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PROSPECTING, GEOCHEMICAL AND ELECTROMAGNETIC SURVEYS ON THE ALEXANDRIA PROPERTY

Located C1aims:


Owners:

Bernard H. Fitch 304-420 7th. Street New Westminster, B.C. V3M 3L1

Christopher I. Dyakowski
3750 West 49 th. Avenue
Vancouver, B.C.
V6N 3T8

Location:

> Vancouver Mining Division N.T.S. $92 \mathrm{~K} / 6^{\prime} 92 \mathrm{~K} / 11^{\prime \prime} \mathrm{W}$. $50^{\circ} 29^{\prime} \cdot 22^{\prime \prime} \mathrm{N} .125^{\circ} 25^{\prime \prime} \mathrm{W}$. U.T.M. $5595200 \mathrm{~N} ., 331250 \mathrm{E}$.

Optionee:
NORWOOD RESOURCES LIMITED
1104-750 West Pender Street Vancouver, British Columbia V6C 2T8




## CONTENTS

SUMMARY ..... iii
1.0 INTRODUCTION ..... 1
1.1 Terms of Reference ..... 1
1.2 Location and Access ..... 1
1.3 Terrain and Vegetation ..... 3
1.4 Property ..... 6
1.5 Summary of Present Work ..... 7
1.6 Claims Worked On. ..... 8
2.0 GEOLOGY AND GEOPHYSICS ..... 9
2.1 Regional Geology and Mineralization ..... 9
2.2 Regional Geophysics ..... 13
3.0 EXPLORATION AND DEVELOPMENT OF THE ALEXANDRIA PROPRTY-AREA ..... 14
3.1 Early Exploration and Development of the Alexandria mine: 1893 to 1940 ..... 14
3.2 Early Exploration and Development of the Enid-Juife and Empress Properties: 1890 to 1940 ..... 24
3.3 Recent Exploration and Development of the Alexandria Porperty-area: 1976 to 1996 ..... 28
4.01996 EXPLORATION PROGRAM ON THE ALEXANDRIA PROPERTY ..... 53
4.1 Design of the 1996 Exploration Program on the Alexandrai Property ..... 53
4.2 Results of the 1996 Exploration on the Alexandria Property ..... 61
5.0 CONCLUSIONS AND RECOMMENDATIONS ..... 66
5.1 Conclusions ..... 66
5.2 Recommendations ..... 70
6.0 ITEMIZED COST OF THE 1996 EXPLORATION PROGRAM ..... 73
7.0 REFERENCES ..... 74

## FIGURES

1. General Location ..... 2
2. Location and Terrain ..... 4
3. Gelogy and Workings of the Phillips Arm Camp ..... 10
4. Table of Geological Events and Lithological Units in the Phillips Arm Area ..... 11
5. Alexandria No. 1 Adit and Sub-levels as of 1940 ..... 15-16
6. Alexandria Mine: NW-SE Section as of 1940. ..... 18
7. Alexandria No.2-5 Adits as of 1940 ..... 19-20
8. 1897-1925 Crown Grants
31-32
9. 1976-1996 Soil Surveys ..... 31-32
10. Alexandria Workings: 1983-5 Underground Drilling
37-38
11. 1982 Inferred Resource Calculations
44
12. Property Geology
46
46
13. Alexandria Workings: Soil and EM Surveys
14. Alexandria Workings: Soil and EM Surveys
49-50
49-50
15. Enid Adit: 1986 Drilling
16. Enid Adit: 1986 Drilling
55-56
55-56
17. 1996 Dy Soil Survey and Geology.
18. 1996 Dy Soil Survey and Geology.
57-58
57-58
19. 1996 Dy Survey: VLF Dip Angle Profiles
20. 1996 Dy Survey: VLF Dip Angle Profiles
59-60
59-60
21. 1996 Dy Survey: VLF Dip Angle Contours
22. 1996 Dy Survey: VLF Dip Angle Contours

- 62
- 62

19. 1996 Ben Soil Survey: Silver and Gold in Soils ..... 63-64

## APPENDICES

A. 1996 Soil Analyses: Methods and Results. . . . . . After text
B. Certificate of Qualification . . . . . . . . . After text

# PROSPECTING, GEOCHEMICAL AND ELECTROMAGNETIC SURVEYS ON THE ALEXANDRIA PROPERTY 

## SUMMARY

The writer was retained by Bernard H. Fitch on behalf of Norwood Resources Limited of Vancouver, British Columbia through Cassiar East Yukon Expediting Ltd. to conduct an examination of the Alexandria Property.

The Alexandria Property is located on the steep slopes of the Pembroke Range above the western shore of the mouth of Phillips Arm. It is at the boundary of the Pacific Ranges of the Coast Mountains of southwestern British Columbia. The property comprises five located claims. These claims cover 24 claim-units; about 537.5 ha ( 1290 A) after deducting areas of overlapping claims. This property adjoins the Doratha Morton gold mine property to the southeast.

The Alexandria workings, the most extensive workings in the claimarea, are located in the southeastern part of the property, at $50^{\circ} 29^{\prime} 22^{\prime \prime}$ north and $125^{\circ} 22^{\prime} 45^{\prime \prime}$ west in the Vancouver Mining Division of B.C.

The Alexandria property is about 60 km ( 36.6 mi ) north-northwest of Campbell River, B.C. and is accessible by boat and float plane.

Access to the south-central part of the property is by a series of logging roads that terminate at tide water at Picton Point, about 3 km ( 1.8 mi ) southwest of the Alexandria workings. A1l major access routes to the property area were brushed out during the 1996 exploration program.

There are no significant creeks on the property. However, adequate fresh water for mining purposes could be obtained from the creek that flows into Cordero Channel southwest of Picton Point south of the claims.

Elevations on the property range from sea level to 993.6 m ( 3260 ft ). The southwestern part of the claims is covered by second growth forest. The extremely steep slopes on the northeastern part of the claims has not been logged very far up from the shore. There is sufficient available timber on the Alexandria property to support a mining operation.

Soil development on the Alexandria property is extremely variable.

However, on most slopes soil profiles are sufficiently mature to have distinct undisturbed horizons amenable to meaningful soil survey results. Even in poorly developed soils on very steep slopes, dispersion trains of gold particles can be used to locate gold-bearing lodes.

The property is owned by Bernard H. Fitch and Christopher I. Dyakowski. Norwood Resources Limited holds an option to acquire $100 \%$ interest in the property subject to a defined $2 \%$ net return royalty to Dyakowski and Fitch.

The writer personally inspected most of the posts and lines of the claims comprising the Alexandria property on October 22 to 24 , 1996. In his opinion, they have been staked in accordance with the laws and regulations of the Province of British Columbia.

The Alexandria property is located on a roof pendant of metavolcanic and metasedimentray rocks within the Coast Range plutonic complex. The roof pendant hosts a series of sub-paralle1, en echelon gold-bearing structures that attain lengths of over 500 m ( 1640 ft ).

Gold occurs with sparsely disseminated pyrite and traces of other sulphides in ribboned quartz veins and dilatant pods within these structures. Gold concentration in these quartz bodies can exceed 5.0 $\mathrm{oz} /$ ton ( $165.6 \mathrm{gm} / \mathrm{mt}$ ) and commonly is in excess of $0.3 \mathrm{oz} / \mathrm{ton}(10 \mathrm{gm} / \mathrm{mt})$ across widths in excess of $1 \mathrm{~m}(3.28 \mathrm{ft})$. Composite widths of several adjacent quartz bodies can exceed 10 m ( 32.8 ft ).

The property covers some of the central and most intensely mineralized part of the Phillips Arm gold camp which extends for $6 \mathrm{~km}(3.7$ mi) from the northern shore of the entrance to Phillips Arm, up the mountain toward Loughborough Inlet. 01d gold prospects and mines presently within the Alexandria property are: the Alexandria, Enid-Julie, Empress and All Up. Northwest of the Enid-Julie and Empress is the Doratha Morton mine and the Champion-Commonwealth prospect which are presently covered by other claims.

Production from the Doratha Morton mine from 1898 to 1899 was $4,434.08$ ounces of gold and 10,222 ounces silver from 9,707 tons of ore.

The Alexandria mine produced 773.66 ounces of gold and about $1,340.5$ ounces of silver from 1,915 tons of ore from 1898 until 1940.

Neither of these former producers is worked out.
Major gold-bearing structures have been found in two areas on the property; at the Alexandria mine, located in the southeastern part of the property, and along a trend that extends from the Enid-Julie workings northwestward to the northern property boundary near the Doratha Morton mine.

The Alexandria mine comprises five workings which are summarized as follow:

Underground Advance: Alexandria

| Heading | Elevation | Drift | X-Cut | Raise | Shaft | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| No. 1 adit | 1 m | 176 m | 122 m | 4 m | 98 m | 400 m |
| Sublevels: |  |  |  |  |  |  |
| 050 leve1 | -15 m |  | 4 m |  |  | 4 m |
| 100 level | -30 m | 154 m | 64 m |  |  | 218 m |
| 200 level | -60 m | 66 m | 69 m |  |  | 135 m |
| 250 level | -75 m |  | 2 m |  |  | 2 m |
| No. 2 adit | 17 m | 230 m | 193 m |  |  | 423 m |
| No. 3 adit | 92 m | 18 m | 13 m |  |  | 31 m |
| No. 4 adit | 131 m | 11 m | 38 m |  |  | 49 m |
| No. 5 adit | 74 m | 72 m | 65 m |  |  | 137 m |
| Total advance in the Alexandria area |  |  |  |  |  | 1,399 m |

The No. 1 adit and the 050 to 250 sub-levels were driven on the main Alexandria vein from which all of the past production has come. The No. 2 adit was located $15 \mathrm{~m}(50 \mathrm{ft})$ above the No. 1 adit and just off the main vein for use as a haulage way. No. 3 to 5 adits were driven into other structures that ran parallel with the main vein.

The main Alexandria vein is a composite structure comprised of up to six quartz units and having composite widths of up to 10 m ( 32.8 ft ). Mineralization occurs south of the Premier fault in white to grey vitreous quartz also containing elongate lenses and masses of pyrite aligned with the vein strike. Gold concentration is not to directly related to local
concentration of sulphides. North of the Premier fault, similar-looking quartz and pyrite in the vein contains no significant gold values.

The Premier fault seems to be a normal fault that has displaced rocks on its northerly hanging wall downward juxtaposing mineralized quartz in the southern part of the vein with a barren section to the north which originally may have been emplaced at a much higher level. Gold mineralization may occur at depth, north of the Premier fault; however, its existence there remains unproven. Consequently, the Premier fault is deemed to be the northern limit of economic mineralization on this vein structure.

Underground mapping and drilling during the early 1980s helped to confirmed a previously estimated inferred resource in the Alexandria mine between the No. 2 and 100 levels. After deduction of all material contained within the four blocks mined from 1931 to 1940 this inferred resource can be estimated to be $17,190.8$ tons containing $5,214.3$ ounces of gold.

The parameters of this estimate are unknown reducing it to qualitative value only.

No significant mineralization was found below the 100 level by underground mapping. However, drilling in that area revealed that the mineralized part of the structure was offset 5 to $10 \mathrm{~m}(16.4$ to 32.8 ft$)$ from the working at that level and continued to depth below the No. 1 working.

At present mineralization of the main Alexandria vein is open to depth and to the southeast along the structure.

The No. 3 to No. 5 Alexandria adits were driven on other seemingly less promising gold-bearing quartz bodies. However, as early as 1928, a large quartz vein had been traced for at least $304 \mathrm{~m}(1,000 \mathrm{ft})$ up the bluffs above the Alexandria mine.

An intense soil-gold anomaly in the No. 4 adit-area and old records indicate that a sub-parallel gold-bearing structure may be discovered north of the Alexandria workings above the No. 4 adit.

A gold-bearing trend between the Doratha Morton mine and the EnidJulie workings has been defined by prospecting and soil survey. This trend extends for at least $1800 \mathrm{~m}(5,904 \mathrm{ft})$. The major part of it being a length of $1,100 \mathrm{~m}(3,608 \mathrm{ft})$ is on the northern part of the Alexandria property.

Enid-Julie and Empress workings comprise a series of small shafts and adits as follow:

Underground Advance: Enid-Julie and Empress


No major vein structure was found within the lower Enid-Julie workings-area. This was probably because those workings were testing the feathered-out end of a gold-bearing quartz body that probably extends southeastward from the workings. A second, parallel structure seems to extend northward from the Julie and Empress shafts northwestward toward the Doratha Morton mine.

Norwood's 1996 soil survey on the Ben claims strongly indicates that significant gold mineralization is present in a structure that extends from the Doratha Morton mine, southeastward across the Alexandria property. A mineralized strike length of at least $400 \mathrm{~m}(1,312 \mathrm{ft})$ across the Alexandria property was indicated by the 1996 soil survey. An additional $500 \mathrm{~m}(1,640 \mathrm{ft})$ of this gold-bearing trend needs to be surveyed to determine whether this is the same structure found at the Empress and Julie shaft-area or another parallel structure.

The full extent of the mineral potential of the Alexandria property is yet unknown. Probably, further exploration on this property will result in more discoveries. A multi-phase program of exploration comprising: prospecting, geological and soil-geochemical surveys, trenching and drilling is recommended. The estimated costs of these phases of exploration are as follow:
Phase 1: soil survey and prospecting
\$107,000
Phase 2: machine trenching, sampling and mapping \$150,000 Phase 3: dri11ing

## PROSPECTING, GEOCHEMICAL AND ELECTROMAGNETIC SURVEYS ON THE ALEXANDRIA PROPERTY

### 1.0 INTRODUCTION

### 1.1 Terms of Reference

The writer was retained by Bernard H. Fitch on behalf of Norwood Resources Limited of Vancouver, British Columbia through Cassiar East Yukon Expediting Ltd. to conduct an examination of the Alexandria Property.

Field work on the Alexandria Property was conducted from September 10 until October 25, 1996. Data compilation continued intermittently until March 4, 1997. The work was conducted under work approval number NAN-96-0801071-123.

### 1.2 Location and Access

The Alexandria Property is located on the steep slopes of the Pembroke Range above the western shore of the mouth of Phillips Arm. The Phillips Arm area is at the western boundary of the Pacific Ranges of the Coast Mountains of south-western British Columbia (Figure 1). The property comprises five located claims which are owned $100 \%$ by Christopher Dyakowski and Bernard Fitch. These claims cover 24 claim-units; about 537.5 ha ( 1290 A ) after deducting areas of overlapping claims. This property adjoins the Doratha Morton gold mine property to the southeast.

The Alexandria workings, the most extensive workings in the claimarea, are located near the shore of Phillips Arn in the southeastern part of the property, at $50^{\circ} 29^{\prime} 22^{\prime \prime}$ north and $125^{\circ} 22^{\prime} 45^{\prime \prime}$ west in the Vancouver Mining Division of B.C. (Figure 2).

The town of Campbell River is the closest major supply and service centre to the Phillips Arm area. Campbell River is on the northeastern coast of Vancouver Island near the northern end of Strait of Georgia. It services local fishing and logging industries and most services required for property exploration and development can be found there. It is about


200 km ( 122 mi ) from Vancouver to Campbell River via the Nanaimo ferry and B.C. Highway 19.

The Alexandria property is about 60 km ( 36.6 mi ) north-northwest of Campbell River and is accessible by boat and float plane. The closest accomodation to the property-area is Cordero Lodge, located in the bay near Lorte Island in Cordero Channel about 8 km ( 4.9 mi ) southwest of the property-area. The lodge is open all year.

Access to the south-central part of the property is by a series of logging roads that terminate at tide water at Picton Point, about 3 km ( 1.8 mi ) southwest of the Alexandria workings (Figure 2).

A11 major access routes to the property area were brushed out during the 1996 exploration program.

### 1.3 Terrain and Vegetation

The Alexandria Property is located at the western boundary of the Pacific Ranges of the Coast Mountains of south-western British Columbia (Figure 2) (Holland, 1976).

Holland's description of the terrain of the Pacific Ranges containing the area around the Alexandria property is as follows:

The Pacific Ranges... comprise essentially granitic mountains extending southeastward from Burke Channel and Bella Coola River for about 300 miles to the Fraser River. The ranges have a width of 80 to 100 miles between their western boundary along the Coastal Trough and their eastern boundary with the Interior System. On the western side the summit levels diminish to the west with the downward slope of the late Tertiary erosion surface...

The Pacific Ranges contain the highest peaks in the Coast Mountains... There are a number of 10,000 - to 11,000 -foot peaks...

Drainage in the Pacific Ranges is to the coast by way of the Bella Coola, Kingcome, Homathko, Southgate, Toba, Squamish and Lillooet Rivers and their tributaries. These have cut major lowerlevel valleys through the mountains, dividing them into blocks...

The high peaks are sculpted by cirque glaciers. Many projected as nuantaks above the Pleistocene ice-cap, whose upper surface over the Pacific Ranges was from 5,000 to 8,000 feet above sea-level. Lower summits were covered by the ice-sheet at its maximum, and many of these are rounded and domed even though they are scalloped by cirques on their northeastern sides. Evidence of tremendous ice erosion is everywhere to be seen...

There is a noticeable difference between the heavy vegetation in the western ranges, where rainfall is high and the eastern ranges, where the rainfall is lighter...

Holland, S.S.; 1976: pp. 42-43.


There are no significant creeks on the Alexandria property. However, adequate fresh water for mining purposes could be obtained from the creek that flows into Cordero Channel southwest of Picton Point (Figure 2).

Elevations on the property range from sea level to 993.6 m ( 3260 ft ) near the northwestern corner of the property (Figure 2).

The southwestern part of the claims is covered by second growth forest. The extremely steep slopes on the northeastern part of the claims has not been logged very far up from the shore. The forest is dominated by yellow cedar with lesser amounts of douglas fir. There is sufficient available timber on the Alexandria property to support a mining operation.

Soil development on the Alexandria property is extremely variable due to great variation in slope. However, in most areas on the claims where soil development is significant, soil profiles are sufficiently mature to have distinct undisturbed horizons amenable to meaningful soil survey results. Even in poorly developed soils on very steep slopes, dispersion trains of gold particles can be used to locate gold-bearing lodes.

The closest weather station to the property-area is at Powell River, British Columbia. Climatic statistics for the Powell River station are quoted from Environment Canada as follow:

Average annual precipitation: 1258 mm of which 68 cm ( 68 mm of rain equivalent) falls as snow

Month-end snow pack in cm:
This data is not available because snow pack does not accumulate at sea-level in this area.

The climate around the property-area is more extreme than at Powell River because it is $50 \mathrm{~km}(30.5 \mathrm{mi})$ north of open water of the Strait of Georgia. At sea-1evel in the property-area, very 1 ittle snow
accumulates. However, in the ridge-top area on the western part of the claims, snow can accumulate from November until April during a cold year.

### 1.4 Property

The Alexandria property comprises the following claims located in the Vancouver Mining Division of British Columbia (Figure 2):

| Claim Name | $\begin{gathered} \text { Record } \\ \text { No. } \\ \hline \end{gathered}$ | No. of Units | Record Date | Expiry Date | Owner |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Hope 1 | 342582 | 1 | Dec. 13, 1995 | Dec. 13, 1997 | C.I. Dyakowski |
| Hope 2 | 342583 | 1 | Dec. 13, 1995 | Dec. 13, 1997 | C.I. Dyakowski |
| Hope 3 | 342584 | 1 | Dec. 13, 1995 | Dec. 13, 1997 | C.I. Dyakowski |
| Hope 4 | 342585 | 1 | Dec. 13, 1995 | Dec. 13, 1997 | C.I. Dyakowski |
| Ben 1 | 345159 | 1 | Mar. 31, 1996 | Mar. 31, 1997 | B.H. Fitch |
| Ben 2 | 345160 | 1 | Mar. 31, 1996 | Mar. 31, 1997 | B.H. Fitch |
| Ben 3 | 345161 | 1 | Mar. 31, 1996 | Mar. 31, 1997 | B.H. Fitch |
| Ben 4 | 345162 | 1 | Mar. 31, 1996 | Mar. 31, 1997 | B.H. Fitch |
| Ben 5 | 345153 | 1 | Mar. 31, 1996 | Mar. 31, 1997 | B.H. Fitch |
| Ben 6 | 345164 | 1 | Mar. 31, 1996 | Mar. 31, 1997 | B.H. Fitch |
| Dy 1 | 344975 | 1 | Apr. 2, 1996 | Apr. 2, 1997 | C.I. Dyakowski |
| Dy 2 | 344976 | 1 | Apr. 2, 1996 | Apr. 2, 1997 | C.I. Dyakowski |
| Dy 3 | 344977 | 1 | Apr. 2, 1996 | Apr. 2, 1997 | C.I. Dyakowski |
| Dy 4 | 344978 | 1 | Apr. 2, 1996 | Apr. 2, 1997 | C.I. Dyakowski |
| Dy 5 | 345158 | 1 | Apr. 21, 1996 | Apr. 21, 1997 | C.I. Dyakowski |
| Jeff | 348964 | 9 | July 23, 1996 | July 23, 1997 | B.H. Fitch |
|  |  | 24 |  |  |  |

At the writing of this report, Fitch and Dyakowski are preparing to file sufficient work from the 1996 exploration program to put these claims in good standing for 10 years.

The claims comprising the Alexandria property were staked over the Discovery 1E, 2A, 3E and 4A mineral claims located previously by other parties. It was obvious to Fitch and Dyakowski that the Discovery claim group was not staked properly and filed a complaint under section 35 of the Mineral Tenure Act. On October 24,1996 the chief gold commissioner for British Columbia ruled in favour of Fitch and Dyakowski and cancelled the Discovery 1E, 2A, $3 E$ and 4 A , leaving the claims of the Alexandria claim group as the only valid claims in the property-area.

Bernard H. Fitch and Christopher I. Dyakowski entered into an option agreement with Norwood Resources Limited on August 2, 1996 whereby: for payments comprising $\$ 95,000$ and 200,000 of its common shares, and by the expenditure of $\$ 500,000$ on exploration of the claims, Norwood could
acquire $100 \%$ of the Alexandria property. Payments and expenditures under that agreement must be made by the third anniversary of the listing of Norwood on a stock exchange. Norwood's ownership in these claims shall be subject to a defined $2 \%$ net return royalty to Dyakowski and Fitch.

The writer personally inspected most of the posts and lines of the claims comprising the Alexandria property on October 22 to 24 , 1996. In his opinion, they have been staked in accordance with the laws and regulations of the Province of British Columbia.

The property boundaries have not been surveyed.

### 1.5 Summary of Present Work

Field work on the Alexandria Property was conducted from September 10 until October 25 , 1996. Data compilation continued intermittently until March 4, 1997. The work was conducted under work approval number NAN-96-0801071-123 by:

Christopher I. Dyakowski, B.Sc. Vancouver, B.C.

Consulting Geologist
Bernard H. Fitch, B.A.
New Westminster, B.C.
Exploration Manager
John Ostler; M.Sc., P.Geo.
West Vancouver, B.C. Consulting Geologist
Thomas Jones
Bold Point, B.C. Geologica1 Technician
Karl Christensen
Bold Point, B.C.
Prospector
Patrick Poissant
Bold Point, B.C.
Geological Technician
Alex Smith
Fort Langley, B.C. Geological Technician
Thor Juvik
North Vancouver, B.C. Geological Technician
Ronald Gibbs
St. Cathrines, Ontario Geophysical Technician

The September to October, 1996 work program on the Alexandria
Property included the following:
A. Soil and electromagnetic surveys on
the Dy grid comprising a total of
6242.5 m of grid line and 700 m of base
line; 273 soil samples (Figures 15 to 17 ) 28.00 man-days
B. Soil survey on the Ben grid comprising a total of 2012.5 m of grid line and 425 m of base line; 101 soil samples (Figure 19)
10.00 man-days
C. Soil survey on the Alexandria grid comprising a total of 1212.5 m of grid line and 580 m of base line; 74 soil samples (Figure 18) 8.00 man-days
B. Location and prospecting of workings and mineral showings
52.00 man-days
C. Renovation of 10 km of logging road north of Picton Point, of which 4.0 km is on the property $\quad 48.00$ man-days
E. Transportation, expediting, camp set-up, data compilation and report time
50.00 man-days

Total time spent on the Alexandria Property during the September to October 1996 work program
196.00 man-days

### 1.6 Claims Worked On

During the September to October, 1996 program, work was done on the following claims:

| Claim Name | Record No. | No. of Units | Record Date | Expiry Date | Owner |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Hope 1 | 342582 | 1 | Dec. 13, 1995 | Dec. 13, 1997 | C.I. Dyakowski |
| Hope 2 | 342583 | 1 | Dec. 13, 1995 | Dec. 13, 1997 | C.I. Dyakowski |
| Hope 3 | 342584 | 1 | Dec. 13, 1995 | Dec. 13, 1997 | C.I. Dyakowski |
| Hope 4 | 342585 | 1 | Dec. 13, 1995 | Dec. 13, 1997 | C.I. Dyakowski |
| Ben 1 | 345159 | 1 | Mar. 31, 1996 | Mar. 31, 1997 | B.H. Fitch |
| Ben 2 | 345160 | 1 | Mar. 31, 1996 | Mar. 31, 1997 | B.H. Fitch |
| Ben 3 | 345161 | 1 | Mar. 31, 1996 | Mar. 31, 1997 | B.H. Fitch |
| Ben 4 | 345162 | 1 | Mar. 31, 1996 | Mar. 31, 1997 | B.H. Fitch |
| Ben 5 | 345153 | 1 | Mar. 31, 1996 | Mar. 31, 1997 | B.H. Fitch |
| Ben 6 | 345164 | 1 | Mar. 31, 1996 | Mar. 31, 1997 | B.H. Fitch |
| Dy 1 | 344975 | 1 | Apr. 2, 1996 | Apr. 2, 1997 | C.I. Dyakowski |
| Dy 2 | 344976 | 1 | Apr. 2, 1996 | Apr. 2, 1997 | C.I. Dyakowski |
| Dy 3 | 344977 | 1 | Apr. 2, 1996 | Apr. 2, 1997 | C.I. Dyakowski |
| Dy 4 | 344978 | 1 | Apr. 2, 1996 | Apr. 2, 1997 | C.I. Dyakowski |
| Dy 5 | 345158 | 1 | Apr. 21, 1996 | Apr. 21, 1997 | C.I. Dyakowski |
| Jeff | 348964 | 9 | July 23, 1996 | Ju1y 23, 1997 | B.H. Fitch |

### 2.0 GEOLOGY AND GEOPHYSICS

### 2.1 Regional Geology and Mineralization

The regional geology of the area around the Alexandria property and the Phillips Arm gold camp was compiled by Roddick and Woodsworth of the Geological Survey of Canada (Roddick, 1977). Their general description of the rocks of the Phillips Arm gold camp are as follow:
... most of the area is underlain by plutonic rocks, ranging from gabbro to quartz monzonite. Granodiorite and quartz diorite predominate and unlike most areas in the Coast Mountains, granodiorite is slightly more abundant. The granodiorite forms a broad central belt about 50 km wide, extending from Big Julie pluton in the southeast to Knight Inlet, with a core area of quartz monzonite between Toba and Knight Inlets. The flanking belts are underlain mainly by quartz diorite but granodiorite and diorite are also well represented. Most of the plutons, excepting the quartz monzonite, exhibit a pronounced northwesterly elongation. This pattern is accentuated by long narrow belts of metasedimentary and metavolcanic rocks...

