TO: John Pattison, David Money and Mike Vande Guchte

FROM: Stan Clemmer
SUBJECT: 1988 Final Drill Report for the Chemainus Project

This memo outlines the format and general content of the final drill report. This memo is the third version of the final report. All of you should look this over and make additions and changes that you think may help the report. I have noted who is responsible for the various sections of the report.

The trenching report will be included as an appendix in the drill report. Mike will responsible for the writing of the text and production of all diagrams. The geology of the trenchs should be plotted on the drill sections and important conclusions and information noted in the appropriate sections of the main report.

The report is quite modular and in some cases the individual authors can write their sections independently and in others you will have to work together. To avoid repetition and widely differing formats $I$ recommend that you exchange your manuscripts with one another for editting. This will allow you to keep track of the overall report and also speed the editting process.

The following are the major report headings,

1) SUMMARY AND CONCLUSIONS (Dave, John and stan)
2) RECOMMENDATIONS (Dave, John and stan)
3) INTRODUCTION (Stan)
4) LOCATION, ACCESS, TERRAIN (Stan)
5) CLAIM STATUS (Stan)
6) EXPLORATION HISTORY (Stan)
7) REGIONAL GEOLOGY (Stan)

Introduction
Stratigraphy of the Sicker Group
8) PROPERTY GEOLOGY (Stan)

Introduction
-this section should be used to first give a brief overall summary of the property geology for the two claim groups in a regional setting
-we will use Marty's two $1: 10,000$ geology base maps hopefully we can get a paper copy to work from as soon a possible
Stratigraphy and Structural Geology
-general summary of overall stratigraphy and structure
of property
-overall stratigraphic succession, probably need a diagram
-antiform theory
9) DRILLING (Stan)

Introduction
-this section should summarize who drilled, how much, number of holes, sampling techniques, analytical methods, where core is stored, etc.
-the knocker system and Ishikawa index should be descibed here as it applies to all areas
10) ANITA AREA (John)

Introduction
-overall this section must give the reader the impression that this is currently our most important stratigraphic target
-exploration history

## Geology

-location and extent on property; including the possible extent of this horizon across the whole Chip claim block
-the location of the Anita Horizon should be shown on the 1:10,000 geology map
-can we relate the Anita Horizon to the Lara???
-stratigraphy
-succession of units
-brief description of units
-explanation of use of terms, the altered felsics are refered to as the Anita Active Tuff and the felsic-mafic contact is called the Anita Horizon
-the Anita Active Tuff should be described in detail including it's thickness and extent
-structure
-lies on south side of antiform, south of Fulford Fault Splay
-the various structural blocks between the northerly trending faults should be discussed here, ie. Anita fault, changes in dip, etc.
-I think we can use this section here to introduce the sub-divisions of the Anita Horizon that will be used to discuss the following areas in detail below,
a) Anita Area proper from line 22 E to 31 E or so
b) Anita Central

The less explored area from line 32 E through to about line 39 E wich appears to be a south dipping block where the Anita Horizon does not outcrop
c) Anita East This area extends from about line 40 E to 49 E and onto Abermin's claim
Mineralization, Alteration and Lithogeochemistry
-a brief general dicussion of the lithogeochem and base metal enrichment of the Anita Active Tuff can be included here as an introduction
-this section divided into three sub-sections, Anita, Anita Central, and Anita East
-each of the three sections should discuss features unique to theses areas, be careful you do not repeat points already made in the sections above

Anita Area
-brief introduction giving location
-summary of mineralization
-the problem of the lack of intense alteration associated with the best mineralization should be discussed

Anita Central
-summarize results to date
-are there any other north-south faults located between line 32 E and 40 E ?

Anita East
-largely a discussion of the encouraging alteration and lithogeochem as we do not have an econmic intersection yet!

Barium Rich Cherts
-I would like to include a section that takes a close look at the barium-rich horizon that occurs south of the Anita Horizon
-it should include a table summarizing all intersections of this unit and some sort of composite of the barium contents; this will have to be worked out once all the data is compiled
-a longitudinal section showing the variation of barium content and possibly thickness of this unit along strike
-also I don't think anyone has really determined which rock type contains the most barium, a look at the core may be necessary

## 11) POWERLINE AREA (Dave) <br> Introduction

-exploration history
-note difference between northern and southern IP anomaly
Geology
-location and extent on property
-stratigraphy
-succession of units
-brief description of units
-structure
Mineralization, Alteration and Lithogeochemistry
-note alteration extent and possibility of correlation with Randy zone
12) HOLYOAK AREA (Dave)

Introduction
-exploration history
Geology
-location and extent on property
-stratigraphy
-succession of units
-brief description of units
-structure
Mineralization, Alteration and Lithogeochemistry -note alteration extent and possibility of correlation with Randy zone
13) SILVER CREEK AREA (Dave)

Introduction
-exploration history
Geology
-location and extent on property
-stratigraphy
-succession of units
-brief description of units
-structure
Mineralization, Alteration and Lithogeochemistry -note alteration zones, northern one that may correlate with Randy and Holyoak -discuss zinc mineralization and mafic host rock
14) PEM MINERALIZAITON (Dave)

Introduction
-exploration history
Geology
-location
-stratigraphy
-succession of units
-brief description of units
-unit confined to a felsic within mafic tuffs -structure
Mineralization, Alteration and Lithogeochemistry -dimensions, grade and extent of mineralization
15) SHARON SHOWING AREA (Mike)

Introduction -exploration history
Geology
-location
-stratigraphy
-succession of units
-brief description of units
-structure
Mineralization, Alteration and Lithogeochemistry -summarize the highlights of the trenching and any significant results of the core resampling program
16) WATSON CREEK AREA (Dave)

Introduction -exploration history
Geology
-location
-stratigraphy
-succession of units
-brief description of units -structure
Mineralization, Alteration and Lithogeochemistry

## 17) REFERENCES

1) 1:20,000 summary map.
2) 1:10,000 Summary figure to show location of all drill collars and location of any figure used in report; actually two figures one for Chip and one for Holyoak-Brent. Val is currently making this base.
3) Two 1:10,000 geology maps, one for Chip and on for HolyoakBrent; maps will show major stratigraphic trends ie. Anita and Randy.
4) Two 1:10,000 IP summary maps, showing major anomalies.

## APPENDICES OF THE REPORT

Appendix 1 : Trenching Report
-written by Mike all figures given numbers; numbered consequatively from last figure number in report

Appendix 2 : Section by Section Summary of Drilling -I like John's format that he used in the interim report and this should be used -remember this is a summary and not a a repetition of the log

Appendix 3 : Summary of 1988 Drilling
-this is our summary table and it should be editted and updated

Appendix 4 : Drill Logs and Analytical Results -as in interim report

OTHER NOTES OF INTEREST ABOUT THE REPORT

1) A first rough draft of the report is due at the end November. I feel we should have the report completed by the second week of December.
2) No table shall exceed 132 characters in width. The format of all tables should be similar and I prefer the use of columns for analytical results.
3) I encourage you to use tables wherever possible to summarize analytical results. These allow the reader to quickly see and compare results instead of reading long verbal summaries.
4) All text submitted for editting should contain no control characters, contain no space for the left margin, and be a simple ASCII file.
5) Considerable time is spent by Pat trying to interpret sloppy manuscripts submitted for AutoCad. As this is
still our biggest bottle neck in report production I would ask that you make an effort to submit the neatest possible plans to Pat.
6) Several of the sections in the Interim Report do not show the surface geology of the trenchs which is now available. This should be added to the appropriate sections.
7) Another problem I noticed on the sections is the depth overburden, this is not always the depth of the casing. You should review some of the overburden depths, especially where trenching has occurred and show them as realistically as possible.

1988 FINAL REPORT

## CHEMAINUS JOINT VENTURE

PROJECT 116

# Situated 20 kilometres west of Chemainus, B.C. in the Victoria Mining Division 

$4853^{\prime} \mathrm{N}, 12350^{\prime} \mathrm{W}$ NTS 92B/13 and 92C/16

Falconbridge Ltd. 202-856 Homer Street Vancouver, B.C.

Stan Clemmer
David Money
John Pattison
Mike Vande-Guchte

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## SUMMARY AND CONCLUSIONS

The Chemainus Joint Venture, a 50-50 Joint Venture between Esso Resources Canada Limited and Falconbridge Limited is located 10 to 25 kilometres west of Chemainus, British Columbia, on Vancouver Island. The property covers an area approximately 3 by 15 kilometres and is underlain by volcanics and sediments of the Devonian to Permian sicker Group. The exploration target is a volcanogenic, polymetallic massive sulphide deposit. Sicker Group volcanics are host to volcanogenic massive sulphide deposits at three localities on Vancouver Island. On the adjacent Laramide property the Coronation zone has possible geological reserves listed as 583,000 tonnes of $1.0 \% \mathrm{Cu}, 1.2 \% \mathrm{~Pb}, 2.8 \% \mathrm{Zn}, 90.2 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$, and $4.4 \mathrm{~g} / \mathrm{t} \mathrm{Au}$. The Mt. Sicker Mine which is located 3 kilometres east of the Chemainus Property produced 229,100 tonnes grading $3.8 \% \mathrm{Cu}, 100.0 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$, and $4.8 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ in the period 1898 to 1909. The Buttle Lake Mine located 180 kilometres northwest of Chemainus lists reserves at the end of 1987 as $12,521,500$ tonnes of $2.40 \% \mathrm{Cu}, 0.36 \% \mathrm{~Pb}, 5.28 \% \mathrm{zn}, 37.7 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$, and 2.4 $\mathrm{g} / \mathrm{t}$ Au; production plus reserves now exceed 20 million tonnes.

The 1988 exploration program at Chemainus focused on diamond drilling and a total of 13,578 metres in 46 holes of NQ core was drilled. This brings the total amount of drilling completed at Chemainus to 23,988 metres in 82 holes. The 1988 program also saw the property re-mapped at a scale of $1: 5,000$, 2,270 metres of excavator trenching completed, mapped and sampled, 112 kilometres of fill-in VLF and MAG surveys, 65 kilometres of Gradient Array IP surveys, 112 kilometres of fill-in Schlumberger Array Ip surveys, 34 drill holes (5,790 metres) probed using the BRGM downhole Remi EM system, the grid baseline was surveyed and a new 1:5000 base map drawn-up, all legal corner posts and all drill hole collars are now surveyed.

The 1988 surface geological mapping confirmed that the Sicker Group volcanics and sediments of the McLaughlin Ridge Formation occupy the core of an anticlinal structure that is at least 20 kilometres long and crosses the entire Chemainus Property. The top of the McLaughlin Ridge Formation is marked by a distinctive mafic tuff unit that encloses older intercalated felsic, mafic, lesser intermediate tuffs and minor flows. This Upper Mafic Unit is composed of mafic pyroclastic tuffs and lapilli tuffs, and rare pillowed flows; all of which locally display a purple coloured alteration. The McLaughlin Ridge Formation is apparently conformably overlain by sediments of the Cameron River Formation that outcrop on the north and south flanks of the anticline. The recent mapping suggests that the antiform plunges to the west and the felsic to mafic core appears to dissappear at the west
edge of the property where it apparently plunges beneath the overlying mafic unit. The surface mapping also indicates that the McLaughlin Ridge rocks are isoclinally folded, with folds of a wavelength of 100 to 300 metres common within the 1 to 3 kilometre wide volcanic portion of the antiform. Therefore, some of the mafic units intercalated within felsic volcanics could be infolded parts of the Upper Mafic Unit.

The best results on the Chemainus Project continue to be obtained in the Anita Area. Mineralization is hosted by a barium-enriched, pyritic, sericitic, base metal enriched, quartz phyric felsic tuff and lapilli tuff referred to as the Anita Active Tuff. Stratigraphically it is located just below the mafic volcanic unit near the top of the McLaughlin Ridge Formation on the south side of the anticline. All economic mineralization found to date occurs in the Anita Active Tuff within 10 metres of the contact with the overlying mafics. The felsic-mafic contact is referred to as the Anita Horizon. The Anita Horizon has now been traced by drilling for 2.7 kilometres across the Chip 1 and 2 claims. The horizon is open to the west and down-dip, it extends onto the Laramide property to the east, and is on strike with the Lara deposit 1.5 kilometres to the east.

The best intersections from the Anita area are listed below. There appear to be two zones of mineralization located to date. Zone 1 occurs over an area approximately 300 metres in strike length from line 25 W to line 28 W , with a 50 metre dip extent. The limits of the mineralization within Zone 1 are relatively well defined and it is considered to have very limited tonnage potential. Zone 2 occurs east of line 30 W and is open and untested to the east and downdip. Hydrothermal alteration as indicated by sodium depletion is erratic and often weak beneath Zones 1 and 2. This may indicate that this mineralization is not directly over the hydrothermal plumbing system and more intense mineralization could be present nearby. The stratiform nature of the alteration of the Anita Active Tuff, the stratigraphic confinement of mineralization just below the Anita Horizon, and the semi-banded nature of some of the economic sulphide mineralization all indicate that the Anita mineralization is related to a volcanogenic massive sulphide system. Zones $l$ and 2 show that such a system was capable of producing small lenses of massive sulphide in a more distal environment, and the probability that larger bodies of massive sulphide occur elsewhere on this horizon is excellent.

| INTERSECTION |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ZONE | SECTION | HOLE \# | ACTUAL <br> (m) | $\begin{aligned} & \text { TRUE } \\ & (\mathrm{m}) \end{aligned}$ | $\underset{(\%)}{\mathrm{Cu}}$ | $\begin{aligned} & \mathrm{Pb} \\ & (\%) \end{aligned}$ | $\begin{aligned} & \mathrm{Zn} \\ & (\%) \end{aligned}$ | $\begin{aligned} & \mathrm{Ag} \\ & (\mathrm{~g} / \mathrm{t}) \end{aligned}$ | $\begin{aligned} & \mathrm{Au} \\ & (\mathrm{~g} / \mathrm{t}) \end{aligned}$ | $\begin{aligned} & \mathrm{Ba} \\ & (\%) \end{aligned}$ |
| 1 | $25+00 \mathrm{E}$ | CH88-76 | 4.8 | 3.0 | 0.93 | 0.10 | 3.81 | 20.5 | 0.37 | 1.53 |
|  | $27+00 E$ | CH88-49 | 4.9 | 4.8 | 2.30 | 0.49 | 3.66 | 73.9 | 1.90 | 2.11 |
|  | $28+00 \mathrm{E}$ | CH87-37 | 5.0 | 4.8 | 1.64 | 0.06 | 1.42 | 28.8 | 0.70 | 0.93 |
|  | $28+00 \mathrm{E}$ | CH86-18 | 5.0 | 4.8 | 1.60 | <0.01 | 0.04 | 8.9 | 0.20 | 0.33 |
| 2 | $30+00 \mathrm{E}$ | CH88-50 | 2.0 | 0.6 | 0.44 | 0.05 | 3.94 | 29.1 | 2.10 | 2.05 |
|  | $31+00 \mathrm{E}$ | CH87-24 | 3.4 | 0.6 | 0.05 | 0.05 | 0.32 | 5.9 | 0.54 | 0.48 |
|  | $31+00 \mathrm{E}$ | CH88-56 | 6.8 | 1.2 | 0.45 | 0.14 | 1.55 | 18.4 | 0.80 | 1.63 |
|  | $32+00 \mathrm{E}$ | CH88-83 | 5.4 | 4.5 | 0.13 | 0.04 | 0.93 | 7.6 | 0.16 | 0.96 |

The 1988 drilling and trenching program has outlined a significant zone of stratiform alteration near the northern limit of the felsic component of the McLaughlin Ridge Formation on the north limb of the property wide anticline. The zone is 40 to 200 metres wide and marked by sodium depletion ( < $1 \%$ ) and hydrothermal alteration of felsic tuffs. The zone is located below the Upper Mafic Unit at the top of the McLaughlin Ridge Formation. The alteration zone is termed the Randy Active Tuff as it correlates with the Randy Zone on the Laramide Property. The Randy Active Tuff has been intersected by drilling at Watson Creek, the Powerline area, the Holyoak area, and Silver Creek. This indicates a minimum strike length of almost 11 kilometres. The Randy Active Tuff contains narrow intervals of geochemically anomalous zinc at Holyoak and the Powerline areas. Zinc values range form 1000 to 3600 ppm over . 5 to 1.6 metres and one 50 cm interval at Holyoak contains $2.0 \%$ zinc. Similar intervals have been obtained from the Randy zone on the Laramide property that lies between the Powerline and Holyoak areas. The good strike extent, stratabound nature of the alteration, minor stratiform zinc mineralization, and intercalated sediments all support the conclusion that the Randy Active Tuff is the product of a subaqueous hydrothermal system. Such a system would be capable of forming massive sulphide orebodies.

The similar stratigraphic position of the Randy Active Tuff and the Anita Active Tuff just below the Upper Mafic Unit at the top of the McLaughlin Ridge Formation suggests that they may correlate and represent a single hydrothermally altered stratabound zone on either limb of the anticline.

There is a gross similarity between the Chemainus stratigraphy and that seen at Buttle Lake. The Price-Myra deposits at Buttle Lake are hosted within felsic tuffs near the top of the Myra Formation (equivalent to the McLaughlin Ridge Formation) and are overlain by a mafic volcanic unit
very similar to the one at the top of the McLaughlin Ridge Formation. The Myra Formation is overlain by the Thelwood Formation that appears to correlate with the Cameron River Formation. If this similarity is more than just coincidence then the Anita and Randy Horizons are equivalent to the PriceMyra Horizon at Buttle Lake. At present, stratigraphic equivalents to the HW Horizon at Buttle Lake have not been recognized at Chemainus, but may be present at depth.

Trenching and surface mapping in the Sharon Area on the Brent 1 claim has outlared extensive sodium depletion over an area at least 300 metres wide. Overall, the volcanics have shallow trends but variable dips, and the area may be in a fold nose or shallow northward dipping limb of a fold. The alteration occurs both in pyritic felsics and to a lesser extent in overlying mafic tuffs and flows. The overlying mafic volcanics may be part of the Upper Mafic Unit of the McLaughlin Ridge Formation, and the altered felsics would correlate with either the Anita Active Tuff or the Randy Active Tuff.

Drilling in 1985 in the Silver Creek area intersected 7.5 metres of $1.01 \%$ zinc. Drilling in 1988 was unable to extend this mineralization which is hosted by an unaltered andesitic basalt.

The strong gradient array IP chargeability anomaly just north of the baseline was drilled at Watson Creek. No economic sulphides were interesected. The anomaly is caused by a 7 metre wide pyritic-graphitic argillite which is not anomalous in barium or base metals.

1 ) Downhole probing of all holes should continue, must be lined with plastic pipe in order to do this.

2 ) Consideration should be given to performing a deep looking surface EM survey, such as UTEM, in an effort to locate significant conductive bodies in areas of favourable stratigraphy. Such a survey could be done in selected areas where the near surface geology is well understood and anomalies could be a evaluated from a geological point of view. One such recommended area is the Anita area from line 22 E to 49 E south of the baseline.

3 ) Further drilling is recommended west of the Anita area. The Anita Horizon should continue to be traced to the west of line 22 E on sections 200 metres apart. It is recommended that two holes be drilled on each section to determine the dip of the Anita Horizon.

4 ) It is recommended that a hole be drilled on section 32 E to test an off hole Remi EM anomaly detected in drill hole CH8854 in the Anita Area. The hole should attempt to intersect the Anita Horizon at an elevation of 325 metres. In addition one hole is recommended on each of sections 34 E , 36 E , and 38 E to test the Anita Horizon at the 200 to 250 metre elevation.

Wiab Nor
hacate
 $\therefore$ do 20 c use All holes should be drilled from the south to the north.

5 ) Further borehole EM work is needed to properly determine the location of conductors detected in holes cH88-76, 78, 80. and 82 in the Anita area.

ACrmak
Ansita

6 ) Further drilling work is recommended in the Powerline area. The sodium depleted pyritic felsic tuffs should be tested on sections $26+00 \mathrm{Ei}^{\mathrm{A}^{-2}} 32+00 \mathrm{E}^{(2)}$ and $34+00 \mathrm{E}$. The Randy Active Tuff should be intersected at about 200 metres below surface. $31+32$

9 ) A hole should be drilled on section $29+50 \mathrm{~W}$ at Silver Defer and Creek to test the Remi downole EM anomalies located in CH88- ampand 66 and 67, which may be the same anomaly situated on the edge of a gabbro intrusion.
10) The stratigraphic section at Watson Creek should be waporas. extended south to locate the Anita Active Tuff. The section should end in Cameron River Formation sediments at least 50 m above the McLaughlin Ridge Formation.
 graphic sections should be completed on lines $3+00 \mathrm{~W}$ and $4+50 \mathrm{~W}$.

The Holyoak-Brent and Chip claim groups are located 10 to 25 kilometres west of Chemainus on southeast Vancouver Island, in southwestern British Columbia (Figure l). Chemainus lies just east of the Trans-Canada Highway about 60 kilometres northwest of Victoria. Established deep water marine port facilites and infrastructure in Chemainus and vicinity would enhance the ecopromics of any orebodies discovered.

Access to the claim group is by MacMillan Bloedel's main haul road known as the Copper Canyon Mainline which follows the Chemainus River. The claims may be accessed via $4 \times 4$ secondary dirt roads that leave the Copper Canyon road at mile 10, just beyond mile 12 , and the $C 7$ access road.

Timber and suface rights are owned by CIP, MacMillan Bloedel and the Crown. Access permits are required and damage to timber is subject to compensation charges.

The terrain is characterized by rolling topography and deeply incised creek valleys. All of the property has been logged and is in various stages of regrowth with fir, hemlock, balsam, and local pine. The vegetation varies from dense second growth to clear cut areas. Elevations range from 500 to 1100 metres.

A mild climate prevails with warm, dry summers and autumns, and short winters. Spring and late fall are usually very wet. Higher elevations (above 1000 metres) tend to have more severe winter temperatures and heavy snowfall but most areas are clear of snow by the end of May. Dry forest conditions and extreme fire hazard usually occur from mid-July to mid-September and forest closures during this period are common.


The Chipl88 and Chip288 claim groups consists of 16 claims with 123 units within the Victoria Mining Division. Four of the claims are fractions. The status of the claims is listed below and the location of the claims is shown on figure 2. The claims are jointly owned by Esso Resources Canada Limited and Falconbridge Ltd.

The claims in the Chipl88 group are as follows.


The claims in the Chip288 group are as follows.

| CLAIM |  | RECORD NO. | UNITS | STAKING | date | EXPIRY | DATE |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Chip | 2 | 721 | 20 | Nov 13, | 1982 | Dec 7, | 1998 |
| Chip | 3 | 722 | 16 | Nov 13, | 1982 | Dec 7, | 1998 |
| Chip | 4 | 723 | 16 | Nov 15, | 1982 | Dec 7, | 1998 |
| Chip | 6 | 921 | 4 | May 17, | 1983 | May 24, | 1998 |
| Chip | 7 | 922 | 6 | May 18, | 1983 | May 24, | 1998 |
| Chip 1 | 13 Fr | 1609 | 1 | Dec 11, | 1985 | Dec 12, | 1998 |
| Chip 1 | 14 | 2092 | 16 | Feb 16, | 1988 | Feb 29, | 1998 |
| Chip 15 | 15 | 2093 | 8 | Feb 16, | 1988 | Feb 29, | 1998 |
| Chip 16 | 16 Fr | 2185 | 1 | Jul 5, | 1988 | Jul 13, | 1998 |
| Chip 1 | 17 Fr | 2186 | 1 | Jul 8, | 1988 | Jul 13, | 1998 |
| Chip 1 | 18 | 2230 | 4 | Sep 28, | 1988 | Sep 28, | 1998 |

Expiry dates are subject to approval by Gold Commissioner.
The Holyoak-Brent claim group consists of 4 claims with 46 units within the Victoria Mining Division. The status of the claims is listed below.

The claims have all been grouped into the Holy88 Group.

| CLAIM | RECORD NO. | UNITS | STAKING DATE | EXPIRY DATE |  |
| :--- | ---: | :--- | :--- | :--- | :--- |
| Brent 1 |  | 163 | 10 | May 5,1978 | May 11, 1998 |
| Holyoak 1 | 1598 | 8 | Oct 22, 1985 | Oct 31, 1998 |  |
| Holyoak 2 | 1599 | 16 | Oct 23, 1985 | Oct 31, 1998 |  |

Expiry dates are subject to approval by Gold Commissioner.

## EXPLORATION HISTORY

Early property history on the Chip claims has been described by Everett and Cooper (1984):
"The Chip claims have seen sporadic periods of exploration activity since the early 1900's. The oldest recorded work was in 1915 with the sinking of a 50 foot shaft on a weak chalcopyrite-bearing pyrrhotite vein (part of the Anita Showing). Interest in the Sicker Group schists intensified in 1944 with the development of the Twin $J$ massive sulphide-precious metal deposit, 15 km to the southeast. The volcanic belt has undergone several periods of staking and prospecting.

In recent years, development of Westmin's deposit at Buttle Lake Uplift has renewed exploration interest in the Chemainus area. An induced polarization survey was completed by Cominco in the vicinity of the Chip 4 claim in 1966 and a soil survey was completed by UMEX in the vicinity of the Chip 1 in 1978."

Early property history on the Brent-Holyoak claims has been described by Britten (1984):
"The Erent 1 mineral claim overlies what is believed to have been the Pauper C.G. claim (L31G) crown granted in 1903. The BCDM Annual reports for 1924 and 1927 report underground development of a pyritized schist belt 60 feet wide. An updated map by Sharon Copper Mines Limited shows three parallel adits.

In 1966 and 1967 Cominco Ltd. carried out geological mapping, a geochemical soils survey and an induced polarization survey (Tikkanen 1966) on the Tot and Rum claims, for which the base metal rights were optioned from Canadian Pacific Oil and Gas Limited, who at that time controlled the E\&N Railway Land grant.

Imperial Oil Limited staked the Mons 4 mineral claim in 1976 and upon surrender of the E\&N mineral rights to the Crown in 1978 this claim was abandoned and restaked as the Brent 1 claim. The Oak 1, 2 and 3

claims were staked at the same time to cover anomalies outlined by a Scintrex airborne EM and magnetic survey. Imperial Oil carried out minor geological mapping, a self potential survey and drilled four holes on this block of claims now known as the Oak Group. Traces of copper in pyritic quartzsericite schists were noted in one drill hole ( CH78-1 ) sited on the Brent claim (Sommerville 1979)."

In 1983, Esso conducted a field program on the Chip claim group. Their work include 2500 scale geologic mapping, soil and stream sampling, line cutting, HLEM and magnetometer surveys of the Chip 1 and 2 and part of the Chip 3 claims. part of the favourable felsic volcanic lithology was defined by mapping and several weak, copper-zinc soil anomalies and two weak conductors were indentified on the Chip l claim. Several whole rock analyses suggest the presence of Na2O depletion on the Chip l claim. Esso conducted geological mapping in 1984 on the Oak Group and applied this work for assessment.

Kidd Creek Mines Ltd. entered into an option agreement for a joint venture with Esso Minerals in August 1984. The entire Chemainus property (Brent-Holyoak and Chip claims) was flown with Questor's Mark VI helicopter INPUT system in September 1984. The following year, ground follow-up of selected airborne anomalies was started using time domain IP (Schlumberger array), VLF and magnetometer surveys, in conjunction with soil sampling and mapping of the grid lines. Most of the work focused on the Brent 1 and Holyoak 1, 2 and 3 claims and resulted in drilling 1,534 metres in 6 holes. Two of the holes intersected significant sulphides. The geophysical surveys also covered selected parts of the Chip claims.

In 1985 the oak 1,2 and 3 claims were abandoned and restaked as the Holyoak 1, 2 and 3 claims. Kidd Creek Mines Ltd. conducted ground follow-up of the 1984 airborne anomalies with induced polarization surveys, geological mapping, lithogeochem, and soil sampling. Limited backhoe trenching and 1,534 metres of $N Q$ diamond drilling was completed in 7 holes. Minor zinc mineralization was noted in a trench and a drill hole just east of Silver Creek on the Holyoak 2 claim.

In 1986, exploration focused on the Chip claims. Work included 5,000 scale mapping of most of the claims and expansion of the grid to cover the entire Chip claim block on a 200 metre line spacing with IP, VLF and magnetometer surveys. Selected areas were covered with a deep penetrating IP survey using Gradient Array, results of which guided the late fall drilling program. A total of 1,854 metres was drilled in six widely spaced holes, four of which intersected
significant sulphides (three on the Chip l claim). The Anita shaft area was trenched with an excavator, mapped in detail and the exposed pyrrhotite lens was chip sampled. Falconbridge Limited continued exploration in 1986 on the HolyoakBrent claims with geological mapping, soil geochemistry and induced polarization, magnetic and VLF surveys.

In 1987, a drill program was carried out over the Chip 1 claim and $6,753.7$ metres of $N Q$ core was drilled in 18 inclined holes. Drilling traced a pyritic felsic tuff unit for 600 metres across the Chip 1 claim. One hole intersected ecomomic sulphides; hole CH87-37 intersected 2.5 metres of pyritic felsic tuff that contains $2.37 \% \mathrm{Cu}, 0.73 \% \mathrm{~Pb}, 2.74 \%$ $\mathrm{Zn}, 41.8 \mathrm{~g} / \mathrm{t} \mathrm{Ag}, \quad 0.7 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ and $0.95 \% \mathrm{Ba}$. All holes were probed using the Crone Pulse EM system. Further Gadient Array induced polarization surveys were carried over the Chip claims. In 1987, additional magnetic, VLF and induced polarization surveys were carried out on the Holyoak-Brent claims.

Drilling prior to 1988 is summarized below by year.

| YEAR | NO. OF | HOLES | METRES | DRILLED | HOLE NUMBERS |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1978 | 4 |  | 275 | . 9 | CH78-1, 3, 4, 6 |
| 1985 | 8 |  | 1,534 | . 5 | CH85-7 to 12,12A, 13 |
| 1986 | 6 |  | 1,845 | . 4 | CH86-14 to 19 |
| 1987 | 18 |  | 6,753 | . 7 | CH87-20 to 37 |
| Total. | 36 |  | 10,409 | . 5 |  |

The 1988 exploration program on the Chemainus project was divided into two phases；the first phase was carried out from mid－March to mid－July and the second phase was started mid－September and completed by mid－November．The following section summarizes the work done in 1988.

Drilling
The drilling was carried out both in phase I and phase II．The total amount of drilling on the Chemainus Joint Venture since 1978 now totals 23,988 metres in 82 holes．The 1988 drilling is summarized below．

| Phase I ： 10,193 metres | 35 holes | （includes 87－23） |
| :---: | :---: | :---: |
| Phase II ： 3,385 metres | 12 holes |  |
| Total 13，578 metres | 46 holes |  |
| Average hole length ．．．．．．．．．．．．．．．．．．． 289.0 metres |  |  |
| Drilling cost per metre |  | \＄ 62.00 缓匂 |
| Salaries cost per metre |  | \＄ 12.00 |
| Site cost per metre |  | \＄3．50 3，\％ |
| Field cost per metre |  | \＄ 9.00 \％． 8 |
| Assay cost per metre |  | \＄ 7.50 为 |
| Probe cost per metre |  | \＄ 6.67 d．2s |
| Expense cost per metre |  | \＄ 0.18 ． |
| Total cost per metre |  | \＄ 98.00 |

Drilling by area
1）Anita（62\％）

| Phase I | 21 holes | 6080.3 metres |  |
| :---: | :---: | :---: | :---: |
| Phase II | 8 holes | 2354.5 metres | 314.83 |
| Total | 29 | 8434.8 me |  |

2）Holyoak（11\％）
Phase I 5 holes 1421.0 metres
3）Silver Creek（18\％）
Phase I 8 holes 2494.8 metres
4）Powerline（3\％）

| Phase I | 1 hole | 196.1 metres |
| :--- | :--- | ---: |
| Phase II | 1 hole | 238.0 metres |
| Total | 2 | 434.1 metres |

5）Watson Creek（6\％）

The contractor for the drilling was Burwash Enterprises Ltd. of Cobble Hill, B.C. who used a Longyear Super 38 drill equipped with air cooled diesel engines. A D-6H Caterpiller tractor was used to move the drill. Site preparation was completed by a John Deere 790 excavator contracted from Ellison Excavating Limited of Duncan, B.C.

All timber destroyed during pad construction was broken up, placed flat on the ground and often buried.

The location of all drill holes is shown on Figures 6 and 7 in the pocket at the back of this report. The drill logs and analytical results are listed in Appendix 4 and a summary table of all drilling is listed in Appendix l. Each core run was converted to metric depth, and marked on pre-cut wooden blocks. The drill core was then sytematically photographed and logged. A dip test was taken using a single shot Sperry Sun instrument at the top of the hole, the bottom of the hole, and at intervals of approximately 100 metres. Due to equipment problems with the Sperry-Sun the 100 metre interval was not always achieved. The logging was conducted using Derry, Michener, Booth, and Wahl's LOG II computer system. Log data was entered directly into a Toshiba ll00 computer and then transfered into a Toshiba 3200 computer in the evening.

Generally, any volcanic rock containing greater than 2\% pyrite was split in less than one to two metre intervals and submitted for geochemical analysis by Bondar-clegg. Each individual volcanic unit was sampled for alteration by taking a 10 cm split piece of core every 1 to 2 metres through the unit and submitting this composite sample for whole rock analysis. Individual alteration samples do not exceed 30 metres. Whole rock samples of 10 to 20 cm of split core were collected to characterize the volcanic rock types. A skeletal core record was routinely collected of all major rock units.

Bondar-Clegg of North Vancouver analysed the split core samples by geochemical methods for $\mathrm{Cu}, \mathrm{Pb}, \mathrm{Zn}, \mathrm{Mo}, \mathrm{Ag}$, Fe, Mn, Cd, Co, Ni, As, and Ba. An HNO3-HCl hot extraction and analysis by DC Plasma were used for all elements except $A u$ and Ba. A fire assay preparation with AA finish was used for $A u$ and X-ray Fluorescence was used to give a total analysis for Ba . If a sample contains more than $3000 \mathrm{ppm} \mathrm{Zn}, 30 \mathrm{ppm} \mathrm{Ag}$, or 1000 ppb Au then the samples are re-analysed using standard assay techniques for the respective element.

X-Ray Assay Laboratories of Don Mills, Ontario analysed the lithogeochemistry samples. The analysis includes a
major oxide x-ray fluorescence package plus $\mathrm{Cu}, \mathrm{Zn}, \mathrm{Ni}$, and Ba. The major oxide package includes SiO2, Al203, CaO, MgO, Na2O, K2O, Fe2O3, TiO2, P2O5, MnO, LOI; and minor elements $\mathrm{Rb}, \mathrm{Sr}, \mathrm{Y}, \mathrm{Zr}$, and Nb . The alteration samples are not run for $\mathrm{Rb}, \mathrm{Sr}, \mathrm{Y}, \mathrm{Zr}, \mathrm{Nb}, \mathrm{P} 205$, or Mno.

All drill core (including previous drilling) is stored on metal core racks at a farm just outside of Chemainus, at 3037 River Road.

Geology
The property was re-mapped at l:5000 during both phase I and II. l:10,000 geological maps for both the Chip claim block and the Brent- Holyoak claim block are included with this report (Figures 4 and 5). The complete results of this work are described in a separate report by M. Morrice (1988).

Trenching
Trenching was carried out in four areas as summarized below. The trenching was done with a John Deere 790 excavator. The results of the trenching are discussed in Appendix 3.

2270 metres in 4 areas ; Cost per metre $\$ 25.00$

1) Holyoak 760 m
2) Silver Creek 440 m
3) Sharon 670 m
4) Watson Creek 400 m

Geophysics
The ground IP, VLF and MAG surveys were filled-in to 100 metre line spacing in 1988 and the entire grid has now been covered. The Gradient IP chargeability profiles are shown on Figures 8 and 9, the Schlumberger IP chargeability profiles are shown on Figures 10 and 11 , the Fraser filtered VLF profiles are shown on Figures 12 and 13. and the total field magnetic profiles are shown on Figures 14 and 15. The 1988 geophysical work is summarized below. The downhole Remi EM survey results are discussed in Hendrikson (1988).

1) Fill-in | Gradient IP | 65 km | Cost per $\mathrm{km} \$ 678.00$ |  |
| :--- | :--- | :--- | :--- |
|  | Schlumberger IP | 112 km | Cost per $\mathrm{km} \$ 600.00$ |
|  | MAG/VLF | 112 km | Cost per $\mathrm{km} \$ 113.00$ |
2) Max-min test Anita area
-limited survey; no response over mineralized zone
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3) Down-hole Remi EM 34 holes probed; 5790 metres; Cost per metre \(\$ 6.67\)
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Survey and Grid Tie-in
A new 1:5000 base map set was created in 1988. The existing baseline was surveyed in and the grid was tied in to this new base. All legal corner posts for all the Chemainus Joint Venture claims were surveyed and all drill hole collars were surveyed. The legal survey was carried out by Mark McGladrey of McGladrey \& Associates, 1851 Appin Road, North Vancouver, B.C., 980-0992. Results of the surveying are listed the 1988 Chemainus Project Survey Data and Plans report.

## REGIONAL GEOLOGY

Introduction
Vancouver Island is made up of two allochthonous terrains known as the Insular and Pacific Belts (Figure 3). The allochthonous Insular belt makes up most of Vancouver Island and is composed of a varied assortment of volcanic, sedimentary, metamorphic and plutonic rocks that range in age from early Paleozoic to Tertiary (Muller l981). It is separated from the Mesozoic and Tertiay volcanic and sedimentary rocks of the Pacific Belt by the San Juan and Leech River faults near the southern west coast of Vancouver Island.

The Chemainus property is underlain by sedimentary and volcanic rocks of the Sicker Group. Clapp(1912) mapped the southern half of Vancouver Island and noted a series of deformed volcanic and sedimentary rocks that extend from Saltspring Island to Port Alberni and named them the Sicker Series. The Sooke and Duncan area was mapped by Cooke (1917) who also recognized the Sicker Series. Fyles (1955) completed mapping in the Cowichan Lake area and was the first to refer these rocks as the Sicker Group.

The Sicker Group is exposed in five separate areas on Vancouver Island (Figure 3). The areas are the Buttle Lake Uplift, the Cowichan-Horne Lake Uplift, Nanoose area and two unamed areas northwest and southwest of Buttle Lake. The Chemainus Project is located at the southeast end of the Cowichan-Horne Lake Uplift. The Sicker Group is thought to be the oldest series of rocks exposed on Vancouver Island. They are unconformalbly overlain by the Vancouver Group volcanics and sediments. The bulk of the Vancouver Group is made up of up to 4500 metres of basaltic flows and pyroclastics of the Karmutsen Formation (Muller,1981). The Sicker and Vancouver Group rocks are intruded by Lower to Middle Jurassic intermediate to felsic intrusive rocks referred to as the Island Intrusions. Finally, the sequence is unconformably overlain by relatively undeformed shale, siltstone, sandstone, conglomerate, and locally coal of the Late Cretaceous Nanaimo Group.

Stratigraphy of the Sicker Group
Muller (1980) after extensive work on Vancouver Island proposed that the sicker Group could be divided into four units as listed in Table l. Previous work completed on the Chemainus Project has used the Myra and Sediment Sill unit divisions of Muller.

Table 1 : Muller (1980) Stratigraphy of the Sicker Group


Buttle Lake Formation
Limestone, calcarenite, crinoidal, commonly recrystallized; interbedded with subordinate or equal thickness of calcareous siltstone and chert; some diabase sills. (thickness 400m ?) Age indicated by fossils is Pennsylvanian to Permian.

Sediment-Sill Unit (not a formational name)
Thinly bedded to massive argillite, siltstone and chert with interlayered sills of diabase. (no estimate of thickness given by Muller)

Myra Formation (new name)
Basic to rhyodacitic banded tuff, breccia and (?) lava; thinly bedded to massive argillite, siltstone, chert. (thickness estimated to be 1000 m ). Overlies Nitinat possibly with minor unconformity and the base of the Myra is defined by the first appearence of bedded volcaniclastic rocks. A few $K-A r$ age determinations indicate that an Early Jurassic thermal metamorphic event has affected the Myra Formation. Age dating by $\mathrm{U}-\mathrm{Pb}$ technique indicates a late Silurian to Devonian age.

Nitinat Formation (new name)
Metabasaltic lavas, pillowed or aggolomeratic, commonly with large conspicuous uralized pyroxene phenocrysts and amygdules of quartz and dark green minerals; minor massive to banded tuff. (thickness estimated to be 2000 m )


#### Abstract

Massey (1986) after completing mapping on the Cowi-chan-Horne Lake Uplift area now proposes a new set of formations to sub-divide the Group. The new formation names are an improvement over Muller and have been adopted for the Chemainus Project. The units are listed in Table 2 and are briefly described below; oldest to youngest. The following descriptions are taken from Massey(1988).


```
Table 2 : Stratigraphy of the Duncan and Chemainus River Area. (Massey, 1988)
```

Upper Cretaceous
Nanaimo Group

$$
\begin{aligned}
\text { Cedar District Formation : } & \text { argillite, shale, sandstone } \\
& \text { and siltstone }
\end{aligned}
$$

Extension-Protection Formation : conglomerate, sandstone Haslam Formation : argillite, shale, sandstone and siltstone Comox Formation : conglomerate, sandstone, siltstone

```
Upper Triassic
    Vancouver Group
    Karmutsen Formation : mafic flows and pyroclastics,
                            minor sediments
?Middle Devonian to Lower Permian
Sicker Group
    Mount Mark Formation : limestone, chert, siltstone
    Cameron River Formation : chert,argillite,tuff,
        tuffaceous sandstone,
        sandstone, siltstone
McLaughlin Ridge Formation : mafic to felsic
                                    volcanics and
                                    volcaniclastics
Nitinat Formation : pyroxene-feldspar porphyritic
    basaltic andesites
```

Nitinat Formation
The oldest rocks of the Sicker Group are pyroxenefeldspar porphyritic basaltic andesites of the Nitinat formation. The volcanics occur as agglomerates, breccias, lapilli tuffs and crystal tuffs. Flows, pillowed flows and minor bedded tuff and volcanic sandstone occur locally. This unit is equivalent to the Nitinat Formation of Muller(1980). There is no age dating currently available for the Nitinat but because is lies stratigraphically below the Mclaughlin Ridge Formation it must be Late Devonian or older.

The intermediate to felsic, locally mafic volcanics and volcaniclastics of the McLaughlin Ridge Formation apparently conformably overlie the Nitinat Formation. In the Duncan area and the vicinity of the Chemainus property this Formation is dominantly made up of volcanic material with only minor tuffaceous sediments. Further to the south around Cowichan Lake this Formation is composed of massive to lithic tuffites with interbedded sediments. The volcanic rocks yield $\mathrm{U} / \mathrm{Pb}$ ages of Late Silurian to Devonian (Muller, 1980).

The Saltspring Intrusions are a group of felsic intrusions that yield Early Devonian radiometric ages (Brandon et al., 1986) and for this reason are thought to be cogenetic with the McLaughlin Ridge volcanics. These rocks are exposed just north of the McLaughlin Ridge Formation towards the southeast end of the Cowichan-Horne Lake Uplift.

The top of the McLaughlin is marked by a distinctive purple or maroon schistose heterolithic breccia and lapilli tuff. Falconbridge geologists refer to this unit as the Purple Pyroclastic Unit or Upper Mafic Unit.

The Mclaughlin Ridge Formation is equivalent to the lower parts of the Myra Formation of Muller (1980).

Cameron River Formation
The Cameron River Formation is a dominantly epiclastic package that forms the upper portion of the sicker Group. Contacts with the lower volcanic units are often faulted but where present the contact is unconformable. Work on the Chemiainus property suggestst the contact is conformable. The lower 200 metres of the unit is composed of ribbon cherts, laminated cherts and cherty tuffs. The bulk of the unit is composed of thinly bedded, turbiditic sandstone-siltstone- argillite intercalations. The Cameron River Formation is equivalent to the upper part of Muller's Myra Formation together with the sediments of the informal SedimentSill Unit.

Mount Mark Formation
Massey(1988) recognizes a Buttle Lake Formation equivalent south of the Cowichan River and these calcarenites are placed in a new formation called the Mount Mark Formation. Brandon et al.(1986) report an outcrop of interbedded limestone and chert in the Copper Canyon area adjacent to the Chemainus property that yields Early Permian conodonts.

Karmutsen Formation

A brief mention of the Karmutsen Formation of the Vancouver Group is necessary here. The Karmutsen basalts were deposited during an extensional event in the Late Triassic. The underlying sicker Group rocks were dilated and intruded by numerous gabbro sills, dykes and irregular bodies at this time. The upper half of the sicker Group, in particular the Cameron River Formation, contains more gabbroic material than the lower half. These gabbros are the 'sill' in Muller's sediment Sill Unit.

Buttle Lake Uplift Stratigraphy
The Buttle Lake Uplift Sicker Group rocks host Westmin's Buttle Lake deposits and the current stratigraphic interpretations are summarized below. Juras(1987) proposes to divide the sicker Group rocks at Buttle Lake into several formations as shown in Table 3. There is a broad similarity between the stratigraphy of the Cowichan-Horne Lake Uplift of Massey (1988) and that of Buttle Lake. Juras indicates that the Price Formation may correlate with the Nitinat Formation. There is at present no age dating or detailed chemical information to support this. The McLaughlin Ridge Formation of Massey(1987) correlates with the Myra Formation. The Thelwood Formation probably correlates with the lower chert-rich part of the Cameron River Formation in the Cowichan-Horne lake uplift. The mafic volcanics higher in the Cameron River Formation may correlate with the Flower Ridge Formation of Juras.

Table 3 : Buttle Lake Uplift Stratigraphy of the Sicker Group (Juras, 1987)

| Early <br> Permian | Henshaw <br> Formation | $5-100 \mathrm{~m}$ | Conglomerate, epiclastic <br> deposits, vitric tuff |
| :--- | :--- | :--- | :--- |
| (unconformity) |  |  |  |
| Early  <br> Permian  <br> to Buttle <br> Pennsylvanian Fake | 300 m | Crinoidal limestone and <br> minor chert |  |


| Pennsylvanian or <br> Mississippian | Flower <br> Ridge <br> Format | $650+m$ | Moderately to strongly amygduloidal lapillituff, tuff-breccia, minor tuff and flows |
| :---: | :---: | :---: | :---: |
| Early | Thelwood | 270 to | Subaqueous pyroclastic |
| Mississippian (?) | Formation | 500 m | deposits, siliceous tuffaceous sediments, mafic sills. |
| Late | Myra | 310 to | Intermediate to felsic |
| Devonian | Formation | 440 m | ```volcanics, volcani- clastics, minor sediments, massive sulphide mineralization.``` |
| Late | Price | $300+m$ | Feldspar-pyroxene |
| Devonian | Formation |  | porphyritic andesite |
| or older |  |  | flows, flow breccia, |
|  |  |  | minor pyroclastic |
|  |  |  | deposits. |

## PROPERTY GEOLOGY

The geology of the Chip claim block is shown on Figure 4 and the geology of the Holyoak-Brent Claim group is shown on Figure 5; both at a scale of $1: 10,000$. The geology was mapped by M. Morrice during the 1988 field and he discusses this work in detail in a separate report (Morrice, 1988). Therefore, the following discussion is quite brief and the reader should refer to Morrice (1988) for more information. The local variations in geology are also discussed in this report in the areas of current drilling.

The Chip claims lie within the Cowichan-Horne Lake Uplift, in which lower Paleozoic Sicker Group rocks are exposed. The claims are underlain by felsic to mafic volcanic rocks of the Myra formation that trend northwest and dip steeply. The volcanic rocks are conformably overlain by dark coloured pelitic and cherty sediments of the Cameron River Formation. These rocks are intruded by Karmutsen gabbro bodies that vary from less than one metre to over 100 metres in thickness. To the south the Sicker Group rocks are unconformably overlain by the Nanaimo Group sediments.

The volcanic rocks of the McLaughlin Ridge Formation are composed mostly of felsic to mafic tuffs and lesser lapilli tuffs; definite flow rocks appear to be rare. Intermediate composition rocks form perhaps $10 \%$ of the volcanics. More massive possible flow or sub-volcanic quartz phyric felsic volcanics outcrop in the Sharon area and the Anderson Creek area. Possible pillowed mafic flows are present in a trench at the Sharon Showing. The top of the McLaughlin Ridge Formation is marked by a thin to plus 100 metre thick, distinct mafic volcanic unit that is locally altered a light purple by minor hematite. The Upper Mafic Unit is composed of mafic pyroclastic tuff, lapilli tuff, and lesser mafic flows. Fragments within the Upper Mafic Unit are commonly pyroxene phyric.

Overall the structure of the claim area is dominated by an anticline that strikes west northwest across the entire property and appears to plunge at a shallow dip to the west. A sequence of dominantly McLaughlin Ridge Formation felsic volcanics, lesser mafic and intermediate volcanics, and minor sediments make up the core of the anticline. Cameron River Formation cherts, argillites and wackes outcrop on the north and south side of the anticline. The Nanaimo sediments are relatively undeformed.

The Sicker Group rocks are cut be a steep pervasive axial cleavage that strikes 110 degrees. Variations in rarely seen bedding dips and repetition, particularily of the mafic volcanics within the predominantly felsic core of the anti-
cline suggest that the sicker Group rocks are folded into numerous smaller antiforms and synforms. The repetition of units suggests the wave length of folding is less than 100 to 300 metres.

A major fault, termed the Fulford Fault Splay has been traced for 2.7 kilometres across the Chip 1 and 2 claims. It trends 110 degrees, dips 70 degrees to the north, and it is thought to be a splay off the regional Fulford thrust fault (see Massey 1988). It's offset is unknown. The Fulford Fault Splay cuts across the south limb of the property-wide anticline and separates a narrow belt of McLaughlin Ridge Formation volcanics (including the Anita stratigraphy) from the bulk of the McLaughlin Rigde Formation to the north. A younger and second orientation of faulting is present in the Anita area, has a strike of 030 to 050 degrees, and steep dips. Drilling in the Anita area indicates offsets of these faults are less than 100 metres where known.

There appear to be some striking similarities between the stratigraphy seen at Chemainus and that seen at Buttle Lake. The Price-Myra-Lynx mineralized horizon at Buttle Lake is hosted by a sequence of felsic tuffs of the Myra Formation These felsic tuffs are overlain by an up to 200 metre thick mafic pyroclastic tuff and flow unit that is very similar to the upper Mafic Unit seen at Chemainus. The mafic unit at Buttle Lake is at or near the top of the Myra Formation and overlain by the sediments of the Thelwood Formation which correlate with the Cameron River Formation. This suggests that mineralization seen near the top of the McLaughlin Ridge Formation at Chemainus may be of a similar style as that seen along the Price-Myra-Lynx horizon at Buttle Lake.

ANITA AREA DRILLING

## INTRODUCTION

The Anita Area covers the most important stratigraphic target found to date on the Chemainus Joint Venture property. The target is a barium-enriched, hydrothermally altered, sulphide-bearing, felsic tuff sequence known as the Anita Active Tuff. It stretches from west of line $22+00 \mathrm{E}$, on the Chip 2 claim, across the middle of the Chip 1 claim and onto the Minnova-Laramide property. It strikes roughly parallel to the baseline (l20 degrees), is centred at approximately $2+20 \mathrm{~S}$ and appears to lie along strike of the Coronation Deposit, located 1.9 km grid east of the eastern Chip 1 claim boundary (see figure 16).

The Anita Active Tuff was discovered through drilling and trenching on the Chip 1 claim in 1986 and 1987. It occurs along the southern edge of a 1 km wide belt of steeply dipping, west- northwest trending felsic tuffs with lesser amounts of mafic tuffs, flows and sediments. Tops appear to be to the south. Its northern boundary is gradational and is at, or near, a major grid east striking, steeply north dipping reverse fault known as the Fulford Fault Splay. The Anita Active Tuff is bounded to the south by a sequence of mafic volcanics. The mafic volcanics appear to mark the top of the McLaughlin Ridge Formation. The contact between the Anita Active Tuff and the mafic volcanics is an important stratigraphic marker and is termed the Anita Horizon. The Anita Active Tuff is poorly exposed, but was traced across the southern half of the claim by drilling in 1987. Significant base and precious metal mineralization (eg. $2.37 \% \mathrm{Cu}, 0.73 \%$ $\mathrm{Pb}, 2.74 \% \mathrm{Zn}, 41.8 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$ and $0.7 \mathrm{~g} / \mathrm{t}$ Au over 2.5 m ; CH8737) was intersected within the Anita Active Tuff, immediately below the Anita Horizon on line 28+00 E (Enns, 1986 and Enns et al, 1987) and small lenses of massive sulphide were exposed in trenches on lines $27+00 E$ (old Anita Showing) and 28+00E (Enns, 1988). Drilling in 1988 has traced the Anita Horizon from line $22+00 \mathrm{E}$, on the Chip 2 claim, to line $49+00 \mathrm{E}$ on the Chip 1 claim. The true thickness of the Anita Active Tuff is unknown because it is truncated by the Fulford Fault Splay and intruded by numerous gabbro dykes, however, in places over 100 metres (true thickness) has been intersected.

For the purposes of discussion and presentation the Anita Area has been divided into 3 parts (see figure 16). The West Anita Area extends from line $22+00$ E to $32+50$ E and covers the original Anita Showing and shaft. The Central Anita Area extends from $32+50$ E to $41+50$ E and the East Anita Area extends from $41+50$ to $49+50$ E.


