KERR ADDISON MINES LIMITED

M E M O R A N D U M

TO: D. A. Lowrie DATE: March 23, 1982

FROM: W. M. Sirola

SUBJECT: Fire Mt. Property, Atlin M.D. 103N-7W

Reports and maps on this molybdenum prospect were submitted by Dick Woodcock who mapped the central portion of the property, collected rock samples for geochemical analyses and petrographic work and compiled a report dated November 30, 1981.

Owner

Canadian Johns Manville. Now under option to Ranworth & Whiterock Explorations. CJS maintains an interest in the form of a 3.5% net smelter return royalty. Some form of option agreement would have to be negotiated with Ranworth & Whiterock.

Location

30 miles (48 km.) east of Atlin, B.C..

List of Claims

Fire 200 - 205 (6 claims - 120 units)

Access

By helicopter from Atlin or by float plane to Angel Lake, 6.4 km. NW of Fire Mt.

History

1971-72 Canadian Johns Manville carried out:

(a) preliminary geological and geochemical surveys;

(b) limited I.P.;

(c) 4903 = 1470.90 metres of BQ drilling;

(d) magnetometer survey.

104 N/07

J.R. WOODCOCK CONSULTANTS'

SUBMISSION - FIRE MTN. PROPERTY -

ATLIN, B.C.

NOVEMBER 1981

Geology

Cache Creek (Paleozoic) sediments intruded by small dykes and plugs of quartz feldspar porphyry, porphyritic rhyolite and a breccia intrusive 140 m x 90 m.

Alteration: A circular area 2500 m. in diameter has been altered to biotite hornfels and mineralized with pyrite. Most of the pyrite has been altered to limonite (jarosite-goethite) but one kidney-shaped area (1000 x 400 metres) still contains abundant pyrite. Hydrothermal alteration has bleached more than 50% of the hornfels.

Geochemistry

The hornfelsed area is in large part covered with a 1000 p.p.m. fluorine anomaly with patches containing 2000 p.p.m. Curiously enough, there is a fluorine low in the vicinity of the breccia pipe.

Tungsten (25 p.p.m.) superimposes neatly over the fluorine anomaly with two areas of 50 p.p.m. within the 25 p.p.m. contour.

Molybdenum forms a circular pattern 500 metres in diameter in the approx. middle of a magnetic anomaly indicated by the 800 gamma contour. The actual magnetic relief is about 300 gammas.

Mineralization

$MoS_2$ in quartz veinlets and fractures is wide-spread. It occurs in the hornfels, in the quartzite porph. in the breccia pipe and throughout drill holes 4 & 5.

Chalco, galena, sphalerite and arsenopyrite occur in trace amounts in some of the drill holes.

Conclusions

The broad area of pyritized and bleached hornfels on which is super-imposed a 100 cm. magnetic anomaly is certainly indicative of an underlying intrusion. The dykes suggest that the composition would be felsic or intermediate. Since the stock was not encountered in drilling, it is obviously unroofed.

The combination of super-imposed fluorine, tungsten and molybdenum in the rocks, the magnetic anomaly and the breccia pipe constitute a very attractive drilling target.

Because of relatively poor access and helicopter moves, the cost of an adequate drilling program would be in the $200,000 - $250,000 range. Unfortunately there are very few short-cuts that would provide the desired information at lower cost. It is therefore an expensive gamble but certainly an interesting one.

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Before making a positive recommendation, it would be interesting to know what has deterred people like CJM, Amax, Placer, etc. from tackling the property. It should not be classed with Adanac because the underlying intrusive does not appear to have the same geochemical signature as the Adanac intrusives which tend to have associated $U_3O_8$. It may more closely resemble the Lime Cr. situation (B.C. moly).

The area is certainly high cost and lacks electric power. This could be one deterrent. However, it does not take an Einstein to indulge in negative thinking and I for one would like to see the deposit drilled.

W. M. Sirola

WMS/sm

5M phone type
✓ send copy to W.S.

MAR 25 1982

From: N.M. Sirola

March 23/82

To: D. Lowrie

Subject: Fire nt Property; Atlin M.D. 103N-7W



Reports ✓ maps on this Molybdenum prospect were submitted by Dick Woodcock who mapped the central portion of the property, collected rock samples for geochemical analyses ✓ petrographic work ✓ compiled a report dated Nov. 30/81

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(b) limited I.P.
(c) 1903 = 14790 metres of BQ drilling.
(d) Magnetometer Survey.

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see the deposit explored.

MH

**J.R. Woodcock Consultants Ltd.**

806 - 602 WEST HASTINGS STREET - VANCOUVER, B.C. V6B 1P2 - PHONE (604) 685-6720

January 13, 1982

Mr. Joe Rankin
Ranworth Explorations Limited
85 Richmond Street West, Suite 600
Toronto, Ontario
M5H 2E8

Re: Additions to Fire Report

Dear Joe:

Enclosed are the following additional or revised maps:

1. Figure 13: This is the surface magnetometer survey made for Canadian Johns-Manville Ltd., presumably by C. Aspinall. There are several things one should note:

   a. Central positive magnetic anomaly (>800 gammas) is largely co-extensive with the bleached zone. This 800-gamma contour has been added to the hornfels map (Figure 11).
   b. Surrounding this broad positive anomaly are a ring of negative anomalies. These occur on all sides of the positive anomaly excepting for two places on the northwest side.
   c. On the northwest side are two small erratic but sharp high magnetic anomalies. These are caused by remnants of Tertiary basalts which lie on the upland area.

2. Figure 11: This is another copy of the hornfels map on which the magnetic (800 gamma) contour anomaly has been superimposed.

3. Figure 10: This is the map of the tungsten geochemistry. A few additional samples have been ordered to more accurately define the anomaly; however, the overall picture will not change.

4. Figure 12: This is a new Summary Map including the pertinent geochemical contours and the 800-gamma magnetic contour. On this I have placed a tentative position for a single deep vertical drill hole. This

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is only tentative as the position will need further discussion. You will note that this is slightly different and more definite than the suggestions I made in my report. Also, I am becoming more convinced that the I.P. might be a waste of money and that we can better define the anomaly on its southwest and by additional rock geochemistry, especially tungsten and molybdenum. Also the magnetic anomaly has added some more certainty and definition to the outline of the zone of interest.

This proposed position is near the center of interpretation #2 and it is within and sufficiently central to interpretation #1. Most stockwork deposits have an aerial extent of 800 ± 200 meters.

The reason for the magnetic anomaly should be discussed. There are two possibilities and the first is pyrrhotite in the hornfels zone. In places, such as Alice Arm, where the stock intrudes a similar argillaceous rock, pyrrhotite has formed in the hornfels zone adjacent to the intrusive and this has caused a very slight magnetic anomaly. In the case of Fire Mountain, I doubt that this is the answer as the anomaly is coincident with the bleached zone where most of the pyrrhotite would have been removed. Also the anomaly does not occur over the high biotite hornfels area to the north of the bleached zone.

The second and more plausible suggestion is that there could be a magnetite-fluorine halo over the presumed molybdenite deposit. In the early days of molybdenite and porphyry copper exploration, geologists assumed that the creation of the abundant pyrite would destroy the magnetite and that therefore all porphyry systems should be reflected by a magnetic low. However, the Henderson deposit does have a halo of magnetite-topaz and since its discovery a magnetic anomaly is considered a positive feature in porphyry molybdenite exploration.

I am still very bullish on this property as a geological target for a stockwork molybdenite deposit. Tungsten results which I did not have at the time of my report and the magnetometer map which I had not studied have enhanced the picture and have also helped define the target.

Yours very truly,

J. R. Woodcock

JRW/em

Encls.

cc: Mr. Bill McDonald - Whiterock Explorations Ltd.

