TRENCHING AND PROSPECTING REPORT ON THE EUREKA CREEK PROPERTY

Dawson Mining Division, Yukon

NTS 115 O/10

Latitude: 63° 30'N

Longitude: 138° 54'W

093348

OWNERS:
Pacific Mariner Exploration Ltd.
and
Wealth Resources Ltd.

#1000 - 675 West Hastings Street
Vancouver, B.C.
V6B 1N6

BY

P. SOUTHAM, P. Geo. (B.C.)

November, 1995

YUKON ASSESSMENT REPORT

PROPERTY: **EUREKA CREEK PROPERTY**

NTS MAP SHEET: **115 O/10**

LATITUDE: **63° 30'N** LONGITUDE: **138° 54'W**

CLAIMS AND GRANT NUMBERS WORKED: **Clara B 1, 73, 108, 109**
YB44921, YB45017, YB52854, YB52855

OWNER OF PROPERTY: **Pacific Mariner Exploration Ltd. (50%)**
Wealth Resources Ltd. (50%)

ADDRESS: **#1000 - 675 West Hastings Street**
Vancouver, B.C.
V6B 1N2

TELEPHONE: **(604) 685-2222**

OPERATOR: **Hastings Management Corp.**

TYPE OF WORK: **Trenching, prospecting**

DATE WORK WAS DONE: **July 29 to September 20, 1995**

AUTHOR OF REPORT: **Philip Southam, P. Geo.**

LIST OF PERSONNEL:
Philip Southam, Hastings Management Corp.

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LOCATION AND ACCESS

The property is located 62 kilometers southeast of Dawson City, Yukon (figure 1) centered on 63° 30' north latitude and 138° 54' west longitude on NTS sheet 115 O/10. It is accessible by the Black Hills Creek gravel road from spring to fall or by helicopter from Dawson City in the winter.

TOPOGRAPHY AND VEGETATION

The topography is rolling hills ranging in elevation from 560 meters (1700 ft.) ASL to 1300 meters (4300 ft.) ASL covered with spruce, poplar and birch trees. The area escaped glaciation, thus the valleys are V-shaped and there is less than 1% natural outcrop exposure. The best exposure of bedrock is usually found in placer mine cuts and along road cuts.

On north facing slopes and shaded areas the vegetation consists of spruce trees and thick moss due to permafrost in the underlying soil. Spruce trees are also found in damp soil conditions on the property, such as recessive fault zones or creek gullies. Poplar and birch trees grow on the dry, thawed south, east and west facing slopes. Alder thickets are commonly found along creeks and gullies.

PROPERTY STATUS

The property consists of 156 quartz claims staked as the Clara and Clara B (figure 2). They are:

Table 1

CLAIM NAME	GRANT NUMBER	EXPIRY DATE*	OWNER**
Clara 18 - 22, 24, 26, 39, 41, 43, 45, 47, 49, 52	YB41514 - 18, 20, 22, 35, 37, 39, 41, 43, 45, 48	Dec. 31/96	PMR/WLH
Clara B 1, 3, 4, 6, 68, 70 - 74, 87 - 90, 95, 97, 99	YB44921, 23, 24, 26, YB45012, 14 - 18, YB44991 - 4, YB45001, 3	Dec. 31/96	PMR/WLH
Clara B 102	YB52727	Sept. 29/96	PMR/WLH
Clara B 107 - 109, 117	YB52853 - 55, 63	Oct. 11/96	PMR/WLH

* Assumes acceptance of this report.
** PMR/WLH = Pacific Mariner Explorations Ltd. and Wealth Resources Ltd.

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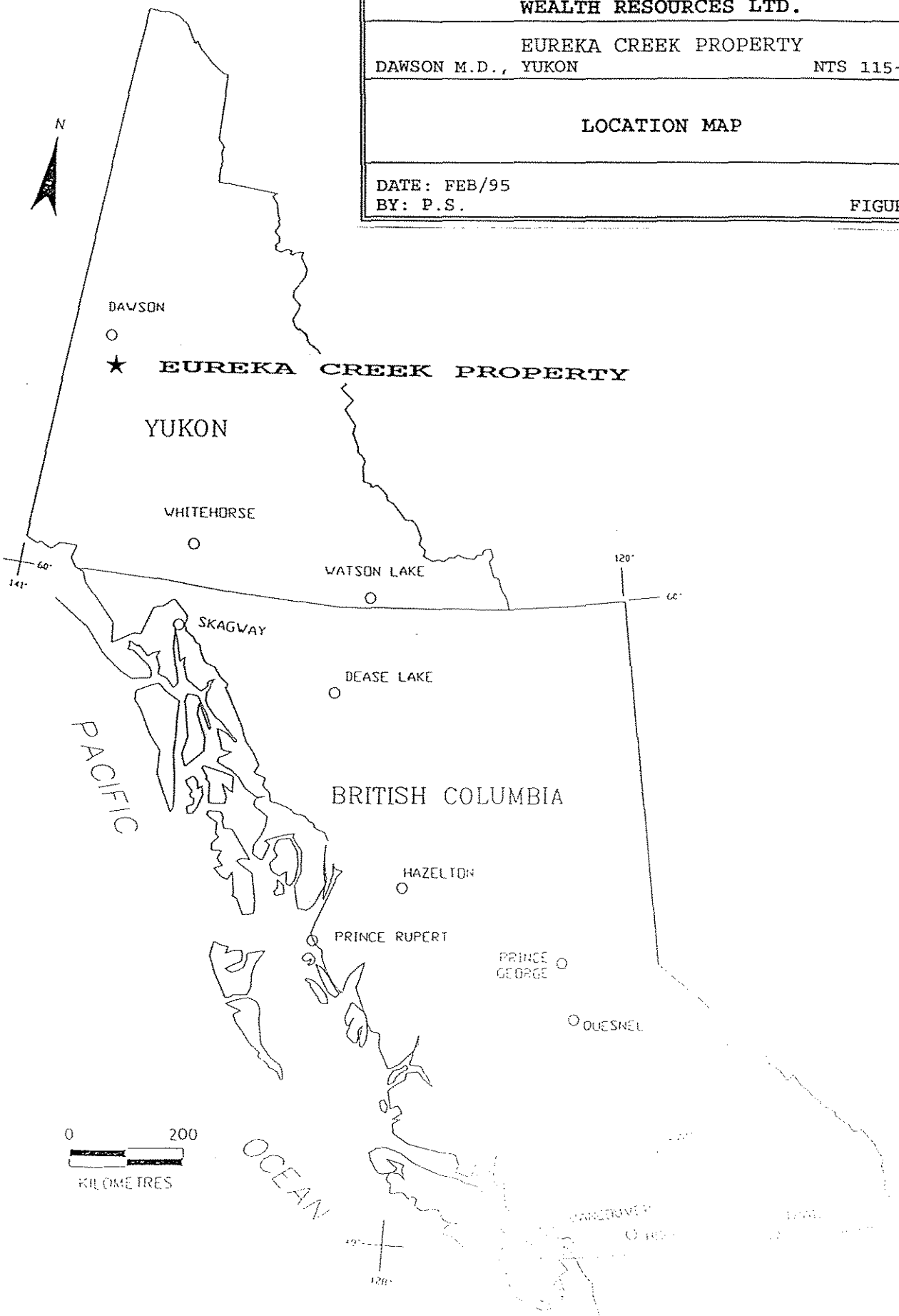
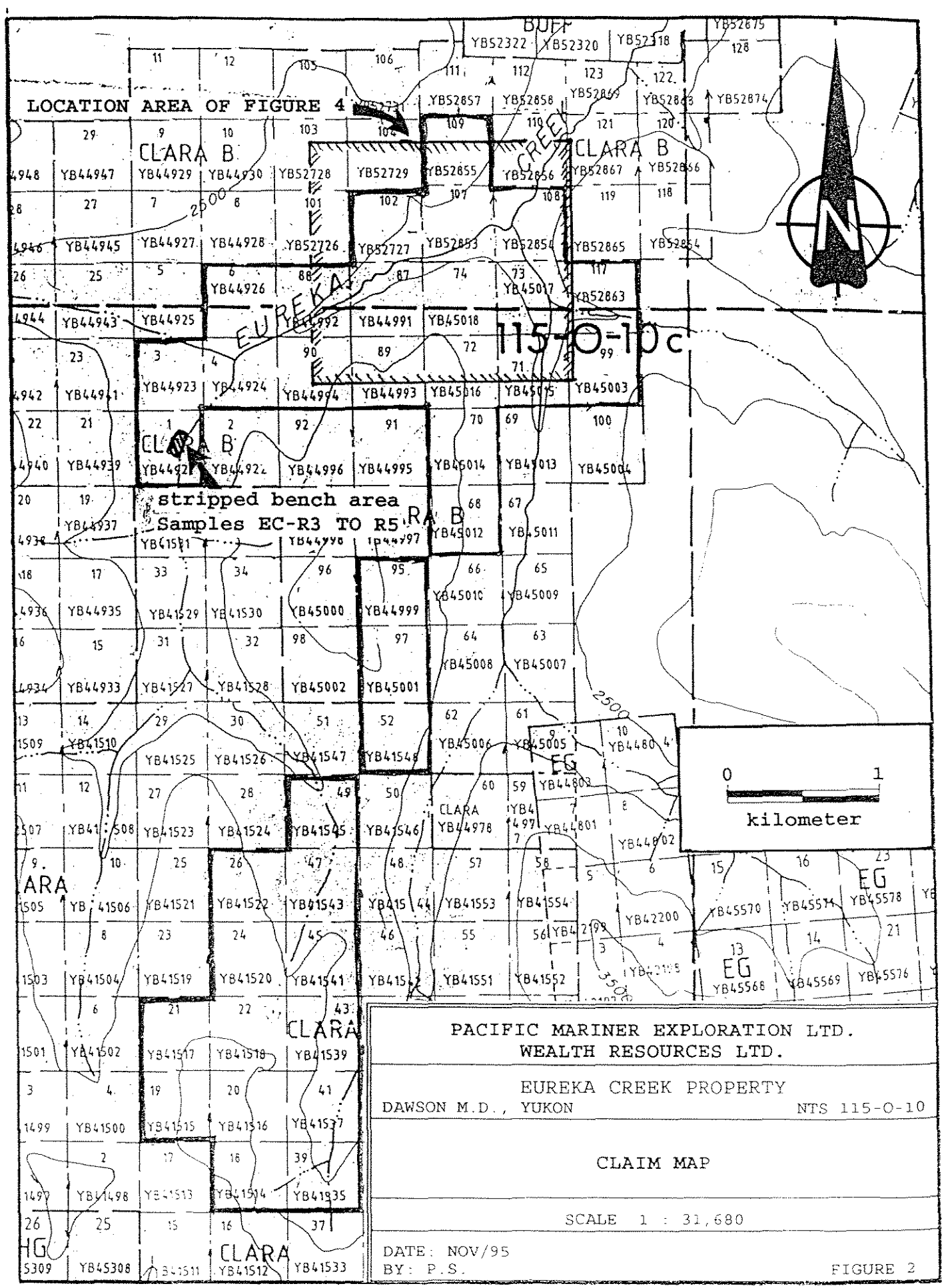
WEALTH RESOURCES LTD.