A total of $8,434.8 \mathrm{~m}$ of drilling in 29 holes was completed in two phases in 1988. Twenty-one holes totalling $6,080.3 \mathrm{~m}$ were drilled between April 11 and May 20, 1988. Another 8 holes totalling $2,354.5$ m were drilled between October 3 and November 6, 1988. Figure 16 shows drill hole locations and geology. A total of $16,822.6 \mathrm{~m}$ of core in 52 holes has now been drilled in the Anita Area.

The first phase of the 1988 drill program in the West Anita Area was aimed at testing the Anita Active Tuff at 100 m intervals from lines $27+00$ E to $32+00 \mathrm{E}$ and at clarifying the structural geology. To accomplish this, fences of 2 to 8 holes were drilled on each line. The fence on line $28+00 \mathrm{E}$ was extended north to the powerline $(5+00 \mathrm{~N})$ to provide $a$ complete section through the McLaughlin Ridge Formation volcanics on the southern half of the Chip l claim. The fence on line $30+00$ E was extended south to cover a 44 msec IP chargeability anomaly south of the Anita Active Tuff. All holes were drilled grid south and dipped 45 to 50.

During the first phase of drilling it became apparent that stratigraphy south of the Fulford Fault Splay dips 60-85 degrees to the south. Therefore, in the second phase northbearing holes were drilled on lines $30+00 \mathrm{E}$ and $32+00$ E in order to evaluate the sections properly. The second phase of drilling also traced the Anita Active Tuff west of $27+00$ E to $22+00$ E.

Two holes (CH88-55 and 58) were drilled in the Central Anita Area in the first phase of drilling to test IP chargeability anomalies.

Four holes were drilled in the East Anita area. In the first phase of drilling, three holes tested a crone PEM anomaly in volcanics north of the Anita Active. Tuff which was detected from holes cH86-16, CH87-34 and 36. In the second phase of drilling, a fourth hole was drilled bearing gridnorth to confirm the hypothesis that stratigraphy dips steeply south, south of the Fulford Fault Splay in the East Anita Area. The hole was also drilled to further explore the altered and base and precious metal-rich Anita Active tuff.

This year's drilling has revealed important features of the structure and stratigraphy of the Anita Area and has traced the polymetallic sulphide mineralization intersected by hole cH86-18 for 300 m along strike as well as locating other base and precious metal rich zones on the same horizon. Appendix 1 summarizes the location, target and result of each hole. Drill logs are included as Appendix 4 and the geology is discussed on a section by section basis in Appendix 2. The main observations are discussed under the appropriate headings below.
general geology
Figure 16 is a geological sketch map of the Anita Area at 400 m elevation. Level plans of the Anita Area are included in the back pocket as figures 26 to 34 . Figure 17 is geological section along line 28E. Sections across the Anita Area at 100 to 300 m intervals are included in the back pocket as figures 35 to 55 .

The Anita Area is underlain by the McLaughlin Ridge Formation, part of the Paleozoic sicker Group composed of volcanics, volcaniclastics and cherty sediments which are intruded by Late Triassic mafic dykes and locally, unconformably overlain by Late Cretaceous Nanaimo Group sediments. A major break occurs in the McLaughlin Ridge Formation at the Fulford Fault Splay. The Fulford Fault Splay is an oversteepened reverse thrust fault along which McLaughlin Ridge volcanics to the north have been thrust over McLaughlin Ridge volcanics to the south and in some cases over Nanaimo Group sediments resting unconformably on McLaughlin Ridge volcanics further to the south. The amount of movement on the fault plane is unknown. Stratigraphy strikes grid east (120 degrees) and dips steeply north, north of the Fulford fault Splay and near vertical to less than 55 degrees south, south of the fault. Top indicators are rare and contradictory north of the Fulford Fault Splay. South of the Fulford Fault Splay, graded bedding in the mafic volcaniclastics and cherty tuffaceous sediments indicate tops to the south.

## McLaughlin Ridge Formation

The McLaughlin Ridge Formation in the Anita Area has been divided into six units which from south to north are...

SOUTH

## ANITA CHERTY SEDIMENT SEQUENCE

ANITA SOUTHERN MAFIC SEQUENCE
ANITA ACTIVE TUFF

FULFORD FAULT SPLAY

NORTH ANITA VOLCANIC SEQUENCE

POWERLINE FELSIC SEQUENCE
NORTH

Figures 18 to 20 are stratigraphic diagrams showing the relative thicknesses and composition of each of the units in the West, Central and East Anita Areas. The units are also labelled on the level plans and 1:10,000 geology map (figure 16). Figure 17 is a complete section through the Anita Area along line $28+00 \mathrm{E}$.

The stratigraphic diagrams and the table above imply that stratigraphy tops to the south. This is true for the three units south of the Fulford Fault Splay. However, it has not been determined whether or not the three units north of the fault also top to the south, north, or are isoclinally folded.

The two northern most units are tenuous as they are based on only 3 drill holes on sections $28+00 \mathrm{E}$ and $30+00 \mathrm{E}$ (West Anita Area). The units south of the Fulford Fault Splay have been intersected by drilling throughout the Anita Area and are much better understood.

The Powerline Felsic Sequence is discussed in the section entitled Powerline Area. The other units are discussed in detail below.

Powerline Mafic Sequence
The Powerline Mafic Sequence was intersected by holes CH88-4l and 43 on line 28E. The unit is approximately 115 m thick and consists of moderately to intensely carbonatized (pervasive and fracture controlled) mafic tuffs with up to $3 \%$ magnetite mixed with argillaceous sediments and intercalated with lesser amounts of felsic quartz eye tuff. The unit is approximately 125 m thick on line $28+00 \mathrm{E}$. The upper contact is conformable. The possibility exists that some or all of this mafic material could be infolded into the felsic volcanics and actually correlate with the mafic volcanic unit at the top of the McLaughlin Ridge Formation.

North Anita Volcanic Sequence
In the West Anita Area, the North Anita Volcanic Sequence is composed of light green, weakly chloritic felsic crystal tuffs with minor amounts of mafic tuff and tuffaceous





2 Mafic volcanics

MWW Fault
A. Younging direction

SOUTH
FALCONBRIDGE LIMITED
chemainus joint venture
EAST ANITA AREA STRATIGRAPHIC

DIAGRAM

|  | $\frac{0.0 \times n}{10}$ | -414. Dec 1988 |
| :---: | :---: | :---: |
| 0 - $0^{100}$ |  |  |
|  |  |  |
|  |  | Figure: 20 |

sediment. The felsic tuffs usually contain less than $2 \%$ disseminated pyrite.

In the Central and East Anita Areas the North Anita Volcanic Sequence includes a 2 metre to over 100 metre thick mafic volcanic package within the chloritic felsic tuffs. The package consists of feldspar porphyritic flows, tuffs and lapilli tuffs intercalated with felsic crystal tuffs. The felsic tuffs comprise < 5 to $50 \%$ of the package and host the PEM mineralization (see PEM Anomaly Section, this report). Spotty epidote alteration is common in the mafic volcanics.

A distinctive, magnetite-bearing felsic flow or massive tuff approximately 50 m thick is present on line $47+00$ E (CH87-35). The flow/tuff is massive and contains up to $5 \%$ finely disseminated magnetite. Felsic lapilli tuff with clasts of pink-tinged flow material occurs immediately north and south of the flow/tuff. Pinkish tinged magnetite-bearing felsic tuffs also occur 300 m to the east on section $43+00 \mathrm{E}$ (top of hole CH87-33).

The true thickness of the North Anita Volcanic Sequence is not known. The Fulford Fault Splay truncates it to the south and drilling outside the west Anita Area has not pierced its northern contact. However, assumming no structural repetition it is at least 250 m thick on section $28+00$ E.

## Anita Active Tuff

Nearly all significant sulphide mineralization in the Anita Area is hosted by the Anita Active Tuff. The Anita Active Tuff is a sequence of pyritic (2-50 \%), moderately to strongly sericitic, Ba-enriched ( $>2000 \mathrm{ppm}$ ) felsic tuffs. Lapilli tuffs are more prevalent in the Anita Active Tuff (m 70 \% by volume) than in the North Anita Volcanic Sequence (m30\% by volume). The lapilli tuffs consist of lo-70 \% finegrained sericitic felsic fragments up to 5.0 cm long, usually stretched parallel to foliation, in a light grey sericitic felsic matrix. Due to intense deformation and pervasive sericite alteration it is often difficult to distinguish the lapilli from the matrix of the tuff. Most tuffs contain some ash-sized feldspar crystals and trace-l0\%, 3-5 mm quartz eyes. The tuffs are often intruded by beige altered mafic dykes or sills less than 1.0 m thick. The dykes or sills are often foliated, unlike the gabbro dykes, and usually contain 5-10 \% disseminated and fracture controlled pyrite. These dykes or sills have been referred to as "Early Mafic Sills" by Enns (1986).

The true thickness of the Anita Active Tuff is unk-
nown because it is truncated to the north by the Fulford Fault Splay. Above 200 metres elevation it varies in thickness from less than 10 metres to more than 100 metres. The upper contact of the Anita Active Tuff is a sharp felsic-mafic contact and is referred to as the Anita Horizon. The Anita Horizon represents a major change in the volcanism and is an important stratigraphic marker. All economic mineralization discovered by drilling occurs less than 10 m below (north of) the Anita Horizon. Minor faults often occur along the horizon as do gabbro dykes up to 20 metres wide.

## Southern Anita Mafic Sequence

The Southern Anita Mafic Sequence consists of mafic tuffs, tuffaceous sediments, flows and sills which are often mafic porphyritic (up to $10 \%, 2-4 \mathrm{~mm}$ chloritized clinopyroxene phenocrysts). It is often difficult to distinguish between sills and flows because both are massive, dark green and fine-grained, however, distinct chill margins and sharp intrusive contacts are sometimes recognizable in the sills. The tuffs and tuffaceous sediments are often weakly to moderately biotized, contain thin ( $<5 \mathrm{~cm}$ ) beds of cherty siltstone and sometimes display graded bedding. Graded bedding usually fines to the south.

The unit is 10 to 100 metres thick. The upper contact with the cherty sediments to the south is usually gradational.

## Cherty Sedimentary Sequence

Cherty argillites, siltstones, greywackes and felsic tuffs/tuffites $+/-$ lithic fragments comprise the Cherty Sedimentary Sequence that occurs along the southern edge of the Anita Area. This unit is similar to the base of the Cameron River Formation as described by Massey (1987). The Cameron River Formation in this location conformably overlies the McLaughlin Ridge Formation.

Argillites are black, massive to laminated and contain 2 to $10 \%$ fracture controlled, disseminated and occasionally bedded pyrite (less than 5 cm thick beds).

Siltstones are green to dark grey and greywackes are light brown due to biotite development. Both contain 2 to $10 \%$ fracture controlled and disseminated pyrite.

The felsic tuffs/tuffites are light grey, weakly sericitic, often have a reworked appearance and are barren of sulphides except for an occasional pyrite clast up to 1 cm in

Mafic Intrusives (Gabbro)
The Sicker Group volcanics and sediments are intruded by numerous gabbroic dykes ( $<1$ to $>100 \mathrm{~m}$ wide). In most cases they are conformable to foliation. The dykes are usually fine - grained and feldspar porphyritic with 1 to $5 \%$ interstitial ilmenite which is often partially or completely altered to leucoxene. The centres of the larger intrusions are medium to coarse-grained and locally develop granophyric or leucocratic phases with up to $15 \%$ coarse-grained ilmenite. The chemistry of the gabbro dykes is very similar to that of the Late Triassic Karmutsen Formation basalts (eg titanium-rich) suggesting that they are comagmatic intrusive equivalents of those basalts.

The Anita Gabbro is one of the largest mafic intrusions in the Anita Area. It is centred at $1+70 \mathrm{~s}$, strikes grid-east and extends to the west beyond line $22+00 \mathrm{E}$ and as far east as $29+50$ E where it is truncated by the Anita Fault. Its contacts are irregular. East of $26+00$ E its northern contact dips steeply north while its southern contact dips steeply south. But west of $26+00$ E its northern contact is nearly vertical and the southern contact dips 65 degrees north so that it thickens and almost completely obliterates the Anita Active Tuff at elevations higher than 400 m on section $22+00 \mathrm{E}$.

## Nanaimo Group Sediments

On sections east of $28+00 \mathrm{E}$, the Fulford Fault Splay has thrust Paleozoic Sicker Group felsic tuffs onto Late Cretaceous Nanaimo Group sediments which in turn rest unconformably on Sicker Group volcanics and mafic intrusive rocks further to the south (see fig. 16).

Nanaimo Group sediments consist of loosely consolidated brown to black argillites, pebble to cobble conglomerates and minor amounts of greywacke. In most cases the conglomerates occur at the base of the sequence and are of local provenance. In some places there has been shearing along the unconformity.

STRUCTURAL GEOLOGY
The structural geology of the Anita Area is complex. A major west-northwesterly trending, over steepened, northdipping reverse fault traverses the centre of the Anita Area. Between $29+00 \mathrm{E}$ and $38+00 \mathrm{E}$ the fault has thrust McLaughlin Ridge Formation volcanics on top of Nanaimo Group Sediments, which in turn rest unconformably on Sicker Group volcanics and Karmutsen Formation gabbro dykes. The amount of displacement along the fault plane is not known. This fault has been named the Fulford Fault Splay because it is believed to be a splay off the Fulford Fault which is thought to run south of the Anita Area. The Fulford Fault is a north-dipping, high angle reverse fault with a west-northwest strike extending from Fulford Harbour, on Saltspring Island, along the entire Cowichan - Horne Lake Uplift. The age of the thrusting is believed to be Campanian (Massey et al, 1987).

The Fulford Fault Splay is a major structural break. Stratigraphy north of the fault dips 70 degrees north in the West Anita Area and 65 degrees north in the East Anita Area. Stratigraphic top indicators are extremely rare north of the Fulford Fault Splay and are contradictory. South of the fault stratigraphy dips 70 degrees south. Graded beds are relatively common in the Southern Mafic Sequence and the Cherty Sediment Sequence and more than 80 \% fine to the south.

At least two cross-cutting faults occur in the West Anita Area. The first predates the Fulford Fault Splay and occurs between lines $31+00 \mathrm{E}$ and $32+00 \mathrm{E}$. It is assumed to be near vertical and has an apparent left lateral displacement of about 50 m . This fault has not been seen in core or outcrop and is postulated to explain an offset in the Anita Horizon between sections $31+00 \mathrm{E}$ and $32+00 \mathrm{E}$.

An east-west oriented V.L.F. and magnetometer survey, aimed at locating cross-cutting features in the West Anita Area, failed to detect any structures between 31+00 E and $32+00$ E. Two other cross-cutting features were detected however. The first is an east-northeast striking, south dipping ( 45 degrees) fault known as the Anita Fault which was originally proposed by Hendrickson (1986). It occurs on lines $30 E$ and $31 E$ (figure 31). The Anita Fault postdates the Fulford Fault Splay and has a left lateral displacement of about 40 metres.

The east-west V.L.F. survey also outlined a structure trending along line $25+00$ E which has been named the Powerline Creek Fault because of its proximity to that creek. The Powerline Creek Fault is not considered to be a major fault and is not shown on the plan maps because it does not appear to have seriously offset the stratigraphy. It should
be kept in mind however, that the strong mineralization intersected on lines $28 \mathrm{E}, 27 \mathrm{E}$ and 25 E has not been located west of this structure.

Table 4 lists the significant intersections made in the Anita Area. All the significant base and metal mineralization is hosted by the Anita Active Tuff. The cherty sediments of the Cherty Sediment Sequence nearly always have more than $2,000 \mathrm{ppm} \mathrm{Ba}$ but have never been found to contain significant amounts of economic metals. Chalcopyrite-bearing quartz veins up to 2.0 m wide are occasionally encountered in gabbro dykes.

Anita Active Tuff
All important base and precious metal mineralization occurs within 10 m of the top of the Anita Active Tuff, which is marked by a felsic-mafic contact known as the Anita Horizon. The Anita Horizon has been traced for 2,700 metres across the Anita Area and appears to lie along strike of the Coronation Deposit. Figure 21 is a vertical longitudinal sections along the Anita Horizon in the West Anita Area showing drill hole pierce points and significant intersections. Figures 23 to 25 list the average base and precious metal contents of the Anita Active Tuff for 10 m below the Anita Horizon across the entire Anita Area.

Drilling has outlined two zones of potentially economic polymetallic sulphide mineralization just below the Anita Horizon in the West Anita Area. The zones are outlined on the longitudinal section (Figure 21 ). Table 5 summarizes the grade, lithology, alteration and mineralization of the intersections.

The first zone has been intersected in four holes, two on line $28+00 \mathrm{E}$ (CH86-18, CH87-37), one on line $27+00 \mathrm{E}$ (CH88-49) and one on line $25+00 \mathrm{E}(\mathrm{CH} 88-76)$. All four intersections occur between 400 and 445 metres elevation. The intersections are 2.9 to 4.8 metres thick (true) and grade 0.93 to $2.30 \% \mathrm{Cu}$, < 0.01 to $0.49 \% \mathrm{~Pb}, 0.04$ to $3.81 \% \mathrm{Zn}, 8.9$ to $73.9 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$ and 0.2 to $1.90 \mathrm{~g} / \mathrm{t} \mathrm{Au}$. On sections $27+00 \mathrm{E}$ and $28+00$ E the mineralization appears to be restricted to a flexure in the stratigraphy which gives it a dip of 50 degrees to the north (figures 39 and 40). Insufficent drilling has been done to determine whether or not the flexure exists on section $25+00 \mathrm{E}$.

Mineralization consists of 10 to $25 \%$ sulphides (pyrite +/- pyrrhotite + sphalerite + chalcopyrite +/- galena) hosted by a weakly to moderately pervasively silicified and locally, epidotized felsic lapilli tuff. Sulphide composition varies considerably from hole to hole, especially the relative amounts of pyrrhotite and pyrite (see table 5). Sulphides do

Table 4: SIGNIFICANT INTERSECTIONS IN THE WEST ANITA AREA

| ZONE | SECTION |  | HOLE \# | FROM <br> (m) | $\begin{aligned} & \text { TO } \\ & (\mathrm{m}) \end{aligned}$ | INTERSECTION |  | $\begin{gathered} \mathrm{Cu} \\ \left(\frac{0}{6}\right) \end{gathered}$ | $\begin{aligned} & \mathrm{Pb} \\ & (\%) \end{aligned}$ | $\begin{aligned} & \mathrm{Zn} \\ & (\%) \end{aligned}$ | $\begin{aligned} & \mathrm{Ag} \\ & (\mathrm{~g} / \mathrm{t}) \end{aligned}$ | $\begin{aligned} & \mathrm{Au} \\ & (\mathrm{~g} / \mathrm{t}) \end{aligned}$ | $\mathrm{Ba}$(\%) | COORDINATES OF PIERCE POINT |  |  |  | ELEVATION (m) | $\begin{aligned} & \text { DISTANCE } \\ & \text { BELOW } \\ & \text { ANITA } \\ & \text { HORIZON } \\ & (\mathrm{m}) \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | ACTUAL <br> (m) |  |  | $\begin{aligned} & \text { TRUE } \\ & (\mathrm{m}) \end{aligned}$ | EAST |  |  |  |  |  |  |  | NORTH |  |  |  |
| 1 | 25+00 | E |  | CH88-76 | 112.4 | 117.2 | 4.8 | 3.0 | 0.93 | 0.10 | 3.81 | 20.5 | 0.37 | 1.53 | 2508 | E | 243 | S | 413 | 7.7 |
|  | $27+00$ | E | CH88-49 | 56.3 | 61.2 | - 4.9 | 4.8 | 2.30 | 0.49 | 3.66 | 73.9 | 1.90 | 2.11 | 2698 | E | 259 | S | 445 | 1.3 |
|  | $28+00$ | E | CH87-37 | 99.3 | 104.3 | 5.0 | 4.8 | 1.64 | 0.06 | 1.42 | 28.8 | 0.70 | 0.93 | 2798 | E | 259 | S | 435 | 2.5 |
|  | $28+00$ | E | CH86-13 | 133.6 | 138.6 | 5.0 | 4.8 | 1.60 | <0.01 | 0.04 | 8.9 | 0.20 | 0.33 | 2799 | E | 232 | S | 400 | 3.0 |
| 2 | $30+00$ | E | CH88-50 | 225.7 | 227.7 | 2.0 | 0.6 | 0.44 | 0.05 | 3.94 | 29.1 | 2.10 | 2.05 | 2993 | E | 245 | S | 264 | 5.0 |
|  | $31+00$ | E | CH87-24 | 268.6 | 272.0 | 3.4 | 0.6 | 0.05 | 0.05 | 0.32 | 5.9 | 0.54 | 0.48 | 3084 | E | 242 | S | 309 | 1.8 |
|  | $31+00$ | E | CH88-56 | 425.9 | 432.7 | 6.8 | 1.2 | 0.45 | 0.14 | 1.55 | 18.4 | 0.80 | 1.63 | 3082 | E | 282 | S | 217 | 0.0 |
|  | $32+00$ | E | CH88-83 | 459.6 | 465.0 | 5.4 | 4.5 | 0.13 | 0.04 | 0.93 | 7.6 | 0.16 | 0.96 | 3171 | E | 271 | S | 193 | 10.0 |



Table 5: SUMMARY OF MINERALIZATION IN THE WEST ANITA AREA


2



SUMMARY OF 1988 PHASE II CHEMAINUS DIAMOND DRILL HOLES

CHIP 1 Claim
Grid: 46+00 E: 4+36 S
Elev: 558 m
UTM: $431518 \mathrm{E} ; 5415759 \mathrm{~N}$ about 100 m downdip of CHB8-40 and determine if it has
a southerly dip.
Intersected "Active Tuff" from 239.4 to 246.4 m and from 266.3 to 277.5 m . The first interval contains 5 to $7 \%$ pyrite and trace chalcopyrite and sphalerite and the other 5 \% pyrite. The dips vary locally due to gabbro dykes dilating the stratigraphy, but appear to be bet
degrees to the south and vertical.

Intersected the "Anita Horizon" at
450 m 's elevation. Sericitic felsic lapilli tuff occurs immediately below the contact and hosts $4-7 \%$ disseminated pyrite with trace chalcopyrite
sphalerite and an occasional band/bed/ stringer of massive pyrite over 18.4 m . The "inita Horizon" dips 66. S. The hole ended at the Fulford Fault Splay which dips 80 .
Intersected the "Anita Horizon" at $342 \mathrm{~m} \mathrm{~m}^{2}$ elevation. Sercitic felsic lapilli tuff hosting $2-8$ \% pyrite with trace chalcopyrite and sphalerite extends for 26.2 m below the cont. The fel for 0.9 ' porizo". The hole ended in the mafic porphyritic mafic flow/intrusion/tuff sequence which typically occurs immediately south of the "Anita Horizon".

Intersected predominantly felsic tuffs from 5.5 to 197.6 m . The tuffs contained trace to 5 pyrite from 21 to 146 metres The pyritic interval, which is the cause of the deep and shallow IP chargeability anomalies, also was locally chalcopyrite bearing with the best interval containing 1 \% chalcopyrite from 140.3 to 140.9 m . the hole terminated in ilmenite -1 ch gabbro, the cause of the powerline North IP anomaly.
Hole collared in the "Anita Gabbro" and intersected 19.1 m 's of "Anita Active Tuff" on the southern flank of the gabbro.

Locate "Fulford Fault Splay" and test the "Anita Horizon"
at 200 m elevation.

## RESULTS

The "Active Tuff" is cut by a gabbro dyke 4.3 m long in core. The "Active Tuff" south of the dyke contains $0.46 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ $33.2 \mathrm{~g} / \mathrm{t}$ Ag, l.44 \% $\mathrm{Cu}, 6.84 \mathrm{o} \mathrm{Zn}$ and
4.58 B Ba over a 2.6 m interval. This includes a 0.2 m section of semi-massive sphalerite ( 29.8 \% Zn ). This
mineralization is centred about 10 m from the "Anita Horizon" and is in the same stratigraphic position as the mineralization in hole $\mathrm{CH} 88-49$ on section $27+00 \mathrm{E}$.

Collared in sericitic felsic tuffs with 1 o pyrite to 27.1 m . Dominantly felsic tuffs with minor intercalated mafic tuffs were intersected to 134.6 m . Mafic tuffs with minor felsic tuffs were intersected to the end of the hole. The mafics were reaominant 170 to 200 m garnets from 170 to 200 m

The hole intersected the Fulford Fault Splay at $1+25 \mathrm{~S}$. The Anita Horizon was pierced at an elevation of $290 \mathrm{~m} \cdot \mathrm{~s}$. Al-
most 50 m 's of Anita Active Tuff hosting $2-3 \%$ disseminated pyrite and nil-trace chalcopyrite and sphalerite was intersected north of the Anita Horizon. The hole ended in the Southern Anita Mafic Sequence.

Mafic tuffs with minor interbedded mafic lapilli tuffs and felsic tuffs were intersected to 177.6 m with localized garnets. Chloritic quartz crystal tuffs with minor mafic units dominate to the end the hole. Massive black argillite ( < 10 pyrite) with interbedded argillites and felsic volcanics extends from approx 182.0 to 199.0 m and lies directly below the I.P. chargeability anomaly.

The Anita Gabbro extended much further south than expected and nearly
south than expected and nearly obliterated the Active Tuff. The hole collared in the Anita Gabbro and cored collared in the Anita Gabbro and cored the Active Tuff. Only 1.1 m 's of Active Tuff was intersected and it was Active fuff was intersected and

Cest the "Anita

| ChIP l Claim | $-52 / 030 \cdot \mathrm{Az}$ | 528.8 |  |
| :--- | :--- | :--- | :--- |
| Grid: $30+00 \mathrm{E} ;$ | $5+00 \mathrm{~s}$ |  |  |
| Elev: 564 |  |  |  |

Determine the dip of stratigraphy and Horizon" on this section.

## RESULTS

Anita Horizon which was pierced at an elevation of 428 m 's. The hole ended in the Suothern Anita Mafic Sequence.

Intersected mostly very weakly mineralized to unmineralized felsic volcaniclastics with minor interbedded mafic tuffs and cherty and argillaceous sediments.

The hole collared in the "Anita Gabbro" and intersected gabbro over
116.4 m before reaching the "Active Tuff". A total of 11.8 m 's of "Active Tuff" was intersected. It is intruded by a feldspar porphyritic gabbro dyke $3.3 \mathrm{~m} s$ long in core. The Active over a 3 interval immediately above the dyie. The sulphides are disseminated the ind. foliation. The hole ended in the Southern Anita Mafic Sequence.

The "Anita Horizon" was pierced at an elevation of 208 m . The hole intersected 58.1 m 's of "Anita Active Tuff" below the "Anita Horizon". The "Active Tuff" hosts 1 to $15 \%$ disseminated and stringer stringer pyrite, nil to $3 \%$ sphalerite nil to 5 응 pyrchotite and nil to trace chalcopyrite. The sphalerite is honey yellow and is concentrated in a 1.2 m interval. Pyrrhotite occurs for 2.2 m 's from a gabbro dyke in which the hole ended. A 5.4 a long section of Anita Active Tuff, 10.0 m 's below the Anita Horizon assayed $0.13 \% \mathrm{Cu}, 0.04 \% \mathrm{~Pb}, 0.93 \%$ $\mathrm{Zn}, 7.6 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$ and $0.16 \mathrm{~g} / \mathrm{t} \mathrm{Au}$.

Strong sulphide mineralization was also intersected in the Cherty Sedimentary Sequence. The mineralization consists of $10-25$ \%pyrite over 1.0 m and is
associated with quartz-flooding. The
not display any definite sedimentary features and have likely been remobilized to some extent. Pyrite and sphalerite sometimes occur in massive bands parallel to foliation. Pyrrhotite and chalcopyrite always have a splashy, fracture controlled, remobilized appearance.

The present density of drilling is not sufficent to determine if the mineralization of zone 1 is continuous between the 4 holes that have intersected it. If it is continuous then the zone has a dip extent of between 43 m and 200 m on line 27E, less than 50 m on line 27 E and up to 170 m on line 25E; the zone has a strike length of at least 300 m . Drilling west of CH88-76, on lines 24 E and 22 E , has not intersected any strong mineralization. To the east, on line 29E, only weak disseminated sphalerite mineralization was encountered at the top of the Anita Active Tuff.

The second zone was intersected below 400 metres elevation in four holes on lines $30 \mathrm{E}, 31 \mathrm{E}$ and 32 E . It is 0.6 to 4.5 m thick (true) and grades 0.45 to $0.02 \% \mathrm{Cu}, 0.14$ to $<0.01 \% \mathrm{~Pb}, 3.94$ to $0.32 \% \mathrm{Zn}, 29.4$ to $5.9 \mathrm{~g} / \mathrm{t} \mathrm{Ag}, 2.1$ to 0.16 $\mathrm{g} / \mathrm{t} \mathrm{Au}$ and 0.48 to $2.05 \% \mathrm{Ba}$. The mineralization consists of 10 to $15 \%$ disseminated sulphides (pyrite + sphalerite +/chalcopyrite +/- galena). The best intersection occurs in CH88-83 which pierced the zone at an elevation of 197 m on line 32 E . The intersection is 4.5 m thick (true) and grades $0.02 \% \mathrm{Cu}, 0.33 \% \mathrm{Zn}, 3.1 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$ and $0.13 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ which includes a 2.8 m thick (true) section grading $0.18 \% \mathrm{Cu}, 0.07 \% \mathrm{~Pb}$, $1.51 \% \mathrm{zn}, 11.02 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$ and $0.16 \mathrm{~g} / \mathrm{t} \mathrm{Au}$.

This second zone is still open below 350 m elevation on line 30 E , below 180 m elevation on lines 31 E and 32 E and to the east (Central Anita Area). The present density of drilling does not preclude the possibility that the two zones may be contiguous.

In the Central Anita Area only two holes, one on section $30+00$ E and the other on $40+00$ E have pierced the Anita Active Tuff. In both cases the Anita Horizon is dyked out. The only significant mineralization occurs in a xenolith of Anita Active Tuff which occurs over a 0.4 m interval in a gabbro dyke in hole cH87-31 on section 40+00 E (figure 49). The interval contains $14 \%$ sulphides (pyrite + chalcopyrite + galena) and assayed $0.59 \% \mathrm{Cu}, 1.35 \% \mathrm{~Pb}, 0.02 \% \mathrm{Zn}, 134 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$ and $0.47 \mathrm{~g} / \mathrm{t}$ Au. Hole CH88-57, drilled to test the Anita Active Tuff up dip of CH87-31 failed to intersect the Anita Active Tuff and showed that stratigraphy south of the Fulford Fault Splay dips less than 70 degrees south and that the Anita Active Tuff is truncated by the Fulford Fault Splay about 20 metres above CH87-31.

The Anita Active Tuff was intersected in 9 holes on 5
sections in the East Anita Area. Strong (2-15 \%) pyrite mineralization occurs in all intersections, however base and precious metal mineralization is sparse. There are however several interesting geochemically anomalous intersections in this area and these are listed below.


## Cherty Sediment Sequence

Sediments and tuffs of this unit usually contain more than $2,000 \mathrm{ppm} \mathrm{Ba}$. The source of the barium is not known but it could be related to distal hydrothermal activity, a waning hydrothermal system, or normal chemical sedimentation. Table 6 summarizes the metal content statistics in samples taken from the Cherty Sediment Sequence. The highest barium is contained in the argillites which average 3894 ppm , followed by greywacke and felsics at 3135 and 3009 ppm respectively. Only one sample from the Cherty Sediment Sequence has an elevated precious or base metal content ( hole CH88-53; VA03831 assayed $0.20 \% \mathrm{Zn} / 0.5$ metres). The sample comes from an epidote alteration patch with a trace of sphalerite associated with a 0.5 cm wide quartz-filled fracture in a quartz grain-rich felsic tuff.

Figure 22 is a vertical longitudinal section along the barium-rich cherty sediments across the Anita area. Although the sampling density is sparse higher than average values cluster around lines 30 E to 32 E and interesting spot highs occur on lines 40 E and 47 E . If this barium is related to a waning hydrothermal system then it may be a useful guide to the localization of hydrothermal systems stratigraphically below the cherty sediments.

Mafic Intrusives (Gabbro)
A 1.1 m sample from a chalcopyrite bearing quartz vein in a gabbro dyke just south of the Anita Active Tuff in

Table 6: MINERALIZATION IN THE CHERTY SEDIMENTARY SEQUENCE; METAL STATISTICS



CH88-72 on section $46+00 \mathrm{E}$ assayed $5.11 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ and $0.84 \% \mathrm{Cu}$. Milky white, chalcopyrite bearing quartz $+/-\quad$ carbonate veins up to 2 metres wide are not uncommon in gabbro throughout the Anita Area. This is the first occurence that has contained more than a weakly anomalous amount of gold.

## ALTERATION

Pervasive sericitization is the most common type of alteration associated with sulphide mineralization. Sericite alteration is ubiquitous in all the felsic tuffs in the Anita Area and although it is most intense in the Anita Active Tuff, it does not necessarily increase in intensity towards zones of stronger mineralization. Therefore, while sericite alteration may be useful in identifying potential sulphide-bearing horizons it cannot act as a guide in locating deposits within them.

Alteration within the most heavily mineralized zones on sections $25+00 \mathrm{E}, \quad 27+00 \mathrm{E}$ and $28+00 \mathrm{E}$ consists of moderate to strong pervasive and fracture controlled silicification, patchy, wispy epidote alteration and weak to strong sericitization.

Distinctly hydrothermal chlorite has not been observed. All mafic volcanics are weakly to moderately chloritic due to greenschist facies metamorphism. Most felsic tuffs north of the Fulford Fault Splay are weakly chloritic but this likely reflects their primary composition.

Mafic tuffs from the Powerline Mafic Sequence are strongly carbonatized. Alteration is both fracture-controlled and pervasive. Feldspar phyric mafic volcanics of the North Anita Volcanic Sequence often display weak to moderate spotty epidote alteration centred on the feldspar phenocrysts.

Finely disseminated biotite often occurs in the volcaniclastic rocks near gabbro dykes. Biotization tends to be more intense in rocks with higher sedimentary components and is common in mafic tuffaceous sediments of the Southern Mafic Sequence and in greywackes of the Cherty Sedimentary Sequence.

Weak fracture-controlled hematite alteration is common in the larger gabbro dykes and occasionally in the mafic volcanics.

Altered alteration samples from the Anita Area are listed in Table 7. The Ishikawa alteration index is also listed and is calculated using the following formula.

$$
\mathrm{A} \cdot \mathrm{I} .=\frac{100 *(\mathrm{MgO}+\mathrm{K} 2 \mathrm{O})}{(\mathrm{MgO}+\mathrm{K} 2 \mathrm{O}+\mathrm{Na} 2 \mathrm{O}+\mathrm{CaO})}
$$

In the West Anita Area, only 21 out of 94 samples from the Anita Active Tuff are sodium depleted or have Ishikawa alteration indexes $>60$ and none of these come from the
able 7: CHEMIStRy of ALTERED SnMples from the nnita area

| HOLE \# | SECTION\# | SAMPLE: | FROM <br> (m) | $\begin{aligned} & \mathrm{TO} \\ & (\mathrm{~m}) \end{aligned}$ | WIDTH <br> (m) | $\begin{gathered} \mathrm{SiO} 2 \\ (8) \end{gathered}$ | $\begin{gathered} \mathrm{A} 1203 \\ (\mathrm{~g}) \end{gathered}$ | $\begin{aligned} & \mathrm{CaO} \\ & (z) \end{aligned}$ | $\begin{aligned} & \mathrm{MgO} \\ & (\%) \end{aligned}$ | $\begin{aligned} & \mathrm{Na} 20 \\ & (\%) \end{aligned}$ | $\begin{aligned} & \mathrm{K} 20 \\ & (\mathrm{z}) \end{aligned}$ | $\begin{gathered} \mathrm{Fe} 2 \mathrm{O}^{3} \\ \left(\frac{y}{( }\right) \end{gathered}$ | $\begin{gathered} \mathrm{TiO2} \\ (\%) \end{gathered}$ | $\begin{aligned} & \text { LOI } \\ & \text { (8) } \end{aligned}$ | Cu (ppm) | $\underset{(\mathrm{ppm})}{\mathrm{Zn}}$ | $\begin{gathered} \mathrm{Ba} \\ (\mathrm{ppm}) \end{gathered}$ | AI |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Anita Active Tuff |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CH88-74 | 24+00E | VA04264 | 36.0 | 62.8 | 36.8 | 68.1 | 13.4 | 3.74 | 1.21 | 0.85 | 3.56 | 2.85 | 0.25 | 4.23 | 146 | 97 | 988 | 51 |
|  |  | VA04265 | 65.5 | 72.0 | 6.5 | 71.0 | 14.7 | 0.42 | 1.38 | <0.01 | 4.07 | 3.52 | 0.31 | 3.00 | 115 | 177 | 1010 | 93 |
|  |  | VA04277 | 220.0 | 227.9 | 7.9 | 71.8 | 14.2 | 0.34 | 0.23 | 0.93 | 2.82 | 3.84 | 0.38 | 3.85 | 77 | <10 | 2790 | 71 |
| CH87-20 | $25+00 E$ | VA08802 | 66.1 | 80.0 | 13.9 | 68.0 | 12.8 | 4.57 | 1.34 | 0.58 | 3.28 | 3.08 | 0.23 | 5.23 | 17 | 94 | 933 | 47 |
| CH87-28 | $27+00 \mathrm{E}$ | VA08848 | 275.6 | 291.2 | 15.6 | 68.1 | 10.8 | 0.55 | 0.15 | 0.91 | 2.17 | 10.80 | 0.31 | 5.93 | 569 | 30 | 1171 | 61 |
| CH88-48 | $27+00 \mathrm{E}$ | VA01062 | 70.0 | 80.0 | 10.0 | 71.2 | 13.8 | 0.85 | 0.80 | 1.36 | 3.20 | 3.79 | 0.32 | 3.70 | 52 | 42 | 1850 | 64 |
|  |  | VAO1063 | 80.0 | 89.0 | 9.0 | 71.6 | 13.5 | 1.65 | 0.69 | 0.64 | 2.81 | 3.93 | 0.33 | 4.31 | 166 | 190 | 3700 | 60 |
|  |  | VAO1064 | 103.0 | 109.0 | 6.0 | 75.2 | 10.9 | 0.28 | 0.32 | 0.72 | 2.29 | 5.41 | 0.33 | 3.62 | 366 | 134 | 3510 | 72 |
| CH86-18 | $28+00 \mathrm{E}$ | VA08874 | 91.8 | 101.8 | 10.0 | 70.8 | 11.7 | 0.63 | 0.85 | 0.66 | 2.95 | 6.99 | 0.26 | 4.85 | 514 | 125 | 1650 | 75 |
|  |  | VA08875 | 101.8 | 116.8 | 15.0 | 72.9 | 14.4 | 0.85 | 0.91 | 0.97 | 3.28 | 3.08 | 0.32 | 3.16 | 65 | 37 | 2910 | 70 |
|  |  | VA08880 | 135.1 | 1.41.6 | 6.5 | 70.9 | 8.0 | 0.18 | 0.11 | 0.46 | 1.84 | 11.40 | 0.22 | 6.31 | 1140 | 26 | 5.70 | 75 |
| CH88-45 | 28+00E | VA01059 | 370.0 | 382.0 | 12.0 | 71.2 | 13.2 | 1.68 | 1.30 | 1.14 | 3.30 | 3.51 | 0.31 | 3.31 | 2290 | 507 | 2900 | 62 |
| CH88-50 | $30+00 E$ | VA02828 | 104.0 | 129.0 | 25.0 | 72.2 | 15.8 | 0.86 | 1.44 | 1.29 | 3.44 | 1.62 | 0.37 | 2.77 | 20 | 16 | 1610 | 69 |
|  |  | VA02831 | 147.0 | 177.0 | 30.0 | 69.5 | 14.3 | 1.60 | 1.12 | 1.16 | 3.16 | 3.48 | 0.32 | 3.62 | 46 | $<10$ | 2460 | 61 |
|  |  | VA02832 | 177.0 | 194.0 | 17.0 | 64.3 | 16.9. | 0.54 | 0.72 | 0.66 | 4.30 | 5.34 | 0.42 | 5.08 | 146 | 629 | 3720 | 81 |
| CH88-73 | $30+00 \mathrm{E}$ | VA04260 | 252.9 | 265.6 | 12.7 | 78.6 | 12.2 | 0.34 | 0.80 | 0.26 | 3.40 | 1.30 | 0.24 | 2.08 | 64 | 43 | 1610 | 88 |
|  |  | VA04262 | 275.0 | 279.5 | 4.5 | 69.2 | 15.0 | 0.84 | 1.75 | 0.67 | 3.40 | 4.84 | 0.35 | 2.77 | 619 | 140 | 1110 | 77 |
| CH88-83 | $32+00 \mathrm{E}$ | VA04339 | 279.0 | 286.0 | 7.0 | 70.5 | 14.3 | 1.82 | 2.53 | 0.85 | 3.28 | 3.10 | 0.33 | 2.31 | 10 | 83 | 2630 | 69 |
|  |  | VA04351 | 447.0 | 457.0 | 10.0 | 75.7 | 11.6 | 0.18 | 0.21 | 0.81 | 2.36 | 4.79 | 0.32 | 3.70 | 108 | 24 | 1460 | 72 |
|  |  | VA04353 | 467.0 | 477.0 | 10.0 | 75.4 | 13.0 | 0.45 | 0.17 | 0.82 | 2.69 | 3.71 | 0.31 | 3.16 | 32 | 27 | 1700 | 69 |
|  |  | VA04354 | 477.0 | 487.0 | 10.0 | 76.2 | 13.0 | 0.35 | 0.36 | 0.67 | 3.09 | 3.07 | 0.29 | 2.85 | 44 | 24 | 1750 | 77 |
| CH87-32 | $36+00 \mathrm{E}$ | AB21687 | 427.2 | 427.3 | 0.1 | 74.8 | 15.7 | 0.91 | 0.62 | 0.94 | 3.09 | 1.18 | 0.35 | 2.46 | 34 | 17 | 1210 | 67 |
| CH86-16 | $45+00 \mathrm{E}$ | VA08897 | 236.0 | 245.0 | 9.0 | 70.2 | 14.0 | 0.86 | 1.25 | 0.42 | 3.89 | 3.64 | 0.35 | 3.77 | 119 | 1532 | 1967 | 80 |
|  |  | VA08898 | 245.0 | 255.0 | 10.0 | 70.6 | 14.9 | 1.06 | 1.39 | 0.65 | 3.20 | 3.69 | 0.36 | 3.85 | 103 | 409 | 1758 | 73 |
|  |  | VA08899 | 255.0 | 271.8 | 16.8 | 70.6 | 13.3 | 1.51 | 0.82 | 0.62 | 2.20 | 5.64 | 0.29 | 4.62 | 344 | 137 | 1389 | 59 |
| CH88-40 | $46+00 \mathrm{E}$ | VA01030 | 230.0 | 245.0 | 15.0 | 72.4 | 13.1 | 1.29 | 1.24 | 0.29 | 2.98 | 4.02 | 0.28 | 4.00 | 232 | 496 | 1643 | 73 |
| CH88-72 | 46+00E | VA09263 | 239.0 | 246.4 | 7.0 | 67.0 | 15.0 | 1.62 | 1.81 | 0.98 | 2.73 | 4.19 | 0.38 | 4.31 | 128 | 357 | 1686 | 64 |
|  |  | VA09265 | 266.3 | 277.5 | 11.2 | 72.0 | 13.5 | 0.99 | 1.33 | 0.16 | 4.05 | 2.84 | 0.29 | 3.16 | 94 | 441 | 2751 | 82 |
| CH88-38 | . $47+00 \mathrm{E}$ | VAO1016 | 347.0 | 358.0 | 11.0 | 72.2 | 13.6 | 0.65 | 1.30 | 0.61 | 3.98 | 2.79 | 0.28 | 3.08 | 66 | 216 | 1570 | 81 |


| HOLE \# | SECTION* | SAMPLE\# | FROM (m) | $\begin{aligned} & \text { To } \\ & (\mathrm{m}) \end{aligned}$ | WIDTH <br> (m) | $\begin{gathered} \mathrm{SiO} \\ (\mathrm{Z}) \end{gathered}$ | $\begin{gathered} A 1203 \\ (8) \end{gathered}$ | $\begin{aligned} & \mathrm{CaO} \\ & (\mathrm{z}) \end{aligned}$ | Mgo <br> (8) | $\begin{aligned} & \mathrm{Na} 2 \mathrm{O} \\ & (z) \end{aligned}$ | $\begin{aligned} & \mathrm{K} 20 \\ & (\%) \end{aligned}$ | $\begin{gathered} \mathrm{Fe} 203 \\ (8) \end{gathered}$ | $\begin{gathered} \text { TiO2 } \\ (8) \end{gathered}$ | $\begin{aligned} & \mathrm{LOI} \\ & (\%) \end{aligned}$ | $\begin{gathered} \mathrm{Cu} \\ (\mathrm{ppm}) \end{gathered}$ | $\underset{(\mathrm{ppm})}{\mathrm{Zn}}$ | $\begin{gathered} \mathrm{Ba} \\ (\mathrm{ppm}) \end{gathered}$ | AI |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Anita Active Tuff (continued) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CH88-39 | $48+00 \mathrm{E}$ | VA02765 | 223.4 | 255.3 | 31.9 | 70.2 | 13.2 | 0.79 | 1.40 | 0.10 | 3.47 | 4.65 | 0.36 | 4.62 | 119 | 446 | 1882 | 85 |
| CH86-14 | $49+00 \mathrm{E}$ | VA08913 | 294.0 | 305.0 | 11.0 | 71.6 | 15.0 | 0.35 | 2.06 | 0.58 | 2.90 | 3.55 | 0.33 | 3.70 | 75 | 65 | 1084 | 84 |
|  |  | VA08914 | 305.0 | 316.0 | 11.0 | 72.5 | 13.4 | 0.96 | 1.31 | 0.72 | 3.22 | 3.90 | 0.34 | 3.54 | 57 | 210 | 1427 | 73 |
|  |  | VA08915 | 316.0 | 327.8 | 11.8 | 73.5 | 9.9 | 0.96 | 0.97 | 0.24 | 2.65 | 6.72 | 0.27 | 4.47 | 324 | 1226 | 1732 | 75 |

North Anita Volcanic Sequence
$\begin{array}{llllllllllllllllllllllllll}\text { CHB8-40 } & 46+00 E & \text { VA01026 } & 156.4 & 170.0 & 13.6 & 52.3 & 18.10 & 5.93 & 3.53 & 0.85 & 3.06 & 10.30 & 0.68 & 3.39 & 394 & 83 & 1250 & 49\end{array}$

| Southern | Mafic S | Sequence |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CH88-44 | $28+00 \mathrm{E}$ | VA02798 | 98.2 | 110.1 | 11.9 | 43.5 | 14.2 | 19.80 | 5.57 | 0.94 | 1.16 | 7.23 | 0.49 | 6.39 | 34 | 66 | 1080 | 25 |
| CH88-56 | $31+00 \mathrm{E}$ | VA01134 | 375.0 | 400.0 | 25.0 | 69.9 | 15.4 | 0.83 | 1.00 | 0.87 | 3.70 | 3.41 | 0.38 | 3.39 | 238 | 134 | 3570 | 73 |
| cH88-52 | $31+00 \mathrm{E}$ | VA01096 | 171.3 | 177.3 | 6.0 | 42.2 | 8.8 | 11.10 | 16.80 | 0.41 | 0.35 | 11.20 | 1.41 | 5.70 | 15 | 60 | 549 | 60 |
| Cherty Sediment Sequence |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CH88-51 | $27+00 \mathrm{E}$ | VA01088 | 105.0 | 115.0 | 10.0 | 69.4 | 13.9 | 1.98 | 3.50 | 0.61 | 2.37 | 3.61 | 0.42 | 3.00 | $<10$ | 49 | 1620 | 69 |
| CH88-47 | $29+00 \mathrm{E}$ | VA02821 | 247.1 | 260.0 | 12.9 | 70.9 | 13.4 | 2.17 | 2.35 | 1.27 | 3.17 | 2.92 | 0.34 | 3.00 | 13 | 99 | 2510 | 62 |
| CH88-52 | $31+00 \mathrm{E}$ | VA01091 | 10.0 | 30.0 | 20.0 | 74.7 | 8.8 | 2.28 | 2.00 | 0.91 | 1.85 | 4.78 | 0.31 | 2.08 | 12 | 17. | 5900 | 55 |

Samples of Uncertain Stratigraphic Position
$\begin{array}{lllllllllllllllllllllllllllll}\text { CH88-53 } & 40+00 E & \text { VAO2842 } & 53.0 & 61.6 & 8.6 & 68.7 & 15.3 & 1.19 & 1.69 & 0.57 & 3.89 & 3.89 & 0.35 & 3.39 & 121 & 184 & 1602 & 76\end{array}$
richest sulphide zones. Three samples from CH88-48 on line $27+00$ E are weakly to moderately altered. Two of them are sodium depleted, contain 190-434 ppm Zn, 166-1,602 ppm Cu and 60 to 96 ppb Au. None of the samples from hole CH88-49 (where the strongest mineralization occurs), 53 metres up dip from CH88-48, are altered. Several samples of Anita Active Tuff below the mineralization in CH88-50 on line $30+00$ E are weakly altered as is a sample from hole CH88-56, 10 m below the mineralized zone on line $31+00$ E. The lack of strong, consistent sodium depletion is puzzling. It may be that the mineralization in the Anita Area is distal to the hydrothermal system that produced it.

Only one hole tested the Anita Active Tuff in the Central Anita Area this year. Two alteration samples were taken and neither was sodium depleted. Holes were drilled on sections $36+00 \mathrm{E}$ and $38+00 \mathrm{E}$ in 1987 and six 0.1 m long whole rock samples of the Anita Active Tuff were taken. One sample, from CH87-32 on line 36E, was slightly sodium depleted (0.94\% Na20).

In contrast to the West Anita Area, ll samples from the Anita Active Tuff in the East Anita Area are altered. Sodium depleted Anita Tuff samples were taken on every line from 45+00 E to 49+00 E. Alteration is more intense in the Anita East Area than in the Anita West Area.

Three samples of felsic tuff from the Cherty Sediment Sequence are weakly to moderately altered. The tuffs do not have a particularly altered appearance, nor do they contain more than trace amounts of sulphide (pyrite). They are, however, anomalous in $\mathrm{Ba}(1,620-5,900 \mathrm{ppm}$ ) as are the sediments, particularly the argillites (up to $11,000 \mathrm{ppm}$ ).

## INTRODUCTION

Three holes, CH88-38,39 and 40 totalling 1027.8 metres were drilled in this area (see Figure 16) in 1988 to test the Crone PEM anomaly, detected in drill holes CH86-16 and CH87-34 and 36. A downhole Crone Pulse EM survey carried out on late 1987 indicated that a significant conductive sheet-like body is present in this area. The mineralization intersected occurs north of the Fulford Fault Splay and is not associated with the Anita stratigraphy that occurs to the south.

## GEOLOGY

The volcanic rocks intersected in this area are divided by the Fulford Fault Splay into a north sequence, which hosts the PEM anomaly, and a southern sequence which contains the Anita stratigraphy; including the Anita Active Tuff. The latter rocks are discussed in detail in the Anita section of the report above. The geology of the area is shown on the sections for lines $45 \mathrm{E}, 46 \mathrm{E}, 47 \mathrm{E}, 48 \mathrm{E}$ and 49 E on figures 51 to 55 respectively.

The northern sequence is composed of barren felsic volcanics and volcaniclastics and intercalated felsic crystal tuffs and mafic tuffs. The intercalated tuffs contain more felsic tuffs in the north and dominantly mafic tuffs were intersected towards the south. Towards the south this tuffaceous assemblage contains a thin felsic tuffaceous layer with pyrrhotite - chalcopyrite +/- pyrite - (sphalerite) mineralization which is discussed in detail below. The tuffs are intruded by numerous gabbro bodies of variable thickness and orientation. About 50 metres south of the sulphide bearing horizon, the Fulford Fault Splay, truncates the intercalated tuffs from the southern sequence.

## MINERALIZATION AND ALTERATION

The PEM anomaly is caused by a sheet-like body of 5 to 45 \% pyrite-pyrrhotite-chalcopyritetmineralization that has a dip of about 65 degrees to the north and strikes at 115 to 120 degrees. It has a minimum strike extent of 300 m from section $46+00$ E to section $49+00$ E. It has a dip extent of 150 metres on section 47+00E. The intersections of within the sheet are as follows :

| DDH | Section | From | To | Thickness | $\% \mathrm{Cu}$ | $\%$ | Zn | Ag |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $\mathrm{g} / \mathrm{t}$ | Au |  |  |  |  |  |  |  |
| ppb |  |  |  |  |  |  |  |  |

There is weak pyrrhotite - chalcopyrite mineralization in CH86-16 on section $45+00 \mathrm{E}$ from 182.2 to 182.4 , but it visually does not appear to be the same as it is associated with chlorite and carbonate alteration. Therefore, the sheet does not appear to extend west along strike.

The derivation of the mineralization is uncertain. It is hosted by felsic tuffs within a predominantly mafic tuffaceous package. The host felsic tuff is not hydrothermally altered or barium enriched; however, the zone does not appear to be a cross-cutting vein system either. It is however still considered very significant as it is the best mineralization intersected to date north of the Fulford Fault Splay.