Steeply dipping metasedimentary and metavolcanic rocks form narrow bands engulfed in the main mass of the coast Plutonic Complex. Although interrupted here and there by large plutons they are remarkably persistent along strike and are thought to represent fault slices or grabens along which 'horsts' of plutonic rock were thrust upward. The bounding shear zones in places still exist but synplutonic recrystallization has commonly reduced them to mere foliations or obliterated them entirely. In many places these 'screens' are flanked on one side by diorite and on the other by quartz diorite or, less commonly, by granodiorite. The dioritic rocks may represent remnants of a primitive granitoid basement upon which Karmutsen and later rocks were deposited. Deep burial and subsequent deformation of the eugeosynclinal pile along with the underlying basement was probably in response to compressive forces transmitted through the North America Plate against oceanic crust. Relief came eventually with the onset of subduction, and plutonic masses, formed before and during the compressive stage, began their movement upwards bounded by synplutonic faults. The open structure of the Karmutsen volcanics on Vancouver Island is in marked contrast with the strongly deformed remnants of these rocks within the Coast Plutonic Complex...

Minimum final cooling dates from potassium-argon work on ... granitic rocks show a range from Jurassic ( $153 \mathrm{~m} . \mathrm{y}$.) ... to Eocene ( $55 \mathrm{~m} . \mathrm{y}$.) ... The general decrease in age from west to east is characteristic of the Coast. Plutonic Complex between latitudes $50^{\circ}$ and $55^{\circ} \mathrm{N}$.
Roddick, J.A.; 1977: pp. 2-3.



NOTE:
This Figure adapted from Borovic, 1995: Figure 3

CASSIAR EAST YUKON EXP. LTD.

Figure 3

Borovic (1995) combined Roddick's (1977) regional geology with Cathro and Carne's (1983) locations of the major prospects of the Phillips Arm gold camp resulting in a comprehensive picture of the extent of the camp and its relation to local geology (Figure 3). A general table of geological events and lithological units in the Phillips Arm area is as follows:

FIGURE 4
TABLE OF GEOLOGICAL EVENTS AND LITHOLOGICAL UNITS IN THE PHILLIPS ARM AREA

| Time | Formation or Event |
| :---: | :---: |
| $\begin{aligned} & \text { Recent } \\ & 0.01-0 \mathrm{~m} \cdot \mathrm{y} . \end{aligned}$ | -valley rejuvenation, downcutting of stream gullies through grey clay-boulder till, development of brown soil |
| Pleistocene <br> 1.6-0.01 my. | -glacial erosion and deposition, deepening of major fjords, removal of Tertiary-age regolith, deposition of grey clay-boulder till at lower elevations |
| Eocene to Pliocene 57-1.6 m.y | -erosion and unroofing of Coast Plutonic Complex <br> -tensional tectonics, development of northeasterly trending normal faults and mafic to intermediate dykes |
| Cretaceous to Eocene 144-57 m.y. | -deposition of gold-bearing quartz-pyrite veins in roof pendants among igneous plutons during shearing and dilation <br> -development of the Coast P1utonic Complex, intense deformation of older stratigraphy in roof pendants among rising igneous lobes, development of a deeply rooted mountain chain |
| Triassic to Jurassic 245-144 m.y. | -deposition of the Karmutsen Group mafic vlocanics associated sediments, and possibly dioritic sub-volcanic intrusions |
| $\begin{aligned} & \text { Pre-Triassic } \\ & \text { pre- } 245 \mathrm{~m} . \mathrm{y} \text {. } \end{aligned}$ | -evolution of pre-Karmutsen basement, now granitoid gneiss |

Stevenson (1947) summarized the geology and mineralization of the Phillips Arm gold belt as follows:

This part of the coast is well within the western margin of the Coast Range batholith. Several isolated areas of older rocks are shown in a belt, about 5 miles wide, which extends northwesterly from Sonora Island to Loughborough Inlet a distance of 18 miles. These areas of older rocks probably represent the roots of roof pendants now largely destroyed by erosion.

The older rocks include argillaceous sediments and volcanics that have been minutely folded, and in many places the argillites have been changed to schistose rocks. Limestone pods, found at several points, have been changed by contact metamorphism to rocks consisting mostly of sulphides and high-temperature silicates. The foliation of the rocks strikes north-westerly to westerly with the trend of the belt...

In this part of the coast there is a concentration of goldbearing lode deposits, which coincides with the belt of older rocks and was no doubt localized by them. The deposits are veins in fractures and shear-zones along which there has been more or less replacement of wall-rock. Not all the deposits are in roof-pendant rocks, but those in the granitic rocks are not far from them...

Gold is found in quartz veins, usually associated with small quantities of sulphides, and is rarely found if sulphides are not present. Pyrite is the commonest and usually the most abundant sulphide; small amounts of chalcopyrite, sphalerite and galena are sometimes found. Samples of relatively pure pyrite have assayed as much as 5.5 oz . gold per ton.

Most of the deposits are bedded quartz veins striking west-north-westerly with the formations. The vein minerals occur in lenticular masses, one of which may die out along the strike and another may shortly come in.
Stevenson, J.S.; 1947: pp. 12-13.

Intense prospecting was conducted in the area around Phillips Arm in the late 1880 s and early 1890 s. By 1893 , most of the showings along the shorelines including the Alexandria, had been discovered and staked. Showings farther up the steep hill sides were discovered by 1895 and by 1900, the Phillips Arm gold camp was well-defined. It extended from the northern part of Sonora Island northwestward to Loughborough Inlet (Figure $3)$.

The central and most intensely mineralized part of the camp extended for $6 \mathrm{~km}(3.7 \mathrm{mi})$ from the northern shore of the entrance to Phillips Arm, up the mountain toward Loughborough Inlet. That area contained, the Alexandria, Enid-Julie, Empress and All Up; all of which
are presently within the Alexandria property (Figures 2 and 3). Northwest of the Enid-Julie was the Doratha Morton mine and the ChampionCommonwealth property.

In 1898, the Doratha Morton gold mine, located adjacent to and northwest of the Enid-Julie showings, was in production. Ore from the mine was transported to the mill located on the southwest shore of Fanny Bay on a 2 km ( 1.2 mi ) long areal tram. The mill included a 5-stamp mill and 6 cyanide leach vats (B.C. Min. Mines, Ann. Rept.; 1898: pp. 11381142).

Production from the Doratha Morton mine from 1898 to 1899 was $4,434,08$ ounces of gold and 10,222 ounces silver from 9,707 tons of ore (B.C. Min. Mines, Ann. Rept.; 1925: p. A276).

The Alexandria mine was the second largest gold producer in the camp. About 773.66 ounces of gold and $1,340.5$ ounces of silver were recovered from 1,915 tons of ore at the Alexandria mine from 1898 until 1940.

Stevenson (1947) summarized production from the Phillips Arm gold belt as follows:
... Total production from seven properties has amounted to $5,821 \mathrm{oz}$. of gold from 13,702 tons of ore; that is, ore with an average grade of 0.42 oz . of gold per ton. Shipments from individual properties ranged from 2 to 10,000 tons...

$$
\text { Stevenson, J.S.; 1947: p. } 12 .
$$

### 2.2 Regiona1 Geophysics

Regional geophysical surveys conducted over the Alexandria property-area are of little use in predicting mineralized quartz veins because any response by such local features is totally masked by large regional trends.

The Bouger Gravity map for this area shows the boundary of the coast mountains but little else ( E.M.R. Map 10 GR(BA)).

Aeromagnetic coverage includes N.T.S. map sheet $92 \mathrm{~K} / 6$, which contains only the southern part of the property (E.M.R. Map 9764G). There is none for the northern and central parts of the claims. A slight
magnetic low is centred offshore in Cordero Channel just south of the Alexandria workings. The workings-area itself coincides with no aeromagnetic disturbance.

Airborne magnetic and electromagnetic surveys were flown over the area southwest of Phillips Arm by Aerodat Limited (Hogg and Podolsky, 1985). The most significant features on maps from these surveys were northeasterly trending linear features that the writer assumes were related to late Tertiary-age mafic dykes that significantly post-date mineralization in this area.

Airborne geophysical surveys have been of little use in finding gold-bearing quartz veins in this part of the Phillips Arm gold camp.

### 3.0 EXPLORATION AND DEVELOPMENT OF THE ALEXANDRIA PROPERTY-AREA

### 3.1 Early Exploration and Development of the Alexandria Mine: 1893 to 1940

Development of the Alexandria vein system was underway by 1896. The claims had been prospected and surveyed, and the No. 1 adit was being driven in on the vein system from a portal located just above high tide. Enough work had been done in the area for the Phillips Arm Gold Mining Company to have the claims covering the Alexandria to be crown-granted in 1897.

Work proceeded underground on the No. 1 and No. 2 tunnels at the Alexandria, and from 1896 to 1898 several small shipments of ore totalling 48.8 tons grading $1.23 \mathrm{oz} /$ ton gold were sent to the Tacoma smelter (Jones, 1982). A government geologist reported upon the state of work at the Alexandria in 1898 as follows:


[^0] extends from the shore inland.

There is an outcropping of a very large quartz ledge near the shore, the strike of the lead being N. $65{ }^{\text {fo }}$ W. Upon this ledge a cunnal has been run in about 180 feet parallel with the atrike. At a point 90 feet from the mouth of the tumnel, drifts have been driven to the right and left for 45 feet in each direction, neither of which has reached the wall of the ledge. Near the face of the tumel a 15 -foot porphyry dyke cuts across, apparently faulting the ledge silghtly.

Above this tunnel some 50 feet, is another tunnel, which I could not get into, as it was caved in.


Thare does not appear to be in this property the defined paystreak, noted in the Doratha Morton, and the ledge does not appear to be highly mineralized.

A trial shipment of ore is said to have been made to a smelter, and an assay of $\$ 28$ in gold received.

$$
\text { B.C. Min. Mines, Ann. Rept.; 1898: p. } 1142 .
$$

During the same property visit, the tunnel on the All Up claim was examined (Figure 2), resulting in the only early record of its development known to the writer:

> All Up $\quad$ Is near the Alexandria, and has a tunnel in about 110 feet, running Mineral Claim about magetic west, some 6 feet above water level, and following an irregular quartz vein, about 24 inches wide, which contains a small amount

$$
\text { B.C. Min. Mines, Ann. Rept.; 1898: p. } 1142 .
$$

The A11 Up tunnel is located on the Alexandria property near the northeastern corner of the Hope 2 claim (Figure 2).

It was found that the Alexandria vein was mineralized throughout with gold in white to grey ribboned quartz containing minor amounts of sulphide. Underground work continued until about 1910 (Borovic, 1995).

The Doratha Morton mine was the most important gold producer in the Phillips Arm camp. Production ceased at the Doratha Morton mine in 1899 because all of the known, easily accessible ore had been exhausted. Ore at the mine was found in high-grade pods and not long shoots. At that time there were no reliable exploration techniques for predicting the size and location of such pods. Tunnelling on hope alone was deemed too risky.

As development continued on the Alexandria the rest of the Phillips Arm camp went into a decline that lasted until the end of the first world war in 1918.

In 1919 , the Alexandria workings, by then comprising the No. 1 to No. 4 tunnels (Figures 5 and 7) were cleaned out, surveyed and sampled by Henry Rhodes for the Phillips Arm Gold Mines Company (B.C. Min. Mines, Ann. Rept.; 1920: p. N212). Assays from 108 samples taken from adits No.1, 3 and 4 ranged "from about $\$ 25$ in gold and silver down to low values".

C


Reportedly, the No.1, 3 and 4 adits were driven on gold-bearing quartz veins. The No. 2 adit was driven in the hanging wall of the main Alexandria vein with the intention of using it as a haulage way during ful1-scale production.

The Phillips Arm Gold Mines Company sold the Alexandria mine to the Alexandria Mines Company, Limited, a new company formed for the acquisition in 1925. During that year, a raise connecting the No. 1 and No. 2 adits was completed for ventilation, and the workings were cleaned out. Work was stalled in 1926 due to corporate structuring delays.

An inspection of the Alexandria workings by a government geologist in 1927 resulted in the first succinct description of them presently available:


#### Abstract

On the Alexandria the pyritized quartz vien will average between 5 and 6 feet in width. Pour tunnels have been driven, but only the lowest one, at the beach, has drifted on the vein which is contimuous for the full length of the tunnel of 530 feet. The ore shoot extends from the collar to 300 feet in the tunnel. Six crosscuts have been driven from this level... At 185 feet in from the portal a raise was driven 50 feet, which is claimed to be in ore all the way, and connected with the tunnel above. The three tunnels above this, at 70 feet, 300 feet and 400 feet elevations respectively, are probably too far to the west and therefore parallel the vein in its hanging wall, although the top tunnel shows high-grade gold values in some places. These upper tunnels were all started at the foot of the bluff just at the top of the talus slope. What is apparently a continuation of the vein was disclosed farther up the hill this summer, and lining this up with the lower tunnel suggests that the vein lies under the rock slide and consequently to the east of the three upper tunnels...


B.C. Min. Mines, Ann. Rept.; 1927: p. C354-C355.

Work at the Alexandria continued through 1928, comprising surface prospecting, driving of the No. 5 tunnel and preliminary work on the shaft (winze) to the proposed 100 and 200 levels below the No. 1 adit. Mining was supported by a 30 -man camp located on the shore just south of the No. 1 portal, and a large dock for landing heavy machinery and supplies.

Enthusiasm was buoyed by new discoveries both on surface and underground. Work of that year was recorded as follows:
...The lower or beach tunnel follows the quartz vein all the way; the first 300 feet comprises the ore-body, averaging 5 feet in width, of $\$ 9$ to-the-ton ore, principally gold. The upper tunnels are in a more or less crushed area and mineralization has therefore been irregular and good values found only in apots.

The work for 1928, under the supervision of T.D. Davey, mining engineer, has been mainly the exploration of the ground above the beach tunnel. The vein was traced up the hill for about 1,000 feet. In the No. 2 cumel a crosscut was driven north from the crushed condition for a distance of 100 feet through an irregularly mineralized quartz-diorite rock showing values up to $\$ 5$ to the ton in spots, but no commercial ore. At a favourable point below the outcrops, about 400 feet north of and 200 feet above the beach tunnel, a new crosscut tunnel was driven, encountering the downard extension of the vein at 125 feet in the tunnel and 100 feet below the
surface. A drift south was run on the vein, showing it to be 3 to 4 feet wide, composed mainly of shattered and oxidized quartz carrying low values, but these conditions are apparently improving as greater depth is obtained: that is, the fracturing is diminishing and the mineralization increasing.

It was decided to continue the winze started from the beach tunnel, and in cutting out for hoist, etc., a parallel lens of ore about 4 feet wide was encountered in the hanging-wall, assaying up to $\$ 32$ to the ton. A sample above the winze across 15 feet gave assays of $\$ 12$ to the ton. The hanging-wall ore has been opened up for a length of 30 feet. It is proposed to sink the winze to a depth of 100 feet and drift on the vein at that depth...
B.C. Min. Mines, Ann. Rept.; 1928: pp. C380-C381.

At that time it was assumed that the vein encountered in the No. 1 tunnel flattened out significantly so that it would be encountered east of the No. 2 tunnel driven 50 feet above and was exposed on the slope above the No. 3 to 5 tunnels. That assumption has since been found to be incorrect.

The main Alexandria vein passes the No. 2 tunnel to the west and is not the same vein encountered in the No. 3 to 5 tunnel-area. The writer believes that several sub-parallel mineralized veins occur in the area around the Alexandria workings.

Mining continued through 1929 and was summarized as follows:

[^1]> B.C. Min. Mines, Ann. Rept.; 1929: pp. C386-C387.

By 1933, the shaft beneath the No. 1 adit was over $60 \mathrm{~m}(200 \mathrm{ft})$ down and extensive work had been done on the 100 and 200 levels out from the shaft. R.S. Mellum inspected and sampled the Alexandria workings during 1931 for Premier Gold Mining Company, Limited (Figures 5 to 7). Premier optioned the property in 1932 and worked in the Alexandria mine in 1934 as was summarized by a government geologist who visited the property that year:
..The Premier Company unwatered the shaft and did an appreciable amount of drifting and crosscutting on the 100 - and 200 -foot levels... During this period No. 2 adit-level, approximately 50 feet above sea-level, and the main (or No.1) adit-level were extended north along the mineralized shear-zone, which at this property is found in a bed of highly alterad sedimentary rocks between two granite sills or stocks.

The underground workings were all carefully sampled by the Premier Company, the results of some hundreds of carefully taken channel samples checking very closely the figures obtained by engineers who had formerly sampled the mine. It is indicated that the values, chiefly pyrite and some chalcopyrite, with which is associated gold and silver, are confined to that portion of the shear-zone between the portal and the flat-dipping fault on No. 1 level. In this area it appears that there have been two periods of mineralization; the first period during which the quartz and pyrite was deposited, and the second period subsequent to faulting, when quartz, chalcopyrite, pyrite and associated gold values were deposited. This is indicated by the distribution of values as obtained by sampling, the best values coming in the section of the shear underlying the fault, while past it very little in the way of values were found. Ore-zones were located by sampling on the main or No. 1 level and on the 100 -foot level, with almost negative results being obtained on the 200-foot and No. 2 levels.

About 15,000 tons of material assaying approximately 0.30 oz . gold per ton is calculated in the ore-shoot between the No. 1 and 100 -foot levels, due allowance being made for the extension of the ore above and below the two levels mentioned...

> B.C. Min. Mines, Ann. Rept.; 1934: pp. F7-F8.

Later that year, Premier dropped their option on the Alexandria property. It was subsequently reoptioned to $R$. Crowe-Swords, the founder of the G1asord Mining Corporation Ltd. which had developed the Doratha Morton and Enid-Julie properties. R. Crowe-Swords' option had terminated by 1939 .

The Alex Mining Company was formed in 1939 to exploit the proven ore in the Alexandria No. 1 working. Two stopes located between the portal and the shaft were worked from the No. 1 level up to the No. 2 level, a distance of about $15.4 \mathrm{~m}(50 \mathrm{ft})$. A third was up about $3 \mathrm{~m}(12 \mathrm{ft})$ when work ceased. A total of 1,867 tons of ore was shipped to the Asarco smelter from 1939 to 1940 (Borovic, 1995). The writer believes that work ceased because of a shortage of explosives brought about by the second world war and not because of a shortage of ore. After the war, increasing mining costs and a gold price artificially held down to \$US 35/oz. prevented further development until the 1970 s.

Carriere (1983) summarized development on the Alexandria claim-

## Underground Advance: Alexandria

| Heading | Elevation | Drift | X-Cut | Raise | Shaft | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| No. 1 adit | 1 m | 176 m | 122 m | 4 m | 98 m | 400 m |
| Sublevels: |  |  |  |  |  |  |
| 050 level | -15 m |  | 4 m |  |  | 4 m |
| 100 leve1 | -30 m | 154 m | 64 m |  |  | 218 m |
| 200 level | -60 m | 66 m | 69 m |  |  | 135 m |
| 250 leve1 | -75 m |  | 2 m |  |  | 2 m |
| No. 2 adit | 17 m | 230 m | 193 m |  |  | 423 m |
| No. 3 adit | 92 m | 18 m | 13 m |  |  | 31 m |
| No. 4 adit | 131 m | 11 m | 38 m |  |  | 49 m |
| No. 5 adit | 74 m | 72 m | 65 m |  |  | 137 m |
| Total advance in the Alexandria area |  |  |  |  |  | 1,399 m |

Production statistics from the Alexandria mine were adapted from Carriere (1983) as follow:

Production Statistics: Alexandria

| Year | Tons | $\underline{\mathrm{oz} / \text { ton }} \mathrm{Au}$ | Oz/ton Ag | Tonnes | $\mathrm{gm} / \mathrm{mt} \mathrm{Au}$ | $\mathrm{gm} / \mathrm{mt} \mathrm{Ag}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1896-8 | 48 | 1.23 | unknown | 43.6 | 40.8 | unknown |
| 1939 | 50 | 0.680 | 1.10 | 45.5 | 22.5 | 36.4 |
| 1940 | 1817 | 0.375 | 0.69 | 1651.8 | 12.4 | 22.8 |
| Total | 1915 |  |  | 1740.9 |  |  |
| Average | grade | 0.404 | 0.70* |  | 13.4 | 23.2* |

* Silver averages do not include 1898-9 production.

NOTE: Data for this table is adapted from Carriere, 1983: p.10, Table IV.

The total production from the Alexandria mine was 773.66 ounces of gold and about $1,340.5$ ounces of silver from 1,915 tons of ore.

### 3.2 Early Exploration and Development of the Enid-Julie and Empress Properties: 1890 to 1940

In 1898, both the Doratha Morton mine, the Enid-Julie and the Empress were controlled by the Fairfield Exploration Syndicate of London, England. During the 1890 s, prospecting on the Empress and Enid-Julie were conducted in conjunction with development of the Doratha Morton workings and by 1897 both the Empress and Enid-Julie groups had been crown-granted. During 1898, a pack trail was completed from a loading point at Bullveke Point up the north side of the creek to the Julie showing (Figure 2).

A shaft was excavated on the Empress claim, located west of the Enid claim near the edge of the ridge (Figure 2). That shaft was probably sunk in the mid-1890s. It was located and examined by G.A. Noel (1980) who found it to be 4.6 m ( 15 ft ) deep.

In July, 1925 the Glasord Mining Corporation, Limited was formed to develop the mineral properties in the central part of the Phillips Arm camp. The company's holdings included the Doratha Morton, CommonwealthChampion, Enid-Julie and Empress properties (Figure 8).

That year, an aggressive program of development was conducted on all of Glasord's holdings. The trail, camp and workings at the Doratha Morton mine were cleaned and refurbished, and the areal tram right of way was brushed out. The trail to the Enid and Julie claims was recut and the Enid adit and Julie shaft were excavated.

The Julie shaft (Figure 2) was sunk for $5 \mathrm{~m}(16.4 \mathrm{ft}$ ) on goldbearing pyrite mineralization in a 0.5 to 1.1 m ( 1.6 to 3.6 ft ) thick quartz vein (Hardy, 1986). By the end of the season, the Enid adit was in $15.4 \mathrm{~m}(50 \mathrm{ft})$ (B.C. Min. Mines, Ann. Rept.; 1925: p. A279).

A provincial mineralogist who visited the property in 1925 described progress as follows:

Prospecting-work has also been done of the Enid-Julie group, which adjoins the Doratha Morton group on the east. This has axposed quartz with ribbon structure that carries good values in gold and silver, but apparently the lead in the mineralized zone is not an extension of the Doratha Morton lead, but probably is a pay-shoot almost paralleling it.

A sample said to be from the wall of the shaft being sunk on the Julie assayed: Gold, 5.4 02.; silver, 14 oz to the ton; copper, nil; zinc, 2 per cent.

Another sample of aelected ore from the Julie assayed: Gold, 6.0402 ; silver, 1602 to the ton.

It appears that the ore will lend itself readily to concentration and there is a very good site for a mill on the beach, where there is a sufficient supply of water to meet the demands of a medium-sized plant.

> B.C. Min. Mines, Ann. Rept.; 1925: p. A279.

By 1929 the Enid-Julie prospect was in the hands of Morton Woolsey Consolidated Mines, Limited which also controlled the Doratha Morton mine. An unspecified amount of prospecting was conducted on the Enid-Julie in that year but no more underground development was recorded (B.C. Min. Mines, Ann. Rept.; 1929: p. C387).


NOTE: This Figure is from B.C. Min. Mines, Ann. Rept.; 1925: p. A276.

Figure 8
NORWOOD RESOURCES LTD.
1897 to 1925
CROWN GRANTS ALEXANDRIA PROPERTY
$50^{\circ} 29^{\prime} 22^{\prime \prime} N ., 125^{\circ} 22^{\prime} 45^{\prime \prime} \mathrm{W}$. U.T.M. 5595200 N., 331250 E
N.T.S. $92 \mathrm{~K} / 6-\mathrm{K} / \mathrm{II}$ VANCOUVER M.D., B.C. JOHN OSTLER; M.Sc., P.Geo. NOVEMBER, 1996

In August, 1933, Enid-Julie Mines Ltd. was formed to develop the property. A significant amount of work was conducted on the property that year:
... The general rock formation in the area is a belt of sedimentaries lying on the west border of a wide belt of altered sedimentaries and volcanics contained in the Coast Range granodiorite. Bedded with the sedimentary rocks and lying on the east side of a 10 -foot basic dyke is a quartz vein up to 25 and 30 feet in width. This vein was discovered at an elevation of 2,900 feet, where a 15 -foot shaft showed good gold values. It was traced down the hill and a tunnel was started at 2,140 feet elevation. This tunnel is about 30 feet east of the dyke and has been driven about 155 feet in mineralized quartz, without any walls showing. The mineralization consists of iron sulphides, mainly pyrrhotite, carrying values up to 0.4 oz . gold per ton, except where cross-fracturing causes enrichments. It is now proposed to crosscut both ways at the face of this tunnel, cutting through the dyke to prospect the ground to the west, where arsenopyrite float gave high gold values upon assaying.

During road-construction a second vein was discovered about 600 feet northeast of the main vein and a little lower down the hill. Stripping exposed this vein on the surface for a few hundred feet length and a 30 -foot crosscut intersected it underground. It is reported to be 6 feet wide, of more or less banded quartz, from which encouraging assays were obtained.

About 500 feet up the hill from this discovery the No. 3 vein has been exposed. A 37 -foot drift on the foot-wall was in loose material, but the face shows more signs of solid formation.

The work on the main vein indicates an important tonnage of at least milling-grade ore, with excellent chances of finding high-grade ore shoots. The property is ideally situated for operating and transportation and altogether is an outstanding prospect...
B.C. Min. Mines, Ann. Rept.; 1933: p. A255.

Work in the Enid adit continued until July, 1934. A property inspection by a government geologist resulted in the following report:
... During the early part of 1934 a crew of eleven to fifteen men was employed in driving the 780 -foot level to get under the shaft showing, located 780 feet in elevation above and 800 to 1,000 feet beyond the portal. This adit was in 284 feet as at June, 1934, and the work was discontinued a few weeks later. The working followed a quartz-filled shear, mineralized with pyrite, in the altered sedimentary rocks of the area. The shear followed by the adit is not to be considered to be the same one on which the shaft was sunk.

The upper (or shaft) showing, where high gold values are reported to have been obtained across $11 / 2$ - to $31 / 2$-foot widths, the writer took three channel samples across widths of $31 / 2$ and 3 feet respectively of quartz mineralization. The average gold content obtained on assay of these samples was 0.1 oz. per ton. A selected sample showing approximately 3 per cent. galena and pyrite assayed 0.85 oz . gold per ton, but little or no mineralization of this character was visible in the well-defined shear at this shaft. A short distance downhill from the 10-foot shaft the quartz-filling pinches in width and at 60 to 80 feet distance it disappears as a narrow stringer under the overburden...
B.C. Min. Mines, Ann. Rept.; 1934: p. F8.

Upon realizing that they were dealing with a series of subparallel veins rather than one structure, the operators of the Enid-Julie suspended operations in order to rethink their exploration strategy. They did not return and the Enid-Julie remained idle until 1976.