EUREKA CREEK PROPERTY
DAWSON M.D., YUKON NTS 115-O-10

LOCATION MAP

DATE: FEB/95
BY: P.S. FIGURE 1





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EUREKA CREEK PROPERTY

DAWSON M.D., YUKON NTS 115-O-10

CLAIM MAP

SCALE 1 : 31,680

DATE: NOV/95
BY: P.S.

FIGURE 2

HISTORY

The property is located in the historic Klondike region where more than eleven million ounces of gold has been mined from placer deposits in the creeks and on the benchs. Placer gold was discovered in 1896. Mining of the creek and bench deposits continues to this day.

Eureka Creek was mined for placer gold in the early days by shafting and ground sluicing and more recently by mechanized mining methods. Between 1978 and 1982 it was the first-ranked placer creek in the Yukon (Y.T.G. Placer Mining, 1978-1982).

Lode gold exploration in the area has been sporadic; many oldtimers probably looked for the hard rock source of the placer gold but little work was ever documented. Phil Van Angeren conducted initial prospecting and reconnaissance soil sampling over the area in 1988 for Arbor Resources Inc. and reported his findings in assessment report #92720. The results were encouraging, but no follow-up work was done and the claims lapsed. They were restaked by Pacific Mariner Explorations Ltd. and Wealth Resources Ltd. in 1992 and 1993. Detailed soil sampling in the area of Van Angeran's reconnaissance anomalies in 1993 identified several gold anomalies, including the kilometer-long Crescent anomaly. Follow-up work on these anomalies in 1994 included infill and extensional soil sampling and trenching.

REGIONAL GEOLOGY

The Klondike region is underlain by a group of moderately metamorphosed rocks of late-Paleozoic age known as the Klondike Series and Nasina Series (represented as Klondike schist and Yukon Group in figure 3). They form part of the Yukon-Tanana Terrane (YTT) on the southwest side of the Tintina Trench. The YTT is formed from the merging of the Omineca Crystalline Belt and the Coast Plutonic Complex into the Intermontane Belt (Tempelman-Kluit, 1977). The Tintina Trench is a major transcurrent fault along which at least 450 km of dextral offset has occurred (Mortensen, 1990).

The gross lithologic assemblages within the YTT consist of Proterozoic and Paleozoic strata which can be correlated with the Omineca Crystalline Belt (OCB). The OCB includes a succession of clastic and carbonate rocks equivalent to miogeoclinal sequences to the east. The western part of the belt is overlain by upper Paleozoic mafic and felsic volcanic rocks with intercalated chert and slate (Tempelman-Kluit, 1977).

Mortensen (1990) describes the Klondike and Nasina series geology as several imbricated thrust panels of polydeformed metavolcanics and metasediments of a buried island arc which can be

