86-232-14758

GEOPHYSICAL REPORT
on the
JOY 1 MINERAL CLAIM
January 1986
Latitude 49°13' North
Longitude 118°06' West
NTS 82E/1E
TRAIL CREEK MINING DIVISION
BRITISH COLUMBIA

March 24, 1986

for
REX SILVER MINES LTD.
CALGARY, ALBERTA

by
C.H. Aussant, P. Geol.
TAIGA CONSULTANTS LTD.
#100, 1300 - 8 Street S.W.
Calgary, Alberta T2R 1B2

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CERTIFICATE

I, Claude Henry Aussant, of 31 Templebow Way N.E. in the City of Calgary in the Province of Alberta, do hereby certify that:

1. I am a Consulting Geologist with the firm of Taiga Consultants Ltd. with offices located at Suite 100, 1300 - 8th Street S.W., Calgary, Alberta.

2. I am a graduate of the University of Calgary, B. Sc. in Geology (1976).

3. I have practised my profession continuously since graduation.

4. I am a member in good standing since 1979 of the Association of Professional Engineers, Geologists and Geophysicists of Alberta.

5. I did not receive and do not expect to receive any interest, directly or indirectly, in the property described herein, nor in the securities of Rex Silver Mines Ltd. or its affiliates, in respect of services rendered in the preparation of this report.

DATED in Calgary, Alberta, this 24 day of March, A.D. 1986.

Respectfully submitted,

Claude H. Aussant, B.Sc., P.Geol.

PROFESSIONAL GEOLOGIST
CLAUDE H. AUSSANT
ALBERTA

PERMIT TO PRACTICE
TAIGA CONSULTANTS LTD.
Signature
Date Apr 16/86
PERMIT NUMBER: P 2399
The Association of Professional Engineers, Geologists and Geophysicists of Alberta

INTRODUCTION

Taiga Consultants Ltd. was contracted by Rex Silver Mines Ltd. to carry out a reconnaissance exploration program on the Joy 1 mineral claim located 22 km north-northeast of the village of Christina Lake, British Columbia.

During the period January 23 to 28, 1986, a total of 4½ man days were spent exploring the property. A reconnaissance flag-and-compass grid was emplaced in the northeastern portion of the mineral claim. Magnetometer and VLF-EM surveys were completed over the grid lines.

Location & Access

The location and access to the property are illustrated on Figures 1 and 2. The claim is situated in southern B.C., 22 km north-northeast of the village of Christina Lake, at approximately 49°13' North latitude and 118°06' West longitude in N.T.S. 82 E/1NE, Trail Creek Mining Division.

B.C. Highway #3 crosses through the centre of the mineral claim, thus providing excellent access to the property.

Property Status

The property consists of one mineral claim, the Joy 1, staked under the modified grid system, and registered in the name of Rex Silver Mines Ltd. The claim is indicated on Figure 2. Relevant claim data is tabulated below:

Claim Name	Size	No.of Units	Record Number	Record Date	Expiry Date
Joy 1	4 x 5	20	695	Mar 28/83	Mar 28/86

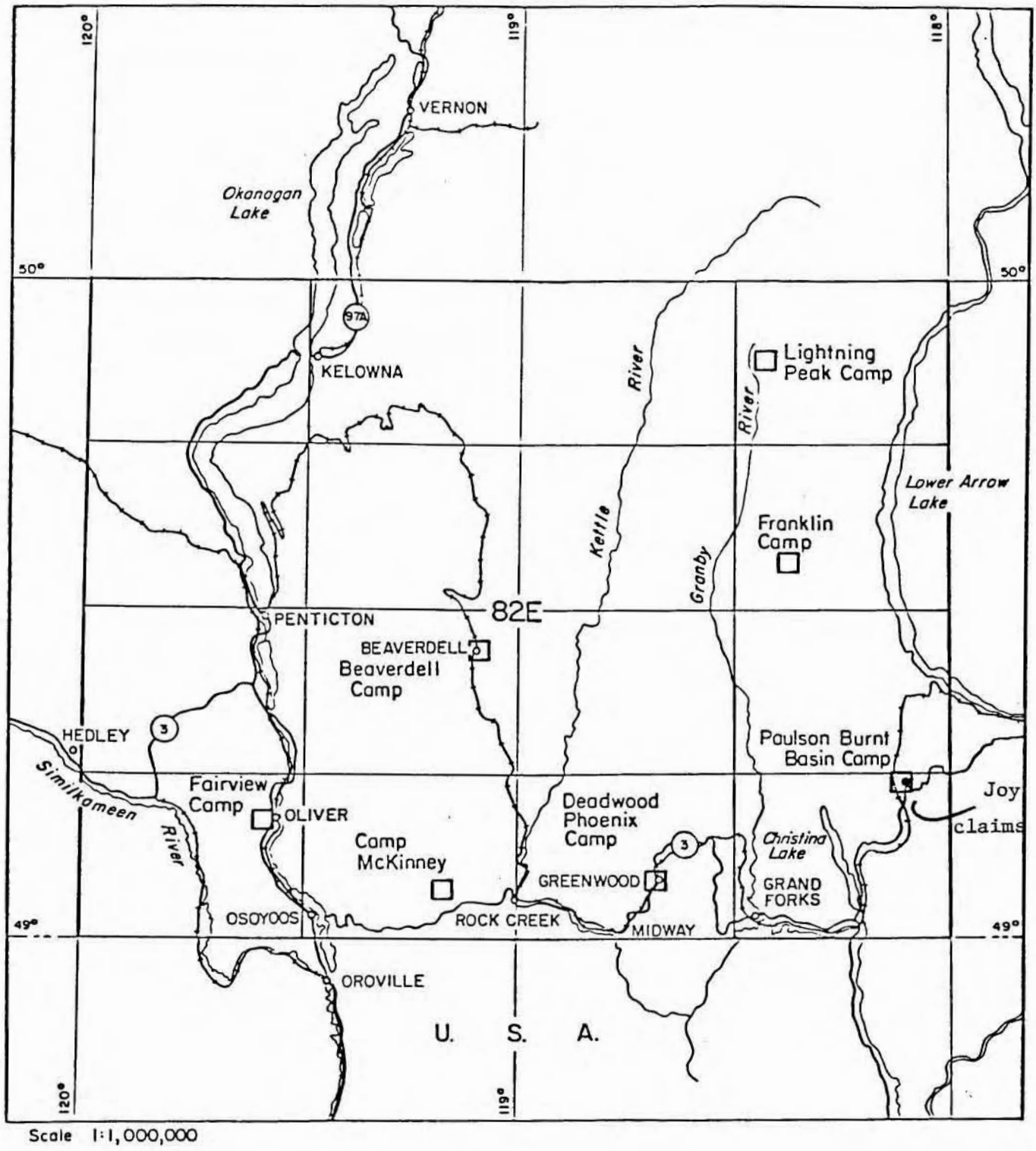
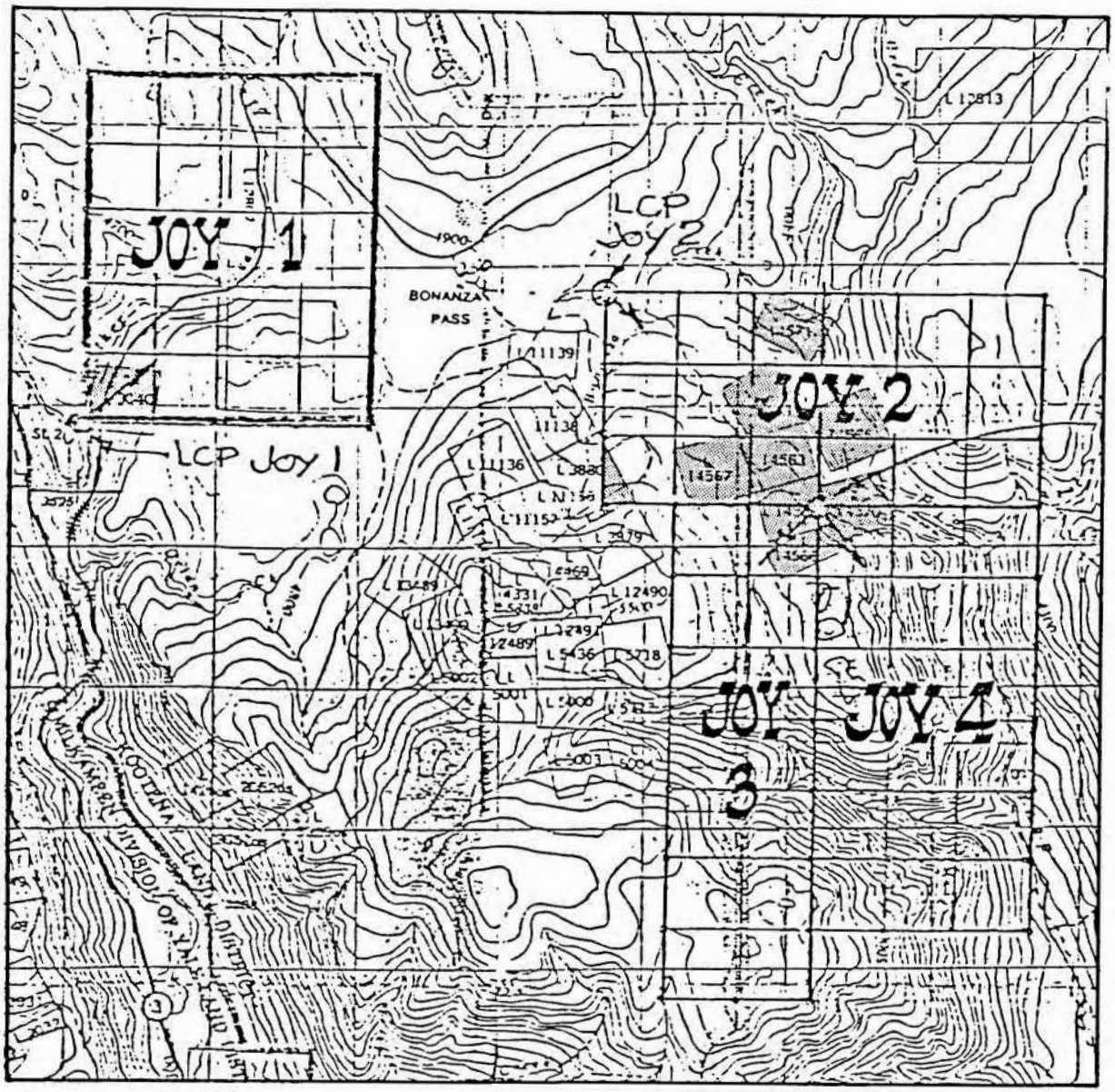


