10	0	1.40	14:41	50740	
500W	325S	4S	0.10	0	1.30	14:45	50760	Into overburden
500W	275S	2S	0.10	0	1.40	14:48	50800	
500W	225S	0	0.15	0	1.40	14:51	50960	
500W	175S	2S	0.15	0	1.40	14:54	51200	
500W	125S	2S	0.15	0	1.40	14:58	51500	Into overburden
700W	0S	8N	0.10	0	1.40	16:08	51400	
700W	50S	8N	0.10	0	1.40	16:11	51250	road
700W	100S	8N	0.10	0	1.40	16:13	51600	road
700W	150S	2S	0.10	5S	1.40	16:16	51700	
700W	200S	4S	0.10	0	1.40	16:19	51800	
700W	250S	3S	0.10	3S	1.50	16:22	51850	
700W	300S	4S	0.10	0	1.40	16:25	51700	
700W	350S	2S	0.10	0	1.50	16:30	51700	
700W	400S	0	0.10	0	1.50	16:32	51600	
700W	450S	0	0.15	2S	1.40	16:35	51500	
700W	500S	4N	0.15	0	1.40	16:40	51300	climbing hill
700W	550S	9S	0.15	0	1.60	16;44	51200	
700W	600S	14S	0.20	0	1.50	16:47	51200	
700W	650S	14S	0.15	0	1.50	16:50	51150	

Table: 1 Fluxgate Magnetometer and VLF2 Data Con't

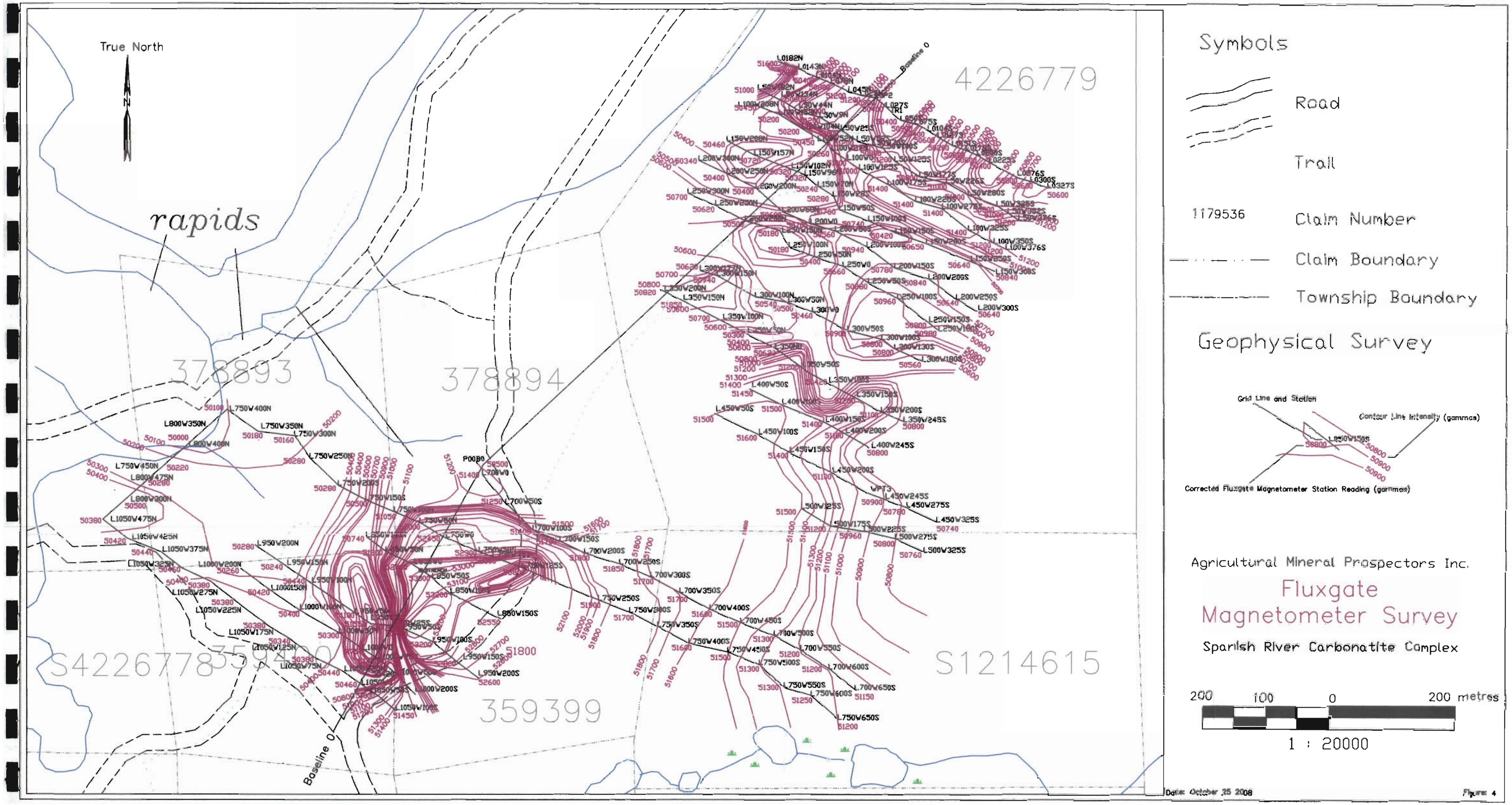
Line	Station	Dip	Out of Phase	Level	HFS	Time		Remarks
750W	650S	7S	0.1	0	1.60	16:53	51200	
750W	600S	4S	0.1	0	1.60	16:57	51250	
750W	550S	4S	0.1	3W	1.60	17:00	51300	
750W	500S	2N	0.1	3W	1.50	17:04	51300	
750W	450S	2N	0.1	0	1.50	17:07	51500	
750W	400S	2S	0.1	3W	1.40	17:11	51600	
750W	350S	0	0.1	3W	1.50	17:14	51800	
750W	300S	0	0.05	0	1.40	17:17	51700	
750W	250S	0	0.1	0	1.50	17;20	51900	
750W	200S	4S	0.1	3N	1.50	17:23	50280	
750W	150S	3S	0.1	1N	1.40	17:26	50500	
750W	125S	4N	0.15	5E	1.40	13:40	53800	September 19/08
750W	100S	6N	0.1	0	1.40	13:42		
750W	75S	5N	0.1	0	1.40	13:44	52600	
750W	50S	8N	0.1	0	1.50	13:46	52300	
750W	0	6N	0.2	20N	1.50	13:50	52450	Edge of hill
750W	50N	12N	0.25	10N	1.40	13;54	52000	Edge of hill
750W	100N	10N	0.2	10N	1.50	13:59	51050	
750W	150N	6N	0.2	0	1.50	14:02		
750W	200N	8N	0.2	3N	1.40	14:06		End of trench running north from pit
750W	250N	8N	0.2	0	1.50	14:10	50280	
750W	300N	13N	0.2	5NW	1.40	14:16	50160	
750W	350N	3S	0.15	0	1.50	14:20	50180	In area of artesian springs and seeps
750W	400N	12S	0.10	0	1.40	14:24	50100	creek
750W	450N	6S	0.10	0	1.40	14:28	50000	road
825W	450N	9S	0.10	0	1.50	14:34		
900W	450N	16S	0.15	0	1.50	14:40		
950W	450N	18S	0.10	0	1.60	14:43		
1000W	450N	10S	0.10	0	1.60	14:46		
1050W	450N	4S	0.10	0	1.70	14:52		