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EUREKA CREEK PROPERTY

DAWSON M.D., YUKON — NTS 115-O-10

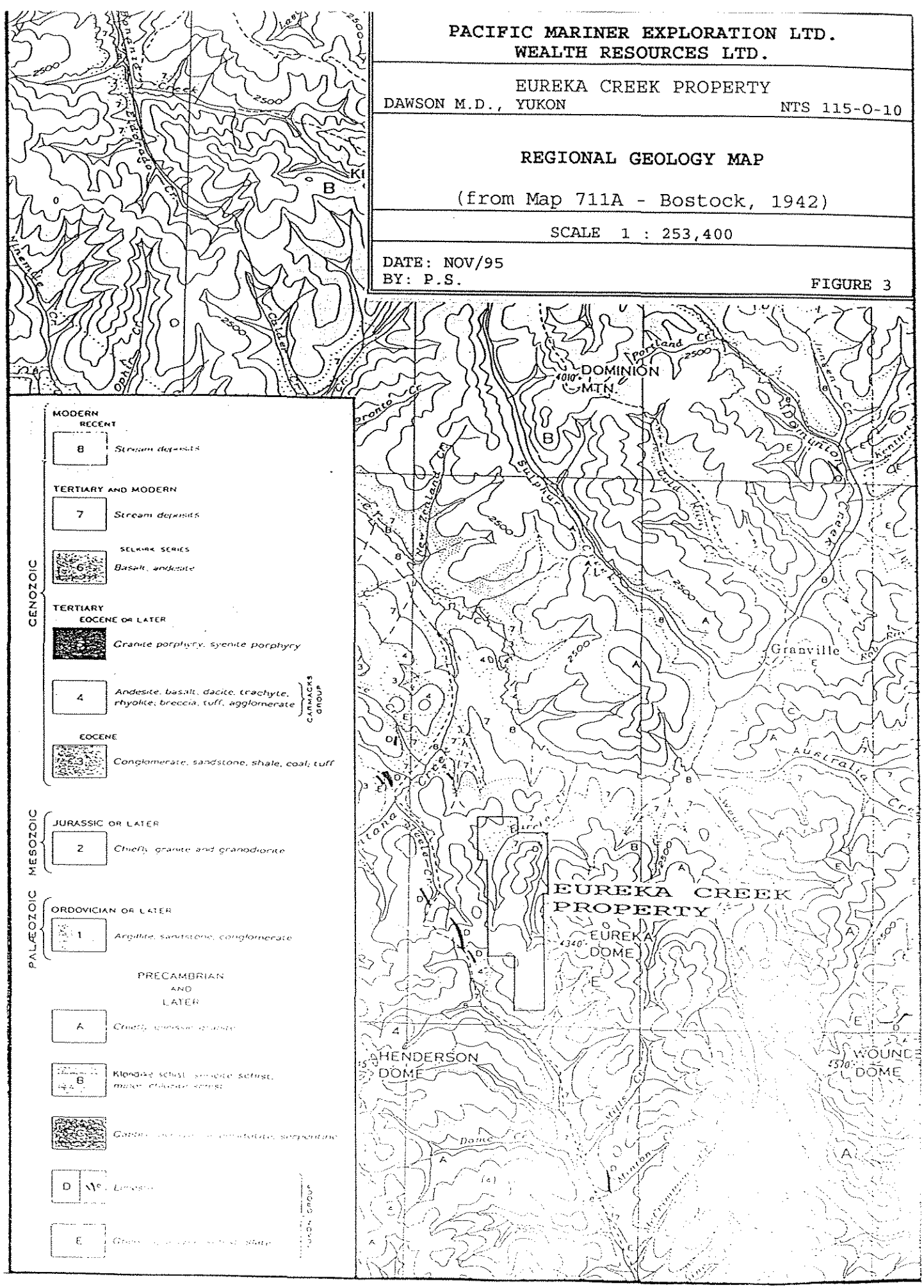
REGIONAL GEOLOGY MAP

(from Map 711A - Bostock, 1942)

SCALE 1 : 253,400

DATE: NOV/95
BY: P.S.

FIGURE 3



subdivided into three assemblages. Assemblage I, the uppermost and more widely extensive thrust panel, is metamorphosed mid-Permian felsic plutonic, subvolcanic, and tuffaceous rocks. Assemblage II is mid-Paleozoic or older metasedimentary and mafic and felsic metavolcanic rocks intruded by a large body of latest Devonian - Early Mississippian granitic augen orthogneiss. Assemblage III underlies I and II structurally in the northern and southwestern part of the area and consists of carbonaceous schists and phyllite.

PROPERTY GEOLOGY

The local geology was mapped by Bostock (GSC map 711A, 1942) as Paleozoic-age Nasina Quartzite. Detailed mapping by Van Angeren in 1988 identified the dominant unit as grey, medium-laminated micaceous and graphitic sugary-textured quartzite with interbeds of cherty and highly-foliated, white micaceous quartzite and narrow horizons of chloritic muscovite schist and biotite-feldspar quartz-muscovite schists. Small lenses of white bull quartz are common throughout the property.

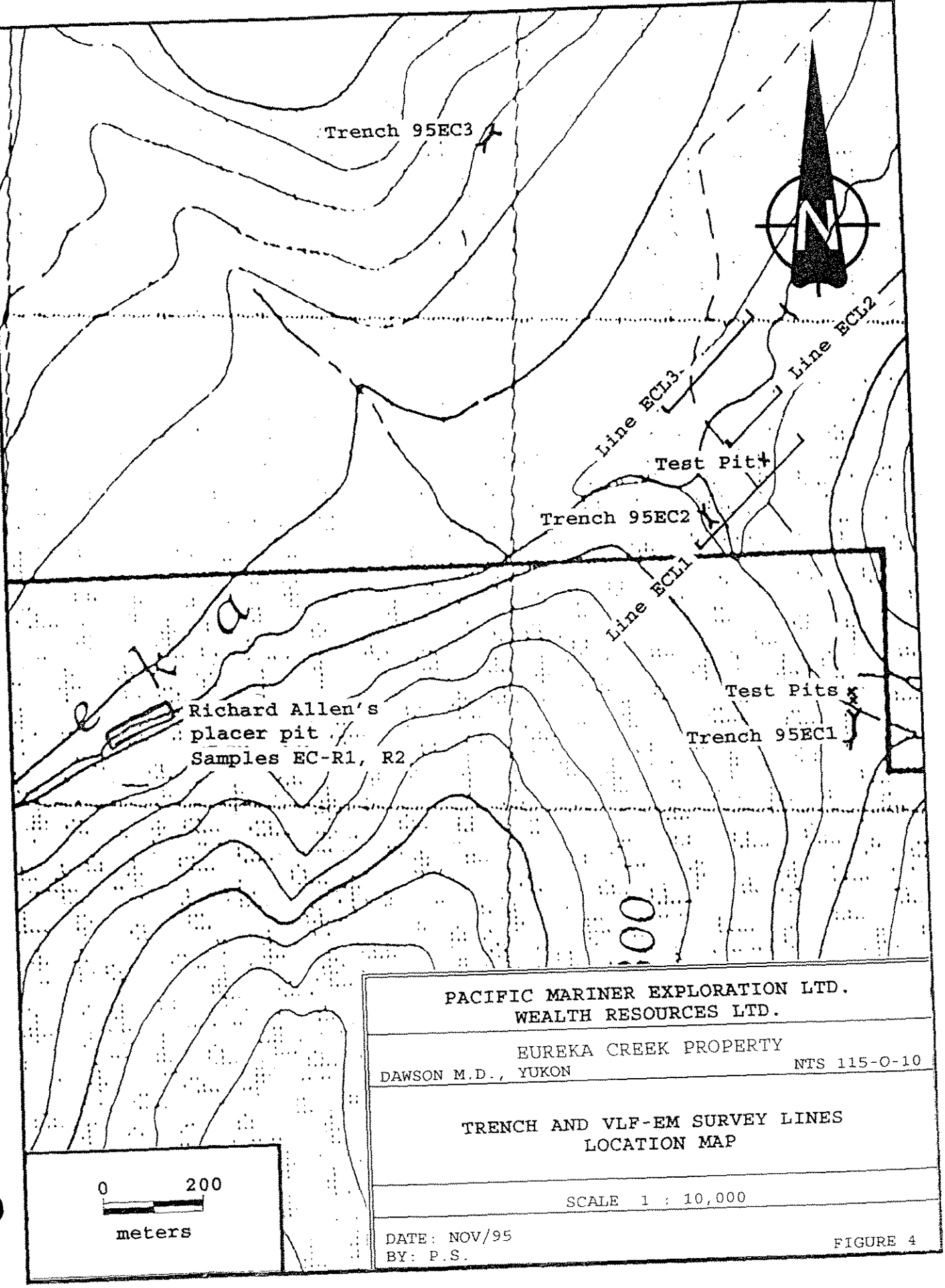
Two distinct igneous units occur in the region around the property. The oldest is the Pelly gneiss, a Paleozoic-age foliated to gneissic granodiorite lying to the east. On the west side are the intermediate to mafic volcanic rocks of the Tertiary-age Carmacks Group.

A series of northwest, northeast and east-west trending structural zones have been identified by prospecting and by observing topographic features. The dominant trend is approximately 310° which is parallel to the Tintina Trench. The other trends appear to be oblique and perpendicular splays to the Tintina. Some of the structural zones have been confirmed by the trenching program.

The extensive faulting of the area has allowed moderate to strong alteration of the surrounding bedrock. The alteration includes limonite cementing of breccia fragments forming ferricrete, quartz veining and complete obliteration of the host rock into a tan or grey clay gouge. The clay gouge varies in width from half a meter to greater than three meters and appears to correlate directly with anomalous soil samples on the Crescent and Lee anomalies. The gouge appears to be associated with the 310° trend.

WORK PROGRAM

The 1995 program consisted of prospecting, VLF-EM geophysical surveying and trenching near the fork in Eureka Creek (figure 4) and prospecting a stripped bench area on the right fork (figure 2).



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EUREKA CREEK PROPERTY

DAWSON M.D., YUKON NTS 115-O-10

TRENCH AND VLF-EM SURVEY LINES
LOCATION MAP

SCALE 1 : 10,000

DATE: NOV/95
BY: P.S.