## WATSON CREEK AREA

## INTRODUCTION

Location
The Watson Creek Area encompasses line l+00 E to line $6+00$ E on the eastern edge of the Chip 3 Claim through the Chip 16 Fraction into the western portion of the Chip 2 Claim. It derives its name from its location immediately to the east of Watson Creek.

Exploration History
Esso Minerals mapped the area in 1984 and it was remapped by Falconbridge in 1986 and 1988. Sclumberger Array (shallow) IP and soil geochemical surveys were conducted in 1986 and a Gradient Array (deep) IP survey was completed in 1987. VLF-magnetometer surveys were conducted in 1986 and 1987.

1988 Work Program and Objectives
The 1988 program consisted of 3 diamond drill holes (792.4 m, see Figure 56) and a excavator trench ( 400 m , see Appendix l) along section $2+00$ E. Program objectives were to:

1) Test deep IP chargeability anomaly at $0+80 \mathrm{~N}$.
2) Develop a stratigraphic section.

GEOLOGY
Introduction
Drilling and trenching tested from $4+00 \mathrm{~N}$ to $1+20 \mathrm{~S}$ on Line $2+00 E$. The drilling was entirely within McLaughlin Ridge Formation volcaniclastics and sediments. Trenching located gabbro 55 metres north of the drill section.

## Stratigraphy

Stratigraphy is shown in Figures 57 and 73. Trenching reveals that a gabbro body occurs north of $3+90 \mathrm{~N}$. Predominantly felsic tuffs with minor mafic tuffs and sediments occur from $3+90$ to $2+40 \mathrm{~N}$. Within these felsic tuffs are weakly pyritic and sodium depleted felsic tuffs $(3+10$ to $3+50$


N). From $2+40$ to $0+80 \mathrm{~N}$ mafic tuffs with thin felsic tuff beds were intersected. Predominantly felsic tuffs occur from $0+80 \mathrm{~N}$ to $1+20 \mathrm{~s}$. A 6 m thick argillite $(0+50 \mathrm{~N})$ and several minor mafic tuffs and cherts are interbedded within the felsic tuffs.

Felsic tuffs vary from being strongly sericitic $(3+10$ to $3+50 \mathrm{~N})$ to being chloritic. They are aphyric to strongly porphyritic with quartz and/or feldspar phenocrysts. Lapilli occur locally. Mafic tuffs are generally chloritic with trace to abundant epidotized feldspar crystals, local chloritized hornblende crystals and epidotized lapilli. The mafic from $1+80$ to $2+10 \mathrm{~N}$ is a chlorite - biotite - calcite schist with local garnets and quartz augens. Trace disseminated and fracture controlled pyrite occurs throughout the felsic and mafic tuffs. Cherts are generally blocky and white to creamy in colour. Argillites are black, graphitic, contain up to 10 \% pyrite and occasionally are interbedded with thin cherts.

## Structure

Bedding and a strong subparallel foliation strikes 120 degrees and dips from 74 to 85 degrees to the north. Numerous faults occur and one small (l0 metre) tight isoclinal fold was observed.

## MINERALIZATION AND ALTERATION

CH88-77 collared in sodium depleted (< $1.0 \% \mathrm{Na} 2 \mathrm{O}$ ) felsic tuffs with 1 ㅇ disseminated pyrite and strong sericite alteration. : The tuffs contain about 500 ppm Mn and 1000 ppm Ba with no anomalous base or precious metal values. This suggests that the altered felsic correlates with the powerline area and is distal to the source of mineralization.

The graphitic argillite intersected in cH88-79 contains $10 \%$ pyrite and was the cause of the IP chargeability anomaly. It did not contain significant levels of barium, base or precious metals.

POWERLINE AREA

## INTRODUCTION

Location
The Powerline Area is situated in the middle of the Chip 1 Claim under the B.C. Hydro transmission lines between $3+50 \mathrm{~N}$ and $5+00 \mathrm{~N}$ from lines $26+00 \mathrm{E}$ to $35+00 \mathrm{E}$.

Exploration History
Esso Minerals mapped the area in 1984 and it was subsequently remapped by Falconbridge in 1986 and 1988. The area was surveyed in 1986 and 1987 by Sclumberger Array (shallow) and Gradient Array (deep) IP surveys. The area was not covered by a VLF-Magnetometer survey due to powerline interference.

1988 Work Program and Objectives
In 1988, 3 holes (781. 2 m , see Figure 59) were drilled on sections $28+00 \mathrm{E}$ and $30+00 \mathrm{E}$ within the Powerline Area. The holes were drilled to:

1) Test the "Powerline North" and "Powerline South" IP chargeability anomalies.
2) Test below altered tuffs exposed in road cuts along the powerline road.
3) Develop a stratigraphic section.

## GEOLOGY

Introduction

The felsic tuffaceous package (Powerline Felsic Sequence) that was drill tested has a width of 120 to 170 m between lines $26+00 \mathrm{E}$ to $35+00 \mathrm{E}$, and is part of the McLaughlin Ridge Formation. There is negligible surface exposure outside of this 900 metre strike length so the lateral continuity of the horizon is unknown.

Stratigraphy
(see Figure 60). To the north is the "Powerline North Gabbro" and to the
-


south are variably chloritic to locally sericitic felsic tuffs with minor gabbro dykes or sills. Mafic tuffs and chlorite schists, which are probably sheared mafic tuffs, are interbedded with the felsic tuffs.

The gabbro is fine to coarse grained with feldspar phenocrysts dominant over chloritized mafic phenocrysts. Local zones are dominated by chloritized hornblende crystals. The gabbro appears to be more ilmenite-rich than the Anita Gabbro ( 3 to $5 \%$ average, up to $18 \%$ ). The felsic tuffs are predominantly chloritic crystal tuffs with subordinate crystal - lapilli tuffs. Phenocryst contents vary but generally both quartz and feldspar are present (up to $20 \%$, < 3 mm long plagioclase crystals, and up to $10 \%$, 4 mm , quartz crystals). Lapilli tuffs contain about $10 \%$ grey felsic lapilli ( 4 cm ). The interbedded mafic tuffs are mostly sheared and carbonatized with white calcite streaks, but occasionally are more massive and contain feldspar crystals.

## Structure

Structure appears simple with gabbro sills (?) indicating dips of 84 degrees to the south and 87 degrees to the north. Bedding is parallel to sub-parallel to the thin gabbros. The "Powerline North Gabbro" contact appears to dip at 79 to 88 degrees to the north. Numerous shear zones occur within the gabbro and several fault slips occur within the Powerline Felsic Sequence. No significance has been attached to these faults and no offset is evident yet.

## MINERALIZATION AND ALTERATION

Sodium depleted ( $<1.0 \%$ ) pyritic felsic tuffs were intersected over true thicknesses of $115 \mathrm{~m}(28+00 \mathrm{E})$ and 95 m $(30+00 \mathrm{E})$ on two drill sections spaced 200 metres apart. The lateral extent of the pyritic sodium depleted felsic tuffs is probably best defined by the "Powerline South" shallow Ip chargeability anomaly $(3+40 \mathrm{~N}$ to $4+40 \mathrm{~N}$ on line $26+00$ E to $4+80 \mathrm{~N}$ to $5+50 \mathrm{~N}$ on line $34+00 \mathrm{E}$ ). These altered tuffs, like the Randy Active Tuff, are chloritic with elevated Mn (average > 500 ppm , as opposed to an average of 161 ppm in the Anita Active Tuff), moderate Ba (generally 1000 to 1200 ppm ) and sodium depleted over a wide interval with minor polymetallic and Zn geochemically anomalous intersections. The geochemical anomalies are as follows:

| Hole \# | From (m) | $\begin{aligned} & \text { To } \\ & (\mathrm{m}) \end{aligned}$ | Length (m) | Cu <br> ppm | Pb ppm | Zn <br> ppm | Au <br> ppb | Ag ppm | Ba ppm |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CH88-75 | 116.1 | 117.7 | 1.6 | 140 | 8 | 1554 | 10 | 0.4 | 980 |
| CH88-75 | 131.5 | 132.0 | 0.5 | 758 | 22 | 346 | 29 | 1.0 | 1600 |
| CH88-75 | 138.0 | 1.38.7 | 0.7 | 295 | 463 | 1151 | 50 | 1.3 | 1200 |
| CH88-75 | 140.3 | 140.9 | 0.6 | 875 | 29 | 1425 | 40 | 0.6 | 1.000 |
| CH88-41 | 101.8 | 102.8 | 1.0 | 568 | 123 | 945 | 220 | 9.0 | 1230 |
| CH88-41 | 108.0 | 108.7 | 0.7 | 633 | 118 | 507 | 104 | 3.1 | 5340 |
| CH88-41 | 112.8 | 113.3 | 0.5 | 25 | 6 | 1335 | 24 | 0.8 | 1250 |
| CH88-41 | 181.6 | 182.1 | 0.5 | 879 | 20 | 2213 | 140 | 2.8 | 1040 |
| CH88-41 | 198.4 | 199.4 | 1.0 | 665 | 142 | 2902 | 55 | 1.5 | 1320 |
| CH88-41 | 200.4 | 201. 4 | 1.0 | 271 | 480 | 490 | 24 | 0.8 | 1200 |

The sodium depleted felsic tuff is bounded on the north and south by thin gabbroic dykes. On section $30+00 \mathrm{E}$, the anomalous mineralization occurs towards the north contact and on section $28+00 \mathrm{E}$ it occurs towards the north contact and near the middle of the altered zone. Numerous weak polymetallic horizons in conjunction with the same geochemical signature to the Randy Active Tuff suggest correlation between the Powerline, Randy Zone and Holyoak areas. There is not a traceable physical or geophysical link established yet between the Powerline Area and the Randy Zone.

## HOLYOAK AREA

## INTRODUCTION

Location
The Holyoak Area is located across the north portion of the Holyoak 3 Claim grid between lines $50+00 \mathrm{~W}$ and $40+00 \mathrm{~W}$.

## Exploration History

The area was mapped by Falconbridge in 1985 and 1986. Between 1985 and 1988 the area was surveyed by Sclumberger Array (shallow) IP, gradient Array (deep) IP, VLF-Magnetometer and soil geochemical surveys. Interest in the area was aroused when in 1987 Abermin found several "weak polymetallic zones", one of which was termed the Randy Zone, within a thick felsic sequence, termed the Randy Rhyolite. Abermin drilled ten holes ( 1722 m ) to test coincident humus geochemical anomalies and IP chargeability anomalies. Mineralization is weak. A typical Randy Zone intersection is: 0.37 m of 63 ppm $\mathrm{Cu}, \quad 730 \mathrm{ppm} \mathrm{Pb}, 11500 \mathrm{ppm} \mathrm{Zn}, \quad 11 \mathrm{ppm} \mathrm{Ag}$ and 220 ppb Au from 122.18 to 122.55 in hole 155.

1988 Work Program and Objectives
In 1988, 5 diamond drill holes (142l m, see Figure 63) and 4 trenches ( 760 m , see Appendix 3). Program objectives were to:

1) Test the strike extent of the Randy Zone defined by deep and shallow IP chargeability anomalies and minor soil geochemical anomalies.
2) Develop a stratigraphic section

## GEOLOGY

Introduction
The most significant lithology in the Holyoak Area is a 200 m wide zone of pyritic and sodium depleted felsic tuffs, which is referred to as the Randy Active Tuff. The Randy Active Tuff strikes for at least 2 km on the Laramide property to the west, where it hosts the Randy zone, and may continue into the Watson Creek and Silver Creek Areas. Drilling and trenching traced the Randy Active Tuff for 1200 metres in the Holyoak Area. Drilling intersected the altered felsics about


200 m from the western Holyoak 3 claim boundary and the stratigraphic section (Figure 64) extends a further 400 metres south of the altered tuffs.

Stratigraphy
The stratigraphy is shown in Figures 64 and 65. To the north of the Randy Active Tuff are unaltered felsic tuffs. Further to the north there are mafic volcanics and to the north of the mafics, Cameron River Formation sediments occur intercalated with gabbroic sills. To the immediate south of the Randy Active Tuff there are argillites and argillaceous cherts, which cap the alteration, indicating that stratigraphic tops may be to the south or the Randy Active Tuff is repeated and thus thickened by folding. To the south of the sediments are intercalated felsic and mafic tuffs for about 100 m (see Figures 64 and 65). These tuffs are succeeded by about 200 m of mafic tuffs with intercalated felsic tuffs. The final 100 m of the stratigraphic section before the claim boundary, is felsic tuffs and reworked tuffs with minor argillite and mafic tuffs. Drilling by Abermin suggests the felsics continue a further 300 m to the south before a 80 to 100 $m$ thick diorite intrusion was intersected. South of the diorite were 700 m of andesitic and chloritic felsic tuffs, which occur immediately north of the Coronation Extension Zone.

The volcanic units belong to the McLaughlin Ridge Formation. The Randy Active Tuff is very sericitic with streaks of green chlorite and locally orange to brown biotite resulting in a mottled appearance. It is quartz phyric with 2 to 15 \% large ( 2 to 7 mm ) quartz eyes. On average, there is l to $3 \%$ fine grained disseminated pyrite. Locally, sphalerite occurs with quartz - carbonate veins or as disseminations. The Randy Active Tuff is cut by minor clinopyroxene phyric mafic dykes and chlorite schists of uncertain origin. Argillaceous sediments are intercalated with the Randy Active Tuff. Outside the Active Tuff the felsic tuffs are feldspar and/or quartz phyric with very weak to strong pervasive chloritization. The mafic tuffs vary from extremely sheared chlorite schists to massive units with trace to $20 \%$ feldspar and chloritized mafic crystals. Locally the mafic tuffs contain epidotized lapilli and are weakly to strongly carbonatized. The argillites are often finely interbedded with cherts and generally have fracture controlled pyrite.

Structure

Structural geology is complex with dips varying from 64 degrees to the north to 85 degrees to the south. The

NORTH

current stratigraphic interpretation suggests that the rocks in the Holyoak area lie on the north limb of a property wide anticline. There are no conclusive top indicators in the Holyoak Area to prove or disprove this interpretation. There is indirect evidence against the interpretation in that the alteration in CH88-62 and 63 terminates to the south against cherty argiliites indicating that they capped the alteration and were stratigraphically above the Randy Active Tuff. Foliations are sub-parallel to bedding to about 25 degrees off parallel indicating that there could be numerous minor folds within the anticline's limb. It is possible that the Randy Active Tuff has been thickened by folding and may be a synform within the anticline.

## MINERALIZATION AND ALTERATION

No economic mineralization has been located to date.
The Randy Active Tuff, a sodium depleted pyritic felsic tuff, stretches for at least 2 km across the Laramide property and for about 1 km across the Holyoak 3 claim , and probably is continuous into the Watson Creek and Silver Creek Areas. Its location is defined by shallow IP chargeability anomalies on line $48+00 \mathrm{~W}$ from $9+00 \mathrm{~N}$ to $9+80 \mathrm{~N}$, and it strikes easterly to line $40+00 \mathrm{~W}$ where it crosses the line from $4+00 \mathrm{~N}$ to $5+00 \mathrm{~N}$. Surface rock geochemical sampling defines the Randy Active Tuff as extending from $7+75 \mathrm{~N}$ to $9+50$ N on line $48+00 \mathrm{~W}$, and from $4+25 \mathrm{~N}$ to $5+50 \mathrm{~N}$ on line $40+00 \mathrm{~W}$. The true thickness of the sodium depleted zone appears to be about 200 metres.

The Randy Active Tuff was intersected (78.2 to 233.5 $\mathrm{m})$ in $\mathrm{CH} 88-60$, $(6.4$ to 221.2 m$)$ in $\mathrm{CH} 88-62$, and ( 3.0 to 171.6 m) in cH88-63. It has an average apparent thickness of about 200 metres and appears to narrow at depth. Alteration is solely characterized by Na2O depletion. $C a O$ and $K 2 O$ may be enriched but are near typical values for unaltered felsic tuffs. Na2O values range from 0.13 to $0.58 \%$ throughout the Randy Active Tuff. Mn is clearly enriched and Ba may be weakly enriched. Metal values for the Randy Active Tuff intersections are as follows:
CH88-60
CH88-62
CH88-63
$3.0-171.6 \mathrm{~m})$
(78.2-233.5m)
(6.4-221.2m)

| Cu (ppm) | 11 | 25 | 46 |
| :--- | ---: | ---: | ---: |
| Pb (ppm) | 2 | 5 | 18 |
| Zn (ppm) | 165 | 69 | 103 |
| Mo (ppm) | 4 | 3 | 2 |
| Ag (ppm) | 0.0 | 0.1 | 0. |
| Mn (ppm) | 481 | 744 | 676 |
| As (ppm) | 7 | 20 | 16 |
| Au (ppb) | 10 | 17 | 12 |
| Ba (ppm) | 1460 | 1270 | 1150 |

Within the Randy Active Tuff there are short intervals of anomalous zn mineralization. These intervals appear to correlate with the Randy Zone as located by Abermin. The intersections are as follows:

| Hole \# | From <br> $(\mathrm{m})$ | To <br> $(\mathrm{m})$ | Length <br> $(\mathrm{m})$ | Cu <br> $(\mathrm{ppm})$ | Zn <br> $(\%)$ | Pb <br> $(\mathrm{ppm})$ | Au <br> $(\mathrm{ppb})$ | Ag <br> $(\mathrm{ppm})$ | Ba <br> $(\mathrm{ppm})$ |
| :--- | ---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | ---: |
| CH88-60 | 197.4 | 197.9 | 0.5 | 260 | 2.04 | 6 | 103 | 1.3 | 1200 |
| CH88-62 | 117.0 | 118.0 | 1.0 | 150 | 0.33 | 129 | 45 | 0.9 | 460 |
| CH88-63 | 50.0 | 51.5 | 1.5 | 3100 | 0.36 | 860 | 49 | 7.2 | 950 |

Outside the Randy Active Tuff all geochemically anomalous samples in the Holyoak Area were associated with veins.

## SILVER CREEK AREA

INTRODUCTION
Location
The Silver Creek Area is located on the Holyoak 2 Claim in the Holyoak-Brent Block and lies to the east of Silver Creek from line $32+00 \mathrm{~W}$ in the west to line $21+00 \mathrm{~W}$ in the east.

Exploration History
Esso Minerals performed limited geological mapping in the area prior to Kidd Creek Mines becoming operator of the Joint Venture in 1985. Geophysical work in 1985 consisted of a Schlumberger Array (shallow) IP survey and VLF-Magnetometer survey. The geophysics was followed up by geologic mapping, soil geochemistry, a short trench on line $31+00 \mathrm{~W}$ and four drill holes with an aggregate length of 641.8 m . Stringer to semi-massive sulphide mineralization was found over 1.5 m in the trench and over 7.5 m in CH85-10. No work was done in the area in 1986 due to an evaluation of the Chip Claims. In 1987 grid lines were cut at 100 m spacing over the area, mapped and surveyed using Gradient Array (deep) IP surveys. In 1988 the new grid lines were surveyed using Schlumberger Array (shallow) IP and a drilling and trenching program was conducted.

1988 Work Program and Objectives
The 1988 program consisted of drilling eight holes with an aggregate length of 2495 metres (see Figure 66). Program objectives were to:

1) Follow up on the zinc showing found in 1985
2) Test deep IP anomalies on lines $29+50 \mathrm{E}$ and $25+00 \mathrm{~W}$
3) Develop stratigraphic sections on lines $29+50 \mathrm{~W}$ and $25+00 \mathrm{~W}$
4) Backhoe trenching on sections $29+50 \mathrm{E}$ and $25+00 \mathrm{E}$

## GEOLOGY

Introduction
Drilling tested the area bounded by lines $32+00 \mathrm{~W}$ and lines $25+00 \mathrm{~W}$ and from $4+50 \mathrm{~N}$ to $6+50 \mathrm{~S}$ (see Figure 66). Drilling indicated that the area is primarily underlain by


McLaughlin Ridge Formation volcaniclastics. A narrow section of sediments that may be part of the Cameron River Formation was intersected by the northernmost hole on line 25+00E. Sicker Group rocks are intruded by numerous gabbroic and rare dioritic dykes, sills and plutons that are thought to be intrusive equivalents to the Karmutsen Formation. The current structural interpretation is that the Silver Creek Area is on the north limb of a large anticline that trends east southeast through the entire property.

Stratigraphy
The stratigraphic sucession is shown in Figure 67. To the far north a diorite body was intersected. To the south of the diorite 10 metres of argillite and siltstone was intersected. The sediments may belong to the Cameron River Formation. However, except for the diorite, there is no outcrop or drill information immediately north of the sediments and therefore it not known if the McLaughlin Ridge Formation volcanics extend further north.

To the south of the sediments is a complex melange of felsic, intermediate and mafic tuffs, and to a much lesser extent, flows. In general, for 150 m south of the sediments, mafic tuffs intruded by gabbro predominate, followed by about 275 m of predominantly felsic tuffs and lastly 500 m of mostly mafic tuffs. There is poor correlation between the geology on sections $29+50 \mathrm{~W}$ and $25+00 \mathrm{~W}$ indicating numerous lateral facies changes or small folds may occur. On sections $29+50 \mathrm{~W}$, $31+00 \mathrm{~W}$ and $32+00 \mathrm{~W}$ a apparently flat lying gabbro, termed the Silver Creek Gabbro, was intersected.

The mafics occur as strongly sheared to massive units with variable feldspar, mafic crystal, and epidotized lapilli contents. Felsic tuffs vary from sericitic crystal tuffs to chloritic crystal tuffs with trace to substantial quartz eyes and feldspar grains. Rare lapilli occur locally. Andesitic tuffs were only distinguishable from chloritic felsic and mafic tuffs by chemical composition, but they are occasionally biotitic or quartz phyric. Dacites were intersected on sections $29+50 \mathrm{~W}$ and $31+00 \mathrm{~W}$ and are massive quartz and feldspar rich units that may be welded tuffs or flows. They have a strong lineation with stretched quartz eyes, reaction rims on the feldspar crystals and minor collapsed pumice.

In many respects, the lithologies seen at Silver Creek are similar to those seen on the Chip claim block to the west, but the distribution of lithologies varies. Gabbros are identical to those intersected on the Chip drilling in occurring as fine grained plagiophyric dykes and chilled margins to coarse grained, locally ilmenite rich, cores. The McLaughlin


Ridge Formation units are all similar to the units intersected in the Chip drilling except for the dacites. The distribution of units in the Silver Creek Area is less bimodal than on the Chip claims, where no dacites and fewer andesites and rhyodacites occur.

Structure
Apparent attitudes of a few tuffaceous and sedimentary beds indicate a strike of about llo degrees with dips between 75 degrees south and 80 degrees north. Foliations are steeply dipping and parallel to the strike of the units. Morrice (1988, in preparation) interprets that small tight folds are present and that the stratigraphy has a overall shallow dip. Numerous steeply-dipping faults and many gabbroic intrusions further complicate the structural geology.

## MINERALIZATION AND ALTERATION

The objective of the 1988 program was to follow up interesting results obtained on section $31+00 \mathrm{~W}$ in 1985. The results are as follows:

|  | From | To L | $\underset{(\mathrm{m})}{\text { Length }}$ | $\begin{gathered} \mathrm{Cu} \\ (\%) \end{gathered}$ | $\begin{aligned} & \mathrm{Pb} \\ & (\%) \end{aligned}$ | $\begin{aligned} & \mathrm{Zn} \\ & (\%) \end{aligned}$ | $\begin{aligned} & \mathrm{Au} \\ & (g / t) \end{aligned}$ | $\begin{aligned} & \mathrm{Ag} \\ & (\mathrm{~g} / \mathrm{t}) \end{aligned}$ | Ba (\%) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CH85-10 | 43.3 m | 50.8 m | 7.5 | 0.17 | 0.01 | 1.01 | 0.01 | 1.1 | 0.12 |
| Trench* | $2+305$ | $2+31.5 S$ | S 1.5 | 1.01 | 0.89 | 2.40 | 0.50 | 19.5 | 0.17 |
| $(*=$ grab sample $)$ ( ${ }^{\text {a }}$ ( ${ }^{\text {a }}$ |  |  |  |  |  |  |  |  |  |

The 1985 trench showing could not be relocated this year and thus its mode of occurrence and host lithology could not be examined. Drill hole CH85-10 was relogged and the mineralized interval was sampled for lithogeochemistry. The host rock is a basaltic-andesite to andesitic lapilli tuff with approximately 10 to 15 \% wispy pyrrhotite with sphalerite and minor chalcopyrite. The tuff may be sodium depleted (1.24 \% Na20) but this level is within the normal range for mafic tuffs. The Ba level is elevated for mafic tuffs; however, Zn may interfere with the Ba analysis during X-Ray Fluoresence. This year's work has not determined whether these occurrences are remobilized by the Silver Creek Gabbro or are volcanogenic in nature.

An approximately 30 metre thick zone of altered felsic tuffs was intersected by CH88-65 and CH88-69 (see Figures 68, 69 and 73) and exposed by trenching on line $25+00$ W 80 metres north of the baseline. The alteration is located near the top of the McLaughlin Ridge Formation and may correlate with the altered felsic tuffs of the Randy Active Tuff
to the west on the Holyoak 3 claim. The correlation is supported by a similar stratigraphic position within the McLaughlin Ridge Formation and a similar chemical signature: Na2O < $1.0 \%$ moderate Ba with average 1200 to l400, and elevated Mn with an average of greater than 500 ppm . The IP anomaly that corresponds to the 30 m of altered tuff is on strike with the Randy Active Tuff IP anomaly on the Holyoak 3 claim, but can only be traced from lines $20+00 \mathrm{~W}$ to $31+00 \mathrm{~W}$. A few other thin altered felsic tuffs were intersected in CH8867, 69 and 70 and some of these (see table) have local weak anomalous Zn mineralization. Altered intersections in CH88-70 (395.7 to 403.1) and CH88-65 (441.1 to 453.4) are of particular interest as the drill holes were shut down in altered felsic tuffs. The altered felsic intervals are as follows:

| Hole \# | $\begin{aligned} & \text { From } \\ & (\mathrm{m}) \end{aligned}$ | $\begin{aligned} & \text { To } \\ & (\mathrm{m}) \end{aligned}$ | Length (m) | $\begin{array}{r} \mathrm{Na} 2 \mathrm{O} \\ (\%) \end{array}$ | $\begin{array}{r} \mathrm{SiO} 2 \\ (\%) \end{array}$ | $\begin{aligned} & \mathrm{K} 2 \mathrm{O} \\ & (\%) \end{aligned}$ | $\begin{aligned} & \mathrm{CaO} \\ & (\%) \end{aligned}$ | Mgo <br> (\%) | $\begin{aligned} & \mathrm{Ba} \\ & (\mathrm{ppm}) \end{aligned}$ | A.I. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CH88-67 | 145.0 | 152.0 | 7.0 | $<0.01$ | 66.9 | 5.20 | 4.05 | 1.17 | 1600 | 61 |
| CH88-67 | 209.0 | 219.9 | 10.9 | 0.93 | 68.3 | 3.75 | 3.55 | 1.57 | 905 | 54 |
| CH88-67 | 248.2 | 251.7 | 3.5 | $<0.01$ | 64.4 | 5.71 | 1.22 | 1.25 | 3420 | 85 |
| CH88-65 | 430.7 | 441.1 | 10.4 | 0.96 | 61.3 | 3.07 | 3.36 | 1.83 | 1220 | 53 R |
| CH88-65 | 441.1 | 453.4 | 12.3 | 0.32 | 69.5 | 3.19 | 2.40 | 1.30 | 1210 | 62 R |
| CH88-69 | 97.6 | 102.7 | 5.1 | 0.54 | 68.4 | 2.64 | 3.85 | 1.51 | 1350 | 49 |
| CH88-69 | 153.7 | 173.8 | 20.1 | 0.07 | 76.2 | 2.82 | 1.15 | 0.63 | 2070 | 74 |
| CH88-69 | 179.9 | 193.0 | 13.1 | 0.23 | 68.1 | 2.57 | 4.16 | 1.42 | 997 | 48 |
| CH88-70 | 82.7 | 90.2 | 7.5 | 0.92 | 68.1 | 3.23 | 3.47 | 1.15 | 1150 | 50 |
| CH88-70 | 272.0 | 275.7 | 3.7 | samp | ed on | $y$ for | c ass |  | 1288 | ? |
| CH88-70 | 395.7 | 403.1 | 7.4 | $<0.01$ | 73.7 | 4.11 | 1.46 | 1.28 | 2400 | 79 |

(* = interval contains anomalous Zn locally; $\mathrm{R}=$ Randy Active Tuff intersection)

The anomalous Zn intersections are as follows:

| Hole \# | $\underset{\mathrm{m}}{\text { From }}$ | $\begin{aligned} & \text { To } \\ & \text { m } \end{aligned}$ | $\underset{\mathrm{m}}{\text { Length }}$ | $\begin{aligned} & \mathrm{Cu} \\ & \mathrm{ppm} \end{aligned}$ | $\begin{aligned} & \mathrm{zn} \\ & \mathrm{ppm} \end{aligned}$ | $\begin{aligned} & \mathrm{Pb} \\ & \mathrm{ppm} \end{aligned}$ | $\begin{aligned} & \mathrm{Au} \\ & \mathrm{ppb} \end{aligned}$ | $\begin{aligned} & \mathrm{Ag} \\ & \mathrm{ppm} \end{aligned}$ | Ba ppm |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CH88-69 | 99.0 | 99.5 | 0.5 | 71 | 2600 | 16 | 13 | <0.5 | 960 |
| CH88-70 | 272.0 | 275.7 | 3.7 | 113 | 1396 | 12 | 119 | <0.5 | 1288 |
| CH88-70 | 401.4 | 402.4 | 1.0 | 56 | 3000 | <5 | 37 | <0.5 | 270 |

Trace chalcopyrite occurs locally in pyritic mafic tuffs in the Silver Creek Area. About 2 to $3 \%$ pyrite with trace chalcopyrite occurred over the entire length of hole CH88-7l. Copper levels were low with the highest being 475 ppm Cu from 138.0 to 141.0 m in CH88-7l. Weakly anomalous levels in $\mathrm{Zn}, \mathrm{Au}$ and As also occur locally. These mineralized mafics may correlate to those found at the Sharon Showing Area.

## NORTHERN STRATIGRAPHY

Drilling in the Watson Creek, Powerline, Holyoak and Silver Creek Areas intersected a distinct zone of pyritic altered felsic tuffs and these intersections appear to correlate indicating a promising horizon with a minimum strike length of 10.9 km . The altered zone also appears to correlate with the Randy zone on the adjacent Laramide property and consequently is referred to as the Randy Active Tuff. The correlation is based on similar stratigraphic location, geochemical signature of the felsic tuff, and the type of mineralization intersected.

The altered felsic tuffs were intersected in the same stratigraphic location near the northern limit of the McLaughlin Ridge Formation on the northern limb of the broad antiform that strikes through the property. The stratigraphic sucession from north to south is as follows: gabbroic to dioritic intrusions within Cameron River Formation sediments; about 100 m of mafic tuffs and flows; gabbroic intrusion; unaltered felsic tuffs; 30 to 200 m of pyritic altered felsic tuffs; unaltered felsic tuffs and lastly mafic tuffs. The stratigraphic columns for the areas are shown and correlated in Figure 73.

The altered felsic tuffs display strongly elevated Mn levels with an average of 500 to 600 ppm , this contrasts with the Anita Active Tuff that has an average of 161 ppm . The Ba levels are weakly elevated with most values being between 1000 and 1200 ppm as opposed to typically 600 ppm for unaltered felsic tuff samples and 2000 ppm for Anita Active Tuff samples. The altered tuffs are all sodium depleted with less than 1.0 \% Na20. The sodium depletion is associated with variable strength K2O enrichment. There is local CaO enrichment, which may be associated with the Na2O depletion or a different alteration event.

Mineralized intersections were restricted to the Holyoak and Powerline Areas. The mineralization is weak over short intervals and displays either polymetallic or Zn rich signatures similar to Abermin's intersections through the Randy zone. Some of the more anomalous intersections are as follows:

SILVER CREEK
AREA
Section $25+00 \mathrm{~W}$


## LEGEND



Nanaimo Group Sediments
Late Matic Intrusions
Felsic Intrusive
Intermediate intrusive Mafic intrusive Ultramafic Intrusive Sediments Felsic Volcanics Intermediate Volcanics Mafic Volcanics Ulitamafic Volcanics

Geological contact

Pyritic Felsic Tuff with
Pyritic Felsic
$<~$
I

VErtical scale 1:5000

| FALCONBRIDGE LIMITED |  |
| :---: | :---: |
| chemainus joint venture <br> NORTHERN STRATIGRAPHY |  |
|  | Date; Nov 1988 |
|  |  |
| Project No. 116 | Figure: 73 |


| A | \# | $\begin{aligned} & \text { From } \\ & (\mathrm{m}) \end{aligned}$ | $\begin{aligned} & \text { To } \\ & (\mathrm{m}) \end{aligned}$ | Length <br> (m) | $\begin{aligned} & \mathrm{Cu} \\ & (\%) \end{aligned}$ | $\begin{aligned} & \mathrm{Zn} \\ & (\%) \end{aligned}$ | $\begin{gathered} \mathrm{Pb} \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} \mathrm{Au} \\ (\mathrm{ppb}) \end{gathered}$ | $\begin{gathered} \mathrm{Ag} \\ (\mathrm{ppm}) \end{gathered}$ | Ba (ppm) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| H | CH88-60 | 197.4 | 197.9 | 0.5 | 0.03 | 2.04 | 6 | 103 | 1.3 | 1200 |
| H | CH88-62 | 117.0 | 118.0 | 1.0 | 0.02 | 0.33 | 129 | 45 | 0.9 | 460 |
| H | CH88-63 | 50.0 | 51.5 | 1.5 | 0.31 | 0.36 | 860 | 49 | 7.2 | 950 |
| P | CH88-75 | 116.1 | 117.7 | 1.6 | 0.01 | 0.16 | 8 | 10 | 0.4 | 980 |
| P | CH88-75 | 138.0 | 138.7 | 0.7 | 0.03 | 0.12 | 463 | 50 | 1.3 | 1200 |
| P | CH88-75 | 140.3 | 140.9 | 0.6 | 0.09 | 0.14 | 29 | 40 | 0.6 | 1000 |
| P | CH88-41 | 181.6 | 182.1 | 0.5 | 0.09 | 0.22 | 20 | 140 | 2.8 | 1040 |
| P | CH88-41 | 198.4 | 199.4 | 1.0 | 0.07 | 0.29 | 142 | 55 | 1.5 | 1320 |

( $\mathrm{H}=$ Holyoak Area, $\mathrm{P}=$ Powerline Area )
The pyritic altered tuff, referred to as the Randy Active Tuff, displays considerable variation in thickness with a thickness of about 40 m on line $2+00 \mathrm{E}$ in the Watson Creek Area, about 100 m in the Powerline Area, 200 m in the Holyoak Area, and 30 m in the Silver Creek Area. The felsic tuffaceous sequence, which hosts the Randy Active Tuff, also varies from area to area with thicknesses from 150 to 335 metres, the thickness of the unaltered felsics, which occur immediately north and south of the altered tuff, vary inversely with the thickness of the altered tuff. Kapusta et al. (1987) indicates that the felsic sequence (termed the Randy Rhyolite by Abermin) varies from 250 metres thick at their eastern boundary to 370 metres at the western boundary of the TL claim. The Randy Active Tuff cannot be correlated by outcrop or IP anomaly trend from the Watson Creek Area to the Silver Creek Area; however, the Randy Active Tuff appears to be continuous over at least that interval indicating a minimum strike length of 10.9 kilometres.

The occurrence of 100 to 200 m of altered felsic tuffs with encouraging geochemical anomalies in the Powerline and Holyoak Areas indicates that drilling should continue in these areas and along strike between these areas. The thickness of the felsic sequence indicates that the volcanic source is near the eastern boundary of the Chip claims and this area should be tested as it represents our best chance of intersecting economic sulphides along a very promising trend.

SHARON AREA

## INTRODUCTION

The objective of the 1988 field program on the Brent 1 claim was to further evaluate the economic potential of the area. The field work concentrated on the Sharon showing area located within the east-central portion of the claim. Work consisted of geological mapping, approximately 680 m of trenching in 3 trenches, and relogging and alteration sampling of diamond drillholes CHEM85-7 and CHEM85-8. The pyritic nature of the underlying rock units and minor chalcopyrite occurrences in the area has encouraged exploration in the past. For further information on the exploration history of the Brent claim the reader is refered to the section on Property History.

## GEOLOGY

The Brent 1 mineral claim is underlain predominantly by volcanics of the McLaughlin Ridge Formation that are intruded by gabbros of the Karmutsen Formation. The geology of the area is shown on the $1: 10,000$ geological map (Figure 5).

The Sharon area is comprised of a complex assemblage of predominantly pyroclastic volcanics, volcanic flows and lesser volcaniclastics. A thick sequence of mafic flows and pyroclastic volcanics dominates the central portion of the area. To the south lies a thick succession of felsic pyroclastics and lesser volcanic flows. The exact stratigraphic relationship between the felsics and mafics is currently not fully understood. Karmutsen gabbroic intrusives are exposed to the north, are intersected at depth in drill core, and presumably underlie the area. Lower greenschist facies metamorphism and a pervasive cleavage has converted the rock to schists, often obliterating original textures. Variable chlorite and sericite alteration strongly influences the colour of the rock making field mapping difficult.

The Mafic volcanic sequence is comprised of medium to dark green, massive flows and lithic and ash tuffs. Possible evidence of pillowed mafic flows occur in trench $1+50 \mathrm{~W}$ (Figure 76). The pillows are poorly defined, up to 1 m thick, and elongated parallel to foliation. Poorly defined selvages range to several cm and are distinguised by medium to dark green chlorite alteration. Overall alteration consists primarily of variable chlorite and sericite alteration with ,disseminated to blebby, pyrite.

Medium to dark green, heterolithic tuff breccias, lapilli tuff, and crystal tuffs comprise the intermediate volcanics. These units are found primarily within the mafic succession, and along its southern border. Lithic clasts are predominantly intermediate to felsic ("cherty") in composition with lesser, indistinct (?), mafic clasts. Fragments show strong elongation parallel to foliation. Pyrite mineralization is prevalent throughout these variably chlorite sericite altered intermediate volcanics.

The thick felsic volcanic sequence found to the south of the mafics include quartz phyric and quartz feldspar phyric varieties of ash and lapilli tuffs and massive felsic flows. Lithic fragments within the lapilli units consist of dark grey to medium green clasts, many of which contain disseminated pyrite, and up to $5 \%$ ash size feldspar crystals. The white to medium green felsic units are variably sericite and chlorite altered with weak silicified sections found locally. Massive mafic flows are still observed within the felsic succession suggesting a probable bi-modal sequence.

## STRUCTURE

The structure of the Sharon area remains poorly understood. Widespread deformation has resulted in a well defined, steeply dipping, foliation direction of 120 to 130 degrees. The 1988 field work has delineated a broad regional $N-N W$ trending anticlinal structure with the Sharon area lying within the northeast limb of the antiform. Evidence of internal folding (or flat lying volcanics ?) within the antiform limb is suggested by the shallow dipping beds found in drill core (CH85-7) and by the exposed mafics to the south (trench $1+50 \mathrm{~W}$ ) which are directly overlain by felsic volcanics in drill core. Further evidence is a minor fold axis at $11+50$ S in trench $1+50 \mathrm{~W}$. This probable parasitic fold has a moderate 66 degree plunge to the north-west. The presence of shallow eastern dipping mineral lineations, at approximately 110 degrees, suggests the rock units plunge to the east.

Faults, shears and kink bands show limited sinistral motion at variable azimuths ranging from 30-50 degrees. Gabbro to the north appears to have been faulted upwards by an E-W trending fault, however, the exact nature of this gabbroic body is unknown other than that it exists at depth as indicated in drillcore.

## DRILL AND TRENCH RESULTS

Relogging and alteration sampling of the two 1985 diamond drillholes in the Sharon area revealed numerous
strongly altered zones within both drill holes. The most significantly altered interval, with associated base and precious metal mineralization, is encountered in a mafic unit in CH85-7 from 96.0 to 156.7 meters. The interval shows strong Na2O and CaO depletion with no concomitant K2O enrichment. The 1985 geochemistry samples indicate anomalous Cu and Ag throughout this zone peaking at $1.14 \% \mathrm{Cu}$ and $3.2 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$ (see table on section $1+50 \mathrm{~W}$, Figure 76)74) Elevated barium levels ranging from 1010 to 2210 ppm are encountered within the felsics directly above (39.4-88.4 m) and below (156.7-162.9) the strongly altered zone. A moderately altered felsic interval from 39.4 to 62.9 meters displays moderate ( $1 \%$ ) Na2O depletion and K2O enrichment ( $>3 \%$ ) along with strong CaO depletion (<1\%) and elevated (1940-2210 ppm) barium.

Sampling of diamond drillhole CH85-8 encountered 3 strongly (<l\%) Na2O depleted zones at 13.6 - $39.0 \mathrm{~m}, 120.7$ l22.8, and l69.l - 169.7 in felsic, intermediate, and mafic units, respectively. Strong K 20 enrichment ( $>4 \%$ ) is encountered in the latter interval and strong CaO depletion in the initial two intervals. Barium levels are higher throughout CH85-8 with respect to CH85-7 with relatively sharp increases in barium, up to 2740 ppm , within the altered intervals. The most significant mineralization occurs in an unaltered mafic flow from 8.5-10.8 meters containing elevated Cu ( 799 ppm ) and Zn ( 240 ppm ) levels.

## REFERENCES

Brandon,M.T., Orchard,M.J., Parrish,R.R., Sutherland Brown,A., Yorath, C.J., 1986. Fossil ages and isotopic dates from the Paleozoic Sicker Group and associated intrusive rocks, Vancouver Island, British Columbia; in Current Research Part A, Geological Survey of Canada, Paper 86-1A, p. 683-696

Britten, R.M., 1984. Geological and geochemical report on the Oak group, Victoria Mining Division, Vancouver Island. Esso Resources, Canada Limited. 37p.

Clapp, C.H., 1912. Southern Vancouver Island. Geological Survey of Canada Memoir No. 13. 208p.

Clapp, C.H., and Cooke, H.C. 1917. Sooke and Duncan Map-area, Vancouver Island. Geological Survey of Canada Memoir No. 96. 445p.

Enns, S, Pattison, J., Money, D., 1987. 1987 Drilling report on the Chemainus Joint Venture. Falconbridge Limited. 32p.

Enns, S, 1987. 1986 Drilling report on the Chemainus Joint Venture, (Chip 1, Holyoak 3 claims). Falconbridge Limited. 21p.

Enns, S, and Hendrickson, G., 1986. 1985 Final report on the Chemainus project. Falconbridge Limited. 63p.

Everett, C.C. and Cooper, W.G., 1984. Geological, geochemical and geophysical report on the Chemainus project, Victoria mining division, Esso Resources Canada Limited. 58p.

Everett, C.C. and Cooper, W.G., 1984. Geochemical and geophysical report on the Chemainus project, Chip lo to 7 claims, Victoria mining division, Esso Resources Canada Limited. 27p.

Fyles, J.T., 1955. Geology of the Cowichan Lake Area, Vancouver Island, British Columbia. British Columbia Department of Mines Bulletin No. 37. 72p.

Hendrickson, G.A., 1988. Geophysical report, Borehole EM survey, Chemainus Joint Venture, B.C. by Delta Geoscience Ltd. 13p.

Hendrickson, G.A., 1988. Geophysical report, Brief overview of Borehole EM surveys, Chemainus Joint Venture, by Delta Geoscience Ltd. 2p.

Juras, S.J., 1987. Geology of the polymetallic volcanogenic Buttle Lake camp, with emphasis on the Price Hillside,

Vancouver Island, British Columbia. Unpubl. PhD. Thesis, UBC.

Kapuska, J.D., Blackadar, D.W., and McLaughlin, A.D., 1987. 1987 Report for the Drilling conducted on the Lara Group I and Lara Group II. Victoria Mining Division, British Columbia. Abermin Corporation Report.

Massey, W.D. and Friday, S.J., 1987. Geology of the Cowichan Lake area, Vancouver Island. British Columbia Ministry of Energy, Mines and Petroleum Resources, Geological Fieldwork, 1986, Paper 1987-1. p. 223-229.

Massey, W.D. and Friday, S.J., 1988. Geology of the Chemainus River-Duncan area, Vancouver Island. British Columbia Ministry of Energy, Mines and Petroleum Resources, Geological Fieldwork, 1987, Paper 1988-1. p. 81-91.

Morrice, M, 1988. Geology of the Chemainus Joint Venture. Falconbridge Limited report.

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## APPENDIX 1

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SUMMARY OF 1988 PHASE I AND II DRILLING
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SUMMARY OF 1988 CHEMAINUS DIAMOND DRILL hOLES

| HOLE | LOCATION | DIRECTION | DEPTH | TARGET | RESULTS |
| :---: | :---: | :---: | :---: | :---: | :---: |
| CH88-38 | $\begin{aligned} & \text { CHIP } 1 \text { Claim } \\ & \text { Grid: } 47+00 \text { E: } 0+38 \mathrm{~S} \\ & \text { Elev: } 651.4 \mathrm{~m} \\ & \text { UTM: } 5416053.2 \mathrm{~N} 431803.0 \mathrm{E} \end{aligned}$ | $-65 / 210 \mathrm{Az}$ | 438.0 m | Dound ip <br> extension of the PEM conductor in overlying holes CHEMB7- 34 and 35 . | Hole intersected a 13 m gection of felgic tuffs with a 20 cm and a 30 cm zone of pyrrhotite - chalcopyrite mineralization. The best result was 50 cm of $2428 \mathrm{ppm} \mathrm{Cu}, 1.3 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$ and 30 ppb Au . The hole also indicated the structural complexity of the area. |
| CH88-39 | CHIP 1 Claim <br> Grid: $48+00 \mathrm{E}: 1+00 \mathrm{~S}$ <br> Elev: 647.6 m <br> UTM: 5415951.0N 431863.3E | $-50 / 210 \mathrm{Az}$ | 308.8 m | Eastern edge of PEM conductor detected from holes CHEM87-34 and 36 | Hole intersected a 1.0 m section of felsic lapilli tuff with $20 \%$ pyrrhotite and $4 \%$ chalcopyrite which assayed 4.6 : Cu $0.35 \% 2 \mathrm{n}$. 18.7 g/t Ag and 195 pob Au. The sulphides appear to be syngenetic. The intersection occurs at 150.5 m . approxmately where the PEM data indicated it nould occur. |
| C488-40 | ```CHIP 1 Claim Grid: 46+00 E: 1+00 S Elev: 627.5m UTM: 5416049.5N 431685.9E``` | $-50 / 210 \mathrm{Az}$ | 291.0 m | Western edge of per conductor in holes ChEMe7-34 and 36 . | Hole intersecter 17 metres of felsic tuff with weak porrhotite, chaicopyrite and pyrite nineralization. From 172.5 to 173.1 there is $15 \%$ pyrmetite and $2.5 \%$ coy which assaved $0.97 \% \mathrm{Cu} .3 .9 \mathrm{~g} / \mathrm{t}$ Ag and 35 ppo Au. The best intersection terminated against a gabtro dyke The hole intersected 40 m of active tuff with on average $3 \%$ pyrite and trace chalcopyrite. In the active tuff from 232 to 246 m there is anomalous Au (average is approximately 200 ppb) and Aq (average is approx. 3 g/t) |
| CH88-41 | ```CHIP L Claim Grid: 28+00 E: 4+97 N Elev: 593.3m UTM: 5417474.3N 430380.6E``` | $-50 / 210 \mathrm{Az}$ | 346.3 m | Geology between the powerline and the "Fulford Fault Splay". A weak shallow I.P. chargeability anomaly between $3+40 \mathrm{~N}$ and $4+20 \mathrm{~N}$ | Intersected a long sequence of steeply north dipping, weakly chloritic felsic crystal tutfs. A 108 m long interval contains trace-2 \% disseminated pyrite which explains the IP anomaly. Strongly carbonatized matic tuffaceous sediments occur in the last 75 m 's of the hole. |
| C488-42 | CHif 1 Claim <br> Grid: $30+00$ E: $4+80 \mathrm{~N}$ <br> Elev: 592.6m <br> UTM: $5417347.1 N 430548.88$ | $-501030 \mathrm{Az}$ | 196.9 m | "Powerline Anomaly". a coincident Cu and 2n so11 anomaly and deen and shallow IP | Intersected felsic tuffs to 40.9 m and then remained in aabbro. The If anomalies were caused by a zone of greater than $15 \%$ diaseminated ilmente. The cu soll anomaly |

## hargeablily

 a nomaly.Geology between the ponerline and the "Eulford Fault Splay".
"Active tuff" north of Stratigraphy is identical to CHEMP7-23. the "Anita Gabbro" and 80 m downdio of CHEMB7-23.
"Active tuff" 100 m east slong strike of holes CHEM86-18 and CHEMB7-37 and 130 m upd:P of CHEMB7-27

Intersected weaxly chioritic felgic tuffs and three intervals of carbonatized mafic tuffaceous sedinents. One interval included an 8.9 m section of tuffaceous conrich mafic material and several cobbles feldspar +1- quartz porphyritic fel a feldspa flow.

The southern contact of the "Anita Gabbro" dips 72 S. The hole intersected "Active Tuf:" with approximately 1 : disseminated pyrite and trace pyrrhotite, chalcooyrite and sphalorite imediately south of the gabbro. The hole ended in mafic porphyritic matic flows and matic tutfs intercalated with cherty argillites.

The nole collared in gabbro and aulckl passed into mafic volcanics/volcaniclastics which typically occur south of the "Active Tuff". The hole ended in cherty sediments (argillitebeds occur and the majority fine to the south. New information from this hole and CHOE-23 indicates that atratiaraphy south of the "Anita Gabbro" dips steeply south with a local flexure in the vicinity of CHEMA6-18 and CHEMB7-37 which creates an apparent dip of 55 N .
was caused by chalcopyrite in the gabbro and the Zn soil anomaly is not clearly explained. Dps are $75-85 \mathrm{~N}$. Neak pyrite mineral north of the "Anita Gabbro".

Stratiaraphy is similiar to that in holes 18 and 37 but eronomic mineralization is much weaker. The flexure which occurs on $28+00$ E docs not appear to extend to this section. Three bets of massive pyrite up to 5 cm thick occur over a 1.9 m interval

1

| HOLE | LOCATION DIRECTION | DEPTH | tarcet | RESULTS |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | In the "active tuff". A 3.8 m gabro dyke separates this interval from a 9.4 m thick sphalerite-chal copyrite bearing felsic lapilli tuff. A 3.7 m section, at the "felsic-mafic" contact contains $0.15 \% \mathrm{Cu}, 0.89 \% \mathrm{Zn}$ and 198 ppb Au. |
| CH88-47 | ```CHIP l Claim -50/210 Az Gr1d: 29+00 E; 2+10 S Elev: 505.0m UTM: 5416799.6N 430125.5E``` | 294.4 m | Stratigraphy on section $29+00$ E south of the "active tuff". | The hole collared in a secuence of mafic flows. tuffs and tuffaceous sediments that typically occurg south of the "hctive Tuff". It then passed into cherty black argillites followed by felsic tuffareous sediments and lithic tuffs. |
| C498-48 | ```CHIP l Claim -45/210 Az Grid: 27+00 E: 1+61 S Elev: 456.5m UTM : 5415951.4N 429985.55``` | 256.3 m | "Acrive tuff" 140 m updip of CHEM87-28 and 100 m west along strike of holes CHEMSD-1S and CHEMB737. | The tole collared in the "Anita Gabbro" and intersected 60 mb of "active tuff" south of the gabbro. Disseminated and locally massive pyrite occurs throughout the "active tuft". A 1.3 m interval, 6 m from the top of the "active tuft" <br> (ie felsic-mafic contacti. grades 0.70: Cu. $5.4 \mathrm{~g} / \mathrm{t}$ Ag and $0.1 \mathrm{~g} / \mathrm{t}$ Au. Mafic ruffs and matic porphyritic flows with minor chert: sediments and sccasional gabsro dykes occur south of (abovel the "arive tuti". |
| CH88-49 | ```CHIP 1 Claim -45/210 Az Grid: 26+98 E; 2+18 S Elev: 470.7m UTM: 5416897.4N 429956.0E``` | 252.1 m | "Active tuff" 100 m west along strike from holes CHEM85-18 and CHEM87-37 and up dip from CHe8-46. | Hole collared in pyritic "active tucf" with 1 to $7 \%$ disseminated and banded pyrite. A mafic porphyritic sill. identical to those that occur above the (south of) the "active tut.". intrudes the "active tufi" between 46.7 and 52.2 m . The "active tuff" hosts 4.9 m of strong mineraliztion which assayed $2.30 \% \mathrm{Cu}$. $3.66 \% \mathrm{zn}, 0.49 \mathrm{~g} / \mathrm{t} \mathrm{Rg} .1 .90 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ and 2.11: Ba 1.3 m from the top of the "active tuif". The mineralization consists of pyrite, pyrrhotite, chalcopyrite and sphalerite. A thin gabbro dyke has been intruded alone the felsic-mafic contact" at the top of the "active tuff". Mafic tuffs and mafic porphyritic flows with minor cherty, arqillaceous sediments nccur above the "felsic-matic contact". mafic-felsic contact. |
| C488-50 |  | 300.5 m | "Active Tuff" on section $30+00 \mathrm{E}$. | Hole collared iust north of the Fulford Fault Splay. The tauit is very sharp and |

## RESULTS

Elev: 510.3n
UTM : 5416854.9N 430278.4E

## CHIP 1 Claim

Grid: 26492 E: $3+10 \mathrm{~S}$
Elev: 495.0m
UTM : 5416817.7 N 429904.4 E

## CHIP 1 Claim

Grid: $31+00 \mathrm{E}$; $1+90 \mathrm{~S}$
Flev: 524 6m
UTM : 5416718.7N $430307.3 E$

CH88-53
CHIP 1 Claim
Grid: $30+02 \mathrm{E}: 1+95 \mathrm{~S}$
Elev: 511.0 m
$-50 / 210 \mathrm{Az}$ Grid: $30+02$,
UTM : 5415761.1 N 430229.8 E

Shallon I.P.
chargeabillty
anomaly $(31.5 \mathrm{msec}$ south of the "active tuff" be ween $3+60$ and $4+00 \mathrm{~S}$ and a V.L.F. conductor at $3+60$ s.
"Active tuff" 100 m updip from CHEM87-24
"Active tuff" 100 updip from CH88-50 and stratigraphy along section $30+00 \mathrm{E}$
separates Sicker Group teisic tuffs to the north from almost 53 m of Nanalmo Group sedments which rest unconformably on Sicker Group felsic tuffs. A 6.1 in wedge of Sicker felsic volcanics has been thrust into the Nanaimo sediments. The elgic tuifs at the unconformity weakly choritic but becoace less chloritic with depth. $A .0 \mathrm{~m}$ interval 10 \% pyrite, which is disseminated throuqhout the matrix. A 2.4 m interval of teisic lapilli tuff contains up to $7 \%$ disseminated sphalerite, 5\% pyrite and 1.5\% chalcopyrite 5.0 m from the "felgicmafic contact". The interval assayed $0.48 \% \mathrm{Cu}, 3.51 \% \mathrm{Zn}, 27.8 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$ and 1.81 g/t Au.