Table: 1 Fluxgate Magnetometer and VLF2 Data Con't

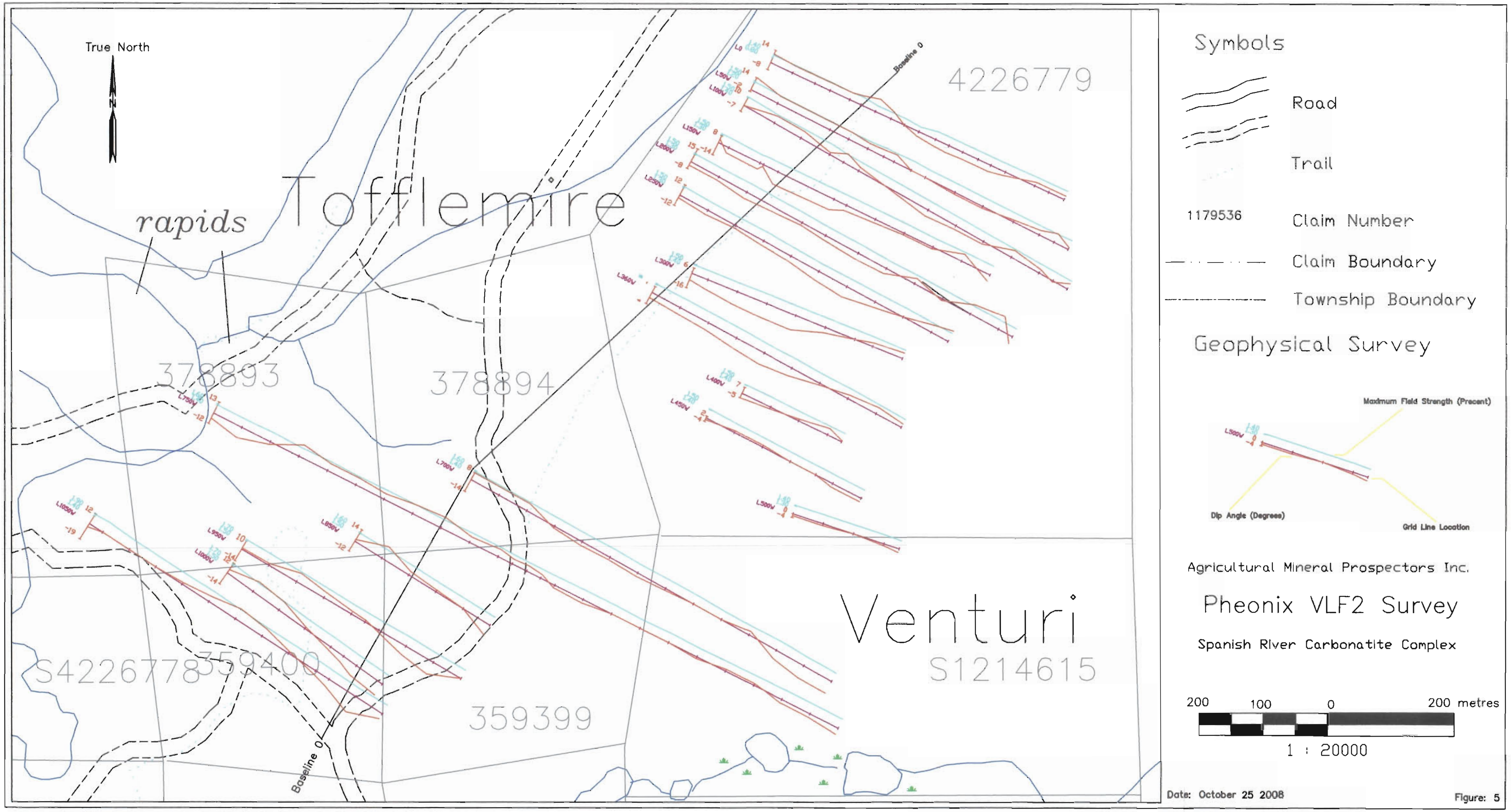
Line	Station	Dip	Out of Phase	Level	HFS	Time		Remarks
1050W	425N	0	0.10	0	1.90	15:03	50420	
1050W	375N	0	0.10	0	1.70	15:05	50440	
1050W	325N	0	0.20	0	1.70	15:08	50460	
1050W	275N	2N	0.20	0	1.70	15:12	50380	
1050W	225N	6N	0.20	0	1.80	15:16	50380	
1050W	175N	12N	0.15	0	1.70	15:19	50380	
1050W	125N	9N	0.15	0	1.60	15:23	50340	
1050W	75N	2N	0.20	0	1.60	15:26	50380	Pit road
1050W	25N	4S	0.15	0	1.60	15:29	50440	
1050W	0	8S	0.20	0	1.50	15:31	50460	
1050W	50S	19S	0.20	0	1.40	15:35	51000	
1050W	100S	6S	0.10	0	1.60	15:38	51450	
1000W	100S	14S	0.20	0	1.70	15:45	51550	
1000W	50S	12S	0.20	0	1.60	15:49	50420	
1000W	25S	7S	0.20	0	1.60	15:51	51400	
1000W	0	4S	0.20	0	1.60	15:53	51750	
1000W	50N	2N	0.15	0	1.50	15:56	50300	
1000W	100N	10N	0.20	0	1.60	16:00	50400	Possible metal anomaly
1000W	150N	12N	0.20	0	1.60	16:02	50420	Possible metal anomaly
1000W	200N	4N	0.20	0	1.70	16:06	50260	
950W	200N	1N	0.20	0	1.70	16:05	50280	Overburden berm, edge of pit
950W	150N	2N	0.25	0	1.70	16:12	50240	
950W	100N	10N	0.20	0	1.70	16:13	50440	
950W	50N	6N	0.20	0	1.60	16:17	51100	
950W	0	3N	0.20	0	1.50	16:19	51550	
950W	25S	2N	0.20	0	1.50	16:21	50720	Trench in vermiculite zone
950W	50S	2S	0.15	0	1.50	16:27	53400	Trench in vermiculite zone
950W	100S	10S	0.20	0	1.60	16:30	53200	
950W	150S	14S	0.20	0	1.50	16:36	52800	
950W	200S	0	0.20	0	1.50	16:40	52600	

Table: 1 Fluxgate Magnetometer and VLF2 Data Con't

Line	Station	Dip	Out of Phase	Level	HFS	Time	Remarks
850W	150S	12S	0.20	0	1.50	17:16	52550 Road zone
850W	100S	0	0.15	0	1.50	17:20	53200
850W	50S	2N	0.10	0	1.50	17:23	52800
850W	0S	4N	0.20	0	1.60	17:25	53000 very old trenching
850W	50N	14N	0.20	0	1.60	17:31	51200 very old trenching
850W	100N	2N	0.25	0	1.50	17:35	50740



True North
rapids
4226779
378893
378894
359399
S1214615
Baseline 0
Symbols
Road
Trail
1179536
Claim Number
Claim Boundary
Township Boundary
Geophysical Survey
Grid Line and Station
Contour Line Intensity (gammas)
Corrected Fluxgate Magnetometer Station Reading (gammas)
Agricultural Mineral Prospectors Inc.
Fluxgate
Magnetometer Survey
Spanish River Carbonatite Complex
200
100
0
200 metres
1 : 20000
Date: October 25 2008
Figure: 4


True North
rapids
Tofflemire
Venturi
4226779
378893
378894
S4226778
359400
359399
S1214615
Baseline 0
Symbols
Road
Trail
1179536
Claim Number
Claim Boundary
Township Boundary
Geophysical Survey
Maximum Field Strength (Precent)
Dip Angle (Degrees)
Grid Line Location
Agricultural Mineral Prospectors Inc.
Pheonix VLF2 Survey
Spanish River Carbonatite Complex
200 100 0 200 metres
1 : 20000
Date: October 25 2008
Figure: 5

REFERENCES

Sage R.P., (1987) *Spanish River Carbonatite Complex, Study 30*, Ontario Geological Survey, Ministry of Northern Development and Mines.

Heinrich, E. Wm., (1966) *The Geology of Carbonatites*, Rand McNally & Co.

Proudfoot David, (1971) *Petrology of the Carbonatite Complex in Township 107-108*, Carleton University

Barnett P.J. and Bajc A.F., (2000) *Chapter 3 Quaternary Geology, The physical Environment of the City of Greater Sudbury*, Ontario Geological Survey, Special Volume 6

Erdosh George, (1975) *Exploration Work on Township 107 Carbonatite Complex*, International Minerals & Chemical Corp.

Appendix 1

Letter of Authorization

I John Siack;