FIGURE 4

PROSPECTING RESULTS

Two areas were looked at briefly at the north end of the property, including Richard Allen's current placer workings and a stripped bench area south of the bend on the right fork of Eureka Creek.

Within the placer pit the bedrock geology was not clearly visible, however it was described by Richard Allen as reefs of blocky bedrock with intermittent gouge zones. Both the gouge and blocky quartzite bedrock have been sampled in the past but neither have returned significant gold results. Nevertheless, the north-south gouge zones, which can be traced up the south slope as recessive zones, may be significant structural zones in the geological history of the property. Two samples, EC-R1 and R2, were taken from the pit, R1 of rusty quartzite in an exposure of the bedrock reef and R2 of a purple quartzite with quartz veining and coarse pyrite mineralization. Both samples were barren of gold.

The bench area is underlain by rusty brown ferricrete-healed quartzite breccias and minor local gouge. Samples EC-R3 and R4 were taken of breccia material and EC-R5 was from the gouge; all three samples were unmineralized.

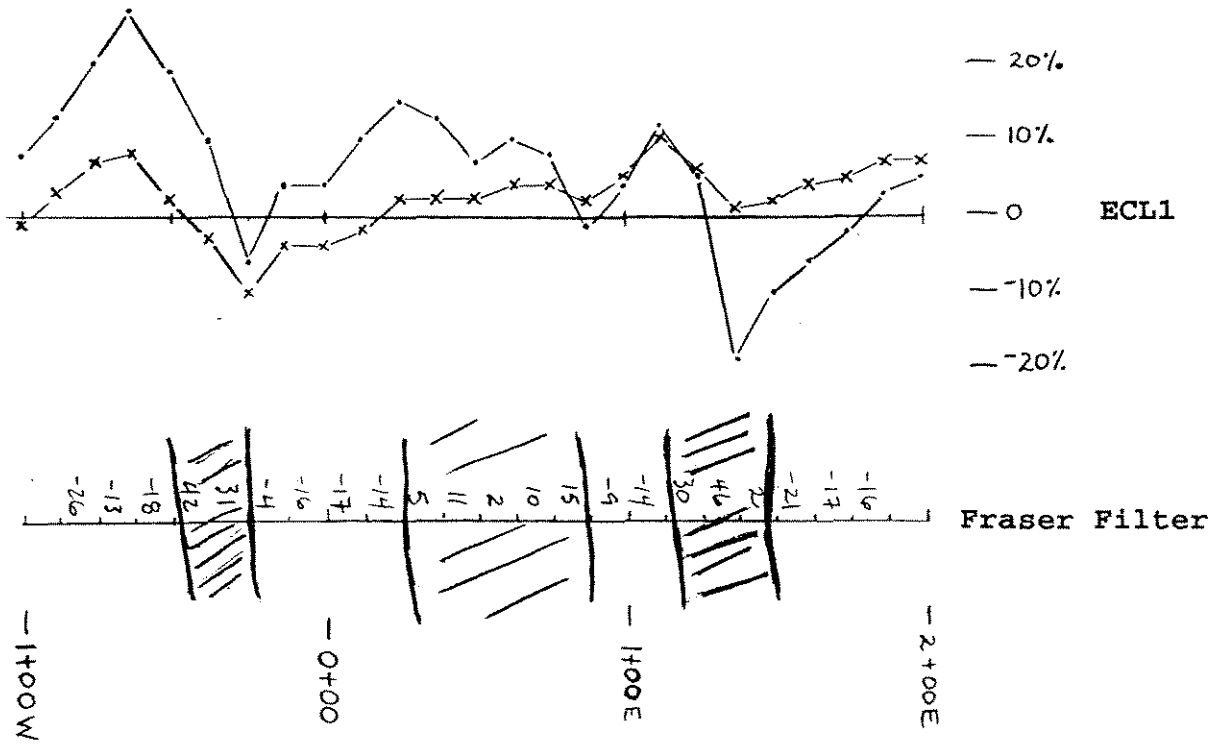
VLF-EM SURVEY RESULTS

The VLF-EM survey lines were conducted across the left fork of Eureka Creek just above the junction with the right fork and below the fork (figure 4). Line ECL1 across the left fork picked up two relatively strong conductors (figure 5). Two other lines, ECL2 and ECL3 (figure 6), were surveyed to the north of the fork, but no significant conductors were discovered.

TRENCHING RESULTS

Three targets at the north end of the property were tested by trenching in late September. A 225 Caterpillar Hoe was hired from Klondike Transport for the trenching program.

The first target was at the mouth of the creek south of Richard Allen's camp on the left fork of Eureka Creek. Structural interpretation of the property indicated a possible fault structure associated with the creek. The placer gold cleanups downstream from the mouth of this creek were very rich, in the order of >10,000 ounces; above the mouth of the creek the gold dropped off. Curiously, the side creek itself was never worked by the oldtimers, suggesting that it has little gold to offer (R. Allen, personal communications). Trench 95EC1 (figure 7) tested this zone and located extensive graphitic schist, blocky and broken quartzite and



conductor

• Inphase

X Quadrature

0 50 100

meters

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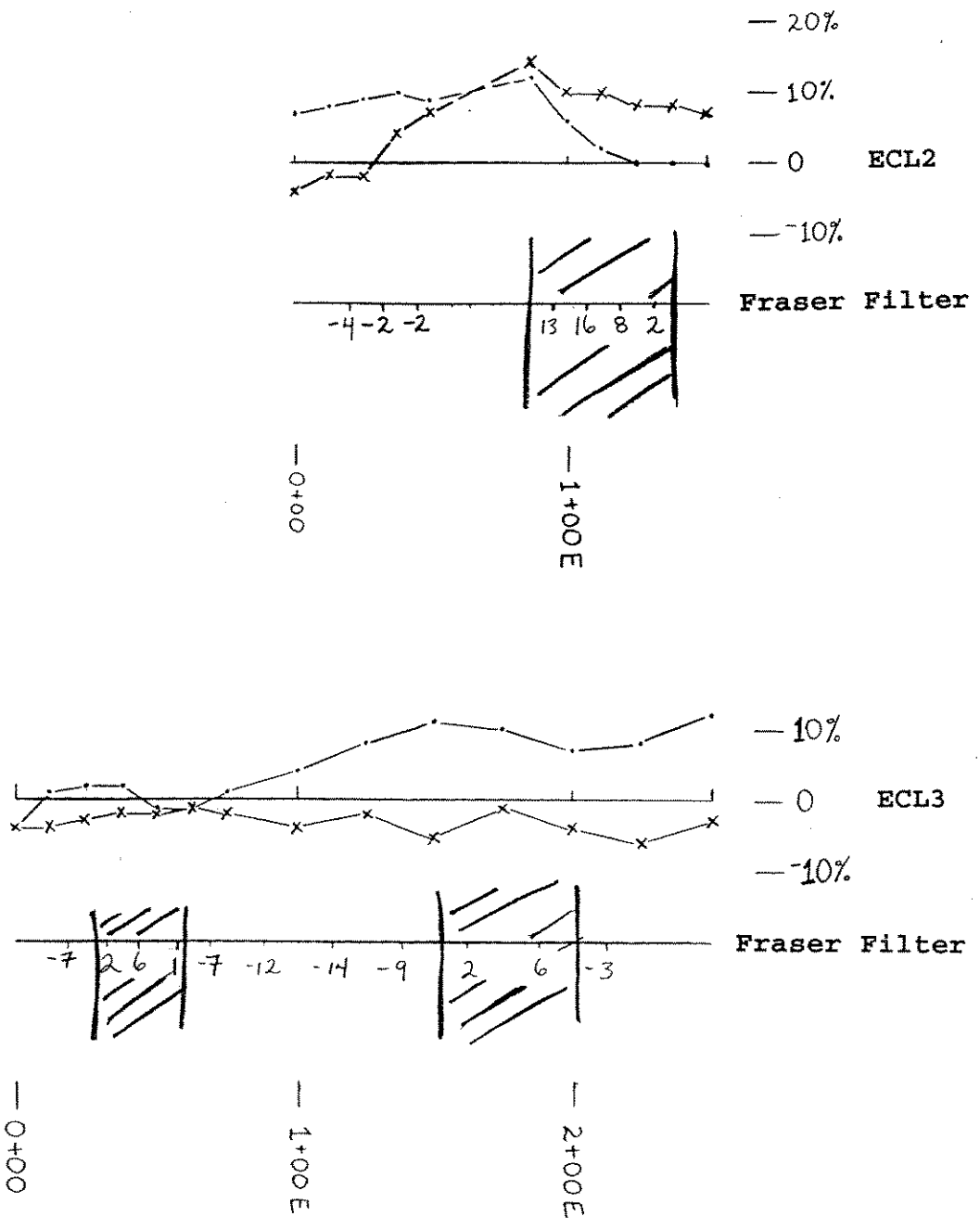
DAWSON M.D., YUKON NTS 115-O-10