Hole collared in gabbro and entered cherty black argimite with 4 : fracture filling oyrite, stroncly carbonatized matic lapilli tuffs with up to 2 \% ovrite and biotite aliered tufis intercalated with cherts. The I.P. anomaly is caused pyritic and weakly graphitie arg me v.l....

The hole collared south of the "active tuff" and intersected felsic tutfite/wacke intercaiated with chert, arcillite and anor ammounts of mafic tuff intruded by matic porphyrisic sills. The hole indicates that stratigraphy dips < 70 s .

Hole collared in mafic flows and tuffaceous sediments that typically occur south of (above) the "Active Tuff". indicating that stratigraphy dips <75 S After passing throma gabbro and chert black argillites the hole intersected over 200 m of barren, reworked, coarse. quartz grain rich felsic tut: with lesser ammounts of felsic ash tuff. The tuffs are very masolve and bedding is rare bu where it is recoonizable it is at an extremely low angle to the core axis.

CHIP 1 Claim $\quad-50 / 210 \mathrm{Az}$
Grid: $39+00 \mathrm{E}: 4+10 \mathrm{~S}$
Elev: 520.10
UTM: 5416090.1 N 430933.8 E

UTM: 5416090.1N 430933.eE
HOLYOAK 3 Claim Grid: $50+00 \mathrm{~N} ; 7+72 \mathrm{~N}$ Elev: 914.0 m

HOLYOAK 3 Claim
Grid: $50+00 \mathrm{f} ; 10+38 \mathrm{~N}$
Grid: $90+00 \mathrm{~h}$; section

Colncident deep and shallow IP chargeblity anomalies entred at $5+00 \mathrm{~S}$. The anomalies are 57.0 and 49.3 mesec

Stratigraphic section

Stratioraphic information and coincident weak (14 to 16 msec) deep and shallow IP chargeablity anomailes at $8+80 \mathrm{~N}$.
cream-brown sphalerite

Hole collared in pyritic felsic tufis from 6.4 to 14.2 m with 3 to 5 i disseminated pyrite and trace mariposite. From 14.2 to 242.4 there is dominantly mafic tuffs with numerous felsic to internediate crystal tuffs constituting approximately $30 \%$ of the interval. The mafic tuffs are strongly carbonatized with up to $40 \%$ white calcit streaks parallel to the foliation, calcite averages 5 to 10 : in the mafic tuffe and is rarely present in the felsic tuffs. From 242.4 to 363.0 . end of hole, there are mainly felsic crystal tuffs to volcanic wackes with variable weak chloritization and trace < 1 m mafic tuff or s.11s. there was a so cmargillite be from 335.5 to 336.0. The upper portion of the drill hole correleted with ches-9 degrees.

Hole intersected tilsic guartz eys tufis with occasional intervaze of argillaceous sediments less than 10.0 m lons in core. These sediments are not bedded and have churned up appearance sugges:ing that hey are slump deposits. Correlations with hole cH8g-60 show that stratigraphy dies steeply :o the north.
42 The felsic tufts contain an average of 2 \% and locally up $08 \%$ disseminated pyrite. There is no particular build-up of sulphides beneath the anomaly. a 2.0 m interval of felsic tuft with $4 \%$ pyrite and 0.5 : sphalerite occurs at 117.0 m .

Hole intersected chioritic quartz eve felsic volcanics. minor maqnetic mafic telsic volcanics. ininor maqnetic mafic
tuff and interbeddec felsic and argillite. Minor apherite in several quart carbonate voins occurs over an interval of 2 metres and
$30 \mathrm{~cm} 1 \%$ sphalerite 98.3 to 98.6 metre Correlation with tole cheg- 5 . difficult but dips may be 60 decress to north. IP caused by intervals of 2 to $3 \%$ pyrite.

HOLYOAK 2 Claim Grid: $31+00 \mathrm{~h}$ : l+30 S Elev: 797 m
hotyoak 2 Claim
Gric: $25+00 \mathrm{~h}$ Elev: 899 m
$-50 / 180 \mathrm{Az}$
Straticraphy north of the IP chargeability anomalies between $1+80 \mathrm{~N}$ and $0+40 \mathrm{~S}$.
Mineralizatio downdip from coincident deep and shallow IP chargeability and VLF anomalies.

9

## HOLYOAK 2 Claim Grid: $29+50 \mathrm{H}: 3+50 \mathrm{~S}$

 Elev: 816 mCries-68

> HOLYOAK 2 Claim Grid: $29+50 \mathrm{~W}: 0+05 \mathrm{~s}$ Elev: 36 m
-498-69

## HOLYOAK 2 Claim

Grid: $25+00 \mathrm{~W}: 2+20 \mathrm{~N}$
Elev: 905 m
$-50 / 180 \mathrm{Az}$
214.9 m incormation.
$-50 / 180 \mathrm{Az}$ Stratigraphic
information.

10

| HOLE | Location | direction | Dертн | TARGET |
| :---: | :---: | :---: | :---: | :---: |
| СН88-71 | holyoax 2 Claim <br> Grid: $25+00 \mathrm{H}: 2+25 \mathrm{~S}$ <br> Elev: 897 m | -50/180 Az | 254.8 m | Stratigraphic <br> information and <br> a deep IP <br> chargeability anomaly <br> centred at $3+20 \mathrm{~S}$. |

[^0]SUMMARY OF 1988 phase if chemainus diamond drill holes

| HOLE | LOCATION | DIRECTION | DEPTH | TARGET | RESULTS |
| :---: | :---: | :---: | :---: | :---: | :---: |
| CH88-72 | ```CHIP l Claim Grid: 46+00 E; 4+36 S Elev: 558 m UTM: 431518 E; 5415759 N``` | -50/030 Az | 327.4 m | Test "Active Tuff" about 100 m downdip of CH88-40 and determine if it has a southerly dip. | Intersected "Active Tuff" from 239.4 to 246.4 m and from 266.3 to 277.5 m . The first interval contains 5 to $7 \%$ pyrite and trace chalcopyrite and sphalerite and the other 5 \% pyrite. The dips vary locally due to gabbro dykes dilating the stratigraphy, but appear to be between 70 degrees to the south and vertical. |
| CH88-73 | CHIP 1 Claim Grid: $30+00 \mathrm{E} ; 2+87 \mathrm{~s}$ Elev: 530 m UTM: $430175 \mathrm{E} ; 5416680 \mathrm{~N}$ | $-45 / 030 \mathrm{Az}$ | 304.5 m | Test "Anita <br> Horizon" 100 m updip of CH88-50 and 200 m east of CH87-37. <br> Also determine true dip of stratigraphy on this section | Intersected the "Anita Horizon" at 450 m 's elevation. Sericitic felsic lapilli tuff occurs immediately below the contact and hosts 4-7 \% disseminated pyrite with trace chalcopyrite, sphalerite and an occasional band/bed/ stringer of massive pyrite over 18.4 m . The "Anita Horizon" dips 66 S . The hole ended at the Fulford Fault Splay which dips 80 N . |
| CH88-74 | ```CHIP 2 Claim Grid: 24+00 E; 1+00 S Elev: 502 m UTM: 429155 E; 5417760``` | -45/210 Az | 312.4 m | Test the "Anita Horizon" at 300 m elevation. | Intersected the "Anita Horizon" at 342 m 's elevation. Sercitic felsic lapilli tuff hosting $2-8$ pyrite with trace chalcopyrite and sphalerite extends for 26.2 m below the contact. The felsic tuff hosts semi-massive banded pyrite for 0.9 m 's from the "Anita Horizon". The hole ended in the mafic porphyritic mafic flow/intrusion/tuff sequence which typically occurs immediately south of the "Anita Horizon". |
| CH88-75 | $\begin{aligned} & \text { CHIP 1 Claim } \\ & \text { Grid: } 30+00 \mathrm{E} ; 3+70 \mathrm{~N} \\ & \text { Elev: } 582 \mathrm{~m} \\ & \text { UTM: } 430497 \mathrm{E} ; 5417258 \mathrm{~N} \end{aligned}$ | -50/030 Az | 238.0 | Test the Powerline South IP chargeability anomaly. | Intersected predominantly felsic tuffs from 5.5 to 197.6 m . The tuffs contained trace to 5 \% pyrite from 21 to 146 metres. The pyritic interval, which is the cause of the deep and shallow IP chargeability anomalies, also was locally chalcopyrite bearing with the best interval containing 1 of chalcopyrite from 140.3 to 140.9 m . The hole terminated in ilmenite rich gabbro, the cause of the Powerline North IP anomaly. |
| CH88-76 | ```CHIP 2 Claim Grid: 25+07 E; 1+60 S Elev:492 m``` | -45/210 Az | 180.4 | $\begin{aligned} & \text { Test the "Anita } \\ & \text { Horizon" } 200 \mathrm{~m} \\ & \text { east and } 40 \mathrm{~m} \text { below } \end{aligned}$ | Hole collared in the "Anita Gabbro" and intersected 19.1 m 's of "Anita Active Tuff" on the southern flank of the gabbro. |

target

Test deep I.P. charge ability anomaly and stratigraphic section along $2+00 \mathrm{E}$.

CH88-49.

Stratigraphic section
$2+00 \mathrm{E}$.

Locate "Fulford Fault "play" and test the Anita Horizon" at 300 m elevation.

| CHIP 2 Claim | $-50 / 210 \mathrm{Az}$ | 328.3 |
| :--- | :--- | :--- |
| Grid: $2+00 \mathrm{E} ;$ | $1+95 \mathrm{~N}$ |  |

UTM : $428008 \mathrm{E} ; 5418485 \mathrm{~N}$

CH88-80
UTM: 429820 E; 5417045 N

```
CHIP 2 Claim
Grid: 22+00
Elev: 518 m
UTM : 429627 E; 5417296 N
```

rid: $2+00 \mathrm{E}$
UTM : $428008 \mathrm{E} ; 5418485 \mathrm{~N}$
CHIP 2 Claim
Grid: $22+07 \mathrm{E} ; 1+90 \mathrm{~S}$
Elev: 510 m
UTM : $42955 \mathrm{E} ; 5417165 \mathrm{~N}$
rid:
UTM : 42955 E ; 5417165 N

## RESULTS

The "Active Tuff" is cut by a gabbro dyke 4.3 m long in core. The "Active Tuff" south of the dyke contains $0.46 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ $33.2 \mathrm{~g} / \mathrm{t} \mathrm{Ag}, 1.44 \% \mathrm{Cu}, 6.84 \% \mathrm{zn}$ and 4.58 of Ba over a 2.6 m interval. This includes a 0.2 m section of semi-massive phalerite ( 29.8 g Zn ). This
ineralization is centred about 10 m from the Anita Horizon" and is in the same stratigraphic position as the mineralization in hole CH88-49 on section $27+00 \mathrm{E}$.

Collared in sericitic felsic tuffs with $1 \%$ pyrite to 27.1 m . Dominantly felsic tuffs with minor intercalated mafic tuffs with minor felsic tuffs were intersected to the end of the hole. The mafics were predominantly chloritic with biotite and garnets from 170 to 200 m .

The hole intersected the Fulford Fault Splay at $1+25 \mathrm{~S}$. The Anita Horizon was pierced at an elevation of 290 m 's. Almost 50 m 's of Anita Active Tuff hosting mal chalcopyrite and sphalerite was inter hole in the Southern Anita Mefic hole ended in the Southern Anita Mafic Sequence.

Mafic tuffs with minor interbedded mafic
lapilli tuffs and felsic tuffs were lapilli tuffs and. felsic tufts were garnets. Chloritic quartz crystal tuffs with minor mafic units dominate to the end the hole. Massive black argillite ( < $10 \%$ pyrite) with interbedded argillites and felsic volcanics extends from approx 182.0 to 199.0 m and lies directly below the I.P. chargeability anomaly.

The Anita Gabbro extended much further south than expected and nearly
obliterated the Active Tuff. The hole collared in the Anita Gabbro and cored through $102.1 \mathrm{~m}^{\prime} \mathrm{s}$ of it hefore reaching the Active Tuff. only 1.1 m 's of Active Tuff was intersected and it was barren of sulphides, even at the

## RESULTS

Anita Horizon which was pierced at an elevation of $428 \mathrm{~m}^{\prime} \mathrm{s}$. The hole ended in the Suothern Anita Mafic Sequence.

Intersected mostly very weakly mineralized to unmineralized felsic volcaniclastics with minor interbedded mafic tuffs and cherty and argillaceous sediments.

The hole collared in the "Anita Gabbro" and intersected gabbro over
116.4 m before reaching the "Active Tuff". A total of 11.8 m 's of "Active Tuff" was intersected. It is
intruded by a feldspar porphyritic gabbro dyke 3.3 m 's long in core. The "Active ver hosts in pyrite and of sphalerit the dyke. The sulphides are disseminat nd in stringers l-3 mm wide parallel to oliation The hole ended in the outhern anita Mafic Sequence

The "Anita Horizon" was pierced at an elevation of 208 m . The hole intersected 58.1 m 's of "Anita Active Tuff" below the "Anita Horizon". The "Active Tuff" hosts 1 to 15 \& disseminated and stringer stringer pyrite, nil to $3 \%$ sphalerite nil to $5 \%$ pyrrhotite and nil to trace chalcopyrite. The sphalerite is honey ellow and is concentrated in a 1.2 m interval. Pyrrhotite occurs for 2.2 m s from a gabbro dyke in which the hole ended. A 5.4 m long section of Anita Active Tuff, 10.0 m 's below the Anita Horizon assayed $0.13 \% \mathrm{Cu}, 0.04 \% \mathrm{~Pb}, 0.93 \%$ $\mathrm{Zn}, 7.6 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$ and $0.16 \mathrm{~g} / \mathrm{t} \mathrm{Au}$.
Strong sulphide mineralization was also intersected in the Cherty Sedimentary sequence. The mineralization consists of 0-25 spyrite over 1.0 m and is
ssociated with quartz-flooding. The

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APPENDIX 2
SECTION BY SECTION SUMMARY OF 1988 DRILLING
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SECTION 2+OOE, Chip 2 Claim, Watson Creek Area (Figure 58):

Objectives/Targets:

1. Develop stratigraphic section.
2. Test deep IP chargeability anomaly (2l msec) at $0+80 \mathrm{~N}$.

Holes Drilled:

| Hole \# | Location | Azimuth | Dip | Length | Objective |
| :--- | :---: | :---: | :---: | :---: | :---: |
| CH88-77 | $3+26 \mathrm{~N}$ | 210 | -50 | 242.5 m | 1 |
| CH88-79 | $1+95 \mathrm{~N}$ | 210 | -50 | 328.3 m | 1,2 |
| CH88-81 | $0+25 \mathrm{~N}$ | 210 | -50 | 221.5 m | 1 |

Results:
CH88-77 collared in sodium depleted (< $1.0 \%$ Na20) weakly pyritic felsic tuffs and the intersection ended at 27.1 m . The tuffs intersected were dominantly felsic to about $2+40$ N. From $2+40$ to $0+80 \mathrm{~N}$ hole $\mathrm{cH} 88-77$ and 79 intersected dominantly mafic tuffs, which were locally biotitic with garnets. Within the mafic tuffs were minor felsic tuffs, which act as marker horizons. South of the mafic tuffs are a package of mainly felsic tuffs with minor mafic to andesitic tuffs and sediments. At approximately $0+50 \mathrm{~N}$ a 6 m thick pyritic argillite was intersected, the argillite does not have anomalous base or precious metal contents. There is good correlation between units in the drill holes and the trench and they indicate that bedding varies from 74 to 85 degrees to the north. A small tight isoclinal fold was observed in CH88-77 and others may occur. Numerous fault zones occur, but the displacement appears to be minimal, with the probable exception of the large fault zone in $C H 88-81$, which may be the Fulford Fault Splay.

Summary:
The IP chargeability anomaly appears to be caused by the 6 m thick pyritic argillite at $0+50 \mathrm{~N}$. The sodium depleted pyritic felsic tuff may merit future investigation; however, it appears to be distal north side altered felsic tuff, correlative with the Randy Active Tuff, and does not merit a high priority follow up. The stratigraphic section should be extended to the south.

SECTION 22+00 E (Figure35):
Objectives/Targets:

1. The Anita Horizon at 300 and 420 metres elevation.

Holes arilled:

| Hole \# Location Azimuth | DipLength <br> $(\mathrm{m})$ | Objective |  |
| :--- | ---: | :--- | :---: |
|  |  |  |  |
| CH88-78 | -45 | 346.6 | 1 |
| CH88-80 | -45 | 346.6 | 1 |

## Results:

CH88-78 collared in the Northern Anita Volcanic Sequence and intersected the Fulford Fault Splay at a depth of 119.0 metres. The felsic tuffs between the Fulford Fault Splay and the Anita Gabbro are moderately chloritic. The felsic lapilli tuffs on the southern flank of the Anita Gabbro are of the sericitic, pyritic variety typical of the Anita Active Tuff. Unfortunately, no significant economic mineralization was intersected. The Anita Horizon was pierced at an elevation of 290.0 m

CH88-80 collared in the Anita Gabbro which has "dyked out" most of the Anita Active Tuff in this hole. Only 1.1 m of barren felsic tuff was intersected before the hole reached the Southern Anita Mafic Sequence. The hole pierced the Anita Horizon at 427 m elevation.

## Summary:

Fulford Fault Splay ( 400 m elev.) $1+20 \mathrm{~S}$
North contact of the Anita Gabbro ( 400 m elev.) $1+80 \mathrm{~S}$
Dip of the north contact of the Anita Gabbro m900 S
South contact of the Anita Gabbro ( 400 m elev.) $2+56 \mathrm{~S}$
Dip of south contact of the Anita Gabbro 680 N
Anita Horizon ( 400 m elev) $2+68 \mathrm{~S}$ Dip of Anita Horizon

870 N

SECTION 24+00 E (Figure 36):

Objectives/Targets:

1. The Anita Horizon at 400 and 350 metres elevation.

Holes drilled:

Hole \# Location Azimuth Dip Length
$\begin{array}{lllllll}\text { CH88-74 } & 1+00 & \mathrm{~S} & 210 & -45 & 312.4 & 1 \\ \text { CH88-82 } & 1+90 & \mathrm{~S} & 210 & -45 & 180.4 & 1\end{array}$

Results:
Hole CH88-74 collared in the Fulford Fault Splay and intersected 96 metres of felsic tuffs with lesser amounts of mafic flows and tuffaceous sediments before reaching the Anita Gabbro at a depth of 131.5 m . The hole cored through 26.2 m of Anita Active Tuff on the southern flank of the Anita Gabbro and pierced the Anita Horizon at an elevation of 340 m . Semi-massive, banded pyrite with trace chalcopyrite ( $0.13 \%$ Cu ) occurs over a 0.9 m interval immediately south of the Anita Horizon.

CH88-82 collared in the Anita Gabbro and reached the Anita Active Tuff at a depth of 116.4 m . A 2.5 m wide gabbro dyke has intruded along the Anita Horizon and the hole pierced the dyke at an elevation of 408 m . A 1.3 m interval of Active Tuff hosts 5 pyrite and trace - $3 \%$ sphalerite in $1-4 \mathrm{~mm}$ stringers parallel to foliation. The interval grades $0.02 \%$ $\mathrm{Cu}, 0.33 \% \mathrm{Zn}, 2 \mathrm{~g} / \mathrm{t} \mathrm{Ag}, 0.13 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ and $0.25 \% \mathrm{Ba}$. The interval occurs approximately 10 m below the top of the Anita Active Tuff.

Summary:
Fulford Fault Splay ( 400 m elev.) $1+15 \mathrm{~S}$
North contact of the Anita Gabbro (400 m elev.) $1+90 \mathrm{~S}$ Dip of the north contact of the Anita Gabbro <900 S South contact of the Anita Gabbro ( 400 m elev.) $2+62 \mathrm{~S}$ Dip of south contact of the Anita Gabbro 650 N Anita Horizon ( 400 m elev) $2+82 \mathrm{~S}$ Dip of Anita Horizon

700 N

## Significant Intersections

$$
\begin{aligned}
\mathrm{cH} 88-820.02 \% \mathrm{Cu},<0.01 \% \mathrm{~Pb}, & \begin{array}{r}
0.33 \% \mathrm{zn}, 2 \mathrm{~g} / \mathrm{t} \mathrm{Ag}, 0.13 \mathrm{~g} / \mathrm{t} \mathrm{Au} \\
\\
\\
1.3 \mathrm{~m}
\end{array}
\end{aligned}
$$

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SECTION 25+00 E (Figure 37):
Objectives/Targets:

1. The Anita Active tuff 180 m up dip of cH87-20

Holes drilled:

| Hole \# | Location | Azimuth | DipLength <br> $(\mathrm{m})$ | Objective |  |
| :--- | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |
| CH88-76 | I+60 | S | 210 | -45 | 180.4 |
| CH87-20 | $0+75$ | S | 210 | -55 | 434.6 |

Results:
CH88-76 intersected 50.3 m 's of overburden before collaring in an xenolith of felsic tuff within the Anita Gabbro. The hole cored through 50.5 m of gabbro and reached the Anita Active Tuff At a depth of 101.5 m . A total of 19.1 $m$ of Anita Active Tuff was intersected.

The Anita Active Tuff is cut by a gabbro dyke, 4.3 m long in core. The Active Tuff south of the dyke contains 0.93 $\% \mathrm{Cu}, 0.10 \% \mathrm{~Pb}, 3.81 \% \mathrm{An}, 20.5 \mathrm{~g} / \mathrm{t} 0.37 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ and $1.57 \%$ Ba. This includes a 0.2 m band of semi-massive sphalerite (29.8 \% Zn). This mineralization is centred about 10 m below the Anita Horizon" and is in the same stratigraphic position as the mineralization in hole CH88-49 on section 27+00 E.

Hole CH87-20 tested the Anita Horizon 190 m downdip of CH88-76. No significant base or precious metal mineralization.

SUMMARY:

| Fulford Fault Splay ( 400 m elev.) | $1+10 \mathrm{~S}$ |  |
| :--- | ---: | :--- |
| North contact of the Anita Gabbro ( 400 m elev.) | $1+55$ | S |
| South contact of the Anita Gabbro ( 400 m elev.) | $2+35$ | S |
| Dip of south contact of the Anita Gabbro | 830 | S |
| Anita Horizon ( 400 m. elev) | $2+45$ | S |
| Dip of Anita Horizon | 830 S |  |

Significant Intersections
CHB8-76 $0.93 \% \mathrm{Cu}, ~$
$0.10 \% \mathrm{~Pb}, \begin{array}{r}3.81 \% \mathrm{Zn}, 20.5 \mathrm{~g} / \mathrm{t} \mathrm{Ag}, \\ 4.8 \mathrm{~m}\end{array} \quad 0.37 \mathrm{~g} / \mathrm{t} \mathrm{Au}$

SECTION 27+OO E (Figure 39):
Objectives/Targets:

1. The active tuff at $50-70 \mathrm{~m}$ intervals up dip of CH87-28.
2. Shallow I.P. chargeability anomaly centred at $2+80 \mathrm{~S}$
3. Double peaked shallow I.P. chargeability anomaly ( 32 msec ) in the sediments south of the active tuff.
4. V.L.F. conductor at $3+60$ s.

Holes drilled:
Hole \# Location Azimuth Dip Length Objective

| CH88-48 | $1+63$ | S | 210 | -45 | 256.3 | 1 |
| :--- | :--- | :--- | :--- | :--- | :--- | :---: |
| CH88-49 | $2+18$ | S | 210 | -45 | 252.1 | 1 |
| CH88-51 | $3+10$ | S | 210 | -45 | 159.7 | 3.4 |
| CH87-28 | $1+00$ | S | 210 | -50 | 382.8 |  |

Results:
Holes CH88-48 and 49 intersected the active tuff 140 and 190 m 's up-dip of CH87-28. Correlations between the holes and outcrop show that contacts are wavy but that stratigraphy has an overall steep (60-900) dip to the south. A flexure in the vicinity of $\mathrm{CH} 88-48$ and 49 , however, creates an apparent dip of 600 N . The strongest mineralization (2.30 \% Cu, $0.49 \%$ $\mathrm{Pb}, 3.66 \% \mathrm{Zn}, 73.9 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$ and $1.9 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ over 4.9 m ) encountered so far occurs in CH88-49 within the flexure. This mineralization occurs 1.8 m from the felsic-mafic contact. A 5 m gabbro dyke has intruded along this contact.

A mafic porphyritic sill, typical of those in the mafic volcanic sequence south of the active tuff, intrudes the active tuff, 10 m north of the mineralization in ch88-49. This is strong evidence that the mafic volcanics are younger than the active tuff.

At the bottom of CH88-49 the mafic tuffs, flows and sills south of the active tuff become intercalated with cherty, black argillite with $3,011 \mathrm{ppm} \mathrm{Ba}$. The hole ended in a tuffaceous conglomerate.

CH88-5l collared in a gabbro dyke and then passed through the argillite and tuffaceous conglomerate similar to
that at the bottom of CH88-49. A 30 m thick sequence of barren felsic tuffs occurs south of the tuffaceous conglomerate. The felsic tuffs are occasionally intercalated with thin ( $<4 \mathrm{~m}$ ) beds of pyritic argillite which are partly responsible for the I.P. anomaly. The I.P. anomaly is also partly due to strongly carbonatized mafic lapilli tuff with 2 \% pyrite which occurs immediately south of the barren felsic crystal tuffs.

Summary:

| Fulford Fault Splay (400 m elev.) | $1+00 \mathrm{~S}$ |
| :--- | :---: |
| Dip of Fulford Fault Splay | ${ }^{m} 700 \mathrm{~N}$ |
| Dip of stratigraphy north of the Anita Gabbro | $?$ |
| North contact of the Anita Gabbro (400 m elev.) | $1+50 \mathrm{~S}$ |
| Dip of north contact of the Anita Gabbro | $?$ |
| South contact of the Anita Gabbro ( 400 m elev.) | $2+50 \mathrm{~S}$ |
| Dip of south contact of the Anita Gabbro | $70-840 \mathrm{~S}$ |
| Felsic-mafic contact (400 m elev) | $2+40 \mathrm{~S}$ |
| Dip of felsic-mafic contact | $600 \mathrm{~N}-670 \mathrm{~S}$ |

Significant Intersections


SECTION 28+00 E (Figures: 40 and 61):

## Objectives/targets:

1. Extend the stratigraphic section north to $5+00 \mathrm{~N}$.
2. Deepen hole cH87-23 to find the northern contact of the Anita Gabbro.
3. Active tuff along the northern flank of the Anita Gabbro below hole CH87-23.
4. Resolve the discrepancies between the surface exposures and drill holes.

Holes drilled:

| Hole \# | Location |  | Azimuth | Dip | Length <br> $(\mathrm{m})$ | Objective |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |
| CH88-41. | $4+97 \mathrm{~N}$ | 210 | -50 | 346.3 | 1 |  |
| CH88-43 | $3+30$ | N | 210 | -50 | 391.4 | 1 |
| CH88-23 | $1+10$ | N | 210 | -50 | 568.8 | 2 |
| CH88-45 | $1+10$ | N | 210 | -58 | 439.5 | 3 |
| CH88-44 | $2+40$ | S | 210 | -45 | 203.3 | 4 |

Results:
Holes CH87-23, CH88-41, 43 and 45 show that the stratigraphy north of the Anita Gabbro is comprised dominantly of weakly chloritic felsic crystal tuffs which dip 80-850 N. The felsic tuffs between $3+90 \mathrm{~N}$ and $4+30 \mathrm{~N}$ are sodium depleted ( <0.81\% Na20) and contain l-2 \% disseminated pyrite. Several 20-40 m thick units of mafic tuffaceous sediments occur between $1+50 \mathrm{~N}$ and $3+00 \mathrm{~N}$ and may be important marker horizons. Several other beds of mafic to intermediate tuffs < 1 to 20 m thick occur south of the baseline.

The Fulford Fault Splay occurs in holes CH87-23 and ch88-45 between $0+50$ and $1+00 \mathrm{~S}$ and dips 750 N . Ch88-45 intersected only l-5 \% pyrite in the active tuff north of the Anita Gabbro over a 23.5 m interval between $1+10$ and $1+26 \mathrm{~S}$.

The north side of the Anita Gabbro dips 840 N and the extension of CH87-23 shows that the south side dips 720 S . This suggests that the Anita Gabbro may have been intruded along the axis of an anticlinal fold.

The active tuff is dyked out in CH88-44. The hole collared in gabbro and intersects mafic tuffs and flows which become intercalated with cherty argillite, felsic tuffite/tuff, siltstones and greywackes. The argillites and siltstones are consistently Ba-rich (>2,000 and up to 9,100 ppm ). Two thin ( $<5.0 \mathrm{~cm}$ ) beds of mafic tuffaceous sediment fine downhole (i.e. south).

Summary:
Fulford Fault Splay ( 400 m elev.) $\quad 1+00 \mathrm{~S}$
Dip of Fulford Fault Splay 750 N
Dip of stratigraphy north of the Anita Gabbro 78-850 N North contact of the Anita Gabbro ( 400 m elev.) $1+35 \mathrm{~S}$ Dip of north contact of the Anita Gabbro 850 N South contact of the Anita Gabbro $1+95 \mathrm{~S}$ Dip of south contact of the Anita Gabbro 720 S Felsic-mafic contact ( 400 m elev.) $2+37 \mathrm{~S}$ Dip of felsic-mafic contact $720 \mathrm{~S}-520 \mathrm{~N}$

Significant intersections:


SECTION 28+00 E, Chip 1 Claim, Powerline Area (Figure 61):

Objectives/Targets:

1. Test shallow IP chargeability anomaly ( 12 to 13 msec ) from $4+20$ to $3+40 \mathrm{~N}$, while developing a stratigraphic section.

Hole Drilled:

| Hole \# Location | Azimuth | Dip | Length | Objective |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| CH88-41 | $4+97 \mathrm{~N}$ | 210 | -50 | 346.3 m | 1 |

Results:
The general stratigraphic sucession was the same as on section $30+00 \mathrm{E}$, with gabbro to the north, sodium depleted felsic tuffs lying within unaltered felsic tuffs and minor mafic tuffs. The northern boundary of the sodium depleted ( < 1.0 \% Na20) felsic tuffs is at 101.8 m at a gabbro dyke and the southern contact is at 257.8 at a thin chlorite schist. The true thickness of this altered zone is about 115 metres. Within the altered felsic tuffs there are minor geochemically anomalous zones:

| $\begin{gathered} \text { From } \\ (\mathrm{m}) \end{gathered}$ | $\begin{aligned} & \text { To } \\ & (\mathrm{m}) \end{aligned}$ | $\begin{aligned} & \text { Length } \\ & (\mathrm{m}) \end{aligned}$ | $\begin{aligned} & \mathrm{Cu} \\ & \mathrm{ppm} \end{aligned}$ | $\begin{aligned} & \mathrm{Pb} \\ & \mathrm{ppm} \end{aligned}$ | $\begin{aligned} & \mathrm{zn} \\ & \mathrm{ppm} \end{aligned}$ | $\begin{aligned} & \mathrm{Au} \\ & \mathrm{ppb} \end{aligned}$ | Ag <br> ppm | Ba ppm |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 101.8 | 102.8 | 1.0 | 568 | 123 | 945 | 220 | 9.0 | 1230 |
| 108.0 | 108.7 | 0.7 | 633 | 118 | 507 | 104 | 3.1 | 5340 |
| 112.8 | 113.3 | 0.5 | 25 | 6 | 1335 | 24 | 0.8 | 1250 |
| 181.6 | 182.1 | 0.5 | 879 | 20 | 2213 | 140 | 2.8 | 1040 |
| 198.4 | 199.4 | 1.0 | 665 | 142 | 2902 | 55 | 1.5 | 1320 |
| 200.4 | 201.4 | 1.0 | 271 | 480 | 490 | 24 | 0.8 | 1200 |

Summary:
The IP chargeability zone is associated with pyritic felsic tuffs, which display the same signature, high Mn, moderate Ba and low Na2o with local geochemically anomalous short zones, as the Randy Active Tuff.

Objectives/targets:

1. Active tuff at $50-70 \mathrm{~m}$ intervals updip from CH87-27.
2. Extend stratigraphic section into the sediments south of the mafic volcanic package.

Holes:
$\left.\begin{array}{lccccc}\text { Hole \# } & \text { Location } & \text { Azimuth } & \text { Dip } & \text { Length } & \text { Objective } \\ \text { CH88-46 } & 1+48 & \text { S } & 210 & -58 & 257.9\end{array}\right]$

Results:
Hole CH88-46 collared in Nanaimo Group sediments and, after piercing the unconformity at a depth of 33.2 m , intersected 89.3 m of active tuff before reaching the maficfelsic contact. Correlation with CH87-27 shows that the active tuff dips 720 S. A distinctive lapilli tuff, composed of dark green chloritic lapilli in a light grey, moderately sericitic felsic matrix occurs immediately below the unconformity. The active tuff hosts 3 beds of massive pyrite up to 6 cm thick. Weak disseminated pyrite (3-7\%), sphalerite (trace-2\%), chalcopyrite (trace-0.5\%) grading $0.15 \% \mathrm{Cu}, 0.89 \% \mathrm{zn}$ and 198 ppb Au occurs over a 3.7 m interval of felsic lapilli tuff, 4.5 m from the felsic-mafic contact. The active tuff is enriched in Ba (4,2ll ppm) for 8.3 m from the felsic-mafic contact. Several graded beds of mafic tuffaceous sediments fine downhole (i.e. south) near the bottom of hole cH88-46.

Neither the flexure nor the strong mineralization encountered on sections $27+00$ E and $28+00$ E occur on this section.

CH88-47 collared in a gabbro dyke just south of the active tuff. The first half of the hole intersected mafic tuffs, flows/sills intruded by several gabbro dykes. The mafic volcanics become intercalated with cherty black argillite and felsic tuffite, all of which are enriched in Ba ( $>2,000 \mathrm{ppm}$ ). A barren felsic lithic tuff (up to $30 \% 1-3 \mathrm{~mm}$ cherty lithic fragments and epidotized feldspar crystals) occurs in the last 27.6 m of the hole. The tuff contains an average of $2,308 \mathrm{ppm} \mathrm{Ba}$.

```
Fulford Fault Splay (400 m elev.) 0+98 S
Dip of Fulford Fault Splay m500 N
Unconformity (400 m elev.)
0+95 S
Dip of unconformity
    500 N
Dip of stratigraphy north of the Anita Gabbro ? N
South contact of the Anita Gabbro (400 m elev.) m2+05 S
Dip of south contact of the Anita Gabbro <680 S
Felsic-mafic contact (400 m elev.) 2+33 S
Dip of felsic-mafic contact 730 S
```

Significant intersections:
CH87-27 $0.14 \% \mathrm{Cu},<0.01 \% \mathrm{~Pb}, \begin{aligned} & 0.40 \% \mathrm{zn}, 1 \mathrm{~g} / \mathrm{t} \mathrm{Ag,} 0.04 \mathrm{~g} / \mathrm{t} \mathrm{Au} \\ & 1.0 \mathrm{~m}\end{aligned}$
CH88-46 $0.26 \% \mathrm{Cu},<0.01 \% \mathrm{~Pb}, 0.04 \% \mathrm{zn}, 2 \mathrm{~g} / \mathrm{t} \mathrm{Ag}, 0.09 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ 1.0 m

CH88-46 $0.15 \% \mathrm{Cu},<0.03 \% \mathrm{~Pb},) .89 \% \mathrm{Zn}, 4.6 \mathrm{~g} / \mathrm{t} \mathrm{Ag}, 0.2 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ 3.7 m

SECTION 30+00 E (Figure 42):

Objectives/targets:

1. Active tuff at 400 m and 450 m elevation.
2. Deep I.P. anomaly ( 18 msec ), possibly within the active tuff, between $2+40 \mathrm{~S}$ and $2+80 \mathrm{~S}$.
3. Coincident shallow and deep I.P. chargeability anomalies (up to 43 msec ) between $4+20 \mathrm{~S}$ and $4+40 \mathrm{~S}$.
4. Determine dip of stratigraphy south of the Fulford Fault Splay.

Holes:
Hole \# Location Azimuth Dip Length Objective
(m)

| CH88-50 | $0+95$ | S | 210 | -50 | 300.5 | 1 |
| :--- | :--- | :--- | :--- | :---: | :---: | :---: |
| CH88-53 | $1+95$ | S | 210 | -50 | 272.5 | 1,2 |
| CH88-55 | $3+60$ | S | 210 | -45 | 215.5 | 3 |
| CH88-73 | $2+87$ | S | 210 | -45 | 304.5 | 1,4 |

Results:
CH88-50 collared just north of the Fulford Fault Splay. The fault is extremely sharp. Fifty-three metres of Nanaimo Group sediments were intersected below the fault. The sediments rest unconformably on felsic tuffs further to the south. A 6.1 m wedge of weakly chloritic felsic tuff has been faulted into the Nanaimo sediments, possibly by the Anita Fault. There is minor shearing along the unconformity. A distinctive lapilli tuff composed of dark green lapilli in a light grey, sericitic, felsic matrix occurs 8.6 m below the unconformity and is identical to the lapilli tuff just below the unconformity in $\mathrm{CH} 88-46,100 \mathrm{~m}$ to the west.

The active tuff consists of felsic tuff, lapilli tuff and quartz-eye tuff. The matrix of a 1.5 m interval of lapilli tuff contains $25 \%$ pyrite, approximately 115 m downdip of similar mineralization intersected by CH88-46 on section 29+00 E.

A 20 m wide gabbro dyke occurs along the felsic-mafic contact. A 2.4 m interval of quartz-grain rich felsic lapilli tuff, 7.1 m above the dyke, contains up to $7 \%$ disseminated red-brown sphalerite, $5 \%$ pyrite and $1.5 \%$ chalcopyrite. The interval assayed $0.48 \% \mathrm{Cu}, 3.51 \% \mathrm{Zn}, 27.8 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$ and l .8 l
$g / t$ Au. A 0.3 m wide mafic dyke intrudes the mineralized zone and was not included in the assays. The hole ended in the mafic volcanic package south of the active tuff.

CH88-53 collared just south of the active tuff in mafic volcanics which continued to a depth of 80 m . Below 80 m the hole intersected 45.2 m of cherty argillite, followed by 139.5 m of cherty siltstone, intercalated with argillite and mafic tuff near the bottom of the hole. The argillites contain an average of $3,400 \mathrm{ppm} \mathrm{Ba}$.

CH88-55 intersected gabbro over its entire length. The I.P. anomaly corresponds to a medium to coarse-grained granophyric phase of the large gabbro intrusion that occurs just south of the Lower Anita Road. It contains lo-15 \% coarse interstitial ilmenite and trace to $4 \%$ chalcopyrite. A 6.7 m interval contains $2,535 \mathrm{ppm} \mathrm{Cu}$ but no appreciable amounts of $\mathrm{Au}, \mathrm{Pt}$ or Pd.

CH88-73 intersected cherty argillaceous felsic tuf$f / t u f f i t e$ and mafic tuffs intruded by several gabbro dykes up to 40 m wide before reaching the Anita Active Tuff at a depth of 117.6 m . The Anita Horizon is "dyked out" by a 20 m wide gabbro dyke. The Anita Active Tuff consists of sericitic felsic lapilli and ash tuffs $+/-$ quartz eyes and was intersected to a depth of 279.5 m where it is truncated by the Fulford Fault Splay.

The Fulford Fault Splay occurs as a 21.6 m long zone of highly fractured core with numerous fault gouges. The hole ends in gabbro a few metres north of the fault.

The upper 18.4 metres of the Anita Active Tuff contains 4 to $7 \%$ pyrite and nil to trace chalcopyrite and sphalerite. The best assay is $0.26 \% \mathrm{Cu}, 0.02 \% \mathrm{~Pb}, 0.16 \% \mathrm{Zn}, 4$ $\mathrm{g} / \mathrm{t} \mathrm{Ag}$ and $0.45 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ over 0.5 m .

Summary:
Fulford Fault Splay (400 m elev.) $\quad 0+85 \mathrm{~S}$
Dip of Fulford Fault Splay 780 N
Unconformity ( 400 m elev.) $1+28 \mathrm{~S}$
Dip of unconformity ${ }^{m} 650 \mathrm{~N}$
Anita Gabbro has not been intersected on this section Anita Horizon has been "dyked out" on this section.

Dip of stratigraphy south of Fulford Fault Splay 670 S

0


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SECTION 30+00 E, Chip 1 Claim, Powerline Area (Figure 62):
Objectives/Targets:

1. Test coincidént deep ( 21 to 22 msec ) and shallow ( 18 to 17 msec) IP chargeability anomalies from $5+40$ to $5+60 \mathrm{~N}$.
2. Test deep IP chargeability anomaly (22 msec) at $4+60 \mathrm{~N}$, which is coincident with Zn ( $>100 \mathrm{ppm}$ ) soil geochemical anomalies from $3+80$ to $4+80 \mathrm{~N}$.

Holes Drilled:

| Hole \# | Location | Azimuth | Dip | Length | Objective |
| :--- | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |
| CH88-42 | $4+80 \mathrm{~N}$ | 030 | -50 | 196.9 m | 1 |
| CH88-75 | $3+70 \mathrm{~N}$ | 030 | -50 | 238.0 m | 2 |

Results:
CH88-42 collared in variably chloritic felsic tuffs with minor mafic tuffs and intersected the "Powerline North Gabbro" from 40.9 m to the end of hole at 196.9 m . CH88-75 intersected felsic tuffs with minor intercalated mafic tuffs from the collar to 197.6 m . From 197.6 to 238.0 , end of hole, the gabbro was intersected. Correlation between a gabbro sill, logged as a mafic crystal tuff, in both holes indicates the bedding dips at 84 degrees to the south. The "Powerline North Gabbro" contact dips at 88 degrees to the north. CH8875 contains pyritic, average 1 to $2 \%$, sodium depleted felsic tuffs from 27.2 to 146.4 m . Associated with this alteration are some geochemically anomalous zones:

| $\begin{array}{r} \text { From } \\ (\mathrm{m}) \end{array}$ | $\begin{aligned} & \text { To } \\ & (\mathrm{m}) \end{aligned}$ | Length (m) | Cu ppm | Pb <br> ppm | Zn ppm | Au <br> ppb | Ag ppm | Ba <br> ppm |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 116.1 | 117.7 | 1.6 | 140 | 8 | 1554 | 10 | 0.4 | 980 |
| 131.5 | 132.0 | 0.5 | 758 | 22 | 346 | 29 | 1.0 | 1600 |
| 138.0 | 138.7 | 0.7 | 295 | 463 | 1151 | 50 | 1.3 | 1200 |
| 140.3 | 140.9 | 0.6 | 875 | 29 | 1425 | 40 | 0.6 | 1000 |

Summary:
The "Powerline South" IP chargeability anomaly is associated with pyritic sodium depleted felsic tuffs. The felsic tuff is Mn rich, Na20 depleted, has moderate Ba, local weakly anomalous polymetallic mineralization and may correlate with the Randy Active Tuff. The "Powerline North" IP chargeability anomaly is most probably caused by disseminated ilmenite within the "Powerline North Gabbro".

Objectives/Targets:

1. Active tuff 100 m updip of $\mathrm{CH} 87-24$.
2. Active tuff 100 m downdip of CH87-24.

Holes drilled:

| Hole \# | Location Azimuth |  | Dip | Length | Objective |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |
| CH88-52 | $1+90$ | S | 210 | -60 | 203.3 | 1 |
| CH88-56 | $0+01 \mathrm{~N}$ | 210 | -55 | 486.8 | 2 |  |
| CH87-24 | $0+95 \mathrm{~S}$ | 210 | -60 | 364.2 |  |  |

## RESULTS:

Hole CH88-56 intersected the active tuff 100 m downdip of CH87-24. The Fulford Fault Splay dips 680 N and the unconformity dips 640 N . The Nanaimo sediments are approximately 30 m thick (true), consist of argillite, greywacke and conglomerate and rest unconformably on a gabbro dyke. A long sequence ( $>70 \mathrm{~m}$ true thickness) of felsic tuffs, crystal tuffs and lapilli tuffs occur beneath the gabbro dyke. They are moderately to strongly sericitic and contain $1-2 \%$ disseminated pyrite, typical of the active tuff. The active tuff is more massive through most of hole CH87-24 and was originally logged as a flow but is now interpreted to be a tuff.

The mafic-felsic contact dips 650 S and was intersected by CH88-56 at 220 m elevation and by CH87-24 at 304 m elevation. Heavily disseminated sphalerite (1-20 \%), pyrite (1-5 \%), chalcopyrite (trace-2\%) and galena (trace-3 \%) occur over a 6.8 m (approximately 2 m true thickness) at the felsicmafic contact and grade $0.45 \% \mathrm{Cu}, 0.14 \% \mathrm{~Pb}, 1.55 \% \mathrm{Zn}, 18.4$ $\mathrm{g} / \mathrm{t}$ Ag and $0.8 \mathrm{~g} / \mathrm{t} \mathrm{Au}$. Two zones of weak disseminated sphalerite mineralization occur within 5 m of the felsic-mafic contact in cH87-24. The first is 4.5 m (1.5 m true thickness) grading $0.59 \% \mathrm{Zn}$ and the second is 3.4 m ( 1.0 m true thickness) grading $0.32 \% \mathrm{Zn}$ and $0.5 \mathrm{~g} / \mathrm{t} \mathrm{Au}$.