1. Ran geophysical surveys on lease 107372 Venturi and Tofflemire Townships, District of Sudbury.

2. I am the President and shareholder of Agricultural Mineral Prospectors Inc., holder of lease 107372

3. The work was performed between September 12th 2008 and September 20th 2008.

4. I concur with all information contained in this report and is an accurate description of work performed.

5. I am a mining technologist and have been practicing my profession since 1984

6. I reside in the town of Erin, County of Wellington, Ontario.

Date: OCT 27/08 Signature: ____________

Appendix 2

Phoenix VLF2 Manual

PHOENIX Geophysics Limited

200 YORKLAND BLVD., WILLOWDALE, ONTARIO, CANADA M2J 1R5

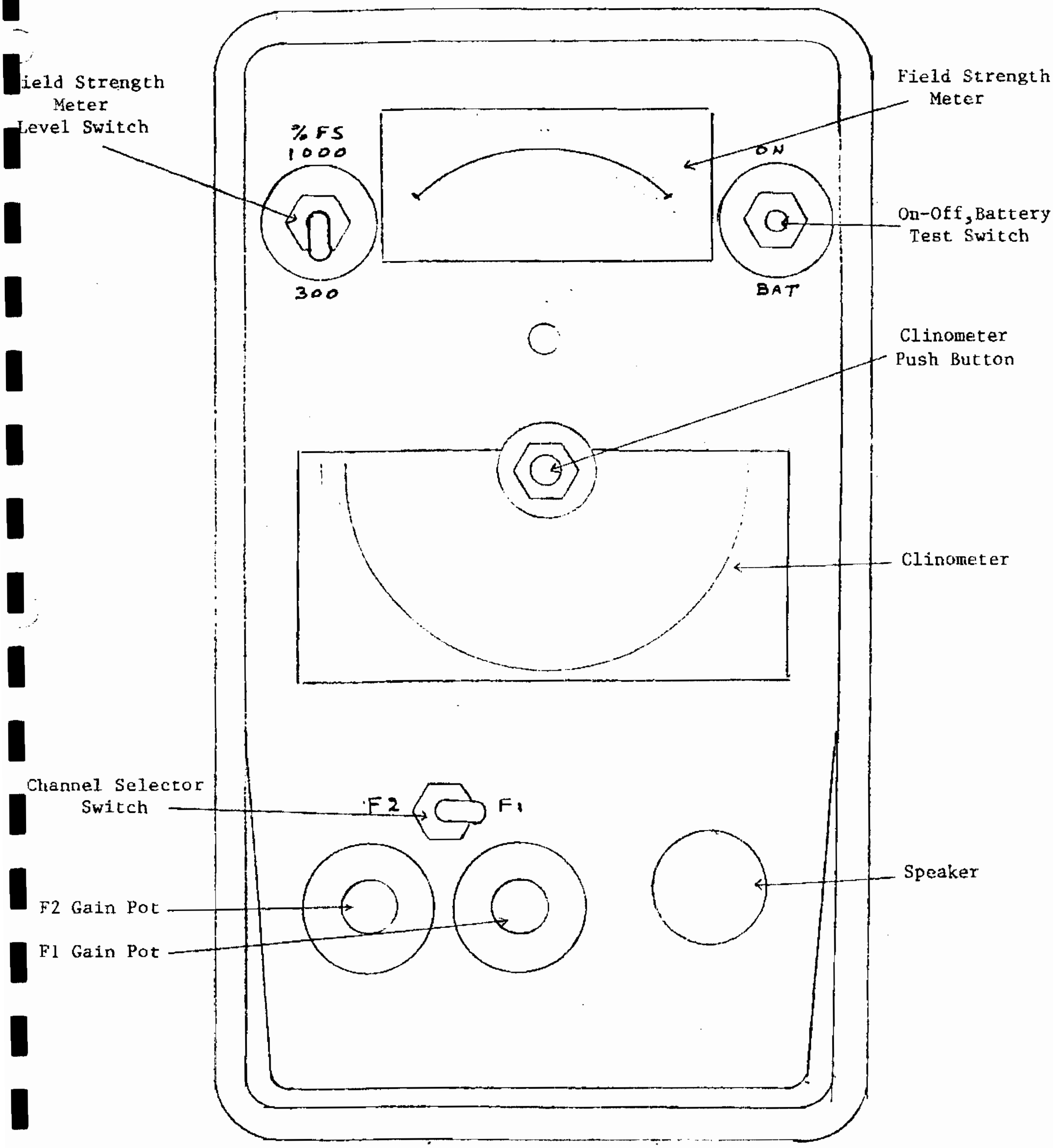
TELEPHONE (416) 493-6350
Cable Address: PHEXCO TORONTO

PHOENIX VLF-2 MANUAL

Vancouver Office: 1424 - 355 Burrard Street, British Columbia V6C 2G8 Telephone (604) 684-2285
Denver Office: 4690 Ironton Street, Colorado, 80239, U.S.A. Telephone (303) 373-0332

TABLE OF CONTENTS

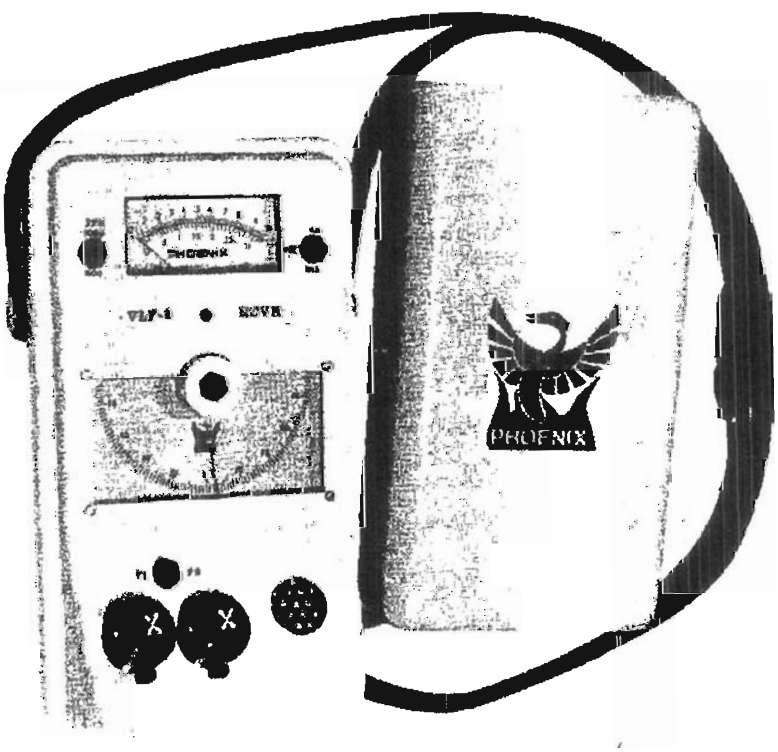
FRONT VIEW


ield Strength
Meter
Level Switch
% FS
1000
300
Field Strength
Meter
ON
BAT
On-Off, Battery
Test Switch
Clinometer
Push Button
Clinometer
Channel Selector
Switch
F2
F1
F2 Gain Pot
F1 Gain Pot
Speaker

VLF-2

Electromagnetic Unit

- Lightweight, low battery drain, rugged, simple to operate
- Two independent channels
- Each channel may select any station between 14.0 and 29.9 kHz
- Single crystal used for all frequencies
- Locking clinometer provides tilt-angle memory
- Superheterodyne detection and digital filtering provide extremely high selectivity and noise rejection



Military and time standard VLF transmitters are distributed over the world. These stations are used for geophysical EM surveying thus eliminating the need for a local transmitter and permitting one-man operation.

To ensure that a station excites the prospective conductor, two stations at approximately right angles are used during a survey (see data on back).

The choice of 160 frequencies in the range 14.0 to 29.9 kHz permits the use of a local EM transmitter when no suitable regular VLF station is available.

PHOENIX

PHOENIX GEOPHYSICS LIMITED

Geophysical Consulting and Contracting, Instrument Manufacture, Sale and Lease.

Head Office: 200 Yorkland Blvd. Willowdale, Ont., Canada, M2J 1R6. Tel: (416) 493-6350
1424 - 355 Burrard St. Vancouver, B.C., Canada, V6C 2G8. Tel: (604) 684-2285
2430 N. Huachuca Dr., Tucson, Arizona, U.S.A. 85705. Tel: (602) 884-8542

pecifications

'arameters Measured	:	Orientation and magnitude of the major and minor axes of the ellipse of polarization.
'requency Selection, Front Panel	:	Dual channel, front panel selectable (F1 or F2) each with independent precision 10-turn dial gain control.
equency Selection, Internal	:	F1 and F2 can be selected by internal switches within the range 14.0 to 29.9 kHz in 100 Hz increments.
etection And Filtering	:	Superheterodyne detection and digital filtering provide a much narrower bandwidth and thus greater rejection of interfering stations and 60 cycle noise than conventional receivers.
eter Display	:	2 ranges: 0 to 300 or 0 to 1000. Background is typically set at 100. Meter is also used as dip angle null indicator and battery test.
udio	:	Crystal speaker. 2500 Hz used as null indicator.
:linometer	:	$\pm 90°$, $\pm 0.5°$ resolution. Normal locking, push button release.
attery	:	One standard 9v transistor radio battery. Average life expectancy - 1 to 3 months (battery drain is 3 mA)
emperature Range	:	-40° to + 60° C.
imensions	:	8 x 22 x 14 cm (3 x 9 x 6 Inches).
Veight	:	850 grams (1.9 pounds).