Later, mineralization in the Enid-Julie workings-area was summarized by Stevenson as follows:

On the Enid-Julie property numerous quartz bands and lenses alternating with schist are found over a width of 35 feet in a marginal contact-zone between granodiorite and argillites and greenstone schists. The individual quartz lenses attain widths of 2 to 5 feet and may extend several hundred feet along the strike, which is west-north-westerly.

Stevenson, J.S.; 1947: p. 13.

Carriere (1983) summarized development on the Enid-Julie claimarea as follows:

Underground Advance: Enid-Julie and Empress

| Heading | Elevation | Drift | X-Cut | Shaft | Total |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Enid adit | 652 m | 93 m | 44 m |  | 137 m |
| Julie shaft | 884 m |  |  | 5 m | 5 m |
| No. 2 adit | 847 m ? |  | 10 m |  | 10 m |
| No. 3 adit | 999 m ? | 11 m |  |  | 11 m |
| Total advan | ce in the | Julie a |  |  | 163 m |
| Empress shaft | 900 m |  |  | 4.6 m | 4.6 m |

NOTE: Data on the Enid-Julie is from Carriere, 1983: p. 15 and B.C. Min. Mines, Ann. Rept.; 1933: p. A255.
Data on the Empress shaft is from Noel, 1980: p. 6 and Figure 3. Some recent workers have labelled the shaft on the Empress claim as the Julie shaft. The writer believes that there are two shafts of similar depth above the Enid adit and the shaft on the Julie claim has not been located by recent workers.

### 3.3 Recent Exploration and Development of the Alexandria Property-area: 1976 to 1996

Pegging the official gold price at \$US 35/oz from 1935 to 1970 effectively halted gold exploration in British Columbia for two generations. When a free market for gold was re-established, gold exploration resumed using many new ideas and techniques.

Late in 1976, the first soil geochemical survey was conducted on the Alexandria property-area (MacLeod, 1976) for M.P. Warshawski. That survey covered part of the current Ben and Jeff claims (Figure 9) just west of the Enid-Julie and Empress workings-areas. Warshawski's holdings comprised all of the reverted crown-granted claims from the Alexandria mine to the Doratha Morton mine (Figure 2).

Soil surveys were relatively new at that time and this one was conducted as an experiment to see if the technique would work in the highly leached soils of a cold rain forest. Soils were tested for copper, lead, zinc and silver. At that time soil gold analyses were generally considered excessively expensive and not very reliable. Consequently, soils were commonly not tested for gold.

MacLeod (1976) summarized his findings as follow:


#### Abstract

Of 152 soil samples taken and analyzed for copper, lead, zinc and silver only four isolated lead assays could be considered anomalous, therefore it must be concluded that there is no significant mineral occurrences within the area tested or the approach of using these tracer elements for the gold showing in this area is not effective.


MacLeod, J.W.; 1976: p.1.

Despite his pessimism concerning the 1976 soil survey, by 1980 J.W. Macleod was listed with M.P. Warshawski as an owner of the claims on which the 1976 soil survey was done.

Had MacLeod analyzed his soils for gold he probably may have been pleasantly surprised. Silver analyses from that survey ranged from detection limit ( 0.2 ppm ) up to 2.2 ppm . Two parallel silver anomalies trending about $055^{\circ}$ across the 1976 grid -area were defined by the 1.0 pmm silver contour. A seemingly conjugate structure trending about $100^{\circ}$ was evident in the northern part of the grid-area (Figure 9) (MacLeod, 1976: Figure 6).

On the 1996 soil survey on the northern part of the Ben claims adjacent with the Doratha Morton mine workings, similar silver concentrations are associated with soil-gold concentrations of over 300 ppb which are now considered highly anomalous (Figure 9 and section 3.4 of this report).

It is the writer's opinion that MacLeod was premature in writing off the area west of the Enid-Julie workings.

MacLeod and Warshawski optioned their claims on the Enid-Julie to Corpac Minerals Ltd. Corpac reconsidered the value of soil surveys in the area and commissioned G.A. Noel (1980) to conduct soil surveys near the

Enid-Julie workings-area in an attempt to discover the extent and trend of mineralization.

Noel's exploration crew were successful in locating the exact positions of the Empress shaft and the Enid adit with regard to the surveyed north-east corner of the Julie crown-grant (Figure 2).

Three small grids were laid out along the trend joining the EnidJulie and Doratha Morton workings in order to prove that the two were on the same mineralized structure (Figure 9).

The southeasterly grid covered the area from near the Julie shaft across the Enid showing to the No. 2 adit. Large gold and silver anomalies were found that extended from just down hill of the Empress shaft to the creek near the Enid adit. Gold concentrations in that anomaly were up to $6,000 \mathrm{ppb}$ and silver concentrations were up to 6.0 ppm . A small gold and silver anomaly was located near the No. 2 adit near the north end of that grid.

The central grid covered an exposure of pyritic quartz near the centre of the Empress claim. There, soil-gold values of up to $1,310 \mathrm{ppb}$ and silver concentrations of up to 2.4 ppm confirmed that a gold-bearing structure probably extended from the central grid to the Empress shaft (Figure 9).

The northwesterly grid tested a relatively flat area located at the southeastern end of the bluffs that are exposed southeast of the Doratha Morton workings. That grid was quite small and hosted a spot gold-silver anomaly comprising 100 ppb gold and 1.0 ppm silver in soils (Figure 9). However, it added to the hypothesis that a gold-bearing continued on northwesterly along the bluffs to the Doratha Morton mine.

Grab samples taken by Noel's exploration crew were as follow:

| Working | Au oz/ton | Ag oz/ton | Cu \% | 2n \% |
| :---: | :---: | :---: | :---: | :---: |
| Enid adit | 3.96 | 16.1 | 1.72 | 3.16 |
| Empress shaft | 0.096 | 0.21 |  |  |

Noel's crew returned to the area between the Doratha Morton mine and the Enid-Julie workings during 1981 for Corpac Minerals to continue

soil sampling (Jones, 1982). Soils from that program were analyzed for silver, copper, zinc arsenic and antimony.

Two long grids; numbered 3 and 4, were laid out along the projected trend of mineralization between the two workings-areas to help fill in the gaps in information left from the previous year's work. Consequently, more soil-silver anomalies were discovered along the trend (Figure 9).

Two other soil grids were sampled that year, numbered 1 and 2 . Those grids were laid out in an attempt to intersect a northwesterly extension of the Alexandria vein system. The easterly one was located on ground currently covered by the Jeff claim (Figure 9). The results from neither of those two grids were exciting.

It was concluded that a mineralized structure extended for a distance of at least $1500 \mathrm{~m}(4920 \mathrm{ft})$ from the Enid-Julie to the Doratha Morton mine. The lack of soil-silver and gold anomalies along the trend between the two workings-areas was attributed to sparse mineralization in those areas (Jones, 1982). The writer believes that the two workings may be on sub-parallel en-echelon dilatant structures and that the 1980-81 sampling grids were too narrow to display such details. More extensive soil survey would probably reveal more mineralization in that area.

Late during 1982, G. Wares and G.H. Carriere calculated an inferred resource on the main Alexandria vein within the workings using the 1931 Premier sampling data (Figures 5, 7, 10 and 11). Blocks comprising this inferred resource were defined between the No. 2 and 100 levels (Figure 11) as follow:

## 1982 Inferred Resource Calculation

| No. of <br> Blocks | Total <br> Tonnage | Gold Content <br> oz/ton | Gold Content <br> Troy ounces |
| :---: | :---: | :---: | :---: |
| 12 | $10,582.2$ | 0.317 | $3,353.27$ |
|  | $7,808.7$ | 0.298 | $2,324.63$ |

The total estimated inferred resource in the Alexandria mine between the No. 2 and 100 levels was $18,390.9$ tons containing 5,677.9 ounces of gold and an unestimated amount of silver. However, although the areas of 1931 to 1940 production were outlined in blocks ' $b$ ' to ' $d$ ' and ' f ' on Wares and Carriere's diagram (Figure 11), that production does not seem to have been deducted from the estimate of the inferred resource. A revised inferred resource calculation after deducting blocks mined from 1931 to 1940 is as follows:

Inferred Resource Calculation
after 1931 to 1940 Production

| No. of <br> Blocks | Total <br> Tonnage | Gold Content <br> oz/ton | Gold Content <br> Troy ounces |
| :---: | :---: | :---: | :---: |
| 12 | $9,382.1$ | 0.317 |  |
| 12 | $7,808.7$ | 0.298 |  |

The total estimated inferred resource in the Alexandria mine between the No. 2 and 100 levels after deduction of all material contained within the four blocks mined from 1931 to 1940 is $17,190.8$ tons containing $5,214,3$ ounces of gold.

The foregoing estimates were generated from data contained within an appendix to a 1983 regional report by R.J. Cathro and J.F. Carne. Neither Carriere's 1982 report nor the original 1931 Premier Mines report were available to the writer. Consequently, parameters of these estimates were unknown reducing them to qualitative value only.

Subsequently, underground drilling indicated that there was potential to expand the area of the previously inferred resource along the No. 1 Alexandria vein.

By 1983, the area now covered by the Alexandria property was held under option by Charlemagne Oil and Gas Ltd. (subsequently Charlemagne Resources Ltd.). An extensive work program was conducted that year by G.H. Carriere. Emphasis was on the Alexandria workings and comprised underground mapping sampling and drilling. Carriere's 1983 program was the first modern exploration conducted in the Alexandria workings.


| a) | CALCULATIONS |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |
| Block | Area Sq Ft | Width (ft) | Volume Cu Ft | Tons | Assay | Oz Au |
| a | 325 | 3.11 | 1,011 | 84.3 | 0.271 | 22.85 |
| b | 925 | 4.41 | 4,079 | 339.9 | 0.564 | 191.70 |
| c | 750 | 3.68 | 2,760 | 230.0 | 0.119 | 27.37 |
| d | 875 | 3.89 | 3,404 | 283.7 | 0.366 | 103.83 |
| e | 2,525 | 3.54 | 8,939 | 744.9 | 0.401 | 298.70 |
| f | 1,500 | 2.93 | 4,395 | 366.3 | 0.384 | 140.66 |
| $g$ | 650 | 3.11 | 2,022 | 168.5 | 0.271 | 45.66 |
| h | 925 | 4.41 | 4,079 | 339.9 | 0.564 | 191.70 |
| 1 | 750 | 3.68 | 2,760 | 230.0 | 0.49 | 27.37 |
| $j$ | 875 | 3.89 | 3,404 | 283.7 | 0.366 | 103.83 |
| k | 2,525 | 3.54 | 8,939 | 744.9 | 0.401 | 298.70 |
| 1 | 1,500 | 2.93 | 4,395 | 366.3 | 0.384 | 140.66 |
| m | 2,650 | 5.04 | 13,356 | 1113.0 | 0.305 | 339.47 |
| D | 1,000 | 8.01 | 8,010 | 667.5 | 0.138 | 92.12 |
| - | 2,250 | 7.57 | 17,033 | 1419.4 | 0.316 | 448.53 |
| P | 2,650 | 5.04 | 13,356 | 1113.0 | 0.305 | 339.47 |
| q | 1,000 | 8.01 | 8,010 | 667.5 | 0.138 | 92.12 |
| I | 2,250 | 7.57 | 17,033 | 1419.4 | 0.316 | 448.53 |
| total | 25,925 | 4.90 |  | 10582.2 | 0.317 | 3353.27 |
| b) |  |  |  |  |  |  |
| Block | Area Sq Ft | Width (ft) | Volume Cu Ft | Tons | Assay | Oz Au |
| 5 | 494 | 3.11 | 1,536 | 128.0 | 0.271 | 34.69 |
| t | 703 | 4.41 | 3,100 | 258.3 | 0.564 | 145.68 |
| tt | 570 | 3.68 | 2,098 | 174.8 | 0.119 | 20.80 |
| u | 665 | 3.89 | 2,587 | 215.6 | 0.366 | 78.91 |
| $v$ | 2,020 | 3.54 | 7,151 | 595.9 | 0.401 | 238.96 |
| w | 1,380 | 2.93 | 4,043 | 336.9 | 0.384 | 129.37 |
| x | 2,332 | 5.04 | 11,753 | 979.4 | 0.305 | 298.72 |
| y | 920 | 8.01 | 7,369 | 614.1 | 0.138 | 84.75 |
| $z$ | 2,070 | 7.57 | 15,670 | 1305.8 | 0.316 | 412.63 |
| aa | 2,650 | 5.04 | 13,356 | 1113.0 | 0.305 | 339.47 |
| bb | 1,000 | 8.01 | 8,010 | 667.5 | 0.138 | 92.12 |
| cc | 2,250 | 7.57 | 17,033 | 1419.4 | $\underline{0.316}$ | 448.53 |
| total | 17,054 | 5.50 |  | 7808.7 | 0.298 | 2324.63 |

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Carriere's mapping along the main vein was confined to the No. 1 and No. 2 levels. The 100 and 200 levels beneath the No. 1 level were not dewatered.

Carriere found that the main Alexandria vein was a composite structure comprised of up to six quartz units and having composite widths of up to $10 \mathrm{~m}(32.8 \mathrm{ft})$. South of the Premier fault, the mineralized part of the vein generally had a northwesterly strike and a dip of $80^{\circ}$ to $85^{\circ}$ southwest. The vein was always a northeast and parallel with a diorite contact, separated from it and an intervening, medium-grained quartzplagioclase rock up to $11 \mathrm{~m}(36 \mathrm{ft})$ thick and by less than $2 \mathrm{~m}(6.5 \mathrm{ft})$ of andesite. A few quartz stringers were found in volcanics mapped in the northeasterly crosscuts but only one major vein system was mapped in the workings.

Mineralization was found to occur south of the Premier fault in white to grey vitreous quartz also containing elongate lenses and masses of pyrite aligned with the vein strike. Gold concentration was found not to be directly related to local concentration of sulphides. High assays were obtained from clean quartz as well as from some felsic tuff units. Sampling on the No. 1 level confirmed Premier's 1931 sampling, thus increasing confidence in the Wares and Carriere 1982 estimate of the extent of the inferred resource along the main vein (Figure 11) (Carriere, 1983).

The main Alexandria vein was traced north of the Premier fault where similar-looking quartz and pyrite contained no significant gold values.

It had long been accepted that the northern limit of gold mineralization was the plane of the Premier fault. Also unchallenged was the view that two generations of quartz-sulphide fluids were deposited in the Alexandria vein (B.C. Min. Mines, Ann. Rept.; 1934: pp. F7-F8). The first generation was barren. It predated the Premier fault and was deposited along the whole vein. The second generation which was gold-
bearing and post-dated the Premier fault, was deposited only in the southern part of the vein beneath the Premier fault plane.

The Premier fault has a measured attitude of $210^{\circ} / 67^{\circ} \mathrm{NW}$. and the diorite contact is displaced at least 85 m ( 279 ft ) to the southwest north of the fault.

The writer disagrees strongly with the 1934 model of mineralization. Firstly, if the Premier fault is a trap for the second generation of mineralizing fluids, why is there no mineralization along the plane of the fault, especially since the main vein and surrounding rocks are significantly rotated in relation the those beneath the fault plane. Secondly, the diorite volcanic contact is displaced a significant distance to the southwest suggesting substantial movement along the fault plane.

The writer believes that gold mineralization; however many generations it may have had, predated the Premier fault. Also, the Premier fault is a normal fault that has displaced rocks on its hanging wa11 downward juxtaposing mineralized quartz in the southern part of the vein with a barren section originally emplaced at a much higher level. The the vein may be mineralized at depth, north of the Premier fault. Similar faulting may be associated with Middle Tertiary-age northeasterly trending mafic dykes encountered in the No. 1 level at the Alexandria mine, at the Doratha Morton mine and at the Enid-Julie workings.

Carriere mapped the No.3, 4 and 5 tunnels, located up the hill and northeast of the main workings (Figure 7). The No. 3 penetrated a vein similar to that in the No. 1 tunnel. The vein in the No. 3 adit had a measured attitude of $180^{\circ} / 50-55^{\circ} \mathrm{W}$. Farther in the crosscut was a diorite contact similar to that found in the southern part of the No. 1 working. A drift followed the quartz vein near the entrance for 5 m then lost it in a fault similar to the Premier fault. No significant gold values were found in the No. 3 tunne1. Carriere (1983) assumed that the vein in the No. 3 working was not the main Alexandria vein.

The No. 4 adit penetrated four quartz veins in andesite with generally southeasterly strikes and dips ranging from $50^{\circ}$ to $55^{\circ} \mathrm{SW}$. The veins themselves returned low gold values but a $1.42 \mathrm{~m}(4.66 \mathrm{ft})$ wide section of silicified andesite; named the WAR zone, contained an average of $0.367 \mathrm{oz} / \mathrm{ton}$ gold. Carriere (1983) remarked that the WAR zone was the only place where significant gold values had been found in wall rocks. He mused that it was probably due to lack of work on those rocks and more sampling would possibly result in more mineralization being found in andesitic wall rocks.

Carriere did not map the No. 5 adit in detail. The writer inspected that working and found that it contained flat lying, somewhat ptigmatic quartz lenses in andesitic volcanics.

The writer examined the No. 1 adit as far as the obstruction caused by 1983 work located about 15 m beyond the Premier fault. All of the mineralized part of the main Alexandria vein in the No. 1 adit were viewed. Some of the No. 2 adit-area were visible up production stopes near the No. 1 portal. The vein appeared to maintain the same width, attitude and visible character from the No. 1 up to the No. 2 level. The sub-levels beneath the No. 1 adit were flooded and consequently not examined by the writer. Also, the No. 3 and No. 5 adits were examined; the No. 2 and No. 4 portals were caved.

To test his calculation of an inferred gold resource beneath the No. 1 level (Figure 11), Carriere had five holes drilled through the main Alexandria vein among the lower workings (Figure 10). Drilling was done from a station cut out in a southwest drift on the No. 2 level.

To facilitate work, the No. 1 portal was retimbered, the man way above the shaft connecting the No. 1 and No. 2 levels was rehabilitated, stopes were scaled and an waste pass was constructed to handle the rock excavated from the new drill station (Figure 10). Waste from that pass blocks the No. 1 level at present.

The results of the 1983 drilling are summarized as follows:

Alexandria No. 1 Vein: 1983 Underground Drilling

| Hole <br> No. | Intersection Location | $\begin{gathered} \text { Vein Width } \\ \mathrm{m} \\ \hline \end{gathered}$ | Gold Content $\mathrm{gm} / \mathrm{mt} \mathrm{oz/ton}$ |
| :---: | :---: | :---: | :---: |
| U1 | 9 m above 200 level south of Premier fault and 10 m SW of working | 0.41 .3 | 90.32 .73 |
| U2 | 15 m above 100 level . narrow inter north of Premier fault | ection with | low values |
| U3 | 15 m SE of U1 south of Premier fault and 5 m SW of working <br> Int. 1: <br> Int. 2 | $\begin{array}{ll} 1.6 & 5.3 \\ 1.7 & 5.6 \end{array}$ | $\begin{array}{ll} 8.6 & 0.26 \\ 9.6 & 0.29 \end{array}$ |
| U4 | not drilled |  |  |
| U5 | 15 m ? NW of U1 just north of the Premier fault narrow inter | ection with | low values |
| U6 | 30 m SE of U1 and 5 m below the 100 level | 1.96 .2 | 12.20 .37 |

Carriere's (1983) conclusions were most succinct and eloquent.
They were as follow:

1. Gold values in the quartz veins are related to the proximity of the diorite intrusive.
2. The Premier Fault truncates gold values to the northwest.
3. The diorite contact is displaced at least 85 metres southwest across the Premier Fault.
4. Gold occurring in quartz veins is generally associated with a narrow heavily pyritized white/grey vitreous quartz unit.
5. Assays taken by the Premier Gold Mining Co. Ltd. in the 1930 s correlate favourably with those taken during the 1983 program.
6. The Alexandria ore shoot extends below the 100 level.
7. A lateral offset below the 100 level moves the ore 5 to 10 metres southwest of the anticipated down dip projection.
8. The 200 level was driven in the hanging wall of the ore zone and as such does not necessarily limit the down dip extension of the Alexandria ore shoot.
9. The No. 3 and No. 5 adits are different structures than that of the Alexandria vein.
10. The No. 4 adit is northeast of the Alexandria vein.
11. Gold values may be present in the silicified andesite formations of the Phillips Arm shear zone, as seen in the No. 4 WAR zone.
12. Further exploration is required to correlate the geology of the 5 main adits and the Enid-Julie showings to the northwest.
13. Excellent exploration potential exists for the discovery of significant gold-bearing zones in the following areas:
(a) Southwest of the Alexandria vein and northwest of the Premier Fault
(b) Below the 200 level and within the lower block of the Premier Fault
(c) The No. 4 adit wall rock zone (WAR zone)
(d) The diorite contact southwest of the No. 4 adit
(e) Enid-Julie workings
(f) Northwest of, and on strike with the Enid-Julie towards the Doratha Morton property line.

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\text { Carriere, G.H.; 1983: p. } 19 .
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During 1983, Charlemagne Resources Ltd. acquired a large block of claims covering the northeasterly facing slope between the Enid-Julie, Doratha Morton and Fanny Bay. The southern part of that claim-area is ground now covered by the northern part of the Jeff and Ben claims (Figure $2)$.

Charlemagne retained G.H. Carriere and Robert Simpson to conduct a program of prospecting the following year (Simpson and Carriere, 1984). A large piece of angular quartz-pyrite float assaying $7.17 \mathrm{oz} /$ ton gold and $21.8 \mathrm{oz} /$ ton silver was found in Bullveke Creek about 300 m ( 984 ft ) downstream from the Enid-Julie area.

Enthused by the prospects of the Alexandria mine and the propertyarea in general, Falconbridge Limited optioned part of Charlemagne's interest in the claims. Falconbridge conducted an extensive exploration over most of the area from Fanny Bay southward past Picton Point (Figure 2) including all of the present Alexandria property-area.

The 1985 exploration program (Hicks, 1986) included the following:

1. underground mapping in the Alexandria, All Up, Empress and some of the Enid-Julie workings
2. more drilling in the Alexandria workings
3. regional mapping and prospecting
4. airborne geophysical surveys
5. soil surveys and ground geophysical surveys west of the EnidJulie workings and around the Alexandria workings


The current Alexandria property-area was mapped at a scale of 1:10,000 (Hicks, 1986) (Figure 12). Professional rock climbers were employed to map difficult terrain above the Alexandria workings.

It was demonstrated that gold-gearing quartz bodies in the claimarea were hosted by a northwesterly trending keel of andesitic metavolcanics and associated metasediments that had been tightly folded into a series of at least three major anticlines and synclines. Fold axes trended about $310^{\circ}$; the intrusive contacts bounding the keel trended about $320^{\circ}$, a $10^{\circ}$ difference. Gold-bearing quartz bodies seem to be oriented parallel with the margins of the keel where near them and parallel with the enclosing fold axes away from the margins of the keel.

It is possible that rocks within the keel were rotated up to $10^{\circ}$ during left-lateral strike-slip movement along a shear-zone paralleling it. The Gold-bearing quartz bodies may have developed in dilatant areas during shearing and rotation. Consequently, the Doratha Morton, EnidJulie and Alexandria may all be on sub-parallel en echelon quartz bodies and there may be several parallel gold-bearing structures in each workings-area.

Detailed mapping and sampling was conducted at the Alexandria in the No.1 level in to the waste pass from the 1983 program and in the No. 2 to No. 5 workings. The 1983 work of Carriere and his estimates of an inferred gold resource were confirmed (Hicks, 1986).

The petrography of high-grade gold-bearing quartz samples was studied at Lakefield Research. It was found that:

Generally the mineralized quartz vein from the Alexandria workings is very heavily sheared, granulated, fractured, annealed and recrystallized. Pyrite is the major sulphide mineral with trace amounts of native gold, sylvanite, kregerite, native silver and native bismuth. Native gold occurs along later fractures, possibly as a supergene alteration product.

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\text { Hicks, Ken; 1986: p. } 24 .
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A total of 15 holes were drilled across the shear zone hosting the Alexandria vein from stations in the No. 1 and No. 2 adits (Figure 10).


Drill holes UG85-1 to 4 were drilled from a station located in the first drift extending southwestward from the No. 1 adit. They were drilled back into the main Alexandria vein and penetrated it less than 30 m ( 100 ft ) below the No. 1 level (Figures 5 and 10 ). The holes hit a complex vein structure with variable gold contents. The best intersections in that area were in UG85-3, $0.38 \mathrm{oz} / \mathrm{ton}$ gold over 1.0 m and in UG85-4, 0.149 oz/ton gold over 0.2 m .

Hole UG85-5 was drilled northeastward from the end of the first northeasterly drift in the No. 1 adit. That hole penetrated volcanic rocks northeast and at the same elevation as the No. 1 adit and encountered no significant mineralized intersections. UG85-6 was drilled northeasterly into similar rocks from the top of the man way to the No. 2 level (Figure 10) with similar results.

Hole UG85-7 was drilled southwestward from a point in the No. 2 adit about $20 \mathrm{~m}(66 \mathrm{ft})$ in from the top of the man way. As would be expected, the main Alexandria vein structure was encountered just west of the No. 2 adit where a 1.8 m intersection returned $0.03 \mathrm{oz} /$ ton gold.

Holes UG85-8 to 15 were drilled from several locations along the No. 2 adit north of the Premier fault where conventional wisdom indicated that no gold-bearing sections would be found on the main Alexandria structure. Holes UG85-8 and 11 to 14 intersected a series of lean goldbearing quartz-filled structures that returned up to $0.07 \mathrm{oz} /$ ton gold over widths in excess of $1 \mathrm{~m}(3.3 \mathrm{ft})$. These structures were parallel with the main vein and located just east of the No. 2 adit through a vertical distance of at least 50 m (164 ft).

A summary of 1985 drilling into the main Alexandria vein is as follows:

Alexandria No. 1 Vein: 1985 Underground Drilling

| Hole Intersection Location No. | Vein <br> m | $\begin{array}{r} \text { Width } \\ \mathrm{ft} \end{array}$ | $\begin{gathered} \text { Gold C } \\ \mathrm{gm} / \mathrm{mt} \end{gathered}$ | ontent oz/ton |
| :---: | :---: | :---: | :---: | :---: |
| UG85-1 -6 m below No. 1 level, 38 m in from portal | 1.2 | 3.9 | 6.45 | 0.19 |
| ```UG85-2 -18 m below No.1 level, 38 m in from portal -5 m west of vein, }15\textrm{m}\mathrm{ below No. 1 level``` | 1.0 0.8 | 3.3 2.6 | 1.2 5.8 | 0.04 0.17 |
| UG85-3 -9 m below No. 1 level, 18 m in from portal | 1.0 | 3.3 | 12.6 | 0.38 |
| ```UG85-4 -20 m below No.1 level, 18 m in from portal -5 m west of vein, 16 m below No.1 level``` | 1.0 | 3.3 4.9 | 1.2 2.0 | 0.04 0.06 |
| UG85-8 -37 m above No. 2 level, 80 m in from the main shaft area, above and north of the Premier fault | 1.9 | 6.2 | 3.0 | 0.09 |

Geological mapping, soil, magnetic and electromagnetic surveys were conducted throughout the Alexandria workings-area. Gold concentrations in those soils ranged up to $2,200 \mathrm{ppb}$. Generally, the highest values were coincident with the old working-portals (Hicks, 1986), probably due in part to blasting contamination. The soil-gold anomalies near the No. 4 adit and just east of the No. 2 portal-area (Figure 13) may be caused by the gold-bearing zone parallel with and east of the main Alexandria vien found by underground drilling east of the No. 2 adit. The soil-gold anomaly east of the No. 5 working may be an expression of another untested gold-bearing zone.