Holes CH88-56 and CH87-24 ended in the mafic volcanic package south of the active tuff. CH88-52 collared in barren felsic tuff, typical of that which occurs within the dominantly sedimentary package. It is enriched in Ba ( $<5,900$ ppm) and sodium depleted (0.91\% Na2O). The foliation is nearly parallel to the core axis so its thickness is unknown but it was intersected to a depth of 30 m . Below this, the hole

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intersected brown, green and red cherts and black argillites intercalated with mafic tuffaceous sediments and intruded by mafic porphyritic sills. The cherts contain an average of \(13,384 \mathrm{ppm} \mathrm{Ba}\) and the argillites \(3,808 \mathrm{ppm} \mathrm{Ba}\).
```

Summary:

| Fulford Fault Splay ( 400 m elev.) | $0+83 \mathrm{~S}$ |
| :--- | ---: |
| Dip of Fulford Fault Splay | 680 N |
| Unconformity ( 400 m elev.) | $1+17 \mathrm{~S}$ |
| Dip of unconformity | 650 N |
| Anita gabbro was not intersected on this section |  |
| Felsic-mafic contact ( 400 m elev.) | $2+02 \mathrm{~S}$ |
| Dip of felsic-mafic contact | $<670 \mathrm{~S}$ |

Significant intersections:


Objective/Targets:

1. Test stratigraphy north of cherty Ba-rich argillites in CH86-17.
2. Locate Anita Horizon on this section.

Holes Drilled:

| Hole \# | Location | Azimuth | Dip | Length | Objective |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| CH88-54 | $0+49$ | S | 210 | -45 | 291.7 | 1 |
| CH88-83 | $5+00$ | S | 030 | -52 | 528.2 | 2 |
| CH86-17 | $1+62$ | S | 210 | -50 | 249.0 |  |

Results:
CH88-54 collared about 70 m north of the Fulford Fault Splay. Mafic tuffs, weakly chloritic felsic tuffs and possibly.a felsic flow intruded by a 22 m wide gabbro dyke occur north of the Fulford Fault Splay. Foliation appears to dip steeply south to vertical.

The Fulford Fault Splay dips 650 N and separates Sicker Group volcanics to the north from 40 m of Nanaimo Group sediments below. The Nanaimo Group sediments consist of conglomerates and argillite which rest unconformably on mafic volcanics. A minor fault gouge occurs along the unconformity.

Hole CH88-54 intersected mafic volcanics and CH86-17 intersected gabbro dykes and cherty argillites, siltstones and greywackes immediately below the unconformity. Therefore, stratigraphy south of the unconformity dips less than 550 S and the active tuff must be located below 400 m elevation. CH88-83 located it by drilling from the south.

After piercing the thin cover of Nanaimo Group sediments, CH88-83 intersected 340 m of the Cherty Sedimentary sequence. The sequence consists of cherty weakly chloritic felsic tuffaceous sediments, greywacke, argillites and cherty mafic to intermediate tuffaceous sediments intruded by several gabbro dykes up to 60 m thick. Locally, the tuffs contain 5 to $25 \%$ disseminated and fracture controlled pyrite. This mineralization is likely responsible for the moderate shallow IP chargeability anomalies between $4+00$ and $4+60 \mathrm{~s}$.

A 22 m wide gabbro dyke occurs at the contact between the Cherty Sedimentary Sequence and the Southern Anita Mafic sequence. CH88-83 intersected about 75 m (true thickness) of
mafic tuffaceous sediments and flows before reaching the Anita Horizon at a depth of 447.0 m ( 210 m elev.). Several well preserved, south-fining, graded beds occur in the mafic tuffaceous sediments.

The hole intersected 41.9 m of felsic feldspar crystal lapilli tuff below the Anita Horizon before reaching a gabbro dyke with several $<1.0 \mathrm{~m}$ chalcopyrite-bearing quartz veins at a depth of 505.1 m 's. The hole ended in this gabbro dyke at a depth of 528.8 m .

The Anita Active Tuff hosts 5-25\% pyrite, nil to $3 \%$ sphalerite and nil to trace chalcopyrite for 15.7 m below the Anita Horizon. The most of the sulphides are disseminated but occasional < 2 mm stringers subparallel to foliation do occur. A 5.4 m interval approximately 10 m stratagraphically below the Anita Horizon assayed $0.13 \% \mathrm{Cu}, 0.04 \% \mathrm{~Pb}, 0.93 \% \mathrm{Zn}, 7.6$ $\mathrm{g} / \mathrm{t} \mathrm{Ag}, 0.16 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ and $0.96 \% \mathrm{Ba}$. This includes a 3.2 m interval grading $0.19 \% \mathrm{Cu}, 0.07 \% \mathrm{~Pb}, 1.51 \% \mathrm{Zn}, 11.02 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$ and $1.09 \% \mathrm{Ba}$.

Summary:
Fulford Fault Splay ( 400 m elev.) $0+90 \mathrm{~S}$
Anita Gabbro was not intersected
Dip of stratigraphy south of unconformity m670 S

## Objectives/Targets:

## ,

1. Strong (>40 msec) coincident deep and shallow IP chargeability anomaly centred at $5+00 \mathrm{~S}$.

Holes drilled:

| Hole \# Location Azimuth | DipLength <br> $(\mathrm{m})$ | Objective |  |  |
| :---: | :---: | :---: | :---: | :---: |
| CH88-58 | $4+10 \mathrm{~S}$ | 210 | -50 | 248.7 |

## Results:

With the exception of a 7.3 m long pendant (?) of cherty, reworked felsic tuff, the hole remained in gabbro over its entire length. The gabbro is fine to coarse- grained. Coarse-grained intervals 1 to 21 metres long contain up to 15 \% coarse interstitial ilmenite and traces of chalcopyrite which may be responsible for the IP anomalies. The ilmeniterich intervals were analyzed for $P t$ and $P d$ and no significant amount of either element was detected. The cherty outcrop over the drill hole is interpreted to be a pendant.

Summary:
The IP anomalies appear to be caused by ilmenite in a large gabbro dyke.

Neither the Anita Horizon nor the Anita Active Tuff have been intersected on this section..

Objectives/Targets:

1. Shallow IP chargeability anomaly ( $>20 \mathrm{msec}$ ) at $2+60 \mathrm{~S}$
2. Deep IP chargeability anomaly ( $>20 \mathrm{msec}$ ) between $2+80$ and $3+20 \mathrm{~s}$
3. Extension of the mineralization intersected in CH87-31 ( 0.4 m of $1.36 \% \mathrm{~Pb}, 0.59 \% \mathrm{Cu}, 134 \mathrm{~g} / \mathrm{t} \mathrm{Ag}$ and $4.8 \mathrm{~g} / \mathrm{t}$ Au) approximately 130 m updip.

Holes drilled:

| Hole \# | Location Azimuth | DipLength <br> $(\mathrm{m})$ | Objective |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |
| CH88-57 | $1+90 \mathrm{~S}$ | 210 | -50 | 313.3 | $1,2,3$ |
| CH87-31 | $0+60 \mathrm{~S}$ | 210 | -50 | 340.5 |  |

Results:
CH88-57 failed to intersect the mineralized horizon discovered by CH87-31. It appears that the mineralization occurs in an xenolith of Anita Active Tuff within a gabbro dyke. The Anita Active Tuff is truncated by the Fulford Fault Splay less than 20 m above hole CH87-3l.

Hole CH88-57 collared just north of the Fulford Fault Splay and pierced it at a depth of 51.0 m . Argillites and conglomerates of the Nanaimo Group occur south of the fault. A wedge of felsic and mafic volcanics, 15.5 m long in core, has been thrust into the Nanaimo Sediments. The Nanaimo Sediments rest unconformably on a gabbro dyke and the unconformity occurs at a depth of 83.8 metres. The dyke appears to be south-dipping and the hole drilled down it for 178.2 metres. The dyke contains an xenolith of felsic tuff/tuffite approximately 10 m wide (true). The tuff is cherty, Ba-rich (up to $8,700 \mathrm{ppm}$ ) and contains trace to $2 \%$ fracture controlled pyrite. A similar felsic tuff/tuffite occurs on the southern flank of the dyke. The hole ended in cherty black argillite immediately south of the felsic tuff/tuffite.

The shallow IP anomaly at $2+60 \mathrm{~S}$ is caused by the fault zone in the Nanaimo Group sediments. The deep IP anomaly from $2+80 \mathrm{~S}$ to $3+20 \mathrm{~S}$ is an expression of south-dipping, weakly graphitic argillites intersected at the bottom of CH88-57.
Fulford Fault Splay (400 m elev.) $2+00 \mathrm{~s}$
Dip of Fulford Fault Splay

Anita Horizon is "dyked out" on this section Dip of stratigraphy south of the Fulford Fault Splay ${ }^{m} 650$ S

Significant Intersections
CH87-31 $\left.0.59 \% \mathrm{Cu}, 1.36 \% \mathrm{~Pb}, \begin{array}{r}0.02 \% \mathrm{Zn}, 134.4 \mathrm{~g} / \mathrm{t} \mathrm{Ag}, 4.77 \mathrm{~g} / \mathrm{t} \mathrm{Au} \\ 0.4 \mathrm{~m}\end{array}\right]$

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SECTION 46+00 E (Figure 52):

Objectives/Targets:

1. Crone PEM conductor detected in holes CH86-16, CH87-34 and 36 .
2. The Anita Horizon at 350 and 450 m elevations.
3. Determine the dip of stratigraphy on this section.

Holes drilled:

| Hole \# | Location | Azimuth | DipLength <br> $(\mathrm{m})$ | Objective |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| CH88-40 | $1+00$ | S | 210 | -50 | 281.0 |

Results:
The PEM conductor was intersected between 172.6 and 173.1 m in CH88-40. It consists of $25 \%$ pyrite, $15 \%$ pyrrhotite and $3 \%$ chalcopyrite. The sulphides have a remobilized appearance and are hosted by a felsic tuff within a sequence of interbedded mafic and felsic tuffs north of the Fulford Fault Splay. The Fulford Fault Splay was pierced at a depth of 202.3 m . The fault occurs as a 4.6 m long zone of crushed rock with many fault gouges up to 0.1 m long. Anita Active Tuff occurs immediately south of the fault. The Active Tuff contains trace to $2 \%$ disseminated and banded pyrite and locally trace sphalerite ( $0.18 \% \mathrm{Zn} / 4.6 \mathrm{~m}$ ) .

CH88-72 was drilled from the south and intersected the Active Tuff 80 m down-dip of CH88-40. The Anita Horizon is dyked out in both holes. The Active Tuff in CH88-72 has been intruded by several gabbro dykes 10 to 20 m wide and contains 2 to $10 \%$ disseminated fine-grained pyrite

The dip of stratigraphy south of the Fulford Fault Splay is difficult to determine because of the numerous dykes, however it appears to be about 80 o $S$.

Summary:
Fulford Fault Splay (400 m elev.)
Anita Horizon is "dyked out" on this section

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Dip of stratigraphy south of the Fulford Fault Splay m80o S

Significant Intersections
CH88-40 $0.97 \% \mathrm{Cu},<0.01 \% \mathrm{~Pb}, 0.02 \% \mathrm{Zn}, 3.8 \mathrm{~g} / \mathrm{t} \mathrm{Ag}, 0.04 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ 0.5 m

CH88-48 $0.02 \% \mathrm{Cu}, 0.03 \% \mathrm{~Pb}, 0.18 \% \mathrm{Zn}, \mathrm{l} \mathrm{g} / \mathrm{t} \mathrm{Ag}, 0.02 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ 4.6 m

CH88-49 $0.10 \% \mathrm{Cu} 0.01 \% \mathrm{~Pb}, 0.11 \% \mathrm{Zn}, 2.5 \mathrm{~g} / \mathrm{t} \mathrm{Ag}, 0.26 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ 1.0 m

Objectives/Targets:

1. The PEM conductor detected from holes CH87-34, 35 and 36
2. The Anita Active Tuff 120 m downdip of CH87-34.

Holes drilled:

| Hole \# Location | Azimuth | Dip | Length <br> $(\mathrm{m})$ | Objective |  |
| :--- | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |
| CH88-38 | $0+38 \mathrm{~N}$ | 210 | -65 | 438.0 | 1,2 |
| CH87-36 | $1+50 \mathrm{~S}$ | 210 | -45 | 257.6 |  |
| CH87-35 | $1+83 \mathrm{~N}$ | 210 | -50 | 359.1 |  |
| CH87-34 | $0+40 \mathrm{~S}$ | 210 | -50 | 391.1 |  |

Results:
CH88-38 intersected two thin (<1.0 m) zones of pyrrhotite (trace-7\%) + chalcopyrite (trace-2\%) mineralization between 251.3 and 264.9 m . Only one zone contained a significant amount of chalcopyrite. It was 0.5 m long and contained $0.24 \% \mathrm{Cu}$. The mineralization is hosted by a thin felsic ash tuff in a dominantly mafic volcanic package north of the Fulford Fault Splay. Similar mineralization was encountered in holes cH87-34 and 36 which are respectively 75 and 150 m up-dip of CH88-38. The mineralization appears to be stratabound and dips 67 degrees north.

CH88-38 pierced the Fulford Fault Splay at a depth of $314.5 \mathrm{~m}(385 \mathrm{~m}$ elev.) and it occurs as a 0.4 m long fault gouge. The Anita Active Tuff was intersected immediately south of the fault. It consists of pyritic quartz-sericite schist which is locally chloritic and quartz eye- bearing. No significant economic mineralization was encountered. CH88-38 pierced the Anita Horizon at a depth of $394.3 \mathrm{~m}(325 \mathrm{~m}$ elev.).

Summary:

| Dip of stratigraphy north of Fulford Fault splay | ${ }^{m} 670 \mathrm{~N}$ |
| :--- | ---: |
| Fulford Fault Splay ( 400 m elev.) | $2+00 \mathrm{~S}$ |
| Dip of Fulford Fault Splay | 680 N |
| Anita Horizon ( 400 m elev) | $2+64 \mathrm{~S}$ |

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Significant Intersections
CH88-36 $0.89 \% \mathrm{Cu},<0.01 \% \mathrm{~Pb}, 0.06 \% \mathrm{Zn}, 5.0 \mathrm{~g} / \mathrm{t} \mathrm{Ag}, 0.06 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ 0.8 m

CH87-34 $0.69 \% \mathrm{Cu},<0.01 \% \mathrm{~Pb}, 0.02 \% \mathrm{Zn}, 2.1 \mathrm{~g} / \mathrm{t} \mathrm{Ag} ,0.04 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ 1.0 m

CH87-34 $0.08 \% \mathrm{Cu} 0.04 \% \mathrm{~Pb}, 0.34 \% \mathrm{Zn}, 0.3 \mathrm{~g} / \mathrm{t} \mathrm{Ag} ,0.05 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ 2.0 m

CH88-38 $0.24 \% \mathrm{Cu},<0.01 \% \mathrm{~Pb}, \begin{array}{r}0.03 \% \mathrm{Zn}, 1.3 \mathrm{~g} / \mathrm{t} \mathrm{Ag}, \\ 0.5 \mathrm{~m}\end{array} 0.03 \mathrm{~g} / \mathrm{t} \mathrm{Au}$

Objectives/Targets:

1. The PEM conductor detected in holes CH87-34 and 36 on section $47+00$ E.
2. The Anita Active Tuff at 465 m elevation.

Holes drilled:

| Hole \# Location Azimuth Dip Length | (m) | Objective |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| CH88-39 | L+00 S | 210 | -50 | 308.8 | 1.2 |

Results:
The hole intersected the conductor at a depth of 161.5 m . The conductor is a 1.0 m wide (in core zone of pyrrhotite (15\%) + chalcopyrite (4-10\%) mineralization hosted by a weakly sericitic felsic feldspar crystal tuff which occurs in a sequence of interbedded mafic and felsic tuffs north of the Fulford Fault Splay. The 1.0 m interval grades $4.68 \% \mathrm{Cu},<0.01 \% \mathrm{~Pb}, 0.35 \% \mathrm{Zn}, 18.7 \mathrm{~g} / \mathrm{t} \mathrm{Ag}, 0.02 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ and $0.13 \% \mathrm{Ba}$.

The Fulford Fault Splay was pierced at a depth of $212.9 \mathrm{~m}(495 \mathrm{~m}$ elev.) and occurs in a 10 m wide gabbro dyke. Almost 39 m of Anita Active Tuff was intersected immediately below the dyke. The Active Tuff consists of sericitic felsic quartz-feldspar crystal lapilli tuff with 1 to $8 \%$ pyrite and nil to trace sphalerite.

The Anita Horizon was pierced at a depth of 255.3 m ( 465 m elev.) and a 3.3 m long interval immediately below (stratagraphically) the horizon assayed $0.02 \% \mathrm{Cu}, 0.01 \% \mathrm{~Pb}$, $0.27 \% \mathrm{Zn}, 1.0 \mathrm{~g} / \mathrm{t} \mathrm{Ag}, 0.09 \mathrm{~g} / \mathrm{t} \mathrm{Au}$ and $0.24 \% \mathrm{Ba}$.

Summary:

| Fulford Fault Splay ( 400 m elev.) | $2+30 \mathrm{~S}$ |
| :--- | ---: |
| Anita Horizon ( 400 m elev.) | $2+75 \mathrm{~S}$ |

Significant Intersections:
CH88-39. $4.68 \% \mathrm{Cu},<0.01 \% \mathrm{~Pb}, 0.35 \% \mathrm{zn}, 18.7 \mathrm{~g} / \mathrm{t} \mathrm{Ag}, 0.02 \mathrm{~g} / \mathrm{t} \mathrm{Au}$

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$$
\begin{gathered}
1.0 \mathrm{~m} \\
\mathrm{CH} 88-390.02 \% \mathrm{Cu}, 0.01 \% \mathrm{~Pb}, \begin{array}{c}
0.27 \% \mathrm{Zn}, \\
3.3 \mathrm{~m}
\end{array} \mathrm{l} .0 \mathrm{~g} / \mathrm{t} \mathrm{Ag}, 0.09 \mathrm{~g} / \mathrm{t} \mathrm{Au}
\end{gathered}
$$

SECTION 50+00' W , Holyoak 3 Claim (Figure 65):

Objectives/Targets:

1. Test shallow IP chargeability anomaly ( 18 msec ) from $9+60$ to $9+80 \mathrm{~N}$.
2. Test deep IP chargeability anomaly (14 msec) at 8+80 N .
3. Test shallow IP chargeability anomaly ( 16 msec ) at $8+80 \mathrm{~N}$.
4. Develop stratigraphic section across strike of Randy Zone that can be added to available Abermin drilling to the south for a 2 km stratigraphic drill section.

Holes Drilled:

| Hole \# | Location | Azimuth | Dip | Length | Objective |
| :--- | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |
| CH88-60 | $10+38$ | N | 210 | -50 | 233.5 m |
| CH88-62 | $9+85 \mathrm{~N}$ | 210 | -50 | 237.7 m | 1,4 |
| CH88-63 | $9+25 \mathrm{~N}^{*}$ | 210 | -50 | 246.3 m | 3,4 |
| CH88-59 | $7+72 \mathrm{~N}$ | 210 | -50 | 340.5 m | 4 |
| CH88-61 | $5+77 \mathrm{~N}$ | 210 | -50 | 363.0 m | 4 |
| (* CH88-63 is collared on grid line $46+00 \mathrm{~W}$ at $8+10 \mathrm{~N})$ |  |  |  |  |  |

## Results:

CH88-60, 62 and 63 intersected pyritic sodium depleted felsic tuffs (Randy Active Tuff) from 78.2 to 233.5 in CH88-60, 6.4 to 221.2 in CH88-62 and from 3.0 to 171.6 in CH88-63. This band of altered felsic tuffs is about 200 m wide and contains minor argillites and mafic dykes. Within these altered felsics there geochemically anomalous Zn occurrences, which are thought to be equivalent to the Randy Zone. They are as follows:

| Hole \# | From | To | Length (m) | Cu ppm | $\begin{aligned} & \mathrm{Zn} \\ & \% \end{aligned}$ | Pb ppm | Au ppb | Ag ppm | Ba ppm | As ppm |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CH88-60 | 197.4 | 197.9 | 0.5 | 260 | 2.04 | 6 | 103 | 1.3 | 1200 | 120 |
| CH88-62 | 116.0 | 119.0 | 3.0 | 63 | 0.19 | 123 | 37 | 0.6 | 583 | 30 |
| CH88-62 | 117.0 | 118.0 | 1.0 | 150 | 0.33 | 129 | 45 | 0.9 | 460 | 55 |
| CH88-63 | 50.0 | 51.5 | 1.5 | 3100 | 0.36 | 860 | 49 | 7.2 | 950 | 33 |

In the core of the zone hole $\mathrm{CH} 88-62$ also interected areas of

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anomalous Au and As :

| From | To | Length <br> $(\mathrm{m})$ | Cu <br> ppm | Zn <br> ppm | Pb <br> ppm | Au <br> ppb | Ag <br> ppm | Ba <br> ppm | As <br> ppm |
| ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| 34.0 | 40.0 | 6.0 | 39 | 667 | 36 | 71 | 0.5 | 867 | 137 |
| 74.0 | 85.0 | 11.0 | 22 | 59 | $<5$ | 55 | 0.5 | 1018 | 16 |
| 196.0 | 202.0 | 6.0 | 21 | 110 | 9 | 63 | 1.6 | 838 | 85 |

To the south of the altered felsic tuffs approximately 150 m of unaltered felsic tuffs with minor mafic tuffs and sediments were intersected. These were followed by about 225 m of mafic tuffs with minor interbedded felsic tuffs and argillaceous and cherty sediments. The end of the stratigraphic section, at the claim boundary, was in 125 m of felsic volcanic wackes and reworked tuffs with minor mafic tuffs and sediments. Dips appear to vary between 64 degrees to the north and 85 to the south. The sodium depletion within the altered felsic tuffs is capped by argillites to the south indicating that stratigraphic tops is to the south or the Randy Active Tuff has been fold repeated.

Summary:
The IP chargeability anomalies tested were caused by pyritic and sodium depleted felsic tuffs which contained weakly anomalous base and precious metals locally with up to $2.04 \%$ Zn over 50 cm . The altered felsic tuffs clearly merit further work. Drilling should take place on 300 m sections to explore this promising area using a downhole EM system to further test the horizon and a hole should be drilled 200 m under section $50+00^{\prime} \mathrm{W}$ to test the Randy Active Tuff at depth.

SECTION $32+00 \mathrm{~W}$, Holyoak 2 Claim, Silver Creek Area (Figure 72):

Hole Drilled:
Hole \# Location Azimuth Dip Length

CH85-13 $1+60 \mathrm{~s} \quad 180 \quad-50 \quad 134.1 \mathrm{~m}$
Summary and Results:
CH85-13 intersected the Silver Creek Gabbro over its 134.1 metre length. The IP anomaly was interpreted to be caused by ilmenite within the gabbro and possibly a chalcopyrite rich quartz vein, which assayed $2.82 \% \mathrm{Cu}$ from 81.4 to 81.7 m .

SECTION $31+00 \mathrm{~W}$, Holyoak 2 Claim, Silver Creek Area (Figure 71):

Objectives/Targets:

1. Test downdip extent of mineralization intersected in CH85-10 from 43.3 to 50.8 m which assayed $1.01 \% \mathrm{Zn}$ over the 7.5 m interval.
2. Test deep IP chargeability anomaly ( 36 msec ) centred at $2+20 \mathrm{~S}$.

Holes Drilled:

| Hole \# | Location | Azimuth | Dip | Length | Objective |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| CH88-64 | $1+30 \mathrm{~S}$ | 180 | -50 | 195.1 m | 1.2 |  |
| CH85-10 | $1+90$ | S | 180 | -50 | 159.7 m |  |

Results:
CH88-64 did not intersect a Zn rich zone, the zone may be continued beneath the Silver Creek Gabbro, which was intersected from 47.3 to 195.1 m . The zone in CH85-10 consists of wispy pyrrhotite and sphalerite in a mafic lapilli tuff, that is probably not sodium depleted. The Na2O content from 44.2 to 51.0 m is $1.24 \%$ and this appears to be the normal or just slightly below normal for an unaltered mafic tuff. The source of the sulphides is uncertain and may be associated by remobilization by the gabbro. The area is structurally complex and appears to have subvertical dips. The main mode of volcaniclastic rocks present are dacitic felsic tuffs or possibly flows, which are lineated and possibly welded. They contain minor collapsed pumice fragments, feldspar crystals with alteration rims and stretched and/or welded quartz eyes.

## Summary:

The deep IP chargeability anomaly tested by CH88-64 is probably caused by a zone of $15 \%$ ilmenite within the Silver Creek Gabbro, which was intersected from 125 to 134 m . The mineralization intersected in CH85-10 was not intersected downdip by CH88-64, but may extend beneath the silver Creek Gabbro and a drill hole should be drilled to test beneath the gabbro.

|  | From | To | Cu <br> $(\%)$ | Pb <br> $(\mathrm{ppm})$ | Zn <br> $(\%)$ | Au <br> $(\mathrm{ppb})$ | Ag <br> $(\mathrm{ppm})$ | Ba <br> $(\mathrm{ppm})$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |
| CH85-10 | 43.3 | 50.8 | 0.17 | 58 | 1.01 | 6 | 1.1 | 1154 |
| Trench | $2+30 \mathrm{~S}$ | $2+31.5 \mathrm{~S}$ | 1.01 | 8900 | 2.40 | 500 | 19.5 | 1700 |
| (grab sample) |  |  |  |  |  |  |  |  |

SECTION $29+50 \mathrm{w}$, Holyoak 2 Claim, Silver Creek Area (Figure 70):

Objectives/Targets:

1. Develop stratigraphic section utilizing $\mathrm{CH} 85-11$ and 12 A , which tested coincident deep and shallow IP chargeability anomalies from $1+80$ to $2+00 \mathrm{~S}$ (deep 26 msec and shallow 19 msec ) and at $2+60 \mathrm{~S}$ (deep 36 msec and shallow 27 msec ).
2. Test deep IP chargeability anomaly (17 msec) at $4+40 \mathrm{~s}$

Holes Drilled:

| Hole \# | Location | Azimuth | Dip | Length | Objective |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |
| CH88-66 | $5+01 \mathrm{~S}$ | 180 | -50 | 228.0 m | 1 |
| CH88-67 | $3+50 \mathrm{~S}$ | 180 | -50 | 317.0 m | 1,2 |
| CH88-68 | $0+05 \mathrm{~S}$ | 180 | -50 | 214.9 m | 1 |
| CH85-11 | $1+40 \mathrm{~S}$ | 180 | -50 | 176.1 m |  |
| CH85-12A | $2+20 \mathrm{~S}$ | 180 | -50 | 171.9 m |  |

Results:
No significant mineralization or alteration was intersected. The structural geology is complex due to numerous faults and gabbroic intrusions. Dips appear to range from 75 degrees to the south to about 80 degrees to the north; however, Morrice (personal communication) has postulated that the dips may be shallow and numerous small amplitude folds may occur. Short zones of sodium depleted felsic tuffs with no anomalous base metal mineralization occur in CH88-67 from 145 to $152 \mathrm{~m}, 209.0$ to 219.9 m and 248.2 to 251.7 m .

Summary:
A hole should be drilled to test the Remi downhole anomalies located in CH88-66 and CH88-67. CH85-12A should be relogged and hopefully will correlate better with the trench.

SECTION $25+00 \mathrm{~W}$, Holyoak 2 Claim, Silver Creek Area (Figures 68 and 69):

Objectives/Targets:

1. Develop more northerly stratigraphic section than section $29+50$ W in the Silver Creek Area.
2. Test deep IP chargeability anomaly from $1+20$ to $1+00 \mathrm{~N}$ ( 32 to 33 msec ).
3. Test coincident deep ( 29 to 22 msec ) and shallow (25 to 27 $\mathrm{msec})$ IP chargeability anomaly from $3+20$ to $3+40 \mathrm{~S}$.

Holes Drilled:

| Hole \# | Location | Azimuth | Dip | Length | Objective |
| :--- | :---: | :---: | :---: | :---: | :---: |
| CH88-65 | $4+50 \mathrm{~N}$ | 180 | -50 | 458.7 m | 1 |
| CH88-69 | $2+20 \mathrm{~N}$ | 180 | -50 | 423.4 m | 1,2 |
| CH88-70 | $0+05 \mathrm{~S}$ | 180 | -50 | 403.1 m | 1 |
| CH88-71 | $2+25 \mathrm{~S}$ | 180 | -50 | 254.8 m | 1,3 |

Results:

It appears that drilling intersected numerous fault panels with some sedimentary beds and altered felsic tuff beds indicating dips from 85 degrees to the south to 75 degrees to the north. Several thin zones of sodium depleted felsic tuffs were intersected. Locally these altered felsics contained anomalous Zn and/or Au. The anomalous intersections are:

| Hole \# | From | To | Length (m) | Cu <br> ppm | Zn <br> ppm | Pb ppm | $A u$ ppb | Ag ppm | Ba ppm |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CH88-65 | 434.0 | 436.0 | 2.0 | 13 | 41 | $<5$ | 127 | 1.3 | 1300 |
| CH88-69 | 99.0 | 99.5 | 0.5 | 71 | 2600 | 16 | 13 | $<0.5$ | 960 |
| CH88-70 | 272.0 | 275.7 | 3.7 | 113 | 1396 | 12 | 119 | <0.5 | 1288 |
| CH88-70 | 401.4 | 402.4 | 1.0 | 56 | 3000 | $<5$ | 37 | <0.5 | 2700 |

One of these thin altered felsic tuffs, which was intersected from 82.7 to 90.2 m in $\mathrm{CH} 88-70$, may correlate through a lateral facies change with a base metal enriched argillite that was intersected in CH88-69 from 337.5 to 340.7 m and contained 800 ppm Zn and 300 ppm Pb over 70 cm from 340.0 to 340.7 m .

A approximately 30 m thick altered felsic tuff was
intersected from 430.7 to 453.4 m in $\mathrm{CH} 88-65$ and from 153.7 to 193.0 m in CH88-69. This tuff displays the same characteristics, moderate Ba , elevated Mn and Na2O depletion, as the Randy Active Tuff and may correlate with it.

Summary:
The IP anomalies were caused by pyritic tuffs, the northern anomaly was due to pyritic altered felsic tuffs and the southern is associated with pyritic mafic tuffs, which did not have anomalous metal contents. Geological interpretation is difficult due to numerous fault panels and possibly a anticlinal structure. Drilling should test the possible extension of the Randy Active Tuff and if detailed structural interpretation is desired fill in drilling should be conducted.

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# APPENDIX 3 <br> 1988 TRENCHING PROGRAM RESULTS ON THE CHEMAINUS JOINT VENTURE <br> Project 116 

Situated 14 km west of Chemainus, B.C. in the<br>Victoria Mining Division<br>NTS 92B / 13W

M. Vande Guchte

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Figure 86 : Watson Creek Area, Trench 2+00E(1:500)pocket

During the Summer (June, July) and Fall (October) of 1988 an extensive trenching program was conducted in 4 seperate areas of the Chemainus J.V. property. The overburden stripping succeeded in exposing 2270 meters of near continuous outcrop in 10 trenches. The primary purpose of the trenching program was twofold....

1. To provide continuous surface geology along sections in each area along which important stratigraphic holes have been drilled (S.Enns, 1985 and $S$. Clemmer et al.,1988)
2. Expose at surface possible causes of various geophysical anomalies

Trenching was accomplished by contracting an excavator (JD 790) from owner/operator B. Ellison of Duncan, B.C.. Mr. Ellison was accompanied by a swamper, B. Cochrane, who supervised the trenching operation. Trenches were mapped and sampled by the writer, M. Vande Guchte, and by M. Morrice who oversaw the entire trenching program. High pressure water pumps were used to clean the stripped surfaces which greatly aided in mapping.

## l.1 SAMPLING METHOD

Three types of samples were collected and analyzed for major and minor elements and/or metals.

1. Alteration samples - 12 element and $\mathrm{Ba}, \mathrm{Cu}, \mathrm{Ni}, \mathrm{Zn}$
2. Whole rock samples - 17 element and $\mathrm{Ba}, \mathrm{Cu}, \mathrm{Ni}, \mathrm{Zn}$
3. Geochem/Assay samples - metals

Alteration samples consisted of grab sample chips taken at approximately lm intervals over a specified length. Sample analysis was carried out by XRAL of Don Mills, Ontario.

Whole rock samples are single grab samples that typify the unit and were also analyzed by XRAL.

Geochemical/Assay samples represent channel sampling, varying from 0.5 to 2.0 meters, that were taken across sulphide mineralized areas and argillite units. Samples were analyzed by Bondar Clegg of $N$. Vancouver, B.C..

### 1.2 ANALYTICAL TECHNIQUES

Bondar-Clegg of North Vancouver analysed the channel samples by geochemical methods for $\mathrm{Cu}, \mathrm{Pb}, \mathrm{Zn}, \mathrm{Mo}, \mathrm{Ag}, \mathrm{Fe}, \mathrm{Mn}$, Cd, Co, Ni, As, and Ba. An HNO3-HCL hot extraction and analysis by DC plasma was used for all elements except $A u$ and $B a$. A fire assay preperation with AA finish was used for $A u$ and X-ray Fluorescence was used to give a total analysis for Ba. Samples containing greater than $3000 \mathrm{ppm} \mathrm{Zn}, 30 \mathrm{ppm} \mathrm{Ag}$, or 1000 ppb Au were re-analysed using standard assay techniques for the respective element.

X-Ray Assay Laboratories (XRAL) of Don Mills, Ontario analysed the lithogeochemistry samples. The analysis included a major oxide x-ray fluorescence package plus $\mathrm{Cu}, \mathrm{Zn}, \mathrm{Ni}$, and Ba.

### 2.0 INTRODUCTION TO SHARON AREA

Trenching on the Brent 1 mineral claim concentrated on the Sharon showing area along lines l+50W, 3+00W, and $6+00$ 'W. The area is underlain by volcanics of the McLaughlin Ridge Formation that are intruded by gabbroic intrusives of the Karmutsen Formation. General trench geology and locations are given on the l:5000 map (fig. 75) with detailed trench geology shown on the 1:500 maps (fig. 76 and 77).

### 2.1 GEOLOGY SHARON AREA

The McLaughlin Ridge Fm. underlying the Sharon area is comprised of a complex assemblage of volcanic flows and pyroclastics. A thick sequence of predominantly mafic flows dominates the north-central portion of the area. To the south lies a thick succession of felsic pyroclastics and lesser felsic volcanic flows. Current interpretation places the mafic sequence above the felsics within this highly folded area (see Morrice, 1988). Intermediate pyroclastics are found primarily between the two succesions occuring over a gradational change from the felsic to mafic sequence. Karmutsen gabbroic intrusives are exposed to the north of the mafic succession (trench l+50W) and intersected at depth in drill core (CH85-7, CH85-8), presumably underlying the area.

Lower greenschist metamorphism and a pervasive cleavage has converted the rocks to schists, often obliterating original textures. Variable chlorite-sericite and sericite alteration strongly influences the color of the rock making field mapping difficult.

## 2.la Lithology

The mafic volcanics are comprised of medium to dark green, massive flows and lesser lithic and ash tuffs. Alteration consists primarily of variable, but pervasive chloritesericite or sericite alteration with variable, disseminated to blebby, pyrite

The thick felsic volcanic sequence found to the south of the mafics include quartz phyric and quartz - feldspar phyric varieties of ash and lapilli tuffs and localized massive felsic flows (the latter two observed in drillcore). Lithic fragments within the lapilli tuffs consist of light grey to medium green clasts many of which contain disseminated pyrite and ash size feldspar crystals. The white to medium green felsics are variably sericitized and/or chloritized with local silicification observed in drill core. Presence of interbedded mafic flows and intermediate pyroclastic within the felsic succesion suggest a somewhat bi-modal sequence.

Sharon Grids

$$
\varepsilon_{5 S 0}
$$

$\underline{\underline{F L}}$

$$
\begin{array}{lllll}
L 6+00 \omega & 1+80 S & = & L 4+50 \omega & 13+405 \\
L 5+00 \omega & 0+20 N & L & L+00 \omega & 11+80 S \\
L 4+00 \omega & 2+008 N & L & L+50 \omega & 10+40 S \\
L 3+00 \omega & 1+10 S & L+50 \omega & 13+60 S \\
L 2+00 \omega & 1+00 N & L & L+00 & 12+00 S
\end{array}
$$



ESSO BASELINE ENDS AT $1+00 W$ AT $6+00 \mathrm{~W}$ ( 6 lines)
CHEM 78-1: LOCATION: 500W 175 S
AZIINUTH: 20 @ - $45^{\circ}$

- Marked with a yellow post put up this YEAR AS CHEM 79-01

Mike vance Gucks
Nev. $3 / 88$


The medium to dark green intermediate volcanics are comprised of heterolithic tuff breccias, lapilli tuffs and ash tuffs. Lithic clasts are predominantly intermediate to felsic "cherty" in composition with lesser, more obscured ?, mafic clasts. Pervasive chlorite-sericite alteration is prevalant throughout the intermediate volcanics.

## 2.1b Structure

The structure of the sharon area remains poorly understood. Widespread deformation has resulted in a well defined, steeply dipping, foliation direction of 120 to 130 degrees. Correlation between trench $1+50 \mathrm{~W}$ and $3+00 \mathrm{~W}$ suggests the rock units strike at approximately llo degrees. The 1988 field work has delineated a broad regional s-sE trending anticline with the sharon area lying within the northeastern limb. The area is believed to be intensely folded (Morrice, 1988). Evidence of internal folding or flat lying volcanics is suggested by shallow dipping beds found in drill core (CH85-7) and by exposed mafic flows (trench l+50W) which are directly underlain by felsic volcanics cut in drill core (CH85-8). The orientation of several mineral lineations suggests the folded volcanics plunge gently (<l5 degrees) to the east.

Faults, shears, and kink bands show limited sinistral motion at variable azimuths ranging from 30-50 degrees. Gabbro's exposed to the north appears to have been faulted up by an $E-W$ trending fault, however, the exact nature of this gabbroic body is unknown other than that it also exists at depth as indicated in drill core.

### 2.2 DISCUSSION OF RESULTS

## 2. 2a Trench $1+50 \mathrm{~W}$

Trenching along line l+50W succeeded in exposing 315 $m$ of near continuous outcrop from $10+00$ to $13+15 \mathrm{~s}$. Massive mafic flows and minor mafic pyroclastic units compose the majority of the exposed surface with lesser interbedded intermediate and felsic pyroclastics. The northern most section, from $10+00 S$ to $10+95 S$, exposes a feldspar phyric to aphyric gabbro.

The most notable lithological features are possible remnant evidence of a pillowed mafic flow from 12+01s to $12+13 S$ and an intermediate heterolithic tuff breccia from $12+56 \mathrm{~S}$ to $12+90 \mathrm{~S}$. The pillowed mafic flow is poorly defined, with pillow structures up to 1 m thick, and elongated parallel to foliation. Selvages range to several cm and are distinguised by medium to dark green chlorite alteration. Alte-
ration and whole rock geochemistry indicate the flow is strongly Na 2 O and CaO depleted (<1\%) with elevated Cu (631 ppm ) and $\mathrm{Zn}(375 \mathrm{ppm})$. Results of channel sampling across the flow revealed an anomolous Cu value of 3800 ppm over 2 meters.

Alteration sampling delineated several other strongly altered zones the most notable extends from $10+95 \mathrm{~S}$ to $11+50 \mathrm{~S}$. This section, composed of mafic, intermediate, and felsic volcanics, is strongly Na 2 O and CaO depleted (<1\%), contains elevated K2O (2.32-3.48\%) with respect to the rest of the trench, and anomalous Ba ranging from $1300-2420 \mathrm{ppm}$. Two other significantly altered areas (listed below) occur adjacent to a fault zone (sample VA00470) and within a mafic flow (sample VA00478). The latter of which contains elevated (546 ppm) Cu mineralization over 8 meters.

|  | From <br> (m) | $\begin{aligned} & \mathrm{TO} \\ & (\mathrm{~m}) \end{aligned}$ | $\begin{aligned} & \mathrm{Na} 2 \mathrm{O} \\ & (\mathrm{O}) \end{aligned}$ | $\begin{aligned} & \mathrm{SiO} \\ & (\mathrm{O}) \end{aligned}$ | $\begin{aligned} & \mathrm{CaO} \\ & (\%) \end{aligned}$ | $\begin{gathered} \mathrm{K} 2 \mathrm{O} \\ (\%) \end{gathered}$ |  | $\left.\begin{array}{c} \mathrm{Cu} \\ \mathrm{ppm} \end{array}\right)$ | Zn |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| VA00470 | $11+70$ | $11+73$ | 0.67 | 60.1 | 0.45 | 1.06 | 726 | 156 | 287 |
| VA00478 | $12+39$ | $12+47$ | 0.99 | 52.6 | 0.67 | 0.55 | 499 | 546 | 204 |

The pyritic nature of the mafics, up to 10\% locally, encouraged the collection of numerous channel samples. Anomalous Cu and Zn occur within both the altered and unaltered mafic volcanics. Unfortunately, no conclusive pattern can be established to link the metal mineralization with alteration.

Results indicate anomalous zinc from ll+40s to 12+40S. The highest Zn mineralization within this area occurs primarily within the unaltered mafic volcanics. Values range from 193-764 ppm Zn in the alteration samples with similar results indicated by channel and whole rock sampling. Anomalous Cu appears to occur more sporadically within several zones, the most notable of which occurs in an unaltered mafic flow from $12+30$ S to $12+39 \mathrm{~S}$. An alteration sample (VA00477) taken across the unit indicates elevated (1947 ppm) Cu with channel sampling revealing similar results of elevated Cu ranging from 345-1252 ppm.

Significant Mn values are recorded throughout the channel sampled areas. Values range from 651 ppm to 5658 ppm , the highest of which were encountered in the mafic volcanics. Allthough the channel sampling is discontinuos the Mn appears to decrease to the south.

## 2.2b Trench 3+00W

Trenching along line $3+00 \mathrm{~W}$ from $12+00 \mathrm{~S}$ to $14+88 \mathrm{~S}$ succeeded in exposing 288 m of near continuous outcrop. The trench is dominated by variably sericitized felsic volcanics with variably chlorite - sericite altered intermediate, mafic, and felsic volcanics found in the northern 60 meters.

Alteration sampling indicate the majority of the rock units are strongly ( $<1 \%$ ) Na2O and CaO depleted, contain 3-4\% K20, and elevated $\mathrm{Ba}(1170-3120 \mathrm{ppm})$. Two intermediate tuffs found between $13+37 \mathrm{~S}$ and $13+44 \mathrm{~S}$ remain unaltered.

Two anomalous metal occurences, both within altered felsics, are delineated within the trench. A narrow, discontinuos gossan zone at $14+77 \mathrm{~S}$ contains anomalous Au ( 672 ppb ), $\mathrm{Cu}(369 \mathrm{ppm})$, and $\mathrm{Fe}(>10 \%)$. The second is a probable quartz vein related anomalous Cu ( 1159 ppm ) value from $12+76.5 \mathrm{~S}$ to $12+77.5 \mathrm{~S}$. Despite strong alteration no other notable metal mineralization is evident. Mn values dropped dramatically, generally < 1000 ppm, with respect to trench $1+50 \mathrm{~W}$.
2.2c Trench 6+00'W

Moderate to strongly sericitized felsics are exposed in this 60 m trench. Alteration samples indicate strong to moderate (.25\%-1.26\%) Na2O depletion and strong (<1\%) CaO depletion. K2O levels range from $2.83 \%$ to $4.06 \%$ and elevated, up to 1680 ppm , barium is found within this trench. No significant base metal mineralization is encountered despite strong alteration.


### 3.0 INTRODUCTION TO SILVER CREEK

Trenching on the Holyoak 2 claim (Silver Creek Area) succeeded in exposing approximately 440 m of near continuous outcrop along lines $25+00 \mathrm{~W}$ and $29+50 \mathrm{~W}$. The area is underlain by volcanics of the McLaughlin Ridge Formation and intruded by gabbroic intrusive equivalents of the Karmutsen Formation. A general overview of trench geology and locations are given on the 1:5000 map (fig. 78) with detailed trench geology provided on the 1:500 maps (fig. 79 and 80).

### 3.1 GEOLOGY SILVER CREEK

The trenching exposes a highly interlayered sequence of chloritized and sericitized felsic volcanics, locally carbonatized mafic and intermediate volcanics, and minor argillites. Drilling and surface mapping has outlined numerous gabbro occurences at depth (fig. 70) and extensive surface exposures to the south. Only minor occurrences of gabbroic intrusives are encountered in the trenches.

## 3.1a Lithology

The mafics volcanics are comprised of medium to dark green ash tuffs and feldspar and/or mafic crystal tuffs. Mafic units are selectively carbonate altered and variably sheared.

The medium to dark green intermediate volcanics include feldspar and/or mafic phyric and aphyric varieties of ash tuffs, lapilli tuffs, and massive flows. Intermediate to mafic volcanic wackes are found primarily to the north in trench $25+00 \mathrm{~W}$ and intermediate feldspar phyric lapillituffs to the south in trench $29+50 \mathrm{~W}$. Units are selectively carbonate altered and sheared.

Variably chloritic and sericitic felsics are comprised of quartz and/or feldspar crystal tuffs and aphyric ash tuffs. Chloritic quartz phyric felsic dykes are observed locally within the $25+00 \mathrm{~W}$ trench.

## 3.1b Structure

Regionally, rock units are generally moderate to well foliated with strikes ranging from 290-310 degrees and near vertical dips. Faults, shears and kink bands have variable strike orientations ranging from approximately 50-130 degrees. Fault motion is visibly sinistral, however, orientations of minor shear zones suggest dextral-sinistral conjugate pairs. Results of the 1988 field program postulate the Silver Creek area to be more intensely folded than outlying areas (see

Figure:
78

Morrice, 1988). Orientations of several mineral lineations suggest sections of the folded rock units plunge gently (<5 degrees) to the east.

### 3.2 DISCUSSION OF RESULTS

3.2a Trench $25+00 \mathrm{~W}$

The excavated area exposes a highly interlayered sequence of selectively altered mafic and intermediate pyroclastics, with lesser interbedded intermediate volcaniclastics, felsic pyroclastics, and minor argillites. The majority of the trench is characterized by low ( $<1 \%$ ) CaO contents and only two significantly Na2O depleted intervals from 55.8-68.0 m and 75.6-105.6 m.

The latter interval consists primarily of a pyritic, sericitized felsic tuff, centrally cross-cut by an East-West trending shear zone. Results indicate strong ( $<1 \%$ ) Na2O and CaO depletion with coincident Ba enrichment (1070-1150 ppm). Channel sampling reveals anomalous Zn (1378 ppm), Cu (183 $\mathrm{ppm})$, $\mathrm{Au}(56 \mathrm{ppb}), \mathrm{Pb}(121 \mathrm{ppm})$ and $\mathrm{Ba}(4300 \mathrm{ppm})$ adjacent to the shear zone (sample VA07738) with metal values decreasing northward, away from the shear. Drill holes CH88-69 and CH88-65 intersected the same altered felsic at depth indicating the units dip steeply to the north. Allthough distant, it is suggested that this altered area is on strike and correlates with Abermin's Randy Zone. Bordering these altered felsics to the north is a pyritic argillite containing anomalous $\mathrm{Zn}(273 \mathrm{ppm})$ and elevated $\mathrm{Mn}(987 \mathrm{ppm})$.

The more southern altered zone, from 55.8-68.0m, is comprised of intermediate and felsic pyroclastics intruded by minor felsic and gabbroic dykes towards the intervals southern contact. Results indicate low ( $<1 \%$ ) Na2O and CaO with concomitant K2O (3.7-4.71\%) enrichment. No significant base metal values were detected.

Other salient features include a carbonitized argillaceous mafic tuff from 146-150 meters. Channel samples across this unaltered unit indicate anomalous, up to 1552 ppm Mn , and up to 160 ppm Zn (over 1 m ).
3.2b Trench $29+50 \mathrm{~W}$

Trench 29+50, comprised of 3 trenches, is underlain by a sequence of interlayered chloritic and sericitic felsic pyroclastics, intermediate flows and pyroclastics, mafic pyroclastics, and minor argillaceous horizons. Various cherty horizons are found locally within the mafics at $0+10$ and as thin beds within the felsics near $0+94 \mathrm{~S}$. No conclusive bed-
ding tops could be recognized. The most notable lithological feature, from l+31S to $1+52 \mathrm{~S}$, is a massive unaltered felsic feldspar crystal tuff, with up to $35 \%$ subrounded feldspar crystals. No significantly altered zones were delineated, however, CaO and Ba contents appear to increase to the south.

Results indicate elevated $\mathrm{Ba}(1400-2600 \mathrm{ppm})$ in an argillaceous interval from $0+815$ to $0+85 \mathrm{~S}$. A similar Ba enriched (1300ppm) argillceous unit is encountered directly south of the massive feldspar pyhric tuff at l+52S. Both zones lack significant base metal mineralization.

The only significant base metal results occur within an unaltered argillaceous mafic tuff and adjacent unaltered, locally quartz veined, intermediate lapilli tuff. Several 1 to 1.5 m channel samples taken between $2+28 \mathrm{~S}$ and $2+36.5 \mathrm{~S}$ indicate anomalous base and precious metal mineralization across both units.

| SAMPLE | FROM | TO | Ba | Cu | Zn | Pb | Mn | Au |
| :--- | :--- | :--- | :--- | ---: | ---: | ---: | ---: | ---: |
|  | $(\mathrm{m})$ | $(\mathrm{m})$ | - | -1100 | 175 | 684 | 875 | 3942 |
| VA07756 | $2+36.5$ | $2+35$ | 1100 | $<5$ |  |  |  |  |
| VA07757 | $2+35$ | $2+33.5$ | 1800 | 298 | 856 | 357 | 2539 | 21 |
| VA07758 | $2+31.5$ | $2+31$ | 1200 | 26 | 182 | 10 | 1092 | $<5$ |
| VA07759 | $2+31$ | $2+30$ | 1400 | 129 | 980 | 22 | 1345 | 119 |
| VA07760 | $2+30$ | $2+29$ | 1400 | 100 | 1210 | 14 | 1358 | $<5$ |
| VA07761 | $2+29$ | $2+28$ | 1000 | 19 | 173 | 23 | 1479 | $<5$ |

The argillaceous mafic, represented by samples VA07756 and VA07757, contains significantly anomalous Pb and Mn . Elevated Au (119 ppb) in sample VA07759 is related to localized quartz veining in the intermediate lapilli tuff. Alteration sampling of the intermediate flows to the south of the argillaceous mafic indicate weakly elevated Zn levels of up to 384 ppm .

### 4.0 INTRODUCTION TO HOLYOAK AREA

Trenching on the Holyoak 3 mineral claim (Holyoak) succeeded in exposing approximately 760 m of near continuous outcrop in four trenches. McLaughlin Ridge Formation volcanics underlie the entire area with gabbroic intrusive equivalents of the Karmutsen Formation found in the North-West. A general overview of trench geology and locations is given on the 1:5000 map (fig. 81) with detailed trench geology provided on the $1: 500$ maps (fig. 83,84 , and 85 ).

### 4.1 GEOLOGY HOLYOAK AREA

The trenches, which trend across coincident shallow and deep IP anomalies, are underlain predominantly by variably pyritic-chlorite and sericite altered felsic volcanics with several interbedded argillite horizons. The geophysical anomalies appear to be caused by local concentrations of disseminated and stringer pyrite within both the felsic volcanics and the argillites. The felsic volcanics, which increase in thickness to the northwest, are bound to the north and south by intermediate volcanics and volcaniclastics with lesser interbedded mafic and felsic units. Gabbroic intrusives occur to the north in the $48+00 \mathrm{~W}$ trench and as minor occurrences within all 4 trenches.
4.la Lithology

The felsics volcanics are comprised of chloritic and/or sericitic varieties of quartz phyric and aphyric ash tuffs and lesser lapilli tuffs. Variable concentrations, up to 7 \% locally, of disseminated to stringer pyrite occur throughout the felsics. Hence, the sericitized units are invariably rust stained and the chloritic varieties display a rusty brown discolouration. High SiO2 contents (up to 90\%) indicate that some of the felsics have been silicified. Trace amounts of chalcopyrite have been observed in these silicified areas (trench 41').

Medium to dark green intermediate volcanics are comprised of sheared ash tuffs, sheared volcaniclastics, and a massive flow (the latter 2 observed in the $48+00 \mathrm{~W}$ trench). Alteration is poorly distinguisable in outcrop.

The mafic volcanics are the least common and comprised primarily of feldspar phyric and aphyric ash tuffs. Visible alteration is hard to discern, however, a significantly carbonate altered ash tuff is observed in the $50+00$ ' $W$ trench.

tinuity and can be classified as potential marker horizons. These argillites, unlike those found in the Anita area, are nt geochemically metal dépleted with the exception of two, 2 m wide, anomalous zinc intervals ( 444 ppm and 314 ppm ) found in trench $48+00 \mathrm{~W}$ and $41+00^{\prime} \mathrm{W}$, respectively (fig. 85 and 83).

### 4.2 DISCUSSION OF RESULTS

Results of the 1988 trenching has delineated a broad (l20m wide) regional trending altered zone within the felsic volcanics. The altered area is bound to the north by the argillite and by intermediate volcanics to the south (fig. 81). This zone of laterally continuous alteration displays strong ( $<1 \%$ ) Na2O and CaO depletion with Ba enriched horizons occuring along the north and southern boundaries. The on strike continuity of the alteration suggests a favourable correlation with Abermin's Randy Zone which lies approximately 1 km on strike to the northwest. Drilling along section 50 ' W has outlined this same altered felsic volcanic sequence directly below the altered surface exposure. These altered pyritic felsics contain a narrow (1-3 meter) steeply dipping, zinc-rich zone intersected in drillholes CH88-60, 62, and 63 (fig. 65). Projected to surface, this zone correlates with an anomalous quartz veined Ba ( $2.3 \%$ over 2 m ) horizon with no associated base metal mineralization. The highest on surface base metal results occur within the altered felsic zone in trench 41'W. Channel sampling across this altered silicified felsic tuff reveals anomalous $\mathrm{Zn}(1300 \mathrm{ppm})$ and $\mathrm{Cu}(661 \mathrm{ppm})$ over a 2 meter interval.

Alteration sampling has outlined 3 laterally continuous Ba enriched horizons ( $>2000 \mathrm{ppm}$ ) within the felsic volcanics. The zones range from 10-25 meters in width and are found consistantly within these 3 area....

1. Along the northern felsic to intermediate contact
2. Directly south of the interbedded argillites
3. Along the southern felsic to intermediate contact

The most significant anomalous Ba occurs along the southern felsic to intermediate contact in trench 41'W and 50'w. Results indicate $3200-8100 \mathrm{ppm} \mathrm{Ba}$ in a 14 m wide interval in trench $41^{\prime} \mathrm{W}$ and 2890 ppm Ba over a 25 m interval in trench 50'W. The latter interval occurring adjacent to the elevated (2.3\%) Ba horizon. Despite significant alteration, specifically within the latter two Ba enriched zones, base and precious metal mineralization does not correlate with elevated Ba contents.

Other salient features include a magnetite bearing mafic tuffaceous sediment (trench 48+00W) similar to those
exposed to the north of this area. The relationship between these units suggest regional folding occurs in the area and further supports evidence of the mafic volcanics overlying the felsic volcanics (see Morrice, 1988). Magnetite bands (beds) indicate steep dips to the north with no discernable tops.

A thin, less than 3 meter, mafic intrusive cuts the felsic volcanics in both trench $48+00 \mathrm{~W}$ and $50+00^{\prime} \mathrm{W}$. This apparent laterally continuous unit is also intersected at depth in CH88-60, 62, and 63 on section 50+00'W. These gabbroic units are believed to have intruded their host rock prior to folding.

Anomalous Mn values occur sporadically throughout channel sampled areas. The most notable of 8700 ppm Mn over 2 meters occurs in a silicified felsic tuff exposed in trench 40+00'W. Since Mn is only analyzed for in channel samples and not in alteration samples its relative degree of overall enrichment remains unknown.

## 4.2a Structure

Regionally, rock units are generally moderate to well foliated with strikes ranging from 290 to 310 degrees and near vertical dips. The felsic volcanics show an increase in thickness to the northwest which may be indicative of regional folding in the area. A slightly overturned anticlinal structure, plunging gently ( $<5$ degrees) to the south east, is postulated to lie across the felsic volcanics (fig. 82). The Ba enrichment along the north and south felsic to intermediate contacts are invariably the same. The Zn mineralization, observed in drill core and trench 41'W, linked to the Ba enriched horizon adjacent to the argillite.

Sinistral faults, shears and kink bands have localized orientations ranging from 60 to 110 degrees. Intrusive volcanics and quartz veins are commonly boudinaged parallel to the foliation direction (290 to 310 degrees).


### 5.0 INTRODUCTION TO WATSON CREEK

Trenching in the Watson Creek area, along Line $2+00 E$, succeeded in exposing 400 m of near continuous outcrop. The area is underlain by volcanics of the McLaughlin Ridge Formation and intruded, to the north, by gabbroic equivalents of the Karmutsen Formation. A drillhole and trench location map with local geology is given on a 1:5000 map (fig. 56) with detailed trench geology provided on the 1:500 map (fig. 86).

### 5.1 GEOLOGY WATSON CREEK

The central portion of the Watson Creek $2+00 E$ trench is underlain by a mafic volcanic sequence with minor interbedded intermediate and felsic volcanics. Felsic volcanics are exposed to the north and south of this mafic sequence. The change from the mafic to felsic volcanics occurs over a gradational contact to the north and as a sharp contact to the south. The latter seperated from the mafics by a 5 metre wide Ba-rich (2700 ppm) argillite. Results of 3 drillholes (CH8877, 79, and 81) along line $2+00 \mathrm{E}$ indicate that the rock units dip steeply to the north (fig 58). Unfortunatly, no base or precious metal contents were encountered on surface or in drillcore.

## 5.la Lithology

The felsic volcanics are comprised of quartz and/or feldspar phyric to aphyric varieties of ash tuffs and minor lapilli tuffs. The latter occurs from $2+43 \mathrm{~S}$ to $2+48 \mathrm{~s}$ and contains chloritic "cherty" felsic fragments and lesser intermediate to mafic fragments. The felsic units are invariably sericitized and chloritized with local traces of disseminated pyrite.

The variably sheared to massive mafic volcanics occur as mafic and/or feldspar phyric to aphyric ash and minor lapilli tuffs. Intermediate to felsic lapilli fragments are significantly flattened parallel to foliation. Alteration is poorly discernable, however, feldspar crystals are weak to moderately sauseratized.

Intermediate volcanics are comprised of quartz and/or feldspar crystal tuffs, ash tuffs, and minor volcaniclastics. Units are variably sheared to massive with alteration similar to that observed in the mafic volcanics.


Results of alteration sampling indicate two strongly (<1\%) Na2O and CaO depleted zones from $2+73 \mathrm{~N}$ to $2+88 \mathrm{~N}$ and from $3+10 \mathrm{~N}$ to $3+52 \mathrm{~N}$ (fig 86). The altered intervals are comprised of variably sericitized, rust stained felsic tuffs located to the north of the mafic sequence. Current interpretation places the altered felsics as a western extension of Abermin's Randy zone. Despite significant alteration the units contain no base or precious metal contents.

Sampling has delineated two Ba-rich horizons within the $2+00 E$ trench. The first, a previously mentioned argillite from $0+43 \mathrm{~N}$ to $0+49 \mathrm{~N}$, contains elevated ( 2700 ppm ) Ba over 6 meters. A second interval, from $2+68 \mathrm{~N}$ to $2+7 \mathrm{lN}$, is composed of a sericitized felsic ash tuff with anomalous ( 4020 ppm ) barium. The Ba-enriched interval lies directly south of the strongly Na2O depleted zone. Capping (or underlying ?) this second interval to the south (along $2+68 \mathrm{~N}$ ) is a thin ( 50 cm ) pyritic felsic tuff, which contains anomalous ( 6580 ppm ) Ba , but no base metals.

## 5.2a Structure

Regionally, the rock units are moderate to well foliated with strikes ranging from 280 to 300 degrees and near vertical dips. Evidence of tight, isoclinal folding is indicated in drill core, CH88-77 (fig 58). A regional east-west trending antiform is indicated along the northern felsic volcanics (see Morrice, 1988). The mafic volcanic sequence, found to the south, may lie within a similar east-west trending synform. Mineral lineations suggest that these folded units have gentle plunges (lo degrees) to the west.

# APPENDIX 3a <br> WHOLE ROCK, ALTERATION, AND BONDAR SAMPLING <br> RESULTS FOR THE <br> 1988 TRENCHING PROGRAM 

O

SHARON AREA
Trench $1+50$
Alteration : VA00462 - VA00485
Whole rock : VA07286 - VA07313
VA07159 - VAO7162
VA11016 - VAl1025
VA07523
Bondar : VA07762 - VAO7817

Trench $3+00$
Alteration : VA00492 - VA00499
VA10501 - VAl0508
Whole rock : VAO7314 - VAO7334
VAl1029 - VA11034
Bondar : VA07818 - VA07831 VA07524 - VA07525

Trench 6+00'
Alteration : VA00486 - VA00491
Whole rock : VA07335 - VA07337

Trench 25+00
Alteration : VA00430 - VA00459

Trench $30+00$
Alteration : VA00091

## SILVER CREEK AREA

Whole rock : VAO7270 - VA07282
Whole rock : VA07270 - VAO7282
VAl1036 - VAl1040
Bondar : VA07738 - VA07746
Trench $29+50$
Alteration : VA00418-VA00429
VA00460 - VA00461
Whole rock : VA07251 - VAO7269
VA07283 - VA07285
VA11041 - VA11046
Bondar : VA07747 - VA07753
VA07756 - VAO7761
(VA07831 - West of trench $3+00 W, 35 \mathrm{~m}$ at 060 degrees from 4+50W / 13+50S)

## HOLYOAK AREA

