ARIS SUMMARY SHEET

istrict Geologist, Kamloops Off Confidential: 89.12.06

SSESSMENT REPORT 18404 MINING DIVISION: Kamloops

ROPERTY: Ruth Mary
OCATION: LAT 51 27 00 LONG 120 14 00
UTM 10 5703281 692241
NTS 092P08E

AMP: 036 Cariboo - Quesnel Belt

LAIM(S): Ruth Mary II
PERATOR(S): Explorex Dev.
UTHOR(S): Harrington, J.R.
EPORT YEAR: 1988, 34 Pages
OMMODITIES
EARCHED FOR: Gold
EYWORDS: Nicola Group,Volcanics,Sediments,Placer,Gold
ORK
ONE: Geophysical,Physical
EMGR 0.2 km; VLF
MAGG 0.2 km
SCGR 0.2 km
TREN 25.0 m 1 trench(es)
UNDV 10.0 m;RHAB
LE: 092P 055

GEOPHYSICAL REPORT

OF A COMBINED SURVEY EMPLOYING A MAGNETOMETER, VLF-EM, AMD RADIOMETRIC TECHNIQUE

ON THE

EXPLOREX DEVELOPMENT CORPORATION
MINERAL CLAIMS 6865 & 6866
EAKIN CREEK PLACER LEASE PROPERTY

LITTLE FORT

BRITISH COLUMBIA

AUTHOR: JAMES R. HARRINGTON, C.E.T.

CONSULTING GEOPHYSICS TECHNOLOGIST

DATE: October 14, 1988

TABLE OF CONTENTS

ILLUSTRATIONS

APPENDIX

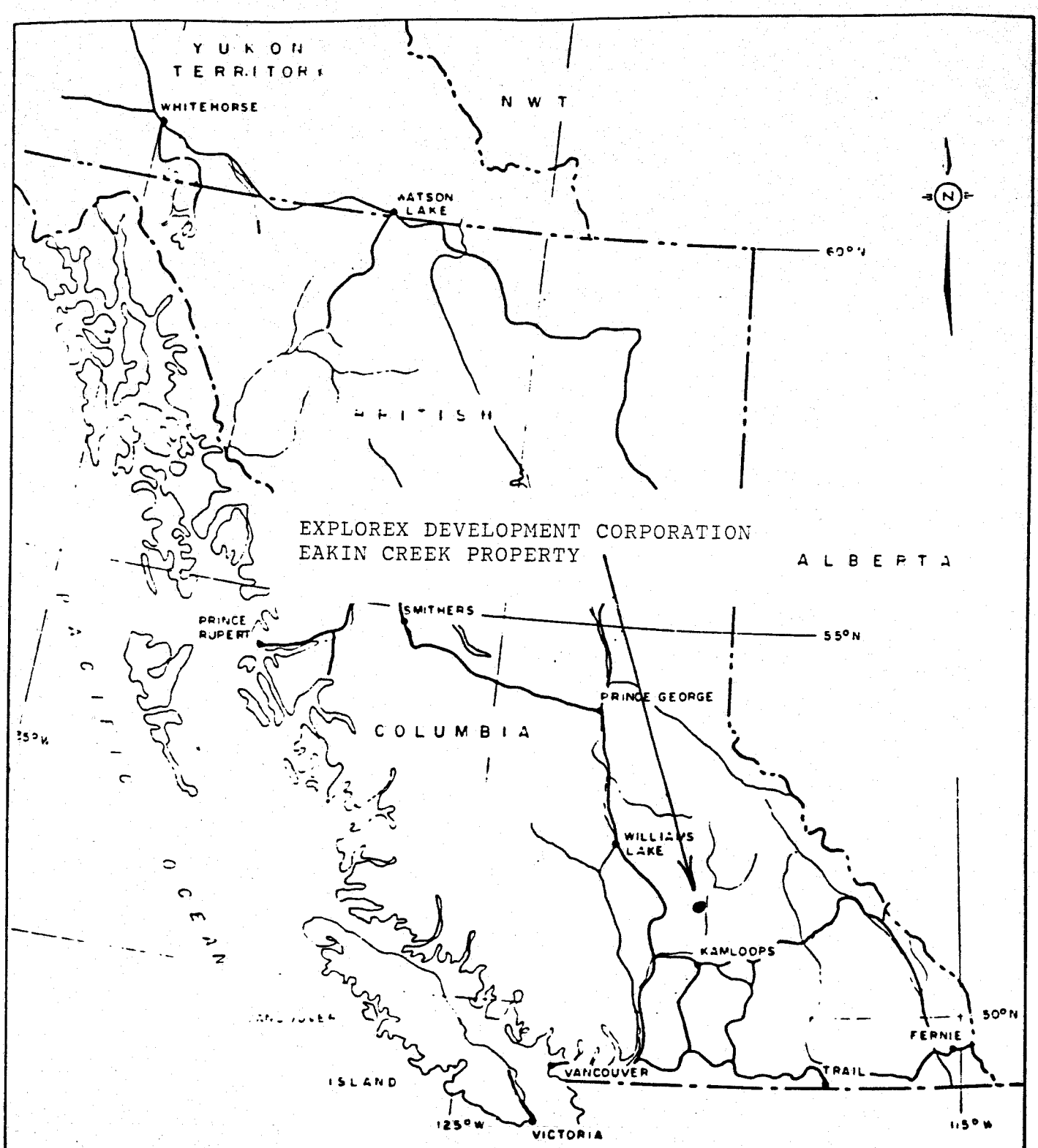
INTRODUCTION

Durring October 5 & 6 of 1988 Mr. James R. Harrington, conducted a combined Magnetometer, VLF-EM, and Radiometric geophysics survey for Explorex Development Corporation. The grid is in the ~~Crown Grant~~ mineral claim, No. ~~6866~~ 6865 "RUTH MARY II", and Placer Leases 16830, 2134, 2315, 2316, 2317, 2318, and 2319 located approximatly 2 Kilometers from Little Fort, Kamloops Mining Division British Columbia in the Eakin Creek designated placer area. The purpose of the survey was to test for the source of a known placer gold deposit. The results proved extremely encouraging with previously undetected anomalies being indicated, one being associated with what appears to be a mineralized dolmonite reef or epithermal hot spring. The resulting data is discussed herein.

PROPERTY LOCATION AND ACCESS

The property consists of one Crown-Grant mineral claim, No. 6866 "RUTH MARY II", and Placer Leases 16830, 2314, 2315, 2316, 2317, 2318, and 2319 located approximatly 2 Kilometers east of the community of Little Fort, Kamloops Mining Division British Columbia in the Eakin Creek designated placer area. The claims are centered at 51 deg. 27 minutes north latitude by 120 deg. 15 minutes west longitude on map NTS 92P/8E & 8W.

The property is located 50 kilometers North of Kamloops accesse is by a gravel road running 2 Kilometers east of Little Fort then 1 kilometer by bush road to Eakin Creek.



LOCATION MAP

SCALE 1 : 8,250,000

Fig. 1

PROPERTY DEFINITION

The properties mentioned in this report are located in the Kamloops Mining Division and in the Eakin Creek Designated Placer Area.

Mineral Claim:

The mineral claim is a block of 20 units (4 units by 5 units). It was staked on December 15, 1986 as the "RUTH MARY II" claim number 6866.

Placer Claim:

The placer claims are contiguous within the designated placer area.