# THE FIRE MTN. PROPERTY

on

Fire Claims

Atlin Mining Division (103N-7W)

owned by

Canadian Johns-Manville Ltd.

for

Ranworth Explorations Limited
(J. J. Rankin)

&

Whiterock Explorations Limited
(Wm. McDonald)

by

J. R. Woodcock and Dennis Gorc

J. R. Woodcock Consultants Ltd.
806-602 West Hastings St.
Vancouver, B. C.

November 30, 1981

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## TABLES



## FIGURES

# THE FIRE MTN. PROPERTY

## INTRODUCTION

Field work for this report was done by Messrs. J.R. Woodcock, Dennis Gorc and Henry Awmack from August 22 to 28, 1981. This consisted of collecting rock samples for geochemical analyses* and specimens for possible petrographic work. An enlarged aerial photograph (scale approximately 1:5000) and copies of a topographical map made by Northwest Surveys for Canadian Johns-Manville were used as a base for most of the work. In addition, a strata survey was made of a geologically complex area in the southeast part of the gossan target.

Maps in this report have all been converted to a metric scale. However, the contours on the Northwest Surveys' topographical map are still in feet. This contrasts with the stadia control map which has elevations in metric. The property is all above timberline.

### Location and Access

The Fire Mtn. property is on Fire Mtn., 32 miles (51 km.) E.S.E. of Atlin and 3.5 miles (5.6 km.) east of Gladys River Valley Fire Mtn. is a brilliant gossan surrounded by a string of lakes lying in the upland valleys. The peak of Fire Mtn. (elevation 5993 feet) is at latitude 59° 27.7' N, longitude 132° 47.5' W on N.T.S. map sheet 105 N-7W.

Access must be by helicopter from Atlin, where there is a year round helicopter base. Float planes could land on the lakes along Gladys River such as Angel Lake which is 4 miles (6.4 km.) northeast of Fire Mtn. Mr. Conn also reported that a twin otter has landed on small Camp Lake which lies in the valley west of Fire Mtn. and is only 2500 feet long.

### History

The brilliant gossan zone with its minor exposed mineralization has been repeatedly staked over the years.

Canadian Johns-Manville Company Ltd. became interested in the area in 1971 when molybdenite was discovered in felsenmeer fragments between 5000' and 6000' elevation. The Fire claims were staked around the Ni group and the Kow and Red fractional claims were staked to cover open ground in these two groups.

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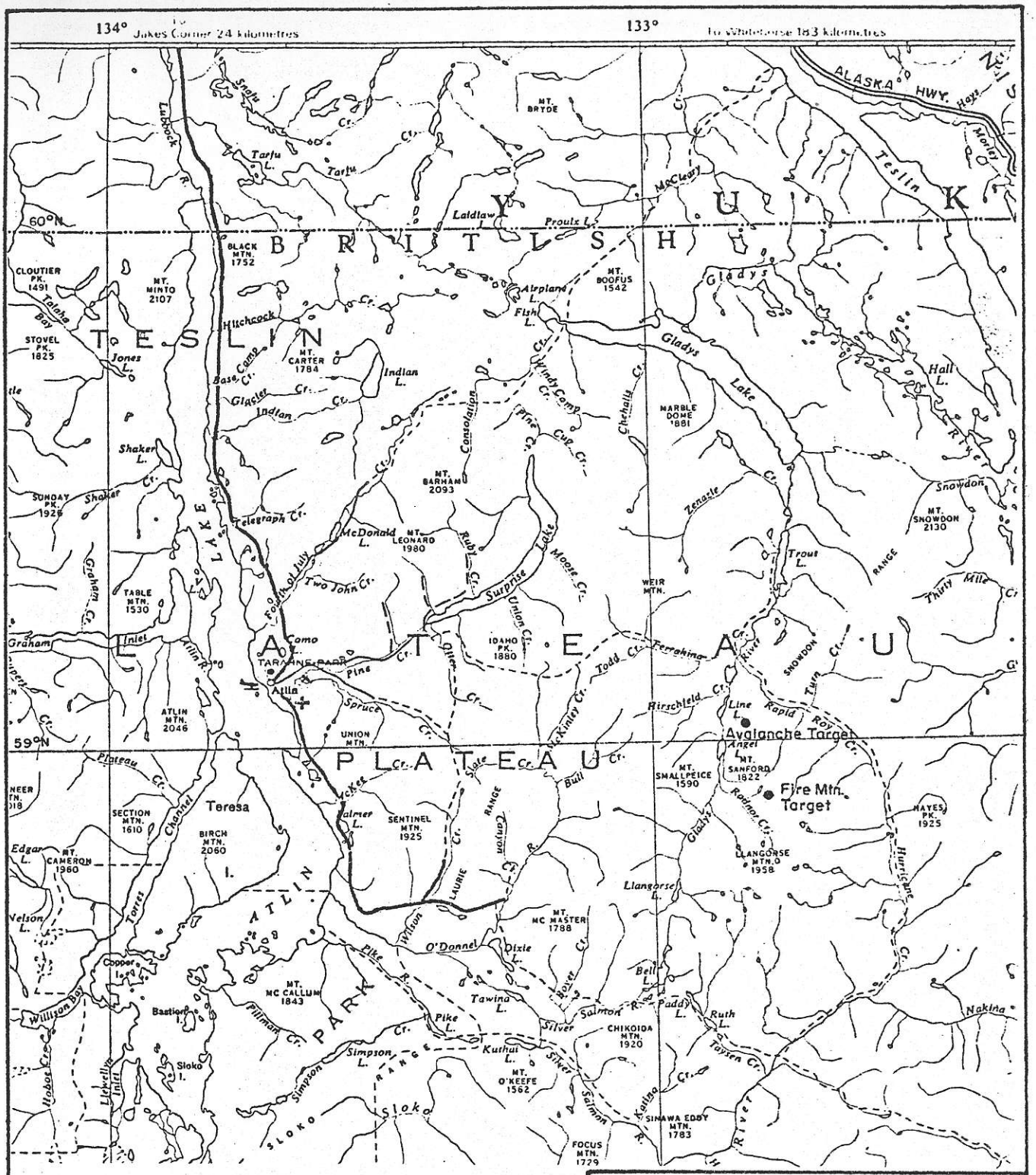
* 300 rock samples were analyzed by Vangeochem Laboratories Ltd.