```
    Trench 50+00'
Alteration : VAl0509 - VAl0529
Whole rock : VA07367 - VA07386
    Bondar : VA07832 - VA07843
        VA07860 - VA07868
    Trench 48+00
Alteration : VA10531 - VAl0551
Whole rock : VA07351 - VA07366
                            VA07387 - VA07390
    Bondar : VA07844 - VA07859
    Trench 41+00'
Alteration : VAOO367 - VA00386
Whole rock : VA07055 - VA07063
    Bondar : VA07701 - VA07725
    Trench 40+00'
Alteration : VA00387 - VA00392
    VA00400 - VA00402
    Bondar : VA07726 - VA07737
```

WATSON CREEK
Trench 2+00
Alteration : VA10560 - VAl0597 Whole Rock : VA07391 - VA07407

Bondar : VA07870

# WHOLE ROCK, ALTERATION, AND BONDAR SAMPLES OF THE SHARON AREA TRENCHES 

O

MIAMOND DRILL CQRE LITHOGEDCHEMICAL RECQRD (MAJOR ELEMENTS)


## HIAMOND DRILL CORE XITHOGEOCHEMICAL RECORD (MINOR ELEMENTS)



DIAMOND DRILL CQRE LITHOEEDCHEMICAL RECORE
(MAJOR ELEMENTS)


DIAMOND DRILL CQRE LITHOGEOCHEMICAL KECQRI

| SAMPLE NUMEER | EROM | - TO | $\begin{gathered} k B \\ (p p m) \end{gathered}$ | $\begin{gathered} \mathrm{SR} \\ (\mathrm{POP} \mathrm{~m}) \end{gathered}$ | EA (pDm) | $\begin{aligned} & Y \\ & (\mathrm{ppm}) \end{aligned}$ | $\begin{gathered} 2 k \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{aligned} & N B \\ & (\mathrm{ppm}) \end{aligned}$ | $\stackrel{c u}{\left(p p_{n}\right)}$ | $\begin{aligned} & 2 N \\ & (\mathrm{ppm}) \end{aligned}$ | $\begin{aligned} & N I \\ & (\mathrm{ppmi}) \end{aligned}$ | ROCK | $\begin{aligned} & \text { CODES } \\ & \text { ALT } \end{aligned}$ | MIN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| UA11022 | 1217.50 | 1217.60 | 20.0 | 96.0 | 518.0 | (10.0) | 24.0 | 15.0 | 126.0 | 318.0 | 27.0 | UMAEA | EHW |  |
| V407295 | 1219.00 | 1219.10 | 23.0 | 249.0 | 124.0 | <10.0 | 10.0 | 28.0 | 109.0 | 799.0 | 19.0 | TIBET | $\star$ | IIRP |
| VA11021 | 1219.50 | 1219.60 | 19.0 | 275.0 | 110.0 | 10.0 | ¢10.0 | 17.0 | 126.0 | 869.0 | 29.0 | UMAA |  |  |
| UA07296 | 1227.00 | 1227.10 | 12.0 | 152.0 | 239.0 | 10.0 | 10.0 | 28.0 | 215.0 | 464.0 | 31.0 | TIAET ${ }^{\text {A }}$ | $\star$ | nCP |
| V407297 | 1237.50 | 1237.60 | 17.9 | 22.0 | 426.0 | 16.0 | 10.0 | 30.0 | 132.0 | 278.0 | 24.0 | TIAEIA | $\star$ | nep |
| YA07292 | 1242.00 | 1243.10 | 23.0 | 19.0 | 257.0 | 10.0 | <10.0 | 14.0 | 665.0 | 227.0 | 24.0 | TIAT* | FHW | [0] |
| va07312 | 1248.00 | 1243.10 | 45.0 | 109.0 | 1030.0 | 12.0 | 73.0 | 11.0 | 113.0 | 121.0 | 16.0 | TEAET* | PSW | ESP |
| YA07160 | 1255.00 | 1255.00 | 59.0 | 100.0 | 1160.0 | 34.0 | 61.0 | $<10.0$ | 29.0 | 10\%.0 | <10.0 | UMAA | SHW | UnF |
| 1911016 | 1262.00 | 1262.10 | 11.0 | 105.0 | 250.0 | 23.0 | 121.0 | 15.0 | 57.0 | 177.0 | 10.0 | TICA |  |  |
| UA07299 | 1265.50 | 1365.60 | 45.0 | 55.0 | 1040.0 | 26.0 | 89.0 | <10.0 | 167.0 | 125.0 | 5.0 | TICEL ${ }^{\text {¢ }}$ | $\star$ | IEP |
| 1907300 | 1273.50 | 1273.60 | 31.0 | 160.0 | 714.0 | 35.0 | 104.0 | 10.0 | 25.0 | 108.0 | 2.2 | Tecelt | * | nes |
| UA07313 | 1277.501 | 1277.60 | 23.0 | 93.0 | 983.0 | 29.0 | 89.0 | 17.0 | 33.0 | 95.0 | 2.0 | PEAEA | $\star$ | A- |
| リA0\%301 | 1280.00 | 1280.10 | 52.0 | 80.0 | 951.0 | 30.0 | 74.0 | 11.0 | 34.0 | 123.0 | 9.0 | TIAT | FHW | IEP |
| UA11017 | 1281.50 | 1281.60 | 38.0 | 81.0 | 735.0 | 22.0 | 38.0 | 18.0 | 38.0 | 191.0 | 19.0 | TMAK | PHM | ECF |
| VA07302 | 1258.001 | 1238.10 | 20.0 | 93.0 | 205.0 | 15.0 | 33.0 | 18.0 | 72.0 | 332.0 | 1.0 | TIAT* | PHM | [18P |
| VA11018 | 1288.001 | 1288.10 | 920.0 | 24.0 | 287.0 | 28.0 | 53.0 | 10.0 | 63.0 | 283.0 | 15.0 | UMAX | EH4 | ECP |
| VAll019 | 1294.001 | 1294.10 | 10.0 | 108.0 | 144.0 | 24.0 | 34.0 | 24.0 | 90.0 | 347.0 | 10.0 | VMAK |  |  |
| VA11020 | 1299.001 | 1299.10 | ¢10.0 | 15.0 | 1990.0 | 10.0 | 94.0 | 16.0 | 124.0 | 82.0 | 10.0 | UMAX | PSS |  |
| 94073031 | 1300.00 ! | 1300.10 | 22.0 | 10.0 | 394.0 | 26.0 | 45.0 | 13.0 | 101.0 | 290.0 | 8.0 | TEAT* | FSW | DCP |
| V407304 1 | 1309.001 | 1309.10 | 66.0 | 119.0 | 1250.0 | 10.0 | 63.0 | 21.0 | 45.0 | 124.0 | 12.0 | TEATk | PSW | ICP |

DIAMOND DRILI CORE LITHQGEOCHEMICAL RECORI (MAJOR ELEMENTS)


DIAMOND DRILL CORE LITHOGEOCHEMICAL RECQRD
(MINOR ELEMENTS)

| SAMPLE NUMBER | EROM | TO | $\begin{gathered} \mathrm{RB} \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} 5 R \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} \mathrm{BA} \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} Y \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} Z R \\ (\mathrm{ppm}, \end{gathered}$ | $\begin{gathered} \text { NB } \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} \mathrm{CU} \\ (\mathrm{ppw}) \end{gathered}$ | $\begin{gathered} 2 N \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} \mathrm{NI} \\ (\mathrm{ppm}) \end{gathered}$ | ROCK | $\begin{gathered} \text { CODES } \\ \text { ALT } \end{gathered}$ | MIN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| VA00462 | 1095.00 | 1105.00 |  |  | 1300.0 |  |  |  | 139.0 | 115.0 | <10.0 | TEATA | PHL | DCP |
| U400463 | 1105.00 | 1115.00 |  |  | 1360.0 |  |  |  | 156.0 | 263.0 | $<10.0$ | TIAT* | PHH | ICP |
| VA00464 | 1115.00 | 1130.00 |  |  | 1470.0 |  |  |  | 45.0 | 169.0 | 10.0 | TICT* | PHW |  |
| VA00465 | 1130.00 | 1140.00 |  |  | 2420.0 |  |  |  | 20.0 | 100.0 | <10.0 | TEAIA | PHW | IBP |
| UA00466 | 1140.00 | 1146.00 |  |  | 1690.0 |  |  |  | 75.0 | 442.0 | 21.0 | TIAT* | Sch | ncF |
| VA00467 | 1146.00 | 1151.00 |  |  | 1730.0 |  |  |  | 48.0 | 408.0 | 23.0 | TEAT* | PSW | IICP |
| UA00468 | 1151.00 | 1164.00 |  |  | 336.0 |  |  |  | 33.0 | 499.0 | 16.0 | TMATA | PHM | nc: |
| WA00469 | 1164.00 | 1170.00 |  |  | 689.0 |  |  |  | 48.0 | 437.0 | 18.0 | TMAT* | PHM | nat |
| Vh00470 | 1170.00 | 1173.00 |  |  | 726.0 |  |  |  | 156.0 | 287.0 | 8.0 | TEAIA | PHW | ICP |
| Wa00471 | 1173.00 | 1177.00 |  |  | 521.0 |  |  |  | 215.0 | 764.0 | 32.0 | TMATA | SCH | A- |
| VA00472 | 1177.00 | 1183.00 |  |  | 786.0 |  |  |  | 76.0 | 606.0 | 26.0 | TIAT* | PHW |  |
| VAO0473 | 1183.00 | 1201.00 |  |  | 268.0 |  |  |  | 28.0 | 193.0 | 13.0 | IIAET* | PHM | DCP |
| VA00474 | 1201.00 | 1213.00 |  |  | 205.0 |  |  |  | 631.0 | 375.0 | 29.0 | TIAT* | PHM | IICF |
| Va00475 | 1213.00 | 1219.00 |  |  | 141.0 |  |  |  | 48.0 | 502.0 | 20.0 | TIAET | PHM | ICP |
| VA00476 | 1219.00 | 1230.00 |  |  | 211.0 |  |  |  | 243.0 | 640.0 | 25.0 | TIAET* | PHM | IICP |
| V400477 | 1230.00 | 1239.00 |  |  | 433.0 |  |  |  | 1947.0 | 307.0 | 23.0 | TIAFT* |  | [IRP |
| VA00473 | 1239.00 | 1247.00 |  |  | 499.0 |  |  |  | 546.0 | 204.0 | 19.0 | TIAT* | PHW | D0F |
| VAOO479 | 1247.00 | 1256.00 |  |  | 1100.0 |  |  |  | 81.0 | 97.0 | 7.0 | TIAI* | PSH | IICP |
| VA00480 | 1256.00 | 1269.00 |  |  | 889.0 |  |  |  | 83.0 | 116.0 | <10.0 | TICEL | PHW | 日EP |
| VA00481 | 1269.00 | 1277.00 |  |  | 644.0 |  |  |  | 31.0 | 135.0 | $\bigcirc 10.0$ | IICEL | PHW | 118 F |
| VA00482 | 1277.00 | 1283.00 |  |  | 1100.0 |  |  |  | 48.0 | 129.0 | 7.0 | TIAT* | PHW | IIBP |
| VAOO483 | 1283.00 | 1290.00 |  |  | 432.0 |  |  |  | 77.0 | 280.0 | 4.0 | TIAT* | PHM | dep |
| VAOO484 | 1290.00 | 1306.00 |  |  | 1320.0 |  |  |  | 253.0 | 150.0 | 9.0 | TFAT* | PSW | ICF |
| VA0048S | 1306.00 | 1315.00 |  |  | 1040.0 |  |  |  | 59.0 | 133.0 | 14.0 | TEATA | PSW | IICF |

DIAMOND DRILI CORE LITHQGEOCHEMICAL RECORD

| SAMPLEE NUMBER | EROM | ro | $\begin{gathered} B A \\ (\rho p a) \end{gathered}$ | $\begin{aligned} & \mathrm{CU} \\ & (\rho \mathrm{pm}) \end{aligned}$ | $\underset{(\mathrm{ppm})}{\mathrm{ZN}}$ | $\begin{gathered} A G \\ (p p m) \end{gathered}$ | $\begin{aligned} & A U \\ & (\mathrm{ppb}) \end{aligned}$ | $\begin{gathered} C 0 \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} N I \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{aligned} & P 8 \\ & (p p x) \end{aligned}$ | $\begin{gathered} \text { AS } \\ (\mathrm{ppm}) \end{gathered}$ | $\underset{(\mathrm{ppm})}{C D}$ | $\begin{aligned} & \text { HN } \\ & (\mathrm{ppw}) \end{aligned}$ | ZEE | ROCK | $\begin{gathered} \text { CODES } \\ \text { ALI } \end{gathered}$ | MIN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| VA07775 | 1098.00 | 1100.00 | 1200.0 | 149.0 | 136.0 | 0.9 | 5.0 | 20.0 | 10.0 | <5.0 | 47.0 | <1.0 | 1479.0 | 8.77 | TFAI | PHW | ncp |
| VA07776 | 1100.00 | 1102.00 | 800.0 | 44.0 | 62.0 | 1.1 | 7.0 | 12.0 | 3.0 | 9.0 | <5.0 | 1.0 | 651.0 | 4.03 | IEAT | PHK | ncp |
| VA07727 | 1102.00 | 1104.00 | 1400.0 | 147.0 | 103.0 | 1.0 | 6.0 | 15.0 | 7.0 | ¢5.0 | 33.0 | <1.0 | 1460.0 | 7.42 | teat | FHM | DCP |
| UA07778 | 1104.00 | 1106.00 | 1500.0 | 452.0 | 137.0 | 1.0 | 13.0 | 11.0 | 5.0 | <5.0 | 28.0 | 2.0 | 1846.0 | 8.32 | teat | PHM | DCP |
| VA07779 | 1106.00 | 1102.00 | 1800.0 | 351.0 | 207.0 | 0.9 | ¢5.0 | 11.0 | 3.0 | 5.0 | $\bigcirc 5.0$ | <1.0 | 2120.0 | 7.94 | IIAT | PHK | ncp |
| UA07780 | 1108.00 | 1110.00 | 1600.0 | 72.0 | 354.0 | 0.8 | $<5.0$ | 7.0 | 1.0 | <5.0 | <5.0 | <1.0 | 2580.0 | 8.53 | TIAT | PHK | DCP |
| VA07781 | 1110.00 | 1112.00 | 1500.0 | 292.0 | 290.0 | 1.6 | 6.0 | 7.0 | 6.0 | $\bigcirc 5.0$ | 27.0 | 1.0 | 3230.0 | 9.52 | IIAT | PHK | DCP |
| UA07782 | 1112.00 | 1114.00 | 1500.0 | 559.0 | 307.0 | 1.4 | 17.0 | 7.0 | 6.0 | $<5.0$ | 45.0 | $<1.0$ | 3441.0 | 9.96 | TIAT | PHW | DCP |
| VA07783 | 1114.00 | 1116.00 | 1800.0 | 333.0 | 259.0 | 1.0 | <5.0 | 10.0 | 12.0 | 65.0 | 14.0 | 1.0 | 2742.0 | 8.99 | IEAI | PHW | IBP |
| VA07784 | 1116.00 | 1118.00 | 1600.0 | 115.0 | 231.0 | 0.7 | 5.0 | 5.0 | 7.0 | <5.0 | 5.0 | 1.0 | 2604.0 | 7.96 | TFAT | PHW | [18P |
| U407762 | 1137.00 | 1139.00 | 2500.0 | 46.0 | 96.0 | 0.8 | $\leqslant 5.0$ | 5.0 | 6.0 | 48.0 | <5.0 | 2.0 | 783.0 | 1.86 | teat | PSW | DBP |
| V407763 | 1139.00 | 1141.00 | 2100.0 | 51.0 | 319.0 | 0.9 | <5.0 | 5.0 | 11.0 | 27.0 | <5.0 | 3.0 | 2625.0 | 4.78 | TEATA | FSW | DBP |
| UA07764 | 1141.00 | 1143.00 | 1100.0 | 71.0 | 529.0 | $\bigcirc 0.5$ | 45.0 | 27.0 | 19.0 | 12.0 | $<5.0$ | $<1.0$ | 5658.0 | 6.18 | TIAT | PHK | DCP |
| VA07765 | 1143.00 | 1145.00 | 1400.0 | 167.0 | 700.0 | 0.7 | 5.0 | 23.0 | 20.0 | 6.0 | 11.0 | 3.0 | 5222.0 | 7.41 | TIAI | PHK | ICF |
| VA07766 | 1145.00 | 1147.00 | 1400.0 | 91.0 | 464.0 | 0.9 | < 5.0 | 10.0 | 17.0 | 17.0 | 30.0 | 2.0 | 3448.0 | 7.23 | IEAT | FHW | DCP |
| VA07767 | 1147.00 | 1149.00 | 1700.0 | 105.0 | 441.0 | 0.6 | <5.0 | 12.0 | 19.0 | 12.0 | 9.0 | 2.0 | 4052.0 | 7.27 | TEAI | PHi | IICP |
| VA07768 | 1149.00 | 1151.00 | 1400.0 | 55.0 | 513.0 | 0.7 | $<5.0$ | 10.0 | 14.0 | <5.0 | 8.0 | 1.0 | 4753.0 | 7.38 | TEAT | PHU | nCP |
| VA07769 | 1151.00 | 1153.00 | 1100.0 | 946.0 | 601.0 | 1.5 | 6.0 | 13.0 | 14.0 | <5.0 | <5.0 | <1.0 | 5246.0 | 6.96 | TMAT | PHW | D8P |
| VA07770 | 1159.00 | 1161.00 | 110.0 | 100.0 | 720.0 | 0.6 | <5.0 | 13.0 | 12.0 | <5.0 | 6.0 | 1.0 | 4166.0 | 6.57 | IMAI | PHM | DRF |
| UA07771 | 1163.00 | 1164.00 | 810.0 | 56.0 | 512.0 | $<0.5$ | ¢5.0 | 6.0 | 13.0 | <. 0 | 35.0 | 1.0 | 3827.0 | 6.73 | that | PHM | IICP |
| VA07772 | 1164.00 | 1166.00 | 760.0 | 55.0 | 560.0 | 0.8 | 6.0 | 8.0 | 18.0 | <5.0 | 26.0 | <1.0 | 3601.0 | 7.10 | TMAT | PHM | nop |
| VA07773 | 1166.00 | 1168.00 | 620.0 | 103.0 | 407.0 | 0.6 | $<5.0$ | 7.0 | 18.0 | <5.0 | 28.0 | <1.0 | 3321.0 | 7.34 | TMAT | PHM | Dup |

DIAMOND DRILL CORE LITHOGEOCHEMICAL RECORI (MINOR ELEMENTS)

| SAMPLE NUMBER | EROM | TO | $\begin{gathered} B A \\ (p p m) \end{gathered}$ | $\begin{gathered} \mathrm{Cu} \\ (\mathrm{ppw}) \end{gathered}$ | $\begin{gathered} 2 N \\ (p p m) \end{gathered}$ | AG <br> (ррн) | $\stackrel{A U}{(p p b)}$ | CO <br> ( ppm ) | $\begin{gathered} \text { NI } \\ \left(p p_{n}\right) \end{gathered}$ | $\begin{gathered} \text { pg } \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} A S \\ (\mathrm{ppa}) \end{gathered}$ | $\begin{gathered} C D \\ (\mathrm{ppa}) \end{gathered}$ | $\underset{(\mathrm{ppm})}{\mathrm{MN}}$ | ZEE | ROCK | $\begin{aligned} & \text { CODES } \\ & \text { ALT } \end{aligned}$ | M IN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| UA07774 | 1168.00 | 1170.00 | 550.0 | 75.0 | 369.0 | $<0.5$ | 65.0 | 10.0 | 13.0 | <5.0 | 23.0 | $<1.0$ | 3159.0 | 7.06 | THAT | PHM | D.P |
| UA07785 | 1170.00 | 1172.00 | 850.0 | 115.0 | 152.0 | 0.8 | 5.0 | $<1.0$ | 7.0 | <5.0 | $\bigcirc 5.0$ | <1.0 | 1308.0 | 3.59 | teat | PSH | DAP |
| UA07786 | 1172.00 | 1174.00 | 570.0 | 171.0 | 626.0 | 0.7 | 6.0 | 7.0 | 18.0 | <5.0 | 15.0 | <1.0 | 3165.0 | 6.88 | teat | PSW | DBP |
| VA07787 | 1174.00 | 1176.00 | 550.0 | 286.0 | 626.0 | <0.5 | 7.0 | 16.0 | 19.0 | <5.0 | 7.0 | 1.0 | 3500.0 | 7.28 | tratk | PHW | DRP |
| VA0780G | 1182.00 | 1193.00 | 470.0 | 593.0 | 652.0 | $\bigcirc 0.5$ | 8.0 | 32.0 | 19.0 | $<5.0$ | 22.0 | <1.0 | 3481.0 | 9.59 | TIAT ${ }^{\text {A }}$ | ? | DCP |
| VA07788 | 1210.00 | 1212.00 | <20.0 | 3800.0 | 313.0 | 1.6 | 9.0 | 16.0 | 15.0 | <5.0 | 22.0 | <1.0 | 3165.0 | 9.37 | tiat | PHM | DRP |
| VA07789 | 1212.00 | 1214.00 | <20.0 | 390.0 | 432.0 | 0.6 | <5.0 | 13.0 | 17.0 | < 5.0 | ¢5.0 | <1.0 | 3657.0 | 8.98 | IIAT | PHY | DBP |
| VA07790 | 1214.00 | 1216.00 | <20.0 | 198.0 | 761.0 | 0.7 | <5.0 | 20.0 | 16.0 | $\leqslant 5.0$ | 31.0 | <1.0 | 4400.0 | 8.42 | TIAT* | PH | DBP |
| UA07791 | 1216.00 | 1218.00 | 30.0 | 96.0 | 710.0 | 0.7 | <5.0 | 23.0 | 18.0 | 8.0 | 37.0 | <1.0 | 3873.0 | 7.26 | TIAT* | PHM | [8P |
| VA07792 | 1223.50 | 1224.50 | 400.0 | 67.0 | 689.0 | 1.2 | $\bigcirc 5.0$ | 24.0 | 18.0 | 10.0 | 27.0 | <1.0 | 4249.0 | 7.06 | TIAT | PHM | DRP |
| V407793 | 1224.50 | 1225.50 | 160.0 | 229.0 | 547.0 | 1.5 | 6.0 | 20.0 | 13.0 | <5.0 | 42.0 | $\leqslant 1.0$ | 4773.0 | 10.00 | TIAT* | PHM | 0 |
| UA07794 | 1225.50 | 1226.50 | 400.0 | 110.0 | 635.0 | 0.9 | 5.0 | 17.0 | 20.0 | <5.0 | 36.0 | $<1.0$ | 3862.0 | 7.00 | TIAT | PHW | D8F |
| VA07795 | 1230.00 | 1231.00 | 50.0 | 1252.0 | 338.0 | $<0.5$ | 5.0 | 25.0 | 10.0 | $\leqslant 5.0$ | 19.0 | <1.0 | 2902.0 | 7.20 | IIAEA | PHM | DPP |
| VA07796 | 1231.00 | 1232.00 | 70.0 | 451.0 | 302.0 | 1.0 | ¢5.0 | 16.0 | 17.0 | <5.0 | 12.0 | < 0 | 2932.0 | 6.49 | T IAE | PHM | DAP |
| VA07797 | 1232.00 | 1234.00 | 640.0 | 401.0 | 295.0 | 1.1 | 7.0 | 15.0 | 17.0 | 5.0 | <5.0 | <1.0 | 2991.0 | 6.91 | TIAE | PHM | DRP |
| VA07798 | 1234.00 | 1236.00 | 210.0 | 703.0 | 282.0 | 0.9 | 8.0 | 17.0 | 16.0 | <5.0 | <5.0 | 4.0 | 3400.0 | 8.78 | TIAT ${ }_{\text {\% }}$ | PHM | DCP |
| VA07799 | 1236.00 | 1238.00 | 510.0 | 462.0 | 296.0 | 0.6 | $<5.0$ | 12.0 | 14.0 | $<5.0$ | 20.0 | <1.0 | 3555.0 | 7.74 | IIAE | PHM | DEP |
| VA07800 | 1236.00 | 1238.00 | 380.0 | 345.0 | 331.0 | $<0.5$ | 7.0 | 15.0 | 19.0 | <5.0 | 18.0 | <1.0 | 3731.0 | 7.83 | TIAE* | PHM | DCP |
| VAO7801 | 1240.00 | 1242.00 | 320.0 | 256.0 | 276.0 | <0.5 | 65.0 | 10.0 | 19.0 | $\bigcirc 5.0$ | 6.0 | <1.0 | 3566.0 | 9.05 | IIAT | PHS | Dup |
| VA07802 | 1242.00 | 1244.00 | 310.0 | 96.0 | 299.0 | 0.8 | 7.0 | 21.0 | 17.0 | $\checkmark 5.0$ | 30.0 | ¢1.0 | 3996.0 | 10.00 | IIAT | PHW | DOP |
| VA07803 | 1244.00 | 1246.00 | 510.0 | 650.0 | 246.0 | 0.6 | 8.0 | 13.0 | 16.0 | $<5.0$ | 17.0 | <1.0 | 3635.0 | 8.99 | TIAI | PHW | DDP |
| VA07804 | 1246.00 | 1248.00 | 1000.0 | 258.0 | 155.0 | <0. 5 | 7.0 | 5.0 | 10.0 | $<5.0$ | 14.0 | <1.0 | 2154.0 | 4.42 | IEAET | PSW | DBP |

DIAMOND DRIII CORE LITHOGEDCHEMICAL RECORD
(MINOR ELEMENTS)

| SAMPLE NUMBER | EROM | T0 | $\begin{aligned} & B A \\ & (p p m) \end{aligned}$ | $\begin{aligned} & C U \\ & (p p m) \end{aligned}$ | $\begin{gathered} 2 N \\ (\mathrm{ppmin}) \end{gathered}$ | $\begin{gathered} A G \\ (p \mathrm{pq}) \end{gathered}$ | AU <br> (ppb) | $\begin{gathered} C O \\ (\mathrm{p} p \mathrm{~m}) \end{gathered}$ | $\begin{gathered} N I \\ (p p n) \end{gathered}$ | $\begin{aligned} & \text { PB } \\ & (\mathrm{p} p \mathrm{~m}) \end{aligned}$ | $\begin{aligned} & A S \\ & (\mathrm{ppm}) \end{aligned}$ | $\begin{gathered} C D \\ (\mathrm{p} p \mathrm{~m}) \end{gathered}$ | $\begin{gathered} \mathrm{MN} \\ (\mathrm{ppm}) \end{gathered}$ | XEE. | ROCK | $\begin{aligned} & \text { CODES } \\ & \text { ALT } \end{aligned}$ | MIN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| UA07805 | 1250.00 | 1252.00 | 1400.0 | 31.0 | 90.0 | $<0.5$ | 6.0 | 1.0 | 2.0 | <5.0 | $<5.0$ | $<1.0$ | 1341.0 | 2.60 | TIAIA | PHH | DCP |
| VA07807 | 1252.00 | 1254.00 | 1300.0 | 30.0 | 135.0 | $<0.5$ | <5.0 | 11.0 | 7.0 | <5.0 | 27.0 | <1.0 | 1710.0 | 6.28 | T IAT | PHW | DCP |
| VA07808 | 1254.00 | 1256.00 | 640.0 | 32.0 | 155.0 | <0.5 | <5.0 | 4.0 | 5.0 | $\bigcirc 5.0$ | 36.0 | <1.0 | 1974.0 | 4.09 | IIAI | PHW | IRP |
| VA07809 | 1256.00 | 1258.00 | 970.0 | 31.0 | 123.0 | <0.5 | 5.0 | 2.0 | $<1.0$ | $<5.0$ | <5.0 | <1.0 | 1743.0 | 3.94 | TICI | PHW | IRP |
| VA07810 | 1258.00 | 1260.00 | 860.0 | 42.0 | 141.0 | $<0.5$ | 6.0 | 1.0 | 3.0 | <5.0 | 10.0 | <1.0 | 1736.0 | 3.76 | TICT | PHW | IRP |
| UA07811 | 1309.00 | 1311.00 | 790.0 | 270.0 | 301.0 | 0.8 | 10.0 | $<1.0$ | 4.0 | <5.0 | 21.0 | $<1.0$ | 2774.0 | 9.35 | IEAT | PSW | DCP |
| VA07812 | 1311.00 | 1313.00 | 510.0 | 294.0 | 286.0 | 0.6 | 6.0 | <1.0 | <1.0 | <5.0 | 23.0 | <1.0 | 3242.0 | 10.00 | TEAT | PSW | DCP |
| VA07813 | 1313.00 | 1315.00 | 720.0 | 111.0 | 241.0 | <0.5 | 5.0 | 2.0 | 1.0 | <5.0 | 31.0 | <1.0 | 2757.0 | 8.02 | TEAI | PSW | ICP |
| VA07814 | 1315.00 | 1317.00 | 1100.0 | 43.0 | 158.0 | 0.5 | < 5.0 | 9.0 | 3.0 | $\bigcirc 5.0$ | <5.0 | <1.0 | 1945.0 | 6.69 | TEAT | PSW | ICP |
| VA07815 | 1317.00 | 1319.00 | 970.0 | 44.0 | 165.0 | $\bigcirc 0.5$ | <5.0 | <1.0 | 4.0 | $\leqslant 5.0$ | 34.0 | <1.0 | 2033.0 | 7.87 | TEAT | PSW | DCP |
| VA07816 | 1319.00 | 1321.00 | 1300.0 | 22.0 | 148.0 | <0. 5 | 6.0 | 6.0 | 7.0 | $\leqslant 5.0$ | 9.0 | <1.0 | 1816.0 | 7.22 | IEAT* | PSW | DCP |
| VA07817 | 1321.00 | 1323.00 | 1300.0 | 18.0 | 154.0 | <0.5 | <5.0 | 1.0 | 3.0 | <5.0 | 23.0 | <1.0 | 1897.0 | 6.03 | IEAT ${ }_{\text {a }}$ | PSW | DCP |



Hole Na. TRENCH $3+00 W$ WHOLE ROCK SAMPLES

DIAMOND DRILL CQRE LITHOGEOCHEMICAL RECORI (MINDR ELEMENTS)

| SAMFLE <br> NUMEER | EROM | TO | $\begin{gathered} R E \\ (p p m) \end{gathered}$ | $\begin{gathered} 58 \\ (\mathrm{ppm} \end{gathered}$ | $\begin{gathered} \mathrm{BA} \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{aligned} & Y \\ & (\mathrm{ppm}) \end{aligned}$ | $\begin{gathered} 2 \mathrm{R} \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{aligned} & \text { NB } \\ & (\mathrm{ppm}) \end{aligned}$ | $\begin{gathered} c u \\ (p p m) \end{gathered}$ | $\begin{gathered} \mathrm{ZN} \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} N I \\ (p \mathrm{pm}) \end{gathered}$ | ROCK | $\begin{aligned} & \text { CODES } \\ & \text { ALT } \end{aligned}$ | MIN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| UA07334 | 1203.00 | 1203.10 | 25.0 | <10.0 | 692.0 | 410.0 | 16.0 | 12.0 | 73.0 | 235.0 | 28.0 | TIAI* | PHM | IICP |
| VA07333 | 1220.00 | 1220.10 | 85.0 | <10.0 | 2200.0 | 45.0 | 129.0 | 10.0 | 28.0 | 95.0 | $<10.0$ | TIEI* | PHM | IRP |
| VA11032 | 1233.50 | 1233.60 | 39.0 | 139.0 | 1010.0 | 34.0 | 83.0 | 14.0 | 53.0 | 113.0 | 40.0 | TFGIL |  |  |
| VA07332 | 1237.00 | 1237.10 | 45.0 | 129.0 | 1170.0 | 17.0 | 109.0 | 13.0 | 68.0 | 93.0 | <10.0 | TIAET* | PH: |  |
| vallo31 | 1244.00 | 1244.10 | 70.0 | 24.0 | 2560.0 | <10.0 | 104.0 | 10.0 | 37.0 | 13.0 | 2.0 | TEAQt | PSS | DCP |
| UA07331 | 1254.00 | 1254.10 | 810.0 | 101.0 | 1160.0 | 40.0 | 24.0 | 10.0 | 759.0 | 118.0 | 15.0 | TEAT* | Fik | IBP |
| VA07330 | 1258.00 | 1258.10 | 118.0 | 21.0 | 4690.0 | 010.0 | 37.0 | 14.0 | 203.0 | 12.0 | $<10.0$ | TEAT. | PSM | 0 P |
| VA11029 | 1261.30 | 1261.40 | 29.0 | 578.0 | 385.0 | 36.0 | 124.0 | 32.0 | 40.0 | 242.0 | <10.0 | FMAISt |  |  |
| VA11030 | 1262.00 | 1262.10 | 96.0 | 119.0 | 2640.0 | 41.0 | 150.0 | 16.0 | 35.0 | 230.0 | 10.0 | Imat |  |  |
| V407329 | 1263.00 | 1263.10 | 25.0 | 721.0 | 291.0 | 35.0 | 123.0 | 15.0 | 29.0 | 195.0 | 40.0 | FMAI* | $?$ | 0 |
| VA07328 | 1275.00 | 1275.10 | 86.0 | (10.1) | 2960.0 | 010.0 | 27.0 | 19.0 | 213.0 | 16.0 | 10.0 | TEATA | PSM | DCF |
| UA07327 | 1282.00 | 1282.10 | 95.0 | 10.0 | 2700.0 | 10.0 | 100.0 | 10.0 | 90.0 | 17.0 | 10.0 | TEADA | PSU | A- + |
| VA07326 | 1300.00 | 1300.10 | 76.0 | 15.0 | 2250.0 | 10.0 | 88.0 | 10.0 | 40.0 | 17.0 | 810.0 | TEARA | PSH | A- |
| VA11033 | 1315.50 | 1315.60 | 65.0 | 80.0 | 1710.0 | 18.0 | 85.0 | 15.0 | 25.0 | 53.0 | 11.0 | TFARA | PSU | ITP |
| V407324 | 1338.00 | 1338.10 | 24.0 | 461.0 | 816.0 | 13.0 | 134.0 | 19.0 | 63.0 | 195.0 | 10.0 | TIAET | * | $A^{-}$ |
| VA07323 | 1360.00 | 1360.10 | 59.0 | <10.0 | 2490.0 | 10.0 | 82.0 | 12.0 | 30.0 | <10.0 | 10.0 | TEAQ* | PSH | A- |
| VA07322 | 1363.00 | 1363.10 | 55.0 | 10.0 | 1250.0 | 10.0 | 95.0 | 10.0 | 73.0 | 150.0 | <10.0 | TEAQE* | * | $A^{-}$ |
| VA07321 | 1367.00 | 1367.10 | 52.0 | 10.0 | 1400.0 | <10.0 | 88.0 | 11.0 | 90.0 | 47.0 | <10.0 | TPAQE | PSM | A- |
| VA07320 | 1373.50 | 1379.60 | 68.0 | 81.0 | 1630.0 | 41.0 | 145.0 | 30.0 | 59.0 | 417.0 | 10.0 | TIATA | $\star$ | IEP |
| VA11034 | 1380.70 | 1380.80 | 65.0 | 10.0 | 1590.0 | 10.0 | 84.0 | 10.0 | 40.0 | 10.0 | $\bigcirc 10.0$ | TFARA | PSS |  |
| VA07319 | 1410.00 | 1410.10 | 54.0 | 14.0 | 2160.0 | 12.0 | 104.0 | 16.2 | 94.0 | 103.0 | <10.0 | TEAllet | PSM | A- |
| Vab7318 | 1420.00 | 1420.10 | 59.0 | 10.0 | 3650.0 | 10.0 | 92.0 | 10.0 | 33.0 | 32.0 | 10.0 | TFACA | PSM | A- |
| V407317 | 145\%.00 | 1457.10 | 50.0 | ¢10.0 | 1920.0 | 10.0 | 81.0 | 14.0 | 34.0 | ¢10.0 | <10.0 | TEAT* | PSS | $\mathrm{A}^{-}$ |
| VA07316 | 1465.00 | 1465.10 | 54.0 | 11.0 | 4080.0 | 10.0 | 64.0 | 10.0 | 64.0 | 10.0 | 10.0 | TEARA | FSS | $\mathrm{A}^{-}$ |
| V407315 | 1482.00 | $14 \pm 2.10$ | 78.0 | 10.8 | 1770.0 | 12.0 | 116.0 | 10.0 | 150.0 | 56.0 | 10.0 | TEATA | PSW | ICF |
| 1407314 | 1486.00 | 1486.10 | 56.0 | 19.0 | 1390.0 | 19.0 | 87.0 | 21.0 | 35.0 | 107.0 | 10.0 | TFAED | FSH | IRF |

Hole No. TRENCH 3+OOW WHOLE ROCK SAMPLES

IIAMOND DRILL CQRE LITHQGEQCHEMICAL RECORD (MAJOR ELEMENTS)

| SAMPLE NUMBER | EROM | TO | \% 102 | \%al203 | \%CAO | \% HfSO | ZNA2O | \%K20 | \%FE203 | \%T102 | \%P205 | \%KNO | \%LOI | Sum | cones |  | MIN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ROCK | AL. T |  |
| - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| VA10508 | 1200.00 | 1220.00 | 57.40 | 15.50 | 1.79 | 7.51 | 0.64 | 2.34 | 7.29 | 0.61 |  |  | 5.31 | 98.39 | IIATA | PHW |  |
| VA10507 | 1220.00 | 1240.00 | 71.40 | 10.80 | 0.60 | 4.23 | 0.34 | 1.86 | 5.84 | 0.35 |  |  | 3.77 | 99.19 | TIATA | PHM | [日f |
| VA10506 | 1240.00 | 1260.00 | 60.20 | 14.80 | 0.27 | 3.40 | 0.87 | 3.32 | 10.70 | 0.72 |  |  | 5.31 | 99.59 | TEAT* | PSW | DRF |
| VA10505 | 1260.00 | 1277.00 | 60.00 | 14.60 | 0.45 | 2.64 | 1.25 | 3.03 | 11.30 | 0.68 |  |  | 5.54 | 99.50 | TEAIt | PSW | DCF |
| VA10504 | 1277.00 | 1300.00 | 72.30 | 11.50 | 0.04 | 0.83 | 0.42 | 3.43 | 7.62 | 0.28 |  |  | 3.31 | 99.73 | TEAQT* | PSW | DRP |
| VA10503 | 1300.00 | 1320.00 | 76.90 | 11.60 | 0.20 | 0.83 | 1.00 | 3.05 | 3.06 | 0.25 |  |  | 2.39 | 99.28 | TFAOT* | PSH | IEF |
| VA10502 | 1320.00 | 1340.00 | 75.50 | 11.30 | 0.35 | 0.96 | 0.68 | 3.13 | 5.05 | 0.26 |  |  | 2.62 | 99.85 | TEART | PSH |  |
| UA10501 | 1337.00 | 1344.00 | 57.20 | 18.20 | 3.51 | 3.27 | 2.60 | 2.16 | 8.03 | 0.48 |  |  | 4.08 | 99.53 | TIAET ${ }_{\text {d }}$ | $\star$ | A- |
| VA00498 | 1360.00 | 1380.00 | 78.50 | 11.40 | 0.03 | 0.83 | 0.44 | 3.24 | 2.74 | 0.24 |  |  | 2.54 | 99.96 | TEAGTA | PSH | [18P |
| VA00499 | 1360.00 | 1380.00 | 76.10 | 10.40 | 0.03 | 0.77 | 0.18 | 3.23 | 5.08 | 0.21 |  |  | 2.93 | 98.93 | teagit | PSH | DEP |
| VA00497 | 1380.00 | 1400.00 | 74.40 | 13.10 | 0.01 | 1.10 | 0.41 | 3.66 | 3.67 | 0.24 |  |  | 3.08 | 99.67 | IEAGT | PSM | IRP |
| VA00496 | 1400.00 | 1420.00 | 74.70 | 13.40 | 0.04 | 1.13 | 1.34 | 3.44 | 2.44 | 0.28 |  |  | 2.85 | 99.62 | TEAGT* | PSK | arp |
| VA00495 | 1420.00 | 1440.00 | 76.20 | 12.50 | 0.03 | 0.87 | 0.85 | 3.56 | 2.17 | 0.26 |  |  | 2.39 | 98.83 | TEAQI* | PSM | 0 |
| VA00494 | 1440.00 | 1460.00 | 78.20 | 10.90 | 0.02 | 0.59 | 0.44 | 3.06 | 3.35 | 0.27 |  |  | 2.54 | 99.37 | TEAQE* | PSM | URF |
| VA00493 | 1460.00 | 1480.00 | 78.10 | 9.99 | 60.01 | 0.48 | 0.14 | 3.10 | 4.64 | 0.22 |  |  | 2.39 | 29.06 | TEAQIt | PSS | DRF |
| VA00492 | 1480.00 | 1488.00 | 75.20 | 13.50 | 0.01 | 1.10 | 0.38 | 3.74 | 3.12 | 0.30 |  |  | 2.77 | 100.12 | TEACQA | PHW | DCP |

DIAMOND DRILI CQRE LITHGGEOCHEMICAL RECORD (MINOR ELEMENTS)

| SAMPLE NUMEER | EROM TO | $\begin{gathered} \mathrm{RB} \\ (\mathrm{p} p \mathrm{~m}) \end{gathered}$ | $\begin{gathered} 5 \mathrm{R} \\ (\mathrm{ppH}) \end{gathered}$ | $\begin{gathered} B A \\ (\mathrm{ppm}) \end{gathered}$ | $\stackrel{Y}{(\mathrm{ppm}})$ | $\begin{gathered} \mathrm{ZR} \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} \mathrm{NB} \\ (\mathrm{ppm}) \end{gathered}$ | $\stackrel{c U}{(p p m)}$ | $\begin{gathered} Z N \\ (\mathrm{ppm}) \end{gathered}$ | $\underset{\left(p^{\prime N}\right)}{\mathrm{NI})}$ | ROCK | $\begin{aligned} & \text { CODES } \\ & \text { ALT } \end{aligned}$ | MIN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| VA10508 | 1200.001220 .00 |  |  | 1270.0 |  |  |  | 63.0 | 143.0 | 11.0 | TIAT* | PHW |  |
| VA10507 | 1220.001240 .00 |  |  | 1170.0 |  |  |  | 92.0 | 90.0 | 10.0 | TIATA. | PHM | IEP |
| VAl0506 | 1240.001260 .00 |  |  | 2220.0 |  |  |  | 200.0 | 68.0 | <10.0 | TEATA | PSW | DEP |
| VA10505 | 1260.001277 .00 |  |  | 1880.0 |  |  |  | 168.0 | 70.0 | $<10.0$ | IEAT* | PSW | nCP |
| VA10504 | 1277.001300 .00 |  |  | 2230.0 |  |  |  | 221.0 | 26.0 | <10.0 | TEAOT* | PSW | DEF |
| VAl0503 | 1300.001320 .00 |  |  | 2050.0 |  |  |  | 64.0 | 31.0 | 10.0 | IEAQI* | PSM | IRF |
| val0502 | 1320.001340 .00 |  |  | 1940.0 |  |  |  | 105.0 | 40.0 | <10.0 | TEAQT* | PSM |  |
| Val0501 | 1337.001344 .00 |  |  | 1420.0 |  |  |  | 86.0 | 166.0 | <10.0 | TIAET* | $\star$ | A- |
| VADO498 | 1360.001330 .00 |  |  | 1810.0 |  |  |  | 56.0 | 36.0 | 10.0 | TFAQTA | PS* | [8P |
| VA00499 | 1360.001380 .00 |  |  | 2190.0 |  |  |  | 171.0 | 26.0 | ¢10.0 | IEADT* | PSM |  |
| VA00497 | 1380.001400 .00 |  |  | 1950.0 |  |  |  | 122.0 | 65.0 | <10.0 | TEAGTA | PSM | ERP |
| VA00496 | 1400.001420 .00 |  |  | 2490.0 |  |  |  | 75.0 | 81.0 | ¢10.0 | tramta | PSM | IEF |
| UA00495 | 1420.00 1440.00 |  |  | 3120.0 |  |  |  | 59.0 | 56.0 | <10.0 | TEAQT ${ }_{\text {A }}$ | PSM | 0 |
| VA00494 | 1440.001450 .00 |  |  | 2030.0 |  |  |  | 111.0 | 52.0 | 10.0 | teage | 95\% | DEP |
| VA00493 | 1460.001480 .00 |  |  | 2570.0 |  |  |  | 72.0 | 12.0 | 10.0 | TEAQT* | PSS | DEP |
| U400492 | 1480.001488 .00 |  |  | 1700.0 |  |  |  | 75.0 | 56.0 | 10.0 | TEAEG | PHW | DCF |

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## II TAMOND DRTLL CORE LITHOGEDCHEMICAL RECORI （MINOF ELEMENTS）

| SAMPLE NUMEEE | EROM TO | $\begin{gathered} 54 \\ (728) \end{gathered}$ | $\frac{c 0}{\left(9 p^{m}\right.}$ | $\begin{gathered} 7 n \\ 42 m: \end{gathered}$ | $\begin{gathered} 29 \\ \left\langle p^{2} 9\right. \end{gathered}$ | $\frac{A B}{p p b}$ | $\begin{gathered} 6 \\ (020) \end{gathered}$ | $\begin{aligned} & \mathrm{N!} \\ & (\mathrm{pOn}) \end{aligned}$ | $\begin{gathered} 9 q \\ (p p o) \end{gathered}$ | $\begin{gathered} A B \\ \text { AB? } \end{gathered}$ | $5$ | $\begin{aligned} & M N \\ & P \mathrm{Pm} \end{aligned}$ | \％EED | ROCK | $\begin{aligned} & \text { CODES } \\ & \text { ALT } \end{aligned}$ | MIN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 140783 1 | 0.00 0．00 | 1500.0 | 209.0 | 750.2 | 0.6 | 31.0 | 2.0 | 2.0 | 190.0 | ¢5．0 | 1.0 | 472.0 | 2.07 | TEAGTA | PSM | ges |
| U40\％90 | 1231.001232 .00 | 1300.0 | 30.0 | 145．5． | 0.5 | 26．0 | 3.0 | 4．0 | S．0 | 5.0 | 1.0 | 1399.0 | 3.96 | tiat | PHK | EC： |
| U99\％939 | 1222.001233 .00 | 1400.0 | 83.9 | 3 S | 9.5 | 11.0 | 3.0 | 3.0 | 5.9 | 5.0 | 1．0 | 637.0 | 3.39 | $\operatorname{tat}$ | 04 | 95 |
| $\because 20 \cos$ | 120．50 320260 | 1105 | 22.0 | $\therefore 0$ | 0.5 | 43.0 | 20.6 | $\therefore 0$ | B． | 4.0 | 1．0 | 589.0 | 10.09 |  | ＊ |  |
| 140962 | 1020.001224 .00 | 130.0 | 36.8 | 96 | 0 | $\because 8$ | 2.0 | 1．0 | 4.9 | E． 9 | a．2 | －4， | 1.95 | TIACt | gum | 50 |
| 160929？ | 1567.501269 .50 | 1900.0 | 243.0 | 26.0 | 6.9 | 4.0 | 1.0 | 1．0 | －5．0 | 31.0 | 1.0 | 667.0 | 6.5 | TEAT | FSL | EF |
| 9 Acgong | 1064．59 1371.50 | 2309．0 | 839.0 | 5.0 | 2.5 | 180.5 | C． 2 | 4．0 | 8.8 | 32.9 | E．a | 25.0 | 4.45 | Tッド | FSM | ce |
| Wenged | 1251．60 193．50 | 3100.0 | 213.0 | 25.0 | 0.5 | se． | $\because 20$ | 50 | 6.0 | 26， | 40 | 268.0 | 8.7 | TEATA | 934 | E－ |
| 10968 | 185．${ }^{\text {a }}$ 1295．50 | 1300．0 | 18.6 | 10， 0 | 66 | 69.9 | $\therefore$. | －2 | 6.8 | 4.8 | S．0 | 891.6 | $\because 85$ | Tictix | 384 | 5 |
| 40822 | 295．60 126650 | 1500.0 | 94．6 | 18． | 0.6 | 4．3 | 40 | S0 | s．6 | 50 | S． | 1082.0 | E． 60 | TEA | per | 20 |
| 198981 |  | 100． 0 | 125．2 | 40 | のシ | －3， 0 | $\therefore 0$ | 1．0 | 94，0 | 55.8 | ？ 3.0 | 116.8 | 30.06 | TEAT＊ | peg | 5 |
| Y90980 | 125．50 12\％，50 | 1800.8 | 250 | 40.6 | 6.5 | 28.8 | ？，0 | 40 | 15 | P． 6 | 1.0 | 27.0 | 1，43 | \＃EA？ | Pem | 0 |
| 4409819 | 399.501280 .50 | 3900 | 84.0 | 26.2 | 3.6 | 20．3 | 4 | \％ 0 | 6.6 | 3 c 0 | Q，\％ | 160.3 | 2.37 | 554 | F\％ | 30 |
| H09\％ | 26.001478 .00 | 1406. | 2\％0 | －2．0 | 0.8 | 160.6 | 1．6 | 75.9 | 39.6 | 300.6 | $\therefore 0$ | 50.6 | 6.85 | TEACM | 955 | $\square$ |
| 4505 | $4 \% .90: 4 \%$ | 680.0 | 36． | S4．$\%$ | 4． | 620 | 36 | 1． 3 | 9．3 | 622．0 | $\therefore ?$ | －6． 6 | 10.00 |  | ＊ |  |

DIAMOND DRILL CORE LITHOGEOCHEMICAL RECORD (MAJOR ELEMENTS)


DIAMQND DRILL CORE LITHOGEQCHEMICAL RECORI (MINOR ELEMENTS)



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# WHOLE ROCK, AL'TERATION, AND BONDAR SAMPLES OF THE SILVER CREEK AREA TRENCHES 

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DIAMONE NRILL CORE LITHOGEOCHEMICAL REEGEE (MINOR ELEMENTS)

| SAMPLE NUMBER | EROM | TO | $\begin{gathered} \mathrm{RB} \\ (\mathrm{ppa}) \end{gathered}$ | $\begin{gathered} \mathrm{SR} \\ (\mathrm{ppal}) \end{gathered}$ | $\begin{gathered} B A \\ \left(\mathrm{pp}^{-1}\right) \end{gathered}$ | $\stackrel{y}{(p p m)}$ | $\begin{gathered} 2 R \\ (p p m) \end{gathered}$ | $\stackrel{N B}{(\mathrm{ppm})}$ | $\stackrel{C U}{(\mathrm{ppm})}$ | $\begin{gathered} z N \\ (\mathrm{p} p \mathrm{~m}) \end{gathered}$ | $\begin{gathered} A G \\ (p p n) \end{gathered}$ | $\begin{gathered} \mathrm{AU} \\ (\mathrm{ppb}) \end{gathered}$ | $\begin{gathered} c 0 \\ (\mathrm{ppm}) \end{gathered}$ | $\stackrel{N I}{(\mathrm{ppm})}$ | ROCK | $\begin{gathered} \text { CONES } \\ \text { ALT } \end{gathered}$ | MIN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| VAl1040 | 5.00 | 5.10 | 38.0 | 274.0 | 426.0 | 24.0 | 40.0 | 17.0 | 100.0 | 80.0 | 274.0 |  |  |  | TMAW ${ }_{\text {c }}$ |  |  |
| VA07270 | 7.00 | 7.10 | 70.0 | 115.0 | 726.0 | 27.0 | 121.0 | 13.0 | 33.0 | 67.0 | 115.0 |  |  |  | TMAIt | PQM | [19F |
| VA07271 | 21.00 | 21.10 | 49.0 | 179.0 | 295.0 | 18.0 | 48.0 | 12.0 | 79.0 | 75.0 | 178.0 |  |  |  | THAT | PCW | $A A^{-}$ |
| WA07272 | 27.60 | 27.70 | 60.0 | 147.0 | 534.0 | 15.0 | 30.0 | <10.0 | 160.0 | 84.0 | 147.0 |  |  |  | TIAT* |  | AA- |
| 1707273 | 36.00 | 36.10 | 50.0 | 94.0 | 325.0 | 27.0 | 63.0 | 15.0 | 81.0 | 87.0 | 94.0 |  |  |  | TEAI | PQW | $A^{-}{ }^{-}$ |
| 0407274 | 44.00 | 44.10 | 58.0 | 158.0 | 331.0 | 16.0 | 94.0 | 15.0 | 35.0 | 77.0 | 158.0 |  |  |  | TEAT* | PQH | AA |
| VA07275 | 60.70 | 60.80 | 100.0 | 41.0 | 784.0 | 32.0 | 65.0 | 21.0 | 64.0 | 89.0 | 41.0 |  |  |  | TEAT* | PQM | DCF |
| Y 007276 | 69.80 | 69.90 | 57.0 | 132.0 | 423.0 | 21.0 | 14.0 | 29.0 | 100.0 | s2.0 | 132.0 |  |  |  | TIAT |  | AA- |
| VA07277 | 81.10 | 81.20 | 72.0 | 53.0 | 1370.0 | 11.0 | 108.0 | <10.0 | 62.0 | 263.0 | 63.0 |  |  |  | TEAT* | PSM | IEP |