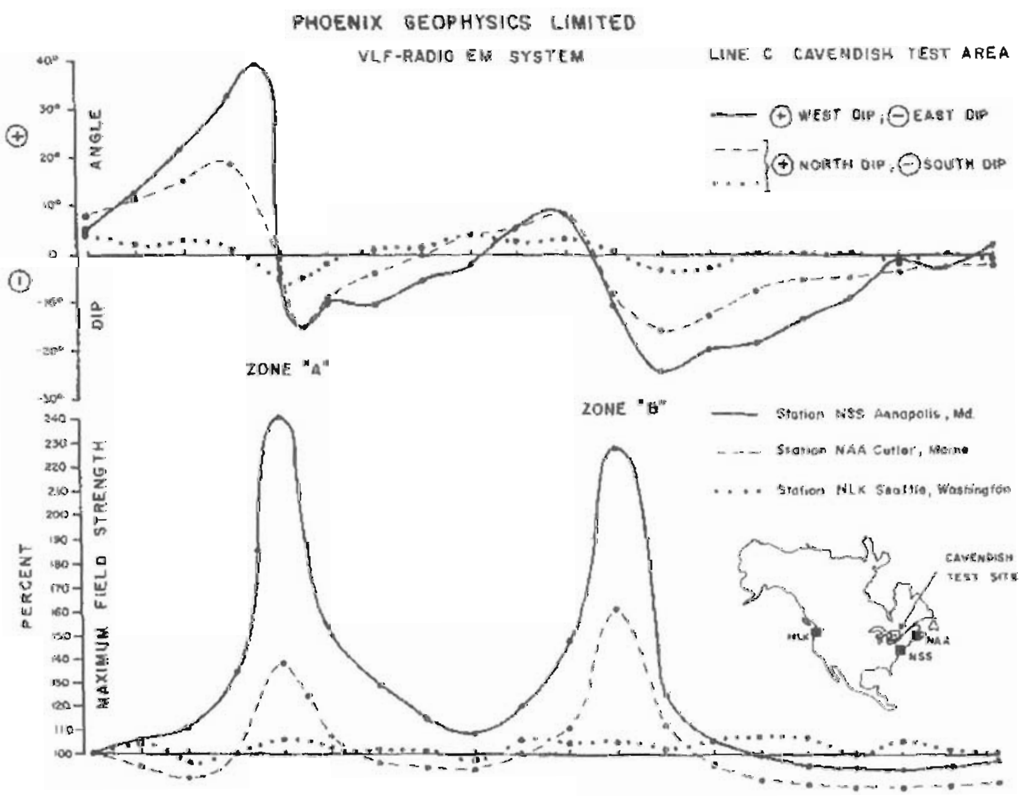
All of the established stations may be selected, or alternatively, a local VLF transmitter may be used which transmits at any frequency in the range 14.0 to 29.9 kHz.

VLF Station	Frequency (kHz)
Bordeaux, France	15.1
Odessa (Black Sea)	15.6
Rugby, U.K.	16.0
Moscow, U.S.S.R.	17.1
Yosamai, Japan	17.4
Hegaland, Norway	17.6
Cutler, Maine	17.8
Seattle, Washington	18.6
Malabar, Java	19.0
Oxford, U.K.	19.6
Paris, France	20.7
Annapolis, Maryland	21.4
Northwest Cape, Australia	22.3
Loulualei, Hawaii	23.4
Buenos Aires, Argentina	23.6
Rome, Italy	27.2

ield Data

he results below illustrate the need for using two orthogonal stations when the strike of the prospective conductor is not well-known. The dip angle and amplitude data measured using station NLK in Seattle, Washington, how only a very weak anomaly associated with the two conductive sulphide zones at Cavendish, Ontario.

The results obtained using Cutler, Maine reveal a more prominent anomaly, but the best response was obtained using Annapolis, Maryland since the station lies almost due south and the transmitted electromagnetic field is thus maximum-coupled with the North-South trending conductors.



MAIN COMPONENTS OF THE VLF-2

FRONT VIEW

1. The Field Strength meter with its level switch to the left of it.
2. The channel selector switch with its F1 and F2 positions.
3. The 10-turn gain potentiometers on the front panel. The right one is for F1. The left one for F2.
4. The loud speaker.
5. The on-off battery test switch.
6. The clinometer, which is normally locked. By pressing its button the pointer is freed.

REAR VIEW

1. The pick-up coil, which the user tunes when selecting a station.
2. Coil tuning dials F1 and F2.
3. Miniature rocker switches for primary frequency selection F1 and F2.
4. Batteries. Regular 9V transistor radio batteries will give good service. Better cold weather service is obtained by using alkaline type batteries.

   The instrument will operate using only one battery; however, two may be connected in parallel using the second battery clip provided.

				(+18.398762°)	(-067.177599°)
NSY		45900	Niscemi, Italy Locator: JM77fd	N 37° 07' 32.37" (+37.125660°)	E 014° 26' 11.10" (+014.436416°)
MSF	(8)	60000	Anthorn, UK Locator: IO84iv	N 54° 54' 40.30" (+54.911195°)	W 003° 16' 45.49" (-003.279302°)
WWVB	(9)	60000	Fort Collins, Colorado Locator: DN70lq	N 40° 40' 40.14" (+40.677816°)	W 105° 02' 51.11" (-105.047530°)
JJY-60	(10)	60000	Hagane-yama, Japan Locator: PM53cl	N 33° 27' 55.56" (+33.465433°)	E 130° 10' 31.49" (+130.175415°)
FUG		62600	La Régine, France Locator: JN13bj	N 43° 23' 12.47" (+43.386798°)	E 002° 05' 50.60" (+002.097388°)
FUE		65800	Kerlouan, France Locator: IN78tp	N 48° 38' 15.62" (+48.637672°)	W 004° 21' 2.61" (-004.350725°)
HBG	(11)	75000	Prangins, Switzerland Locator: JN36dj	N 46° 24' 22.36" (+46.406211°)	E 006° 15' 4.56" (+006.251267°)
DCF77	(12)	77500	Mainflingen, Germany Locator: JO40ma	N 50° 00' 55.48" (+50.015411°)	E 009° 00' 29.90" (+009.008307°)

Notes:

(1) : Transits only 6 times a day: 00:00-00:55, 04:00-04:55, 8:00-08:55, 12:00-12:55, 16:00-16:55, 20:00-20:55 UTC.

(2) : Historic station only active twice-yearly on special occasions. SAQ website: www

(3) : HWU alternates between 18.3kHz, 21.75kHz and 22.6kHz.

(4) : Off-air daily from 7:00 to 8:00 UTC.

(5) : Off-air on Tuesdays from 12:00 to 19:00 UTC.

(6) : Approximate location.