**Mac DONALD-RANKIN**

# LOCATION MAP

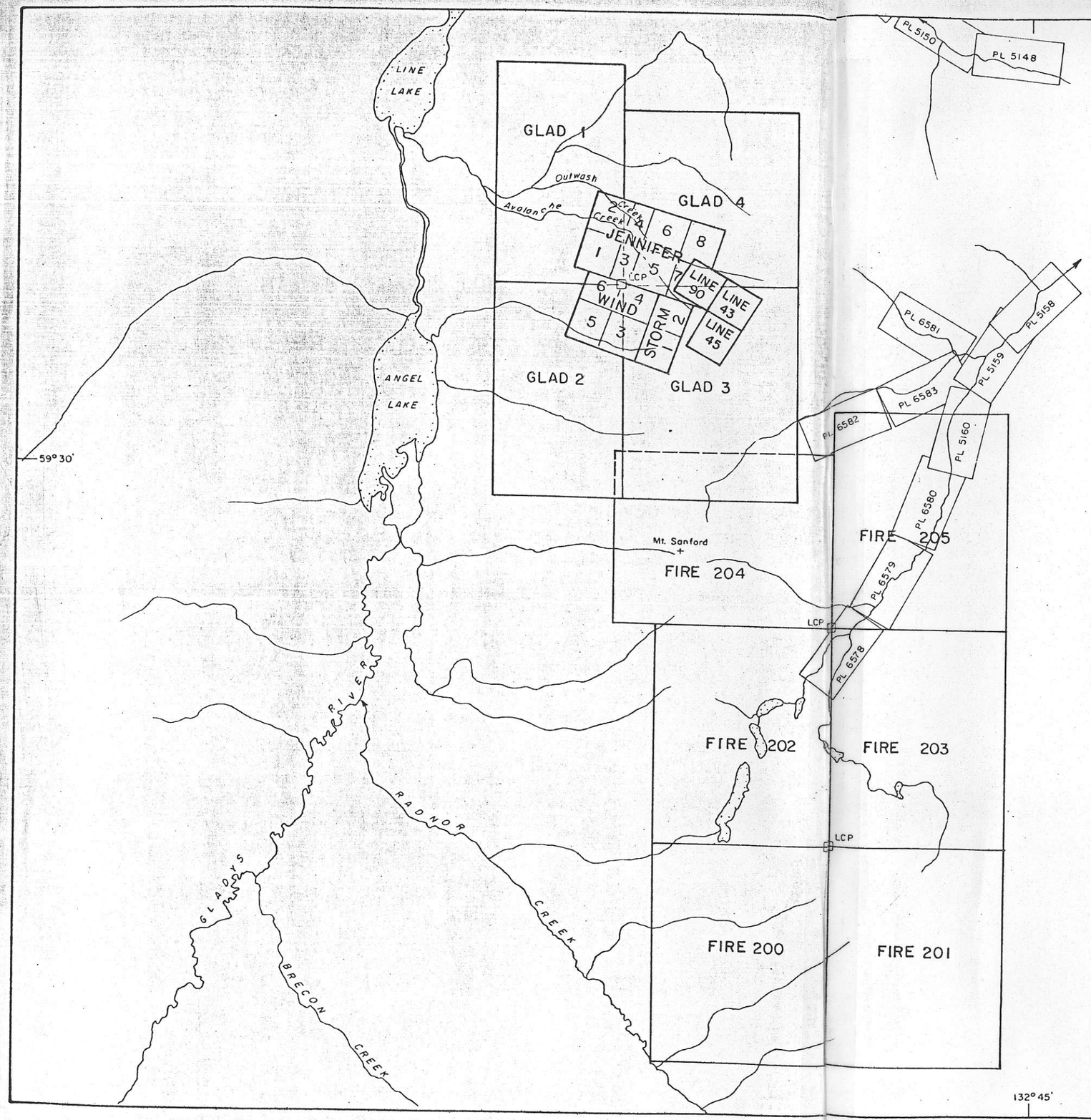
LIARD M.D., B.C.

SCALE 1: 600,000

10 0 20 KM.

J. R. WOODCOCK CONSULTANTS

NOVEMBER 1981 FIGURE 1

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## LEGEND

CLAIMS OWNED BY MacDONALD-RANKIN

PL PLACER LEASE

NOTE : Sources of information for this map include government claim maps for 104 N-7W & 10W, maps from a Canadian Johns - Manville Co. report by R. Mulligan dated Nov. 10, 1976 and personal observations by D. Gore.

MacDONALD – RANKIN

FIRE MTN. & AVALANCHE PROPERTIES
104 N-7W & 10W — ATLIN M.D., B.C.

# CLAIM MAP

SCALE 1:50,000

0 1 2 KM.

J.R. WOODCOCK CONSULTANTS LTD.

SEPTEMBER 1981 FIGURE 2

In 1971, Canadian Johns-Manville Company Ltd. carried out:

1. A preliminary geological survey of Fire Mtn. (Assessment Report 3867).

2. A preliminary geochemical survey of Fire Mtn. (Assessment Report 3782).

3. An aerial survey and a planimetric survey (Assessment Report 3733).

4. A brief induced polarization survey.

In 1972, the Company did the following:

1. 4903 feet of B Q diamond drilling.

2. A geological report on the alteration halo on Fire Mtn. (Assessment Report 4435).

3. Survey and installation of a detailed grid system and a magnetometer survey (Assessment Report 4436).

4. More geochemical soil and survey work with the grid as a control (Assessment Report 4437).

The diamond drill program included three holes placed on the western base of Fire Mtn. early in the season, when access to the snow covered upper area was impossible. The logs for these three holes are included in the preliminary geological report by C. Aspinall (Assessment Report 3867). These were followed by three holes based on top of the mountain; the logs for these holes have not been filed for assessment work.

## CLAIMS AND OWNERSHIP

When Johns-Manville Company Ltd. became interested in the property much of it was covered by the Ni 1-40 mineral claims which belonged to prospector G.C. Craft of Atlin, B.C. Johns-Manville optioned these claims; surrounded them with the Fire 1 to 120, 125, 126 mineral claims; and filled open spaces with the Kow and Red fractions.

Subsequently Canadian Johns-Manville acquired ownership of the Ni claims and in 1976, all claims were officially abandoned and restaked under the grid system by L. LeRoy as agent for Canadian Johns-Manville Company Ltd. The new 20-unit claims are the Fire 200, 201, 202, 203.

In August, 1981, Dennis Gorc, agent for J. R. Woodcock staked the Fire 204 and 205 claims to join the Avalanche Creek and the

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Fire Mtn. properties. These claims will also be transferred to Canadian Johns-Manville Company Ltd.

The accompanying claim map shows the position of these claims with respect to the Avalanche Creek property. The pertinent claim data is given in Table I.

Table I

| Claims | Record Nos. | Record Dates | No. of Units |
|---|---|---|---|
| Fire 200 | 175 | Sept. 8, 1976 | 20 |
| Fire 201 | 176 | Sept. 8, 1976 | 20 |
| Fire 202 | 177 | Sept. 8, 1976 | 20 |
| Fire 203 | 178 | Sept. 8, 1976 | 20 |
| Fire 204 | 1479 | Aug. 28, 1981 | 20 |
| Fire 205 | 1480 | Aug. 28, 1981 | 20 |

## GEOLOGY

### Regional Geology

Mt. Sanford and Fire Mtn. are underlain by sedimentary rocks of the Cache Creek formation; mainly cherts and argillites. These sedimentary rocks in other parts of the Atlin terrain include ultrabasic layers, volcanic formations and some thick limestone formations. Such rocks, however, have not been mapped on the Fire Mtn. property. Intruding this Cache Creek Formation are some batholithic plutons. The Surprise Lake Batholith lies north and northwest of the property and is composed largely of alaskite. It hosts the Adanac molybdenite deposit. The Mt. Llangorse Batholith lies only 2.5 miles (4 km.) south of Fire Mtn. It is composed of quartz diorite. The northerly flowing glaciation of the Pleistocene moved many erratics of this batholith northward; these are abundant on all parts of Fire Mtn.

In addition to the Mesozoic rocks, young basalts have been mapped in areas of the Atlin map sheet. These are divided by Aitken into Tertiary lavas and a Pleistocene volcanic rocks. Small exposures or remnants of these are found throughout the region; two very small exposures occur on Fire Mtn.

Major structures are common in the area. Possibly the most important near Fire Mtn. is the fault that bounds Gladys River

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Valley on its east side. It is only 3 miles from the property.

Local Geology

For ease of reference, many of the small local topographical features have been given names. These names appear on the Sample Numbers map (Figure 5) and on a number of other maps.

The Fire Mtn. area is mountainous with high relief; but, except for the cirque walls, it is not rugged. All of the property is above treeline; however, outcrops are only extensive on the cirque walls. Most of the mapping must be done with the use of felsenmeer. This should be fairly reliable, except on the steep slopes where there has been down slope creep and intermixing of rock types. In addition, some glacial debris has been deposited on the tops of hills and on the slopes. Shallow glacial debris is found in many places on the hill and glacial erratics of quartz diorite occur everywhere. In addition, there is considerable debris (glacial till and stream outwash) along the lower parts of Saddle and Canyon Creeks.