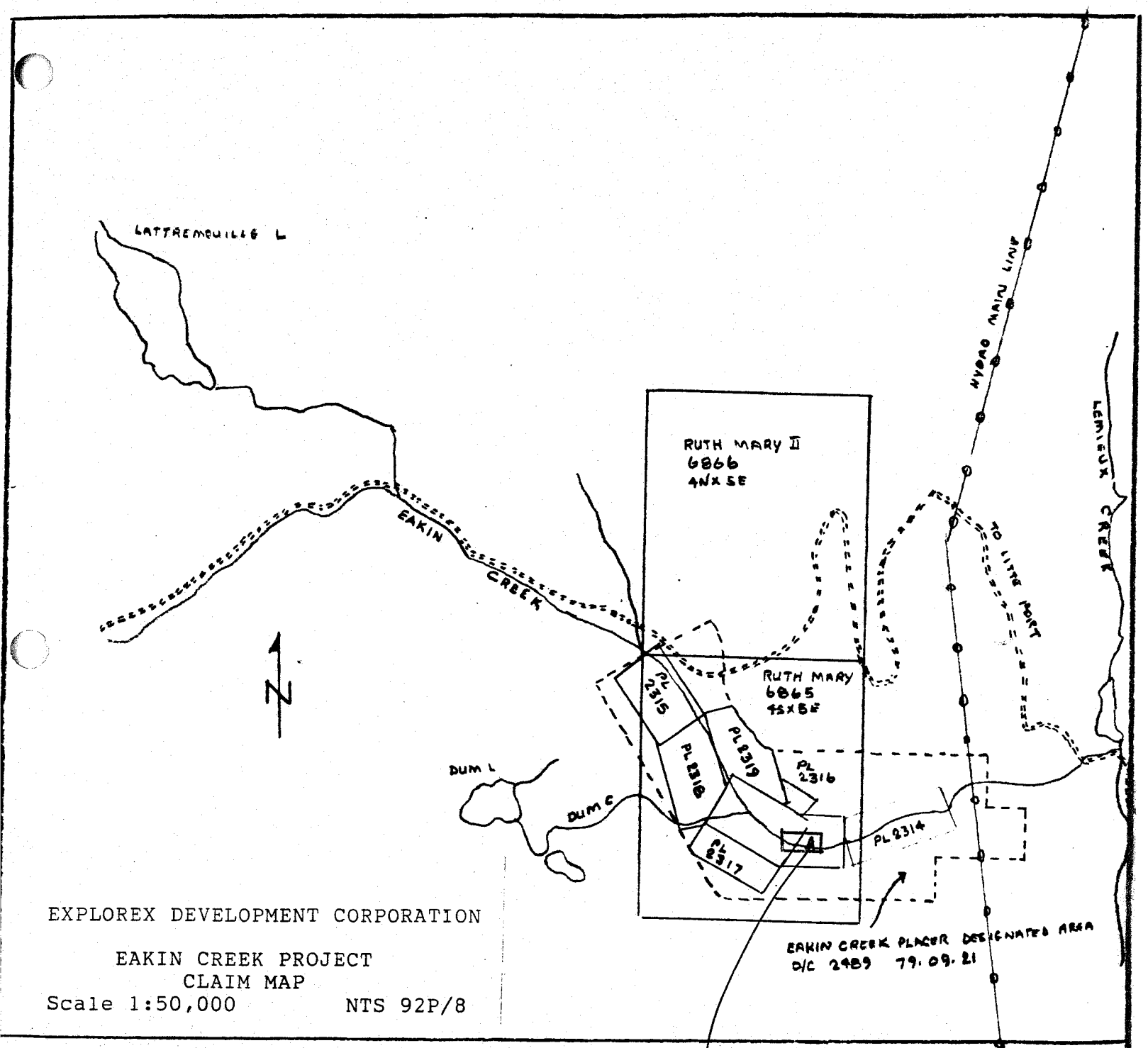
Placer lease 16830 was staked on December 21, 1985 with a current anniversary date of November 5, 1988.

Placer leases 2314, 2315, 2316, 2317, 2318, and 2319 have an anniversary date of November 5, 1987.

HISTORY

The following excert is taken from the Minister of Mines report for the year 1925.

"Some interest has been taken during the past year in the placer-ground of the valleys of the north Thompson River and Lemieux Creek around Mount Olie. The occurrence of placer gold in the beds for both Lemieux and its tributary, Eakin (3 Mile) Creek, and indeed in most of the tributaries heading in the mountains towards the west, has been known for some time. Attempts have also been made from time to time to ground-sluice the material of the morainal benches that flank these valleys. Below these benches there are also extensive flats, and the opinion has been held in some quaters that these may represent an economic concentration which would permit of profitable dredging operation. In view of the scanty amount of prospecting, if any, in the mountainous country to the west of Lemieux Creek it is premature to advance any definite theory in regard to the source of the gold. It would seem, however, in view of its occurrence in the valley gravels, from which natural concentration in the beds of conglomerate which have been cut through by Eakin Creek in particular can hardly be assumed. This is especially the case in view of the fact that gold has been found in the bed of the creek above the horizon at which the conglomerate occurs. There are certain well-known spots in the beds of both Eakin Creek and Lemieux Creek from which it is possible to pan out several colours of gold at any time, and such happenings are always liable to create an erroneous conception of average values. They may however, be accepted as justifiable encouragement for further investigation as to the source of the gold, and in this connection the



EXPLOREX DEVELOPMENT CORPORATION

EAKIN CREEK PROJECT
CLAIM MAP
Scale 1:50,000 NTS 92P/8

fig 2

FAULT ?

CALC-SILC (altered limestone, slate, and other sentimentary rocks into calc-silc)

8+50W

8+25W

8+00W

BASE 22°

42°

METAMORPHISED DOLOMITE WEATHERED

METAMORPHISED DOLOMITE WEATHERED

7+25W

7+50W

7+00W

6+75W

6+50W

6+25W

6+00W

5+75W

5+50W

5+25W

5+00W

4+75W

4+50W

8+00W RAD GRADIENT TO 36 CPS ASSOCIATED MAG DIPOLE, DEPTH APPAR 10 TO 25 METERS VLF-EM RESULTANT DIP ANGLE ANOMOLY

QUARTZITE

QUARTZITE

5+12W TO 6+25W RAD GRADIENT 42 TO 55 CPS OUTCROP ON STRIKE TO THE SOUTH EAST 95 CPS MAG DIPOLE, DIP TO THE WEST VLF FRASER ANOMOLY AT 5+12 W & 6+25W

PITS (ALL AREAS TESTED) (CONTAIN IRON & COPPER) (SULFIDES)

CALC-SILC

ROTTED TIMBER NOT SHOWN ON SURFACE

DRIFT 1

DRIFT 2

DRIFTED IN MONZONITE NOT FOLLOWING ANY STRUCTURE OF VEIN

MONZONITE

MONZONITE

FAULT

Eakin Creek

N

RUTH MARY AND RUTH MARY II MINERAL CLAIMS
KAMLOOPS MINING DIVISION BRITISH COLUMBIA

SCALE: 1:500	APPROVED BY:	DRAWN BY S.A.S
DATE: 10 July 89		REVISED

EXPLOREX DEVELOPMENT CORPORATION AND STEPHEN A. SALAGA, JOINT OWNERS

DRAWING NUMBER

Fig 3

fact that gold has been found in small quantities in the main body of the bench material lends colour to the natural deduction of its concentration therefrom in the stream-beds."

PREVIOUS WORK

Previous work as reported in the October 22, 1987 report on the Eakin Creek property by R.D. Zimmerman M.Sc., P. Eng. " Previous work done includes clear cutting along Eakin Creek for about 1,000 meters and clear cutting about 20 hectares along the bench. Detailed bench sampling along 5,000 meters of line has been conducted on the most easterly lease near the claim post of PL 2316. It is reported that gold occurred at all test holes. The gold was reported to be very fine (-40 mesh to +200 mesh) to coarse gold (70% + 10 mesh, 30% - 10 mesh) along the entire sampling line."

Four adits from previous workings on the property have been reported, two of which were found and explored.

GENERAL GEOLOGY

The general geology of the " RUTH MARY II " prospect area is described in the R.D. Zimmerman M.Sc., P. Eng. report, " Report On the Eakin Creek Property, " dated October 22, 1987.

"The area of the study is near the central part of the Interior Plateau of the Intermontane System in Central British Columbia.