FIGURE 1

General Location Map



Scale 1:50,000

Area excluded from claim group due to pre-existing claims in good standing

JOY CLAIM GROUP

Physiography and Glaciation

The Joy 1 mineral claim is located within the Rossland Range of the Monashee Mountains which extend from the international boundary north to North Thompson River. This range is characterized by more mature topography than the range to the north. Although lacking glaciers at the present time, the higher peaks show evidence of alpine glaciation, and the effects of Cordilleran glaciation are apparent everywhere within the range. The direction of ice movement was southerly.

The drainage pattern for the area appears to have been established early, but may have been modified slightly, most probably during Pleistocene time. This drainage pattern is not governed appreciably by geological structure.

The claim is situated over Walker Creek which flows into McRae Creek. The claim topography consists of a gentle ridge cut deeply by Walker Creek. Elevations on the property range from 4,000 feet ASL in the southwestern corner of the property in the valley of Walker Creek to 5,200 feet on the hillsides occurring in the northern portion of the property.

The climate of the area is moderate with an average annual maximum temperature of 36°C and an average minimum temperature of -20°C while the average overall temperature is 5°C. The area has an average annual precipitation of 78 cm and an average annual snowfall of 335 cm.

REGIONAL GEOLOGY

The oldest rocks in the area are those of the Mt. Roberts Formation, a succession of sediments overlain by Jurassic Rossland Group volcanics of the Elise Formation.

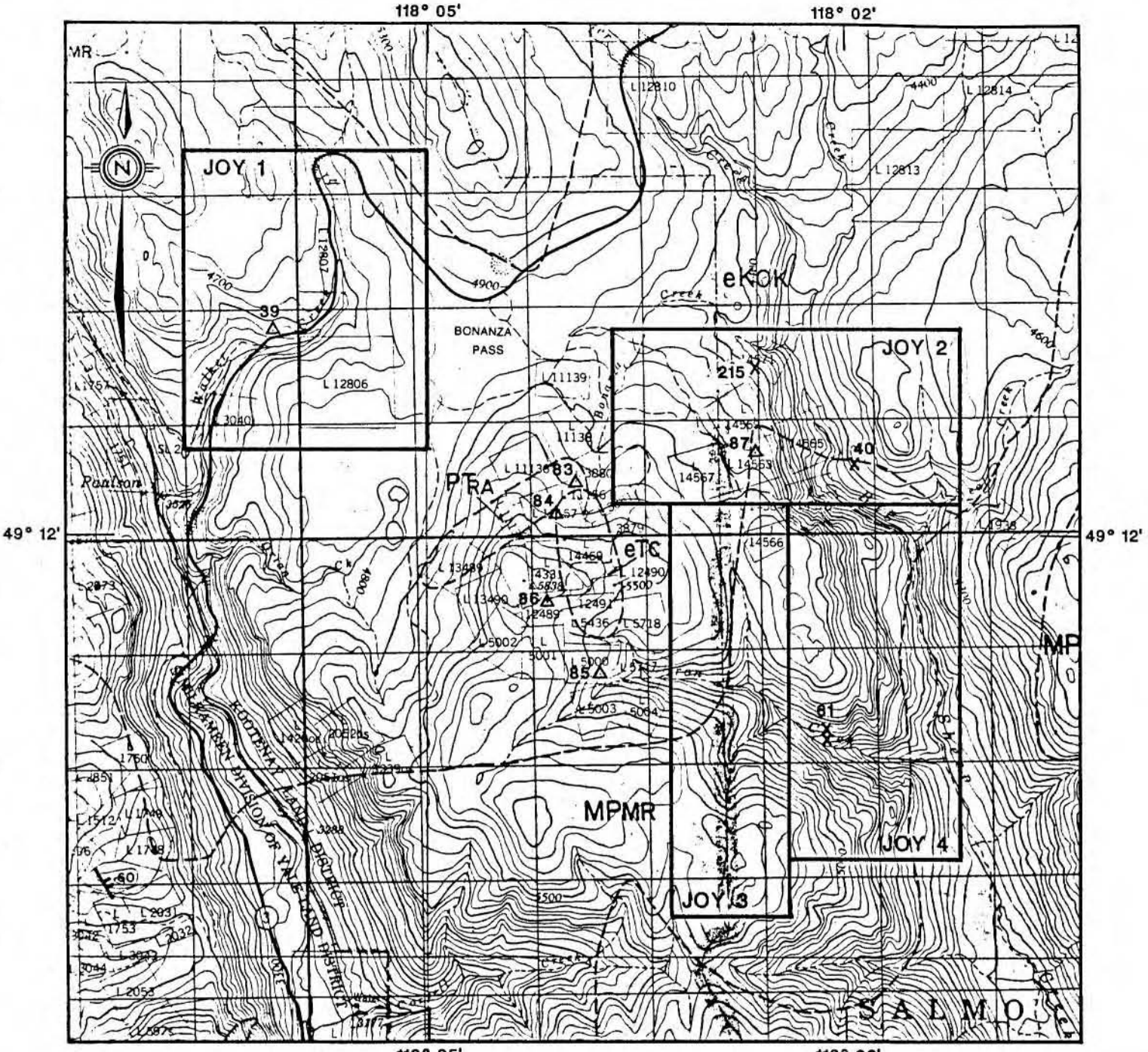
Outliers of weakly to moderately metamorphosed eugeosynclinal deposits of the Anarchist Group are exposed in the area. These sedimentary formations are compressed between large intrusive bodies of the Okanagan Batholith and Coryell Intrusives.

The Okanagan Batholith (Nelson Intrusions) of Cretaceous age is a large granitoid mass grading from a gneissic porphyritic granite to granodiorite, to a non-foliated non-porphyritic granite.

Alkalic rocks in the area generally belong to the Coryell batholith. The principal rock types of the batholith include syenite, quartz monzonite, pulaskite, and biotite augite monzonite.

The Coryell Intrusives are similar in bulk composition to the widespread Middle Eocene lavas of the Marron Formation and are believed to be genetically related to and the same age as these extrusives.

The regional geology is depicted on Figure 3. Table 1 summarizes the geological stratigraphy of the area.