Hicks (1986) found that there was no obvious correlation of electromagnetic conductors and known gold-bearing structures. A significant northeasterly trending anomaly located along line 090 E. (Figure 12) had no obvious correlation with anything on the ground. The writer believes that it may be related to the Premier fault.

The All Up adit (Figure 2) was located along the shoreline about $800 \mathrm{~m}(2,624 \mathrm{ft})$ north-northeast of the Alexandria No. 1 adit. It was

sampled and mapped by the Falconbridge crew (Hicks, 1986; Fig. 19). The adit penetrated andesites containing narrow quartz stringers for a length of $29 \mathrm{~m}(95.1 \mathrm{ft})$ on an average bearing of $295^{\circ}$. No significant gold concentrations were found in the All Up.

The Falconbridge crew prospected along the area between the Doratha Morton and Enid-Julie workings areas. They discovered a caved adit near where Noel's (1980) central soil grid was located (Figures 2 and 9). From the dump, pyritic grab samples assayed up to $132 \mathrm{gm} / \mathrm{mt}$ (3.99 oz/ton) gold. They followed a sparsely mineralized quartz vein for 300 m (984 ft) northwest where it "horsetailed out" (Hicks, 1986). They identified that adit as the Empress working.

Farther along the trend near the southeastern corner of the reverted Empress crown-grant they found a water-filled shaft reported to be $5 \mathrm{~m}(16.4 \mathrm{ft})$ deep. Pyritic quartz from the dump area returned very low assays. This was identified as the Julie shaft.

The writer strongly suspects that this shaft is not the Julie shaft but another excavated on the Empress claim. The old Minister of Mines annual reports always report a shaft located on the Julie claim. At that time, all of the claims in the area had been surveyed along cut lines. It seems unlikely that the Julie shaft was reported as being on the wrong claim and that the Enid adit would have been excavated to get under a barren vein. There may be another shaft on a gold-bearing lead located just south of the Empress (Julie) shaft that has not been found by recent workers.

Hicks (1986) mapped and sampled the Enid adit confirming earlier results (Noel, 1980). Channel samples contained generally low gold concentrations.

The Kristina (No.3) adit was found to have been driven into a quartz lens in calcareous metasediments. Gold values from samples taken within the tunnel were low. A float sample near the entrance returned an assay of $148.5 \mathrm{gm} / \mathrm{mt}$ ( $4.48 \mathrm{oz} /$ ton) gold.

Soils were sampled for several elements including gold and silver on two extensive grids. One was located just southwest of the trend between the Doratha Morton and the Enid-Julie; the other was southwest of the Enid-Julie workings (Figure 9).

Falconbridge's northwesterly Enid-Julie grid was located just southeast of the Doratha Morton claim line, and southwest of the grids laid out along the trend between the Doratha Morton Mine and the EnidJulie (Noel, 1980; Jones, 1981) (Figure 9). A southwesterly trending series of soil silver anomalies extended across the northwestern part of that grid just south of the Doratha Morton claim line.

There were no significant gold anomalies on either grid, only a few spot highs.

A ground electromagnetic survey was conducted over an area extending across the southeasterly Enid-Julie soil grid to near the EnidJulie workings. Hicks (1986) concluded that there was little anomalous response.

Other surveys that were tried during the 1985 program and found to be ineffective in the Alexandria property-area were: airborne geophysical surveys, remote sensing surveys using satellite data and ground piezeoelectric surveys.

Despite positive results, Falconbridge Ltd. dropped their options to claims in the area during 1986.

Later that year Charlemagne Resources continued drilling along the Enid-Julie to Doratha Morton trend. The program comprised five holes that were drilled from October, 1986 to February 1987. The first three holes were drilled north of the Doratha Morton mine in the Commonwealth-Champion workings-area (Figure 2). The last two holes were drilled at the EnidJulie workings (Figures 2 and 14). The drill was moved by helicopter onto a platform located up hill and to the west of the Kristina (No.3) and Enid adits. The holes were oriented to test gold-bearing structures mapped in the adits. Jenna Hardy described the results of that work with regard to Hole CHG.86-4 as follows:

While lithologies as shown vary considerably, much of CHG.86.4 lies within the metavolcanics and metasediments of a roof pendant, through a small sequence of medium grained hornblende diorite occurs at the top of the hole. Anomalously thick sections of ash feldspar crystal tuff in the upper portions of the hole, pass downward to interlayered metavolcanics and metasediments. Both basalt and andesite dykes occur nearer the bottom of the hole above and below the vein system (Map Unit 5) (Figure 13). Narrow intervals of calc-silicate alteration are present in both metavolcanics and metasediments. The basalt dykes shown appear most of ten to trend sub-parallel to a major shear zone running through the area

The hole was placed to test values of up to 3.8 oz gold per ton and 15.4 oz silver per ton in caved material from the floor of the Kristina adit, and penetrated about 14 m beneath the adit floor. It failed to intersect any mineralization that could be attributable to a mineralized feature extending from the area of the Kristina adit. The extension of the Enid structure is however geochemically and geologically recognizable in the hole by values up to 550 ppb Au. Three distinct anomalous zones are in fact present.

Hardy, Jenna; 1988: p. 14.

During the early 1990s, Home Ventures Ltd. gained control of ground now covered by the Alexandria property. That company commissioned Ignacije Borovic (1995) to write a summary report. The writer could find no evidence that any work had been done in the area from 1987 until 1996.

### 4.01996 EXPLORATION PROGRAM ON THE ALEXANDRIA PROPERTY

### 4.1 Design of the 1996 Exploration Program on the Alexandria Property

Norwood Resources' 1996 exploration program on the Alexandria property comprised the following:

1. Renovation of the access roads from Picton Point onto the southern and western parts of the property. 10 km of road of which 4 km is on the property was brushed out.
2. Magnetic, electromagnetic and soil surveys on the Dy grid located near the southwesternn boundary of the property (Figures 9 , and 15 to 17).
3. Soil survey on the Alexandria grid that covers the Alexandria workings-area in the southeastern part of the porperty (Figures 9 and 18).
4. Soil survey on the Ben grid located near the northern boundary of the property (Figures 9, and 19).

Survey grids constructed during the 1996 exploration program were as follows:

| Grid | Length of <br> Base Line | Length of <br> Grid Line | No. of Soi1 <br> Samples |
| :--- | :---: | :---: | :---: |
|  | 700.0 m | 6242.5 m | 273 |
| Dy | 425.0 m | 2012.5 m | 101 |
| Alexandria | $\underline{580.0 \mathrm{~m}}$ | $\underline{1212.5 \mathrm{~m}}$ | -74 |
|  | 1705.0 m | 9467.5 m | 448 |

Grid lines for all three grids were laid out using compasses and hip-chains. Lines and stations were flagged with biodegradable flagging tape.

The Dy grid comprised 15 north-south lines extended from a central east-west base line. Lines of this grid were spaced 50 m apart and sample stations were generally spaced 25 m apart along the lines and the base line (Figures 15 to 17).

The Ben grid comprised 17 northeast-southwest lines extended mostly eastward from a northwest-southeast base line. Lines were spaced 25 m apart with sample stations generally at 25 m intervals along each line (Figure 19).

The Alexandria grid comprised a northeast-southwest base line with northwest-southeast lines extending from the base line at various intervals. Soil sample stations were spaced at 25 m intervals along the lines and base line (Figure 18).

Soil samples were collected in undyed kraft paper envelopes from illuviated ' $B$ ' soil horizons as much as possible. Upon drying, the samples were sent to Acme Analytical Laboratories Ltd. of Vancouver, British Columbia. Samples were analyzed for 31 elements including gold and silver and copper. Selected results of the soil analyses form Figures 15, 18 and 19 ; methods and complete results of analysis comprise Appendix ' $A$ ' of this report.

Electromagnetic readings were taken along the Dy grid lines and base line at generally 25 m intervals using a Geonics EM16 instrument.



NORWOOD REBOLAGES LTD.
SOIL SURVEY AND GEOLOGY
ALEXANDRIA PROPERTY
$50^{\circ} 29^{\prime} 22^{\prime \prime N} . ., 125^{\circ} 22^{\prime} 45^{\prime \prime} \mathrm{w}$.
U.T.M. $5595200 \mathrm{~N} ., 331250 \mathrm{E}$. N.T.S. $92 \mathrm{~K} / 6-\mathrm{K} / 11$ VANCOUVER M.D., B.C.

C


Dip angles were measured using the signal from the Seattle VLF transmitter.

Dip angles appear in Figure 16; Fraser-filtered data is displayed in Figure 17.

### 4.2 Results of the 1996 Exploration on the Alexandria Property

The 1996 exploration program on the Alexandria property was designed as a preliminary part of a larger ongoing project. The goal of the project in general is to focus on areas with a high potential for gold mineralization in order to define easily minable gold reserves.

An important part of the 1996 program was to re-establish efficient ground access to the property-area. About 10 kilometres of road extending from Picton Point onto the southern and western parts of the Alexandria property had to be cleared of 10 years growth of brush to make them passable. Once that was done, attention was turned to finding the answers to two key lingering questions resulting from the 1976 to 1987 work in the area.

The questions addressed by the 1996 work were:

1. Is there a mineralized northward extension of the main Alexandria vein or is it replaced by a en echelon structure located near the No. 3 to No. 5 adits northeast of the main vein?
2. Can the mineralized structure at the Doratha Morton be located on the Alexandria property south of the Alexandria-Doratha Morton claim boundary?

To address the question of a northern extension of the Alexandria vein, prospecting, geochemical and geophysical surveys were conducted in two areas; on the western part of the Dy claims (Figures 15 to 17 ), and in the Alexandria workings-area (Figure 18).

The 1996 Dy claim grid was on the slope just above the cliffs adjacent to the Alexandria workings-area. Soils were analyzed for a broad range of elements including copper, silver and gold.

Soil gold concentrations were generally near background values. Only two soils had gold concentrations in excess of 50 ppb (Figure 15).



Silver results were consistent with those obtained by Noel's crew (Jones, 1982). Almost all values were below a detection limit of 0.03 ppm (Figure 15).

Copper concentrations are generally below Jones' (1982) "possibly anomalous" threshold of 30 ppm . However, possibly anomalous copper contours outlined east-northeasterly trends that are probably related to late (post-mineralization) faulting and dyke emplacement. These trends are truncated by a northwesterly trend in the southern part of the gridarea. The northwesterly trend in soil-copper concentrations coincides with an electromagnetic cross-over from negative to positive dip angles (Figures 16 and 17). Probably, the cross-over and coincident soil copper trend define an extension of the shear zone that bounds the Alexandria structure on its southwesterly side.

From work on the western part of the Dy claims and previous lack of success in locating an extension to mineralization northwest of the No. 1 Alexandria adit. It can be assumed with confidence that economic mineralization on the main Alexandria vein dies out northwest of the workings.

Previous work had indicated that at least one other mineralized vein lying sub-parallel with and northeast of the main Alexandria vein was located somewhere near the No. 4 and No. 5 adits. To test and accurately locate such a structure, prospecting and a soil survey were conducted across the Alexandria workings-area where Falconbridge's 1985 work had been done (Hicks, 1986) (Figures 9, 13 and 18).

Soil-gold concentrations from the 1996 survey of the Alexandria area were up to 2760 ppb . Most high values were from near the No. 3 to No. 5 portals where contamination from mining would probably be significant. The 1996 survey did not test the area up hill from the No. 4 adit and consequently, must be considered incomplete. Further detailed work up hill from those workings could be very useful in identifying the structure that reportedly had been traced for 1,000 feet up the hill in 1928.

The most significant result of Norwood's 1996 exploration program was the location of the Doratha Morton gold trend on the Alexandria property.

Soils were tested from across a grid located on the Ben claims extending southeastward from the Doratha Morton-Alexandria property boundary (Figures 9 and 19). That grid was in the area of Noel's (1980) northwestern soil grid. Noel's grid was atop the bluffs and Norwood's 1996 grid was below them.

Soil-gold concentrations from the 1996 Ben grid range up to 585 ppb gold. It is most impressive that almost half of the grid-area has soils containing over 20 ppb gold. Generally, soil-gold concentrations are not contoured due to the nugget effect. However, gold is so plentiful in the soils across the Ben grid-area that the writer made an exception in this case. Gold contours indicate aprons of gold are being transported down the steep slope from source-areas along the base of the bluffs near the southwestern margin of the grid. Intense soil-gold anomalies in that area suggest that a significant amount of gold mineralization comprising an extension of the Doratha Morton gold trend is buried along the base of the bluffs.

### 5.0 CONCLUSIONS AND RECOMMENDATIONS

### 5.1 Conc1usions

The Alexandria property is located on a roof pendant of metavolcanic and metasedimentray rocks within the Coast Range plutonic complex. The roof pendant hosts a series of sub-parallel, en echelon gold-bearing structures that attain lengths of over 500 m ( 1640 ft ).

Gold occurs with sparsely disseminated pyrite and traces of other sulphides in ribboned quartz veins and dilatant pods within these structures. Gold concentration in these quartz bodies can exceed 5.0 $\mathrm{oz} /$ ton ( $165.6 \mathrm{gm} / \mathrm{mt}$ ) and commonly is in excess of $0.3 \mathrm{oz} /$ ton ( $10 \mathrm{gm} / \mathrm{mt}$ ) across widths in excess of $1 \mathrm{~m}(3.28 \mathrm{ft})$. Composite widths of several adjacent quartz bodies can exceed 10 m ( 32.8 ft ).

The property covers some of the central and most intensely mineralized part of the Phillips arm gold camp which extends for $6 \mathrm{~km}(3.7$ mi) from the northern shore of the entrance to Phillips Arm, up the mountain toward Loughborough Inlet. old gold prospects and mines presently within the Alexandria property are: the Alexandria, Enid-Julie, Empress and All Up. Northwest of the Enid-Julie and Empress is the Doratha Morton mine and the Champion-Commonwealth which are presently covered by other claims.

Production from the Doratha Morton mine from 1898 to 1899 was $4,434,08$ ounces of gold and 10,222 ounces silver from 9,707 tons of ore. The Alexandria mine produced 773.66 ounces of gold and about $1,340.5$ ounces of silver from 1,915 tons of ore from 1898 until 1940.

Neither of these former producers is worked out.
Major gold-bearing structures have been found in two areas on the property; at the Alexandria mine, located in the southeastern part of the property, and along a trend that extends from the Enid-Julie workings northwestward to the northern property boundary near the Doratha Morton mine.

The Alexandria mine comprises five workings which are summarized as follow:

Underground Advance: Alexandria


The No. 1 adit and the 050 to 250 sub-levels were driven on the main Alexandria vein from which all of the past production has come. The No. 2 adit was located $15 \mathrm{~m}(50 \mathrm{ft})$ above the No. 1 adit and just off the main vein for use as a haulage way. No. 3 to 5 adits were driven into other structures that ran parallel with the main vein.

The main Alexandria vein is a composite structure comprised of up to six quartz units and having composite widths of up to $10 \mathrm{~m}(32.8 \mathrm{ft})$. Mineralization occurs south of the Premier fault in white to grey vitreous quartz also containing elongate lenses and masses of pyrite aligned with the vein strike. Gold concentration is not to directly related to local concentration of sulphides. North of the Premier fault, similar-looking quartz and pyrite in the vein contains no significant gold values.

The Premier fault seems to be a normal fault that has displaced rocks on its northerly hanging wall downward juxtaposing mineralized quartz in the southern part of the vein with a barren section to the north which originally may have ben emplaced at a much higher level. Gold mineralization may occur at depth, north of the Premier fault; however, its existence there remains unproven. Consequently, the Premier fault is deemed to be the northern limit of economic mineralization on this vein structure.

Underground mapping and drilling during the early 1980 s helped to confirm a previously estimated inferred resource in the Alexandria mine between the No. 2 and 100 levels. After deduction of all material contained within the four blocks mined from 1931 to 1940 this inferred resource can be estimated to be $17,190.8$ tons containing $5,214.3$ ounces of gold.

The parameters of this estimate are unknown reducing it to qualitative value only.

No significant mineralization was found below the 100 level by underground mapping. However, drilling in that area revealed that the mineralized part of the structure was offset 5 to $10 \mathrm{~m}(16.4$ to 32.8 ft$)$
from the working at that level and continued to depth below the No. 1 working.

At present mineralization of the main Alexandria vein is open to depth and to the southeast along the structure.

The No. 3 to No. 5 Alexandria adits were driven on other seemingly less promising gold-bearing quartz bodies. However, as early as 1928, a large quartz vein had been traced for at least 304 m ( $1,000 \mathrm{ft}$ ) up the bluffs above the Alexandria mine.

An intense soil-gold anomaly in the No. 4 adit-area and old records indicate that a sub-parallel gold-bearing structure may be discovered north of the Alexandria workings above the No. 4 adit.

A gold-bearing trend between the Doratha Morton mine and the EnidJulie workings has been defined by prospecting and soil survey. This trend extends for at least $1800 \mathrm{~m}(5,904 \mathrm{ft})$. The major part of it being a length of $1,100 \mathrm{~m}(3,608 \mathrm{ft})$ is on the northern part of the Alexandria property.

Enid-Julie and Empress workings comprise a series of small shafts and adits as follow:

Underground Advance: Enid-Julie and Empress

| Heading | Elevation | - Drift | $\underline{\mathrm{X}-\mathrm{Cut}}$ | Shaft | Tota |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Enid adit | 652 m | 93 m | 44 m |  | 137 |
| Julie shaft | 884 m |  |  | 5 m | 5 |
| No. 2 adit | 847 m ? |  | 10 m |  | 10 |
| No. 3 adit | 999 m ? | 11 m |  |  | 11 |
| Total advanc | e in the | Julie a |  |  | 163 |
| Empress shaft | 900 m |  |  | 4.6 m | 4.6 |
| NOTE: Data on the Ann. Rept Data on th labelled are two sh not been | Enid-Julie <br> ; 1933: p. A2 Empress sha the shaft on th hafts of simil located by rece | Carriere <br> from Noel, ess claim h above t kers. | p. 15 a <br> p. 6 and Julie sh adit and | Min. Mine <br> 3. Some writer aft on $t$ | worker $s$ that claim |

No major vein structure was found within the lower Enid-Julie workings-area. This was probably because those workings were testing the feathered-out end of a gold-bearing quartz body that probably extends
southeastward from the workings. A second, parallel structure seems to extend northward from the Julie and Empress shafts northwestward toward the Doratha Morton mine.

Norwood's 1996 soil survey on the Ben claims strongly indicates that significant gold mineralization is present in a structure that extends from the Doratha Morton mine, southeastward across the Alexandria property. A mineralized strike length of at least $400 \mathrm{~m}(1,312 \mathrm{ft})$ across the Alexandria property was indicated by the 1996 soil survey. An additional $500 \mathrm{~m}(1,640 \mathrm{ft})$ of this gold-bearing trend needs to be surveyed to determine whether this is the same structure found at the Empress and Julie shaft-area or another paralle1 structure.

The full extent of the mineral potential of the Alexandria property is yet unknown. Probably, further exploration on this property will result in more discoveries.

### 5.2 Recommendations

There are four areas on the Alexandria property where the potential for discovering more gold reserves are high:

1. southeastward and to depth on the main Alexandria vein
2. near the Alexandria No. 4 working
3. on the trend extending southward from the Doratha Morton mine onto the northern Alexandria property
4. in the Empress and Julie shaft area

A multi-phase program. of exploration should be conducted with focus upon these areas in order to most efficiently increase the amount of known gold mineralization on the property. Proceeding with subsequent phases of exploration should be contingent upon reasonable success having been achieved during previous work. I recommend that further exploration includes the following:

Phase 1 Exploration: estimated cost $=\$ 107,000$

## Doratha Morton trend

1. The 1996 Ben soil survey should be continued southeastward along the 1996 base-line for another 500 m to the Empress adit-area. An orthogonal grid with 25 m lines and station spacings should be constructed. Where the bluffs recede, the survey-area should be widened to 300 m to ensure that all mineralized structures are tested.
2. A road route extending up to the base of the bluffs on the Ben soil grid-area from the southern end of the Doratha Morton access road should be surveyed. Thence, a road route should be surveyed along the base of the bluffs from the northern claim boundary southward to the Empress workings in order to develop mineralization along the Doratha Morton trend. These road routes should be developed as foot trails during this phase of exploration to increase the efficiency of work in this area
3. Careful prospecting should be conducted along the trend between the Julie shaft-area and the northwestern end of the 1996 Ben soil grid to locate and sample and old workings, dumps and mineralized outcrops. Also, it would be valuable to determine whether the Empress and Julie shafts are separate entities or one working with two names.
4. Newly discovered showings should be opened and sampled

## Alexandria workings-area

1. A detailed chart should be made from soundings taken of the floor of Cordero Channel southeast of the Alexandria No. 1 portal to determine the potential for minable reserves on the main vein in that area. Reportedly, this had been done during the 1920 s with favourable results, but the information has been lost.
2. The horse trail from the No. 1 to No. 4 adit should be renovated to decrease daily transit time consumed by crews in traversing the steep slope from the shore to the work-area. Renovation of about 300 m of trail would be required.
3. Careful prospecting should be conducted on the slopes around and above the No. 4 adit to find the quartz vein that reportedly was traced for 304 m ( $1,000 \mathrm{ft}$ ) up the hill during the 1920 s .
4. Close-spaced soil survey should be conducted on the slope above the base-1ine of the 1996 Alexandria soil survey to detect goldbearing structures. Lines of this soil grid should be 10 m apart with 10 m sample spacings on each line.
5. Newly discovered showings should be opened and sampled

Phase 2 Exploration: estimated cost $=\$ 150,000$
Doratha Morton Trend

1. Road access from Picton Point through the Doratha Morton property to the Ben grid-area must be improved to permit light truck access to the Ben grid-area.
2. The access road beneath the bluffs along the Doratha Morton trend should be constructed using an excavator. This road will double as a long trench that should open up gold mineralization along strike for up to $900 \mathrm{~m}(2952 \mathrm{ft})$. During road constructiontrenching, obviously mineralized material should be saved for a bulk sample that could return significant gold revenue to the company.
3. This road cut-trench should be mapped and sampled as soon as it is opened up before any fresh exposure is covered by sloughed in material

## Alexandria workings-area

1. A road should be cut out from the shore north of the No. 1 adit to any major soil anomalies in the No. 4 adit-area.
2. Soil anomalies in the No. 4 adit-area should be trenched with an excavator to open potential gold-bearing structures for sampling.
3. There is a large old trench about 50 m ( 164 ft ) north of the No. 2 portal. This trench is accompanied by a significant down-slope gold dispersion train. No work is recorded from this trench. It should be opened to test for parallel gold-bearing structures that could be mined from the No. 1 working.

## Phase 3 Exploration: estimated cost $\$ 400,000$

## Doratha Morton Trend

1. All significant gold-bearing zones should be drilled to test for contiguity of mineralization to depth.

## Alexandria workings-area

1. The extension of the ore-zone on the Main Alexandria vein to depth and along strike to the southeast should be confirmed by deep drilling. This could be done from a barge anchored in Cordero Channel southeast of the Alexander workings if the sounding suevey forming part of Phase 2 shows that the channel floor profile is shallow. Holes would have to be grouted to seal them at the completion of drilling. Federal permits may be required for off-shore drilling adding to the cost of the program.
2. All other significant gold-bearing structures uncovered during the second phase of exploration should be dril1-tested.


### 6.0 Itemized Cost Statement of the 1996 Exploration Program

## Wages:

Christopher I. Dyakowski, B.Sc.
7 days @ $\$ 400 /$ day
Bernard H. Fitch, B.A.
40 days @ \$300/day \$12,000.00
John Ost1er; M.Sc., P.Geo.
18 days @ $\$ 400 /$ day
Thomas Jones
19.5 days @ \$200/day \$3,900.00

Karl Christensen
18 days @ \$250/day \$4,500.00
Patrick Poissant
30 days @ \$200/day \$6,000.00
Alex Smith
22.5 days @ \$200/day $\$ 4,500.00$

Thor Juvik
14 days @ $\$ 200 /$ day $\$ 2,800.00$
Ronald Gibbs
27 days @ $\$ 225 /$ day $\quad \$ 4,500.00$
$\$ 48,200.00 \$ 48,200.00$
Transport:
Rental of pick-up trucks and ATV's

| $\$$ | $8,815.00$ |
| ---: | ---: |
| $\$$ | $3,462.00$ |
| $\$$ | $1,470.00$ |
| $\$$ | $1,540.00$ |
| $\$$ | 258.00 |
| $\$$ | 449.00 |

$\$ 15,994.00 \$ 15,994.00$
Camp:
Tool rental

| $\$$ | 601.00 |  |
| :--- | ---: | ---: |
| $\$$ | $1,500.00$ |  |
| $\$ 3,720.00$ |  |  |
| $\$ 5,821.00$ | $\$ 5,821.00$ |  |

Crew and Communication Costs:
Hotel and meals in transit
L.D. and radio telephone
$\$ 1,097.00$
Air fares and taxi
Freight barge
B.C. Ferry tickets

Gasoline

Geophysical equipment rental
Field supplies and camp fuel

> | $\$$ |
| ---: | ---: |
| $\$ \quad 213.00$ |

\$ 1,310.00 \$ 1,310.00
Assay and Analysis:
Soil analysis; 448 soils
$\$ 6,779.00 \$ 6,779.00$
Report Production:
Maps and geological reports
Autocad drafting
Physical report production

| $\$$ | 173.00 |
| :--- | ---: |
| $\$$ | $1,000.00$ |
| $\$$ | 117.00 |

$\$ 1,290.00 \$ 1,290.00$
Cost of 1996 Exploration Program
G.S.T.; 7\% of $\$ 79,394.00$
$\$ 5,558.00$
Total Cost of 1996 Exploration Program

### 7.0 REFERENCES

Borovic, Ignacije; 1995: Report on the Mineral Exploration of the Phillips Arm Property for Home Ventures Ltd.; Summary Report for Home Ventures Ltd., 33 p., 33 fig., sample desc., assays.

Carriere, G.H.; 1983: Report on Exploration: 1983 Field Season, Alexandria Claim Group; B.C. Min. Energy, Mines and Petr. Res., Ass. Rept. No. $11,839,28$ p. inc. 2 fig., appendices inc. mine plans.

Cathro, R.J. and Carne, B.A.; 1983: Summary Report, 1983 Exploration, Phillips Arm District, Southeastern British Columbia for Bute Joint Venture; Private Summary Report, 34 p., appendices.

Hardy, Jenna; 1988: Charlemagne Resources Ltd., Diamond Drilling Report, Phillips Arm Property; B.C. Min. Energy, Mines and Petr. Res., Ass. Rept. No. $17,067,21 \mathrm{p}$. inc. 3 fig., 2 maps, drill logs, analyses.