LINE ECL1
VLF-EM PROFILE AND FRASER FILTER RESULTS

SCALE 1 : 2,500

DATE: NOV/95
BY: P.S. FIGURE 5



conductor

- Inphase
x Quadrature

0 50 100
meters

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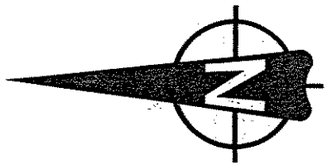
EUREKA CREEK PROPERTY
DAWSON M.D., YUKON NTS 115-O-10

LINES ECL2 AND ECL3
VLF-EM PROFILES AND FRASER FILTER RESULTS

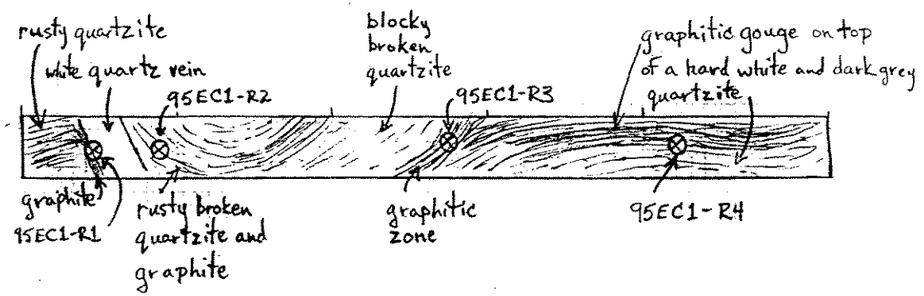
SCALE 1 : 2,500

DATE: NOV/95
BY: P.S.

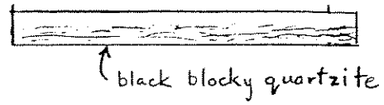
FIGURE 6



East Sidewall of Trench 95EC1

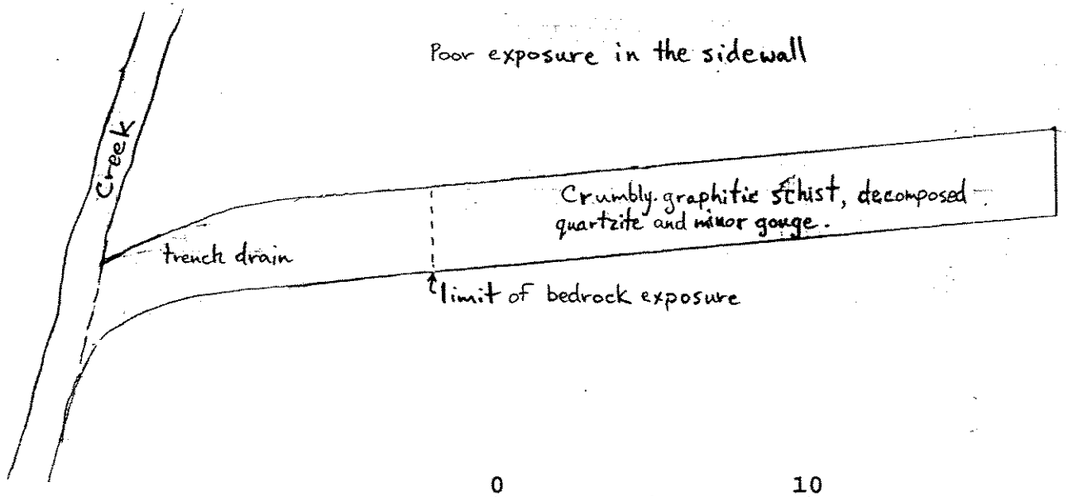


South Extension

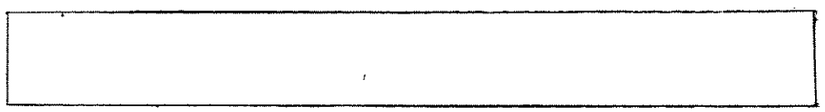


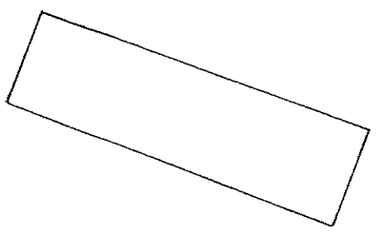
North Extension

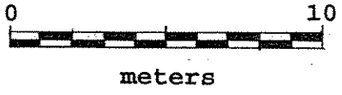
Poor exposure in the sidewall



Plan Dimensions of Trench 95EC1







PACIFIC MARINER EXPLORATION LTD. WEALTH RESOURCES LTD.
EUREKA CREEK PROPERTY DAWSON M.D., YUKON NTS 115-O-10
GEOLOGY, TRENCH 95EC1
SCALE 1 : 200
DATE: NOV/95 BY: P.S. FIGURE 7

a 1 meter wide quartz vein. A broad fold in the blocky quartzite and the extensive crumbly graphitic schist indicate fault movement has likely taken place. Test pits 95EC1A and 95EC1B, located 5 and 20 meters respectively north of the creek, also encountered graphitic schist.

Trench 95EC2 and a test pit were dug to test the conductors on VLF-EM line ECL1 (figure 4). Sericitic quartzite was encountered beneath very wet placer tailings. The water-logged placer tailings are believed to be the source of the conductors. Two samples, 95EC2-R1 and R2, were taken from the bottom of the pit.

Trench 95EC3 tested a creek gully on the hill to the northwest of the fork in Eureka Creek (figure 4). The creek gully lined up with the bend in the left fork of Eureka Creek and was considered a possible fault structure. A minor fault gouge 10-15 centimeters wide was exposed in the bottom of the trench. Sample 95EC3-R1 was taken from the gouge.

None of the samples taken returned any significant values of gold.

CONCLUSIONS AND RECOMMENDATIONS

The Eureka Creek area has produced a very significant amount of placer gold in the past and present. The potential to host significant gold in bedrock is still considered good despite discouraging results.

The 1995 program investigated the area near the forks of Eureka Creek to test for fault-controlled mineralization. The topographic features suggested several faults intersected beneath an area of very rich placer ground. Trench 95EC1 exposed a major graphitic fault shear, but it lacked mineralization. The placer gold would be easily trapped in the soft graphitic zone and may not be at all related to the fault itself.

Future work should focus on the Crescent and associated gold anomalies in the south central part of the property. Although the surface mineralization in trenches is weak, it is consistent and directly associated with the soil anomalies, which remain mostly untested.

BIBLIOGRAPHY

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Mortensen, J.K., 1990. Geology and U-Pb geochronology of the Klondike district, west-central Yukon Territory; Canadian Journal of Earth Sciences, Vol. 27, p. 903-914.