(7) : Time Signal. JJY-40 website: www

(8) : Time Signal. MSF website: www

(9) : Time Signal. WWVB website: www

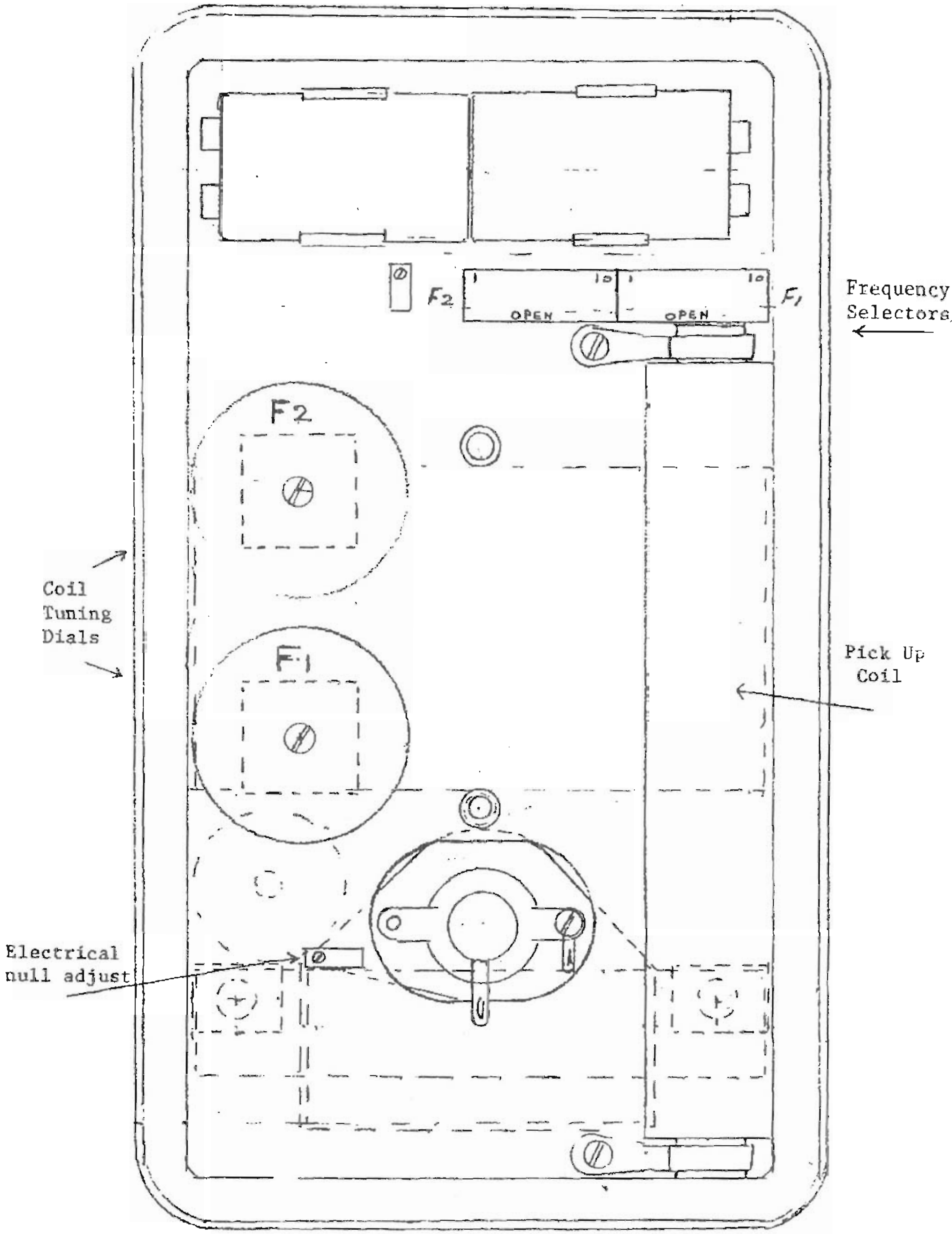
(10) : Time Signal. JJY-60 website: www

(11) : Time Signal. HBG website: www

(12) : Time Signal. DCF77 website: www

Here are some KML files of the above transmitters. These files can be viewed using Google Earth. In order to get updates to those files, give Google Earth the link and not a local copy of the kml file.

REAR VIEW OF VLF-2



NB – Do not attempt to remove printed circuit board as connectors on the underside will be broken.

VLF STATION	FREQ. KHz.	SWITCH CODE 1 2 3 4	5 6 7 8	9 10 ←Rocker Switch Position
Bordeaux, France	15·1	1 0 0 0	1 0 1 0	0 1
Odessa (Black Sea)	15·6	0 1 1 0	1 0 1 0	0 1
Rugby, U.K.	16·0	0 0 0 0	0 1 1 0	0 1
Moscow, U.S.S.R.	17·1	1 0 0 0	1 1 1 0	0 0
Yosamai, Japan	17·4	0 0 1 0	1 1 1 0	0 0
Hegaland, Norway	17·6	0 1 1 0	1 1 1 0	0 0
Cutler, Maine	17·8	0 0 0 1	1 1 1 0	0 0
Seattle, Washington	18·6	0 0 0 1 ~~0 1 1 0~~	0 0 1 0 ~~0 0 0 1~~	1 0 ~~0 0~~
Malabar, Java	19·0	0 0 0 0	1 0 0 1	0 0
Oxford, U.K.	19·6	0 1 1 0	1 0 0 1	0 0
Paris, France	20·7	1 1 1 0	0 0 0 0	1 0
Annapolis, Maryland	21·4	0 0 1 0	1 0 0 0	1 0
Northwest Cape, Australia	22·3	1 1 0 0	0 1 0 0	1 0
Laulualei, Hawaii	23·4	0 0 1 0	1 1 0 0	1 0
Buenos Aires, Argentina	23·6	0 1 1 0	1 1 0 0	1 0
Rome, Italy	27·2	0 1 0 0	1 1 1 0	1 0
		BCD 100's	BCD 1000's	

14·0 To 19·9 KHz. 0
20·0 To 29·9 KHz. 1

Above 17·0 KHz. 0
Below 17·0 KHz. 1

SELECTOR SWITCH — NUMBER SIDE DOWN IS 1.

OPERATING INSTRUCTIONS OF THE VLF-2

TRANSMITTER SELECTION

1. Select the transmitter stations to be used. Generally, one would use those stations along strike from the expected conductors. See field data of Line C Cavendish test area. In the event the strike was not known, two stations at right angles to each other should be used.

   Ideally, the survey lines should be located perpendicular to the station direction and geologic strike, as this geometry will give rise to the highest magnitude anomalies.

2. Open the back cover and set the F1 and F2 miniature rocker switch frequency selectors to the desired frequencies using the tuning chart inside the lid. The "open" position of these switches corresponds to "0" whereas the number side is "1". Make sure that the miniature switches actually switch. Note the frequency selection for F1 and F2.

3. Check if the battery is connected. Turn instrument right side up.

4. Press the on-off switch to BAT., which is the battery test position. Read the top scale of the meter which is 10V full scale. Do this for a minute and observe if the battery voltage is steady and above 7V. A decaying battery voltage may mean that the battery has a low capacity and will need replacement soon.

5. Switch on-off switch to ON.
Select F1 position on the front panel switch.
Set the meter sensitivity switch to 300% F.S.
Turn the right hand 10-turn gain control so the meter reads mid-scale. Reach for the appropriate coil tuning dial at the back and turn until a maximum signal is obtained. This may require reducing the gain with the 10-turn vernier on the front panel in case the meter goes off scale.

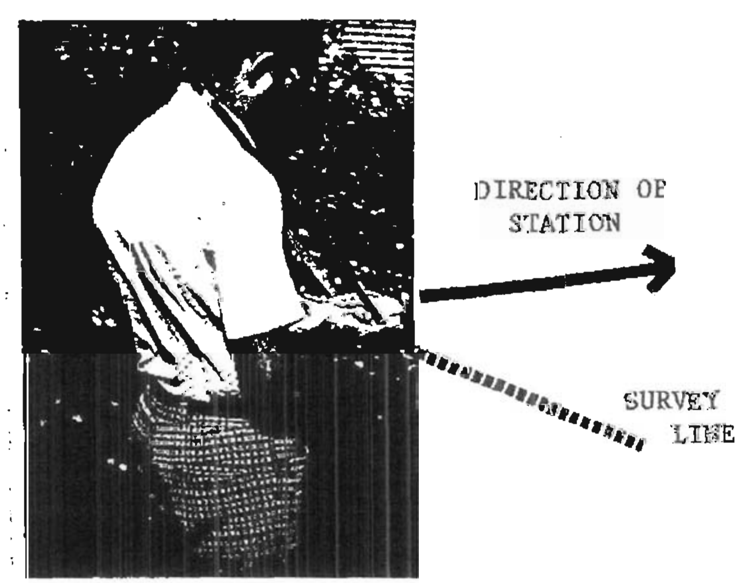
The same procedure should be followed for the other channel, F2.

Replace the back cover. Be careful not to disturb either of the tuning dials once they have been set.

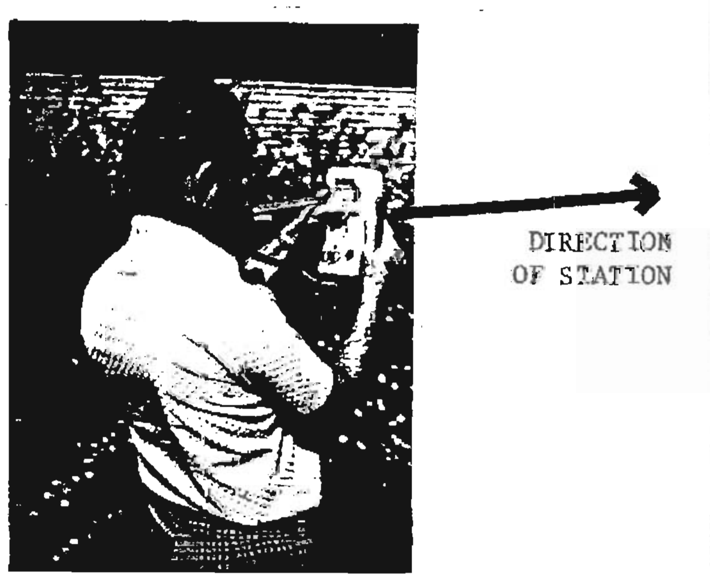
FIELD MEASUREMENTS

1. DIP ANGLE

Initially, select F1 position on the front panel. Hold the unit with the clinometer face in a horizontal plane while the meter points away from you. Switch the receiver on and observe the level meter as you make a slow 360 degree turn, until a position of minimum signal strength is observed. (If always off-scale reduce the gain of the channel via the appropriate 10-turn gain control on the front panel). You are now facing the station (or have your back to it).



Next, hold the instrument in a vertical position with the operator facing the clinometer. Continue to face in the direction of the station.