Hardy, Jenna; 1986: Summary Report on the Phillips Arm Project; Report for Charlemagne Resources Ltd. 26 p. inc. 3 fig.

Hicks, Ken; 1986: Drilling, Geological and Geochemical Report on the Phillips Arm Project, Southwestern B.C.; B.C. Min. Energy, Mines and Petr. Res., Ass. Rept. No. $14,466,33$ p. inc. 9 fig., 7 maps, appendices.

Hogg, R.L.S. and Podolsky, G.; 1985: Report on Combined Helicopter Borre Magnetic and EM Survey, Charlemagne, B.C.; Aerodat Ltd. Project J8520-4, 5 maps.

Holland, S.S.; 1976: Landforms of British Columbia, A Physiographic Outline; B.C. Min. Energy, Mines and Petr. Res., Bull. 48, pp. 42-43.

Jones, H.M.; 1982: Geological and Geochemical Report, Alexandria Property; B.C. Min. Energy, Mines and Petr. Res., Ass. Rept. No. $10,399,23$ p. inc. 2 fig., 5 maps, appendices.

Noel, G.A.; 1980: Geological and Geochemical Report, Alexandria Group; B.C. Min. Energy, Mines and Petr. Res., Ass. Rept. No. 8,287, 13 p. inc. 2 fig., 5 maps, appendices.

MacLeod, J.W.; 1976: Geochemical Report on Enid-Julie Group; B.C. Min. Energy, Mines and Petr. Res., Ass. Rept. No. 6,108, 8 p. inc. 2 fig., 4 maps, appendices.

Roddick, J.A.; 1977: Notes on the Stratified Rocks of Bute Inlet Map-area (excluding Vancouver and Quadra Islands); Geol. Surv. Canada, O.F. 480, 20 p., 1 map.

Simpson, Robert and Carriere, G.H.; 1984: A Geological Report on the Bullveke Claim Group; B.C. Min. Energy, Mines and Petr. Res., Ass. Rept. No. $12,577,15$ p. inc. 2 fig., 1 map, appendices.
Stevenson, J.S.; 1947: Lode-gold Deposits of Southwestern British Columbia; B.C. Dept. of Mines, Bul1 20, Pt. IV, pp. 12-14.

## B.C. Minister of Mines, Annual Reports:

1897: pp. 565, 575
1898: pp. 1138-1143, 1197
1899: pp. 806-807
1917: p. F453
1918: p. K474
1920: p. N212
1921: p 348
1925: pp. A276-A280, A450
1926: p. A310.
1927: p. C354
1928: pp. C380-C381
1929: pp. C386-C387
1933: pp. 254-255
1934: pp. F7-F8.

## APPENDIX A

## 1996 SOIL ANALYSES: METHODS AND RESULTS

Note: Three soil grids were sampled during the 1996 exploration program: the Ben, Dy and Alexandria grids (Figures 15, 18 and 19). Most of the samples from the Alexandria grid were assigned their grid locations and can be found directly from the tables of analyses. The rest of the soil samples were numbered consecutively.

Reference tables are included herein to assist the reader in finding sample locations of these consecutively numbered samples.

## Appendix A

Ben Grid:
Sample Numbers by Sample Location

| Line | 0+00E | Sample No. | Line | 0+25E | Sample No. | Line | $0+50 \mathrm{E}$ | Sample No. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $1+00 \mathrm{~N}$ | B 21 |  | $1+00 \mathrm{~N}$ | B 22 |  | 1+00N | B 31 |
|  | 0+75N | B 20 |  | $0+75 \mathrm{~N}$ | B 23 |  | 0+75N | B 30 |
|  | 0+50N | B 19 |  | 0+50N | B 24 |  | $0+50 \mathrm{~N}$ | B 29 |
|  | 0+25N | B 18 |  | 0+25N | B 25 |  | $0+25 \mathrm{~N}$ | B 28 |
|  | 0+00 | B 1 |  | 0+00 | B 2 |  | 0+00 | B 3 |
|  |  |  |  |  |  |  | 0+12.5S | B101 |
|  | 0+25S | B 27 |  | 0+25S | B 26 |  | 0+25S | B102 |
| Line | 0+75E | Sample No. | Line | 1+00E | Sample No. | Line | $1+25 \mathrm{E}$ | Sample $\qquad$ |
|  | 1+00N | B 32 |  | $1+00 \mathrm{~N}$ | B 39 |  | $1+00 \mathrm{~N}$ | B 40 |
|  | 0+75N | B 33 |  | 0+75N | B 38 |  | 0+75N | B 41 |
|  | 0+50N | B 34 |  | 0+50N | B 37 |  | 0+50N | B 42 |
|  | 0+25N | B 35 |  | 0+25N | B 36 |  | $0+25 \mathrm{~N}$ | B 43 |
|  | 0+00 | B 4 |  | 0+00 | B 5 |  | 0+00 | B 6 |
|  | $0+12.55$ | B103 |  |  |  |  |  |  |
|  | $0+25 \mathrm{~S}$ | B104 |  | 0+25S | B105 |  |  |  |
| Line | $1+50 \mathrm{E}$ | Sample No. | Line | 1+75E | Sample No. | Line | $2+00 \mathrm{E}$ | Sample No. |
|  | 1+00N | B 47 |  | 1+00N | B 48 |  | 1+00N | B 63 |
|  | 0+75N | B 46 |  | 0+75N | B 49 |  | 0+75N | B 62 |
|  | 0+50N | B 45 |  | 0+50N | B 50 |  | 0+50N | B 61 |
|  | 0+25N | B 44 |  | 0+25N | B 51 |  | 0+25N | B 60 |
|  | 0+00 | B 7 |  | 0+00 | B 8 |  | 0+00 | B 9 |
|  |  |  |  | 0+25S | B 52 |  | 0+25S | B 59 |
|  |  |  |  | 0+50S | B 53 |  | 0+50S | B 58 |
|  |  |  |  | $0+75 \mathrm{~S}$ | B 54 |  | 0+75S | B 57 |
|  |  |  |  | 1+00S | B 55 |  | 1+00S | B 56 |
| Line | $2+25 E$ | Sample No. | Line | $2+50 \mathrm{E}$ | Sample No. | Line | $2+75 \mathrm{E}$ | $\begin{aligned} & \text { Sample } \\ & \text { No. } \end{aligned}$ |
|  | $1+00 \mathrm{~N}$ | B 64 |  | 1+00N | B 71 |  |  |  |
|  | 0+75N | B 65 |  | 0+75N | B 70 |  |  |  |
|  | 0+50N | B 66 |  | 0+50N | B 69 |  |  |  |
|  | 0+25N | B 67 |  | 0+25N | B 68 |  |  |  |
|  | $0+00$ | B 10 |  | 0+00 | B 11 |  | 0+00 | B 12 |
| Line | 3+00E | Sample No. | Line | $3+25 E$ | Sample No. | Line | $3+50 \mathrm{E}$ | Sample No. |
|  | $1+00 \mathrm{~N}$ | B 72 |  | $1+00 \mathrm{~N}$ | B 79 |  | 1+00N | B 80 |
|  | 0+75N | B 73 |  | 0+75N | B 78 |  | 0+75N | B 81 |
|  | 0+50N | B 74 |  | 0+50N | B 77 |  | $0+50 \mathrm{~N}$ | B 82 |
|  | $0+25 \mathrm{~N}$ | B 75 |  | 0+25N | B 76 |  | $0+25 \mathrm{~N}$ | B 83 |
|  | 0+00 | B 13 |  | $0+00$ | B 14 |  | 0+00 | B 15 |
| Line | $3+75 \mathrm{E}$ | Sample No. | Line | 4+00E | Sample No. | Line | 4+25E | Sample No. |
|  | 1+00N | B 87A |  | 1+00N | B 90 |  | 1+00N | B 91 |
|  | 0+75N | B 86 |  | 0+75N | B 89 |  | 0+75N | B 92 |
|  | 0+50N | B 85 |  | 0+50N | B 88 |  | $0+50 \mathrm{~N}$ | B 93 |
|  | 0+25N | B 84 |  | 0+25N | B 87B |  | 0+25N | B 94 |
|  | 0+00 | B 16 |  | $0+00$ | B 17 |  | 0+00 | B 95 |

## Appendix A

Ben Grid:
Sample Locations by Sample Number

| B 1 | 0+00N, 0+00E | B 40 | $1+00 \mathrm{~N}, 1+25 \mathrm{E}$ | B 79 | 1+00N, 3+25E |
| :---: | :---: | :---: | :---: | :---: | :---: |
| B 2 | $0+00 \mathrm{~N}, 0+25 \mathrm{E}$ | B 41 | 0+75N, 1+25E | B 80 | $1+00 \mathrm{~N}, 3+50 \mathrm{E}$ |
| B 3 | $0+00 \mathrm{~N}, 0+50 \mathrm{E}$ | B 42 | $0+50 \mathrm{~N}, 1+25 \mathrm{E}$ | B 81 | $0+75 \mathrm{~N}, 3+50 \mathrm{E}$ |
| B 4 | $0+00 \mathrm{~N}, 0+75 \mathrm{E}$ | B 43 | $0+25 \mathrm{~N}, 1+25 \mathrm{E}$ | B 82 | $0+50 \mathrm{~N}, 3+50 \mathrm{E}$ |
| B 5 | $0+00 \mathrm{~N}, 1+00 \mathrm{E}$ | B 44 | $0+25 \mathrm{~N}, 1+50 \mathrm{E}$ | B 83 | $0+25 \mathrm{~N}, 3+50 \mathrm{E}$ |
| B 6 | $0+00 \mathrm{~N}, 1+25 \mathrm{E}$ | B 45 | $0+50 \mathrm{~N}, 1+50 \mathrm{E}$ | B 84 | $0+25 \mathrm{~N}, ~ 3+75 \mathrm{E}$ |
| B 7 | $0+00 \mathrm{~N}, 1+50 \mathrm{E}$ | B 46 | $0+75 \mathrm{~N}, 1+50 \mathrm{E}$ | B 85 | $0+50 \mathrm{~N}, 3+75 \mathrm{E}$ |
| B 8 | $0+00 \mathrm{~N}, 1+75 \mathrm{E}$ | B 47 | $1+00 \mathrm{~N}, 1+50 \mathrm{E}$ | B 86 | $0+75 \mathrm{~N}, 3+75 \mathrm{E}$ |
| B 9 | $0+00 \mathrm{~N}, 2+00 \mathrm{E}$ | B 48 | $1+00 \mathrm{~N}, 1+75 \mathrm{E}$ | B 87A | $1+00 \mathrm{~N}, 3+75 \mathrm{E}$ |
| B 10 | 0+00N, 2+25E | B 49 | $0+75 \mathrm{~N}, 1+75 \mathrm{E}$ | B 87B | $0+25 \mathrm{~N}, 4+00 \mathrm{E}$ |
| B 11 | $0+00 \mathrm{~N}, 2+50 \mathrm{E}$ | B 50 | $0+50 \mathrm{~N}, 1+75 \mathrm{E}$ | B 88 | $0+50 \mathrm{~N}, 4+00 \mathrm{E}$ |
| B 12 | 0+00N, 2+75E | B 51 | $0+25 \mathrm{~N}, 1+75 \mathrm{E}$ | B 89 | $0+75 \mathrm{~N}, 4+00 \mathrm{E}$ |
| B 13 | 0+00N, 3+00E | B 52 | 0+25S, $1+75 \mathrm{E}$ | B 90 | $1+00 \mathrm{~N}, 4+00 \mathrm{E}$ |
| B 14 | 0+00N, 3+25E | B 53 | $0+50 \mathrm{~S}, 1+75 \mathrm{E}$ | B 91 | $1+00 \mathrm{~N}, 4+25 \mathrm{E}$ |
| B 15 | $0+00 \mathrm{~N}, 3+50 \mathrm{E}$ | B 54 | 0+75S, $1+75 \mathrm{E}$ | B 92 | 0+75N, 4+25E |
| B 16 | 0+00N, 3+75E | B 55 | 1+00S, 1+75E | B 93 | 0+50N, 4+25E |
| B 17 | 0+00N, 4+00E | B 56 | 1+00S, 2+00E | B 94 | $0+25 \mathrm{~N}, 4+25 \mathrm{E}$ |
| B 18 | $0+25 \mathrm{~N}, 0+00 \mathrm{E}$ | B 57 | 0+75S, 2+00E | B 95 | 0+00N, 4+25E |
| B 19 | $0+50 \mathrm{~N}, 0+00 \mathrm{E}$ | B 58 | 0+50S, 2+00E | Late Additions to the Ben Grid |  |
| B 20 | $0+75 \mathrm{~N}, 0+00 \mathrm{E}$ | B 59 | 0+25S, 2+00E |  |  |
| B 21 | $1+00 \mathrm{~N}, 0+00 \mathrm{E}$ | B 60 | $0+25 \mathrm{~N}, 2+00 \mathrm{E}$ |  |  |
| B 22 | $1+00 \mathrm{~N}, 0+25 \mathrm{E}$ | B 61 | 0+50N, 2+00E |  |  |
| B 23 | $0+75 \mathrm{~N}, 0+25 \mathrm{E}$ | B 62 | $0+75 \mathrm{~N}, 2+00 \mathrm{E}$ | B101 | 0+12.5S, $0+50 \mathrm{E}$ |
| B 24 | $0+50 \mathrm{~N}, 0+25 \mathrm{E}$ | B 63 | 1+00N, 2+00E | B102 | 0+25 S, 0+50E |
| B 25 | $0+25 \mathrm{~N}, 0+25 \mathrm{E}$ | B 64 | $1+00 \mathrm{~N}, 2+25 \mathrm{E}$ | B103 | 0+12.5S, 0+75E |
| B 26 | $0+25 \mathrm{~S}, 0+25 \mathrm{E}$ | B 65 | $0+75 \mathrm{~N}, 2+25 \mathrm{E}$ | B104 | 0+25 S, 0+75E |
| B 27 | $0+25 \mathrm{~S}, 0+00 \mathrm{E}$ | B 66 | 0+50N, 2+25E | B105 | $0+12.5 \mathrm{~S}, 1+00 \mathrm{E}$ |
| B 28 | $0+25 \mathrm{~N}, 0+50 \mathrm{E}$ | B 67 | 0+25N, 2+25E |  |  |
| B 29 | $0+50 \mathrm{~N}, 0+50 \mathrm{E}$ | B 68 | $0+25 \mathrm{~N}, 2+50 \mathrm{E}$ |  |  |
| B 30 | $0+75 \mathrm{~N}, 0+50 \mathrm{E}$ | B 69 | 0+50N, $2+50 \mathrm{E}$ |  |  |
| B 31 | $1+00 \mathrm{~N}, 0+50 \mathrm{E}$ | B 70 | $0+75 \mathrm{~N}, 2+50 \mathrm{E}$ |  |  |
| B 32 | $1+00 \mathrm{~N}, 0+75 \mathrm{E}$ | B 71 | $1+00 \mathrm{~N}, 2+50 \mathrm{E}$ |  |  |
| B 33 | $0+75 \mathrm{~N}, 0+75 \mathrm{E}$ | B 72 | $1+00 \mathrm{~N}, 3+00 \mathrm{E}$ |  |  |
| B 34 | $0+50 \mathrm{~N}, 0+75 \mathrm{E}$ | B 73 | $0+75 \mathrm{~N}, 3+00 \mathrm{E}$ |  |  |
| B 35 | $0+25 \mathrm{~N}, 0+75 \mathrm{E}$ | B 74 | 0+50N, 3+00E |  |  |
| B 36 | $0+25 \mathrm{~N}, 1+00 \mathrm{E}$ | B 75 | $0+25 \mathrm{~N}, 3+00 \mathrm{E}$ |  |  |
| B 37 | $0+50 \mathrm{~N}, 1+00 \mathrm{E}$ | B 76 | $0+25 \mathrm{~N}, 3+25 \mathrm{E}$ |  |  |
| B 38 | $0+75 \mathrm{~N}, 1+00 \mathrm{E}$ | B 77 | 0+50N, 3+25E |  |  |
| B 39 | $1+00 \mathrm{~N}, 1+00 \mathrm{E}$ | B 78 | 0+75N, 3+25E |  |  |

## APPENDIX A

Dy Grid:
Samp1e Numbers by Sample Location

| Line $0+00 \mathrm{E}$ | Sample No. | Line $0+50 \mathrm{E}$ | Sample No. | Line $1+00 \mathrm{E}$ | Sample No. |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 0+75N | D324 | 0+75N | D127 |  |  |
| 0+50N | D323 | $0+50 \mathrm{~N}$ | D126 | 0+50N | D329 |
| 0+25N | D322 | $0+25 \mathrm{~N}$ | D125 | $0+25 \mathrm{~N}$ | D328 |
| 0+00 | D 1 | 0+00 | D 3 | 0+00 | D 5 |
| $0+25 \mathrm{~S}$ | D301 | $0+25 \mathrm{~S}$ | D128 | $0+255$ | D312 |
| 0+50S | D302 | $0+50 \mathrm{~S}$ | D129 | $0+50 \mathrm{~S}$ | D313 |
| $0+75 \mathrm{~S}$ | D303 | $0+75 \mathrm{~S}$ | D130 | $0+75 \mathrm{~S}$ | D314 |
| $1+00 \mathrm{~S}$ | D304 | 1+00S | D131 | 1+00S | D315 |
| $1+25 \mathrm{~S}$ | D305 | 1+25S | D132 | 1+25S | D316 |
| 1+50S | D306 | 1+50S | D133 | $1+50 \mathrm{~S}$ | D317 |
| $1+75 \mathrm{~S}$ | D307 | 1+75S | D134 | $1+75 \mathrm{~S}$ | D318 |
| $2+00 \mathrm{~S}$ | D308 | 2+00S | D135 | $2+00 \mathrm{~S}$ | D319 |
| $2+25 \mathrm{~S}$ | D309 | $2+25 \mathrm{~S}$ | D136 | $2+25 \mathrm{~S}$ | D320 |
| $2+50 \mathrm{~S}$ | D310 | $2+50 \mathrm{~S}$ | D137 | $2+50 \mathrm{~S}$ | D321 |
| Base line |  |  |  |  |  |
| Line 1+50E | Sample No. | Line 2+00E | Sample No. | Line 2+50E | Sample No. |
|  |  |  |  | 3+00N | D215 |
|  |  | 2+75N | D208 | 2+75N | D214 |
|  |  | 2+50N | D207 | $2+50 \mathrm{~N}$ | D213 |
|  |  | $2+25 N$ | D206 | 2+25N | D212 |
|  |  | $2+00 \mathrm{~N}$ | D205 | 2+00N | D211 |
|  |  | 1+75N | D204 | 1+75N | D210 |
|  |  | $1+50 \mathrm{~N}$ | D203 | 1+50N | D209 |
|  |  | 1+25N | D202 | $1+25 \mathrm{~N}$ | D 89 |
| $1+00 \mathrm{~N}$ | D124 |  |  | $1+00 \mathrm{~N}$ | D 88 |
| 0+75N | D123 | $0+75 \mathrm{~N}$ | D110 | $0+75 \mathrm{~N}$ | D 87 |
| $0+50 \mathrm{~N}$ | D122 | $0+50 \mathrm{~N}$ | D109 | $0+50 \mathrm{~N}$ | D 86 |
| $0+25 \mathrm{~N}$ | D121 | 0+25N | D108 | 0+25N | D 85 |
| 0+00 | D 7 | 0+00 | D 9 | 0+00 | D 11 |
| $0+25 \mathrm{~S}$ | D138 | $0+25 \mathrm{~S}$ | D111 | $0+25 \mathrm{~S}$ | D100 |
| $0+50 \mathrm{~S}$ | D139 | $0+50 \mathrm{~S}$ | D112 | $0+50 \mathrm{~S}$ | D101 |
| $0+75 \mathrm{~S}$ | D140 | $0+75 \mathrm{~S}$ | D113 | $0+75 \mathrm{~S}$ | D102 |
| 1+00S | D141 | $1+00 \mathrm{~S}$ | D114 | $1+005$ | D103 |
| $1+25 \mathrm{~S}$ | D142 | 1+25S | D115 | $1+25 \mathrm{~S}$ | D104 |
| 1+50S | D143 | $1+50 \mathrm{~S}$ | D116 | 1+50S | D105 |
| $1+75 \mathrm{~S}$ | D144 | $1+75 \mathrm{~S}$ | D117 | 1+75S | D106 |
| $2+00 \mathrm{~S}$ | D145 | 2+00S | D118 | $2+00 \mathrm{~S}$ | D107 |
| $2+25 \mathrm{~S}$ | D146 | $2+25 \mathrm{~S}$ | D119 |  |  |
| 2+50S | D147 | $2+50 \mathrm{~S}$ | D120 |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

## APPENDIX A

Dy Grid:
Sample Numbers by Sample Location

| Line 3+00E | $\begin{aligned} & \text { Samp1e } \\ & \text { No. } \end{aligned}$ | Line 3+50E | $\begin{gathered} \text { Samp1e } \\ \text { No. } \end{gathered}$ | Line 4+00E | $\begin{gathered} \text { Sample } \\ \text { No. } \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 2+90N | D216 |  |  |  |  |
| $2+65 \mathrm{~N}$ | D217 |  |  |  |  |
| $2+45 \mathrm{~N}$ | D218 |  |  |  |  |
| $2+20 \mathrm{~N}$ | D219 | 2+20N | D226 | 2+25N | D227 |
| 1+92N | D220 | 2+00N | D225 | $2+00 \mathrm{~N}$ | D228 |
| 1+75N | D221 | 1+75N | D224 | $1+75 \mathrm{~N}$ | D229 |
| $1+50 \mathrm{~N}$ | D222 | $1+40 \mathrm{~N}$ | D240 | 1+50N | D230 |
| 1+25N | D223 | 1+15N | D239 | $1+25 \mathrm{~N}$ | D231 |
| 0+90N | D 77 | $0+85 \mathrm{~N}$ | D238 | 1+00N | D232 |
| $0+60 \mathrm{~N}$ | D 76 | $0+60 \mathrm{~N}$ | D237 | 0+75N | D233 |
|  |  |  |  | 0+50N | D234 |
| $0+35 \mathrm{~N}$ | D 75 | 0+30N | D236 | $0+25 \mathrm{~N}$ | D235 |
| 0+00 | D 13 |  |  |  |  |
| $0+25 \mathrm{~S}$ | D 78 | 0+35S | D 15 | 0+45S | D 17 |
| $0+50 \mathrm{~S}$ | D 79 | 0+60S | D 65 | 0+70S | D 62 |
| $0+75 \mathrm{~S}$ | D 80 | 0+85S | D 66 | 0+95S | D 63 |
| 1+00S | D 81 | 1+10S | D 67 | $1+20 \mathrm{~S}$ | D 64 |
| 1+25S | D 82 | 1+35S | D 68 | 1+30S | D184 |
| 1+50S | D 83 | $1+60 \mathrm{~S}$ | D 69 | $1+60 \mathrm{~S}$ | D183 |
| $1+75 \mathrm{~S}$ | D 84 | $1+85 \mathrm{~S}$ | D 70 | 1+90S | D182 |
|  |  | 2+10S | D 71 | 2+15S | D181 |
|  |  | 2+35S | D 72 | $2+40 \mathrm{~S}$ | D180 |
|  |  | 2+60S | D 73 | 2+68S | D179 |
|  |  | 2+90S | D 74 | 2+92S | D178 |
| $\frac{\text { Base line }}{3+25 \mathrm{E}, 0+15 \mathrm{~S}}$ | D 14 | $3+75 \mathrm{E}, 0+55 \mathrm{~S}$ | D 16 | $4+25 \mathrm{E}, 0+40 \mathrm{~S}$ | D 18 |
| Line $4+50 \mathrm{E}$ | Sample | Line 5+00E | $\begin{gathered} \text { Sample } \\ \text { No. } \end{gathered}$ | Line $5+50 \mathrm{E}$ | $\begin{gathered} \text { Samp1e } \\ \text { No. } \end{gathered}$ |
| $1+65 \mathrm{~N}$ | D241 | 1+72N | D255 | $1+80 \mathrm{~N}$ | D 41 |
| $1+40 \mathrm{~N}$ | D242 | $1+48 \mathrm{~N}$ | D254 | $1+47 \mathrm{~N}$ | D 42 |
| 1+13N | D243 | 1+20N | D253 | 1+20N | D 43 |
| 0+90N | D244 | 0+90N | D252 |  |  |
| $0+65 \mathrm{~N}$ | D245 | 0+70N | D251 | $0+88 \mathrm{~N}$ | D 44 |
| $0+40 \mathrm{~N}$ | D246 | 0+45N | D250 | 0+60N | D 45 |
| $0+15 \mathrm{~N}$ | D247 | 0+20N | D249 | $0+27 \mathrm{~N}$ | D 46 |
| $0+15 \mathrm{~S}$ | D248 | $0+05 \mathrm{~N}$ | D 54 | $0+05 \mathrm{~S}$ | D 47 |
| 0+22S | D 58 | 0+05S | D 53 | $0+15 \mathrm{~S}$ | D 23 |
| $0+35 \mathrm{~S}$ | D 19 | $0+32 \mathrm{~S}$ | D 21 |  |  |
| 0+62S | D 59 | $0+60 \mathrm{~S}$ | D 55 | 0+47S | D 48 |
| $0+80 \mathrm{~S}$ | D 60 | 0+80S | D 56 | $0+70 \mathrm{~S}$ | D 49 |
| 1+12S | D 61 | 1+05S | D 57 | $0+905$ | D 50 |
| $1+30 \mathrm{~S}$ | D185 | 1+30S | D196 | 1+20S | D 51 |
| $1+60 \mathrm{~S}$ | D186 | 1+55S | D195 | $1+37 \mathrm{~S}$ | D 52 |
| $1+80 \mathrm{~S}$ | D187 | 1+80S | D194 | 1+70S | D197 |
| 2+10S | D188 | 2+05S | D193 | $1+90 \mathrm{~S}$ | D198 |
| 2+30S | D189 | $2+30 \mathrm{~S}$ | D192 | $2+20 \mathrm{~S}$ | D199 |
|  |  | 2+55S | D191 | 2+45S | D200 |
|  |  | 2+80S | D190 | 2+75S | D201 |
| $\frac{\text { Base line }}{4+75 E, 0+30 S}$ | D 20 | $5+25 \mathrm{E}, 0+25 \mathrm{~S}$ | D 22 | 5+75E,0+14S | D 24 |