(excerpted from Regional Geological Compilation by Taiga Consultants Ltd., 1982)

Q	Quaternary, alluvium and drift
eTC	Coryell Intrusions; syenite, quartz monzonite
eKOK	Okanagan Batholith (Valhalla Intrusions)
PTRA	Anarchist Group - greenstone, quartzite, greywacke, limestone, paragneiss
MPMR	Mount Roberts Formation; siltstone, quartzite, slate, limestone, chert

△ X occurrences

REGIONAL GEOLOGY MAP

FIGURE 3

TABLE OF FORMATIONS

TERTIARY	EOCENE	PENTICTON GROUP	eTc	CORYELL INTRUSIONS: syenite, quartz monzonite, minor granite, pulaskite, biotite-augite monz.
			Es	SKAHA Fm: Es_a : fanglomerate; Es_v : augite porphyry
			EWL	WHITE LAKE Fm: EWL_v : volc.bx.pyroclastics; EWL_s: volc, cg, ss, sh.
			EMA	MARAMA Fm: EMA_{fd} : feldspathic dacite; EMA_d: aphanitic dacite; EMA_{vs}: volc, cg (EM clasts).
			EM	MARRON Fm: augite-hornblende-biotite andesite, trachyandesite in Rossland area.
			EKR	KETTLE RIVER Fm: tuffaceous ark; volc.wacke, cg
			ESB	SPRINGBROOK Fm: polymictic conglomerate
	PALEOCENE			
CRETACEOUS	UPPER		eK	EARLY CRETACEOUS INTRUSIONS; includes: eKoL: OLIVER GRANITE; eKoK: OKANAGAN BATHOLIGH
	LOWER			
JURASSIC	UPPER			
	MIDDLE			
	LOWER			
TRIASSIC			uTrN	NICOLA GROUP: $uTrN_v$: andesite, basalt, tuff, minor seds; $uTrN_a$: quartzite, arg, ls, ss, schist
			PTrK	KOBAU Fm: greenstone, schist, quartzite
			PTrOT	OLD TOM Fm: basalt, greenstone
			PTrSH	SHOEMAKER Fm: chert, tuff, greenstone, ls
			PTrI	INDEPENDENCE Fm: chert, greenstone, breccia, arg.
			PTrB	BRADSHAW Fm: arg, tuff, qtzite, andesite
			PTrA	ANARCHIST GROUP: greenstone, quartzite, greywacke, limestone, paragneiss; $PTrA_B$: BROOKLYN Fm: ls, jasperoid, pyroclastics.
PERMIAN			PPKH	KNOB HILL GROUP: chert, greenstone, limestine, arg.
CARBONIFEROUS	PENNSYLVANIAN		MPMR	MOUNT ROBERTS Fm: siltstone, quartzite, slate, limestone, chert
	MISSISSIPPIAN			
DEVONIAN			DMc	CHAPPERON Fm: arg, chlorite-mica schist, arg.

PROPERTY GEOLOGY

The Joy 1 claim is underlain by porphyritic and non-porphyritic granite to granodiorite related to the Nelson Batholith (Okanogan Intrusive), which is in contact with a body of Coryell intrusives consisting of reddish to pale buff alkali-granite and syenite.

The Okanagan Intrusive ranges in composition from porphyritic to non-porphyritic granite to quartz-biotite gneiss. It is generally massive, with the exception of certain sections where it exhibits extensive shearing and moderate silicification.

The Coryell intrusive rocks consist mainly of syenite, grading locally into granite. The rock is medium-grained, pink, with little free quartz visible. It occurs in the northeastern corner of the Joy 1 claim intruding Nelson batholithic rocks. The contact zone generally shows 1-2% disseminated pyrite. Where fracturing and shearing intensifies, sulphide mineralization is noted to be more abundant, forming narrow irregular lenses within quartz-flooded structures.

Contained within the intrusives are tongues and isolated remnants of Anarchist Group and Mt. Roberts volcanics and sediments.

ECONOMIC GEOLOGY

The claim lies within the Paulson-Burnt Basin Camp. The region is divided into two areas, (1) East Paulson, situated between McRae Creek and Big Sheep Creek, and (2) Burnt Basin, situated south and west of Paulson. The Joy 1 claim is situated within the East Paulson region.

The ore deposits in the Paulson area consist of (1) quartz veins and irregular lenses of pyrite, galena, chalcopyrite, and sphalerite contained within shear zones which generally cut all rock units; and (2) replacement deposits. All occurrences of the second type lie near or adjacent to the contact of granitic intrusives and presumably, these represent the source of mineralization.

In the area, auriferous quartz veins and mineralized shear zones occur in all types of Nelson intrusives and in both the sedimentary and igneous members of the pre-batholithic formations, dominated by the Mt. Roberts Formation. The veins and lenses generally strike northwest and dip steeply, either east or west. The mineralized zones vary from several centimetres to just over a metre in width and are usually of short length. Faulting is reportedly the major cause of the lack of strike length and hence limited production.

Production to date has come mainly from veins and shears in the older rocks, but mineralized zones have also been found in the granitic intrusives.

In the pre-batholithic formations, many of the quartz veins conform to the schistosity of the enclosing formations, and have formed partly as a result of fissure filling and partly by replacement processes. Mineralization occurs both as vein deposits along the fissures and as sulphide impregnations in the adjoining wallrocks. The principal gangue mineral of the veins is quartz, in varying proportions to the ore minerals.

In the batholithic intrusives, the mineralized quartz veins and shear zones lie between comparatively solid, unaltered, and well defined walls of country rock. In some instances, the minerlaized shear zones are displaced along closely spaced fault planes.

Replacement type deposits, or contact metamorphic deposits, refers to mineral deposits which have formed in limestone and greenstone in close proximity to intrusive bodies, and as a direct result of the intrusion. The major replacement deposits in the Paulson area include the Molly Gibson claims in the Burnt Basin area, and the Enterprise Mine.

The Northwind occurrence is situated in the southern part of the Joy 1 claim on a narrow ridge in a loop of B.C. Highway #3. The workings include an open cut and a short shaft which is filled with water. The dump pile consists of altered greenstone and pink chloritic granite. A shear zone trending N45°E, dipping 65°E is exposed in the upper part of the pit and shaft, cutting across the granite. The sheared zone is 1.5 - 2.1 metres wide. Quartz is present throughout the zone, weakly mineralized with pyrite and pyrrhotite. The Northwind occurrence is summarized in Table 2.

Exploration targets on the claim are gold quartz veins and mineralized siliceous shear zones similar to those of the Northwind occurrence. There is also the possibility of replacement type deposits within the isolated remnants of the Anarchist Group and Mt. Roberts Formation.

DATE 83.06.21.

N.T.S.	MINFILE I. D.	OCCURRENCE NUMBER	NAMES	LAT.	LONG.
82E01E	0000	SE 039	Northwind Mountain Rose	4913.2	11806.2

LOCATION: approx. 2 km northeast of Paulson, Greenwood M.D.

UTM	ZONE 180 SQ. LE
NORTHING	5451900
EASTING	0319900

METALS	Au	Ag	Cu	Pb	Zn	Fe	Ni	Co	As	Sb	Mo	W	Sn	Cd	Ba	F					HOST UNIT
	X	X	X																		eKc

DESCRIPTION

On the Northwind - Mountain Rose claims, which are underlain by granodiorite primarily, gold and silver mineralization is found in a shear zone striking W10°N and dipping 65°E. Selected samples assayed 90.23 grams per tonne gold and 155.5 grams per tonne silver.

Published Production Data:

Year	Tonnes Mined	Gold (g)	Silver (g)	Copper (kg)
1918	75	8	1	1

REFERENCES: BCDM MMAR 1936 (E42)
Minfile

DATE 83.06.21.

N.T.S.	MINFILE I. D.	OCCURRENCE NUMBER	NAMES	LAT.	LONG.
82E01E	36318	SE 040	Three Jacks	4912.4	11801.9

LOCATION: 6.2 km east of Paulson on the east side of Big Sheep Creek; Trail Creek M.D.

UTM	ZONE 180 SQ. LE
NORTHING	5450800
EASTING	0324800

METALS	Au	Ag	Cu	Pb	Zn	Fe	Ni	Co	As	Sb	Mo	W	Sn	Cd	Ba	F					HOST UNIT
		X																			MP MR

DESCRIPTION

The occurrence consists of limestone with skarn mineralization and tetrahedrite occurring at the Coryell syenite contact. The latter is presumed to be the source of mineralization. Values are reported to be low.

REFERENCES: BCDM Expl.in B.C. 1978 (E14)
Minfile

January 1986 EXPLORATION APPROACH

The January 1986 exploration of the property consisted of establishing a semi-reconnaissance flag-and-compass grid in the northeastern portion of the claim to cover an area in which old workings and mineralized rock samples were collected during previous exploration programs.

A total of 4.475 km of grid lines were emplaced at 100-metre spacings with stations established at 25-metre intervals. VLF-EM and magnetometer surveys were completed over the grid lines. The grid location is indicated on Map 1.