The rocks in this area are mostly Paleozoic (mainly sedimentary rocks) placed between 570-230 millions of years before present. This is south of the granitic intrusions of the Triassic and Jurassic ages placed between 230-140 millions of years before the present."

The study area is contained within Nicola Group rocks. The Nicola Group rocks consist of a volcanic succession that includes massive flow units, coarse to very fine-grained pyroclastic units and some pillow lava, and of a sedimentry succession that includes siltstone, argillite, conglomerate, and some reefoid limestone.

Equipment Description

Proton Magnetometer - Geometrics Unimag, model G-836, provides 10 gamma resolution over a range from 20,000 to 100,000 gammas and is powered from an internal 12 volt DC lead acid gell battery. see appendix _1_ .

VLF-EM Receiver - Saber VLF receiver, model 27, provides measurements of the relative field strength, dip angle and quadrature components of the VLF communications stations. Relative field strength to 200 % accuracy of +-2 %, dip angle +60 to -60 degrees with an accuracy of 1 degree. The out-of-phase component (quadrature) of the magnetic field, perpendicular in direction to the resultant field, as a percent of the normal field strength. This is the minimum reading of the Field Strength meter obtained when measuring the dip angle Accuracy +-2%. The unit is powered from 8 internal 1.5 volt AA batteries.

Gamma Ray Scitillometer - Exploranium portable gamma ray scintillometer model GRS-101A, provides accurate and reliable determinations of gamma ray intensities from the radioactive elements: potassium (K40), uranium (as Bi214), and thorium (as Tl208). Analysis of gamma ray intensity aids in determining rock types, geologic contacts/faults and radioactive mineral concentrations. The unit counts all energies above 0.05 Mev. A sodium iodide crystal 1.5 Dia. x 1.5 inches converts gamma rays into faint flashes of light whose brilliance is proportional to the energy level of the gamma radiation measured. The accepted signals are averaged in a ratemeter circuit as counts per second and continously displayed on an anolog meter in ranges of 100F, 100, 300, 1000, 3000, and 10,000 C.P.S. Power is supplied by 2 nickelcadmium rechargeable 1.5 volt D cell batteries.(see appendix _1_)

Correlation and Discussion of the Combined Results of the Magnetometer, VLF-EM and Background Radiometric.

The purpose of the geophysics exploration program was to delineate a possible source or structures from which the placer gold values of the area may have been derived. The geophysics investigation methods employed were VLF-EM, magnetics, and radiometrics surveys. On a regional basis the surveys were to determine the presence of potentially economic hardrock mineral deposits. Orthoganal VLF-EM stations are generally used to determine the possible strike of conductors; Seattle, Washington for north/south conductors (on Vancouver Island B.C.) and Annapolis, Maryland for east/west trending conductors. After an initial evaluation, it was determined that the local structures trended northwest. Detailing was then conducted along the base line 0+00 using Seattle, Washington (24.8 KHz.). Due to severe variations of the ionosphere, the relative field strength data was deemed of minimal value. Magnetic diurnal variations were checked regularly and corrected for as required. The use of a gamma ray scintillometer in general reconnaissance surveys for epithermal and hydrothermal gold deposits is based on the presence of radioactive potassium being a common occurrence in this type of deposit. Several attempts at employing this technique have met with varying degrees of success, re: The Background Radiometric Survey of the Harrington Gold Property 1984, and Current Activities Forum 1984-8 Multiparameter Logging Techniques Applied to Gold Exploration (see appendix _3_).

All work was conducted on the grid located in mineral claim 6866 the Ruth Mary. II claim. Grid east/west traverses were made along the Base Line 0+00 using a compase/ hip-chain method and flaging the stations every 25 meters.

The combined system of VLF-EM/ total field magnetometer and background radiation, technique did confirm the location of possible mineralized contact/fault anomalies, and is consistent with the indicated controlling regional strike. The VLF-EM was weakly responsive; with the application of the Fraser Data filtering technique to the data, three low order conductors (eg: contact/ faults) were indicated. Number 1 located at 0+00, 2+00 west, number two located at 0+00, 3+12 west, and number three located at 0+00, 5+12 to 6+25 west. All three anomalies are coincident with magnetic and radiometric anomalies related to contact/ fault zones containing limonite and carbonates (potassium source). Anomaly number one would seem to relate to the demarcation edge of the Eakin Creek ancestral deltaic fan and may contain some radioactive elements. An end of line anomaly, anomaly number four, was indicated as being centered at 0+00, 8+00 west, and is one of the more interesting in that it was associated with what appears to be a mineralized dolmonite reef or epithermal hot spring formation. Anomaly number four was indicated as a magnetic dipole, VLF-EM resultant field cross over and a marked drop in the background radiation.

Listing of anomalous
radiometric/magnetic gradients/VLF-EM
* Radiometric background average counts per second 48 (cps)

LINE #	LOCATION	DESCRIPTION
0+00 BL	2+00 W	rad gradient 75 cps, associated mag dipole, dip to the west VLF Fraser anomaly at 2+00 W.
	3+12 W	rad gradient to 58 cps associated mag dipole, near vertical VLF Fraser anomaly at 3+12 W.
	5+12 W to 6+25 W	rad gradient 42 to 55 cps outcrop on strike to the south east 95 cps mag dipole, dip to the west VLF Fraser anomaly at 5+12 W. & 6+12 W.
	8+00 W	rad gradient to 36 cps associated mag dipole, depth approx 10 to 25 meters VLF-EM resultant dip angle anomaly

CONCLUSIONS AND RECOMMENDATIONS

A multiparameter geophysics test survey was conducted on one of three lines of mineral claim number 6866 in the Ruth Mary II claim group on Eakin Creek within the Eakin Creek designated placer area of the Kamloops Mining Division British Columbia. The survey was conducted by Mr. James R. Harrington. The survey disclosed the presence of several structurally controlled conductive fault/contact structures. Further it indicated the presence of a possible reef or ancient epithermal hot spring structure, which may be the source of the coarse placer gold located immediately down stream.

It is recommended that additional coverage using VLF-EM, magnetics, selfpotential and radiometrics over the grid be acquired with special attention to the area associated with the possible reef formation at 8+00 west. If funds are available a detailed IP survey should be considered to obtain the best results. As well, as an aid in delineating trends, further biological or geochemical sampling on a regional basis should be considered. It is recommended that biological or geochemical sampling of geophysical anomalies be conducted prior to further actions.

Respectfully Submitted,

James R. Harrington C.E.T.,
Geophysics/Electronics Technologist

Stephen A. Salaga LTD.
1011 FORT STREET, VICTORIA, B.C. CANADA V8V 3K5
(604) 652-1392 FAX (604) 388-9348 TELEX 049-7347

October 31, 1988

AGO Environmental Electronics Ltd.,
823 Old Esquimalt Road,
Victoria, B.C. V9A 4W9

Dear Sirs;

Re: Project - Eakin Creek

Attached is a cost summary for the subject project. Involved in the project were the following contractors and sub-contractors:

EMPLOYER: Explorex Development Corporation

CONTRACTOR: Stephen A Salaga Ltd

SUB-CONTRACTORS: AGO Environmental Electronics Ltd
Zimmerman Consulting Services Ltd

You have our permission to use this summary in your assessment report for the property.

Thank you,

Yours truly,

STEPHEN A. SALAGA LTD

Stephen A. Salaga
President

EXPLOREX DEVELOPMENT CORPORATION
SCHEDULE OF COSTS FOR THE EAKIN
CREEK PROJECT NEAR LITTLE FORT BC

Rental of 1 ton Dodge Power Wagon 4 x 4 7 days @ 50.00	$ 350.00
Rental of portable gas powered drill 7 days @ $45 per day	495.00
Rental of camper fully serviced 7 days @ $65 per day	455.00
Rental of tools and power chain saw 7 days @ $35 per day	245.00
Labour Stephen Salaga 7 days @ $250.00 per day	1,750.00
Labour James Harrington 7 days @ $250 per day	1,750.00
Habitation, 14 mandays @ $50 per day	700.00
Petty Cash, hardware, gas, lube etc	300.00
Rental Geophysics equipment and interpretation	1,850.00
Engineering planning, review, interpretation of results and report writing R. Zimmerman M.Sc., P.Eng.	2,705.00
	$ 10,600.00

WORK COMPLETED

A geophysical survey was conducted inorder to locate cross faulting extension for a possible drill target, 4 drill targets were located. The survey found a strong dipole in a host of carbinate rocks with volcanic intrusions on each side, 2 well mineralized quartz veins and mineralized massive jaspery quartz were also located.