| VA11039 | 95.00 | 95.10 | 49.0 | 80.0 | 992.0 | 10.0 | 91.0 | 15.0 | 36.0 | 19.0 | 80.0 |  |  |  | TFA | PSS | LCF |
| VA11038 | 95.80 | 96.90 | 58.0 | 62.0 | 1090.0 | 18.0 | 92.0 | 15.0 | 36.0 | 32.0 | 62.0 |  |  |  | TEAK | 955 |  |
| VA07278 | 104.00 | 104.10 | 45.0 | 277.0 | 451.0 | 18.0 | 26.0 | <10.0 | 160.0 | 54.0 | 277.0 |  |  |  | PEATA | * | A- |
| . VA07279 | 109.50 | 109.60 | 36.0 | 158.0 | 504.0 | 30.0 | 37.0 | 10.0 | 44.0 | 110.0 | 158.0 |  |  |  | TIATA | * | A-- |
| 4007280 | 129.60 | 125.70 | 81.0 | 82.0 | 824.0 | 24.0 | 54.0 | 10.0 | 53.0 | 110.0 | 82.0 |  |  |  | TIAT | + | $\mathrm{A}^{-}$ |
| Ya07231 | 147.60 | 147.90 | 17.0 | 81.0 | 93.0 | 21.0 | 10.0 | 40.0 | 57.0 | 64.0 | 81.0 |  |  |  | TIATA | PCH | ICP |
| UAC7282 | 177.00 | 177.10 | 23.0 | 74.0 | 358.0 | 15.0 | 66.0 | 10.0 | $8 \% .0$ | 96.0 | 74.0 |  |  |  | TMAI* | FCb | $A^{-}$ |
| VAl1037 | 199.50 | 199.60 | 42.0 | 250.0 | 421.0 | 25.0 | 57.0 | 22.0 | 14.0 | 104.0 | 250.0 |  |  |  | リMA* |  |  |
| VAll036 | 203.00 | 203.10 | 35.0 | 98.0 | 408.0 | 21.0 | 81.0 | 10.0 | 17.0 | 90.0 | 98.0 |  |  |  | VIAK |  |  |

## DIAMOND DRILK CORE LITHOGEQCHEMICAL RECORD

(MAJOR ELEMENTS)


Hole No. TREN2S+00 ALTERATION SAMPLES
Page No.

DIAMOND DRILL CQRE IITHOGEOCHEMICAL RECORD (MINOR ELEMENTS)

| SAMPLE NUMEER | FROM | TO | $\begin{gathered} \mathrm{KB} \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} S R \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} B A \\ (\rho p m) \end{gathered}$ | $\stackrel{Y}{Y}(p, n)$ | $\begin{gathered} \mathrm{ZR} \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} N B \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} \text { cu } \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} Z N \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} N I \\ (\mathrm{p} p m) \end{gathered}$ | codes |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  |  | ROCK | ALT | MIN |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |



# DIAMOND DRILL CORE LITHOGEOCHEMICAL RECORD 

 (MAJOR ELEMENTS)

DIAMOND DRILI COREXITHOGEOCHEMICAL RECDRD (MINGR ELEMENTS)

| SAMPLE NUMBER | EROM | TO | $\begin{aligned} & \mathrm{RB} \\ & (\mathrm{ppm}) \end{aligned}$ | $\begin{gathered} \mathrm{SR} \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} B A \\ (p p m) \end{gathered}$ | $\begin{gathered} Y \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} 7 R \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} N B \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} \mathrm{CU} \\ (\mathrm{ppn}) \end{gathered}$ | $\begin{gathered} \mathrm{ZN} \\ (\mathrm{p} p m) \end{gathered}$ | $\underset{(\mathrm{ppn})}{\mathrm{NI}}$ | ROCK | $\begin{aligned} & \text { CODES } \\ & \text { ALT } \end{aligned}$ | MIN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| UAOO452 | 127.30 | 134.00 |  |  | 700.0 |  |  |  | 71.0 | 100.0 | <10.0 | TIAT* | * | $A^{-}$ |
| VA00453 | 134.00 | 139.00 |  |  | 436.0 |  |  |  | 26.0 | 127.0 | $<10.0$ | TEAOT $*$ | $\star$ | A- |
| VA00454 | 139.00 | 146.00 |  |  | 364.0 |  |  |  | G6.0 | 89.0 | 18.0 | TIAIA | * | A- |
| UA00455 | 146.00 | 150.00 |  |  | 112.0 |  |  |  | 14.0 | 62.0 | 11.0 | TIAT | PCM | $\mathrm{A}^{-}$ |
| VA00456 | 150.00 | 171.50 |  |  | 313.0 |  |  |  | 62.0 | 86.0 | 40.0 | TMAT ${ }^{\text {a }}$ | PCM | A- |
| VA00457 | $1 \% 1.50$ | 185.00 |  |  | 392.0 |  |  |  | 52.0 | 105.0 | 37.0 | TMAT: | $\star$ | $\mathrm{A}^{-}$ |
| VA00453 | 187.00 | 190.30 |  |  | 345.0 |  |  |  | 71.0 | 39.0 | 18.0 | TFAT | * | A- |
| VA00459 | 190.30 | 210.00 |  |  | 387.0 |  |  |  | 61.0 | 90.0 | 11.0 | TMAT | $\star$ | $\mathrm{A}^{-}$ |

# DIAMDND DRILI CORE LITHOGEDCHEMICAL FECORD 

 (MINOR ELEMENTS)


DIAMOND DRILL CORE LITHOGEOCHEMICAL RECORD (MAJOR ELEMENTS)


IIAMOND DRILL CORE LITHOGEDCHEMICAL KECORI (MINOF ELEMENTS)

| SAMPLE NUMBER | FROM | T0 | $\begin{gathered} R F \\ \left(\rho p_{\mathrm{mi}}\right) \end{gathered}$ | $\begin{gathered} \mathrm{SR} \\ (\mathrm{ppn}) \end{gathered}$ | $\begin{gathered} \mathrm{EA} \\ (\mathrm{ppa}) \end{gathered}$ | $\begin{aligned} & y \\ & (p p m) \end{aligned}$ | $\begin{gathered} Z \mathrm{R} \\ \left(\mathrm{p}_{\mathrm{ph}}\right) \end{gathered}$ | $\begin{aligned} & \mathrm{NB} \\ & (\mathrm{ppm}) \end{aligned}$ | $\begin{aligned} & \mathrm{Cu} \\ & \text { (ppm) } \end{aligned}$ | $\begin{gathered} z N \\ (p p n) \end{gathered}$ | $\begin{gathered} N I \\ (p p m) \end{gathered}$ | ROCK | $\begin{gathered} \text { Cones } \\ \text { ALT } \end{gathered}$ | MIN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 19407262 | 127.00 | 127.10 | 75.0 | 199.0 | 315.0 | 21.0 | 11.0 | 12.0 | 13.0 | 90.0 | 40.0 | rMAt | PCM | AA- |
| U407263 | 131.00 | 131.10 | 26.0 | 884.0 | 214.0 | 27.0 | 35.0 | 17.0 | 60.0 | 70.0 | 14.0 | TEAEMA | SEW | $A A^{-}$ |
| VA07264 | 141.00 | 141.10 | 70.0 | 73.0 | 1160.0 | 10.0 | 60.0 | <10.0 | 18.0 | 23.0 | <10.0 | VEAQM* | PSW | AA- |
| UA1104 | 147.00 | 147.10 | 64.0 | 80.0 | 1120.0 | 23.0 | 101.0 | 11.0 | 2.0 | 25.0 | 2.0 | UFABA | FSM |  |
| 1/407283 | 151.00 | 151.10 | 67.0 | 37.0 | 1340.0 | 47.0 | 30.0 | <10.0 | 72.0 | 143.0 | 39.0 | TEATA | FOM | A- |
| VA07284 | 154.00 | 154.10 | 18.0 | 575.0 | 78.0 | 21.0 | $\bigcirc 10.0$ | <10.0 | 108.0 | 77.0 | 54.0 | TEAT* | POM | A- |
| VA07285 | 155.30 | 155.40 | 12.0 | 150.0 | 121.0 | 31.0 | 25.0 | 10.0 | 140.0 | 96.1 | 58.0 | TEATA | PGM | $\mathrm{A}^{-}$ |

DIAMOND DRILL CQRE LITHGGEOCHEMICAL RECORI
(MAJOR ELEMENTS)


IIAMOND DRILL CORE LITHOGEOCHEMICAL RECORE (MINOR ELEMENTS)

| SAMFLE NUMEEF | FROM | T0 | $\begin{gathered} \mathrm{RE} \\ (\mathrm{pgn}) \end{gathered}$ | $\begin{gathered} 5 R \\ (\mathrm{ppRi}) \end{gathered}$ | $\begin{aligned} & B A \\ & (\mathrm{p} p \mathrm{~B}) \end{aligned}$ | $\begin{aligned} & Y \\ & (p p a) \end{aligned}$ | $\begin{gathered} 2 \mathrm{~K} \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} \text { ME } \\ (p p m) \end{gathered}$ | $\begin{gathered} \mathrm{CH} \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} \mathrm{ZN} \\ (\mathrm{ppn}) \end{gathered}$ | $\begin{gathered} \mathrm{NI} \\ (\mathrm{ppn}) \end{gathered}$ | ROCK | $\begin{aligned} & \text { CODES } \\ & \text { ALT } \end{aligned}$ | MIN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| VA07269 | 8.00 | 8.10 | 36.0 | 425.0 | 953.0 | 13.0 | 106.0 | 10.0 | 45.0 | 246.0 | 10.0 | TEAMAX | Fom |  |
| WA11046 | 9.00 | 9.10 | 50.0 | 418.0 | 1190.0 | 12.0 | 102.0 | 11.0 | 10.0 | 210.0 | 3.0 | VIAEA | PEG |  |
| VA07268 | 17.00 | 17.10 | 54.0 | 129.0 | 1040.0 | 14.0 | 10.0 | 23.0 | 149.0 | 461.0 | 41.0 | TMAK | Pam | $A A^{-}$ |
| VA07367 | 29.30 | 29.40 | 82.0 | 65.0 | 1280.0 | 13.0 | 116.0 | 12.8 | 22.0 | 49.0 | $\bigcirc 10.0$ | tabat | Pow | DHE |
| 9A07266 | 34.00 | 34.10 | 35.0 | 325.0 | 1170.0 | 14.0 | 137.0 | 29.0 | 19.0 | 59.0 | <10.0 | TEAmA | -3x | nib |
| UA0\%265 | 41.50 | 41.60 | 89.0 | 389.0 | 1340.0 | 15.0 | 129.0 | c10.0 | 38.0 | 63.0 | 10.0 | TMAK | FQM | ITP' |

IIAMOND DRILL CORE LITHOGEQCHEMYGAL FECQRD (MAJOR ELEMENTS)

| SAMPLE NUMBER | EROM | TO | \% 102 | ZAL203 | ZCAO | zMgo | XNA2O | \%K20 | 7FE203 | 7T102 | XP205 | \%MND | \%LOI | SUM | cones |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ROCK | ALT | MIN |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| VA00423 | 0.00 | 30.00 | 76.40 | 12.60 | 0.84 | 1.56 | 2.36 | 0.97 | 1.76 | 0.21 |  |  | 2.16 | 98.86 | IEADA |  |  |
| UAOO422 | 30.00 | 50.00 | 56.90 | 19.10 | 1.08 | 3.29 | 2.55 | 2.60 | 8.37 | 0.88 |  |  | 4.08 | 98.85 | TFAK | PQM | A |
| VA00421 | 50.00 | 70.00 | 63.00 | 18.00 | 0.53 | 1.39 | 3.10 | 3.27 | 7.04 | 0.34 |  |  | 3.00 | 99.67 | TMA | PCW | A |
| UAOO420 | 70.00 | 90.00 | 61.50 | 18.20 | 0.71 | 1.42 | 3.59 | 3.60 | 6.99 | 0.34 |  |  | 3.08 | 99.43 | TMA* | PCW | A |
| VA00419 | 90.00 | 107.00 | 61.90 | 17.40 | 1.28 | 1.39 | 4.04 | 3.36 | 6.56 | 0.37 |  |  | 3.00 | 99.30 | TMABA | P0S | 0 |
| UA00418 | 107.00 | 110.00 | 64.40 | 17.30 | 1.31 | 1.46 | 3.17 | 3.46 | 4.51 | 0.38 |  |  | 2.85 | 98.84 | TFARA | PEM | IICP |

ПIAMDNI DRILI CORE ILIMOGEOCHEMICAL RECORI (MINGR ELEMENTS)

| SAMFLE NUMBER | EROM | T0 | $\begin{gathered} \mathrm{RB} \\ \left(\mathrm{p} \mathrm{p}_{\mathrm{n}}\right) \end{gathered}$ | $\begin{gathered} 5 \mathrm{R} \\ (\mathrm{ppn}) \end{gathered}$ | $\begin{aligned} & \text { BA } \\ & (p p m! \end{aligned}$ | $\begin{gathered} Y \\ (p p n) \end{gathered}$ |  | $\begin{gathered} \mathrm{NB} \\ (\mathrm{pp(1)}) \end{gathered}$ | $\stackrel{c u}{(\mathrm{ppm})}$ | $\left.\begin{array}{c} \mathrm{ZN} \\ (\mathrm{pp} \end{array}\right)$ | $\begin{gathered} \mathrm{NI} \\ \left(\mathrm{ppqn}^{2}\right) \end{gathered}$ | ROCK | $\begin{gathered} \text { CODES } \\ \text { ALT } \end{gathered}$ | MIN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| VAOO423 | 0.00 | 30.00 |  |  | 852.0 |  |  |  | 31.0 | 36.0 | 10.0 | TEADA |  |  |
| VA00422 | 30.00 | 50.00 |  |  | 1250.0 |  |  |  | 16.0 | 100.0 | 10.0 | TFA大 | PRM | A |
| VA00421 | 50.00 | 70.00 |  |  | 1050.0 |  |  |  | <10.0 | 87.0 | 10.0 | TMA | PCW | A |
| UACO420 | 70.00 | 90.00 |  |  | 1070.0 |  |  |  | 12.0 | 83.0 | $<10.0$ | TMA大 | FCW | A |
| UA00419 | 90.00 | 107.00 |  |  | 1060.0 |  |  |  | $<10.0$ | 80.0 | 610.0 | TMABA | PGS | 0 |
| UA00418 | 107.00 | 110.00 |  |  | 1340.0 |  | . |  | 17.0 | 27.0 | <10.0 | TFALA | PCM | IICP |

DIAMOND DRILL CORE LITHGGEQCHEMICAL FECORE (MAJOR ELEMENTS)


DIAMDNE DRIIL CORE LITHOGEGCHEMICAL RECORI (MINOR ELEMENTS)

| SAMPLE NUMBER | EROM | T0 | $\begin{gathered} \mathrm{RB} \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} 5 R \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} E A \\ (\rho p m) \end{gathered}$ | $\begin{aligned} & Y \\ & (\mathrm{p} p \mathrm{~m}) \end{aligned}$ | $\begin{gathered} z \mathrm{R} \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} N B \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} \mathrm{CU} \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} \mathrm{ZN} \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} N I \\ \left(p p^{(n)}\right) \end{gathered}$ | ROCK | $\begin{aligned} & \text { CODES } \\ & \text { ALT } \end{aligned}$ | MIN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| VA00424 | 125.00 | 139.00 |  |  | 956.0 |  |  |  | 13.0 | 26.0 | 10.0 | VEAQK | PSW | A |
| VA00460 | 139.00 | 140.00 |  |  | 1300.0 |  |  |  | 89.0 | 122.0 | 32.0 | TEAT* | FGM | A- |
| UA00461 | 140.00 | 149.00 |  |  | 649.0 |  |  |  | 86.0 | 90.0 | 62.0 | IIAIA | FGM | A- |

## DIAMOND DRILI CQRE LITHOGEGCHEMICAL RECORD

 (MAJOR ELEMENTS)

IIAMDND DFILI COFE ITTHOGEOCHEMICAI RECDFI (MINQR ELEMENTS)

| SAMPLE NUMBER | EROM | T0 | $\begin{gathered} \mathrm{RB} \\ (\mathrm{p}, \mathrm{mi}) \end{gathered}$ | $\begin{gathered} 5 \mathrm{E} \\ (\mathrm{ppn}) \end{gathered}$ | $\begin{gathered} \text { BA } \\ (\mathrm{ppni}) \end{gathered}$ | $\stackrel{Y}{(p p n)}$ | $\begin{gathered} 2 R \\ (p p m) \end{gathered}$ | $\begin{aligned} & \mathrm{NH} \\ & (\mathrm{pgm}) \end{aligned}$ | Cu <br> ( ppm ) | $\stackrel{\mathrm{ZN}}{(\mathrm{ppm})}$ | $\begin{gathered} N I \\ (\mathrm{ppn}) \end{gathered}$ | ROCK | $\begin{aligned} & \text { CODES } \\ & \text { ALTT } \end{aligned}$ | MIN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| VA00429 | 0.00 | 10.00 |  |  | 1110.0 |  |  |  | 19.0 | 384.0 | 10.0 | TEA* | PQM | DEP |
| Vh00428 | 10.00 | 20.00 |  |  | 1100.0 |  |  |  | 79.0 | 342.0 | $\bigcirc 10.0$ | TEAA | POL |  |
| VA00427 | 20.00 | 30.00 |  |  | 1090.0 |  |  |  | 41.0 | 142.0 | <10.0 | TEADA | FSW | 9EF |
| VAOO426 | 30.00 | 40.00 |  |  | 1140.0 |  |  |  | 26.0 | 53.0 | <10.0 | TEACA | PSW | arf |
| VA00425 | 40.00 | 44.00 |  |  | 1150.0 |  |  |  | 17.0 | 67.0 | <10.0 | TMA* | PSW | gip |

DIAMOND DRILL CORE LTTHOGEOCHEMICAL RECORD
(MINOR ELEMENTS)

| SAMPLE NUMBER | EROM | T0 | $\begin{gathered} B A \\ \left(p p_{m}\right) \end{gathered}$ | $\begin{gathered} \mathrm{CU} \\ (\mathrm{ppw}) \end{gathered}$ | $\begin{gathered} 2 \mathrm{~N} \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} A G \\ (\mathrm{ppa} \end{gathered}$ | $\begin{gathered} A U \\ (p p b) \end{gathered}$ | $\begin{gathered} \mathrm{C0} \\ (\mathrm{pp}() \end{gathered}$ | $\begin{gathered} \mathrm{NI} \\ (\mathrm{ppn}) \end{gathered}$ | $\begin{gathered} \mathrm{PB} \\ (\mathrm{ppw}) \end{gathered}$ | $\begin{aligned} & A S \\ & (\mathrm{ppm}) \end{aligned}$ | $\begin{gathered} \text { CD } \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} M N \\ (p p m) \end{gathered}$ | ZEE | ROCK | $\begin{gathered} \text { CODES } \\ \text { ALT } \end{gathered}$ | MIN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| VA07756 | 16.00 | 17.50 | 1100.0 | 175.0 | 684.0 | 1.1 | $<5.0$ | 23.0 | 15.0 | 875.0 | 82.0 | <1.0 | 3942.0 | 8.38 | IHAT大 | $\star$ |  |
| UA07757 | 17.50 | 19.00 | 1800.0 | 298.0 | 856.0 | 0.9 | 21.0 | 32.0 | 26.0 | 357.0 | 99.0 | <1.0 | 2539.0 | 7.91 | TMAT* | * | DBP |
| VA07758 | 21.00 | 21.50 | 1200.0 | 26.0 | 182.0 | 0.6 | $\bigcirc 5.0$ | 14.0 | <1.0 | 10.0 | 39.0 | <1.0 | 1092.0 | 3.59 | TEAT* | PQM | 0 |
| UA07759 | 21.50 | 22.50 | 1400.0 | 129.0 | 980.0 | $<0.5$ | 119.0 | 11.0 | 4.0 | 22.0 | 22.0 | 5.0 | 1345.0 | 5.38 | TEAI* | POK. | 0 |
| U 407760 | 22.50 | 23.50 | 1400.0 | 100.0 | 1210.0 | <0.5 | <5.0 | 13.0 | 2.0 | 14.0 | 23.0 | 8.0 | 1358.0 | 4.51 | TEA | PQM | 0 |
| VA07761 | 23.50 | 24.50 | 1000.0 | 19.0 | 173.0 | <0.5 | <5.0 | 12.0 | 4.0 | 23.0 | 12.0 | <1.0 | 1479.0 | 3.46 | IFA | PQK | DRP |
| VA07747 | 31.50 | 33.00 | 1400.0 | 60.0 | 115.0 | 0.9 | cs.0 | 20.0 | 24.0 | $\bigcirc 5.0$ | 79.0 | <1.0 | 1406.0 | 7.19 | TEAT* | $\star$ |  |
| UA07748 | 33.00 | 34.00 | 2500.0 | 69.0 | 120.0 | 0.7 | 9.0 | 25.0 | 25.0 | <5.0 | 40.0 | <1.0 | 945.0 | 8.76 | TEATA | $\star$ |  |
| VA07749 | 34.00 | 35.00 | 2300.0 | 107.0 | 91.0 | <0.5 | <5.0 | 14.0 | 30.0 | $<5.0$ | 58.0 | <1.0 | 961.0 | 4.68 | SAIL | $?$ |  |
| VA07750 | 35.00 | 35.00 | 2600.0 | 137.0 | 123.0 | 0.6 | 13.0 | 6.0 | 44.0 | $\bigcirc 5.0$ | 55.0 | <1.0 | 440.0 | 5.15 | SAILA |  |  |
| VA07751 | 35.50 | 36.50 | 2000.0 | 60.0 | 112.0 | 0.6 | <5.0 | 19.0 | 9.0 | $<5.0$ | 52.0 | <1.0 | 795.0 | 5.48 | reat* |  |  |
| UA07752 | 102.00 | 104.00 | 1100.0 | 15.0 | 86.0 | $<0.5$ | $<5.0$ | 5.0 | 1.0 | <5.0 | 14.0 | <1.0 | 1226.0 | 3.58 | THAT* | PQM | DEP |
| VA07753 | 104.00 | 106.00 | 1300.0 | 15.0 | 84.0 | $<0.5$ | <5.0 | 6.0 | 1.0 | 10.0 | 34.0 | <1.0 | 1069.0 | 3.24 | TMATA | PQM | DRP |

WHOLE ROCK, ALTERATION, AND BONDAR SAMPLES OF THE HOLYOAK TRENCHES

O

# DIAMOND DRILI CORE LITHOGEQCHEMICAR RECQRD (MAJOR ELEMENTS) 

| SAMPLE NUMBER | FROM | TO | \%SI02 | \%AL203 | \%CAO | \%MGO | 7NA20 | \%K20 | \%FE203 | \%T102 | \%P205 | \%KN |  |  | COMES |  | MIN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  |  |  | \%LOI | SUM |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ROCK | ALT |  |
| VA07063 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | <12.20 | <12.30 | 53.20 | 22.80 | 0.37 | 3.15 | 1.41 | 2.65 | 8.98 | 1.13 |  |  |  |  |  |  |  |
| UA07062 | 2.00 | 2.10 | 83.30 |  |  |  |  |  |  |  | 0.20 | 0.00 | 4.31 | 98.20 | SATA |  |  |
|  |  |  | B3.30 | 4.33 | 0.45 | 1.41 | 0.05 | 0.35 | 6.24 | 0.24 | 0.31 | 0.00 | 1.93 | 98.61 | SHT* |  |  |
| VA07061 | 8.00 | 8.10 | 71.40 | 14.70 | 0.39 | 1.04 | 0.34 | 2.91 |  |  |  |  |  |  | SHT |  |  |
| VA07060 | 31.00 | 31.10 | 44.50 |  |  |  |  | 2.9 | 4.33 | 0.44 | 0.13 | 0.00 | 2.85 | 98.53 | SAT* |  |  |
|  |  |  | 44.50 | 13.60 | 8.15 | 8.49 | 0.15 | 1.36 | 9.05 | 0.87 | 0.58 | 0.00 | 13.20 | 99.96 | IMA* |  |  |
| VA07059 | 33.00 | 33.10 | 74.50 | 14.50 | 0.19 | 0.62 | 0.33 | 3.44 | 2.08 | 0.29 | 0.07 |  |  |  | IMAK |  |  |
| VA07058 | 48.00 | 48.10 | 81.00 |  |  |  |  |  |  |  | 0.07 | 0.00 | 2.47 | 98.49 | TEAQA |  |  |
|  |  | 48.10 | 81.00 | 11.00 | 0.07 | 0.19 | 0.41 | 2.67 | 1.72 | 0.15 | 0.03 | 0.00 | 2.23 | 99.47 |  |  |  |
| VA07057 | 52.50 | 52.60 | 90.10 | 3.34 | 0.05 | 0.10 | 0.13 | 0.81 | 2.22 | 0.17 |  |  |  | - 4 | TEAGA | PSS | 0 Pa |
| VA07056 | 70.50 | 70.60 | 46.10 | 20.00 | 1.24 | 8.95 |  |  | 2.24 | 0.17 | 0.05 | 0.00 | 1.47 | 98.44 | TEA* | PSS | nop |
|  |  |  |  |  | 1.84 | 8.96 | 0.22 | 1.31 | 12.80 | 1.40 | 0.66 . | 0.00 | 6.39 | 99.08 | UMA* |  |  |
| UA07055 | 129.00 | 129.10 | 55.50 | 22.70 | 0.33 | 1.87 | 1.90 | 2.53 | 6.95 | 1.06 | 0.16 | 0.00 |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 4.4 ? | 99.47 | UHAK |  |  |

IIAMDMD DFILE CORE LITHOGEQCHEMXCAL RECDFI

| SAMPLE NUMEEF | FROM | T0 | $\begin{gathered} R B \\ (p p a) \end{gathered}$ | $\begin{gathered} \text { SR } \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} B A \\ (p p+1) \end{gathered}$ | $\stackrel{Y}{(\mathrm{ppm})}$ | $\begin{gathered} 2 \mathrm{R} \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} \text { NB } \\ (\mathrm{ppan}) \end{gathered}$ | $\begin{gathered} c \mathrm{cl} \\ (\mathrm{ppm}) \end{gathered}$ | $\left.\begin{array}{c} z H \\ (\mathrm{ppm} \end{array}\right)$ | $\begin{gathered} A G \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} A U \\ (\mathrm{ppt}) \end{gathered}$ | $\begin{aligned} & \mathrm{Co} \\ & (\mathrm{ppa}) \end{aligned}$ | $\begin{aligned} & N I \\ & (\mathrm{p}, \mathrm{pm}) \end{aligned}$ | ROCK | $\begin{aligned} & \text { CODES } \\ & \text { ALT } \end{aligned}$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | M IN |
| VA07063 | <12.20 | 12.30 | 57.0 | 127.0 | 2270.0 | 23.0 | 53.0 | 11.0 |  |  |  |  |  |  |  |  |  |
| VA07062 | 2.00 | 2.10 | 18.0 |  |  |  | 5.0 | 11.0 | 34.0 | 146.0 | 127.0 |  |  |  | SAT* |  |  |
|  |  | 2.10 | 18.0 | \$10.0 | 242.0 | <10.0 | ¢10.0 | 33.0 | 62.0 | 103.0 | $\bigcirc 10.0$ |  |  |  |  |  |  |
| 14407061 | 8.09 | 8.10 | 62.0 | 27.0 | 1360.0 | 15.0 | 80.0 | 15.0 | 63.0 |  |  |  |  |  | SHT* |  |  |
| VA07060 | 31.00 |  |  |  |  |  |  | 15.0 | G3.0 | 115.0 | 27.0 |  |  |  | SAT* |  |  |
| , | 31.00 | 31.10 | 46.0 | 73.0 | 1030.0 | <10.0 | 90.0 | 25.0 | 38.0 | 387.0 | 73.0 |  |  |  |  |  |  |
| UA07059 | 33.00 | 33.10 | 72.0 | 53.0 | 2260.0 | 21.0 | 105.0 | 23.0 |  |  |  |  |  |  | IMAA |  |  |
| VA07058 |  |  |  |  |  |  |  | 23.0 | 30.0 | 85.0 | 53.0 |  |  |  | TEAQA |  |  |
| VA07058 | 48.00 | 48.10 | 64.0 | 53.0 | 1320.0 | <10.0 | 56.0 | 11.0 | 19.0 | 27.0 | 53.0 |  |  |  |  |  |  |
| VAOT05\% | 52.50 | 52.60 | 11.0 | <10.0 | 691.0 | <10.0 | <10.0 |  |  | 27.0 | 5.0 |  |  |  | TFAOA | FSS | InP |
| UA07056 | 70.50 | 70.60 | 32.0 | 79.0 |  |  | 10.0 | 17.0 | 213.0 | 2000.0 | <10.0 |  |  |  | TFA* | PSS | D0P |
|  |  |  |  | 79.0 | 593.0 | 24.0 | 117.0 | 45.0 | 39.0 | 301.0 | 79.0 |  |  |  |  |  |  |
| VA07055 | 129.00 | 129.10 | 59.0 | 150.0 | 901.0 | 18.0 | 40.0 | 10.0 | 45.0 | 180.0 |  |  |  |  |  |  |  |
| Hole No. | TREN | CH 41 | WHOLE | ROCK | SAMPLES |  |  |  | 45.0 |  | 150.0 |  |  |  | UMAA |  |  |

DIAMOND DRILL CORE LITHOGEOCHEMICAL RECDRI (MAJOR ELEMENTS)

| SAMPLE NUMBEK | FROM | T0 | \% 5102 | ZAL203 | \%САО | \%Mgo | YNA2O | $2 K 20$ | \%FE203 | 71 102 | \%P205 | \%MNO | \% 201 | SUM | cones |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ROCK | ALI | MIN |
| UA00367 | 18.00 | 28.00 | 66.50 | 17.60 | 0.28 | 1.70 | 1.10 | 2.76 | 4.53 | 0.51 |  |  | 3.31 | 98.29 | TFAQA |  |  |
| VA00368 | <10.00 | 18.00 | 63.10 | 19.60 | 0.31 | 1.67 | 1.31 | 2.68 | 5.52 | 0.74 |  |  | 3.70 | 98.63 | TFAG* |  |  |
| VA00369 | 0.00 | $\bigcirc 10.00$ | 71.90 | 15.10 | 0.42 | 0.89 | 0.75 | 2.63 | 3.31 | 0.33 |  |  | 2.85 | 98.18 | TEAOA |  |  |
| U 400370 | 0.40 | 10.40 | 72.40 | 12.40 | 0.48 | 1.17 | 0.34 | 1.94 | 6.40 | 0.42 |  |  | 3.00 | 98.55 | SATBA |  |  |
| UA00371 | 5.20 | 6.70 | 71.00 | 15.40 | 0.91 | 1.27 | 0.58 | 2.13 | 3.45 | 0.41 |  |  | 2.85 | 98.00 | TEAQA |  |  |
| UA00372 | 10.40 | 20.00 | 76.20 | 12.90 | 0.78 | 0.62 | 0.37 | 2.83 | 2.32 | 0.16 |  |  | 2.39 | 98.57 | TEAQA |  |  |
| 1/00373 | 20.00 | 30.00 | 74.50 | 11.90 | 0.30 | 0.55 | 0.32 | 2.67 | 4.76 | 0.37 |  |  | 3.23 | 98.60 | TFAOA |  |  |
| VA00374 | 30.00 | 38.00 | 71.30 | 14.00 | 0.18 | 0.68 | 0.33 | 2.22 | 5.54 | 0.38 |  |  | 3.54 | 99.17 | TFARA |  |  |
| VA00375 | 40.00 | 50.00 | 75.60 | 12.50 | 0.11 | 0.41 | 0.29 | 3.03 | 3.53 | 0.31 |  |  | 2.93 | 98.71 | TFAQA |  |  |
| VA00376 | 50.00 | 55.50 | 79.50 | 9.47 | 0.21 | 0.32 | 0.23 | 2.18 | 3.69 | 0.24 |  |  | 2.62 | 92.46 | TEARA |  |  |
| VA00377 | 55.50 | 60.00 | 75.10 | 14.00 | 0.22 | 0.51 | 0.36 | 3.19 | 2.40 | 0.29 |  |  | 2.62 | 98.69 | TFACA |  |  |
| VA00378 | 60.00 | 70.00 | 75.40 | 14.20 | 0.22 | 0.54 | - 37 | 3.34 | 2.33 | 0.27 |  |  | 2.39 | 99.06 | TEAQA |  |  |
| VA00379 | 70.00 | 74.00 | 75.30 | 13.40 | 0.20 | 0.97 | 0.34 | 3.10 | 2.20 | 0.28 |  |  | 2.47 | 98.26 | TEAQA |  |  |
| UA00380 | 74.00 | 76.70 | 75.90 | 13.50 | 0.32 | 0.54 | 0.38 | 3.21 | 2.28 | 0.28 |  |  | 2.31 | 98.72 | TFAQ* |  |  |
| UA00381 | 76.70 | 82.00 | 76.40 | 12.30 | 0.10 | 0.37 | 0.28 | 2.99 | 3.78 | 0.27 |  |  | 2.39 | 98.88 | TFACA |  |  |
| V600382 | 82.00 | 90.00 | 74.00 | 13.50 | 1.18 | 0.68 | 0.30 | 2.99 | 3.00 | 0.28 |  |  | 2.54 | 98.47 | TFARA |  |  |
| V400383 | 90.00 | 100.00 | 75.40 | 13.60 | 0.32 | 0.50 | 0.32 | 3.16 | 2.23 | 0.28 |  |  | 2.39 | 98.20 | TEACA |  |  |
| UA00384 | 100.00 | 108.00 | 76.10 | 14.10 | 0.28 | 0.50 | 0.38 | 3.23 | 2.32 | 0.27 |  |  | 2.39 | 99.57 | TEACA |  |  |
| YA00385 | 108.00 | 122.00 | 76.50 | 11.80 | 0.15 | 0.34 | 0.36 | 2.79 | 3.96 | 0.23 |  |  | 2.47 | 98.60 | TEAOA |  |  |
| VA00386 | 122.00 | 130.00 | 56.00 | 20.60 | 0.48 | 2.03. | 1.55 | 2.28 | 11.00 | 1.01 |  |  | 4.70 | 99.65 | TEAAK |  |  |

DIAMOND DRILI CORE LITHGGEOCHEMICAL RECDRD (MINOR ELEMENTS)

| SAMPLE NUMEER | EROM | TO | $\left.\begin{array}{c} R B \\ \langle p p M \end{array}\right\rangle$ | $\begin{gathered} S R \\ \left(P P^{\prime}\right) \end{gathered}$ | $\begin{gathered} B A \\ (\rho p m) \end{gathered}$ | $\begin{aligned} & Y \\ & (p p m) \end{aligned}$ | $\begin{gathered} 2 R \\ (p p m) \end{gathered}$ | $\begin{gathered} N B \\ (\mathrm{p} p \mathrm{~m}) \end{gathered}$ | $\stackrel{\text { CU }}{\langle\mathrm{ppmo}}$ | $\begin{gathered} Z \mathrm{~N} \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} N I \\ \left(p \rho_{m}\right) \end{gathered}$ | ROCK | CODES <br> ALT | MIN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| UA00367 | <18.00 | <28.00 |  |  | 1430.0 |  |  |  | 30.0 | 84.0 | $\leqslant 10.0$ | TEAQA |  |  |
| VA00368 | <10.00 | $\leqslant 18.00$ |  |  | 1910.0 |  |  |  | 98.0 | 98.0 | 10.0 | TEAQA |  |  |
| VA00369 | 0.00 | 10.00 |  |  | 2760.0 |  |  |  | 37.0 | 165.0 | <10.0 | TEAGA |  |  |
| VA00370 | 0.40 | 10.40 |  |  | 1100.0 |  |  |  | 57.0 | 85.0 | 16.0 | SATEA |  |  |
| VA00371 | 5.20 | 6.70 |  |  | 1640.0 |  |  |  | 57.0 | 150.0 | <10.0 | TEAQA |  |  |
| U400372 | 10.40 | 20.00 |  |  | 1340.0 |  |  |  | 89.0 | 31.0 | <10.0 | TEAOA |  |  |
| VA00373 | 20.00 | 30.00 |  |  | 2140.0 |  |  |  | 41.0 | 69.0 | <10.0 | TFAQA |  |  |
| UA00374 | 30.00 | 38.00 |  |  | 2410.0 |  |  |  | 60.0 | 161.0 | <10.0 | TEAQA |  |  |
| VA00375 | 40.00 | 50.00 |  | - | 2130.0 |  |  |  | 36.0 | 202.0 | <10.0 | TEAQA |  |  |
| UA00376 | 50.00 | 55.50 |  |  | 1580.0 |  |  |  | 129.0 | 141.0 | 12.0 | TEAGA |  |  |
| VA00377 | 55.50 | 60.00 |  |  | 1810.0 |  |  |  | 18.0 | 155.0 | <10.0 | TEAQA |  |  |
| VA00378 | 60.00 | 70.00 |  |  | 1630.0 |  |  |  | 24.0 | 111.0 | <10.0 | TEA日大 |  |  |
| VA00379 | 70.00 | 74.00 |  |  | 1490.0 |  |  |  | 23.0 | 63.0 | 10.0 | TEAR* |  |  |
| VA00380 | 74.00 | 76.70 |  |  | 1730.0 |  |  |  | 22.0 | 94.0 | 10.0 | TFARA |  |  |
| UA00381 | 76.70 | 82.00 |  |  | 1370.0 |  |  |  | 42.0 | 166.0 | 10.0 | TEAQ* |  |  |
| VA00382 | 82.00 | 90.00 |  |  | 1350.0 |  |  |  | 23.0 | 73.0 | 10.0 | TFAOA |  |  |
| VAD0383 | 90.00 | 100.00 |  |  | 1140.0 |  |  |  | 17.0 | 327.0 | <10.0 | TEAQ* |  |  |
| UAOO384 | 100.00 | 108.00 |  |  | 1710.0 |  |  |  | 15.0 | 46.0 | 10.0 | TEAQA |  |  |
| VA00385 | 108.00 | 122.00 |  |  | 4540.0 |  |  |  | 38.0 | 84.0 | 10.0 | TFAGA |  |  |
| 1400386 | 122.00 | 130.00 |  |  | 811.0 |  |  |  | 100.0 | 223.0 | <10.0 | IEACX |  |  |


| SAMPLE NUMBER | EROM | T0 | $\begin{gathered} B A \\ (p p m) \end{gathered}$ | $\begin{gathered} c u \\ (p p m) \end{gathered}$ | $\begin{gathered} 2 N \\ \left(p p^{m}\right) \end{gathered}$ | $\begin{gathered} A G \\ (\mathrm{PPR}) \end{gathered}$ | $\begin{aligned} & \mathrm{AU} \\ & (\mathrm{ppt}) \end{aligned}$ | $\underset{(\mathrm{p} p \mathrm{~m})}{\mathrm{Co}}$ | $\begin{gathered} N I \\ (\mathrm{PPO}) \end{gathered}$ | $\begin{gathered} \mathrm{PB} \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} A S \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} \text { CD } \\ (\rho p m) \end{gathered}$ | $\begin{gathered} M N \\ \langle p p m\rangle \end{gathered}$ | \%FE | ROCK | $\begin{aligned} & \text { CODES } \\ & \text { ALT } \end{aligned}$ | MIN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| UA07701 | 0.40 | 2.00 | 950.0 | 42.0 | 78.0 | $<0.5$ | $<5.0$ | 8.0 | 12.0 | 5.0 | 12.0 | $<1.0$ | 587.0 | 2.95 | SATL* | PQW | QCP |
| VA07702 | 2.00 | 3.50 | 620.0 | 33.0 | 133.0 | 0.5 | $<5.0$ | 7.0 | 12.0 | 7.0 | 19.0 | 1.0 | 559.0 | 3.20 | 'SATLk | PQW | DCP |
| VA07703 | 3.50 | 5.00 | 850.0 | 43.0 | 102.0 | $<0.5$ | <5.0 | 9.0 | 10.0 | 8.0 | 22.0 | <1.0 | 653.0 | 3.35 | SATLA | Paw | ICP |
| VA07704 | 6.50 | 8.50 | 1100.0 | 43.0 | 150.0 | $\bigcirc 0.5$ | < 5.0 | 8.0 | 14.0 | 7.0 | 20.0 | $\leqslant 1.0$ | 981.0 | 3.50 | SAILA | PQu | LICP |
| VA07705 | 8.50 | 10.50 | 880.0 | 33.0 | 66.0 | $<0.5$ | 5.0 | 7.0 | 10.0 | 8.0 | 35.0 | 1.0 | 767.0 | 2.80 | SATL* | PQW | SCP |
| VA07706 | 18.00 | 20.00 | 1100.0 | 9.0 | 79.0 | <0.5 | 9.0 | 3.0 | 4.0 | 47.0 | 31.0 | 41.0 | 40.0 | 1.40 | IEAQA | PSK | DCP |
| VA07707 | 24.50 | 25.00 | 2200.0 | 34.0 | 95.0 | 0.8 | 48.0 | 6.0 | 10.0 | 25.0 | 150.0 | $\bigcirc 1.0$ | 47.0 | 3.20 | TEAQ | PSM | ICP |
| VA07708 | 26.00 | 27.50 | 1400.0 | 58.0 | 270.0 | 1.2 | 33.0 | 9.0 | 18.0 | 20.0 | 140.0 | 1.0 | 166.0 | 4.50 | TEAOK | PSM | ICP |
| VA07709 | 40.00 | 42.00 | 2200.0 | 44.0 | 155.0 | 1.8 | 49.0 | 12.0 | 10.0 | 17.0 | 100.0 | $<1.0$ | 161.0 | 4.50 | TEAOA | PSM | anp |
| UA07710 | 46.00 | 48.00 | 1300.0 | 11.0 | 59.0 | $<0.5$ | 25.0 | 3.0 | 3.0 | 5.0 | 11.0 | <1.0 | 48.0 | 1.45 | TEARA | PSM | ncp |
| VA07711 | 48.00 | 50.00 | 1300.0 | 8.0 | 26.0 | <0.5 | 25.0 | 2.0 | 3.0 | <5.0 | 18.0 | 81.0 | 14.0 | 1.60 | TEAQA | PSM | acp |
| UA07712 | 52.00 | 54.00 | 1000.0 | 668.0 | 1300.0 | 3.1 | 48.0 | 5.0 | 12.0 | 40.0 | 220.0 | 6.0 | 178.0 | 3.40 | TEAK | PQM | [10] |
| VA07713 | 54.00 | 55.50 | 1600.0 | 182.0 | 310.0 | 0.7 | 22.0 | 5.0 | 6.0 | 13.0 | 180.0 | 2.0 | 88.0 | 2.10 | TEAA | FOM |  |
| UA07714 | 77.50 | 78.10 | 1300.0 | 42.0 | 80.0 | 0.6 | 55.0 | 3.0 | 2.0 | 23.0 | 40.0 | 1.0 | 42.0 | 2.10 | Tfalt | PGM | anp |
| VA07715 | 78.30 | 80.50 | 1100.0 | 22.0 | 115.0 | 0.5 | 32.0 | 2.0 | 2.0 | 15.0 | 35.0 | 1.0 | 196.0 | 2.30 | TEAOA | PGM | nop |
| VA07716 | 80.50 | 82.00 | 1400.0 | 35.0 | 147.0 | 1.0 | 23.0 | 2.0 | 1.0 | 44.0 | 32.0 | 1.0 | 113.0 | 2.55 | TEACA | POM | gip |
| UA07717 | 109.00 | 110.00 | 5300.0 | 54.0 | 50.0 | 0.6 | 19.0 | 3.0 | 4.0 | 5.0 | 45.0 | $\bigcirc 1.0$ | 35.0 | 3.50 | IFAQA | PSS | IICP |
| VA07718 | 110.00 | 112.00 | 3800.0 | 34.0 | 50.0 | 0.5 | 24.0 | 2.0 | 4.0 | 21.0 | 20.0 | <1.0 | 30.0 | 2.10 | TEAQA | PSS | [1CF |
| UA07719 | 112.00 | 114.00 | 3200.0 | 29.0 | 61.0 | <0.5 | 14.0 | 2.0 | 6.0 | 11.0 | 29.0 | <1.0 | 39.0 | 2.30 | TFAOA | PSS | DCP |
| VA07720 | 114.00 | 116.00 | 4600.0 | 19.0 | 50.0 | <0.5 | 21.0 | 2.0 | 3.0 | 5.0 | 33.0 | 1.0 | 41.0 | 1.55 | TEAld | PSM | ICP |
| VA07721 | 116.00 | 118.00 | 3600.0 | 40.0 | 83.0 | $<0.5$ | 40.0 | 1.0 | 4.0 | 41.0 | 35.0 | <1.0 | 22.0 | 2.60 | TEARA | PSS | DCP |
| VA07722 | 118.00 | 120.00 | 8100.0 | 29.0 | 50.0 | <0.5 | 15.0 | 3.0 | 10.0 | 6.0 | 28.0 | <1.0 | 37.0 | 2.60 | TEAAA | FSS | IICP |
| UA07723 | 120.00 | 122.30 | 4900.0 | 40.0 | 78.0 | $<0.5$ | 30.0 | 3.0 | 4.0 | 10.0 | 16.0 | <1.0 | 139.0 | 1.60 | TEAQA | PSS |  |
| VA07724 | 127.90 | 128.60 | 890.0 | 11.0 | 33.0 | 60.5 | ¢5.0 | 2.0 | 2.0 | 27.0 | 13.0 | 1.0 | 55.0 | 1.20 | TEARA | FSS | ICP |
| VA07725 | 128.60 | 129.40 | 760.0 | 13.0 | 58.0 | <0.5 | 55.0 | 3.0 | 1.0 | 35.0 | 19.0 | $\bigcirc 1.0$ | 112.0 | 1.50 | TEAOA | FSM | OCF |

DIAMOND DRILL CORE LITHOGEOCHEMICAL RECORD (MAJOR EXEMENTS)

| SAMPLE NUMBER | EROM | TO | \%S102 | \%AL203 | \%CAO | \%MGO | \%NA2O | * 220 | \%FE203 | \%II02 | 7. 205 | ZMNO | \%LOI | 54 H | codes |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | FOCK | ALT | MIN |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| VA00387 | 0.00 | 10.00 | 70.50 | 15.90 | 0.32 | 0.88 | 0.95 | 2.66 | 4.52 | 0.43 |  |  | 3.16 | 99.32 | TEAIA |  |  |
| VA00388 | 10.00 | 23.30 | 68.10 | 15.10 | 1.25 | 1.38 | 0.73 | 2.29 | 5.94 | 0.47 |  |  | 3.31 | 98.57 | TEATA | PSM | IICP |
| VA00389 | 23.30 | 31.00 | 76.30 | 9.99 | 0.21 | 0.91 | 0.23 | 1.94 | 5.54 | 0.40 |  |  | 3.23 | 98.75 | Satla | POM | IICF |
| VA00390 | 31.00 | 34.00 | 76.10 | 12.90 | 0.20 | 0.40 | 0.35 | 2.89 | 3.05 | 0.26 |  |  | 2.47 | 98.62 | TEAOA | FSM | ICF |
| VA00391 | 34.00 | 36.00 | 66.20 | 15.50 | 0.38 | 0.76 | 0.35 | 3.31 | 8.01 | 0.59 |  |  | 4.47 | 99.57 | SATL* | Pam | ICP |
| VA00392 | 36.00 | 45.50 | 74.70 | 12.50 | 0.24 | 0.40 | 0.31 | 2.94 | 4.60 | 0.33 |  |  | 3.00 | 99.02 | TEACA | PSM | ICP |
| VA00400 | 45.50 | 50.00 | 74.90 | 10.20 | 0.42 | 0.48 | 0.29 | 2.29 | 6.09 | 0.39 |  |  | 3.47 | 98.53 | TEATA | PQM | IIDP |
| Vacosol | 50.00 | 60.00 | 74.90 | 13.60 | 0.16 | 0.49 | 0.34 | 3.20 | 2.75 | 0.26 |  |  | 2.70 | 98.40 | TEAOT | PSS | DCP |
| VA00402 | 60.00 | 67.50 | 74.20 | 13.60 | 0.14 | 0.44 | 0.34 | 3.34 | 2.60 | 0.28 |  |  | 3.47 | 98.41 | TEABA | PSS | IICP |

IIAMOND ORILL CORE LITHOGEGCHEMICAL RECORI (MINOR ELEMENTS)


| VA00397 | 0.00 | 10.00 | 2280.0 |
| :--- | :--- | :--- | :--- |
| VAOO389 | 10.00 | 23.30 | 1320.0 |
| VA00399 | 23.30 | 31.00 | 1170.0 |
| VAOO390 | 31.00 | 34.00 | 1950.0 |
| VAOO391 | 34.00 | 36.00 | 2250.0 |
| VAOO392 | 36.00 | 45.50 | 2100.0 |
| VAOO400 | 45.50 | 50.00 | 1960.0 |
| VAOO401 | 50.00 | 60.00 | 1870.0 |
| VAOOO402 | 60.00 | 67.50 | 1760.0 |


| 38.0 | 73.0 | 10.0 | TEAT* |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 35.0 | 125.0 | 13.0 | TEAT* | PSM | IICP |
| 79.0 | 94.0 | <10.0 | SATLA | PQM | IICF |
| 55.0 | 44.0 | <10.0 | TFAOA | FSM | ICP |
| 104.0 | 118.0 | 12.0 | Satle | PQM | [ICP |
| 26.0 | 99.0 | 10.0 | TEAOA | PSM | IICP |
| 45.0 | 57.0 | 14.0 | TEAT* | PQM | nop |
| <10.0 | 54.0 | <10.0 | tramt | FSS | ICP |
| 33.0 | 68.0 | <10.0 | teada | PSS | DCP |
|  |  |  | Page No. |  |  |

DIAMOND DRILL CORE LITHOGEQCHEMICAL RECORI (MINOR ELEMENTS)

| SAMPLE NUMBER | EROM | T0 | $\begin{gathered} \mathrm{BA} \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} \mathrm{CU} \\ (\mathrm{p} p \mathrm{~m}) \end{gathered}$ | $\begin{gathered} Z N \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} A G \\ (\rho \rho \mathrm{~m}) \end{gathered}$ | AU ( $p \mathrm{pb}$ ) | C0 <br> (рри) | $\begin{gathered} N I \\ (\mathrm{ppw}) \end{gathered}$ | $\begin{gathered} \mathrm{PB} \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} \text { AS } \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} \mathrm{CD} \\ (\mathrm{ppp}) \end{gathered}$ | $\underset{(\mathrm{ppm})}{\mathrm{MN}}$ | \% FE | ROCK | $\begin{aligned} & \text { CODES } \\ & \text { ALII } \end{aligned}$ | MIN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| VA07726 | 16.80 | 17.30 | 1200.0 | 75.0 | 235.0 | 2.4 | 17.0 | 18.0 | 19.0 | 109.0 | 61.0 | <1.0 | 2000.0 | 5.07 | TEAQA | PQM | ICF |
| VA07727 | 18.00 | 18.30 | 850.0 | 68.0 | 214.0 | 2.4 | 88.0 | 13.0 | 8.0 | 142.0 | 171.0 | <1.0 | 380.0 | 5.63 | TEAOA | PQM | DCF |