The Fire Mtn. property occurs in a region of argillites and cherty argillites of the Cache Creek Group. These argillaceous rocks are exposed on Argillite Ridge to the east and also to the north of the circular valley that largely surrounds Fire Mtn. The argillites become hornfelsed on Fire Mtn. The brown biotite hornfels is well exposed in the rugged cliffs to the northwest and west of Cirque Lake, and in the western parts of Fire Mtn. Southeasterly from Cirque Lake, the hornfels gradually becomes bleached, probably by the formation of hydrothermal sericite. The intensity of this bleaching and alteration seems to reach a maximum in the vicinity of Fire Saddle. Bleached hornfels occurs on the slopes of Fire Mtn. immediately north of Fire Saddle and it extends southeasterly onto the flanks of South Peak. The hornfels alteration and the subsequent hydrothermal alteration are accompanied by abundant pyrite.

The alteration and the pyritization decrease abruptly, on the south flank of South Peak, possibly due to a fault. Thus the nice circular zoning that one generally likes to see with porphyry molybdenite deposits is very asymmetric.

With such a large zone of hornfelsing, pyrite mineralization, and hydrothermal alteration, one would expect significant intrusions. However, the surface mapping and the drill holes (Nos. 4 and 5) have only revealed small dykes or plugs. Based on surface observations of weathered felsenmeer one can probably select a few main dyke rocks or porphyries:

A. These include a white quartz-eye porphyry with a fine-grained phaneritic or aphanitic matrix which occurs north of Fire Saddle and crops out in the southeast wall of the

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cirque.

B. A dyke, approximately 10 meters wide, of crowded porphyry which contains quartz phenocrysts. plagioclase phenocrysts, and large K-feldspar phenocrysts.

C. Scattered about the slope north of Fire Saddle is float of a similar porphyry, but with less large K-feldspar phenocrysts. No exposure of this rock has been found.

D. In addition to the porphyries listed for Fire Saddle, a small dyke of crowded porphyry occurs on Porphyry Peak, east of Fire Mtn. This porphyry dyke, about 20 meters thick, strikes northeasterly and dips 70° northerly. The surrounding argillites have been metamorphosed to light grey or white chert; considerable iron sulphide has been added. The resistant cherts are the reason for the sharp peak and the oxidized sulphides are the reason for the sharp red colour.

South of Fire Saddle and occupying part of the Fire Saddle (based on the mapping in felsenmeer) is a breccia intrusive, about 140 meters long and 90 meters wide. Hydrothermal alteration is very intense. However. fragments of the quartz-eye porphyry and the crowded quartz feldspar porphyry, and possibly pieces of Saddle Dyke can be identified. Felsenmeer from this breccia and from the surrounding bleached hornfels (for 30 meters out from the breccia) is characterized by very large angular blocks (20 centimeters to 100 centimeters across). Outside of the "coarse block hornfels" the felsenmeer fragments reduce to normal size.

One can note that Saddle Dyke, to the northeast of the intrusive breccia and Saddle Dyke which occurs in the pass west of the breccia, are offset at the breccia pipe. The breccia pipe could have been intruded along the fault structure which offset this dyke.

Note that Aspinall refers to an alaskite plug in the vicinity of Fire Saddle and he mentions that this is a crowded porphyry containing a feldspar and coarse phenocrysts. He has named this alaskite. Presumably this is the quartz feldspar porphyry of Saddle Dyke and also the scattered quartz feldspar porphyry float on the slopes north of Saddle Dyke. Aspinall notes that the hornfels surrounding the porphyry is highly bleached to a white rock and, that in places, the bleached hornfels contains small quartz crystals resembling phenocrysts. Probably this is the quartz-eye porphyry with its scattered small quartz phenocrysts and its fine-grained matrix. Petrographic work is required to sort out these discrepancies.

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## Petrography of the Intrusion

The petrography has permitted more accurate classification and nomenclature of the intrusive rocks on Fire Mtn. Such classification is important as it is important to have quartz-rich and alkalic-rich porphyries in the vicinity of potential porphyry molybdenite deposits. This work has defined the white aphanitic quartz-eye porphyry and the crowded dark porphyry of Porphyry Peak and it has divided some of the quartz feldspar porphyries into granite porphyry, quartz monzonite porphyry and plagioclase porphyry. Such classification of the quartz feldspar porphyries may not be applicable in field work as a quick field examination does not detect some of the subtle differences. Also some of the small intrusions may contain more than one of the porphyry types.

### Porphyritic Rhyolite

This is a white aphanitic rock which is about 98% matrix and only about 2% phenocrysts. Section W81-353 is rhyolite porphyry with a very altered matrix so that the type of feldspar cannot be readily identified. However, DDH thin section 4-626 is the same type of rock and the matrix is less altered so the minerals can be identified. The matrix size is about 0.016 mm and therefore the rock is aphanitic. The matrix is composed of about 40% quartz, 35% K-feldspar and about 25% alkalic plagioclase.

The scattered phenocrysts include about 1% plagioclase and 1% quartz. In hand specimen, the small quartz phenocrysts can be readily identified, but the plagioclase phenocrysts are altered to sericite clay similar to the matrix material and cannot be readily identified. Both the plagioclase and the quartz phenocrysts are partially resorbed around the edges.

### Granite Porphyry

Specimen DDH 4-810 is used for most of the description of this rock type. It is characterized by a fine-grained phaneritic matrix forming about 45 to 55% of the rock, with matrix 0.15 to 3 mm across. The matrix is about 40% quartz, 40 to 50% K-feldspar, and 10 to 20% sericitized alkalic plagioclase.

The rock is characterized especially by the large poikilitic K-feldspar phenocrysts which form up to 20% of the rock in some thin sections. These crystals are so large that the percent estimates can be distorted in a single thin section. Plagioclase phenocrysts, up to 5 mm long form about 20% of the rock. Large quartz phenocrysts are also present forming 5 to 8% of the rock and somewhat smaller biotite phenocrysts also form 5 to 8% of the rock. In addition there are abundant smaller apatite crystals scattered throughout the matrix.

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In most sections, much of the plagioclase is altered to sericite plus clay in contrast to the relatively unaltered K-feldspar. The biotite phenocrysts are altered to muscovite plus opaques or, in places, chlorite.

Quartz Monzonite Porphyry

Examination of specimen W81-305 shows that this rock contrasts with the granite porphyry in that it has much fewer phenocrysts and most of these are plagioclase phenocrysts, forming about 30% of the rock. Some of them are large compound phenocrysts up to 3 mm across. In places these are replaced by K-feldspar around the rims, with much of the remaining plagioclase altered to sericite and clay. Biotite phenocrysts are also present forming 3 to 5% of the rock; these are partly altered to muscovite or chlorite plus opaques. This rock does not contain the large quartz phenocrysts or K-feldspar phenocrysts of the granite porphyry.

The matrix forms about 65 to 70% of the rock with grain size about 0.15 mm. It is composed of about 40% quartz, 30% altered alkalic plagioclase and 30% orthoclase. Parts of the matrix are coarser grained than the average; this may be due to growth or recrystallization of some of the quartz grains.

Plagioclase Porphyry

One section (W81-347) of porphyry appears to have different matrix than the other quartz feldspar porphyries. This rock contains about 55% matrix which is somewhat finer grained than that of the granite porphyry and which is composed largely of altered feldspar, probably mainly plagioclase. Only minor quartz occurs in the matrix.

The phenocrysts form about 45% of the rock. These are largely plagioclase which are up to 3 mm long and form about 35% of rock. Quartz phenocrysts, partly resorbed around the edges, form about 5% of the rock and biotite phenocrysts, partly altered, form about 3% of the rock.

The matrix has a grain size which varies from 0.01 to 0.15 mm with what appears to be a complete range in sizes.

This specimen is on strike with the coarse-grained dyke which trends westerly from Fire Saddle; however, it has a different composition than that of the granite porphyry found in the Saddle.

Diorite

The small red Porphyry Peak in Argillite Ridge, to the east

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of Fire Mtn., contains a coarse grained dyke. This rock appears to be a dark porphyry in hand specimen; however, thin section examination shows that the rock is quite altered and that the matrix content is very low (< 20%) and largely interstitial to the abundant larger crystals. These larger crystals are mainly plagioclase altered to sericite and clay. In addition, mafic phenocrysts including biotite and probably hornblende are present. These are largely chloritized.