Two old tunnels opened the previous year were entered, cleaned, scaled and sampled, no significant mineralization was found. Two other tunnels were found, entry was attempted but the talus was greater than what could be removed.

Additional work included trenching and sampling of the carbonate zone over a length of 20 m; trenching and sampling of the first quartz vein over a length of 5 m; trenching and sampling of the second quartz vein over an intermittent length of 75m.

The program displaced about 12 steres material.

EXPLOREX DEVELOPMENT CORPORATION
SCHEDULE OF COSTS FOR THE EAKIN
CREEK PROJECT NEAR LITTLE FORT BC

COST BREAKDOWN

Geophysics, equipment, labour and misc	$ 2,850.00
Entering,cleaning, scaling, and sampling of the 2 tunnels opened last year	125.00
Trenching of the carbonate zone, first quartz vein, and second quartz vein, displacement of about 12 steres of material	2,700.00
Tunnel cleaning, scaling, and sampling	100.00
New tunnel talus removal	275.00
Line Cutting	365.00
Mobilization and demobilization	375.00
Repair to access road	225.00
Engineering planning, review, interpretation of work results, report writing, and laboratory services	2,705.00
Mapping and laboratory services, and sample preparation	760.00
Office overhead	120.00
TOTAL ALLOCATION OF COSTS	$ 10,600.00

PROPERTY

The work was completed on behalf of Explorex Development Corporation, and Stephen A Salaga, owner of the Ruth Mary II Mineral Claim 6866 and Ruth Mary Mineral Claim 6865 during the period October 4 to 10, 1988.

O.
G. ENVIRONMENTAL
A. LECTRONICS LTD.

823 Old Esquimalt Rd.
Victoria, B.C.
Canada V9A 4W9
(604) 386-4015

CERTIFICATE

I, James R. Harrington, with a business address at 823 Old Esquimalt Road, Victoria, British Columbia, do hereby certify that:

1. I am a Senior Engineering Electronics/ Geophysics/ Oceanographic technician, and that I have been registered with the Ontario Association of Certified Engineering Technicians and Technologists from 1971.

2. I have been practising my profession for over 18 years.

3. I have no direct or indirect interest, nor do I expect to receive any interest directly or indirectly in the Explorex Development Corporation.

4. I have based this report on a review of the available geological data on the area, a review of exploration reports provided by the company, and on the geophysical data. The geophysical data was collected by myself, while conducting the combined geophysics survey employing a proton precession magnetometer, a VLF-EM receiver, and a gamma ray scintillometer during a visit to the property during October 5 & 6 1988.

5. I consent to the use of this report by Explorex Development Corporation in any Filing Statement, Statement of Material Facts, Prospectus or for assessment work.

JAMES R. HARRINGTON, CET.
October 14, 1988

JAMES R. HARRINGTON, C.E.T.
Geophysics/Electronics Technologist

Education:

1981 - General Geology, Carleton University, Ottawa, Canada
1976 - Mineralogy, University of Toronto, Sheridan, Canada
1974 - Television and Stero Servicing, Sheridan College of Applied Arts and Technology, Toronto, Canada
1971 - Prospectors Field Course, Ontario Department of Natural Resources
1969 - Method and Time Standard Course, General Electric, Trenton, Canada
1969 - Electronics Technician, Loyalist College of Applied Arts and Technology, Belleville, Canada

Experiences:

1987
A.G.O. Environmental ELectronics Ltd., Victoria, B.C.

President, responsible for all aspects of the company

1985 - 1986
Omni Machining Inc., Sidney, B.C.

Held the position of General Manager, involving program management, scheduling and planning; instrumentation design in mechanical and electronic areas. Materials acquisition and quality control. Cost and pricing analysis, equipment sales and quotations. Geophysical consulting specializing in down hole PEM, VLF, and IP.

1982 - 1985
Dobrocky Seatech Ltd., Sidney, B.C.

Duties included field deployment, recovery and repair of oceanographic and meteorological equipment as well as participation in design and assembly of custom data acquisition systems.

1981 - 1982
Self Employed

During this time Mr. Harrington designed and constructed digital and analog environmental geophysical exploration equipment as well as servicing, repairing, and modifing existing equipment. Also conducted geophysical surveys using surface pulse EM, down hole pulse EM, airborn VLF and magnetometer, and evaluated data for report preparation. At this time he assisted in the construction of the electronic spectrograph for the NRC's Mono Kaya telescope in Hawaii.

1980 - 1981
National Research Council of Canada, Ottawa, Ontario.

Duties were to build and test parts of an interplanetary space craft Solar Polar including: designing environmental instrument packages; electronic and mechanical drafting; PC board layout; test instrument design and construction; assembling of prototype, engineering and flight models to NASA and ESA standards; manufacturing mechanical parts; organizing test procedures and records.

1970 - 1980
Crone Geophysics Ltd.

duties included: materials acquisition; cost and pricing analysis; production and servicing planning; equipment sales and quotations; environmental instrument packaging; quality control testing; field applications and methods development; training geologists, geophysicists and technicians in the field operation of equipment, its applications and interpretation of data.

1969 - 1970
Canadian General Electric

Methods analysis as related to manufacturing process; setting of job time standards and cost analysis and implementation of employee suggestions, work station layouts.

CERTIFICATE

I, Rodney D. Zimmerman, with business address at 42 - 330 Tyee Road, Victoria, British Columbia, do hereby certify that:

1) I am a consulting engineer registered with the Association of Professional Engineers of British Columbia since 1974.

2) I hold a B.Sc. (1971) Honors Civil Engineering from the University of Manitoba and an M.Sc (1975) from the University of Manitoba.

3) I have been practising my profession as a Geomorphologist for over 14 years.

4) I have no direct or indirect interest, nor do I expect to receive any interest directly or indirectly in Explorex Development Corporation.

5) I have based this report on a review of available geological data on the area, examination of aerial photographs, a review of exploration reports provided by the company and visits to the property during July 1987.

6) I consent to the use of this report by Explorex Development Corporation in any Filing Statement, Statement of Material Facts, Prospectus or for assessment work.

Rodney D. Zimmerman

RODNEY D. ZIMMERMAN, M.SC., P.ENG.
October 14, 1988

APPENDIX 1

4. Now place the suspected object at the distance from the sensor expected

Equipment Description

Proton Magnetometer -

Geometrics Unimag, model G-836, provides 10 gamma resolution over a range from 20,000 to 100,000 gammas and is powered from an internal 12 volt DC lead acid gell battery. see appendix __2__ .

VLF-EM Receiver -

Saber VLF receiver, model 27, provides measurements of the relative field strength, dip angle and quadrature components of the VLF communications stations. Relative field strength to 200 % accuracy of +-2 %, dip angle +60 to -60 degrees with an accuracy of 1 degree. The out-of-phase component (quadrature) of the magnetic field, perpendicular in direction to the resultant field, as a percent of the normal field strength. This is the minimum reading of the Field Strength meter obtained when measuring the dip angle, Accuracy +-2%. The unit is powered from 8 internal 1.5 volt AA batteries.