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APPENDIX I

STATEMENT OF EXPENDITURES

STATEMENT OF EXPENDITURES

SALARIES	
P. Southam - 3 mandays @ $180/day	540
Report Preparation - P. Southam - 2 mandays @ $180/day	360
TRENCHING	
7 hrs @ $140/hr	980
Mob/demob + GST	670
GEOCHEMICAL ANALYSIS	
3 rock samples @ $15.78/sample	79
7 rock samples @ $16.85/sample	118
LOGISTICAL COSTS	
Food and lodging - 3 mandays @ $35/day	105
Sample shipping	30
Vehicle fuel and maintenance	120
FILING FEE	165
SUBTOTAL	3167
Administration Fee (15%)	475
GST on Administration (#129350518)	33
TOTAL	**$3675**

APPENDIX II

STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

I, Philip James Southam of 103 - 6615 Telford Avenue, Burnaby, British Columbia, do hereby certify:

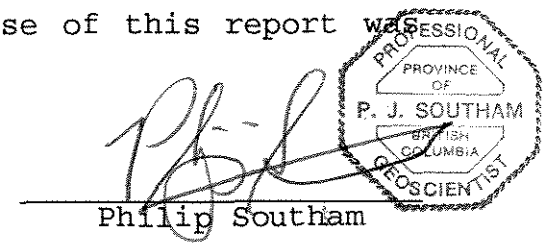
1. I am a geologist registered with the Association of Professional Engineers and Geoscientists of British Columbia.

2. I graduated from Brandon University in 1987 with a Bachelor of Science degree majoring in geology.

3. I have practised my profession continuously since graduation in British Columbia, Manitoba, Yukon Territory and California in the field of mineral exploration.

4. I am employed by Hastings Management Corp. to provide geological services for Pacific Mariner Exploration Ltd. and Wealth Resources Ltd.

5. All work completed for the purpose of this report was done under my supervision.



Philip Southam

APPENDIX III

EM 16 SPECIFICATIONS, OPERATION AND FRASER FILTER

EM16 SPECIFICATIONS

MEASURED QUANTITY	In-phase and quad-phase components of vertical magnetic field as a percentage of horizontal primary field. (i.e. tangent of the tilt angle and ellipticity).
SENSITIVITY	In-phase :±150% Quad-phase :± 40%
RESOLUTION	±1%
OUTPUT	Nulling by audio tone. In-phase indication from mechanical inclinometer and quad-phase from a graduated dial.
OPERATING FREQUENCY	15-25 kHz VLF Radio Band. Station selection done by means of plug-in units.
OPERATOR CONTROLS	On/Off switch, battery test push button, station selector switch, audio volume control, quadrature dial, inclinometer.
POWER SUPPLY	6 disposable 'AA' cells.
DIMENSIONS	42 x 14 x 9cm
WEIGHT	Instrument: 1.6 kg Shipping : 4.5 kg

PRINCIPLES OF OPERATION

The VLF-transmitting stations operating for communications with submarines have a vertical antenna. The Antenna current is thus vertical, creating a concentric horizontal magnetic field around them. When these magnetic fields meet conductive bodies in the ground, there will be secondary fields radiating from these bodies. (See Figures 3 & 4). This equipment measures the vertical components of these secondary fields.

The EM16 is simply a sensitive receiver covering the frequency band of the VLF-transmitting stations with means of measuring the vertical field components.

The receiver has two inputs, with two receiving coils built into the instrument. One coil has normally vertical axis and the other is horizontal.

The signal from one of the coils (vertical axis) is first minimized by tilting the instrument. The tilt-angle is calibrated in percentage. The remaining signal in this coil is finally balanced out by a measured percentage of a signal from the other coil, after being shifted by 90^{o}. This coil is normally parallel to the primary field,(See instrument Block Diagram - Figure 2).

Thus, if the secondary signals are small compared to the primary horizontal field, the mechanical tilt-angle is an accurate measure of the vertical real-component, and the compensation ¶/2-signal from the horizontal coil is a measure of the quadrature vertical signal.

GEONICS LIMITED

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

CONTOURING OF VLF-EM DATA

By

D. C. Fraser

Reprinted From
GEOPHYSICS
Vol. XXXIV, No. 6, December 1969

GEOPHYSICS, VOL. 34, NO. 6 (DECEMBER 1969), P. 958-967, 6 FIGS., 1 TABLE

CONTOURING OF VLF-EM DATA†

D. C. FRASER*

Prospecting for conductive deposits with ground VLF-EM instruments has received considerable impetus with the recent development of lightweight receivers. The large geologic noise component, which results from the relatively high-transmitted frequency, has caused some critics to avoid use of the technique. Those who routinely perform surveys with a VLF-EM unit find that, in some areas, a 5-degree peak-to-peak anomaly can be significant, whereas anomalies having amplitudes in excess of 100 degrees may occur as well. Consequently, there is a dynamic range problem when presenting the results as profiles plotted on a field map.

A data manipulation procedure is described which transforms noisy noncontourable data into less noisy contourable data, thereby eliminating the dynamic range problem and reducing the noise problem. The manipulation is the result of the application of a difference operator to transform zero-crossings into peaks, and a low-pass smoothing operator to reduce noise. Experience has shown that field personnel can routinely perform the calculations which simply involve additions and subtractions.

INTRODUCTION

VLF-EM data can be exceedingly difficult to interpret because a large geologic noise component can result from the relatively high-transmitted frequency of about 20,000 Hz. Routine surveys can yield useless data unless special care is taken both in survey procedure and in data presentation.

The purpose of this paper is to describe the survey procedure and the method of data presentation in use by the Keevil Mining Group and to illustrate the advantages of this approach.

VLF-EM GROUND SURVEY PROCEDURE AND DATA TREATMENT

The primary field

VLF-EM transmitter stations are located at several points around the globe. They broadcast at frequencies close to 20,000 Hz, which is low compared to the normal broadcast band. The purpose of these stations is to allow governmental communication with submarines, and the low frequency allows some penetration of the conductive ocean water. Skin depth is approximately $3.6\sqrt{P}$ meters, where P is the resistivity of a homogeneous halfspace in ohm-m, on the assumption that the frequency is 20,000 Hz and that the halfspace is magnetically nonpolarizable. Consequently, depth of exploration is severely restricted for overburden resistivities less than 200 ohm-m.

Since the area to be prospected normally is of considerable distance from the transmitter stations, the primary field is uniform in the area, allowing rather simple mathematics to be used in anomaly prediction and analysis.

Survey procedure and data treatment

The survey procedure first consists of selecting a transmitter station which provides a field approximately parallel to the traverse direction, i.e., approximately perpendicular to the expected strike of a conductor. The following points relate to the method of data treatment.

1. Readings should be taken every 50 ft, as will be shown below.
2. Transmitter stations should not be changed

† Manuscript received by the Editor April 24, 1969; revised manuscript received August 18, 1969.

* Keevil Mining Group Limited, Geophysical Engineering & Surveys Limited, Teck Corporation Limited, Toronto, Ontario, Canada.

for a given block of ground, to avoid distortion in the contour presentation. Hence, fill-in lines should be run with the same transmitter station as other lines in the block. The field direction of this station should be shown on the data map.

3. List the dip angle[1] data in tabular form, as follows:
   a) list in the direction of north (top of paper) to south, or from west to east;
   b) designate south or east dips as negative; and
   c) perform calculations as shown in Table 1.

   Thus, the filtered output or contourable quantity simply consists of the sum of the observations at two consecutive data stations subtracted from the sum at the next two consecutive data stations. The theoretical basis for this procedure will be described below.
4. The right-hand column (filtered data) is suitable for contouring. Normally, negative values are not contoured since, being caused by dip angle flanks, they do not aid interpretation but only confuse the picture. The positive values generally are contoured at 10-unit intervals, and the zero contour is shown only when it brackets an anomaly. In quiet areas, 5-unit contours may be meaningful.

[1] This paper assumes that data is recorded as for the Crone Radem which defines a north-dipping field as a south "dip" on the instrument. This convention was chosen because a south reading is interpreted as arising from a conductor to the south.

Example

Figure 1 presents dip-angle data, according to the Crone convention, in the vicinity of the Temagami mine of Copperfields Mining Corporation Limited in Ontario. This figure illustrates that several conductors are present yielding large dip angles. A complex pattern has resulted which requires some thought to interpret properly.

Figure 2 presents the filtered data in contoured form where only the 0, 20, and 40 contours are shown for simplicity. The conductor pattern is immediately apparent, even to exploration personnel untrained in VLF-EM interpretation. The three anomalies correlate with a zone of nearly massive pyrite and two brecciated fault zones. Depth to bedrock is 15 ft.