VLF-EM Survey

A VLF-EM survey was completed over the grid lines using a Geonics EM-16 unit employing Cutler, Maine (24.0 kHz) as the transmitting station. This survey was carried out at 25-metre station intervals. The results are plotted in profile format on Map 2 and in Fraser-filtered contour format on Map 3.

The VLF-EM survey delineated a number of weak to moderate strength conductors throughout the grid area. All of these conductive trends are of short extension and in most cases exhibiting profiles characteristic of anomalies associated with topography.

Further investigation is needed in order to adequately interpret the significance of any of the conductive trends.

Magnetometer Survey

A magnetometer survey was conducted over the grid using a one-gamma GeoMetrics G826A proton magnetometer. Readings were taken at 25-metre intervals along the grid lines. The sensor head was mounted on a 2.5 metre

staff. An MR-10 base station recorder was used to correct for magnetic fluctuations during the survey. All readings were then corrected to a common datum. The survey results have been plotted and contoured on Map 4. The magnetic background for the area is between 57,900 and 58,100 gammas.

Two magnetically active trends were delineated by the survey. The first trend is located in the southern portion of the grid, on L.8+00S and L.10+00S, trending north, and open to the south. This trend is a narrow band, detected on each grid line at one or two stations. Readings within this band were up to 58,980 gammas. Further investigation is warranted.

The second magnetically active area (readings up to 58,980 gammas) is located in the north-central portion of the grid. The general trend of this magnetic zone is northwest-to-west crosscutting the north-south trends.

There is no correlation between the VLF-EM conductors delineated or the magnetic trends. Further investigation is required in order to fully evaluate the results from the geophysical surveys.

SUMMARY AND CONCLUSIONS

The Joy 1 mineral claim is located 22 km north-northeast of the village of Christina Lake, British Columbia. B.C. Highway #3 crosses the central part of the property and provides excellent access to the area.

The January 1986 exploration program consisted of the emplacement of 4.475 km of flag-and-compass grid lines in the northeastern portion of the claim. VLF-EM and magnetometer surveys were completed on the grid.

The VLF-EM survey delineated a number of short, weak to moderate strength conductive trends throughout the grid area. Some of these trends are definately a reflection of the steep topography in the area; however, the others may be of significance.

The magnetometer survey delineated two magnetically active trends in the area. The southernmost magnetic band is very narrow, trending north-south, open to the south. The second magnetically active area is broader but with corresponding readings as the southern narrow magnetic band. The significance of these zones was not determined.

RECOMMENDATIONS

Extensive prospecting should be conducted along with grid-controlled soil geochemical and geophysical surveys over any prospective areas delineated. The magnetic and conductive trends delineated by this program should be investigated as to their cause and significance. Any old workings located on the property should be systematically mapped and sampled.

REFERENCES

Taiga Consultants Ltd.
1982 B.C. Precious Metals Study

Wilson, G. L.
Feb.10, 1984 "Geological, Geochemical and Prospecting Report on the Joy 1-4 Mineral Claims"; private company report

Jan.31, 1985 "Geological, Geochemical and Prospecting Report on the Joy 1-4 Mineral Claims"; private company report

APPENDIX

Instrument Specifications

Personnel

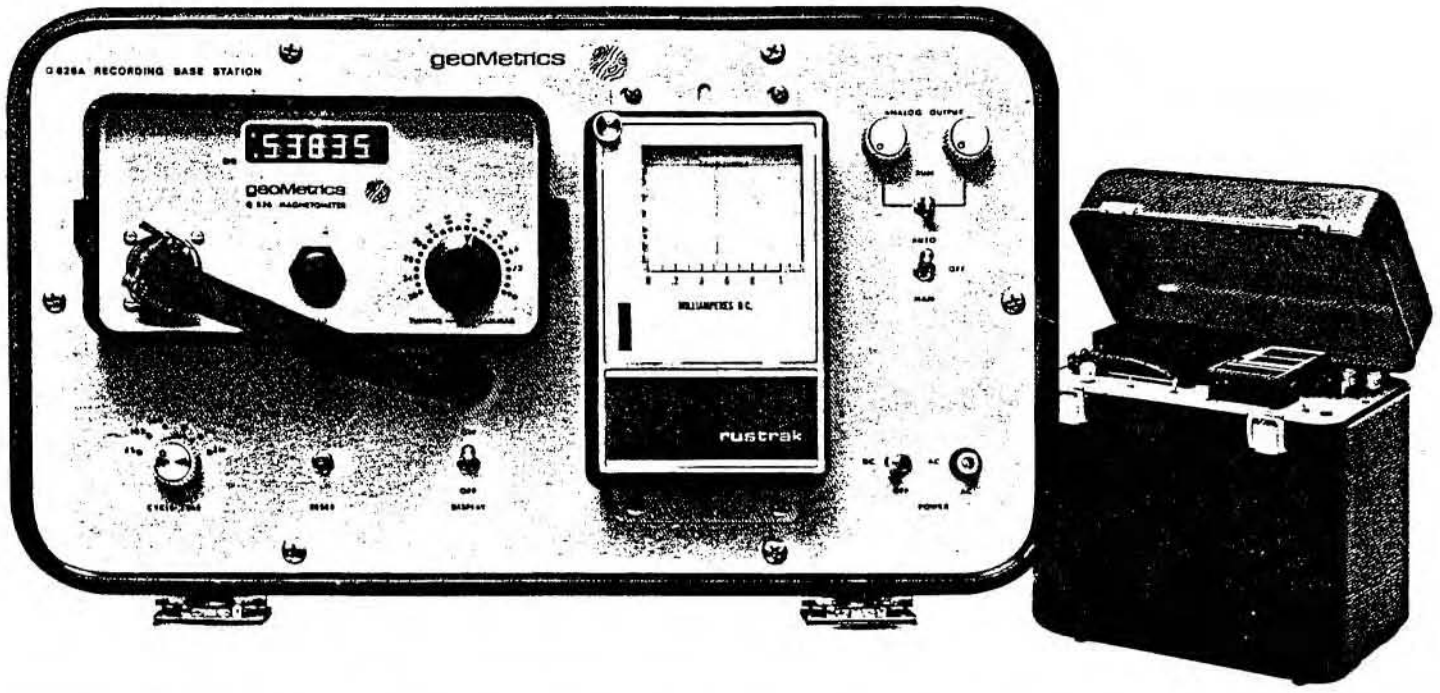
Summary of Expenditures

geoMetrics

PORTABLE/BASE STATION PROTON MAGNETOMETER

MODEL G-826A

Data Sheet
January 1976



- **Unique Versatility—Both a recording *base station* and a *field portable* proton magnetometer system.**
- **Base Station System—Rugged, self-contained for remote, unattended monitoring from external AC or DC power.**
- **Timed automatic measurements with switch selectable range from 4 seconds to 5 minutes—pushbutton measurements for field portable operation.**
- **1 gamma resolution and repeatability with visual, analog and digital outputs directly in gammas.**
- **Field Portable System—Removable magnetometer console with complete accessories for man-carry surveys—operation from replaceable "D" cell flashlight batteries.**
- **Precise total field measurements—no orientation, no calibration, no leveling, no temperature compensation required—world-wide operation.**

Characterized by unique versatility, the Model G-826A is a high-sensitivity recording base station proton magnetometer system, and a complete man-carry field portable magnetometer for ground exploration. The base station configuration incorporates a Portable Field Magnetometer that measures the earth's total magnetic field including time variations and magnetic storms, and a special Converter/Timer console to record this data in analog or digital form at selectable timed sampling periods. A 5.1 cm (2 in.) galvanometric analog strip chart recorder is normally supplied as an integral part of the system; however, a variety of external analog recorders may also be utilized. For man-carry field surveys, the portable magnetometer can be easily removed from the Converter/Timer console for total field geologic mapping, archaeological exploration, fault analysis, search requirements, and follow-up to larger airborne reconnaissance surveys. As a proton system, the G-826A provides absolute drift-free measurements of the earth's total field directly in gammas with complete freedom from temperature drift, leveling and orientation adjustments. Operation is world-wide, controls are simplified and no previous operator experience or training is necessary. The G-826A is a complete ground magnetics system for all your monitoring and survey requirements.

For other field applications, consider GeoMetrics Models G-816 and G-836 (UniMag™) magnetometers.

COMPLETE PORTABLE/BASE STATION SYSTEM

The Model G-826A system includes complete instrumentation and related accessories for remote base station monitoring and portable field applications:

Converter/Timer Console: Complete signal processing and timing circuitry housed within an aluminum watertight cabinet. Includes "pocket" for the G-826 Portable Magnetometer and recessed mounting of the Rustrak recorder.