| UA07728 | 23.30 | 25.20 | 1300.0 | 28.0 | 87.0 | 2.4 | <5.0 | 11.0 | 6.0 | 15.0 | 17.0 | <1.0 | 1060.0 | 2.51 | IEAOA | PQM | DCP |
| VA07729 | 26.60 | 28.00 | 1200.0 | 49.0 | 83.0 | <0.5 | 23.0 | 11.0 | 5.0 | 95.0 | 77.0 | <1.0 | 720.0 | 3.81 | TFAOA | PQM | DCP |
| VA07730 | 29.00 | 29.50 | 890.0 | 48.0 | 124.0 | $\bigcirc 0.5$ | 39.0 | 8.0 | 6.0 | 212.0 | 180.0 | <1.0 | 100.0 | 5.54 | TEAOA | PQM | DCP |
| UA07731 | 29.50 | 31.00 | 1600.0 | 67.0 | 314.0 | 1.0 | 19.0 | 23.0 | 17.0 | 80.0 | 131.0 | 1.0 | 620.0 | 5.57 | TEADA | PQM | DCP |
| UA07732 | 34.00 | 36.00 | 1700.0 | 61.0 | 140.0 | $\bigcirc 0.5$ | 38.0 | 17.0 | 16.0 | 30.0 | 164.0 | <1.0 | 640.0 | 5.09 | TEAOA | PQM | DCF |
| UA07733 | 44.00 | 44.50 | 1800.0 | 12.0 | 40.0 | 2.4 | 41.0 | 3.0 | 1.0 | 29.0 | 45.0 | <1.0 | 300.0 | 1.74 | IFAOA | PSM | ICP |
| UA07734 | 45.50 | 47.50 | 1600.0 | 148.0 | 29.0 | 3.4 | 64.0 | 6.0 | 4.0 | 55.0 | 525.0 | 1.0 | 1100.0 | 2.63 | tEAT | PQM | D10 |
| VA07735 | 47.50 | 50.00 | 1700.0 | 53.0 | 91.0 | 60.5 | 26.0 | 14.0 | 14.0 | 32.0 | 367.0 | 1.0 | 2400.0 | 3.98 | TEATA | FGM | DIP |
| VA07736 | 50.00 | 52.00 | 1900.0 | 18.0 | 75.0 | <0.5 | 7.0 | 7.0 | 4.0 | 19.0 | 81.0 | <1.0 | 8700.0 | 1.93 | TEAQA | PSM | ICP |
| VA07737 | 65.30 | 67.50 | 1700.0 | 19.0 | 44.0 | 60.5 | 6.0 | 2.0 | $<1.0$ | 16.0 | 13.0 | $<1.0$ | 1200.0 | 1.36 | TEARA | PSS | UCF |

DIAMOND DFILI CORE LIIHOGEOCHEMICAL RECORI (MAJOR ELEMENTS)


DIAMOND DRILI CQRE LITHOGEOCHEMICAL RECORD
(MINOR ELEMENTS)

| SAMPLE NUMEEK | EROM | TO | $\begin{gathered} \mathrm{RF} \\ (\mathrm{p} p \mathrm{~m}) \end{gathered}$ | $\begin{gathered} \text { SR } \\ (\mathrm{p}, \mathrm{p}) \end{gathered}$ | $\begin{aligned} & 8 A \\ & (\rho p M) \end{aligned}$ | $\begin{aligned} & Y \\ & (p p m) \end{aligned}$ | $\begin{gathered} 2 \mathrm{~K} \\ (\mathrm{pPB}) \end{gathered}$ | $\begin{gathered} N B \\ (p p m) \end{gathered}$ | $\underset{(\mathrm{p} p \mathrm{~m})}{\mathrm{CU}}$ | $\begin{gathered} 2 N \\ (p \mathrm{pm}) \end{gathered}$ | $\begin{gathered} \mathrm{NI} \\ (\mathrm{ppm}) \end{gathered}$ | ROCK | $\begin{aligned} & \text { CODES } \\ & \text { ALT } \end{aligned}$ | MIN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| VA07374 | 6.00 | 6.00 | 68.0 | 75.0 | 1080.0 | 10.0 | 91.0 | <10.0 | 39.0 | 25.0 | ¢10.0 | TEAQA | PSS | A- |
| VA07375 | 6.00 | 6.00 | 23.0 | 135.0 | 503.0 | 42.0 | 117.0 | 13.0 | 45.0 | 51.0 | <10.0 | TFATA | PSS | A- |
| VA07376 | 14.00 | 14.50 | 33.0 | 171.0 | 634.0 | 16.0 | 60.0 | <10.0 | 28.0 | 12.0 | 11.0 | TEATA | FSM | $A^{-}$ |
| VA07382 | 19.50 | 19.50 | 45.0 | 112.0 | 671.0 | 13.0 | 89.0 | 27.0 | 69.0 | 110.0 | 17.0 | Tmat* | FSW | $\hat{A}^{-}$ |
| VA07381 | 29.70 | 29.70 | <10.0 | 100.0 | 108.0 | 20.0 | 132.0 | 19.0 | 108.0 | 150.0 | 88.0 | TMATA | $\mathrm{N*}$ | A- |
| VA07373 | 32.00 | 32.00 | 25.0 | 149.0 | 327.0 | 32.0 | 30.0 | 10.0 | 89.0 | 116.0 | <10.0 | TMAT | FHM | A- |
| VAC7380 | 50.50 | 50.50 | 29.0 | 67.0 | 441.0 | 10.0 | 37.0 | 10.0 | 106.0 | 94.0 | 10.0 | TFAOA | PCS | A- |
| UAO'7372 | 54.00 | 54.00 | 13.0 | 336.0 | 1970.0 | 19.0 | 25.0 | <10.0 | 103.0 | 89.0 | 36.0 | tmamut | N | Oic: |
| VA07379 | 55.50 | 55.50 | 40.0 | 65.0 | 683.0 | 33.0 | 48.0 | <10.0 | 66.0 | 108.0 | 21.0 | TMAT* | YSM | $\mathrm{A}^{-}$ |
| UAO\%3\% | 66.00 | 66.00 | 60.0 | 119.0 | 911.0 | 30.0 | 229.0 | 12.0 | 56.0 | 203.0 | 40.0 | TIATA | PSS | A- |
| UA07371 | 74.50 | 74.50 | 31.0 | 313.0 | 1410.0 | 10.0 | 15.0 | 15.0 | 76.0 | 132.0 | 28.0 | PhBET* | N | $A^{-}$ |
| $\checkmark 407370$ | 120.00 | 121.00 | 21.0 | 74.0 | 222.0 | 29.0 | 116.0 | 28.0 | 74.0 | 319.0 | 121.0 | FMEWT* | PHM | A- |
| VA07369 | 176.00 | 177.00 | 33.0 | 21.0 | 878.0 | 15.0 | 29.0 | 19.0 | 48.0 | 24.0 | 10.0 | SATLA | * | IBF |
| V'407368 | 195.00 | 195.00 | 53.0 | 120.0 | 1530.0 | 42.0 | 115.0 | 10.0 | 47.0 | 100.0 | 10.0 | TEAT ${ }^{\text {A }}$ | PSS | A- |
| VA07383 | 200.00 | 200.00 | 57.0 | 118.0 | 1060.0 | 148.0 | 480.0 | 61.0 | 16.0 | 157.0 | 10.0 | TEAT* | PSM | A- |
| VA07394 | 214.70 | 214.70 | 48.0 | 99.0 | 1070.0 | 31.0 | 117.0 | 10.0 | 28.0 | 123.0 | 10.0 | TEATA | PSM | A- |
| 307367 | 227.50 | 227.50 | 17.0 | 71.0 | 296.0 | 23.0 | 110.0 | 31.0 | 256.0 | 169.0 | 154.0 | TMATA | N | A- |
| VA07385 | 330.00 | 230.00 | 70.0 | 66.0 | 1810.0 | 12.0 | 119.0 | 18.0 | 17.0 | 52.0 | ¢10.0 | TEAT* | PSM | A- |
| UA07386 | 232.50 | 232.50 | 23.0 | 153.0 | 987.9 | 43.0 | 114.0 | 10.0 | 14.0 | 143.0 | 14.0 | TEAIN | PSS | ICP |

DIAMOND DRILL CORE LITHOGEOCHEMICAL RECORD

| SAMPLE NUMEER | FROM | T0 | $\text { zS } 102$ | \%AL203 | ZCAO | \% HgO | \%NA20 | \%220 | \%FE203 | \%TI02 | \%P205 | \%MNO | XLOI | sum | cones |  | M IN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ROCK | ALT |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| VAL0509 | 9.00 | 14.00 | 79.20 | 11.90 | 0.17 | 0.90 | 2.42 | 1.59 | 1.07 | 0.17 |  |  | 1.70 | 99.12 | TEAT* | PSM | DEP |
| VA10510 | 14.50 | 21.00 | 57.50 | 20.50 | 0.23 | 2.73 | 1.65 | 1.77 | 10.40 | 0.88 |  |  | 4.47 | 100.13 | TMAT | PSM | A- |
| val0511 | 22.70 | 37.00 | 57.10 | 19.20 | 0.65 | 3.06 | 1.62 | 1.52 | 10.80 | 0.87 |  |  | 4.85 | 29.67 | TMAT | PSM | ${ }^{\text {A- }}$ |
| VA10S12 | 38.00 | 42.00 | 71.00 | 12.70 | 0.15 | 1.10 | 1.01 | 1.36 | 8.02 | 0.56 |  |  | 3.54 | 99.44 | TEAETA | PSS | A- |
| VAl0513 | 42.00 | 44.00 | 72.70 | 14.30 | 0.13 | 0.15 | 1.22 | 2.13 | 5.09 | 0.29 |  |  | 2.93 | 29.44 | TEARTA | PSS | A- |
| VAlosis | 44.00 | 47.00 | 67.70 | 16.20 | 0.65 | 1.18 | 1.01 | 1.73 | 6.31 | 0.71 |  |  | 3.31 | 98.80 | TEAET | PSS | A- |
| VA10515 | 47.00 | 49.00 | 76.70 | 14.20 | 0.23 | 0.33 | 1.21 | 1.24 | 2.60 | 0.35 |  |  | 2.85 | 99.61 | TEAET | FSS | 51.8 |
| VAl0516 | 49.00 | 56.00 | 56.60 | 19.00 | 0.49 | 2.70 | 1.13 | 1.32 | 12.70 | 1.07 |  |  | 4.77 | 99.78 | TEAET | PCS | A- |
| VA10517 | 57.00 | 70.00 | 60.70 | 17.40 | 0.09 | 2.00 | 1.13 | 1.63 | 11.30 | 0.80 |  |  | 4.70 | 99.75 | PEATK | $\stackrel{F}{5 S}$ | ${ }^{\text {A- }}$ |
| VAlosig | 70.00 | 95.00 | 79.90 | 11.70 | 0.04 | 0.22 | 0.29 | 2.74 | 2.18 | 0.18 |  |  | 2.00 | 99.25 | TEAQT* | PSS | U1FF |
| VA10519 | 95.00 | 119.00 | 76.60 | 13.90 | 0.33 | 0.66 | 0.24 | 2.91 | 2.12 | 0.24 |  |  | 2.47 | 99.47 | TEARTA | Pss | A- |
| UA10520 | 122.00 | 138.00 | 75.20 | 13.70 | 0.17 | 0.77 | 0.24 | 3.06 | 2.55 | 0.28 |  |  | 2.70 | 98.67 | TPA日S* | PSS | $A^{-}$ |
| VAl0521 | 138.00 | 154.00 | 78.30 | 13.40 | 0.21 | 0.42 | 0.24 | 2.91 | 2.23 | 0.23 |  |  | 2.39 | 100.33 | TEAOA | PSS | A- |
| VA10522 | 156.00 | 174.00 | 75.50 | 12.70 | 0.22 | 0.80 | 0.24 | 2.75 | 3.15 | 0.36 |  |  | 2.85 | 98.57 | TEAPT | PSS | DBP |
| VAlos23 | 174.00 | 181.00 | 78.40 | 12.00 | 0.17 | 0.11 | 0.34 | 2.28 | 3.48 | 0.15 |  |  | 2.54 | 99.47 | teant | F'S | ISF |
| VA10534 | 186.00 | 192.00 | 68.40 | 17.00 | 0.31 | 0.99 | 0.96 | 2.28 | 5.78 | 0.51 |  |  | 2.62 | 99.85 | TPAETA | PSS | $\mathrm{A}^{-}$ |
| VA10525 | 192.00 | 204.00 | 70.60 | 17.40 | 0.20 | 0.82 | 1.22 | 2.37 | 3.56 | 0.46 |  |  | 3.00 | 99.63 | TEAT* | FSS | $\mathrm{A}^{-}$ |
| VA10526 | 204.00 | 213.00 | 73.50 | 16.80 | 0.55 | 0.37 | 1.19 | 1.62 | 2.53 | 0.45 |  |  | 2.85 | 99.86 | TEARE | FSS | A- |
| VA10537 | 213.00 | 221.00 | 72.10 | 16.30 | 0.38 | 0.97 | 1.01 | 2.15 | 3.29 | 0.41 |  |  | 2.95 | 99.46 | TEATA | FSS | A- |
| VA10528 | 225.00 | 231.00 | 72.20 | 15.00 | 0.63 | 1.76 | 1.43 | 2.12 | 3.39 | 0.33 |  |  | 2.54 | 99.40 | TEAT* | FSS | A- |
| 9410529 | 231.00 | 235.00 | 70.10 | 17.00 | 0.28 | 0.95 | 1.69 | 1.44 | 4.87 | 0.52 |  |  | 3.31 | 100.16 | IEAI* |  |  |

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DIAMONA DRILL CORE LITHQGEOCHEMICAL RECORI (MINOR ELEMENTS)

| SAMPLE NUMEEF | EROM | T0 | $\begin{gathered} \text { RB } \\ \{p \mathrm{pm}) \end{gathered}$ | $\begin{gathered} 5 \mathrm{R} \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} B A \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{aligned} & Y \\ & (\mathrm{ppm}) \end{aligned}$ | $\begin{aligned} & 2 \mathrm{k} \\ & (\mathrm{ppm}) \end{aligned}$ | NB ( p pm ) | $\begin{gathered} C U \\ (\mathrm{ppq}) \end{gathered}$ | $\begin{gathered} Z N \\ (p p m) \end{gathered}$ | $\begin{gathered} N I \\ (\rho p, n) \end{gathered}$ | ROCK | $\begin{gathered} \text { CODES } \\ \text { ALT } \end{gathered}$ | MIN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| VA10509 | 9.00 | 14.00 |  |  | 1100.0 |  |  |  | 39.0 | 20.0 | 40.0 | IEAT* | PSH | DBF |
| VA10510 | 14.50 | 21.00 |  |  | 741.0 |  |  |  | 57.0 | 93.0 | 21.0 | TMAT | PSM | $\mathrm{A}^{-}$ |
| VA10511 | 22.70 | 37.00 |  |  | 455.0 |  |  |  | 77.0 | 88.0 | 23.0 | that | FSH | A- |
| UA10512 | 38.00 | 42.00 |  |  | 481.0 |  |  |  | 84.0 | 81.0 | 49.0 | TEAEIA | PSS | A- |
| UA10513 | 42.00 | 44.00 |  |  | 1350.0 |  |  |  | 129.0 | 195.0 | 10.0 | TEAGT ${ }_{\text {a }}$ | PSS | A- |
| VAl0S14 | 44.00 | 47.00 |  |  | 1230.0 |  |  |  | 232.0 | 25.0 | 10.0 | TEAETA | PSS | A- |
| VA10515 | 47.00 | 49.00 |  |  | 937.0 |  |  |  | 117.0 | 39.0 | 10.0 | TEAETA | FSS | Das |
| VA10516 | 49.00 | 56.00 |  |  | 811.0 |  |  |  | 64.0 | 151.0 | 25.0 | TEAETA | PCS | A- |
| VA10517 | 57.00 | 70.00 |  |  | 774.0 |  |  |  | 244.0 | 200.0 | 15.0 | TEAT* | Pss | A- |
| Walosis | 70.60 | 95.60 |  |  | 2890.0 |  |  |  | 62.0 | 51.0 | 10.0 | TEAGT ${ }^{\text {a }}$ | FSS | UBF |
| VAl0519 | 95.00 | 119.00 |  |  | 1400.0 |  |  |  | 51.0 | 214.0 | 10.0 | TEAQT | Pss | $\mathrm{A}^{-}$ |
| VA10520 | 123.00 | 138.00 |  |  | 1230.0 |  |  |  | 47.0 | 127.0 | 26.0 | TEAGT* | FSS | A- |
| VA10521 | 138.00 | 154.00 |  |  | 1300.0 |  |  |  | 96.0 | 72.0 | ¢ 10.0 | TFAOA | FSS | A- |
| VA10522 | 156.00 | 174.00 |  |  | 2110.0 |  |  |  | 49.0 | 90.0 | 10.0 | TFAOT | PSS | DBF |
| valos23 | 174.00 | 181.00 |  |  | 1830.0 |  |  |  | 58.0 | ¢10.0 | 10.0 | TEAOT | PSS | IEF |
| VA10524 | 186.00 | 192.00 |  |  | 1650.0 |  |  |  | 109.0 | 168.0 | 19.0 | TEAET | FSS | A- |
| VA10525 | 192.00 | 204.00 |  |  | 1390.0 |  |  |  | 40.0 | 129.0 | 10.0 | TEATA | PSS | A- |
| VA10526 | 204.00 | 213.00 |  |  | 1370.0 |  |  |  | 95.0 | 96.0 | <10.0 | tealta | FSS | A- |
| VA10527 | 213.00 | 221.00 |  |  | 1210.0 |  |  |  | 79.0 | 136.0 | 10.0 | TEATA | FSS | A- |
| UA10528 | 225.00 | 231.00 |  |  | 1380.0 |  |  |  | 60.0 | 72.0 | 10.0 | TFAT* | PSS | A- |
| 19420529 | 231.00 | 235.00 |  |  | 1470.0 |  |  |  | 88.9 | 209.0 | 10.0 | TEATA |  |  |

IIAMOND DFILI COFE LITHOGEOCHEMICAL RECORD （MINOR ELEMENTS）

| SAMPLE NUMEEF： | EROM | To | $\begin{gathered} 5 A \\ 〔 P D! \end{gathered}$ | $\begin{gathered} \text { cis } \\ (\mathrm{spn}) \end{gathered}$ | $\begin{gathered} 3 \mathrm{~N} \\ (70 \mathrm{OH}) \end{gathered}$ | $\begin{aligned} & \text { Aas } \\ & \text { Cpem? } \end{aligned}$ | $\begin{aligned} & A l \\ & (p, p) \end{aligned}$ | $\begin{gathered} \mathrm{Co} \\ (\mathrm{pan}) \end{gathered}$ | $\begin{aligned} & \mathrm{NI} \\ & \left(p_{\mathrm{m}}\right) \end{aligned}$ | $\begin{gathered} \text { PB } \\ \left(0_{0} m\right) \end{gathered}$ | $\begin{aligned} & \text { AS } \\ & \left(p p^{m}\right) \end{aligned}$ | $\begin{gathered} \mathrm{CH} \\ \text { (ppm) } \end{gathered}$ | $\stackrel{M N}{\left.N P_{N}\right)}$ | 3FEO | KDCK | $\begin{aligned} & \text { CODES } \\ & \text { ALT } \end{aligned}$ | M IN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1407832 | 28.09 | 40.00 | 510.0 | 59.0 | 110.0 | 1.6 | 5.0 | 23.0 | 21.0 | 5.0 | 78.0 | 7.0 | 2157．0 | 7.52 | TEAET | PSS | A－ |
| पи0\％833 | 40.60 | 45.00 | 650.0 | 80.0 | 154.0 | 1.4 | 27.0 | 30.0 | 26.0 | 7.0 | 95.0 | 4.0 | 2664.0 | 5.94 | TEAET | FSS | A－ |
| 1997234 | 42.00 | 44.02 | 1200.0 | 41.0 | 128．0 | 0.7 | 50.0 | 12.0 | 11.0 | 5.0 | 5.0 | 1.0 | 1101.0 | 3.57 | teARE | Pes | A－ |
| VA07e35 | 44.00 | 46.06 | 1200.0 | 85.0 | 202.0 | 1.3 | 20.0 | 15.0 | 10.0 | $\because 0$ | 9.0 | 2.0 | 9092．0 | 4.74 | THAET | FSE | A－ |
| 1407636 | 96 | 47.00. | 1000.0 | 86.7 | 45.0 | 1．1 | 5.0 | $\because 1.0$ | 5.6 | 5.0 | 60.0 | 6.0 | 894.0 | 4.33 | YCAET | Pse | ：－ |
| YA07807 | 26.00 | 97.06 | 820.0 | 29.0 | $\because 0$ | \％ 5 | 8.0 | 0.0 | 7.0 | 5， 0 | 56.0 | 2.6 | 209.0 | 2．23 | TEACT | Fes | 35 |
| 140786 | $\pm 0.00$ | 06.00 | 3700.0 | 10.0 | 3¢，0 | 4． 4 | 37.0 | 1.0 | 4．3 | 23.0 | 32.0 | 1.0 | 57.0 | 8.49 | TEAT | 536 | 585 |
| 60786： |  | 日2．00 | 2000．0 | 9.0 | 10.0 | 0.8 | 23.0 | 4.0 | 1．6 | 8.0 | 17.9 | 4， 0 | 85.0 | 1.10 | Trage | FSe | 55 |
| 90．396！ |  | 70.00 | 2000.2 |  | $\because 4.3$ | 0.9 | 15.0 | $\therefore$ | Q．0 | 10.2 | 33.0 | $\therefore 0$ | 15．0 | 1， 0 | Restr | 090 | 35 |
| 9096： | ¢， | non | 5600.0 | 10.0 | 60.0 | a．e | 10.0 | 2.6 | 8.0 | 10.0 | 17.5 | 1.0 | 2906 | 1.27 | ＂FERT | 95 | 58 |
| Vateres | 95.00 | 34.80 | 209． 0 | 14．5 | $\because 2$ | 0.8 | 74.0 | 3.0 | E． 0 | a，0 | 48.0 | $\because 2$ | 399.9 | 3.84 | PTars | 488 | ESt |
| H0rect | \％人会 | 56.80 | S0co． | 69.5 | 67.6 | S．${ }^{\text {a }}$ | 950 | 5.0 | 4.6 | 21.0 | 63.0 | 1.0 | 325.0 | 2.27 | THASM | ESS | IE |
| 940766 | 76.00 | 49.08 | 1700.6 | 38.0 | 105．0 | QE | 12.0 | 3.9 | 16．0 | 0.0 | 32.6 | \％．7 | 966． | 3.35 | TEART | Ees | 585 |
| Uarger | cen | 29.06 | 1000.0 | 11.0 | 85. | 0.5 | 15. | $7=0$ | 4.0 | 9.0 | 30.0 | 3． | 20．4 | $\because 68$ | magm | Ps | ＊－ |
| 400603 | 16：4？ | 1＂．．0 | 500．0 | 12.6 | S5\％ | 0， | 30.0 | 6.6 | $\therefore 2$ | 19.0 | 112.0 | ？ | 28． | 1.98 | Tame | 85 | A－ |
|  | 1＂：6\％ | 58.5 | 2900.0 | Se．0 | $\therefore 2.0$ | CS | E0 | P．0 | 3.6 | 12.5 | 100.0 | 3.0 | S1．0 | E． 0 | \＃Alm | Fes | 5 EF |
| 4， 6 －99 | 172.8 | ：5．9\％ | 1700.0 | 36.4 | 3： | 1．1 | 27.0 | 3．${ }^{2}$ | 4.6 | 40.0 | 85.0 | 1.2 | 21， | 2.84 | Thalt | ？es | Sep |
| UAOS30 | ： 0.00 | $\therefore 76.6$ | 5200.0 | 14.0 | 19.0 | 0.5 | 15.9 | 1.0 | 3.6 | 205.0 | 40.6 | 4，0 | $2 r^{0} 0$ | 3.50 | S4T1 | $n$ | EEP |
| 16904 | $\cdots 8$. | $17 \%$ | 919.0 | 18.0 | 5． | 8.6 | 26.8 | 4.3 | 30 | $4 \%$ | 300 | 1．0 | 26.0 | 2．6 | Sant | ＂ | 89 |
| UA＂s\％ | 93 | 850 | 1306.0 | E．c | 4 | \％ 6 | 6.0 | 40 | 20 | 32.0 | 40.6 | 4．0 | 3 rab | $\therefore .58$ | Tamp | Pes | E\％ |
| 140948 | 170 | －． 000 | $\therefore 100.0$ | 14.0 | 5.8 | 6.5 | 5.3 | $\cdots$ | 3.0 | 8.0 | 30.0 | 1.0 | 16.0 | 2.85 | TEAR | 908 | 58 |

DIAMOND ORILI CQRE LITHGGEQCHEMICAL RECORI
(MAJOR ELEMENTS)

| SAMFLE NUMEER | EROM | TO | $\because 5102$ | \%AL203 | $\triangle C A O$ | \%MG0 | \%NA20 | 2120 | \%FE203 | \%rI02 | 4P205 | \%ANT | :401 | Stm | CODES |  | MIN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ROCK |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $1 / 407361$ | 15.00 | 15.00 | 75.40 | 13.80 | 0.20 | 0.50 | 0.22 | 3.23 | 2.33 | 0.26 | 0.06 | 0.15 | 2.62 | 98.77 | TEAQTA | PSS | [13P |
| VAO\% 360 | 34.00 | 34.00 | 50.80 | 15.60 | 0.82 | 7.41 | 60.01 | 0.22 | 15.90 | 2.29 | 0.15 | 0.20 | 5.95 | 99.25 | PMEWI* | PHM | A- |
| 1407359 | 45.00 | 45.00 | 74.40 | 14.30 | 0.16 | 0.59 | 0.24 | 3.29 | 2.64 | 0.28 | 0.07 | 0.14 | 3.08 | 99.19 | TEARI* | PSM | A- |
| VAO7390 | 53.80 | 52.90 | 49.60 | 17.50 | 0.87 | 10.00 | 0.18 | 0.45 | 12.80 | 1.27 | 0.53 | 0.20 | 7.08 | 100.49 | IMAI. | PS4 | A- |
| VA07350 | 83.50 | 33.50 | 58.50 | 14.20 | 0.72 | 6.57 | 0.07 | 1.42 | 9.21 | 0.89 | 0.53 | 0.23 | 5.31 | 98.35 | TEAOTA | PSM | A- |
| VA07397 | 98.00 | 99.10 | 53.50 | 16.20 | 0.34 | 2.35 | 2.06 | 1.10 | 8.99 | 0.74 | 0.24 | 0.12 | 3.85 | 99.49 | TEAT* | PSM | A- |
| V407357 | 110.00 | 110.00 | 73.10 | 15.00 | 0.32 | 0.66 | 0.96 | 2.38 | 3.29 | 0.42 | 0.14 | 0.11 | 2.70 | 99.08 | TEAA | PSS | nBP |
| V407389 | 116.80 | 116.90 | 61.50 | 18.50 | 1.00 | 1.29 | 2.92 | 2.44 | 7.76 | 0.81 | 0.25 | 0.13 | 2.93 | 99.53 | IIAT | FSU | A- |
| 1407356 | 100.00 | 120.00 | 67.40 | 19.80 | 0.20 | 0.65 | 1.38 | 2.48 | 2.70 | 0.53 | 0.17 | 0.02 | 3.23 | 79.26 | TEAGA | PSS | DBP |
| 1407355 | 134.00 | 134.00 | 69.20 | 18.60 | 0.83 | 0.67 | 1.29 | 2.20 | 2.37 | 0.50 | 0.16 | 0.11 | 2.92 | 98.76 | TEAK | PSS | A- |
| 1007354 | 552.00 | 152.00 | 52.80 | 16.90 | 0.28 | 6.84 | 0.33 | 1.32 | 12.70 | 1.59 | 0.16 | 0.32 | 5.31 | 98.45 | TMAT* | PHM | $\mathrm{A}^{-}$ |
| 4407353 | 164.50 | 164.50 | 70.40 | 16.40 | 0.24 | 0.98 | 0.84 | 2.61 | 3.81 | 0.45 | 0.14 | 0.05 | 2.93 | 28.85 | TEA* | PSS | IRF |
| 1907352 | 181.00 | 181.00 | 66.80 | 16.20 | 0.27 | 1.53 | 3.85 | 1.71 | 5.67 | 0.45 | 0.14 | 0.13 | 2.70 | 99.45 | TMAT ${ }^{\text {d }}$ |  | IRP |
| VA07388 | 208.60 | 208.70 | 66.50 | 16.80 | 0.44 | 1.36 | 3.67 | 1.89 | 5.88 | 0.49 | 0.18 | 0.11 | 2.47 | 99.79 | TIAT | PSU | A- |
| VA07351 | 222.00 | 222.00 | 70.00 | 16.90 | 0.28 | 2.17 | 2.07 | 0.35 | 3.46 | 0.46 | 0.12 | 0.05 | 3.16 | 99.52 | teata | PSM | DEF |
| V407362 | 888.80 | 888.80 | 70.20 | 15.70 | 0.46 | 1.50 | 6.70 | 0.72 | 1.25 | 0.51 | 0.17 | 0.04 | 1.54 | 99.49 | TEAT* | PSM | A- |
| VA07363 | 888.80 | 888.80 | 60.10 | 15.40 | 1.47 | 2.73 | 3.93 | 1.11 | 10.20 | 1.36 | 0.36 | 0.15 | 3.00 | 99.71 | TMATA | PHM | A- |
| VA07364 | 888.80 | 888.80 | 52.20 | 16.70 | 5.11 | 2.78 | 4.79 | 0.20 | 14.20 | 0.83 | 0.12 | 0.11 | 2.16 | 99.20 | TMAB* | $N$ | E148 |
| VA07365 | 888.80 | 988.80 | 49.00 | 16.00 | 9.34 | 4.46 | 1.42 | 0.70 | 13.50 | 1.02 | 0.24 | 0.18 | 3.08 | 98.84 | TMAT | N | A- |
| V107366 | 888.80 | 888.80 | 45.90 | 14.40 | 9.75 | 8.41 | 1.66 | 0.87 | 13.60 | 0.72 | 0.21 | 0.14 | 3.08 | 98.74 | TMAEA | N | A- |

IIAMOND DRILL CORE IITHGGEQCHEMICAL RECORD (MINOR ELEMENTS)

| SAMPLE NUMEER | EROM | T0 | $\begin{gathered} \mathrm{KB} \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} 5 \mathrm{~K} \\ (\mathrm{ppa}) \end{gathered}$ | $\begin{gathered} \mathrm{BA} \\ (\mathrm{ppH}) \end{gathered}$ | $\begin{gathered} Y \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} \mathrm{ZK} \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{aligned} & N B \\ & (\mathrm{ppm}) \end{aligned}$ | $\begin{gathered} \mathrm{CU} \\ (\mathrm{ppas}) \end{gathered}$ | $\begin{gathered} \text { ZN } \\ (\mathrm{ppm}) \end{gathered}$ | $\begin{gathered} \mathrm{NI} \\ (p \mathrm{pm}) \end{gathered}$ | ROCK | $\begin{gathered} \text { CODES } \\ \text { ALT } \end{gathered}$ | MIN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| U407361 | 15.00 | 15.00 | 78.0 | 21.0 | 1130.0 | 10.0 | 101.0 | $<10.0$ | 40.0 | 42.0 | 10.0 | IEARI* | PSS | D16F |
| VA07360 | 34.00 | 34.00 | 21.0 | 91.0 | 144.0 | 27.0 | 121.0 | 22.0 | 54.0 | 173.0 | 118.0 | PMEWT | FHM | A- |
| UA07359 | 45.00 | 45.00 | 82.0 | 38.0 | 1240.0 | ¢10.0 | 102.0 | 15.0 | 41.0 | 82.0 | <10.0 | TEAOTA | PSM | A- |
| VA07390 | 53.80 | 53.90 | 26.0 | 15.0 | 266.0 | <10.0 | 97.0 | 49.0 | 25.0 | 368.0 | 147.0 | TMAT* | PSW | A- |
| VA07358 | 83.50 | 83.50 | 55.0 | 50.0 | 1210.0 | <10.0 | 88.0 | 43.0 | 68.0 | 504.0 | 204.0 | TEAQTt | FSM | A- |
| VA07397 | 98.00 | 98.10 | 20.0 | 169.0 | 1160.0 | 23.0 | 71.0 | 16.0 | 67.0 | 100.0 | 16.0 | TFAT* | PSM | A- |
| VA0735? | 110.00 | 110.00 | 48.0 | 76.0 | 1240.0 | 14.0 | 97.0 | 14.0 | 36.9 | 51.0 | <10.0 | TEA* | PSS | [18F |
| YAC\%389 | 116.80 | 116.90 | 45.0 | 189.0 | 943.0 | 21.0 | 89.0 | 22.0 | 25.0 | 101.0 | <10.0 | IIAT | FSW | A- |
| UA07356 | 120.00 | 120.00 | 44.0 | 138.0 | 1300.0 | 31.0 | 138.0 | 18.0 | 32.0 | 37.0 | 10.0 | TEAOA | ESS | DEP |
| UA07355 | 134.00 | 134.00 | 43.0 | 124.0 | 1930.0 | 39.0 | 118.0 | 14.0 | 38.0 | 89.0 | 10.0 | TEAK | FSS | A- |
| VA07354 | 152.00 | 152.00 | 33.0 | 47.0 | 1500.0 | 28.0 | 59.0 | 24.0 | 120.0 | 105.0 | 91.0 | Tmath | YHM | A- |
| VA0735 | 164.50 | 164.50 | 41.0 | 103.0 | 3930.0 | 39.0 | 111.0 | 10.0 | 47.0 | 67.0 | <10.0 | TEAA | PSS | ISP |
| 1407352 | 181.00 | 191.00 | 25.0 | 101.0 | 710.0 | 23.0 | 127.0 | 10.0 | 54.0 | 132.0 | 10.0 | That |  | IRP |
| U407388 | 208.60 | 208.70 | 45.0 | 97.0 | 770.0 | 31.0 | 122.0 | $\bigcirc 10.0$ | 10.0 | 74.0 | ¢10.0 | TIAT | PSW | A. |
| va07351 | 222.00 | 223.00 | 13.0 | 451.0 | 1090.0 | 37.0 | 101.0 | 22.0 | 47.0 | 69.0 | 10.0 | TEATA | PSM | [8F |
| Va07362 | 888.80 | 888.80 | 29.0 | 172.0 | 246.0 | 40.0 | 109.0 | 18.0 | 37.0 | 17.0 | 10.0 | TEATA | PSM | A- |
| V407363 | 888.80 | 888.80 | 34.0 | 91.0 | 477.0 | 91.0 | 322.0 | 59.0 | 54.0 | 177.0 | 30.0 | Thatk | FHH | $A^{-}$ |
| UA07364 | 888.80 | 988.80 | 12.0 | 412.0 | 152.0 | $<10.0$ | 14.0 | 13.0 | 31.0 | 29.0 | 39.0 | TMABA | N | B0\% |
| 9A07365 | 885.30 | 888.90 | 13.0 | 504.0 | 671.0 | 23.0 | $\leqslant 10.0$ | 10.0 | 53.0 | 44.0 | 70.0 | TMATA | N | A- |
| VA07366 | 888.80 | 888.80 | 23.0 | 494.0 | 276.0 | 10.0 | <10.0 | 28.0 | 27.0 | 60.0 | 72.0 | THAE* | $N$ | A- |

## DIAMOND DRILI CORE LITHOGEOCHEMICAL FEGQEE (MAJOR ELEMENTS)



## DIAMGND DRILL CORE LITHOGEOCHEMICAL FECORD

 (MINOR ELEMENTS)| SAMPLE NUMEER | EROM | T0 | RE ( OpH ) | $\begin{gathered} \text { SR } \\ (\mathrm{ppq}) \end{gathered}$ | $\begin{gathered} B A \\ \left(p p_{A}\right) \end{gathered}$ | $\begin{aligned} & Y \\ & (\mathrm{ppm}) \end{aligned}$ | $\begin{gathered} 2 \mathrm{R} \\ (\mathrm{ppa}) \end{gathered}$ | $\begin{gathered} N B \\ (p p m) \end{gathered}$ | $\begin{gathered} c u \\ (\mathrm{ppm}) \end{gathered}$ | $\stackrel{2 N}{(\mathrm{ppm})}$ | $\begin{gathered} N I \\ (\mathrm{ppm}) \end{gathered}$ | ROCK | $\begin{gathered} \text { CODES } \\ \text { ALT } \end{gathered}$ | MIN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| VA10531 | 0.00 | 9.00 |  |  | 1800.0 |  |  |  | 45.0 | 42.0 | <10.0 | TEA | PSM | A- |
| VA10532 | 10.00 | 25.00 |  |  | 1320.0 |  |  |  | 42.0 | 40.0 | 10.0 | tramta | PSM | A- |
| VA10533 | 25.00 | 33.00 |  |  | 1220.0 |  |  |  | 61.0 | 22.0 | <10.0 | TEAQTA | PSM | A- |
| VA10534 | 35.00 | 54.00 |  |  | 1230.0 |  |  |  | 70.0 | 58.0 | 10.0 | Tfagt | PSM | A- |
| VA10535 | 55.00 | 64.00 |  |  | 1570.0 |  |  |  | 46.0 | 56.0 | $<10.0$ | tebet | PSM | A- |
| UA10536 | 64.00 | 83.00 |  |  | 2230.0 |  |  |  | 69.0 | 297.0 | 10.0 | TEACA | PSS | nicp |
| VA10537 | 84.00 | 92.50 |  |  | 2270.0 |  |  |  | 81.0 | 78.0 | 24.0 | TEARA | PSS | ape |
| UA10538 | 92.54 | 98.00 |  |  | 1490.0 |  |  |  | 83.0 | 82.0 | 10.0 | SATLA | $N$ | DBP |
| VA10539 | 98.00 | 101.50 |  |  | 1300.0 |  |  |  | 95.0 | 45.0 | 21.0 | TEARTA | PSE | DEP |
| Wal0540 | 104.00 | 119.00 |  |  | 1510.0 |  |  |  | 64.0 | 83.0 | <10.0 | TFAT | PSS | A- |
| VA10541 | 121.00 | 127.00 |  |  | 1380.0 |  |  |  | 49.0 | 89.0 | 10.0 | tegat | FSM | A- |
| VA1054: | 228.50 | 141.00 |  |  | 1300.0 |  |  |  | 57.0 | 177.0 | 13.0 | PGATA | FSM | A- |
| VA10543 | 141.00 | 151.00 |  |  | 1610.0 |  |  |  | 47.0 | 98.0 | 10.0 | TEATA | PSM. | A- |
| Valos44 | 154.00 | 161.00 |  |  | 1300.0 |  |  |  | 59.0 | 99.0 | $<10.0$ | tFabt | PSS | A- |
| VA10545 | 161.00 | 169.00 |  |  | 2760.0 |  |  |  | 52.0 | 76.0 | 10.0 | TEAT* | FSM | A- |
| Velosis | 172.00 | 185.00 |  |  | 761.0 |  |  |  | 58.0 | 74.0 | 10.0 | Imat | PSM | $A^{-}$ |
| 1910547 | 186.00 | 196.00 |  |  | 1130.0 |  |  |  | 121.0 | 80.0 | 27.0 | TEATA | FSS | $\mathrm{A}^{-}$ |
| VA10548 | 196.00 | 200.00 |  |  | 1340.0 |  |  |  | 105.0 | 122.0 | 35.0 | SATI* | $N \star$ | Hip |
| VA10549 | 200.00 | 210.00 |  |  | 1390.0 |  |  |  | 48.0 | 50.0 | 16.0 | TEAT* | PSM | A- |
| VAlOS50 | 210.00 | 215.00 |  |  | 1610.0 |  |  |  | 115.0 | 93.0 | 23.0 | SATT* | $N \star$ | L1PP |
| VA10551 | 215.00 | 220.00 |  |  | 1030.0 |  |  |  | 99.0 | 88.1 | 10.0 | TEATA | FSM | A- |



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## WHOLE ROCK, ALTERATION, AND BONDAR SAMPLES OF THE WATSON CREEK AREA TRENCH

O

DIAMONI ORILL CQRE LITHOGEQCHEMICAL RECORI


IIAMONI DRILL CORE LITHGGEOCHEMICAL RECORI (MINOR ELEMENTS)

| SAMPLE NUMREK | EROM | To | $\begin{gathered} \text { Rg } \\ (\mathrm{pman}) \end{gathered}$ | $\begin{gathered} 5 \% \\ (98 m) \\ \hline(90 m \end{gathered}$ | $\begin{gathered} \mathrm{gA} \\ 1 \quad(\mathrm{pm}) \\ \hline \end{gathered}$ | $\stackrel{y}{y}(\mathrm{pm})$ | $\begin{aligned} & 2 \mathrm{R} \\ & (\mathrm{ppm}) \end{aligned}$ | $\stackrel{N B}{(\mathrm{ppm})}$ | $\stackrel{c u}{(\mathrm{pm})}$ | $\begin{aligned} & 2 \mathrm{~N} \\ & !\mathrm{g} \mathrm{pm}) \end{aligned}$ | $\begin{gathered} N I \\ (p p m) \end{gathered}$ | ROCK | $\underset{\text { ALT }}{\text { CODES }}$ | MIN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| VA07407 | 11.00 | 11.30 | 58.0 | 253.0 | 1320.0 | 10.0 | 129.0 | 14.0 | 23.0 | 59.0 | 10.0 | teadt | PSM | A- |
| UA07406 | 43.50 | 43.40 | 60.0 | 151.0 | 2240.0 | 15.0 | 63.0 | 10.0 | 40.0 | 122.0 | 17.0 | teg | FSW | def |
| VA07405 | 76.50 | 76.40 | 59.0 | 131.0 | 835.9 | 12.0 | 49.9 | 10.0 | 10.0 | 23.0 | 10.0 | teant | PSM | A- |
| Vabryot | 120.10 | 120.00 | 41.0 | 684.0 | 556.0 | 25.0 | 126.0 | 23.0 | 30.0 | 78.0 | 010.0 | TIAT* | Sew | A- |
| 1/07403 | 191.20 | 191.00 | 59.0 | 283.0 | $53 \% .0$ | 10.0 | 59.0 | 15.0 | 70.0 | 97.0 | 18.0 | TIAT | PSH | A- |
| YA07402 | 197.50 | 197.30 | 84.0 | 245.0 | 998.0 | 24.0 | 156.0 | 22.0 | 21.0 | 43.6 | 10.0 | tiert | PSU | A- |
| v907401 | 220.50 | 220.00 | 14.0 | 255.0 | 147.0 | 144.0 | 416.0 | 47.0 | 72.9 | 66.0 | 10.0 | TEAI* | N | A- |
| Vabags | 228.50 | 23.00 | 72.0 | 99.0 | 1650.0 | 60.0 | 71.0 | 15.0 | 10.0 | 33.0 | 10.0 | TFARIt | yes | a- |
| 41907897 | 24.00 | 241.80 | 44.0 | 467.0 | 458.0 | 10.0 | 98. | 20.0 | 85.0 | 29.0 | 610.0 | TEATA | N* | A- |
| VA07396 | 246.00 | 245.60 | 47.0 | 354.0 | 567.0 | 10.0 | 65.0 | 12.0 | 32.0 | 74.0 | 10.0 | TEEET* | PSM | A- |
| U907398 | 347.00 | 245.80 | 61.0 | 179.0 | 1170.0 | 40.0 | 24.0 | 10.0 | 10.9 | 72.0 | 0.0 | traure | FSM | A- |
| Vap7eg | 256.50 | 256.30 | 36.0 | 32.0 | 526.0 | 28.2 | 29.0 | 10.0 | 14.0 | 104.0 | 90.0 | TMAT* | FPu | A- |
| Va07294 | 266.09 | 26.80 | 60.0 | 95.0 | 6000,0 | 26.0 | 112.0 | 00.0 | 25.0 | 62.0 | 20.0 | teanta | fes | def |
| vapreys | $2 \%$ \% 20 | 274.00 | 57.0 | 39.0 | 1240.0 | 10.0 | 92.0 | 11.0 | 15.0 | 44.0 | 0.0 | reat | Psp | A- |
| WA0\%792 | 290.00 | 279.90 | 31.0 | 29.0 | 1580.0 | 14.0 | 97.0 | 10.0 | 10.0 | $5 \%$ | 00.0 | teab | PSM | A- |
| *A07291 | 292.00 | 291.80 | 00.0 | 176.0 | 172.6 | 10.0 | 122.0 | 90.0 | 16.0 | 52.0 | 10.0 | reat | $N$ | 4. |

## IIAMOND DRILL CQRE IITHOGEDCHEMICAL RECORD (MAJOK ELEMENTS)



DIAMOND DRILL CORE LITHGGEQCHEMICAL FECORD (MINOR ELEMENTS)


LIAMONI IRILI CORE LITHOGEOCHEMICAL RECDRI (MAJOR ELEMENTS)

| SAMFLE NUMEER | EROM | TO | 45102 | \%AL203 | call | :Mic | \%NA2O | \%1820 | \% 5203 | \%1102 | \%P205 | \%MNO | \%101 | SIM | cones |  | MIN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ROCK | ALT |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9A10574 | 224.80 | 222.50 | 55.10 | 20.30 | 1.49 | 3.37 | 3.42 | 2.35 | 8.59 | 0.86 |  |  | 3.85 | 79.33 | TIALT | PSW | A- |
| 4.105\% | 228.90 | 224.80 | 55.50 | 18.50 | 2.12 | 3.45 | 2.33 | 2.80 | 9.84 | 0.62 |  |  | 4.16 | 99.32 | TMAET* | $\star$ | A |
| 1010572 | 243.00 | 228.90 | 74.50 | 14.00 | 0.36 | 1.70 | 2.60 | 2.02 | 1.34 | 0.19 |  |  | 1.93 | 99.83 | TEARET | 9SM | ${ }^{\text {A- }}$ |
| Ue10s\%1 | 252.00 | 242.00 | 69.00 | 14.50 | 1.76 | 1.48 | 2.68 | 1.92 | 3.94 | 0.33 |  |  | 2.31 | 59.29 | teaget | FSM | A- |
| 2910570 | 262.50 | 255.00 | 52.20 | 17.10 | 2.79 | 5.94 | 3.55 | 0.74 | 11.90 | 1.33 |  |  | 4.47 | 98.92 | MnAtT* | $\star$ | A- |
| YALOS69 | 26.00 | 262.50 | 62.40 | 17.20 | 0.35 | 3.02 | 2.69 | 1.57 | 8.24 | 0.86 |  |  | 3.62 | 99.95 | TiAt | gsm | A- |
| 9atos6e | 271.00 | 368.00 | 72.40 | 15.70 | 0.59 | $\therefore 17$ | 2.17 | 2.45 | 3.24 | 2.58 |  |  | 2.85 | 99.39 | TEAgT | ess | A- |
| Whas6? | 288.06 | 273.00 | 75.40 | 23.90 | 0.16 | 0.75 | 3.51 | 2.57 | 2.20 | 0.3 .7 |  |  | 2.16 | 106.00 | Yeart | psem | A- |
| 9A10566 | 296.00 | 298.00 | 49.59 | 15.80 | 5.36 | 6.92 | 2.14 | 0.20 | 13.90 | 1.85 |  |  | 4.42 | 99.69 | TMaEma | * | A- |
| Valoges | 30. 00 | 29606 | 72.60 | 15.30 | 0.20 | 1.24 | 2.62 | 2.58 | 2.80 | 0.37 |  |  | 2.23 | 95.78 | TEAGA | PS | A- |
| YA10564 | 310.00 | 308.00 | 74,70 | 14.20 | 0.12 | 1.15 | 0.64 | 3.02 | 2.86 | 0.29 |  |  | 2.31 | 99.49 | TIaut | FEM | A- |
| Weloses | 320.0 | 310.00 | 99.40 | 12.90 | 0.15 | 0.40 | 0.83 | 2.82 | 1.65 | 0.16 |  |  | 2.16 | 100.07 | PEACT | Fes | A- |
| 1910562 | 200.09 | 300.00 | 77.40 | 12.20 | 2.15 | 0.44 | 0.67 | 2.76 | 1.96 | 0.22 |  |  | 3.39 | 99.15 | TEAOT | Pse | A- |
| 3410561 | 34000 | 336.00 | 77.40 | 13.60 | 6.15 | 0.59 | 0.64 | 2.80 | 2.22 | 0.06 |  |  | 2.39 | 1060s | TEAT | Fs | A- |
| W41056 | 3x.mo | 349.03 | 75.90 | 13.80 | 0.1) | 0.57 | 9.65 | 2.09 | 2.30 | 0.24 |  |  | 2.39 | 100.00 | TEAEET | 95 | A- |

DIAMONE DRILI CQRE L ITHOGEQCHEMTCAL RECORD

| SAMPLE NUMBER | EROM | то | $\begin{gathered} \mathrm{RB} \\ \text { (pgn) } \end{gathered}$ | $\begin{gathered} 5 \pi \\ (p \mathrm{pm}) \end{gathered}$ | $\begin{aligned} & 8 A \\ & \left(P p_{n}\right) \end{aligned}$ | $\stackrel{y}{\varphi}(\mathrm{pgm})$ | $\begin{gathered} \text { ZR } \\ (\rho p m) \end{gathered}$ | $\stackrel{N g}{(\rho \mathrm{gm})}$ | $\begin{gathered} \text { cu } \\ (0 \mathrm{pm}) \end{gathered}$ | $\underset{(\mathrm{ppm}}{2 \mathrm{~N}}$ | $\begin{gathered} N I \\ (p \mathrm{pm}) \end{gathered}$ | COLIES <br> FDCK ALT |  | MIN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |


| VA10574 | 224.80) | 222.50 | 387.0 | 22.0 | 105.0 | 10.0 | tiagit | Ys. | A- |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| VA10573 | 228.90 | 224.80 | 1060.0 | 71.0 | 120.0 | 36.0 | imacta | * | A |
| W410572 | 243.00 | 220.90 | .190.0 | 10.0 | 48.0 | 10.0 | tranes | Psm | A- |
| We105:? | 252.00 | 242.00 | 964.0 | 31.0 | 60.0 | 10.0 | teabet | FSM | A- |
| valos70 | 263.50 | 255.00 | 379.9 | 147.0 | 127.0 | 22.0 | TMAETA | * | $\mathrm{A}^{-}$ |
| Unt0569 | 26\%.00 | 268.50 | ces.0 | 35.4 | 199.0 | 30.0 | EIATA | PSM | A- |
| 1910568 | 371.00 | 363.00 | 4020.0 | 31.0 | 62.0 | 10.0 | tramet | Pss | A- |
| Uatose? | 288.00 | $27 \times 06$ | 1400.0 | 19.0 | 50.0 | 10.0 | teabt* | Esm | $\mathrm{A}^{-}$ |
| Valosbe | 395.00 | 2es.00 | 2\%.0 | 135.0 | 16.0 | 96.9 | tmatera | * | A- |
| ye.056s | 008.00 | 29E.0. | 1120.0 | 16.0 | 74.0 | 00.0 | TEAD* | Psk | A- |
| $3 \mathrm{Al0564}$ | 810.00 | 300.00 | 1230.0 | 20.0 | 111.0 | 10.0 | Tigart | Psm | A- |
| 49.0568 | 200.00 | 310.00 | 955.0 | 17.0 | 50.0 | 10.6 | TEAPT | dss | $4-$ |
| 1810562 | 300.90 | 320.00 | 1230.0 | 16.0 | 45.0 | 12.0 | EFares | Fes | A- |
| Ufios62 | 300.00 | 200.00 | 1410.0 | 14.0 | 79.0 | 00.0 | TEfat | Fes | A- |
| 11910560 | 352.00 | 840.00 | 1130.0 | 14.0 | 74.0 | 12.0 | TEAgT | Pss | A- |

IIAMOND DFILI CORE LITHOGEORHEMICAL FECORI (MINOR ELEMENTS)

| SAMPLE: NUMEER | EROM | T0 | $\begin{gathered} 84 \\ (3 p m) \end{gathered}$ | 0 <br> 'ppmi | $\begin{gathered} \text { ZH } \\ \left\{p p^{n}\right\} \end{gathered}$ | $\begin{aligned} & A n \\ & (p o m) \end{aligned}$ | $\begin{gathered} A 0 \\ \left(p p^{t}\right) \end{gathered}$ | $\begin{gathered} \text { C0 } \\ \left(p^{n}\right) \end{gathered}$ | $\begin{aligned} & \text { NI } \\ & (p \mathrm{pm}) \end{aligned}$ | $\begin{gathered} 75 \\ (98 n: \end{gathered}$ | $\begin{aligned} & A S \\ & \left(p P^{n}\right) \end{aligned}$ | $\begin{gathered} c \mathrm{n} \\ (\mathrm{pps}) \end{gathered}$ | $\begin{aligned} & \text { MN } \\ & \text { Cppin? } \end{aligned}$ | \#EED | KOCK | coDes <br> ALT | MIN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1407972 | 4.700 | 43.00 | 2700.0 | 23.0 | 29.3 | 0.5 | 12.0 | 20.0 | 32.0 | 11.0 | 36.0 | 1.0 | 615.0 | 2.65 | satilk | N | acs |


[^0]:    Hole intersected mafic and intermediate
    Hole intersected mafic and intermediate tuffs. The intermediate tufts contain
    2 to $5 \%$ disseminated pyrite. The pyrite is associated with chlorite alteration and sometmes contains traces of chaicopyrite. The intermediate tuffs may in fact be chloritized felsic crystal tuffs