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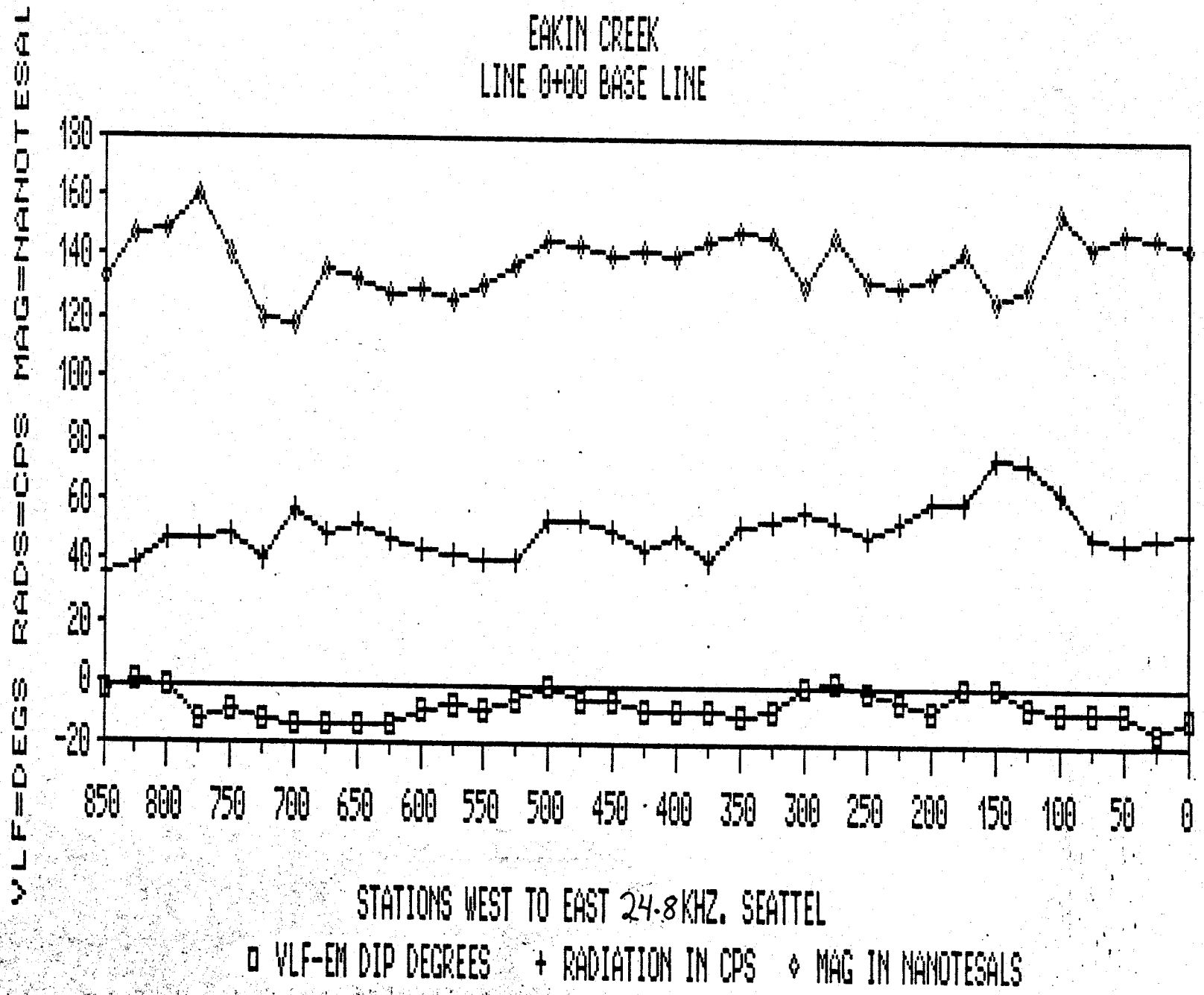
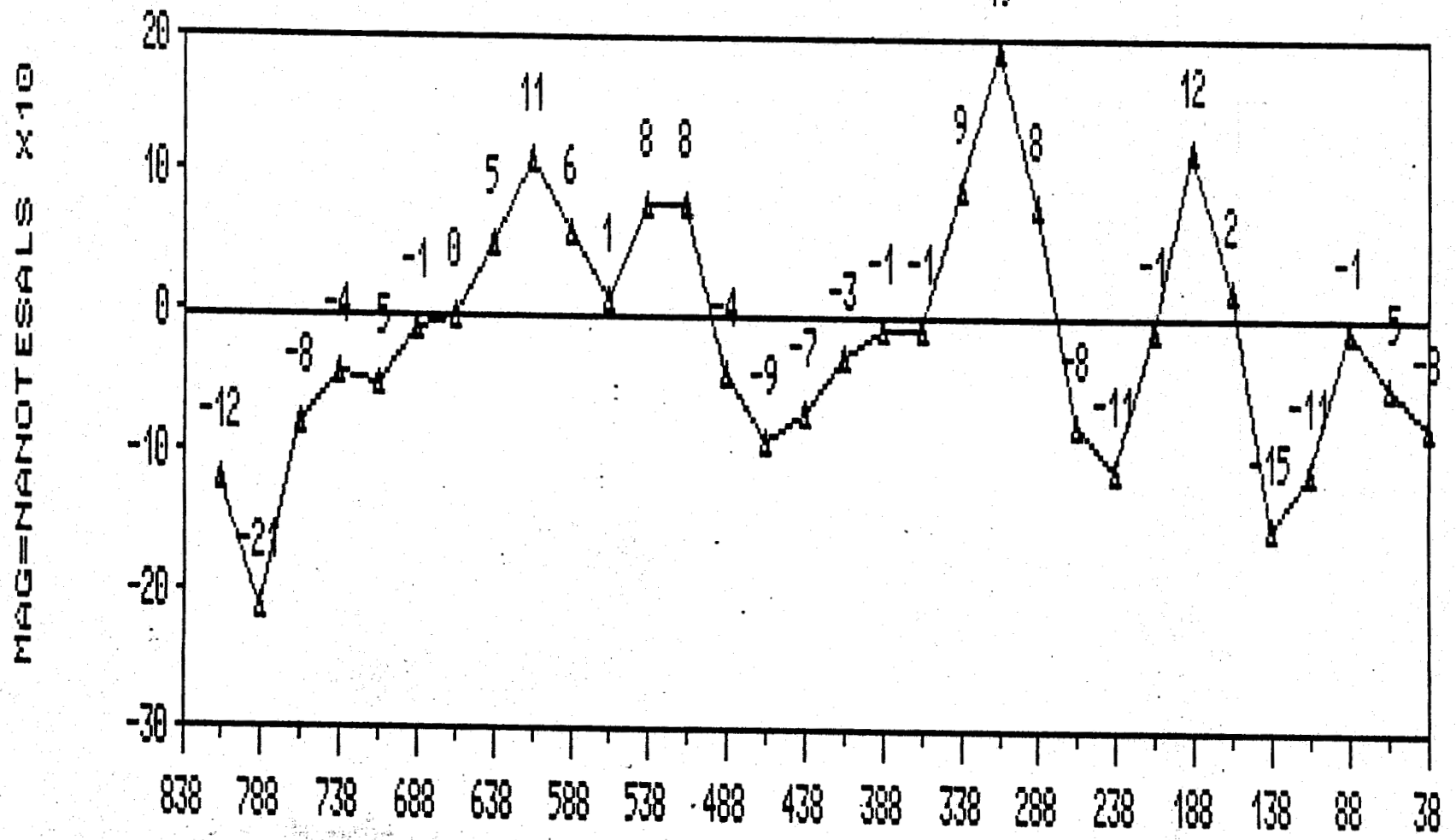
Exploranium portable gamma ray scintillometer model GRS-101A, provides accurate and reliable determinations of gamma ray intensities from the radioactive elements: potassium (K40), uranium (as Bi214), and thorium (as Tl208). Analysis of gamma ray intensity aids in determining rock types or units, geologic contacts/faults and radioactive mineral concentrations. The unit counts all energies above 0.05 Mev. A sodium iodide crystal 1.5 Dia. x 1.5 inches converts gamma rays into faint flashes of light whose brilliance is proportional to the energy level of the gamma radiation measured. The accepted signals are averaged in a ratemeter circuit as counts per second and are continously displayed on an analogue meter in ranges of 100F, 100, 300, 1000, 3000, and 10,000 C.P.S. Power is supplied by 2 nickel-cadmium rechargeable 1.5 volt D cell batteries.(see appendix __2__)