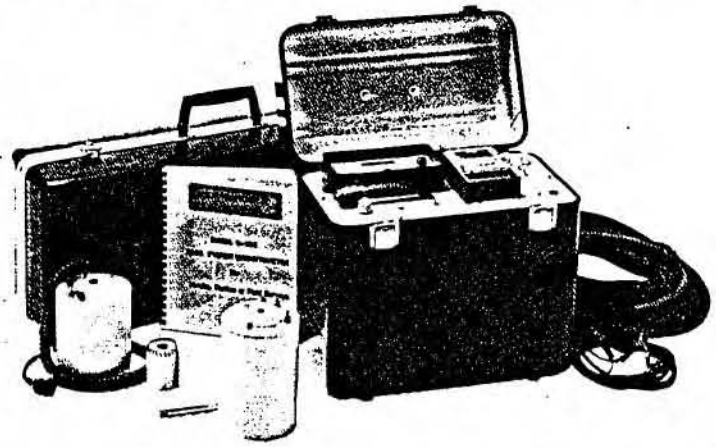
Portable Magnetometer Console: Compact instrument slides into "pocket" in Converter/Timer. Includes field accessories: shoulder harness, portable sensor, staff, 2 sets of batteries, signal cables for pouch and staff, and storage container.

Analog Recorder: Rustrak, Model 2146, installed in recessed panel mount in Converter/Timer console. Includes 1 roll chart paper. Recessed panel mount not provided when a different recorder is selected.

Base Station Sensor: Noise cancelling, high-signal sensor for use with long signal cables. Includes mounting stud.

Base Station Cables: Shielded 46 m (150 ft.) sensor cable with connectors attached (92 m, or 300 ft., cable optionally available), AC and DC input power cables, and external recorder connector.

Manuals: Operation manual, and 64-page "Applications Manual for Portable Magnetometers".



SPECIFICATIONS

RESOLUTION
±1 gamma throughout tuning range.

TUNING RANGE
20,000 to 100,000 gammas (world-wide).

TUNING MECHANISM
Multi-position rotary switch with twenty-five overlapping positions. Peak signal amplitude indicator light on readout display.

GRADIENT TOLERANCE
Exceeds 800 gammas/foot (portable applications).

SAMPLING RATE
Base Station Mode:
Six-position rotary switch for automatic sampling every 4, 10, 30 seconds or 1, 2, or 5 min. (time base oscillator stable within 10 seconds/week from 0° to 50° C.).
Portable Mode:
Manual pushbutton; new reading every 5 seconds.

DATA OUTPUTS
Visual (Base Station and Portable):
5-digit illuminated incandescent display directly in gammas—visible even in bright sunlight.
Analog (Base Station):
Potentiometric: Calibrated for 100 mv full-scale, maximum load is 20KΩ.
Galvanometric: Calibrated for 1 ma full-scale into 1500Ω.
Digital (Base Station):
5-BCD characters, 1-2-4-8 code (4 line output).
"0" state = 0 to +0.5V. "1" state = +2.5 to +5V.

EVENT MARKER
Automatic, every 30 minutes (Analog Recorder only).

POWER REQUIREMENTS
Base Station Mode:
External 24V DC or 115/220V, 50/60 Hz AC power (maximum current drain per measurement is 2.18 amps with Rustrak recorder and display on).
Portable Mode:
Internal "D" cell (12 each) universally available flashlight batteries. Charge state or replacement signified by flashing indicator light.

Battery Type	No. of Readings
Alkaline	over 10,000
Premium carbon zinc	over 4,000
Standard carbon zinc	over 1,500

NOTE: Battery life decreases with low temperature operation.

TEMPERATURE RANGE
Consoles and Sensors —40° C. to +85° C.
Analog Recorder (Rustrak) 0° C. to +50° C.
NOTE: For portable operation at temperatures below 0° C., an optional battery belt is recommended.

ACCURACY (TOTAL FIELD)
±1 gamma throughout 0° to +50° C. (±3 gamma from —40° C. to +85° C.).

SENSORS:
Base Station:
High signal, AC noise cancelling for use with long signal cables. Includes threaded aluminum mounting stud.
Portable:
High signal, omnidirectional for use with collapsible staff or in "back pouch" attached to shoulder harness.

GALVANOMETRIC ANALOG RECORDER
Rustrak, Model 2146. Includes 5.1 cm (2 inch) chart width with fixed chart speed of 10.2 cm (4 inch) or 15.2 cm (6 inch) per hour (select), event marker, and inkless writing. Style "N" chart paper (50 divisions f/s), 6.4 cm x 19.2 m (2.5 inch wide x 63 feet long).

SIZE AND WEIGHT

	Size	Kgs.	Lbs.
Converter/Timer Console: (w/o magnetometer or recorder)	23.5 x 41.3 x 40 cm (9¼" x 16¼" x 15¾")	9.5	21.0
Portable Magnetometer: (with batteries)	9.5 x 18 x 27 cm (3¾" x 7" x 10½")	2.5	5.5
Portable Accessories*	2.5 cm dia. x 2.4 m (1" x 8 ft.)	2.8	6.0
Sensors:			
Base Station:	11.4 cm dia. x 17.8 cm (4½" x 7")	2.8	6.0
Portable:	8.9 cm dia. x 12.7 cm (3½" x 5")	1.2	2.5
Sensor Cable:	46 m length (150 ft.)	4.6	10.0
Rustrak Recorder:	13.9 x 8.9 x 11.4 cm (5½" x 3½" x 4½")	1.6	3.5

*Portable Accessories: Includes shoulder harness, batteries, sensor cables, and staff. Only the staff dimensions are shown. Weight shown is for all accessories.

OPTIONS

INCREASED RESOLUTION
Provisions for either 1.0 gamma or 0.25 gamma resolution. Includes internal switch in magnetometer console.

EXTENDED SENSOR CABLE
Special 92 m (300 ft.) shielded sensor signal cable for use with Base Station Sensor.

POTENTIOMETRIC ANALOG RECORDER
Hewlett-Packard, Model 7155B. Includes 12.7 cm (5 inch) chart width, event marker, multiple chart speeds, operation on 24V DC or 115/220V 50/60 Hz AC power.
Calibration: Metric (English optional)
Size: 30.5 x 19.7 x 42 cm (12" x 7¾" x 16½")
Weight: 13.6 kg (30 lbs.)
Temp. Range: —28° to +65° C.

MULTIPLE EVENT MARKS AND ANALOG RESOLUTIONS
Recorder event marks every 0.5 hour, 1 hour and 24 hours (separately coded). Analog outputs (switch-selectable) to provide 10, 100 and 1,000 gammas full scale.

BATTERY BELT
Specially designed canvas belt with pockets for 12 "D" cell batteries and appropriate power cables for use with the portable magnetometer in very cold weather (0° to —15° C.).

RACK MOUNTING
Special 48.3 x 26.7 cm (19" x 10½") flush-mount aluminum panel, complete with captive hardware.

RECORDING SUPPLIES
Available upon request for the recorder selected.

geoMetrics 395 JAVA DRIVE SUNNYVALE, CA. 94086 U.S.A (408) 734-4616 CABLE: "GEOMETRICS" SUNNYVALE TELEX NO: 357-435

GEOMETRICS INTERNATIONAL CORP 80 ALFRED ST., MILSON'S POINT SYDNEY NSW 2061 PHONE: 929-9942

Exploranium DIVISION OF geoMetrics SERVICES (CANADA) LTD 436 LIMESTONE CRESCENT, DOWNSVIEW (TORONTO), ONTARIO, CANADA TELEPHONE: (416) 661-1966 TELEX NO: 06-22694

WORLD-WIDE AGENTS: EUROPE • SCANDINAVIA • AUSTRALIA • UNITED KINGDOM • JAPAN • SO. AFRICA • SO. AMERICA

EM16

VLF Electromagnetic Unit

Pioneered and patented exclusively by Geonics Limited, the VLF method of electromagnetic surveying has been proven to be a major advance in exploration geophysical instrumentation.

Since the beginning of 1965 a large number of mining companies have found the EM16 system to meet the need for a simple, light and effective exploration tool for mining geophysics.

The VLF method uses the military and time standard VLF transmissions as primary field. Only a receiver is then used to measure the secondary fields radiating from the local conductive targets. This allows a very light, one-man instrument to do the job. Because of the almost uniform primary field, good response from deeper targets is obtained.