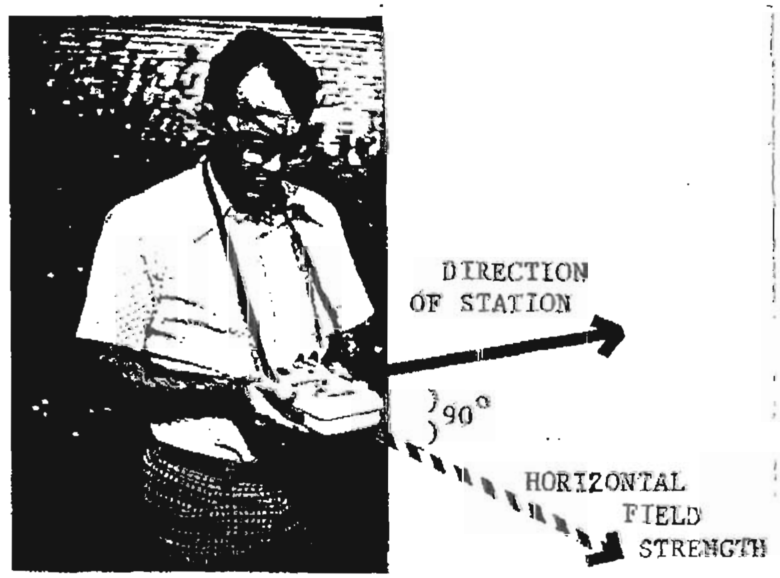
Tilt the instrument to the left or right to find a minimum or a null, while depressing the center clinometer button to free the clinometer pointer. When the null position has been determined, release the button and record the dip angle (west or east, north or south).

2. OUT-OF-PHASE SIGNAL

If no signal remains in the null position there is considered to be no out-of-phase response. Any signal which does remain after the best null is obtained is the "out-of-phase" level. This level may be recorded and plotted, generally after normalizing it as a percentage of the maximum horizontal field strength. As this parameter is very sensitive it is usually recorded only if very poor conductors are being sought.

3. HORIZONTAL FIELD STRENGTH (maximum)

This measurement is taken with the instrument held horizontal, with the long axis at right angles to the station direction.



At the first survey station in an undisturbed area, the operator should first align himself in the proper direction to measure the maximum horizontal field strength and then adjust the two panel-mounted 10-turn potentiometer until the field strength meter reads approximately 100% on the 0-300% scale position, for both channel F1 and channel F2. The potentiometer should then be locked into position for the remainder of the survey.

Because the VLF transmitter fields vary slowly with time, it may be desirable to re-read the same survey position once every one or two hours and note the difference in the two readings. A correction can then be made to any readings measured at other survey positions during the time period concerned.

4. OTHER FREQUENCIES

In case a frequency other than the 16 listed is desired, one can deterine the switch selection as follows:

Switches 1 - 4: The hundred's Hertz figure in Binary Coded Decimal (BCD) code, where switch 1 represents the least significant digit and switch 4 the most significant.

i.e.

Decimal No.	Switch No. 1 (5)	2 (6)	3 (7)	4 (8)
0	0	0	0	0
1	1	0	0	0
2	0	1	0	0
3	1	1	0	0
4	0	0	1	0
5	1	0	1	0
6	0	1	1	0
7	1	1	1	0
8	0	0	0	1
9	1	0	0	1

Switches 5 - 8: The Thousand's Hertz figure in B.C.D. code. The switch numbers are shown in parenthesis in the above table.

Switch 9: 0 (off) for frequencies of 14.0 KHZ to 19.9 KHZ
1 (on) for 20.0 to 29.9 KHZ

Switch 10: 0 (off) for frequencies of 17.1 KHZ and over.
1 (on) for frequencies of 17.0 KHZ and under.

RECORDING THE READINGS

Field Sheets may be set up as follows:

STATION	DIP DEGREES	OUT-OF-PHASE	HOR. FIELD STRENGTH %	TIME	HOR. FIELD STRENGTH DRIFT%	CORR LEVEL %	REMARKS
BASE STATION ↓	F1 F2						
UP LINE ↓	F1 F2						
DOWN NEXT LINE ↓	F1 F2						
BASE STATION	F1 F2						

When reading dip angle degrees also record the direction the top of the receiver is pointing.

The bottom of the receiver always points towards the anomaly.

References:

TESTING THE INSTRUMENT

1. With the unit turned off, hold it in a vertical position. The level meter should read zero. Adjust if required with the screw just below the meter.

2. With the unit turned on in a vertical position and the gain controls turned to zero check the electrical zero. It should be very close to the mechanical zero.

   Adjust if necessary with the small trimming potentiometer at the back beside the meter.

3. Null the instrument on a VLF or laboratory station using the clinometer according to the regular field reading procedure.
   Note the clinometer reading.
   Make a 180° turn and take the clinometer reading again. It should be the same.
   If it is not, one could adjust the pick-up coil position by loosening one or both screws that hold it and move it until both nulls are at the same angle.
   Do this without removing the shield.

VLF STATION - MAINTENANCE SCHEDULES

17.8 KHZ	CUTLER, Main Shut down Mondays 1400-1800 UT Shut down Fridays before holy day week-end 1400-1800 UT Half power on Wednesday and Thursday 1200-2000 UT
18.6 KHZ	SEATTLE, Washington Shut down 1st and 3rd Thursday on the month 1700 - 2200 UT
23.4 KHZ	HAWAII Shut down 1st and 3rd Mondays of the month 1700 - 0200 UT
22.3 KHZ	NORTHWEST CAPE, Australia. Shut down Mondays 0000 - 0400 or 0600 UT
16 KHZ	RUGBY, England Shut down daily 1300 - 1400 UT
17.4 KHZ	YOSAMI, Japan Shut down 1st Thursday and Friday of the Month 2200 - 0800 UT. All other Thursdays and Fridays 2200-0600 UT.

ANNAPOLIS Tuesday

PNM

VLF PHOENIX -2 FIELD SHEET

Page: ______

Date: ______

Operator: ______

PROPERTY: ______

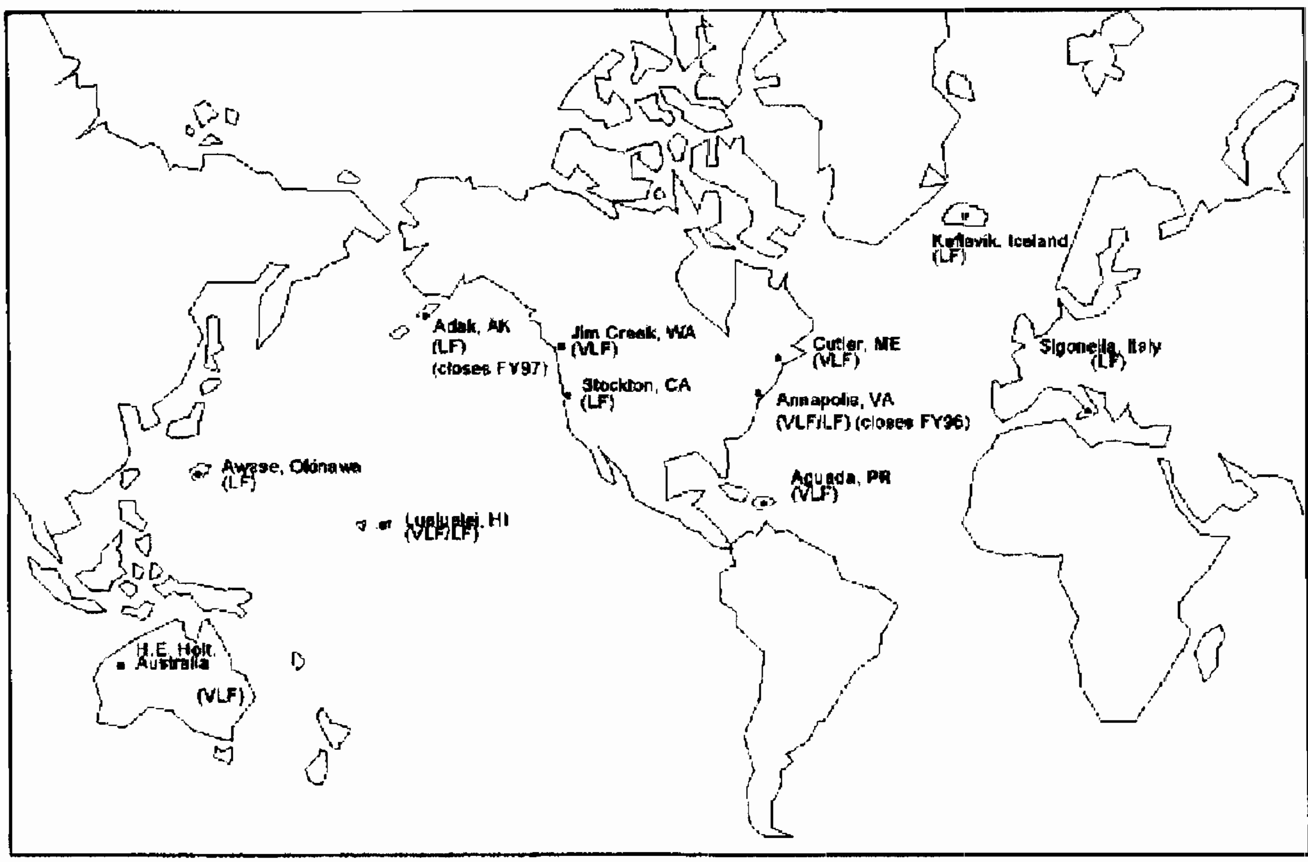
FRASER FILTER $f_{2,3} = (M_3 + M_4) - (M_1 + M_2)$