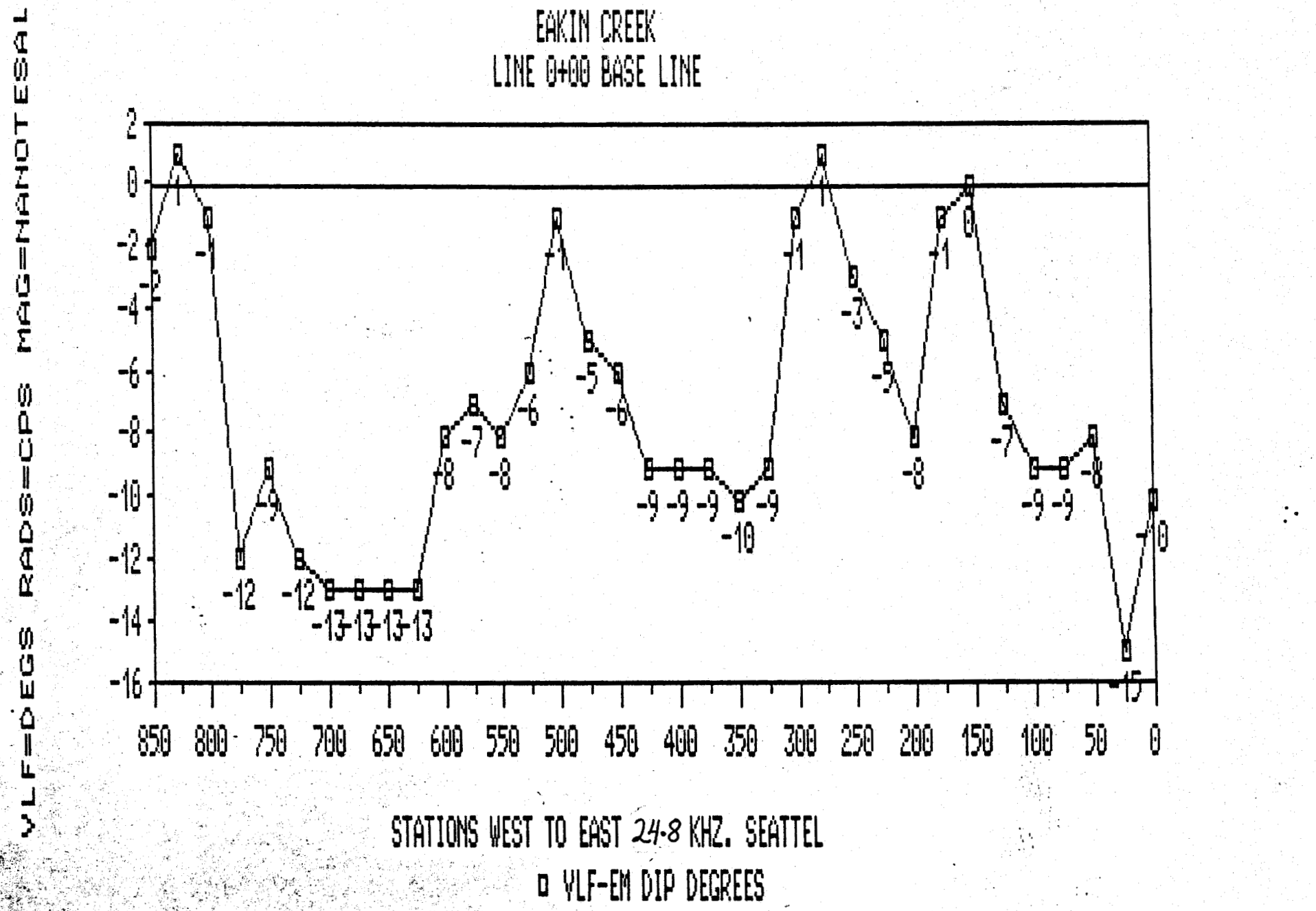
APPENDIX 2

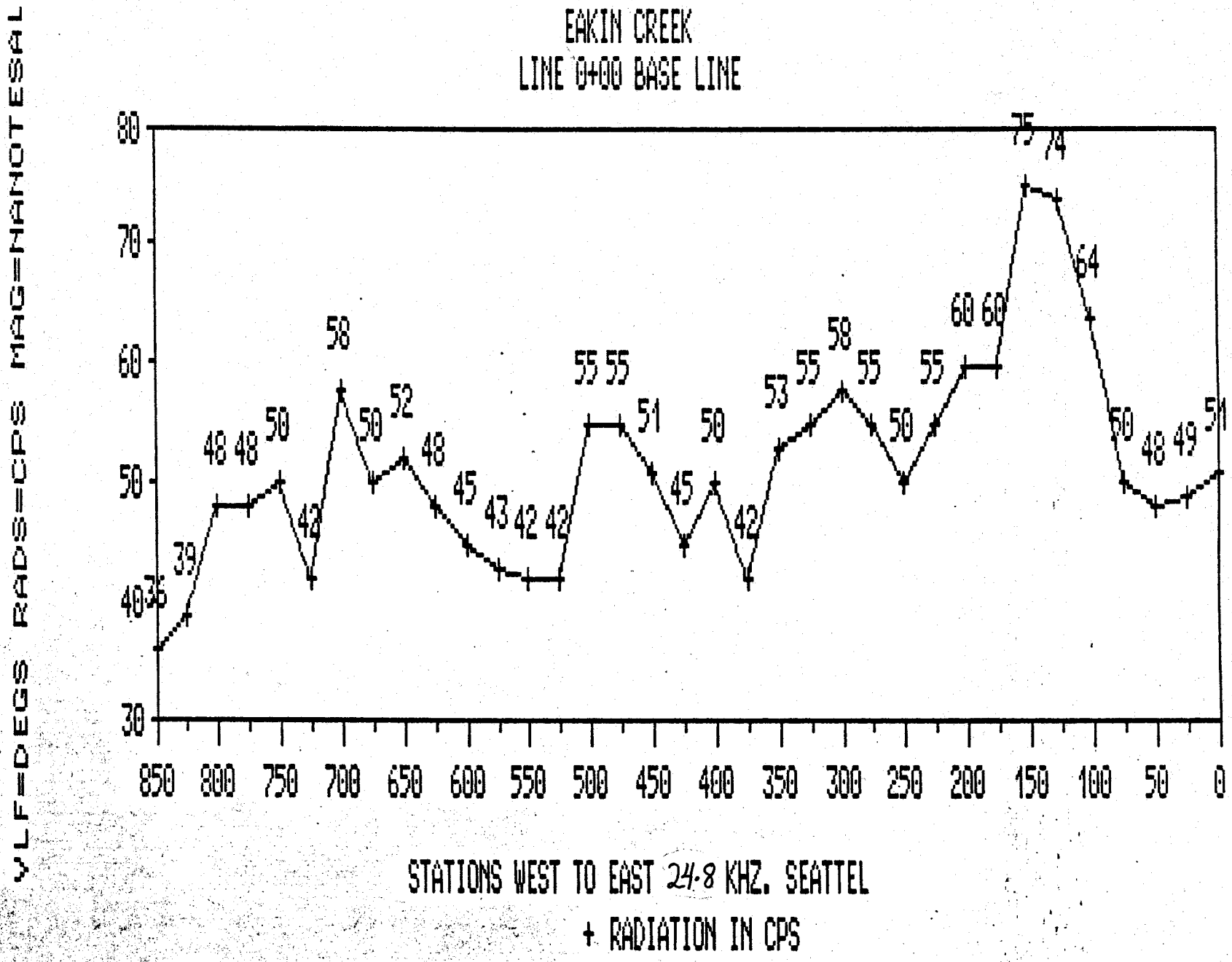

EAKIN CREEK
LINE 0+00 BASE LINE
VLF=DEGS RADS=CPS MAG=NANOTESAL
180
160
140
120
100
80
60
40
20
0
-20
850 800 750 700 650 600 550 500 450 400 350 300 250 200 150 100 50 0
STATIONS WEST TO EAST 24.8KHZ. SEATTEL
□ VLF-EM DIP DEGREES + RADIATION IN CPS ◇ MAG IN NANOTESALS