The EM16 system provides the *in-phase* and *quadrature* components of the secondary field *with the polarities indicated.*

Interpretation technique has been highly developed particularly to differentiate deeper targets from the many surface indications.

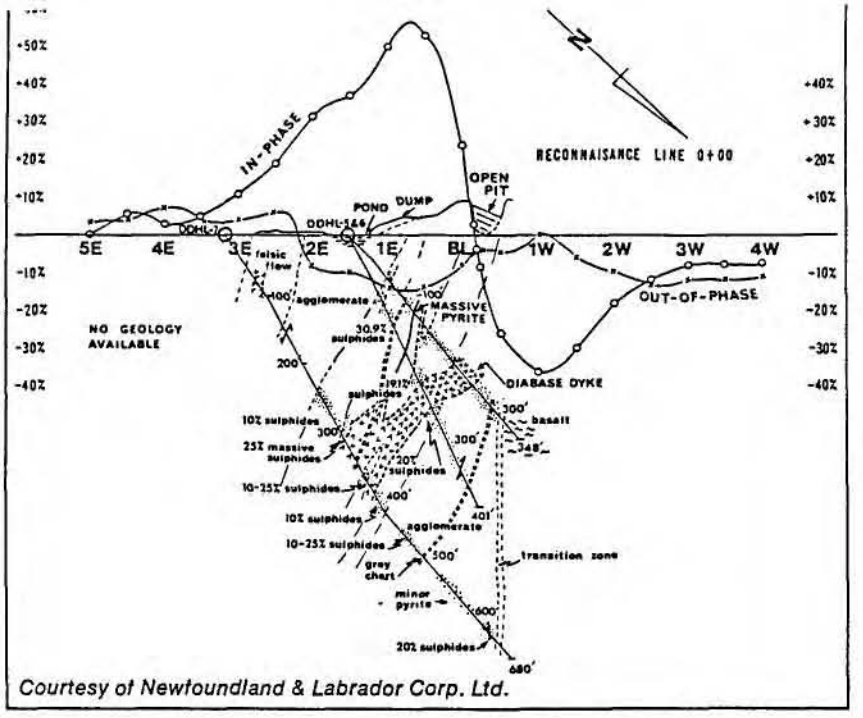
Principle of Operation
The VLF transmitters have vertical antennas. The magnetic signal component is then horizontal and concentric around the transmitter location.

Specifications

Source of primary field	VLF transmitting stations.
Transmitting stations used	Any desired station frequency can be supplied with the instrument in the form of plug-in tuning units. Two tuning units can be plugged in at one time. A switch selects either station.
Operating frequency range	About 15-25 kHz.
Parameters measured	(1) The vertical in-phase component (tangent of the tilt angle of the polarization ellipsoid). (2) The vertical out-of-phase (quadrature) component (the short axis of the polarization ellipsoid compared to the long axis).
Method of reading	In-phase from a mechanical inclinometer and quadrature from a calibrated dial. Nulling by audio tone.
Scale range	In-phase ± 150%; quadrature ± 40%.
Readability	± 1%.
Reading time	10-40 seconds depending on signal strength.
Operating temperature range	—40 to 50° C.
Operating controls	ON-OFF switch, battery testing push button, station selector, switch, volume control, quadrature, dial ± 40%, inclinometer dial ± 150%.
Power Supply	6 size AA (penlight) alkaline cells. Life about 200 hours.
Dimensions	42 x 14 x 9 cm (16 x 5.5 x 3.5 in.)
Weight	1.6 kg (3.5 lbs.)
Instrument supplied with	Monotonic speaker, carrying case, manual of operation, 3 station selector plug-in tuning units (additional frequencies are optional), set of batteries.
Shipping weight	4.5 kg (10 lbs.)

GEONICS LIMITED Designers & Manufacturers of Geophysical Instruments

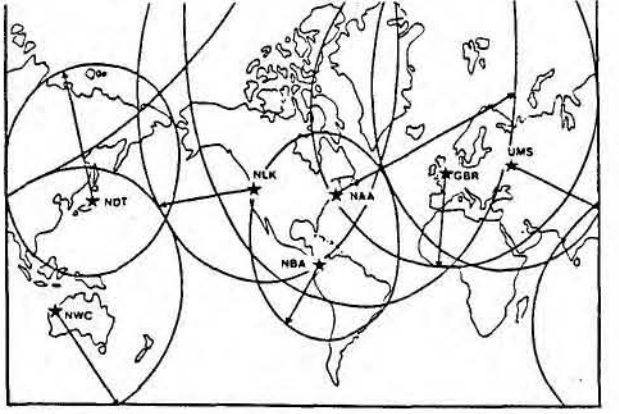
1745 Meyerside Drive/ Unit 8
Mississauga/Ontario/Canada
L5T 1C5
Tel: (416) 676-9580
Cables: Geonics



Courtesy of Newfoundland & Labrador Corp. Ltd.

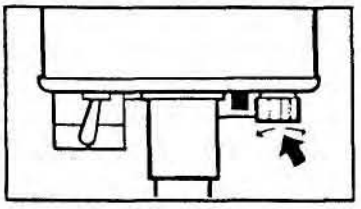
EM 16 Profile over Lockport Mine Property, Newfoundland

Additional case histories on request.



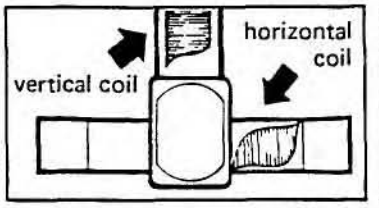
Areas of VLF Signals

Coverage shown only for well-known stations. Other reliable, fully operational stations exist. For full information regarding VLF signals in your area consult Geonics Limited. Extensive field experience has proved that the circles of coverage shown are very conservative and are actually much larger in extent.



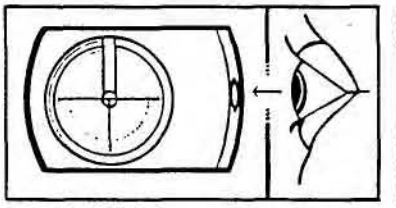
Station Selector

Two tuning units can be plugged in at one time. A switch selects either station.



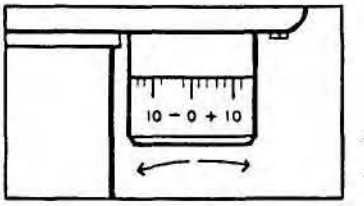
Receiving Coils

Vertical receiving coil circuit in instrument picks up any vertical signal present. Horizontal receiving coil circuit, after automatic 90° signal phase shift, feeds signal into quadrature dial in series with the receiving coil.



In-Phase Dial

shows the tilt-angle of the instrument for minimum signal. This angle is the measure of the vertical in-phase signal expressed in percentage when compared to the horizontal field.



Quadrature Dial

is calibrated in percentage markings and nulls the vertical quadrature signal in the vertical coil circuit.

By selecting a suitable transmitter station as a source, the EM 16 user can survey with the most suitable primary field azimuth.

The EM 16 has two receiving coils, one for the pick-up of the horizontal (primary) field and the other for detecting any anomalous vertical secondary field. The coils are thus orthogonal, and are mounted inside the instrument "handle".

The actual measurement is done by first tilting the coil assembly to minimize the signal in the vertical (signal) coil and then further sharpening the null by using the reference signal to buck out the remaining signal. This is done by a calibrated "quadrature" dial.