In practice, all the data of Figures 1 and 2 are

Table 1. Example of calculations

Location	Measured dips	Apply sign and form the moving sum of pairs of entries	Take first differences of alternate entries
3+00S	6S	−6	
3+50S	7S	−7 → (−6)+(−7)=	−13
4+00S	8S	−8 → (−7)+(−8)=	−15 → (−23)−(−13)= −10
4+50S	15S	−15	−23 → (−39)−(−15)= −24
			−39 + 7
5+00S	24S	−24	−16 +57
5+50S	8N	+ 8	+18 +38
6+00S	10N	+10	+22 + 8
6+50S	12N	+12	+26 + 6
7+00S	14N	+14	+28 → (+34)−(+26)= + 8
7+50S	14N	+14 → (14)+(20)=	+34
8+00S	20N	+20	

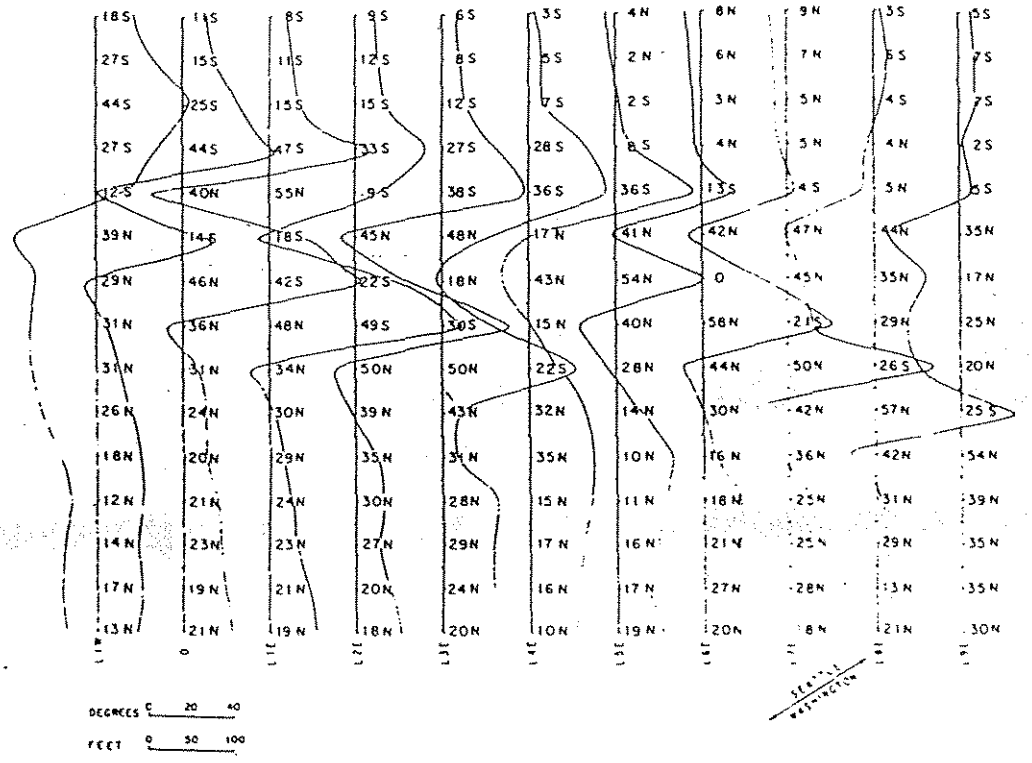


FIG. 1. Dip-angle data in the vicinity of the Temagami mine. The arrow defines the VLF-EM primary field direction from the transmitter at Seattle, Washington.

placed on a single map. The above example illustrates that this very simple one-dimensional filtering scheme yields a practical and effective approach to VLF-EM data handling.

The filter improves the resolution of anomalies, thereby making them easier to recognize. An inflection on the dip profile from a conductor subordinate to a larger one yields a positive peak, thereby emphasizing the presence of such a conductor. Figure 3 illustrates this effect where nine lines were run over an SP (self-potential) anomaly in the Temagami area. The dip-angle anomaly is very poorly resolved due to the regional south dips produced by an areally large conductor to the south of the map area. The contoured VLF-EM data yields a clearly defined anomaly which was located over the negative center of the SP.

THE FILTER AND ITS EFFECT ON ANOMALIES

The filter operator

The filter operator was designed to meet the following criteria:

1. It must phase shift the dip-angle data by 90 degrees so that crossovers and inflections will be transformed into peaks to yield contourable quantities.
2. It must completely remove dc and attenuate long spatial wavelengths to increase resolution of local anomalies.
3. It must not exaggerate the station-to-station random noise.
4. It must be simple to apply so that field personnel can make the calculations without difficulty.

The first two criteria are met by using a simple difference operator, i.e.

$$M_2 - M_1,$$

where M_1 and M_2 are any two consecutive data points.

The third criterion is met by applying a smoothing or low-pass operator to the differences, i.e.

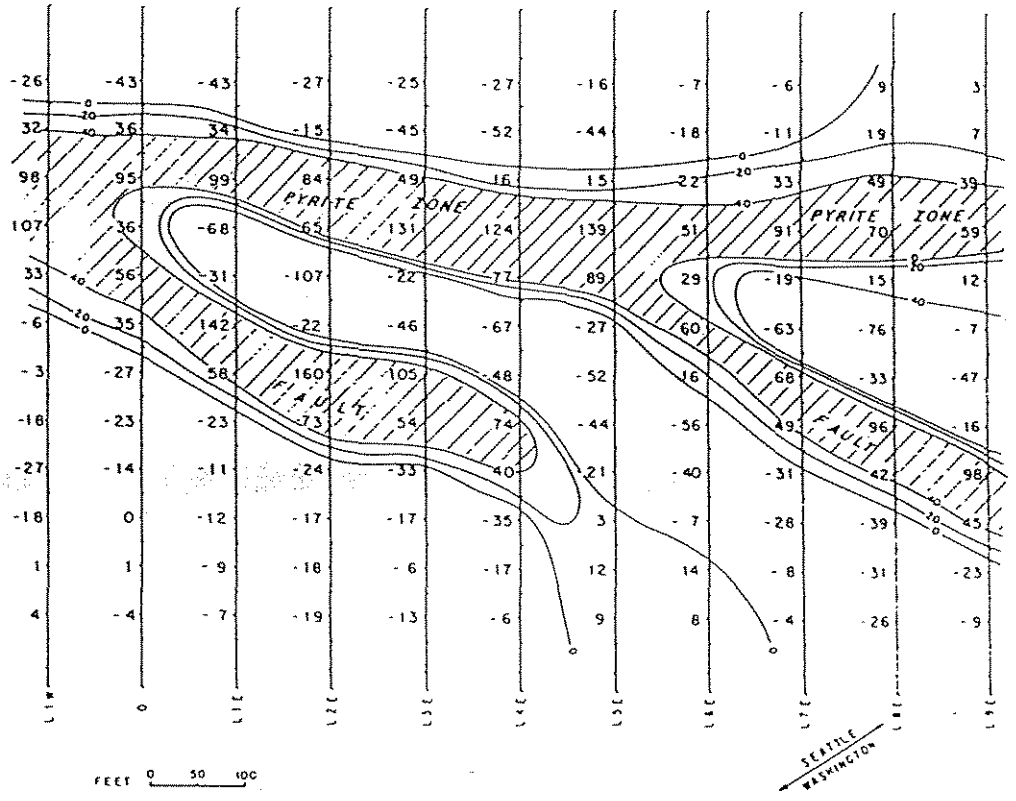


FIG. 2. Filtered data computed from the map of Figure 1.

$\frac{1}{4}(M_2 - M_1) + \frac{1}{2}(M_3 - M_2) + \frac{1}{4}(M_4 - M_3)$,

where M_1, M_2, M_3, and M_4 are any four consecutive data points. The filtered output then is

$$\tfrac{1}{4}(M_2 - M_1) + \tfrac{1}{2}(M_3 - M_2) + \tfrac{1}{4}(M_4 - M_3) = \tfrac{1}{4}[M_3 + M_4 - M_1 - M_2].$$

The final criterion is enhanced by eliminating the constant, so that the plotted function becomes

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

which is plotted midway between the M_2 and M_3 dip-angle stations.