EAKIN CREEK
LINE 0+00 BASE LINE

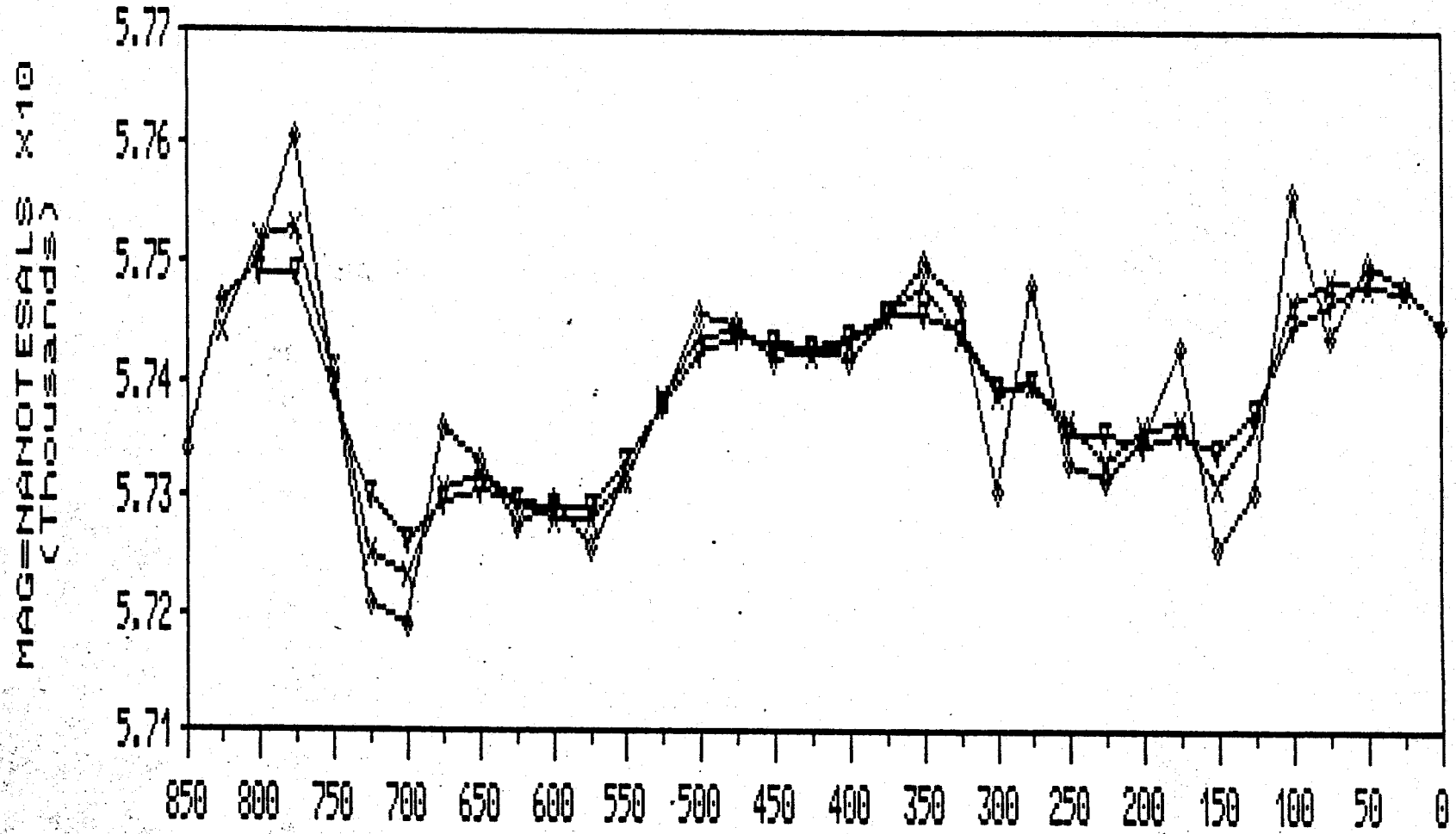


STATIONS WEST TO EAST 24.8 KHZ. SEATTEL
Δ VLF FRASER FILTER


EAKIN CREEK
LINE 0+00 BASE LINE
VLF=DEGS RADS=CPS MAG=NANOTESAL
2
0
-2
-4
-6
-8
-10
-12
-14
-16
850 800 750 700 650 600 550 500 450 400 350 300 250 200 150 100 50 0
STATIONS WEST TO EAST 24.8 KHZ. SEATTEL
VLF-EM DIP DEGREES


EAKIN CREEK
LINE 0+00 BASE LINE
VLF=DEGS RADS=CPS MAG=NANOTESAL
80
70
60
50
40
30
850 800 750 700 650 600 550 500 450 400 350 300 250 200 150 100 50 0
36 39 48 48 50 42 58 50 52 48 45 43 42 42 55 55 51 45 50 42 53 55 58 55 50 55 60 60 75 74 64 50 48 49 51
STATIONS WEST TO EAST 24.8 KHZ. SEATTEL
+ RADIATION IN CPS

EAKIN CREEK
LINE 0+00 BASE LINE



STATIONS WEST TO EAST 24.8 KHZ. SEATTEL

◊ MAG IN NANOTESALS x 3 POINT AVE MAG. ▽ 5 POINT AVE MAG.

GRID NAME: EAKIN CREEK

LINE NO.- 0

STATION	DIP	PHASE	FS	RAD		MAG
850	-2			36	134	5734
825	1			39	147	5747
800	-1			48	150	5750
775	-12			48	161	5761
750	-9			50	141	5741
725	-12			42	121	5721
700	-13			58	119	5719
675	-13			50	136	5736
650	-13			52	133	5733
625	-13			48	128	5728
600	-8			45	130	5730
575	-7			43	126	5726
550	-8			42	132	5732
525	-6			42	138	5738

500	-1	55	146	5746
475	-5	55	145	5745
450	-6	51	142	5742
425	-9	45	143	5743
400	-9	50	142	5742
375	-9	42	146	5746
350	-10	53	150	5750
325	-9	55	147	5747
300	-1	58	131	5731
275	1	55	148	5748
250	-3	50	133	5733
225	-5	55	132	5732
200	-8	60	135	5735
175	-1	60	143	5743
150	0	75	126	5726
125	-7	74	131	5731
100	-9	64	156	5756
75	-9	50	144	5744
25	-15	49	148	5748
50	-8	48	150	5750
0	-10	51	145	5745

II	AV3MAG	AV5MAG		STATI	DIP	SUM DIP	FR FIL
T							
				850	-2		
	5744.5		838	825	1	-1	
	5752.0	5749.1	813	800	-1	0	-12
	5753.3	5749.4	788	775	-12	-13	-21
	5741.0	5739.7	763	750	-9	-21	-8
	5725.5	5730.1	738	725	-12	-21	-4
	5723.8	5726.4	713	700	-13	-25	-5
	5731.0	5729.7	688	675	-13	-26	-1
	5732.5	5730.9	663	650	-13	-26	0
	5729.8	5730.0	638	625	-13	-26	5
	5728.5	5729.3	613	600	-8	-21	11
	5728.5	5729.4	588	575	-7	-15	6
	5732.0	5733.2	563	550	-8	-15	1
	5738.5	5737.9	538	525	-6	-14	8
	5743.8	5742.4	513	500	-1	-7	8