(Dir.) W, E, N, S

STATION		DIP	OUT-OF-PHASE	LEVEL %	HFS	TIME	DRIFT ±	CORRECTED LEVEL %	CORRECTED HFS	REMARKS
	F_1									
	F_2									
	F_1									
	F_2									
	F_1									
	F_2									
	F_1									
	F_2									
	F_1									
	F_2									
	F_1									
	F_2									
	F_1									
	F_2									
	F_1									
	F_2									
	F_1									
	F_2									
	F_1									
	F_2									
	F_1									
	F_2									
	F_1									
	F_2									
	F_1									
	F_2									

Facilities

Call Letters	Location	Frequency	Power (kW)
NPM	NRTF Lualualei, Hawaii	21.4	480
NAA	NCTS Cutler, Maine	24.0	750/1000
NLK	NRS (T) Jim Creek, Washington	24.8	192
NAU	NRTF Aguada, Puerto Rico	40.75	100
	NCS H.E. Holt, Australia		



Very Low Frequency/Low Frequency Site Locations

VLF Stations List

Here is a list of VLF transmitters suitable for SID monitoring. Unless otherwise stated, they transmit almost 24/7. Those stations are used either as a communication means with submarines or for time signal.

Note:
This list is a synthesis of several sources and may contain obsolete or erroneous information.
Do not hesitate to contact me Email *for any addition or correction.*

Call sign	Notes	Frequency	Location	Latitude	Longitude	Aerial View
JXN	(1)	16400	Aldra Island, Norway Locator: JP66mk	N 66° 25' 0.00" (+66.416667°)	E 013° 01' 0.00" (+013.016667°)	
VTX		17000	Vijaya Narayanam, India Locator: MJ88vj	N 08° 23' 13.25" (+08.387015°)	E 077° 45' 9.94" (+077.752762°)	
SAQ	(2)	17200	Grimeton, Sweden Locator: JO67ec	N 57° 06' 47.42" (+57.113171°)	E 012° 23' 50.20" (+012.397277°)	
				N 54° 43'	W 002° 52'	

GBZ		19600	Skelton, UK Locator: IO84nr	54.48" (+54.731799°)	58.92" (-002.883033°)	
NWC		19800	Harold E. Holt, North West Cape, Exmouth, Australia Locator: OG78bc	S 21° 48' 58.78" (-21.816328°)	E 114° 09' 56.11" (+114.165586°)	
ICV		20270	Isola di Tavolara, Italy Locator: JN40uw	N 40° 55' 23.26" (+40.923127°)	E 009° 43' 51.64" (+009.731011°)	
FTA		20900	Sainte-Assise, France Locator: JN18gn	N 48° 32' 40.68" (+48.544632°)	E 002° 34' 45.94" (+002.579429°)	
NPM		21400	Pearl Harbour, Lualuahei, HI Locator: BL01wk	N 21° 25' 12.60" (+21.420166°)	W 158° 09' 4.10" (-158.151140°)	
HWU	(3)	18300 21750 22600	Rosnay, France Locator: JN06or	N 46° 42' 47.26" (+46.713129°)	E 001° 14' 42.89" (+001.245248°)	
GQD		22100	Anthorn, UK Locator: IO84iv	N 54° 54' 41.91" (+54.911643°)	W 003° 16' 42.44" (-003.278456°)	
NDT		22200	Ebino, Japan Locator: PM52jb	N 32° 04' 34.94" (+32.076372°)	E 130° 49' 43.05" (+130.828625°)	
DHO38	(4)	23400	Rhauderfehn, Germany Locator: JO33tb	N 53° 04' 44.04" (+53.078900°)	E 007° 36' 54.00" (+007.615000°)	
NAA		24000	Cutler, ME Locator: FN64ip	N 44° 38' 41.77" (+44.644936°)	W 067° 16' 53.90" (-067.281639°)	
NLK		24800	Oso Wash, Jim Creek, WA Locator: CN98ae	N 48° 12' 12.55" (+48.203487°)	W 121° 55' 0.58" (-121.916827°)	
NML	(5)	25200	La Moure, ND Locator: EN06ti	N 46° 21' 57.56" (+46.365990°)	W 098° 20' 8.30" (-098.335638°)	
TBB	(6)	26700	Bafa, Turkey Locator: KM37sl	N 37° 28' 0.00" (+37.466667°)	E 027° 30' 0.00" (+027.500000°)	
NRK/TFK		37500	Grindavik, Iceland Locator: HP83su	N 63° 51' 1.31" (+63.850365°)	W 022° 28' 0.38" (-022.466773°)	
JJY-40	(7)	40000	Ohtakadoya-yama, Japan Locator: QM07ki	N 37° 22' 21.35" (+37.372598°)	E 140° 50' 56.06" (+140.848906°)	
NAU		40800	Aguada, Puerto Rico Locator: FK68jj	N 18° 23' 55.54"	W 067° 10' 39.36"	

Appendix 3

Fluxgate Magnetometer Manual

OPERATION OF THE INSTRUMENT:

1. Remove all ferro-magnetic objects from the operator's person, e.g. keys, coins, buttons etc. (zippers should be non-magnetic). * SAFETY BOOTS WITH STEEL PROTECTIVE TOE CAPS *

2. Attach carrying strap to the instrument. For light surveying the upper buttons can be used and the strap carried around the neck. In rough terrain, and for long surveys, it is advisable to attach the strap to one upper button around one shoulder to the lower button on the other side of the instrument.

3. If external batteries are to be used, attach battery pack cable to the instrument, and the pack itself to the operator's back.

4. Switch on Main Switch (1) to the first position - BAT. Meter needle should come to rest within the red arc. If not, replace or recharge the batteries.

5. Latitude Adjustment (Bucking):
   Put Range Switch ~~(3)~~ 2) to 100K position, Main Switch to Positive ("+"), Latitude Switch (3), to 0 gammas and Fine Control (4) fully in the direction of "CAL" arrow.

read the vertical component of the magnetic field with 1% accuracy. The MF-2, with calibrated latitude control as an option, has Latitude Switch steps of 10,000 gammas ± 0.5%: thus the reading can be taken on more sensitive ranges and the total value of vertical component calculated by adding the meter reading to the value of the field indicated on the Latitude Switch. In order to obtain readings in more sensitive ranges, it is necessary to adjust the latitude controls to give a zero reading. First, set the Latitude Switch (3) to the position which gives a reading closest to zero on the positive side, and then use the Fine Control ~~to obtain zero~~. Now set the Range Switch to a desired range, and readjust the Fine Control, if necessary, to obtain an exact zero reading.

The only requirement for taking measurements with the MF-2, is that the instrument be reasonably stationary, with the level bubble (5) resting within the perimeter of the "inner" circle of the Level.

5

Calibration:

This instrument is factory calibrated and field tests have shown that only misuse (i.e. dropping, rough handling, improper shipping) can affect the calibration. Therefore, it is not necessary to re-calibrate in the field. However, should re-calibration become necessary, for any reason, the instrument should be returned to the manufacturer.

8. All parts, except the non-rechargeable batteries and cables, are guaranteed for a period of one year and in the event of a malfunction will be replaced free of charge, providing no obvious misuse has been committed. Should the instrument become inoperative, check the batteries and cables (especially connections). If these prove to be in good order, return the instrument to your supplier, or directly to the manufacturer, for prompt repair.

*** WARNING: Always remove the external batteries when the unit is being stored or shipped. Those units with internal rechargeable batteries, should be re-charged after each daily use, if possible, and at least once every six months should the unit remain in storage.

9. The charging of rechargeable batteries should be carried out using the accompanying charging unit. The procedure being:

a) Turn the magnetometer main switch to OFF.

*** N.B.*** This applies to instruments with external batteries only.

b) Connect the charger cable to the magnotometer plug (6).

c) Plug charger into 120VAC 50 to 60 Hz.

d) The charger Pilot light will indicate that the batteries are being charged and will go off when they are fully charged.

e) If charging is to be done from a 28 to 42V D.C. source, connect the D.C. cable to the charger, and proceed as above.

f) Should the source of charging power be 220 volts A.C., an internal adjustment to the charger is necessary.