The matrix, which forms less than 20% of the rock, is probably altered plagioclase. It contains very minor quartz.

The Breccia

One section (W81-363), identified in the field as breccia because of its included fragments, was examined in thin section. It seems to be largely altered porphyry which has a matrix of K-feldspar plus quartz (about half each) with a crystal size 0.05 to 0.01 mm. Some of the K-feldspar in the matrix is coarser than average and associated with somewhat coarser quartz. Some of this could be a replacement of plagioclase but much is merely recrystallized matrix.

The rock contains some partly resorbed quartz phenocrysts, 1.5 mm across, and some large plagioclase phenocrysts of similar size. Many of the plagioclase phenocrysts have an alteration rim of K-feldspar and much of the remainder of the crystal is completely sericitized.

A crystal fragment with very high relief and yellow birefringence may be topaz. In other places, mosaics of quartz crystals may be altered fragments of hornfels. Some definite fragments of biotite hornfels are present.

Hydrothermal Alteration

Intrusion of an underlying stock has created a zone of hornfelsing with coincident iron sulphide (mainly pyrite) and anomalous fluorine. This is apparent in the map which shows the hornfels and the limonite (Figure 11). This map is based on a hand specimen identification of the intensity of hornfelsing. This is the intensity of brown coloration varying from deep chocolate brown (with high secondary biotite) down to traces of brown and eventually to grey or black where the argillites are relatively unmetamorphosed. In the case of the Fire property, the gradation between relatively unaltered (hand specimen identification) argillites and sediments to intensely hornfelsed sedimentary rocks (a chocolate brown colour) is very sharp. This line of demarcation is shown on the map.

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In places, this hornfels alteration has been bleached to a lighter rock grading to a white rock. This bleaching is caused by the destruction of biotite. In places of intense bleaching or hydrothermal alteration, all of the biotite is gone, scattered sericite flakes are left, and the rock contains quartz veinlets with carbonate or sericite concentrations along their contacts. Also, the matrix, which is mainly quartz with minor orthoclase, appears to have been coarsened by recrystallization.

Co-extensive with this area of hydrothermal bleaching is the hydrothermal pyritization. This can be interpreted on the oxidized rocks from jarosite limonite versus geothite limonite. In general the limonites vary in straight line from jarosite to goethite in direct proportion to the pyrite content. This tool for indicating the pyrite content of the protore zone (before supergene leaching) is only reliable where the pyrite is completely leached from the rock. It is somewhat less reliable in areas where pyrite is still present in the rock.

In addition to the large circular hornfels zone shown on Figure 13, an elliptical zone of bleaching and coincident jarosite limonite occurs in the southern part of the property. This elliptical zone, 2200 meters long and 800 meters wide, is asymmetric with respect to the hornfels - fluorine zone. It probably extends beyond the hornfels zone on its western and eastern limits. Insufficient samples in these two extremities has prevented reliable demarcation of the zone.

Extending northwest from this elliptical zone of bleaching and supergene bleaching, is another smaller bleached zone which includes much unoxidized pyrite. The bleaching within this zone is strictly hypogene whereas the bleaching in the southern elliptical zone could be large hypogene but also partly supergene.

## Mineralization

The widespread pyrite which occurs largely along fractures within the biotite hornfels and within the hydrothermally altered zone has been noted. Pyrrhotite also occurs in the hornfels.

In addition, molybdenite, in quartz veinlets or in fractures is very widespread. It has been noted in the biotite hornfels northwest of Cirque Lake and in many places in the cliffs around the head of the cirque. Molybdenite also occurs as scattered flakes and rosettes within the bleached hornfels. Adjacent to Fire Saddle, molybdenite occurs in the quartz-eye porphyry, in the bleached hornfels, and in the breccia pipe. Scattered quartz-molybdenite veinlets occur throughout drill holes 4 and 5.

Aspinall notes that chalcopyrite, galena, sphalerite and arsenopyrite occur in trace amounts in some of the diamond drill core.

.../10

ROCK GEOCHEMISTRY

This report is concerned mainly with the rock geochemistry on and around the large gossan of Fire Mtn. The 300 rock samples were analyzed for copper, molybdenum, manganese and fluorine. The results are presented in Figures 5 to 7 inclusive.

This area of Fire Mtn. is quite high with the peak elevation up to 5991 feet and with all of the area above timberline. Except for the cirque walls around Cirque Lake, the area is not rugged. Outcrops are scarce except for the cliffs of the cirque walls. Throughout, much of the sampled felsenmeer had to be used for the rock chip samples. In places, this may have been transported a short distance down the gentle upland slopes; however, in most cases it is considered accurate enough for the geochemical sampling. The felsenmeer versus rock samples are indicated on all of the maps by different symbols; the difference has been taken into consideration when drawing some of the contours. A greater problem than downward creek of felsenmeer probably is the complete weathering of this rock. In many of the places on top of the hill, pyrite has been completely oxidized and presumably some of the acid-soluable metals have been leached. Thus, the fluorine geochemistry should be more definitive and less affected by leaching.

In many stockwork molybdenite deposits, fluorine is a very definitive element in pinpointing the center of the system. The results of fluorine geochemistry will be discussed first and the patterns for the other elements compared with the fluorine pattern. On Figure 6, contours for 500, 1000, and 2000 ppm fluorine have been drawn. The 1000 ppm contour and the incomplete 500 ppm contour both suggest a center to the system in the vicinity of Fire Mtn. Ridge (near the bottom of hole 5). Inside of the 1000 foot contour there are two small areas with values > 2000 ppm and several small areas with values < 1000 ppm. The remainder of the values are somewhat erratically mixed.

The area of detailed sampling in the vicinity of Fire Saddle was dictated by the presence of intrusions, a highly altered intrusive breccia, and quartz-molybdenite veinlets in altered rock. This area of especially interesting rock does show small lows in the fluorine geochemical pattern. These lows and this interesting area are somewhat asymmetrical to the center of the system, being displaced slightly to the southeast.

The molybdenum has an overall distribution pattern similar to that of the flyorine with the 6 ppm molybdenum contour coinciding to a large extent with the 1000 ppm fluorine contour. Inside of this, however, there are some variations in detail. The molybdenum peaks (> 50 ppm) include one large central area which is superimposed upon the interesting Fire Saddle with its fluorine lows. It also extends northwesterly onto the fluorine high and southwesterly to another small fluorine high.

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There are some southwestward extensions to the molybdenum anomaly which cannot be explained because of lack of outcrop and because of intense weathering of the felsenmeer in this area. These include the small peaks to the north and to the south of the upper part of Fire Creek. Also rock exposures in the lower reaches of Fire Creek do have some anomalous molybdenum values. This is outside the hornfels zone and the reason for it is not evident.

Copper reacts somewhat different to the weathering environment than molybdenum in that its soluability increases with increasing acidity whereas the soluability of molybdenum increases with increasing alkalinity. Therefore, a comparison of the two patterns is interesting. Within the area of molybdenum anomalies, both the main anomaly at Fire Saddle and the southwestward extension, there is a distinct copper low (< 12 ppm). The only other features on the copper geochemical map include a few highs (> 50 ppm). These two and three sample highs are scattered, mostly along the west and northwest sides of the hornfels zone. The reason is not evident. One could suggest a copper halo; however, the limited extend of these anomalous values makes such an interpretation unreliable.

In stockwork molybdenum prospects, manganese generally gives a low over the center of mineralization. This is more common place than the classical manganese halo which is suppose to occur with porphyry copper deposits. At Fire Mtn., the manganese is low (< 100 ppm) over the eastern and northern part of the sampled area. This overall manganese low has probably been inherited from the sedimentary rocks, and subjected to some subsequent depletion by the hydrothermal process. The rocks underlying Fire Saddle and the breccia pipe and extending southwestward to South Peak have unusually low manganese content (< 30 ppm). This small manganese low is partly coextensive with the anomaly centers for the other elements.