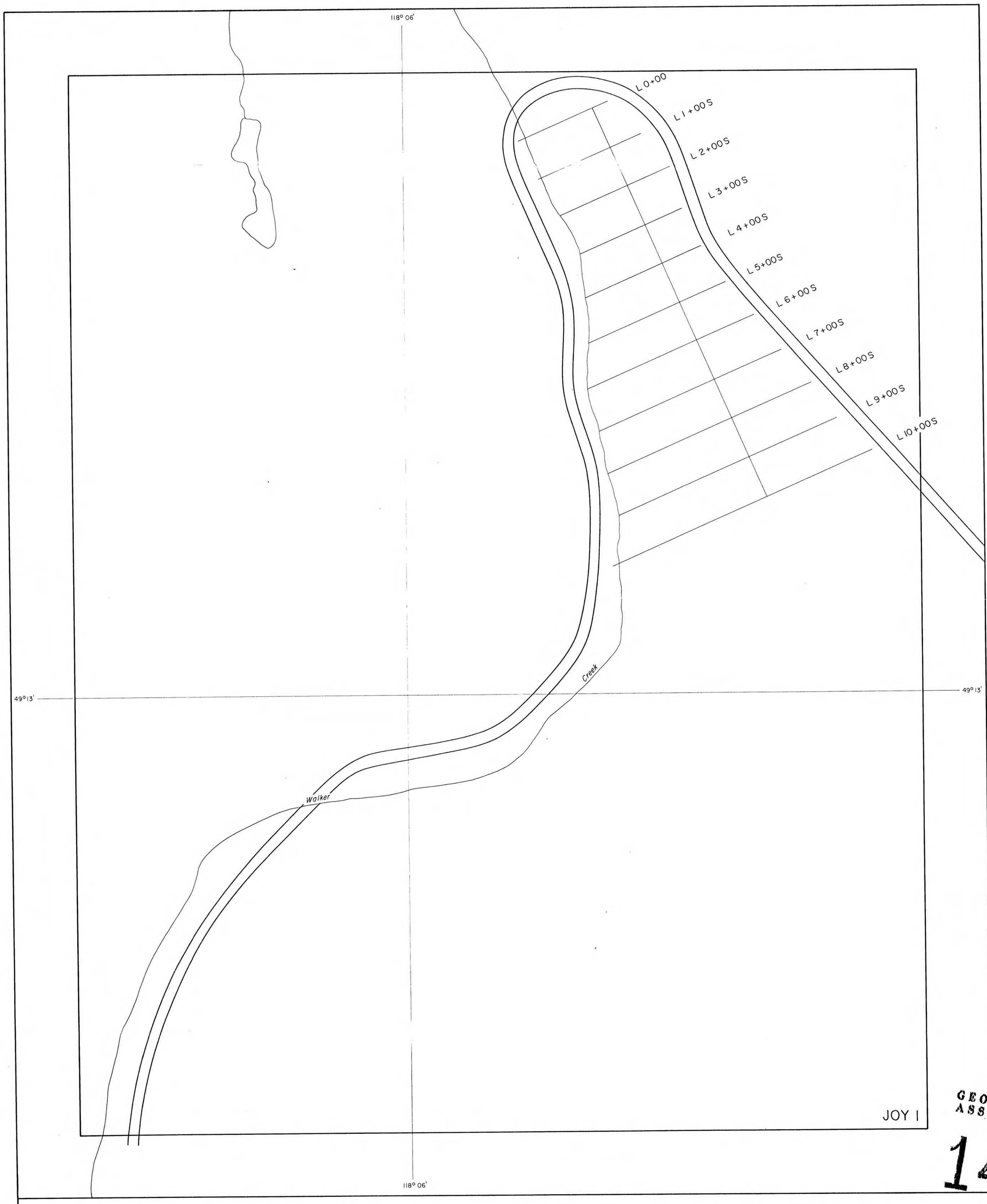
The tangent of the tilt angle is the measure of the vertical in-phase component and the quadrature reading is the signal at right angles to the total field. All readings are obtained in per centages and do not depend on the absolute amplitude of the primary signals present.

The "null" condition of the measurement is detected by the drop in the audio signal emitted from the patented resonance loudspeaker. A jack is provided for those preferring the use of an earphone instead.

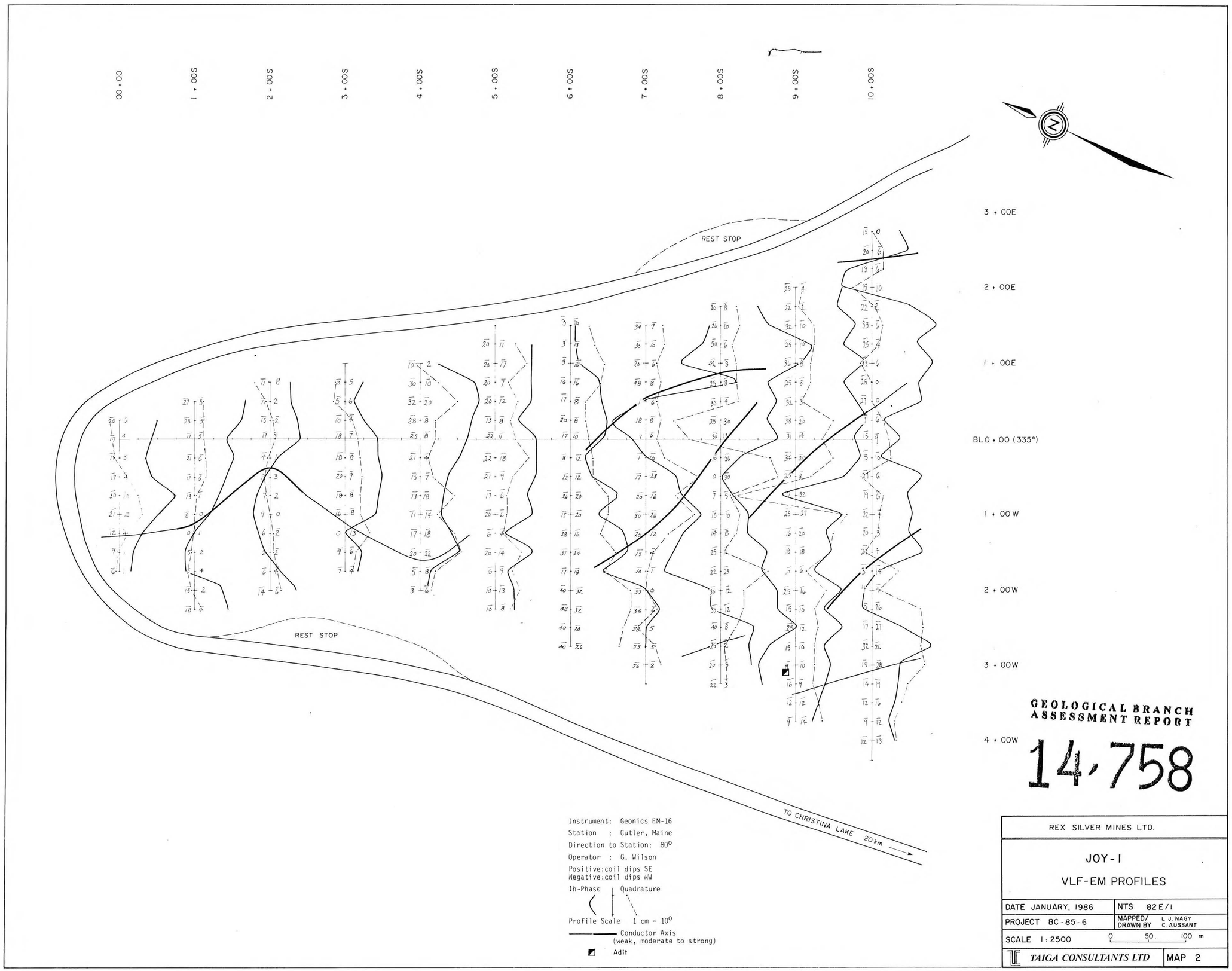
The power for the instrument is from 6 penlight cells. A battery tester is provided.

FIELD PERSONNEL

Name/Address	Position	Dates	Man days
L. J. Nagy 2137 Kaslo Court Kelowna, BC V1Y 8B9	Project Geologist	Jan.23-24	1½
G. L. Wilson 60 Ranchridge Road NW Calgary, Alberta T3G 1Z9	Geophysical Operator	Jan.25,27,28	2
L. A. Barrett 28A Trepanier Road RR #2, Box 9 Peachland, BC V0H 1X0	Assistant	Jan.23,24	1½
		TOTAL	4½



REX SILVER MINES LTD.	
JOY 1 CLAIM GRID LOCATION MAP	
DATE JANUARY, 1986	NTS 82 E/1
PROJECT BC-85-6	MAPPED/ DRAWN BY C. AUSSANT
SCALE 1:5000	0 50 100 150 200 METRES
TAIGA CONSULTANTS LTD	MAP 1



Instrument: Geonics EM-16
Station : Cutler, Maine
Direction to Station: 80°
Operator : G. Wilson
Positive:coil dips SE
Negative:coil dips NW
In-Phase Quadrature
Profile Scale 1 cm = 10°
Conductor Axis (weak, moderate to strong)
Adit