If a power source for charging the batteries is not available in the field, the external battery pack (optional) should be used. If external pack is used, the internal batteries have to be re-charged every 6 months.
For convenience the shorting plug with chain can be removed and stored in the pocket of the case.

10. Regional Latitude Settings:

Normally, each unit is preset for the Northern Hemisphere, pre-setting for the Southern Hemisphere will be done at the factory, as per your instructions and at no extra cost. However, should the unit be required for use in both Hemispheres, re-setting instructions will be supplied on request.

FIELD PROCEDURE:

1. Select a base control station, the choice of location being governed by the following considerations:

a) General magnetic background (i.e. not anomalous if possible).

b) Accessibility, in relation to the area being surveyed.

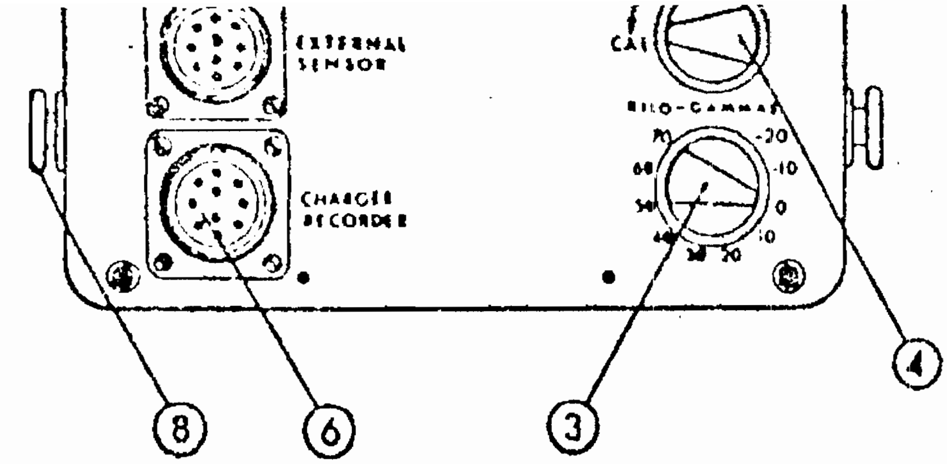
2. Set the magnetometer to read between 0 and 200 gammas. (For the sake of convenience in contouring and to avoid small negative readings, an arbitrary value of 800 to 1000 gamma may be added to all readings).

3. For effective diurnal control, control stations should be permanently marked, and readings should be taken at the same height and location each time: a simple method is to have the top of the control station picket at about waist height. Rest the probe end of the magnetometer on this picket while taking the reading. In barren country, a mound, large rock or some similar object, can be marked and used as a substitute for pickets.

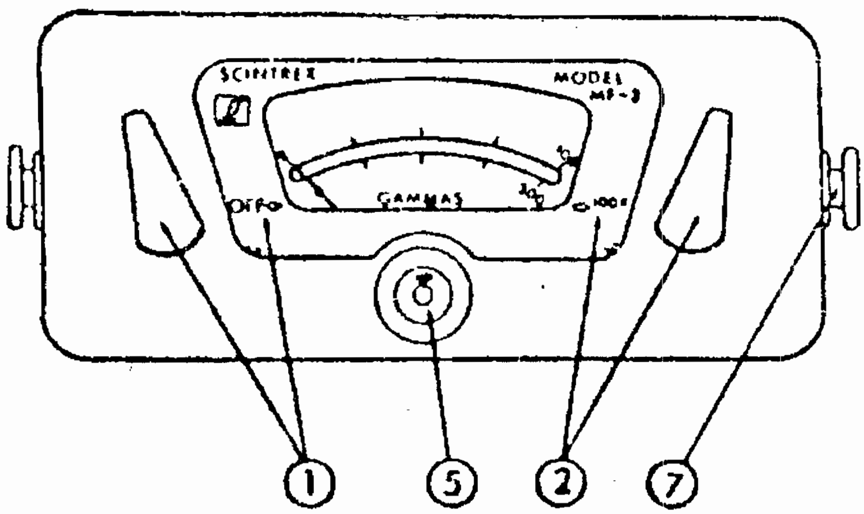
4. Normal magnetometer survey procedures should be adhered to for the remainder of the survey.

5. Powerful magnets should be kept more than 1 foot away from the MF-2 instrument.

6. During winter operation, external batteries (if used) should be kept in a pocket or under a parka. (Only use batteries with low steel content e.g. Eveready).



1 MAIN SWITCH
2 RANGE SWITCH
3 LATITUDE SWITCH
4 LATITUDE FINE CONTROL
5 LEVEL
6 CHARGER & RECORDER PLUG
7 UPPER BUTTON
8 LOWER BUTTON



Using a recorder such as the Esterline Angus Model T171B or TOA Electronics Model EPR-2T, the MF-2 magnetometer can be used to record diurnal changes, etc. These recorders are battery or AC operated and the high input impedance of 2 Meg-ohms will create an error of only 0.5%.

The recording output of the MF-2 is 100mV over a 10 kilo-ohm resistor at any range and full scale deflection of the meter.

The highest sensitivity, a recording span of plus minus 50 gammas can be obtained by setting the MF-2 range switch to 1000 gamma, and the recorder range to 5mV.

The recorder should be placed at least at a distance of 10 feet to avoid a magnetic disturbance. A recorder cable 752 025 can be obtained to secure the proper connection.

HEMISPHERE SETTING

To convert the polarity setting from the Northern to the Southern hemisphere or vice versa, only a screw driver 1/4" (6mm) wide is required.

1) Place the instrument flat on a table.

2) Remove the four screws at the corners of bottom plate.

3) Pull bottom plate carefully off the instrument.

4) The position of the white connector plug on the top plate of the Latitude switch (3) is determining the setting. The notch of the plug facing the "N" on the top plate indicates the setting for the Northern hemisphere. Pull the plug carefully, (do not pull and bend the wires), turn and insert plug again when notch faces exactly "S".

5) When assembling the instrument make sure that the gasket ring is placed properly between the bottom plate and the tubing.

MODEL MF-2 FLUXGATE MAGNETOMETER

OPERATION OF THE INSTRUMENT:

1. Remove all ferro-magnetic objects from the operator's person, e.g. keys, coins, buttons etc. (zippers should be non-magnetic). * SAFETY BOOTS WITH STEEL PROTECTIVE TOE CAPS *

2. Attach carrying strap to the instrument. For light surveying the upper buttons can be used and the strap carried around the neck. In rough terrain, and for long surveys, it is advisable to attach the strap to one upper button around one shoulder to the lower button on the other side of the instrument.

3. If external batteries are to be used, attach battery pack cable to the instrument, and the pack itself to the operator's back.

4. Switch on Main Switch (1) to the first position - BAT. Meter needle should come to rest within the red arc. If not, replace or recharge the batteries.

5. Latitude Adjustment (Bucking):

   Put Range Switch (2) to 100K position, Main Switch to Positive ("+"), Latitude Switch (3), to 0 gammas and Fine Control (4) fully in the direction of "CAL" arrow.

read the vertical component of the magnetic field with 1% accuracy. The MF-2, with calibrated latitude control as an option, has Latitude Switch steps of 10,000 gammas ± 0.5%: thus the reading can be taken on more sensitive ranges and the total value of vertical component calculated by adding the meter reading to the value of the field indicated on the Latitude Switch. In order to obtain readings in more sensitive ranges, it is necessary to adjust the latitude controls to give a zero reading. First, set the Latitude Switch (3) to the position which gives a reading closest to zero on the positive side, and then use the Fine Control to obtain zero. Now set the Range Switch to a desired range, and readjust the Fine Control, if necessary, to obtain an exact zero reading.

The only requirement for taking measurements with the MF-2, is that the instrument be reasonably stationary, with the level bubble (5) resting within the perimeter of the "inner" circle of the Level.

Calibration:

This instrument is factory calibrated and field tests have shown that only misuse (i.e. dropping, rough handling, improper shipping) can affect the calibration. Therefore, it is not necessary to re-calibrate in the field. However, should re-calibration become necessary, for any reason, the instrument should be returned to the manufacturer.

8. All parts, except the non-rechargeable batteries and cables, are guaranteed for a period of one year and in the event of a malfunction will be replaced free of charge, providing no obvious misuse has been committed. Should the instrument become inoperative, check the batteries and cables (especially connections). If these prove to be in good order, return the instrument to your supplier, or directly to the manufacturer, for prompt repair.

*** WARNING: Always remove the external batteries when the unit is being stored or shipped. Those units with internal rechargeable batteries, should be re-charged after each daily use, if possible, and at least once every six months should the unit remain in storage.

9. The charging of rechargeable batteries should be carried out using the accompanying charging unit. The procedure being:

a) Turn the magnetometer main switch to OFF.

*** N.B.*** This applies to instruments with external batteries only.