5744.5	5743.7	488	475	-5	-6	-4
5743.0	5743.2	463	450	-6	-11	-9
5742.5	5743.1	438	425	-9	-15	-7
5743.3	5743.8	413	400	-9	-18	-3
5746.0	5745.8	388	375	-9	-18	-1
5748.3	5745.9	363	350	-10	-19	-1
5743.8	5744.4	338	325	-9	-19	9
5739.3	5739.7	313	300	-1	-10	19
5740.0	5739.9	288	275	1	0	8
5736.5	5735.8	263	250	-3	-2	-8
5733.0	5735.5	238	225	-5	-8	-11
5736.3	5734.9	213	200	-8	-13	-1
5736.8	5735.7	188	175	-1	-9	12
5731.5	5734.3	163	150	0	-1	2
5736.0	5737.5	138	125	-7	-7	-15
5746.8	5745.0	113	100	-9	-16	-11
5748.5	5746.7	88	75	-9	-18	-1
5748.0	5748.5	63	50	-8	-17	-5
5747.8	5732.6	38	25	-15	-23	-8
5709.5	5702.6	13	0	-10	-25	13

APPENDIX 3

PAPER 84-8

CURRENT ACTIVITIES FORUM 1984
PROGRAM WITH ABSTRACTS

1984

SOME THOUGHTS ON GOLD DEPOSITS HOSTED BY IRON FORMATION WITH PARTICULAR REFERENCE TO THE LUPIN MINE, CONTWOYTO LAKE AREA, NWT AND TO GOLD MINERALIZATION IN THE GERALDTON CAMP, ONTARIO.*

J.A. Kerswill[1] and C.D. Anglin[2]

In some gold deposits in iron formation, notably the Lupin Mine, much of the mineralization is stratiform. Such gold is relatively uniformly distributed in thin but laterally extensive beds of cherty sulphide-rich iron formation, consistent with syngenetic conentration of gold from hydrothermal fluid during deposition or early diagenesis of the chemical sediments.

In other deposits, for example portions of the Hard Rock and MacLeod-Cockshutt Mines in the Geraldton area, gold is restricted to veins and/or sulphide-rich areas immediately adjacent to veins. These gold ores are structurally-controlled and evidence to date indicates an entirely epigenetic origin.

A number of deposits in iron formation possess both styles of mineralization suggesting a more complex genesis. At the Lupin Mine, significant gold occurs in arsenic-rich ore adjacent to gold-bearing quartz veins.

Similarities and differences in other features may be genetically significant. In both areas iron formation occurs as thin beds within thick sequences of turbidites in an Archean greenstone belt. Iron formation at Lupin is typically sulphide- or silicate-rich. Much of the iron formation at Geraldton is oxide-rich although there are local carbonate- and sulphide-rich zones. Sulphide-rich iron formation at Lupin may be a primary chemical sediment, but the carbonate- and sulphide-rich zones at Geralton are epigenetic replacements of oxide facies. At Lupin gold is apparently restricted to iron formation, but at the Hard Rock and MacLeod-Cockshutt mines gold also occurs in shear zones in greywacke and albite porphyry. Arsenopyrite, associated with pyrite, is ubiquitous in gold ore in iron formation at Geraldton. At Lupin there is an intimate association between gold and arsenic in ore adjacent to quartz veins but much of the well-bedded pyrrhotite-rich stratiform ore is arsenic-poor.

The above evidence suggests that gold deposits in iron formation can be formed with or without syngenetic concentration of gold during chemical sedimentation. The presence of sulphides may be the most critical exploration guide for both types. Complex structures related to regional shear zones are favourable for the Geraldton type. Syngenetic pyrrhotite-rich iron formation may be the most critical indicator for Lupin type, and significant oxide facies may be a negative characteristic. Arsenides, although they seem to be directly linked to epigenetic gold concentration processes, are a positive feature for both types.

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MULTIPARAMETER LOGGING TECHNIQUES APPLIED TO GOLD EXPLORATION

T.I. Urbancic[1] and C.J. Mwenifumbo[2]

Gold is usually found in such small quantities that direct detection with geophysical techniques has not been possible. Instead such techniques have been used to delineate lithological units favourable for gold mineralization. Multiparameter techniques might be used to further subdivide these units into zones with the maximum likelihood for high gold content.

Most gold deposits are associated with mass rock alteration zones (adularization, sericitization, pyritization and silicification). These zones are often characterized by enrichment in potassium, and in sulphides. Theoretically it should be possible to use gamma ray spectrometry to outline areas enriched in potassium (as well as the radioactive elements U and Th); to use IP/resistivity methods to detect the presence of sulphides, and temperature gradient measurements to locate structural features such as faults and lithological boundaries.

Several boreholes intersecting gold mineralization in the Larder Lake area of Ontario were logged with gamma ray spectral, IP/resistivity and temperature methods. Two types of ore bodies are found in this area: carbonate ore bodies consisting of irregular lenses of quartz stockworks lying within highly altered and brecciated carbonatized ultramafic rocks, and flow type ore bodies, consisting of pyritized and silicified zones lying within altered volcanic tuffs and flows. This study was conducted in the flow type ore bodies, where the gold is associated with pyrite mineralization.

Preliminary logging data indicate that, in the Larder Lake area, zones with low resistivity values, high potassium content and an increased IP effect are associated with increased pyrite content (greater than 5%) and gold mineralization. If there is a corresponding increase in uranium and thorium content, the lithological unit lacks any substantial amount of auriferous mineralization. In general there is a negative correlation between the temperature gradient and resistivity except in the volcanic units with brown carbonate alteration which show a positive correlation of low resistivity to low temperature gradient. In most of the boreholes examined, the gold mineralization occurs within these pyritized brown carbonate alteration zones.

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PRESENTS

A NEW EXPLORATION METHOD FOR

GOLD / SILVER / PLATINUM

New concise answers are available, resulting from the combination of Magnetometer, VLF-EM, Background Radiometric and Biological surveys.

The purpose of the geophysics exploration program is to deliniate possible zones or structures for an area in which gold and silver values have been located. The geophysics investigation methods employed are VLF-EM, total field magnetics, and radiometrics surveys. A new experimental biological method, which tests for the presence of spores of the microorganism Bacillus cereus, is presently in use to assist in the interpretation of the data. These spores are concentrated in areas of zero charged metals, such as gold, silver, arsenic, and, to a small extent, copper. The combined methods seem to present an effective new and powerful aid in the process of identifying probable mineralized zones which contain the aforementioned metals. The biological sampling is particularly useful in qualifying those ambiguous VLF-EM and mag anomalies that plague the exploration process. On a regional basis the surveys are designed to rapidly determine the presence of potential economic hardrock mineral deposits. Orthoganal VLF-EM stations are generally used to determine the possible strike of conductors; Seattle, Washington for north/south conductors and Annapolis, Maryland for east/west trending conductors (selection for Vancouver Island B.C.). After an initial evaluation to determine the local geological structure, detailing is then conducted using the appropriate VLF-EM transmitter, eg: Seattle, Washington (18.6 KHz.) for north/south conductors. The use of a gamma ray scintillometer in general reconnaissance surveys for epithermal and hydrothermal gold deposits is based on the presence of radioactive potassium being a common occurrence in this type of deposit. Several attempts at employing this technique have met with varying degrees of success, re The Background Radiometric Survey of the Harrington Gold Property 1984, and Current Activities Forum 1984-8 Multiparameter Logging Techniques Applied to Gold Exploration (see appendix __1__). The low level background radiation method combined with the total field magnetic signature of an area has proven very successful in deliniating ultra basic intrusions (source of platinum metals). The radiometric signature of the sulphide deposit of interest must be determined for each case at the time of the survey. eg. some sulphide deposits containing low values of quartz/carbonates,or k-spars produce radiation lows, an inverse response to that seen from epithermal gold deposits.