## APPENDIX A

Dy Grid:
Sample Numbers by Sample Location

| Line | 6+00E | $\begin{gathered} \text { Sample } \\ \begin{array}{c} \text { No. } \end{array} \\ \hline \end{gathered}$ | Line $6+50 \mathrm{E}$ | Sample No. | Line 7+00E | Sample No. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1+88N | D 40 |  |  |  |  |
|  | $1+68 \mathrm{~N}$ | D 39 |  |  |  |  |
|  | $1+38 \mathrm{~N}$ | D 38 | 1+45N | D155 |  |  |
|  | 1+17N | D 37 | 1+20N | D154 |  |  |
|  | 0+92N | D 36 | 0+95N | D153 |  |  |
|  | 0+72N | D 35 | 0+70N | D152 |  |  |
|  | $0+50 \mathrm{~N}$ | D 34 | 0+45N | D151 |  |  |
|  | 0+28N | D 33 | 0+20N | D150 | 0+25N | D167 |
|  | 0+07N | D 32 |  |  | 0+05N | D166 |
|  | 0+12S | D 25 | 0+05S | D149 |  |  |
|  | $0+37 \mathrm{~S}$ | D 25A | $0+30 \mathrm{~S}$ | D156 | $0+22 \mathrm{~S}$ | D168 |
|  | $0+62 \mathrm{~S}$ | D 26 | $0+55 \mathrm{~S}$ | D157 | $0+45 \mathrm{~S}$ | D169 |
|  | $0+875$ | D 26A | 0+80S | D158 | 0+70s | D170 |
|  | 1+12S | D 27 | 1+05S | D159 | $0+95 \mathrm{~S}$ | D171 |
|  | 1+37S | D 27A | 1+25S | D160 | 1+20S | D172 |
|  | $1+60 \mathrm{~S}$ | D 28 | $1+50 \mathrm{~S}$ | D161 | 1+47S | D173 |
|  | $1+88 \mathrm{~S}$ | D 28A | 1+75S | D162 | 1+70S | D174 |
|  | 2+10S | D 29 | 2+00S | D163 | $1+935$ | D175 |
|  | $2+35 \mathrm{~S}$ | D 30 | 2+25S | D164 | $2+22 \mathrm{~S}$ | D176 |
|  |  |  |  |  | $2+45 \mathrm{~S}$ | D177 |
| $\frac{\text { Base }}{6+251}$ | $\frac{\text { line }}{E, 0+07 S}$ | D148 | $6+75 \mathrm{E}, 0+00 \mathrm{~S}$ | D165 |  |  |

## Appendix A

Dy Grid:
Sample Locations by Sample Number

| D | 1 | 0+00N, 0+00E | D 57 | $1+05 \mathrm{~S}, 5+00 \mathrm{E}$ | D126 | $0+50 \mathrm{~N}$, | 0+50E |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| D | 2 | $0+00 \mathrm{~N}, 0+25 \mathrm{E}$ | D 58 | 0+22S, 4+50E | D127 | 0+75N, | 0+50E |
| D | 3 | $0+00 \mathrm{~N}, 0+50 \mathrm{E}$ | D 59 | 0+62S, 4+50E | D128 | $0+25 \mathrm{~S}$, | 0+50E |
| D | 4 | $0+00 \mathrm{~N}, 0+75 \mathrm{E}$ | D 60 | 0+80S, 4+50E | D129 | $0+50 \mathrm{~S}$, | 0+50E |
| D | 5 | $0+00 \mathrm{~N}, 1+00 \mathrm{E}$ | D 61 | 1+12S, $4+50 \mathrm{E}$ | D130 | $0+75 \mathrm{~S}$, | 0+50E |
| D | 6 | 0+00N, 1+25E | D 62 | 0+70S, 4+00E | D131 | $1+00 \mathrm{~S}$, | 0+50E |
| B | 7 | 0+00N, 1+50E | D 63 | 0+95S, 4+00E | D132 | 1+25S, | 0+50E |
| D | 8 | 0+00N, 1+75E | D 64 | 1+20S, 4+00E | D133 | $1+50 \mathrm{~S}$, | 0+50E |
| D | 9 | 0+00N, 2+00E | D 65 | 0+60S, 3+50E | D134 | $1+75 \mathrm{~S}$, | 0+50E |
| D | 10 | 0+00N, 2+25E | D 66 | $0+85 \mathrm{~S}, 3+50 \mathrm{E}$ | D135 | 2+00S, | 0+50E |
| D | 11 | $0+00 \mathrm{~N}, 2+50 \mathrm{E}$ | D 67 | $1+10 \mathrm{~S}, 3+50 \mathrm{E}$ | D136 | $2+25 \mathrm{~S}$, | 0+50E |
| D | 12 | 0+00N, $2+75 \mathrm{E}$ | D 68 | $1+35 \mathrm{~S}, 3+50 \mathrm{E}$ | D137 | $2+50 \mathrm{~S}$, | 0+50E |
| D | 13 | 0+00N, 3+00E | D 69 | $1+60 \mathrm{~S}, 3+50 \mathrm{E}$ | D138 | $0+25 \mathrm{~S}$, | $1+50 \mathrm{E}$ |
| D | 14 | $0+15 \mathrm{~S}, 3+25 \mathrm{E}$ | D 70 | 1+85S, $3+50 \mathrm{E}$ | D139 | $0+50 \mathrm{~S}$, | $1+50 \mathrm{E}$ |
| D | 15 | $0+35 \mathrm{~S}, 3+50 \mathrm{E}$ | D 71 | $2+10 \mathrm{~S}, 3+50 \mathrm{E}$ | D140 | 0+75S, | $1+50 \mathrm{E}$ |
| D | 16 | $0+55 \mathrm{~S}, 3+75 \mathrm{E}$ | D 72 | $2+35 \mathrm{~S}, 3+50 \mathrm{E}$ | D141 | $1+00 \mathrm{~S}$, | $1+50 \mathrm{E}$ |
| D | 17 | 0+45S, 4+00E | D 73 | $2+60 \mathrm{~S}, 3+50 \mathrm{E}$ | D142 | 1+25S, | $1+50 \mathrm{E}$ |
| D | 18 | 0+40S, 4+25E | D 74 | $2+90 \mathrm{~S}, 3+50 \mathrm{E}$ | D143 | $1+50 \mathrm{~S}$, | $1+50 \mathrm{E}$ |
| D | 19 | 0+35S, 4+50E | D 75 | 0+35N, 3+00E | D144 | 1+75S, | $1+50 \mathrm{E}$ |
| D | 20 | 0+30S, 4+75E | D 76 | $0+60 \mathrm{~N}, 3+00 \mathrm{E}$ | D145 | $2+00 \mathrm{~S}$, | $1+50 \mathrm{E}$ |
| D | 21 | 0+32S, 5+00E | D 77 | 0+90N, 3+00E | D146 | 2+25S, | $1+50 \mathrm{E}$ |
| D | 22 | 0+25S, 5+25E | D 78 | 0+25S, 3+00E | D147 | 2+50S, | $1+50 \mathrm{E}$ |
| D | 23 | 0+15S, 5+50E | D 79 | 0+50S, 3+00E | D148 | $0+075$, | $6+25 E$ |
| D | 24 | 0+14S, 5+75E | D 80 | $0+75 \mathrm{~S}, 3+00 \mathrm{E}$ | D149 | $0+05 \mathrm{~S}$, | $6+50 \mathrm{E}$ |
| D | 25 | 0+12S, 6+00E | D 81 | 1+00S, 3+00E | D150 | $0+20 \mathrm{~N}$, | $6+50 \mathrm{E}$ |
| D | 25A | 0+37S, 6+00E | D 82 | 1+25S, 3+00E | D151 | $0+45 \mathrm{~N}$, | $6+50 \mathrm{E}$ |
| D | 26 | 0+62S, 6+00E | D 83 | 1+50S, 3+00E | D152 | 0+70N, | $6+50 \mathrm{E}$ |
| D | 26A | 0+87S, $6+00 \mathrm{E}$ | D 84 | $1+75 \mathrm{~S}, 3+00 \mathrm{E}$ | D153 | $0+95 \mathrm{~N}$, | $6+50 \mathrm{E}$ |
| D | 27 | 1+12S, $6+00 \mathrm{E}$ | D 85 | 0+25N, 2+50E | D154 | $1+20 \mathrm{~N}$, | $6+50 \mathrm{E}$ |
| D | 27A | 1+37S, 6+00E | D 86 | 0+50N, 2+50E | D155 | $1+45 \mathrm{~N}$, | $6+50 \mathrm{E}$ |
| D | 28 | 1+60S, 6+00E | D 87 | $0+75 \mathrm{~N}, 2+50 \mathrm{E}$ | D156 | $0+30 \mathrm{~S}$, | $6+50 \mathrm{E}$ |
| D | 28A | $1+88 \mathrm{~S}, 6+00 \mathrm{E}$ | D 88 | $1+00 \mathrm{~N}, 2+50 \mathrm{E}$ | D157 | $0+55 \mathrm{~S}$, | $6+50 \mathrm{E}$ |
| D | 29 | $2+10 \mathrm{~S}, 6+00 \mathrm{E}$ | D 89 | $1+25 \mathrm{~N}, 2+50 \mathrm{E}$ | D158 | $0+80 \mathrm{~S}$, | $6+50 \mathrm{E}$ |
| D | 30 | $2+35 \mathrm{~S}, 6+00 \mathrm{E}$ | D100 | 0+25S, $2+50 \mathrm{E}$ | D159 | 1+05S, | $6+50 \mathrm{E}$ |
| D | 32 | $0+07 \mathrm{~N}, 6+00 \mathrm{E}$ | D101 | 0+50S, 2+50E | D160 | $1+25 S$, | $6+50 \mathrm{E}$ |
| D | 33 | 0+28N, 6+00E | D102 | 0+75S, 2+50E | D161 | $1+50 \mathrm{~S}$, | $6+50 \mathrm{E}$ |
| D | 34 | $0+50 \mathrm{~N}, 6+00 \mathrm{E}$ | D103 | 1+00S, 2+50E | D162 | 1+75S, | $6+50 \mathrm{E}$ |
| D | 35 | 0+72N, 6+00E | D104 | 1+25S, $2+50 \mathrm{E}$ | D163 | 2+00S, | $6+50 \mathrm{E}$ |
| D | 36 | $0+92 \mathrm{~N}, 6+00 \mathrm{E}$ | D105 | 1+50S, $2+50 \mathrm{E}$ | D164 | $2+25 S$, | $6+50 \mathrm{E}$ |
| D | 37 | $1+17 \mathrm{~N}, 6+00 \mathrm{E}$ | D106 | 1+75S, $2+50 \mathrm{E}$ | D165 | $0+00 \mathrm{~S}$, | $6+75 \mathrm{E}$ |
| D | 38 | $1+38 \mathrm{~N}, 6+00 \mathrm{E}$ | D107 | 2+00S, $2+50 \mathrm{E}$ | D166 | $0+05 \mathrm{~N}$, | 7+00E |
| D | 39 | $1+68 \mathrm{~N}, 6+00 \mathrm{E}$ | D108 | $0+25 \mathrm{~N}, 2+00 \mathrm{E}$ | D167 | $0+25 N$, | $7+00 \mathrm{E}$ |
| D | 40 | $1+88 \mathrm{~N}, 6+00 \mathrm{E}$ | D109 | 0+50N, 2+00E | D168 | $0+22 \mathrm{~S}$, | 7+00E |
| D | 41 | $1+80 \mathrm{~N}, 5+50 \mathrm{E}$ | D110 | $0+75 \mathrm{~N}, 2+00 \mathrm{E}$ | D169 | $0+45 \mathrm{~S}$, | $7+00 \mathrm{E}$ |
| D | 42 | $1+47 \mathrm{~N}, 5+50 \mathrm{E}$ | D111 | 0+25S, 2+00E | D170 | $0+70 \mathrm{~S}$, | $7+00 \mathrm{E}$ |
| D | 43 | $1+20 \mathrm{~N}, 5+50 \mathrm{E}$ | D112 | 0+50S, $2+00 \mathrm{E}$ | D171 | $0+95 \mathrm{~S}$, | $7+00 \mathrm{E}$ |
| D | 44 | $0+88 \mathrm{~N}, 5+50 \mathrm{E}$ | D113 | 0+75S, 2+00E | D172 | 1+20S, | $7+00 \mathrm{E}$ |
| D | 45 | $0+60 \mathrm{~N}, 5+50 \mathrm{E}$ | D114 | 1+00S, 2+00E | D173 | 1+47S, | $7+00 \mathrm{E}$ |
| D | 46 | $0+27 \mathrm{~N}, 5+50 \mathrm{E}$ | D115 | 1+25S, 2+00E | D174 | 1+70S, | $7+00 \mathrm{E}$ |
| D | 47 | 0+05S, 5+50E | D116 | 1+50S, $2+00 \mathrm{E}$ | D175 | $1+93 \mathrm{~S}$, | $7+00 \mathrm{E}$ |
| D | 48 | 0+47S, 5+50E | D117 | 1+75S, $2+00 \mathrm{E}$ | D176 | 2+22S, | 7+00E |
| D | 49 | 0+70S, 5+50E | D118 | 2+00S, $2+00 \mathrm{E}$ | D177 | $2+45 \mathrm{~S}$, | $7+00 \mathrm{E}$ |
| D | 50 | 0+90S, 5+50E | D119 | $2+25 \mathrm{~S}, 2+00 \mathrm{E}$ | D178 | 2+92S, | 4+00E |
| D | 51 | $1+20 \mathrm{~S}, 5+50 \mathrm{E}$ | D120 | 2+50S, $2+00 \mathrm{E}$ | D179 | 2+68S, | 4+00E |
| D | 52 | $1+37 \mathrm{~S}, 5+50 \mathrm{E}$ | D121 | $0+25 \mathrm{~N}, 1+50 \mathrm{E}$ | D180 | $2+40 \mathrm{~S}$, | 4+00E |
| D | 53 | 0+05S, 5+00E | D122 | 0+50N, 1+50E | D181 | $2+15 \mathrm{~S}$, | 4+00E |
| D | 54 | $1+05 \mathrm{~N}, 5+00 \mathrm{E}$ | D123 | $0+75 \mathrm{~N}, 1+50 \mathrm{E}$ | D182 | $1+90 \mathrm{~S}$, | $4+00 \mathrm{E}$ |
| D | 55 | $0+60 \mathrm{~S}, 5+00 \mathrm{E}$ | D124 | $1+00 \mathrm{~N}, 1+50 \mathrm{E}$ | D183 | $1+60 \mathrm{~S}$, | 4+00E |
| D | 56 | 0+80S, 5+00E | D125 | $0+25 \mathrm{~N}, 0+50 \mathrm{E}$ | D184 | $1+30 \mathrm{~S}$, | 4+00E |

Appendix A
Dy Grid:
Sample Locations by Sample Number

| D185 | 1+30S, | $4+50 \mathrm{E}$ | D244 | 0+90N | $4+50 \mathrm{E}$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| D186 | 1+60S, | $4+50 \mathrm{E}$ | D245 | $0+65 \mathrm{~N}$ | $4+50 \mathrm{E}$ |
| D187 | 1+80S, | $4+50 \mathrm{E}$ | D246 | $0+40 \mathrm{~N}$ | $4+50 \mathrm{E}$ |
| D188 | $2+10 \mathrm{~S}$, | $4+50 \mathrm{E}$ | D247 | $0+15 \mathrm{~N}$ | $4+50 \mathrm{E}$ |
| D189 | $2+30 \mathrm{~S}$, | $4+50 \mathrm{E}$ | D248 | $0+15 \mathrm{~S}$ | $4+50 \mathrm{E}$ |
| D190 | 2+80S, | 5+00E | D249 | $0+20 \mathrm{~N}$ | 5+00E |
| D191 | $2+55 \mathrm{~S}$, | $5+00 \mathrm{E}$ | D250 | $0+45 \mathrm{~N}$ | $5+00 \mathrm{E}$ |
| D192 | $2+30 \mathrm{~S}$, | 5+00E | D251 | $0+70 \mathrm{~N}$ | 5+00E |
| D193 | 2+05S, | 5+00E | D252 | $0+90 \mathrm{~N}$ | 5+00E |
| D194 | 1+80s, | $5+00 \mathrm{E}$ | D253 | $1+20 \mathrm{~N}$ | $5+00 \mathrm{E}$ |
| D195 | 1+55S, | 5+00E | D254 | $1+48 \mathrm{~N}$ | 5+00E |
| D196 | $1+30$, | 5+00E | D255 | $1+72 \mathrm{~N}$ | $5+00 \mathrm{E}$ |
| D197 | 1+70s, | 5+50E | D301 | 0+25S | 0+00E |
| D198 | $1+90 \mathrm{~S}$, | $5+50 \mathrm{E}$ | D302 | $0+50 \mathrm{~S}$ | 0+00E |
| D199 | 2+20s, | $5+50 \mathrm{E}$ | D303 | $0+75 \mathrm{~S}$ | 0+00E |
| D200 | 2+45S, | 5+50E | D304 | $1+00 \mathrm{~S}$ | 0+00E |
| D201 | 2+75S, | $5+50 \mathrm{E}$ | D305 | $1+25 \mathrm{~S}$ | $0+00 \mathrm{E}$ |
| D202 | $1+25 \mathrm{~N}$, | $2+00 \mathrm{E}$ | D306 | $1+50 \mathrm{~S}$ | 0+00E |
| D203 | 1+50N, | 2+00E | D307 | 1+75S | 0+00E |
| D204 | $1+75 \mathrm{~N}$, | $2+00 \mathrm{E}$ | D308 | $2+00 \mathrm{~S}$ | 0+00E |
| D205 | 2+00N, | 2+00E | D309 | $2+25 \mathrm{~S}$ | 0+00E |
| D206 | $2+25 \mathrm{~N}$, | 2+00E | D310 | $2+50 \mathrm{~S}$ | 0+00E |
| D207 | $2+50 \mathrm{~N}$, | $2+00 \mathrm{E}$ | D312 | $0+25 \mathrm{~S}$ | $1+00 \mathrm{E}$ |
| D208 | $2+75 \mathrm{~N}$, | 2+00E | D313 | $0+50 \mathrm{~S}$ | 1+00E |
| D209 | 1+50N, | 2+50E | D314 | $0+755$ | 1+00E |
| D210 | $1+75 \mathrm{~N}$, | $2+50 \mathrm{E}$ | D315 | $1+00 \mathrm{~S}$ | $1+00 \mathrm{E}$ |
| D211 | 2+00N, | 2+50E | D316 | $1+25 \mathrm{~S}$ | $1+00 \mathrm{E}$ |
| D212 | $2+25 \mathrm{~N}$, | 2+50E | D317 | $1+50 \mathrm{~S}$ | $1+00 \mathrm{E}$ |
| D213 | 2+50N, | $2+50 \mathrm{E}$ | D318 | 1+75S | 1+00E |
| D214 | 2+75N, | $2+50 \mathrm{E}$ | D319 | $2+00 \mathrm{~S}$ | 1+00E |
| D215 | $3+00 \mathrm{~N}$, | 2+50E | D320 | $2+25 \mathrm{~S}$ | $1+00 \mathrm{E}$ |
| D216 | $2+90 \mathrm{~N}$, | 3+00E | D321 | 2+50S | 1+00E |
| D217 | $2+65 \mathrm{~N}$, | 3+00E | D322 | $0+25 \mathrm{~N}$ | 0+00E |
| D218 | 2+45N, | 3+00E | D323 | $0+50 \mathrm{~N}$ | 0+00E |
| D219 | $2+20 \mathrm{~N}$, | 3+00E | D324 | $0+75 \mathrm{~N}$ | 0+00E |
| D220 | $1+92 \mathrm{~N}$, | 3+00E | D328 | $0+25 \mathrm{~N}$ | 1+00E |
| D221 | $1+75 \mathrm{~N}$, | 3+00E | D329 | $0+50 \mathrm{~N}$ | 1+00E |

## Appendix A

## Alexandria Grid:

Sample Locations by Sample Number
Note: Most of the samples from this grid were recorded with the grid location as a sample number and do not need to be cross-referenced. Only the consecutively numbered samples from the Alexandria grid are listed here.

JC $10+50 \mathrm{~S}, 0+25 \mathrm{E}$
JC $20+50 \mathrm{~S}, 0+50 \mathrm{E}$
JC $30+75 \mathrm{~S}, \quad 0+50 \mathrm{E}$
JC $4 \quad 0+75 \mathrm{~S}, \quad 0+25 \mathrm{E}$
JC $50+25 \mathrm{~N}, 0+25 \mathrm{E}$
JC $60+25 \mathrm{~N}, \quad 0+50 \mathrm{E}$
JC $7 \quad 0+25 \mathrm{~N}, 0+75 \mathrm{E}$
JC $8 \quad 0+25 \mathrm{~N}, 1+00 \mathrm{E}$
JC $9 \quad 0+25 \mathrm{~N}, 1+25 \mathrm{E}$
JC10 $1+00 \mathrm{~N}, 0+25 \mathrm{E}$
JC11 $1+00 \mathrm{~N}, 0+50 \mathrm{E}$
JC12 $1+00 \mathrm{~N}, 0+75 \mathrm{E}$
JC13 1+00N, 1+00E
JC14 1+00N, 1+25E
JC15 0+00N, 0+75E
JC16 0+00N, 1+00E
JC17 0+00N, 1+25E
JC18 0+45N, 0+25E
JC19 0+75N, 0+50E
JC20 $0+75 \mathrm{~N}, 0+75 \mathrm{E}$
JC21 $0+75 \mathrm{~N}, 1+00 \mathrm{E}$
JC22 $0+75 \mathrm{~N}, 1+25 \mathrm{E}$



Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.
AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.