GEOLOGICAL BRANCH
ASSESSMENT REPORT

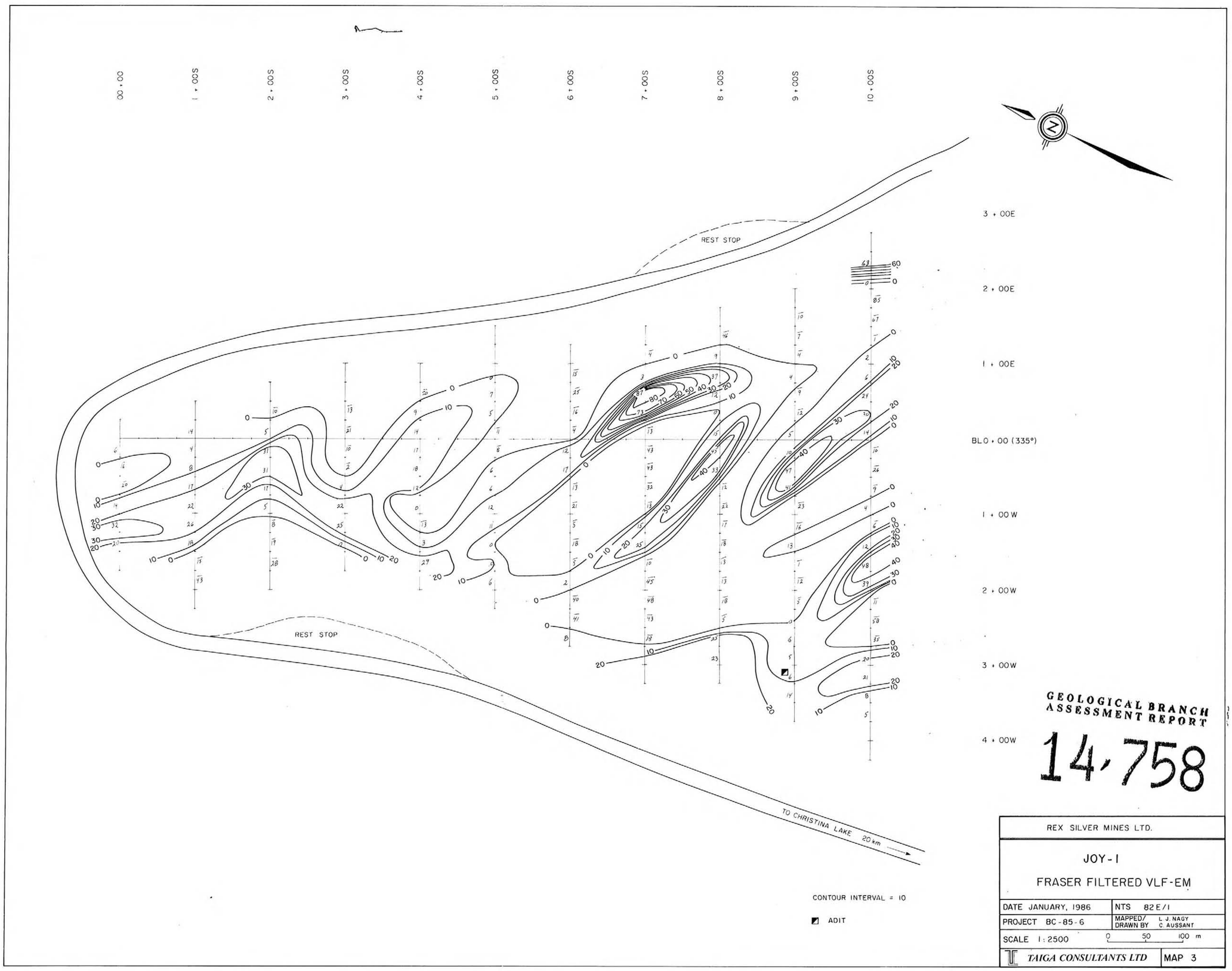
14,758

REX SILVER MINES LTD.

JOY-1

VLF-EM PROFILES

DATE JANUARY, 1986	NTS 82 E/1
PROJECT BC-85-6	MAPPED/ DRAWN BY L.J. NAGY C. AUSSANT
SCALE 1:2500	0 50 100 m
TAIGA CONSULTANTS LTD	MAP 2



GEOLOGICAL BRANCH
ASSESSMENT REPORT

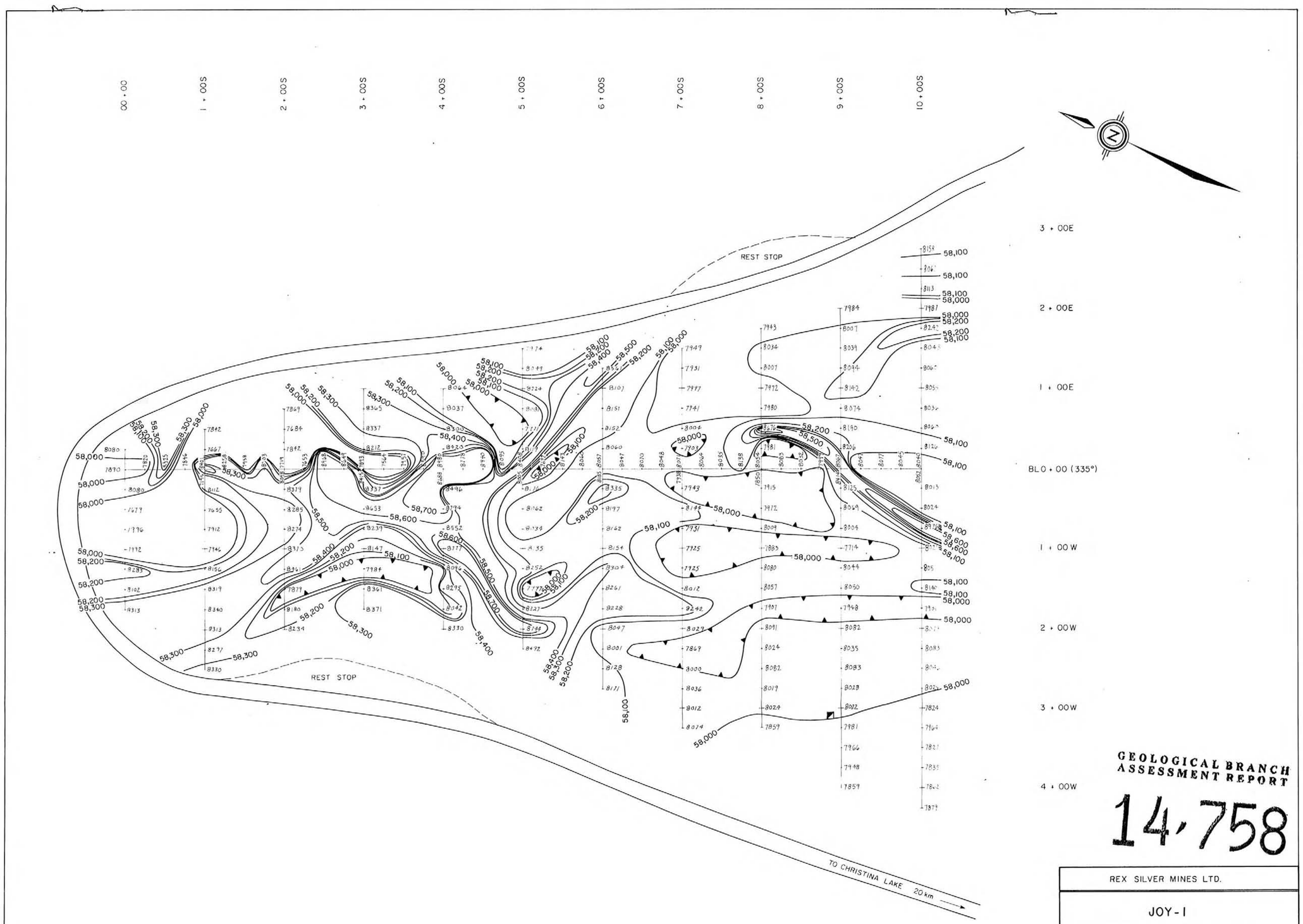
14,758

REX SILVER MINES LTD.

JOY-1

FRASER FILTERED VLF-EM

DATE JANUARY, 1986	NTS 82 E/1
PROJECT BC-85-6	MAPPED/ DRAWN BY L.J. NAGY C. AUSSANT
SCALE 1:2500	0 50 100 m
TAIGA CONSULTANTS LTD	MAP 3



Instrument: GeoMetrics G826A
Operator : G. Wilson
All readings 50,000+ gammas
Contour Interval: 8000, 8100, 8200, 8300
8400, 8500, 8600, 8700

◩ Adit

GEOLOGICAL BRANCH
ASSESSMENT REPORT

14,758

REX SILVER MINES LTD.

JOY-1

MAGNETOMETER SURVEY

DATE JANUARY, 1986	NTS 82 E/1
PROJECT BC-85-6	MAPPED/ DRAWN BY L.J. NAGY C. AUSSANT
SCALE 1:2500	0 50 100 m
TAIGA CONSULTANTS LTD	MAP 4