A number of samples have been analyzed at Chemex Laboratories Ltd. for tungsten and 33 of these have been analyzed for tin. Analytical results for tin were all 1 ppm except for sample G81-767 which has 5 ppm. Plot of the tungsten (Figure 10) shows that values are background or about 2 ppm in the unaltered outlying areas and that these values increase up to about 20 ppm through the hornfels zone. The values within the more interesting target areas vary from 25 to 200 ppm.

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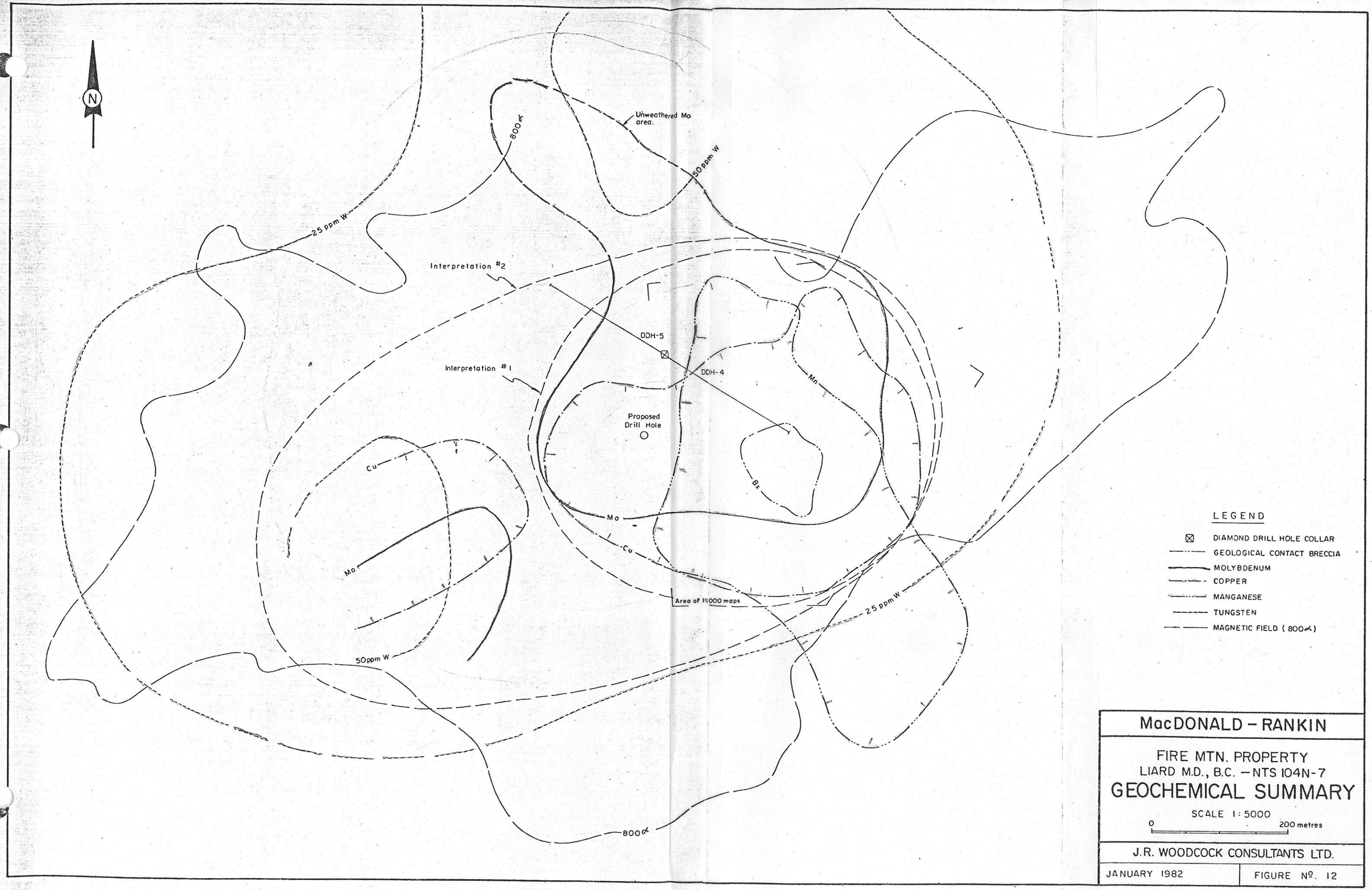


MacDONALD – RANKIN

FIRE MTN. PROPERTY
LIARD M.D., B.C. – NTS 104N-7

# GEOCHEMICAL SUMMARY

SCALE 1 : 5000
0 200 metres

J.R. WOODCOCK CONSULTANTS LTD.

JANUARY 1982 | FIGURE Nº. 12

CONCLUSIONS

1. The Fire Mtn. prospect is an outstanding target for a stockwork or porphyry-molybdenite deposit. The area of sulphur (iron sulphides indicated by gossan), alteration, and anomalous fluorine (> 500 ppm) is a circular target with a diameter of about 2500 meters. In this zone, most of the sedimentary rocks have been converted to a biotite hornfels presumably by contact metasomatism. A large part has been bleached by hydrothermal alteration.

   A comment on the asymmetry of the bleached or hydrothermally altered zone with respect to the large circular hornfels zone can be made by a comparison with the related intrusive complex and the alteration zone at Lime Creek deposit (Kitsault molybdenum). At Lime Creek an elliptical complex stock about 700 meters wide and 1000 meters long, forms the center and the cause of the conspicuous biotite hornfels zone. In the northern part of the complex stock is a circular zone of hydrothermal alteration and molybdenite mineralization, about 800 meters in diameter. On the north side, this zone lies against the contact of the stock but on its south side it passes through the center of the stock. South of the circular zone of alteration and mineralization, the stock is relatively unaltered. Thus this is a case where the center of alteration and mineralization has been asymmetric to the center of intrusion and hornfelsing.

2. In addition to these favourable features, there are a number of small prophyry intrusions or dykes including rhyolite or fine-grained quartz-eye porphyry and coarser grained quartz feldspar porphyries. There is also an altered intrusive breccia. Quartz molybdenite veinlets are widely scattered in the target area but are especially concentrated in the southeast part of the target area.

3. In an attempt to understand the Fire Saddle zone and select possible drill sites, some pertinent anomalies in the vicinity of Fire Saddle have been superimposed on Figure 12. In addition, this synopsis shows the outline of the breccia pipe and the position of drill holes 4 and 5.

   Before discussing the patterns, a few comments are necessary on some of the individual anomalies.

   (a) The molybdenum anomaly extends from the central zone in a northwesterly direction; however, one can attribute this northwesterly extension to the fact that it is in an area of cliffs where rock exposures are relatively unweathered and unleached, compared to the samples on the upland areas which consist mainly of felsenmeer.

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(b) The reason for the extension for the manganese low to the southeast is not apparent; however, it is probably some inherited characteristic of the sedimentary rocks.

(c) The fluorine anomaly as indicated is not a positive anomaly but an area of relatively low values that is surrounded by high balues.

(d) The copper and the molybdenum and also a positive fluorine anomaly extend southwestward an unknown distance from Fire Saddle.

4. There are several possible interpretations about the best outline for the potential mineralized zone. The most obvious one would be a slightly elliptical zone about 550 meters by 450 meters which encompasses the areas of intrusions, the breccia pipe, and the best parts of the various anomalies.

The second interpretation could be an elliptical zone trending southwest and ecnompassing the main anomaly of Fire Saddle and the smaller peaks of the molybdenum and copper to the southwest. Such an elliptical zone might be 1000 meters long and about 450 meters wide. This interpretation would suit the outline of the larger bleached zone.