| ACME ANAL $\frac{1}{4} \frac{t}{4}$ | $\mathrm{ZA}$ |  |  |  |  |  |  |  | $852$ |  |  |  | ST. <br> AN <br> NOR <br> St. |  |  | ER | $\begin{aligned} & \mathrm{BC} \\ & \mathrm{E} \boldsymbol{\mathrm { C }} \mathrm{H} \\ & \mathrm{~B} \\ & \mathrm{BC} \end{aligned}$ |  |  | 6 $525$ |  | ONE <br> age | $1604$ | $253$ | $1-31$ | $58$ | FAX |  | $125$ | $-17$ | $6$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| SAMPLE\# | $\begin{array}{r} \text { Mo } \\ \text { ppm } \end{array}$ | $\begin{array}{r} \mathrm{Cu} \\ \mathrm{ppm} \\ \hline \end{array}$ | $\begin{array}{r} \mathrm{Pb} \\ \mathrm{ppm} \\ \hline \end{array}$ | $\begin{array}{r} \mathrm{Zn} \\ \mathrm{ppm} \end{array}$ | $\begin{array}{r} \mathrm{Ag} \\ \mathrm{ppm} \\ \hline \end{array}$ | $\begin{gathered} \mathrm{Ni} \\ \mathrm{pppm} \end{gathered}$ | $\begin{array}{r} \text { Co } \\ \text { ppin } \end{array}$ | $\begin{array}{r} \mathrm{Mn} \\ \mathrm{ppm} \end{array}$ | $\begin{gathered} \mathrm{Fe} \\ \% \\ \hline \end{gathered}$ | $\begin{array}{r} \text { As } \\ \text { ppm } \end{array}$ | $\begin{array}{r} \mathrm{U} \\ \mathrm{ppm} \end{array}$ |  | $\begin{array}{r} \text { Th } \\ \mathrm{ppm} \end{array}$ | $\begin{array}{r} \mathrm{Sr} \\ \mathrm{ppm} \\ \hline \end{array}$ | $\mathrm{cd}$ | $\begin{array}{r} \mathrm{sb} \\ \mathrm{ppm} \end{array}$ | $\begin{array}{r} \mathrm{Bi} \\ \mathrm{ppm} \end{array}$ | $\begin{array}{r} V \\ p p m \end{array}$ | $\begin{gathered} \mathrm{Ca} \\ \% \end{gathered}$ | $\begin{aligned} & \mathbf{P} \\ & \% \end{aligned}$ | $\begin{array}{r} \mathrm{La} \\ \mathrm{ppm} \end{array}$ | $\begin{array}{r} \mathrm{Cr} \\ \mathrm{ppm} \end{array}$ | $\begin{gathered} \mathrm{Mg} \\ \% \end{gathered}$ | $\begin{array}{r} \text { Ba } \\ \text { ppm } \end{array}$ | $\begin{array}{r} \mathrm{Ti} \\ \% \end{array}$ | $\begin{array}{r} \mathrm{B} \\ \mathrm{ppm} \\ \hline \end{array}$ | $\begin{aligned} & \mathrm{Al} \\ & \% \end{aligned}$ | $\begin{gathered} \mathrm{Na} \\ \% \end{gathered}$ | $\begin{aligned} & K \\ & \% \end{aligned}$ | $\begin{array}{r} W \\ \text { ppm } \end{array}$ | $A u^{*}$ <br> ppb |
| D1 | 1 | 45 | 9 | 37 | $<.3$ | 13 | 6 | 830 | 2.93 | <2 | $<5$ | $<2$ | 2 | 20 | . 2 | $<2$ | <2 | 76 |  | . 056 | 6 | 42 | . 57 | 53 | . 13 |  | 2.73 | . 02 | . 05 | $<2$ | 4 |
| D2 | 1 | 59 | 8 | 97 | <. 3 | 15 | 12 | 1214 | 3.74 | 2 | 5 | <2 | 2 | 25 | . 2 | <2 | <2 | 83 |  | . 070 | 8 | 16 | 1.15 | 127 | . 13 | <3 | 2.02 | . 03 | . 14 | $<2$ | 4 |
| D3 | 2 | 34 | 23 | 69 | <. 3 | 11 | 8 | 2354 | 2.56 | 2 | 5 | $<2$ | <2 | 24 | . 2 | <2 | <2 | 58 |  | . 061 | 6 | 23 | . 65 | 61 | . 10 | <3 | 1.31 | . 03 | . 09 | <2 | 6 |
| 04 | 1 | 9 | 5 | 17 | <. 3 | 4 | 1 | 114 | 2.30 | $<2$ | $<5$ | $<2$ | $<2$ | 13 | <. 2 | <2 | <2 | 39 |  | . 028 | 2 | 9 | . 16 | 20 | .11 | <3 | . 77 | . 02 | . 02 | <2 | 2 |
| D5 | 1 | 8 | 3 | 30 | <. 3 | 5 | 4 | 229 | 3.03 | $<2$ | $<5$ | $<2$ | $<2$ | 15 | <. 2 | <2 | <2 | 72 | . 24 | . 026 | 3 | 12 | . 58 | 35 | .15 | <3 | 1.34 | . 02 | . 06 | $<2$ | 1 |
| D6 | 1 | 12 | 19 | 19 | <. 3 | 7 | 2 | 286 | 3.49 | 2 | $<5$ | $<2$ | <2 | 12 | <. 2 | 2 | 2 | 104 |  | . 030 | 4 | 16 | . 30 | 22 | . 21 | $<3$ | 1.33 | . 03 | . 04 | <2 | 61 |
| D7 | 2 | 16 | 16 | 17 | . 3 | 6 | 2 | 246 | 1.34 | 3 | $<5$ | <2 | $<2$ | 17 | . 2 | <2 | <2 | 42 |  | . 068 | 3 | 10 | . 16 | 36 | . 09 | <3 | 1.15 | . 03 | . 05 | <2 | 13 |
| D8 | 2 | 17 | 7 | 38 | . 4 | 8 | 4 | 249 | 3.49 | <2 | $<5$ | $<2$ | 2 | 13 | <. 2 | <2 | <2 | 88 | . 23 | . 032 | 3 | 25 | . 49 | 26 | . 19 | <3 | 3.27 | . 02 | . 02 | <2 | 18 |
| D9 | 1 | 5 | $<3$ | 8 | <. 3 | 3 | 1 | 51 | . 83 | $<2$ | < 5 | $<2$ | <2 | 11 | . 2 | <2 | <2 | 37 | . 18 | . 022 | 2 | 7 | . 04 | 20 | . 07 | <3 | . 32 | . 01 | . 01 | <2 | 5 |
| D10 | $<1$ | 10 | 3 | 18 | <. 3 | 2 | 1 | 112 | . 54 | $<2$ | < 5 | $<2$ | $<2$ | 8 | <. 2 | <2 | <2 | 8 | . 08 | . 019 | 3 | 2 | . 07 | 41 | . 02 | <3 | . 66 | . 02 | . 02 | $<2$ | 5 |
| D11 | <1 | 9 | 9 | 52 | . 3 | 3 | 1 | 35 | . 27 | 2 | $<5$ | $<2$ | <2 | 36 | . 6 | <2 | <2 | 3 |  | . 057 | 1 | 1 | . 05 | 63 | . 07 | <3 | . 27 | . 02 | . 02 | <2 | 3 |
| D12 | 1 | 6 | 12 | 16 | <. 3 | 4 | 1 | 137 | 2.35 | $<2$ | $<5$ | $<2$ | $<2$ | 9 | $<.2$ | <2 | <2 | 97 |  | . 017 | 2 | 8 | . 18 | 21 | . 21 | <3 | . 73 | . 01 | . 01 | <2 | 19 |
| D13 | 1 | 56 | 3 | 39 | <. 3 | 11 | 8 | 443 | 3.03 | $<2$ | $<5$ | <2 | 2 | 26 | <. 2 | <2 | <2 | 76 | . 36 | . 046 | 5 | 20 | . 70 | 69 | . 14 | <3 | 2.90 | . 03 | . 06 | $<2$ | 5 |
| D14 | 2 | 21 | < 3 | 40 | < 3 | 17 | 6 | 324 | 3.29 | $<2$ | $<5$ | <2 | 2 | 14 | < 2 | $<2$ | <2 | 75 |  | . 032 | 4 | 30 | . 79 | 47 | . 15 |  | 4.68 | . 03 | . 03 | <2 | 2 |
| 015 | 1 | 14 | 5 | 28 | <. 3 | 8 | 4 | 209 | 3.53 | $<2$ | $<5$ | <2 | $<2$ | 10 | <. 2 | 4 | $<2$ | 100 | . 18 | . 028 | 3 | 19 | . 44 | 33 | . 15 | <3 | 2.46 | . 02 | . 01 | $<2$ | 2 |
| D16 | 2 | 73 | 8 | 109 | <. 3 | 12 | 7 | 790 | 4.09 | 2 | $<5$ | $<2$ | $<2$ | 26 | < 2 | 3 | $<2$ | 64 |  | . 055 | 6 | 15 | . 92 | 297 | . 15 | $<3$ | 2.59 | . 04 | . 49 | <2 | 13 |
| D17 | 1 | 13 | 9 | 37 | <. 3 | 4 | 3 | 469 | 3.03 | $<2$ | $<5$ | $<2$ | $<2$ | 19 | <. 2 | 2 | $<2$ | 61 |  | . 031 | 4 | 8 | . 41 | 29 | . 15 | $<3$ | 1.82 | . 02 | . 02 | $<2$ | 1 |
| D18 | 1 | 28 | 13 | 54 | $<.3$ | 9 9 | 8 | 573 | 3.50 | $<2$ | $<5$ | $<2$ | $<2$ | 20 | $<.2$ | $<2$ | $<2$ | 81 | . 25 | . 053 | 4 | 16 | . 78 | 63 | . 12 | <3 | 2.68 | . 02 | . 06 | $<2$ | 4 |
| D19 | 2 | 96 | 9 | 133 | <. 3 | 13 |  | 1227 | 3.96 | 3 | $<5$ | $<2$ | $<2$ | 21 | <. 2 | 2 | $<2$ | 82 |  | . 076 | 6 | 10 | 1.35 | 244 | . 12 |  | 2.24 | . 03 | . 18 | $<2$ | 4 |
| RE 019 | 2 | 92 | 10 | 127 | <. 3 | 13 |  | 1174 | 3.86 | 2 | $<5$ | <2 | $<2$ | 20 | . 3 | <2 | $<2$ | 79 | . 43 | . 072 | 6 | 10 | 1.28 | 236 | . 11 | <3 | 2.14 | . 03 | . 18 | <2 | 9 |
| D20 | 2 | 36 | 17 | 48 | $<.3$ | 6 | 14 | 6441 | 4.44 | $<2$ | 6 | $<2$ | $<2$ | 12 | $<.2$ | <2 | 3 | 74 |  | . 114 | 4 | 21 | . 65 | 41 | . 07 | $<3$ | 2.90 | . 01 | . 03 | $<2$ | 4 |
| D21 | 2 | 26 | 3 | 43 | $<.3$ | 11 | 5 | 280 | 3.51 | $<2$ | < | $<2$ | 2 | 15 | <. 2 | $<2$ | $<2$ | 89 | . 26 | . 049 | 4 | 34 | . 58 | 32 | . 17 | <3 | 4.60 | . 02 | . 02 | $<2$ | 6 |
| D22 | 2 | 25 | 13 | 36 | $<.3$ | 9 | 16 | 2263 | 4.38 | $<2$ | $<5$ | $<2$ | $<2$ | 18 | . 3 | 3 | 2 | 92 |  | . 090 | 4 | 22 | . 37 | 47 | . 14 | <3 | 2.37 | . 02 | . 03 | $<2$ | 3 |
| D23 | 1 | 13 | 9 | 22 | <. 3 | 5 | 3 |  | 4.57 | 2 | $<5$ | $<2$ | $<2$ | 16 | . 3 | $<2$ | $<2$ | 138 |  | . 031 | 3 | 17 | . 18 | 48 | . 26 | <3 | 1.49 | . 02 | <. 01 | $<2$ | 11 |
| D24 | 1 | 17 | 14 | 34 | < 3 | 9 | 2 | 220 | 3.26 | $<2$ | $<5$ | $<2$ | <2 | 25 | . 2 | 2 | 2 | 86 | . 43 | . 049 | 5 | 21 | . 23 | 76 | . 17 | <3 | 2.12 | . 02 | . 03 | $<2$ | 2 |
| D25 | 2 | 30 | 7 |  | $<.3$ | 13 | 5 |  | 4.56 | 4 | $<5$ | $<2$ | 2 | 16 | <. 2 | 2 | $<2$ | 109 |  | . 045 | 5 | 39 | . 48 | 40 | . 23 |  | 4.93 | . 02 | . 02 | 3 | 4 |
| D26 | 3 | 36 | 17 | 36 | <. 3 | 11 | 5 | 317 | 4.13 | 2 | $<5$ | <2 | 2 | 14 | . 2 | 4 | $<2$ | 122 |  | . 047 | 5 | 34 | . 40 | 30 | . 25 | $<3$ | 4.50 | . 03 | . 02 | $<2$ | 5 |
| D27 | 1 | 9 | 11 | 28 | . 3 | 9 | 4 | 162 | 1.65 | $<2$ | $<5$ | <2 | $<2$ | 11 | $<.2$ | $<2$ | $<2$ | 49 | . 16 | . 039 | 1 | 24 | . 59 | 28 | . 10 | <3 | . 95 | . 02 | . 04 | <2 | 2 |
| D28 | 2 | 26 | 7 | 46 | < 3 | 18 | 9 | 684 | 2.84 | <2 | $<5$ | $<2$ | $<2$ | 22 | <. 2 | $<2$ | $<2$ | 77 |  | . 075 | 4 | 33 | . 90 | 36 | . 13 | <3 | 2.95 | . 03 | . 03 | <2 | 4 |
| D29 | 1 | 16 | 37 | 23 | <. 3 | 6 | 1 | 145 | 1.10 | <2 | $<5$ | <2 | $<2$ | 10 | $<.2$ | $<2$ | $<2$ | 22 | . 20 | . 028 | 2 | 5 | . 12 | 52 | . 07 | <3 | . 77 | . 01 | . 06 | <2 | 2 |
| D30 | $<1$ | 26 | 57 | 17 | <. 3 | 7 | 4 | 143 | . 66 | 4 | $<5$ | <2 | $<2$ | 6 | . 2 | $<2$ | <2 | 7 |  | . 117 | 3 | 8 | . 04 | 25 | . 01 | $<3$ | 2.31 | . 01 | . 08 | $<2$ | 2 |
| D32 | 1 | 11 | 11 | 25 | . 3 | 3 | 1 | 59 | . 83 | $<2$ | $<5$ | <2 | <2 | 19 | . 2 | <2 | <2 | 27 | . 31 | . 045 | 1 | 5 | . 05 | 56 | . 05 | <3 | . 39 | . 02 | . 02 | <2 | 2 |
| D33 | 1 | 30 | 7 | 32 | $<.3$ | 7 | 10 | 352 | 3.46 | 4 | $<5$ | <2 | $<2$ | 68 | . 2 | 3 | 2 | 131 |  | . 047 | 2 | 11 | . 64 | 79 | . 21 | <3 | 1.78 | . 07 | . 04 | 2 | 7 |
| D34 | , | 12 | 9 | 18 | < 3 | 6 | $<1$ |  | 3.55 | 2 | < 5 | <2 | $<2$ | 15 | <. 2 | 3 | $<2$ | 105 | . 18 | . 025 | 2 | 39 | . 13 | 78 | . 18 | 4 | 1.20 | . 01 | . 01 | 2 | 2 |
| D35 | <1 | 15 | 16 | 25 | <. 3 | 6 | 3 | 550 | 1.44 | 3 | 5 | $<2$ | $<2$ | 5 | <. 2 | 2 | $<2$ | 23 | . 06 | . 040 | 3 | 7 | . 35 | 151 | . 05 | $<3$ | . 78 | . 01 | . 06 | $<2$ | 26 |
| STANDARD C2/AU-S | 20 | 58 | 39 | 136 | 6.6 | 69 | 35 | 1141 | 3.82 | 41 | 25 | 7 | 36 | 51 | 18.8 | 15 | 18 | 71 | . 55 | . 105 | 39 | 61 | . 99 | 200 | . 08 | 26 | 2.01 | . 06 | . 12 | 11 | 43 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |



[^2]

Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.
AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.


Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.
AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.

|  | LABORATORIES LTD. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $\text { PHONX ( } 604) 253-3158, \text { FAX }(604) 253-1716$ |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{array}{r} \text { Mo } \\ \mathrm{ppm} \end{array}$ | $\begin{array}{r} \mathrm{Cu} \\ \mathrm{ppm} \\ \hline \end{array}$ | Pb ppm | $\begin{array}{r} \mathrm{Zn} \\ \mathrm{ppm} \end{array}$ | $\begin{array}{r} \mathrm{Ag} \\ \mathrm{ppm} \end{array}$ | $\begin{array}{r} \mathrm{Ni} \\ \mathrm{ppm} \end{array}$ | Co ppm | $\begin{array}{r} \mathrm{Mn} \\ \mathrm{ppm} \end{array}$ | $\begin{array}{cc} \mathrm{n} & \mathrm{Fe} \\ \mathrm{~m} & \% \\ \hline \end{array}$ | $\begin{aligned} & \text { As } \\ & \text { ppm } \end{aligned}$ | $\begin{array}{r} \mathrm{U} \\ \mathrm{ppm} \\ \hline \end{array}$ | $\begin{array}{r} \mathrm{Au} \\ \mathrm{ppm} \end{array}$ | Th ppm | Sr ppm | $\begin{array}{r} \mathrm{Cd} \\ \mathrm{ppm} \end{array}$ | $\begin{array}{r} \text { Sb } \\ \text { ppm } \\ \hline \end{array}$ | $\begin{array}{r} \mathrm{Bi} \\ \mathrm{ppm} \end{array}$ | $\begin{array}{r} v \\ \mathrm{ppm} \end{array}$ | $\begin{gathered} \mathrm{Ca} \\ \% \end{gathered}$ | $\begin{aligned} & \hline \mathbf{P} \\ & \% \end{aligned}$ | $\begin{aligned} & \text { La } \\ & \text { ppin } \end{aligned}$ | $\begin{array}{r} \mathrm{Cr} \\ \mathrm{ppm} \\ \hline \end{array}$ | $\begin{gathered} \mathrm{Mg} \\ \% \\ \hline \end{gathered}$ | Ba <br> ppm | $\begin{gathered} \mathrm{Ti} \\ \% \end{gathered}$ | $\begin{array}{r} \mathrm{B} \\ \mathrm{ppm} \end{array}$ | $\begin{gathered} \text { Al } \\ \% \end{gathered}$ | $\begin{gathered} \mathrm{Na} \\ \% \\ \hline \end{gathered}$ | $\begin{aligned} & K \\ & \% \end{aligned}$ | $\begin{array}{r} \text { W } \\ \text { ppm } \end{array}$ | $A u^{*}$ <br> ppb |
| D100 | 1 | $<1$ | 4 | 13 | <. 3 | 4 | $<1$ |  | 3.59 | <2 | $<5$ | $<2$ | 2 | 8 | <. 2 | 2 | $<2$ | 174 | . 10 | . 015 | 2 | 12 | . 09 | 18 | . 33 | $<3$ | 1.21 | . 01 | <. 01 | $<2$ | 3 |
| D101 | $<1$ | $<1$ | 22 | 16 | <. 3 | 3 | , | 145 | 1.13 | <2 | < 5 | <2 | <2 | 7 | <. 2 | <2 | <2 | 25 | . 12 | . 033 | 2 | 6 | . 21 | 31 | . 08 | $<3$ | . 51 | . 01 | . 04 | <2 | 1 |
| D102 | 1 | 4 | 5 | 14 | <. 3 | 4 | $<1$ | 88 | 1.27 | $<2$ | <5 | <2 | <2 | 11 | <. 2 | <2 | <2 | 115 | . 09 | . 034 | 3 | 17 | . 17 | 28 | . 25 | <3 | 1.75 | . 01 | . 01 | $<2$ | 2 |
| D103 | <1 | $<1$ | 5 | 7 | <. 3 | 1 | $<1$ | 75 | . 57 | <2 | <5 | $<2$ | $<2$ | 4 | <. 2 | <2 | <2 | 38 | . 05 | . 011 | 3 | 3 | . 03 | 20 | . 05 | <3 | . 34 | <. 01 | . 01 | $<2$ | 4 |
| D104 | 2 | 2 | $<3$ | 24 | <. 3 | 3 | 1 | 197 | 5.03 | <2 | $<5$ | $<2$ | 2 | 9 | $<.2$ | 3 | $<2$ | 169 | . 12 | . 042 | 3 | 14 | . 26 | 17 | . 32 | <3 | 3.45 | . 01 | <. 01 | <2 | 2 |
| D105 | 1 | 6 | <3 | 21 | <. 3 | 4 | $<1$ | 162 | 6.72 | $<2$ | $<5$ | $<2$ | $<2$ | 6 | . 2 | $<2$ | $<2$ | 171 | . 07 | . 061 | 3 | 20 | . 28 | 51 | . 38 |  | 2.38 | . 01 | . 03 | $<2$ | 2 |
| D106 | 1 | 12 | 6 | 18 | <. 3 | 6 | 1 | 311 | 14.36 | 2 | $<5$ | $<2$ | $<2$ | 7 | <. 2 | 2 | <2 | 129 | . 11 | . 079 | 2 | 33 | . 28 | 19 | . 25 | <3 | 2.09 | . 01 | . 01 | $<2$ | 2 |
| D107 | 1 | 4 | 25 | 10 | <. 3 | 3 | $<1$ | 411 | 11.12 | 3 | $<5$ | $<2$ | $<2$ | 13 | <. 2 | $<2$ | $<2$ | 73 | . 16 | . 037 | 3 | 3 | . 06 | 44 | . 22 | <3 | . 56 | . 01 | . 02 | $<2$ | 3 |
| D108 | 1 | 12 | 5 | 27 | <. 3 | 7 | 2 | 150 | 3.32 | 3 | $<5$ | $<2$ | 2 | 11 | <. 2 | 3 | $<2$ | 115 | . 15 | . 040 | 3 | 20 | . 34 | 26 | . 20 | <3 | 2.45 | . 01 | . 02 | $<2$ | 2 |
| D109 | 5 | 43 | 5 | 36 | <. 3 | 6 | 3 | 224 | 4.15 | 5 | $<5$ | $<2$ | $<2$ | 13 | <. 2 | 5 | <2 | 123 | . 16 | . 073 | 5 | 16 | . 33 | 60 | . 18 | <3 | 3.23 | . 01 | . 02 | $<2$ | 5 |
| RE D118 | 3 | $<1$ | 8 | 9 | <. 3 | 3 | <1 |  | 5.90 | 2 | $<5$ | $<2$ | <2 | 6 | <. 2 | <2 | $<2$ | 211 | . 07 | . 053 | 2 | 17 | . 06 | 21 | . 32 | $<3$ | 1.25 | <. 01 | . 01 | $<2$ | 3 |
| D110 | 1 | 60 | 88 | 77 | <. 3 | 14 | 8 | 1710 | 3.12 | 11 | < | $<2$ | $<2$ | 62 | . 4 | <2 | <2 | 105 | . 37 | . 092 | 4 | 12 | . 46 | 164 | . 13 | 3 | 1.85 | . 02 | . 04 | $<2$ | 3 |
| D111 | $<1$ | <1 | 9 | 5 | <. 3 | $<1$ | $<1$ |  | 1.02 | $<2$ | $<5$ | $<2$ | $<2$ | 8 | < 2 | <2 | $<2$ | 79 | . 11 | . 014 | 2 | 4 | . 02 | 9 | . 19 | $<3$ | . 33 | . 01 | . 01 | $<2$ | 1 |
| D112 | $<1$ | $<1$ | $<3$ | 4 | <. 3 | $<1$ | <1 | 57 | 71.16 | <2 | $<5$ | $<2$ | $<2$ | 5 | <. 2 | <2 | <2 | 87 | . 08 | . 007 | 1 | 5 | . 02 | 6 | . 12 | <3 | . 38 | . 01 | . 01 | <2 | 1 |
| D113 | $<1$ | 5 | 7 | 14 | <. 3 | 2 | 1 | 24 | - 32 | 2 | $<5$ | $<2$ | <2 | 34 | . 2 | <2 | $<2$ | 8 | . 39 | . 038 | 1 | 1 | . 04 | 99 | . 01 | <3 | . 46 | . 01 | . 02 | $<2$ | 3 |
| 0114 | 1 | <1 | $<3$ | 26 | <. 3 | 5 | $<1$ | 201 | 4.57 | $<2$ | $<5$ | $<2$ | $<2$ | 9 | . 2 | $<2$ | $<2$ | 222 | . 15 | . 023 | 2 | 20 | . 51 | 21 | . 48 |  | 2.85 | . 01 | . 01 | $<2$ | 1 |
| D115 | 2 | 15 | 3 | 42 | <. 3 | 12 | 2 | 368 | 5.13 | $<2$ | $<5$ | <2 | 3 | 13 | <. 2 | <2 | $<2$ | 134 | . 17 | . 053 | 2 | 48 | . 59 | 39 | . 30 | <3 | 5.53 | . 01 | . 02 | $<2$ | 2 |
| D116 | <1 | 2 | 30 | 12 | <. 3 | 2 | <1 | 44 | 48.29 | 2 | $<5$ | <2 | $<2$ | 14 | < 2 | <2 | $<2$ | 10 | . 44 | . 040 | $<1$ | 2 | . 04 | 14 | . 01 | <3 | . 26 | . 01 | . 03 | $<2$ | 1 |
| D117 | 2 | $<1$ | <3 | 8 | <. 3 | 4 | $<1$ |  | 3.30 | $<2$ | < | $<2$ | $<2$ | 7 | $<.2$ | $<2$ | $<2$ | 212 | . 10 | . 055 | 2 | 16 | . 06 | 16 | . 34 | 3 | . 64 | . 01 | . 02 | <2 | 3 |
| D118 | 3 | $<1$ | 8 | B | <. 3 | 2 | $<1$ |  | 5.83 | 2 | $<5$ | <2 | $<2$ | 6 | $<.2$ | 3 | <2 | 199 | . 06 | . 050 | 2 | 17 | . 06 | 19 | . 29 | $<3$ | 1.22 | <. 01 | . 01 | $<2$ | 2 |
| D119 | 2 | 19 | 14 | 28 | <. 3 | 8 | 2 | 305 | 3.54 | $<2$ | $<5$ | $<2$ | $<2$ | 7 | <. 2 | $<2$ | $<2$ | 135 | . 16 | . 060 | 3 | 23 | . 42 | 39 | . 28 | $<3$ | 2.03 | . 01 | . 04 | $<2$ | 2 |
| 0120 | 1 | 18 | 42 | 54 | <. 3 | 11 | 3 | 2745 | 3.58 | 11 | < | <2 | <2 | 11 | . 3 | 5 | $<2$ | 114 | . 20 | . 117 | 2 | 31 | . 36 | 31 | . 19 | $<3$ | 2.53 | . 01 | . 03 | 2 | 8 |
| D121 | 1 | 35 | 13 | 48 | <. 3 | 9 | 6 | 853 | 3.28 | 3 | < | $<2$ | $<2$ | 29 | . 2 | $<2$ | $<2$ | 90 | . 31 | . 063 | 6 | 22 | . 61 | 67 | . 16 | <3 | 2.74 | . 01 | . 07 | $<2$ | 4 |
| D122 | 2 | 20 | $<3$ | 32 | <. 3 | 5 | 1 | 324 | 7.36 | 12 | $<5$ | $<2$ | $<2$ | 22 | . 2 | $<2$ | $<2$ | 317 | . 14 | . 036 | 1 | 20 | . 49 | 35 | . 47 | $<3$ | 2.29 | . 01 | . 03 | $<2$ | 6 |
| D123 | $<1$ | 39 | <3 | 41 | <. 3 | 6 | 5 | 463 | 3.30 | 3 | $<5$ | $<2$ | <2 | 151 | $<.2$ | 2 | <2 | 94 | . 12 | . 018 | 3 | 9 | . 54 | 205 | . 19 | $<3$ | 1.78 | . 01 | . 10 | $<2$ | 4 |
| D124 | 1 | 2 | 4 | 8 | <. 3 | 3 | 2 | 113 | 1.56 | <2 | $<5$ | $<2$ | <2 | 15 | <. 2 | 2 | $<2$ | 98 | . 12 | . 010 | 1 | 10 | . 12 | 23 | . 09 | $<3$ | . 81 | . 01 | . 02 | <2 | 4 |
| D125 | 1 | 3 | 3 | 19 | <. 3 | 7 | 1 |  | 4.26 | 2 | $<5$ | $<2$ | $<2$ | 14 | <. 2 | $<2$ | $<2$ | 135 | . 09 | . 028 | 2 | 39 | . 24 | 25 | . 26 | $<3$ | 1.97 | . 01 | . 02 | $<2$ | 9 |
| D126 | 1 | 2 | <3 | 8 | <. 3 | 2 | <1 |  | 2.78 | $<2$ | $<5$ | $<2$ | <2 | 5 | <. 2 | <2 | $<2$ | 117 | . 05 | . 022 | 2 | 9 | . 07 | 16 | . 25 | <3 | . 88 | . 01 | . 01 | <2 | 6 |
| D127 | 1 | 17 | 12 | 17 | . 3 | 6 | 3 |  | 1.57 | 3 | 8 | $<2$ | $<2$ | 8 | <. 2 | $<2$ | <2 | 75 | . 09 | . 044 | 2 | 11 | . 25 | 36 | . 12 | <3 | . 78 | . 01 | . 04 | $<2$ | 1 |
| 0128 | 1 | 8 | $<3$ | 38 | < 3 | 6 | 1 | 213 | 4.25 | $<2$ | $<5$ | $<2$ | 4 | 8 | . 2 | $<2$ | <2 | 98 | . 13 | . 055 | 3 | 33 | . 35 | 22 | . 21 | $<3$ | 6.90 | . 01 | . 02 | $<2$ | 2 |
| 0129 | 1 | 8 | 6 | 23 | . 3 | 6 | 1 | 158 | 3.27 | $<2$ | < 5 | $<2$ | 2 | 11 | <. 2 | $<2$ | $<2$ | 122 | . 17 | . 041 | 3 | 18 | . 29 | 30 | . 21 | $<3$ | 1.80 | . 01 | . 02 | <2 | 2 |
| D130 | 4 | <1 | <3 | 7 | <. 3 | 3 | $<1$ |  | 3.05 | $<2$ | $<5$ | $<2$ | <2 | 3 | . 2 | <2 | $<2$ | 231 | . 08 | . 021 | <1 | 2 | . 03 | 16 | . 39 | <3 | . 39 | <. 01 | . 01 | <2 | 9 |
| D131 | 2 | 3 | $<3$ | 42 | <. 3 | 8 | 1 |  | 16.80 | $<2$ | $<5$ | <2 | <2 | 8 | . 3 | $<2$ | <2 | 237 | . 08 | . 016 | 1 | 29 | 1.25 | 22 | . 46 | <3 | 2.77 | . 01 | . 06 | $<2$ | 2 |
| D132 | 2 | 4 | <3 | 30 | <. 3 | 15 | 1 |  | 4.97 | $<2$ | $<5$ | <2 | 2 | 10 | <. 2 | $<2$ | $<2$ | 188 | . 17 | . 015 | 2 | 48 | . 72 | 13 | . 39 | <3 | 2.37 | . 01 | . 03 | $<2$ | 1 |
| D133 | 1 | <1 | $<3$ | 8 | $<.3$ | 3 | $<1$ |  | 3.06 | $<2$ | $<5$ | $<2$ | $<2$ | 6 | <. 2 | 2 | $<2$ | 183 | . 07 | . 018 | 2 | 11 | . 10 | 11 | . 32 | $<3$ | 1.06 | . 01 | . 01 | $<2$ | 1 |
| STANDARD C2/AU-S | 21 | 56 | 41 | 141 | 6.9 | 70 | 35 | 1164 | 3.77 | 41 | 17 | 8 | 36 | 51 | 19.2 | 14 | 18 | 72 | . 52 | . 106 | 40 | 61 | . 96 | 190 | . 08 | 27 | 1.95 | . 06 | . 14 | 11 | 46 |

[^3]Samples beginning 'RE' are Reruns and' 'RRE' are Reject Reruns.



Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.