This filter has its frequency (wavenumber) response displayed in Figure 4, for a station spacing of 50 ft. Its characteristics are as follows:

1. All frequencies are shifted by 90 degrees.
2. Noise having a wavelength equal to the station spacing and dc bias are completely removed.
3. Maximum amplitude occurs for wavelengths of 250 ft, or five times the station spacing.

The frequency (wavenumber) response of the filter is shown for a station spacing of 50 ft, because this is the most suitable spacing for defining sulfide bodies within a few hundred feet of surface. This will be demonstrated below

APPENDIX IV

ROCK SAMPLE DESCRIPTIONS

ROCK SAMPLE DESCRIPTONS

PROSPECTING

EC-R1 - Eureka Creek sample from Richard Allen's cut; rusty altered bedrock in broken-up fold below his trommel.

EC-R2 - Eureka Creek; sample of local bedrock lying on pile beside Richard Allen's trommel. Purplish pyritic rock, quartzite

EC-R3 TO R5 - Samples taken from the bench south of Bill Hakonson's camp. Samples EC-R3 and R4 taken of quartzite-ferricrete breccia material and EC-R5 was from gouge.

TRENCHING

95EC1-R1 Graphitic schist next to quartz vein in trench 95EC1 at the mouth of creek behind Richard Allen's camp

95EC1-R2 Rusty broken quartzite and loose crumbly graphitic schist. Trench 95EC1.

95EC1-R3 Blocky black graphitic quartzite. Trench 95EC1.

95EC1-R4 From a very hard reef of white and dark grey quartz, no visible sulphides. Trench 95EC1.

95EC2-R1 Dark grey sericitic quartzite covered in rusty light brown mud (shear material?). Trench 95EC2.

95EC2-R2 Rusty and blocky quartz-muscovite schist. Trench 95EC2.

95EC3-R1 Sandy light brown 10-15 cm wide fault gouge zone in blocky quartzite/sericite schist. Trench 95EC3.

APPENDIX V

ASSAYS

Bondar Clegg
Inchcape Testing Services

Geochemical
Lab
Report

REPORT: V95-00969.0 (COMPLETE)

REFERENCE:

CLIENT: HASTINGS MANAGEMENT CORP.

SUBMITTED BY: UNKNOWN

PROJECT: NONE GIVEN

DATE PRINTED: 21-AUG-95

ORDER	ELEMENT	NUMBER OF ANALYSES	LOWER DETECTION LIMIT	EXTRACTION	METHOD
1	Au30 Gold	28	5 PPB	Fire Assay of 30g	30g Fire Assay - AA

SAMPLE TYPES	NUMBER	SIZE FRACTIONS	NUMBER	SAMPLE PREPARATIONS	NUMBER
R ROCK	28	2 -150	28	CRUSH/SPLIT & PULV.	28

REPORT COPIES TO: MR. PHILIP SOUTHAN

INVOICE TO: MR. PHILIP SOUTHAN

Bondar-Clegg & Company Ltd.
130 Pemberton Avenue, North Vancouver, B.C., V7P 2R5, Canada
Tel: (604) 985-0681, Fax: (604) 985-1071

Bondar Clegg
Inchcape Testing Services

Geochemical Lab Report

CLIENT: HASTINGS MANAGEMENT CORP.
REPORT: V95-00969.0 (COMPLETE)

PROJECT: NONE GIVEN
DATE PRINTED: 21-AUG-95 PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	Au30 PPB
R2 EC-R1		<5
R2 EC-R2		<5
R2 EC-R3		6
R2 EC-R4		<5
R2 EC-R5		<5

Bondar-Clegg & Company Ltd.
130 Pemberton Avenue, North Vancouver, B.C., V7P 2R5, Canada
Tel: (604) 985-0681, Fax: (604) 985-1071

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers
212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221

HASTINGS MANAGEMENT CORP.

1000 - 675 W. HASTINGS
VANCOUVER, BC
V6B 1N6

INVOICE NUMBER I9530583

BILLING INFORMATION

Date: 16-OCT-95
Project: BUCKLAND
P.O. No.:
Account: JCL

Comments:

Billing: For analysis performed on
Certificate A9530583

Terms: Payment due on receipt of invoice
1.25% per month (15% per annum)
charged on overdue accounts

Please Remit Payments to:

CHEMEX LABS LTD.
212 Brooksbank Ave.,
North Vancouver, B.C.
Canada V7J 2C1

# OF SAMPLES	ANALYSED FOR CODE - DESCRIPTION	UNIT PRICE	SAMPLE PRICE	AMOUNT
80	208 - Assay ring to approx 150 mesh	2.50		
	274 - 4-7 Kg crush and split	3.50		
	3204 - Save 1 Kg reject for 90 days	0.00		
	398 - Au oz/T	9.75	15.75	1260.00

Total Cost $	1260.00
(Reg# R100938885) GST $	88.20
TOTAL PAYABLE (CDN) $	**1348.20**

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

HASTINGS MANAGEMENT CORP.

1000 - 675 W. HASTINGS
VANCOUVER, BC
V6B 1N6

A9530583

Comments: ATTN: R. SOUTHAM

CERTIFICATE A9530583

(JCL) - HASTINGS MANAGEMENT CORP.

Project: BUCKLAND
P.O. # :

Samples submitted to our lab in Vancouver, BC.
This report was printed on 16-OCT-95.

SAMPLE PREPARATION

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION
208	80	Assay ring to approx 150 mesh
274	80	4-7 Kg crush and split
3204	80	Save 1 Kg reject for 90 days

ANALYTICAL PROCEDURES

CHEMEX CODE	NUMBER SAMPLES	DESCRIPTION	METHOD	DETECTION LIMIT	UPPER LIMIT
398	80	Au oz/T: 1/2 assay ton	FA-AAS	0.002	5.000

Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers

212 Brooksbank Ave., North Vancouver
British Columbia, Canada V7J 2C1
PHONE: 604-984-0221 FAX: 604-984-0218

[redacted] HASTINGS MANAGEMENT CORP. ##

1000 - 675 W. HASTINGS
VANCOUVER, BC
V6B 1N6

Project : BUCKLAND
Comments: ATTN: R. SOUTHAM

Page N[redacted]r :1
Total Pa[redacted] :2
Certificate Date: 16-OCT-95
Invoice No. : I9530583
P.O. Number :
Account : JCL

CERTIFICATE OF ANALYSIS A9530583

SAMPLE	PREP CODE	Au oz/T
95EC2 R1	208 274	< 0.002
95EC2 R2	208 274	< 0.002
95EC3 R1	208 274	< 0.002
95EC1 R1	208 274	< 0.002
95EC1 R2	208 274	< 0.002
95EC1 R3	208 274	< 0.002
95EC1 R4	208 274	< 0.002

CERTIFICATION: [signature]

MAP NO: 1150/10

ASSESSMENT REPORT: X

PROSPECTUS:

CONFIDENTIAL: X

OPEN FILE:

DOCUMENT NO: 093348

MINING DISTRICT: Dawson

TYPE OF WORK: Trenching, prospecting

REPORT FILED UNDER: Pacific Mariner Exploration and Wealth Resources

DATE PERFORMED: July 29 to September 30, 1995

DATE FILED: November 29, 1995

LATITUDE: 63 30

AREA: Eureka Creek

LONGITUDE: 138 54

VALUE: $3500

CLAIM NAME AND #: Clara, Clara B

WORK DONE BY: Philip Southam

WORK DONE FOR: Pacific Mariner Exploration and Wealth Resources

Claims in Good Standing	

Remarks: Trenching was conducted near the mouth of Eureka Creek. Several linears had been interpreted in this area but although faults were exposed by trenching no significant mineralization was encountered.

MAP NO: 1150/10

ASSESSMENT REPORT: X

DOCUMENT NO: 093348

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MINING DISTRICT: Dawson

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