5. This large gossan zone, the hornfels, the alteration and the molybdenum mineralization were formed by intrusion of an underlying stock. Most porphyry molybdenite deposits are related to porphyry stocks, with the best mineralization near the apex of the stocks. In addition to the main stock complex, the classical picture has dykes of various porphyries, especially above the apex of the stock. From this general data one can conclude that the stock responsible for this vast zone of sulphides and alteration is still unroofed. Therefore, it is important that deep drill holes investigate the contact area of any underlying stock and determine if the mineralization near this contact is of ore grade.

6. Six holes have been drilled in the system. The first three holes were placed outside of the main system along the west margin of the gossan zone. Hole number 6 was placed within the hornfels and gossan zone but west of the interesting Fire Saddle area. Holes 4 and 5 were collared at the edge of the Fire Saddle target with hole 4 directed towards the more interesting part of this target. Both holes number 4 and 5 contain quartz-molybdenite veinlets. Hole 4 has more quartz sericite alteration and considerably more widespread quartz molybdenite veinlets than hole 5. In addition to the quartz-molybdenite veinlets, there are places with molybdenite paint and places with some disseminated molybdenite.

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Woodcock estimated that one unsplit box of core from hole 5 would grade at least 0.15% $MoS_2$. Some sections of core from hole 4 have been split; but we have not obtained the assay results. Selected specimens of core from hole 4 were assayed by Canadian Johns-Manville to aid in visual estimates. The highest assays reported are #332 - 0.81% Mo, #482 - 0.28% Mo, #335 - 0.21% Mo, #384 - 0.093% Mo.

Thus it appears from Woodcock's interpretation that holes 4 and 5 were placed in the right part of the property and hole 4 was drilled in a suitable direction. However, it was not deep enough to intersect any stock.

As an aid in giving perspective on relative merits of unexplored stockwork molybdenite prospects, Woodcock classifies unexplored molybdenite prospects from 1 to 5 as follows:

1. Molybdenite mineralization discovered; but not worth staking.
2. Molybdenite discovery worth staking and mapping but not worth further work (e.g. Tidewater Prospect at Alice Arm).
3. Molybdenite prospect staked and mapped; further work would entail diamond drilling. Such prospects are too good to drop; the owner might like to find a joint venture partner. Whether or not the property will be drilled will depend partly on the geographical location and the relevant drilling costs (e.g. Trout Lake, Ball Creek).
4. The molybdenite discovery is mapped (including alteration studies and rock geochemistry). The resulting picture demands diamond drilling with no question (e.g. Hudson Bay Mountain at Smithers, Aylwin Creek near New Denver).
5. The discovery is adequately exposed and sufficiently attractive that one can realize after the first day of examination that the property will need to be diamond drilled. It is merely a matter of mapping the property to establish the best drill sites (e.g. Lime Creek and the Dak River at Alice Arm; possibly Endako before it was trenched).

To give further perspective on the merits of the Fire Mtn. prospect, we will review the history of exploration activity for molybdenite in British Columbia. The first phase of activity started in the late 1950's and, was well underway by 1959. It peaked about 1966 and fell off sharply in the late 1060's. The second phase of intense activity started about 1975 and peaked around 1980.

In the early stages of the exploration, well-known and good prospects were immediately acquired and drilled. These included Lime Creek and Endako (class 5), and a little later Hudson Bay Mountain (class 4.5). Subsequent to this early phase of exploration, work in the early to middle 1960's concentrated on new prospects or forgotten old prospects. In 1966, Newmount staked the Dak River or Ajax deposit near Alice Arm. This was the best unexplored "new" prospect that Woodcock saw during this early phase of intense exploration activity. It would be categorized as a class 5.

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The second phase of exploration activity lasted throughout the late 1970's. This saw less exploration on well known good surface prospects and more emphasis on the exploration for blind deposits, based on more sophisticated geological and geochemical definitions. This phase saw the discovery and exploration of the Trout Lake property of Newmount (class 3). A number of class 3 prospects were mapped and drilled in southern British Columbia under Woodcock's direction. Throughout this recent phase of exploration activity the most outstanding, relatively unexplored, prospect examined by Woodcock is the Fire Mountain prospect (about a class 4.5).

RECOMMENDATIONS

1. For further work, a camp should be established in Fire Saddle, a short distance southwest of the crest where it will be protected from the strong easterly winds. Water for the camp and probably for the drilling, if done early in the season, could be pumped from the melting snow just to the northeast. The snowbank stays on the north flank of South Peak throughout the season and melting waters might be collected in a sump below this snowbank.

2. A vertical drill hole, at least 2000 feet deep, will be recommended for this target. This could initially be done with a Longyear Super 38 using both NQ and BQ rods so that they can be reduced should problems arise.

3. The big problem is the site for this drill hole. Most stockwork or porphyry molybdenite deposits have diameters of 600 to 1000 meters and so one might conclude that the target could hardly be missed if the hole was placed vertical; however, there could be complications that are not obvious at surface such as a plunge to the system or some faulting. Therefore, it is important to gain as much geotechnical information as possible before spotting the expensive deep hole. Additional rock chip sampling in the southwest and northeast parts of the bleached zone and closer spacing in the southwest part of the target will define this target more closely; however, it is doubtful that it will resolve the reason for the separation of the copper and the molybdenum peaks into two zones--the main zone and the small southeast extension.

4. Induced polarization work could help; about 11 km. would be needed. The induced polarization lines will have to take advantage of the topography and therefore, they will have to run in a northwesterly direction. Six crosslines, 200 meters apart, would suffice. In addition, lines at right angles and running northeasterly down the two accessible

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ridges could be included. Such I.P. work should be done with 400 meter electrode spacing, moving at 200 meter intervals along the line. Such work should give considerable important information on the pyrite in the system and may also indicate structures such as possible bounding faults or a plunge to the system.

5. All of the core for holes 4 and 5 should be split and continuous 3-meter sections analyzed geochemically for molybdenum. Any values that are high (> 200 ppm) should be assayed for total Mo. In addition, a number of other geochemical elements (fluorine, copper, sulfur, manganese, tungsten). should be analyzed on every fourth sample to help establish trends in this area of interest. In addition, some of hole number 6 should be split to establish the geochemical metal values in unweathered rock in the outlying hornfels zone.

6. When the results of the additional geochemical work and the geophysical work (if done) are complete, the geologist will need to decide on whether the deep hole should be preceeded by about three vertical 300-meter holes spaced along the of the ellipse at about 250 meter intervals and one of these subsequently deepened or whether the deep hole could be drilled without the benefit of this preliminary information.

November 30, 1981

J. R. Woodcock

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Aitken, J.D., 1959, Atlin Map Area, B.C.: Geol. Sur. of Can., Memoir 307.

Aspinall, C., April, 1973, A Geochemical Report on Molybdenum and Copper Concentration in Soils and Talus Fines, Fire Mtn., Atlin Mining Division: Assessment Report 4437.

The control for this soil survey is a picket line grid. The molybdenum and copper results are presented on two separate maps.

Aspinall, C., August, 1972, Preliminary Geochemical Report, Mt. Sanford Area, Atlin Mining Division: Assessment Work Report 3782.

The geological samples included talus fines, soil samples, and stream sediments. These were analyzed for Mo, Cu, Ag, W, Sn, U, Fe, Mn. Much of the sampling was done along contours; at the base of many hills; and in the drainage system. These results are presented on topographical maps.

Aspinall, C., May, 1972, Photogrammetric Surveying, Mt. Sanford Area, Atlin Mining Division: Assessment Report 3733.

This short report accompanies the topographical map made by Northwest Surveys Corporation.

Aspinall, C., April, 1972, Preliminary Geological Report on the Fire-Ni Mineral Claim Group, Atlin Mining Division, B.C.: Assessment Work Report 3867.

This report gives considerable information on the geology, the alteration and the mineralization of the property. It also includes the drill logs for holes 1 to 3 inclusive.