[^4] AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.


|  |  |  |  |  |  | Bernard Fitch PROJECT |  |  |  |  |  |  |  <br> NORWOOD |  |  | FILE |  | \# 96-5070 |  |  |  |  |  |  |  |  | Page | 4 |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| SAMPLE\# | $\begin{array}{r} \text { Mo } \\ \text { ppm } \end{array}$ | $\begin{array}{r} \mathrm{Cu} \\ \mathrm{ppm} \\ \hline \end{array}$ | $\begin{array}{r} \mathrm{Pb} \\ \mathrm{ppm} \end{array}$ | $\begin{array}{r} \text { 2n } \\ \mathrm{ppm} \end{array}$ | $\begin{array}{r} \mathrm{Ag} \\ \mathrm{ppm} \end{array}$ | $\begin{array}{r} \mathrm{Ni} \\ \mathrm{ppm} \end{array}$ | $\begin{array}{r} \text { Co } \\ \text { pppm } \end{array}$ | $\begin{array}{r} \mathrm{Mn} \\ \mathrm{ppm} \end{array}$ | $\begin{aligned} & \mathrm{Fe} \\ & \% \end{aligned}$ | $\begin{array}{r} \text { As } \\ \mathrm{pp} \times \mathrm{m} \end{array}$ | $\begin{array}{r} \mathrm{U} \\ \mathrm{ppm} \end{array}$ | Au ppm | $\begin{array}{r} \text { Th } \\ \text { ppm } \end{array}$ | Sr ppm | $\begin{array}{r} \mathrm{Cd} \\ \mathrm{ppm} \end{array}$ | $\begin{array}{r} \mathrm{Sb} \\ \mathrm{ppm} \end{array}$ | $\begin{gathered} \mathrm{Bi} \\ \mathrm{ppm} \end{gathered}$ | $\begin{array}{r} v \\ \mathrm{ppm} \\ \hline \end{array}$ | $\begin{gathered} \mathrm{Ca} \\ \% \end{gathered}$ | $\begin{aligned} & \hline \mathrm{P} \\ & \% \end{aligned}$ | $\begin{array}{r} \text { La } \\ \text { ppm } \end{array}$ | Cr ppm | $\begin{gathered} \mathrm{Mg} \\ \% \end{gathered}$ | Ba pprn | $\begin{gathered} \mathrm{Ti} \\ \% \end{gathered}$ | $\begin{array}{r} B \\ \mathrm{ppm} \end{array}$ | $\begin{gathered} \text { Al } \\ \% \end{gathered}$ | $\begin{gathered} \mathrm{Na} \\ \% \end{gathered}$ | $\begin{aligned} & K \\ & \% \end{aligned}$ | $\begin{array}{r} \mathrm{W} \\ \mathrm{ppm} \end{array}$ | $A u^{*}$ <br> ppb |
| D202 | 2 | 41 | 3 | 28 | $<.3$ | 22 | 6 | 203 | 6.03 | $<2$ | 14 | $<2$ | 4 | 9 | . 5 | $<2$ | 3 | 116 | . 11 | . 033 | 4 | 82 | . 69 | 23 | . 22 |  | 6.91 | . 02 | . 04 | <2 | 4 |
| D203 | 3 | 25 | $<3$ | 18 | <. 3 | 4 | 2 | 159 | 4.52 | 2 | $<5$ | <2 | 2 | 6 | <. 2 | 2 | $<2$ | 186 | . 07 | . 021 | 3 | 18 | . 24 | 19 | . 27 |  | 2.21 | . 01 | . 02 | $<2$ | 5 |
| D204 | 1 | 17 | 7 | 19 | <. 3 | 6 | 2 | 171 | 4.94 | 33 | $<5$ | <2 | 3 | 7 | <. 2 | $<2$ | <2 | 195 | . 10 | . 019 | 3 | 14 | . 29 | 26 | . 29 |  | 1.73 | . 02 | . 03 | <2 | 18 |
| D205 | 1 | 53 | 4 | 30 | . 3 | 12 | 4 | 178 | 6.37 | <2 | < | <2 | 4 | 7 | <. 2 | <2 | $<2$ | 128 | . 08 | . 061 | 3 | 66 | . 41 | 38 | . 26 |  | 7.19 | . 02 | . 03 | <2 | 4 |
| RE 0205 | 1 | 52 | 7 | 30 | . 4 | 16 | 3 | 169 | 6.31 | <2 | $<5$ | $<2$ | 5 | 7 | . 2 | <2 | $<2$ | 126 | . 08 | . 059 | 3 | 65 | . 40 | 26 | . 26 | <3 | 7.15 | . 02 | . 03 | $<2$ | 2 |
| D206 | 1 | 29 | 8 | 21 | $<.3$ | 8 | 1 | 121 | 7.38 | $<2$ | 8 | $<2$ | 5 | 5 | . 2 | <2 | $<2$ | 149 | . 08 | . 030 | 3 | 43 | . 23 | 22 | . 29 |  | 6.54 | . 01 | . 02 | $<2$ | 4 |
| D207 | 1 | 21 | 5 | 12 | < 3 | 5 | $<1$ | 107 | 6.71 | 2 | $<5$ | $<2$ | 3 | 5 | . 2 | <2 | <2 | 224 | . 06 | . 026 | 2 | 27 | . 13 | 18 | . 36 |  | 4.32 | . 01 | . 02 | <2 | 6 |
| D208 | 1 | 30 | 3 | 23 | <. 3 | 6 | 2 | 223 | 6.67 | 3 | $<5$ | $<2$ | 2 | 8 | <. 2 | <2 | <2 | 190 | . 09 | . 031 | 2 | 18 | . 37 | 38 | . 39 |  | 2.47 | . 01 | . 03 | <2 | 26 |
| D209 | 1 | 14 | 4 | 12 | . 3 | 5 | 1 | 85 | 5.24 | <2 | $<5$ | $<2$ | 2 | 8 | <. 2 | 3 | 2 | 176 | . 10 | . 032 | 2 | 36 | . 14 | 37 | . 29 | 3 | 1.65 | . 01 | . 02 | <2 | 2 |
| D210 | $<1$ | 6 | $<3$ | 4 | <. 3 | 1 | 1 | 84 | 1.53 | <2 | 12 | <2 | $<2$ | 4 | <. 2 | $<2$ | 2 | 93 | . 05 | . 006 | 2 | 7 | . 04 | 24 | . 20 | <3 | . 42 | <. 01 | . 01 | $<2$ | 2 |
| D211 | 1 | 22 | $<3$ | 32 | <. 3 | 3 | 3 | 244 | 5.49 | <2 | 9 | $<2$ | 2 | 15 | . 3 | $<2$ | 6 | 172 | . 12 | . 016 | 3 | 11 | . 29 | 64 | . 41 |  | 2.35 | . 01 | . 05 | <2 | 2 |
| D212 | 1 | 41 | 4 | 40 | . 4 | 16 | 3 | 237 | 5.01 | 4 | 5 | <2 | 3 | 8 | . 3 | <2 | 6 | 115 | . 11 | . 034 | 3 | 77 | . 41 | 36 | . 28 |  | 4.65 | . 01 | . 03 | <2 | 2 |
| D213 | 1 | 17 | 6 | 10 | . 4 | 4 | 1 | 150 | 4.12 | $<2$ | 7 | <2 | 3 | 13 | <. 2 | <2 | 9 | 180 | . 07 | . 017 | 2 | 8 | . 09 | 26 | . 40 | 4 | 1.00 | . 01 | . 02 | <2 | 3 |
| D214 | 1 | 37 | 8 | 26 | . 3 | 9 | 4 | 207 | 3.98 | <2 | 5 | <2 | 4 | 11 | <. 2 | 3 | $<2$ | 110 | . 10 | . 029 | 4 | 25 | . 35 | 42 | . 20 |  | 3.46 | . 01 | . 04 | <2 | 4 |
| D215 | 1 | 27 | 7 | 21 | <. 3 | 6 | 1 | 124 | 4.09 | $<2$ | $<5$ | $<2$ | 3 | 7 | . 6 | $<2$ | 5 | 106 | . 10 | . 033 | 4 | 31 | . 27 | 22 | . 21 | 5 | 5.50 | . 02 | . 02 | $<2$ | 13 |
| D216 | $<1$ | 39 | 7 | 25 | < 3 | 12 | 3 | 198 | 8.67 | 3 | 5 | <2 | 4 | 6 | . 4 | <2 | $<2$ | 264 | . 09 | . 030 | 3 | 45 | . 40 | 34 | . 42 |  | 3.73 | . 01 | . 03 | $<2$ | 2 |
| D217 | 1 | 33 | 7 | 27 | <. 3 | 11 | 3 | 164 | 5.49 | $<2$ | $<5$ | $<2$ | 4 | 8 | . 2 | <2 | $<2$ | 121 | . 11 | . 030 | 3 | 68 | . 35 | 18 | . 21 |  | 6.09 | . 01 | . 02 | $<2$ | 4 |
| D218 | 1 | 40 | $<3$ | 20 | <. 3 | 13 | 2 | 146 | 5.03 | $<2$ | 8 | <2 | 2 | 9 | . 5 | <2 | $<2$ | 117 | . 07 | . 030 | 3 | 65 | . 35 | 38 | . 18 | 3 | 4.57 | . 01 | . 03 | <2 | 2 |
| D219 | 3 | 57 | 7 | 30 | . 4 | 12 | 3 |  | 6.31 | <2 | $<5$ | $<2$ | 5 | 6 | <. 2 | <2 | 3 | 126 | . 08 | . 051 | 5 | 67 | . 33 | 22 | . 23 | 5 | 7.61 | . 01 | . 03 | <2 | 3 |
| D220 | 1 | 23 | 3 | 16 | <. 3 | 7 | 2 | 152 | 3.65 | $<2$ | $<5$ | $<2$ | 3 | 6 | <. 2 | 2 | 7 | 135 | . 06 | . 021 | 3 | 51 | . 22 | 26 | . 20 | 3 | 3.54 | < 01 | . 02 | $<2$ | 2 |
| STANDARD C2/AU-S | 20 | 59 | 33 | 137 | 7.3 | 71 | 35 | 1113 | 3.85 | 35 | 23 | 7 | 37 | 51 | 19.7 | 17 | 19 | 72 | . 50 | . 099 | 38 | 60 | . 95 | 196 | . 08 | 27 | 2.00 | . 06 | . 14 | 13 | 50 |

Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns. AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.


[^5]

[^6]|  |  |  |  |  |  | Ber | nar | d F | Fitc | $h$ P | OJ | CT |  |  |  |  | LE | 9 | - 5 | 270 |  |  |  |  |  |  | Page | $\frac{C}{4}$ |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\begin{array}{r} \text { Mo } \\ \mathrm{ppm} \end{array}$ | $\underset{\mathrm{ppm}}{\mathrm{Cu}}$ | $\begin{array}{r} \mathrm{Pb} \\ \mathrm{ppm} \end{array}$ | $\begin{array}{r} \mathrm{Zn} \\ \mathrm{ppm} \end{array}$ | $\begin{array}{r} \mathrm{Ag} \\ \mathrm{ppm} \end{array}$ | $\begin{array}{r} \mathrm{Ni} \\ \mathrm{ppm} \end{array}$ | $\begin{array}{r} \text { Co } \\ \text { ppra } \end{array}$ | $\begin{array}{r} \mathrm{Mn} \\ \mathrm{ppm} \end{array}$ | $\begin{gathered} \mathrm{Fe} \\ \% \end{gathered}$ | $\begin{array}{r} \text { As } \\ \text { ppm } \end{array}$ | $\underset{\text { ppm }}{\mathbf{u}}$ | Au ppm | $\begin{array}{r} \text { Th } \\ \text { ppm } \end{array}$ | $\begin{array}{r} \mathrm{Sr} \\ \mathrm{ppm} \end{array}$ | $\begin{gathered} \mathrm{Cd} \\ \mathrm{ppn} \end{gathered}$ | $\begin{array}{r} \mathrm{Sb} \\ \mathrm{ppm} \end{array}$ | $\begin{array}{r} B i \\ p p m \end{array}$ | $\begin{array}{r} v \\ \mathrm{ppm} \end{array}$ | $\begin{gathered} \mathrm{Ca} \\ \% \end{gathered}$ | $\begin{aligned} & \mathbf{P} \\ & \% \end{aligned}$ | $\begin{array}{r} \text { La } \\ \text { ppm } \end{array}$ | $\begin{array}{r} \mathrm{Cr} \\ \mathrm{ppm} \end{array}$ | $\begin{gathered} \mathrm{Mg} \\ \% \end{gathered}$ | $\begin{array}{r} \text { Ba } \\ \text { ppin } \end{array}$ | $\begin{gathered} \mathrm{Ti} \\ \% \end{gathered}$ | $\begin{array}{r} B \\ \text { ppm } \end{array}$ | $\begin{gathered} \mathrm{Al} \\ \% \end{gathered}$ | $\begin{gathered} \mathrm{Na} \\ \% \end{gathered}$ | $\begin{aligned} & \mathbf{K} \\ & \% \end{aligned}$ | $\begin{array}{r} \mathrm{W} \\ \mathrm{ppm} \end{array}$ | $A u^{*}$ <br> ppb |
| D-224 | 2 | 38 | $<3$ | 35 | <. 3 | 8 | 3 | 178 | 7.14 | $<2$ | $<5$ | $<2$ | 2 | 12 | . 8 | $<2$ | $<2$ | 115 | . 15 | . 059 | 4 | 33 | . 31 | 38 | . 27 | $<3$ | 6.49 | . 01 | . 01 | <2 | 2 |
| D-225 | 2 | 39 | <3 | 35 | <. 3 | 11 | 5 | 246 | 3.30 | <2 | <5 | $<2$ | 2 | 14 | <. 2 | 3 | <2 | 75 | . 18 | . 062 | 6 | 31 | . 56 | 51 | . 13 | 3 | 4.37 | . 02 | . 04 | <2 | 5 |
| D-226 | 1 | 44 | 3 | 38 | <. 3 | 22 | 7 | 245 | 3.83 | <2 | $<5$ | $<2$ | <2 | 12 | . 3 | <2 | <2 | 95 | . 15 | . 050 | 5 | 81 | . 58 | 44 | . 17 |  | 3.92 | . 02 | . 02 | <2 | 3 |
| D-227 | 1 | 15 | 5 | 16 | <. 3 | 4 | 2 | 117 | 6.24 | $<2$ | $<5$ | <2 | 2 | 6 | . 4 | <2 | 2 | 221 | . 09 | . 025 | 3 | 23 | . 13 | 27 | . 35 | <3 | 2.53 | . 01 | <. 01 | <2 | 2 |
| D-228 | 1 | 14 | 6 | 21 | <. 3 | 3 | 2 | 185 | 4.19 | <2 | $<5$ | $<2$ | 2 | 7 | . 2 | $<2$ | $<2$ | 106 | . 07 | . 016 | 3 | 12 | . 28 | 28 | . 22 | 3 | 1.77 | . 01 | . 01 | $<2$ | 3 |
| RE D-228 | 1 | 15 | 9 | 20 | <. 3 | 4 | 2 | 197 | 4.41 | $<2$ | $<5$ | $<2$ | <2 | 8 | <. 2 | <2 | <2 | 113 | . 08 | . 017 | 3 | 13 | . 29 | 30 | . 24 | 3 | 1.89 | . 01 | <. 01 | $<2$ | 2 |
| D-229 | 1 | 15 | 8 | 13 | <. 3 | 3 | 2 | 90 | 4.85 | <2 | $<5$ | $<2$ | 2 | 7 | <. 2 | <2 | 2 | 209 | . 07 | . 021 | 2 | 18 | . 12 | 27 | . 33 | $<3$ | 1.84 | . 01 | <. 01 | <2 | 3 |
| D-230 | 2 | 33 | 7 | 46 | <. 3 | 13 | 8 | 294 | 5.66 | $<2$ | $<5$ | $<2$ | 2 | 13 | . 6 | $<2$ | 2 | 116 | . 19 | . 030 | 6 | 30 | . 75 | 38 | . 27 | <3 | 3.16 | . 01 | . 03 | $<2$ | 3 |
| D-231 | 2 | 24 | 4 | 50 | <. 3 | 12 | 6 | 299 | 5.59 | <2 | <5 | $<2$ | 3 | 13 | . 5 | $<2$ | $<2$ | 137 | . 19 | . 027 | 4 | 34 | . 75 | 35 | . 32 | $<3$ | 3.87 | . 01 | . 03 | <2 | 3 |
| D-232 | 2 | 31 | <3 | 41 | <. 3 | 9 | 3 | 195 | 4.68 | $<2$ | $<5$ | $<2$ | 3 | 10 | .4 | 2 | $<2$ | 95 | .14 | . 047 | 4 | 39 | . 45 | 27 | . 21 | 6 | 6.03 | . 01 | . 02 | $<2$ | 4 |
| D-233 | 2 | 30 | $<3$ | 42 | <. 3 | 11 | 4 | 221 | 3.97 | 2 | $<5$ | $<2$ | 2 | 11 | . 2 | <2 | 3 | 101 | . 16 | . 042 | 3 | 34 | . 52 | 27 | . 24 | $<3$ | 5.18 | . 01 | . 02 | $<2$ | 4 |
| D-234 | 1 | 3 | 4 | 7 | <.3 | 2 | 1 | 56 | 2.70 | $<2$ | $<5$ | <2 | <2 | 4 | <. 2 | <2 | $<2$ | 78 | . 05 | . 011 | 3 | 10 | . 06 | 14 | . 11 | $<3$ | 1.78 | . 01 | <. 01 | <2 | <1 |
| D-235 | 2 | 18 | 4 | 32 | <. 3 | 7 | 2 | 799 | 5.77 | $<2$ | $<5$ | <2 | 4 | 8 | . 5 | <2 | <2 | 147 | . 13 | . 094 | 4 | 42 | . 35 | 23 | . 27 | $<3$ | 6.26 | . 01 | . 02 | <2 | 1 |
| D-236 | 1 | 10 | 4 | 21 | <. 3 | 4 | 2 | 185 | 4.24 | <2 | < 5 | <2 | 2 | 7 | . 2 | 2 | <2 | 107 | . 10 | . 042 | 3 | 22 | . 24 | 21 | . 19 | $<3$ | 3.04 | . 01 | . 01 | <2 | $<1$ |
| D-237 | 2 | 13 | 7 | 12 | $<.3$ | 4 | <1 | 83 | 6.14 | 3 | < | <2 | <2 | 9 | . 4 | $<2$ | 3 | 155 | . 13 | . 064 | 3 | 12 | . 10 | 25 | . 22 | 3 | 1.60 | . 01 | . 01 | <2 | 8 |
| D-238 | 2 | 23 | 4 | 39 | <. 3 | 7 | 4 | 223 | 6.04 | $<2$ | $<5$ | $<2$ | 2 | 12 | . 5 | $<2$ | $<2$ | 159 | . 16 | . 030 | 3 | 28 | . 47 | 25 | . 32 | $<3$ | 4.30 | . 01 | . 02 | $<2$ | 9 |
| 0-239 | 2 | 20 | 3 | 51 | < 3 | 9 | 5 | 251 | 4.88 | $<2$ | $<5$ | $<2$ | 3 | 8 | . 4 | 2 | 2 | 103 | . 14 | . 083 | 4 | 34 | . 49 | 26 | . 24 | $<3$ | 5.95 | . 01 | . 03 | <2 | 1 |
| D-240 | 2 | 45 | 6 | 38 | < 3 | 8 | 4 | 290 | 5.51 | 2 | $<5$ | $<2$ | 2 | 10 | . 4 | 2 | $<2$ | 156 | . 12 | . 041 | 4 | 26 | . 45 | 47 | . 30 | <3 | 4.62 | . 01 | . 02 | 2 | 95 |
| D-241 | 3 | 59 | 8 | 48 | <. 3 | 12 | 6 | 267 | 5.82 | 3 | $<5$ | $<2$ | 4 | 11 | . 4 | 4 | <2 | 122 | . 15 | . 027 | 4 | 43 | . 64 | 36 | . 22 | $<3$ | 6.81 | . 01 | . 03 | <2 | 8 |
| D-242 | 1 | 17 | 6 | 17 | <. 3 | 5 | 2 | 117 | 5.35 | 2 | $<5$ | $<2$ | <2 | 8 | .4 | $<2$ | $<2$ | 184 | . 11 | . 026 | 3 | 21 | . 17 | 33 | . 25 | $<3$ | 2.00 | . 01 | . 01 | $<2$ | 2 |
| D-243 | 1 | 12 | 6 | 15 | <. 3 | 4 | 2 | 99 | 4.59 | 2 | $<5$ | $<2$ | <2 | 9 | <. 2 | 2 | $<2$ | 141 | . 10 | . 019 | 2 | 20 | . 18 | 20 | . 22 | $<3$ | 1.66 | . 01 | . 01 | <2 | 1 |
| D-244 | 2 | 27 | $<3$ | 34 | <. 3 | 5 | 5 | 212 | 9.19 | 8 | $<5$ | $<2$ | <2 | 13 | 1.1 | 4 | $<2$ | 268 | . 11 | . 080 | 3 | 34 | . 64 | 24 | . 32 | <3 | 7.43 | . 01 | . 01 | 4 | 3 |
| D-245 | 2 | 13 | $<3$ | 28 | <. 3 | 6 | 2 | 171 | 4.64 | $<2$ | $<5$ | $<2$ | 2 | 10 | <. 2 | $<2$ | <2 | 130 | . 19 | . 033 | 3 | 21 | . 39 | 17 | . 23 | <3 | 3.24 | . 02 | . 02 | $<2$ | 1 |
| D-246 | 2 | 10 | 4 | 32 | <. 3 | 4 | 3 | 288 | 6.39 | $<2$ | <5 | $<2$ | <2 | 8 | . 4 | <2 | $<2$ | 213 | . 17 | . 035 | 2 | 10 | . 70 | 14 | . 34 | <3 | 2.35 | . 01 | . 01 | <2 | 1 |
| D-247 | 1 | 9 | <3 | 32 | <. 3 | 5 | 3 | 265 | 4.69 | $<2$ | $<5$ | $<2$ | $<2$ | 12 | . 2 | 2 | $<2$ | 117 | . 11 | . 048 | 3 | 14 | . 62 | 22 | . 21 | $<3$ | 3.15 | . 01 | . 02 | $<2$ | 2 |
| D-248 | 1 | 14 | 5 | 17 | <. 3 | 3 | <1 | 177 | 5.30 | $<2$ | $<5$ | $<2$ | 2 | 6 | . 2 | $<2$ | $<2$ | 93 | . 09 | . 097 | 4 | 22 | . 10 | 19 | . 14 | $<3$ | 5.97 | . 01 | . 01 | $<2$ | 2 |
| D-249 | 1 | 3 | 7 | 10 | <. 3 | 2 | $<1$ | 93 | 1.78 | <2 | $<5$ | $<2$ | $<2$ | 9 | <. 2 | $<2$ | $<2$ | 93 | . 12 | . 012 | 2 | 6 | . 12 | 7 | . 23 | <3 | . 81 | . 01 | . 01 | $<2$ | 1 |
| D-250 | 3 | 67 | 4 | 39 | <. 3 | 7 | 4 | 258 | 7.53 | 2 | < | $<2$ | 3 | 8 | . 7 | <2 | 2 | 151 | . 10 | . 099 | 6 | 36 | . 38 | 151 | . 24 | <3 | 7.52 | . 01 | . 02 | <2 | 28 |
| D-251 | 1 | 12 | 6 | 15 | < 3 | 4 | <1 | 92 | 7.15 | 2 | $<5$ | <2 | <2 | 8 | . 4 | 3 | $<2$ | 178 | . 12 | . 030 | 2 | 31 | . 17 | 16 | . 30 | <3 | 2.19 | . 01 | . 01 | <2 | 4 |
| D-252 | 2 | 24 | 7 | 38 | <. 3 | 16 | 4 | 260 | 6.74 | <2 | $<5$ | $<2$ | 2 | 10 | . 4 | $<2$ | $<2$ | 213 | . 09 | . 030 | 3 | 91 | . 61 | 48 | . 30 | <3 | 3.48 | . 01 | . 01 | $<2$ | 3 |
| D-253 | 1 | 40 | <3 | 55 | <. 3 | 10 | 5 | 292 | 5.27 | $<2$ | $<5$ | $<2$ | 2 | 11 | . 2 | 2 | 2 | 122 | . 20 | . 079 | 4 | 50 | . 31 | 98 | . 21 | $<3$ | 5.57 | . 01 | . 01 | $<2$ | 4 |
| D-254 | 2 | 16 | 5 | 19 | <. 3 | 7 | 2 | 122 | 6.41 | $<2$ | $<5$ | $<2$ | 2 | 9 | . 3 | $<2$ | $<2$ | 220 | . 11 | . 027 | 4 | 32 | . 26 | 27 | . 38 | 3 | 3.50 | . 01 | . 02 | $<2$ | 3 |
| D-255 | 1 | 30 | 4 | 47 | <. 3 | 13 | 7 | 291 | 4.27 | $<2$ | $<5$ | $<2$ | <2 | 28 | <. 2 | <2 | $<2$ | 97 | . 24 | . 031 | 4 | 29 | . 74 | 55 | . 20 | 3 | 3.02 | . 01 | . 05 | $<2$ | 2 |
| STANDARD C2/AU-S | 21 | 59 | 40 | 140 | 6.7 | 71 | 35 | 1160 | 4.14 | 41 | 16 | 7 | 36 | 51 | 19.8 | 18 | 19 | 71 | . 52 | . 106 | 38 | 62 | . 99 | 193 | . 08 | 26 | 2.09 | . 06 | . 13 | 10 | 46 |

Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.
AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)


ISP - . 500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B AND
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.

- SAMPLE TYPE: SOIL AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)

Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.



## APPENDIX B

## CERTIFICATE OF QUALIFICATION

I, John Ostler, of 2224 Jefferson Avenue in the City of West Vancouver, Province of British Columbia do hereby certify:

That $I$ am a consulting geologist with business address at 2224 Jefferson Avenue, West Vancouver, British Columbia;

That I am a graduate of the University of Guelph in Ontario where I obtained my Bachelor of Arts degree in Geography (Geomorphology) and Geology in 1973 and that I am a graduate of Carleton University of Ottawa, Ontario where I obtained my Master of Science degree in Geology in 1977;

That registered as a Professional Geoscientist with the Associations of Professional Engineers and Geoscientists of British Columbia and Newfoundland, and that $I$ am registered as a Professional Geologist with the Association of Professional Engineers, Geologists and Geophysicists of Alberta, and that I am a Fellow of the Geological Association of Canada;

That $I$ have been engaged in the study and practice of the geological profession for over 20 years;

That this report is based on data in literature and an examination of the Alexandria Property located near Phillips Arm in the Coast Mountains of British Columbia personally conducted from October 22 to 24, 1996;

That I have no interest in the Alexandria Property nor in the securities of Norwood Resources Limited, nor do I expect to receive any.

West Vancouver, British Columbia March 5, 1997



[^0]:    Is located on Picton Point, on Philipps Arm, and 1 is in all probability on an extension of the Doratha Morton lead. The claim is a mineral location and is owned by the Philipps Arm Gold Mining Co. and

[^1]:    ...Further work was done on the surface and upper tunnels, but the important development consisted in sinking the shaft from the lower tunnel as was outlined in the 1928 Anmal Report. The shaft is now down 100 feet and the vein drifted on from the bottom of the shaft for 37 feet to the wast, or into the hill. An average sample across the face of the drift at this point gave $\$ 14$ in gold to the ton. Selected samples show gold values up to $\$ 75$ or more to the ton. As the ore is pyrite in a gangue of quartz it will be an ideal one for flotation concentration. Soundings have been taken on the eastward extension of the vein, which indicate that a very appreciable length of drift can be run on the vein under tide-water, from the present depth of the shaft. The shaft is about 300 feet in from the portal of the tunnel and there is therefore room in that distance for substantial bodies of ore...

[^2]:    Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.
    AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.

[^3]:    ICP - . 500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE KOUR AND IS DILUTED TO 10 ML WITH WATER.
    THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL.

    - SAMPLE TYPE: SOIL AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.

[^4]:    Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

[^5]:    Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.
    AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED. (10 GM)

[^6]:    Sample type: SOIL. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.
    AU* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED. (10 GM)