# APPENDIX I

Drill Logs

J. R. WOODCOCK CONSULTANTS LTD.

PROPERTY. Fire Mtn.
Fire 201
CLAIM No.
COORDINATES 5, 594, 935 N (meters)
124, 675 E
ELEVATION 5810 feet

HOLE No. 4 (Canadian John-Mansville)
BEARING 123°
DIP
LENGTH 1101 feet
DIAMETER

DRILLED BY
STARTED: 1972
TERMINATED:
LOGGED BY: J. R. Woodcock

| FOOTAGE FROM | FOOTAGE TO | % RECOVERY | DELTA ANGLE | DESCRIPTION AND REMARKS | Specimen NO. | Specimen FROM | Specimen TO | ASSAY |
|---|---|---|---|---|---|---|---|---|
| | | | | Casing about 10' | | | | |
| 0 | 69 | | | Hornfels cut by quartz-pyrite and quartz veinlets | | | | |
| | | | | Hornfels, grey brown, bleached along qtz-py. veinlets, less | | | | |
| | | | | along quartz veinlets; almost all pyrite is oxidized | | | | |
| | | | | soft | | | | |
| 69 | 71.5 | | | Core more silicious | | | | |
| 71.5 | 91.5 | | | Note: Box #4 71.5' to 91.5' is missing | | | | |
| 91.5 | 112 | | | Silicious hard rock cut by numerous quartz veinlets | 110' | | | |
| | | | | Pyrite all oxidized | | | | |
| 112 | 122 | | | Possibly porphyry with fine white crystals - A few | 116' | | | |
| | | | | moly veinlets and disseminated moly Mod (+) pyrite dis- | | | | |
| | | | | seminated and along veinlets. Dike (?) "Porphyry" is coarse- | | | | |
| | | | | grained altered hornfels | | | | |
| 122 | 177 | | | At 137, clasts of dk brown hornfels remain, with con- | | | | |
| | | | | centrations of dissem. moly nearby. Brown hornfels, | | | | |
| | | | | mostly altered to grey rock. Quartz-pyrite, quartz and | | | | |
| | | | | quartz-moly veinlets. Oxidation reduced to | 158' | (with | moly) | |
| | | | | fraction. Most of the pyrite remains. Porphyry - no | | | | |
| | | | | change in hornfels due to proximity of porphyry. | | | | |
| 177 | 182 | | | A little more oxidation between 160' and 210' fractures | | | | |
| | | | | coated with goethite. F. grained grey, very light matrix, | | | | |
| | | | | abundant large quartz phenocrysts to .5 cm. | | | | |

J. R. WOODCOCK CONSULTANTS LTD.

PROPERTY. Fire Mtn. HOLE No. 4 DRILLED BY

CLAIM No. BEARING STARTED:

DIP TERMINATED:

COORDINATES LENGTH LOGGED BY:

DIAMETER

ELEVATION

| FOOTAGE FROM | FOOTAGE TO | % RECOVERY | DELTA ANGLE | DESCRIPTION AND REMARKS | Specimen NO. | Specimen FROM | Specimen TO | ASSAY |
|---|---|---|---|---|---|---|---|---|
| | | | | Abundant books of black biotite. Appears to be small | | | | |
| | | | | pockets of green sericite alteration. (Quartz-feldspar | | | | |
| | | | | porphyry) | 175.5' | | | |
| 182 | 189 | | | Hornfels contains clasts of black rock. Much less altered | | | | |
| 189 | 229 | | | Hornfels more altered, more qtz, sericite and bleached | | | | |
| | | | | Abundant quartz veinlets, some with good moly | 212' | | | |
| 229 | 285 | | | Brown hornfels cut by bleached veins and zones | | | | |
| | | | | Qtz. veinlets and qtz.-pyrite veinlets. | 263' | | | |
| | | | | Moly on dry fracture at 293'. Less bleached and altered | | | | |
| 285 | 366 | | | Hornfels altered to white and tan silicious rock | | Note: | core split from 350' on to | |
| | | | | Qtz-moly veinlets and disseminated moly in proximity | 307' | | 974' | |
| | | | | of veinlets. Decrease in pyrite veinlets. Silica content | 322' | | | |
| | | | | increasing downward. | 358' | | | |
| 366 | 411 | | | More variable rock: dark grey to bleached. Increased | | | | |
| | | | | moly with quartz veinlets. Sections of brownish hornfels; | | | | |
| | | | | sections of white silicified rock. One compound quartz - | | | | |
| | | | | moly veinlet at 374 | | | | |
| 411 | 457 | | | Dk. grey to black hornfels, more than 50% replaced by | 426' | | | |
| | | | | white hornfels. Fewer quartz veinlets, fewer pyrite | | | | |
| | | | | veinlets. More bleaching adjacent to pyrite veinlets than | | | | |
| | | | | adjacent to quartz veinlets. | | | | |
| | | | | | | | | |

J. R. WOODCOCK CONSULTANTS LTD.

PROPERTY. Fire Mtn. HOLE No. 4 DRILLED BY

CLAIM No. BEARING STARTED:

DIP TERMINATED:

COORDINATES LENGTH LOGGED BY:

DIAMETER

ELEVATION

| FOOTAGE FROM | FOOTAGE TO | % RECOVERY | DELTA ANGLE | DESCRIPTION AND REMARKS | Specimen NO. | Specimen FROM | Specimen TO | ASSAY |
|---|---|---|---|---|---|---|---|---|
| 457 | 506 | | | Increasing alteration to a tan hornfels. A few quartz- | | | | |
| | | | | moly veinlets. | 475' | | | |
| 506 | 226 | | | Box missing | | | | |
| 526 | 566 | | | Tan to brown hornfels, pervasive color | 542' | | | |
| 566 | 603 | | | Fine-grained white dike cut by numerous quartz veinlets, | | | | |
| | | | | occasional possible minute quartz phenocrysts with blurred | | | | |
| | | | | white feldspar phenocrysts. Quartz-moly veinlets. | 573.5' | | | |
| 603 | 611 | | | Brown hornfels cut by veinlets. Some moly without quartz. | 617.5' | | | |
| 611 | 636 | | | Porphyry cut by quartz veinlets and qtz-moly veinlets | 626' | | | |
| 636 | 661 | | | Swirly mixture of hornfels and altered hornfels | 656' | | | |
| | | | | Chlorite on fractures. Cut by quartz veinlets. | | | | |
| 661 | 787 | | | Pervasive brownish tan hornfels. Moly on fractures | 727' | | | |
| | | | | without quartz. Very few quartz veinlets. Pyrite | 782' | | | |
| | | | | on fractures. (Moly paint as well as quartz-moly veinlets) | | | | |
| 787 | 798.5 | | | Greenish tint below 787 due to chlorite. Increasing | | | | |
| | | | | fractures. | | | | |
| 798.5 | 826 | | | Coarse qtz-feldspar porphyry. Very big orthoclase pheno- | | | | |
| | | | | crysts. Greenish-brown tint. Vuggy qtz-moly veinlets | | | | |
| | | | | (occasional) moly. Coarse vuggy quartz-moly veinlet at | | | | |
| | | | | 798.5 contact. | | | | |
| | | | | | | | | |
| | | | | | | | | |

# J. R. WOODCOCK CONSULTANTS LTD.

PROPERTY. Fire Mtn. HOLE No. 4 DRILLED BY

CLAIM No. BEARING STARTED:

DIP TERMINATED:

COORDINATES LENGTH LOGGED BY:

DIAMETER

ELEVATION

| FOOTAGE FROM | FOOTAGE TO | % RECOVERY | DELTA ANGLE | DESCRIPTION AND REMARKS | Specimen NO. | Specimen FROM | Specimen TO | ASSAY |
|---|---|---|---|---|---|---|---|---|
| 826 | 831 | | | Hornfels: brownish to greenish tint | | | | |
| 831 | 848 | | | Similar dike to 198.5-826. Fine-grained. Moly paint. | 845' | | | |
| | | | | Vuggy qtz-moly veinlets. | | | | |
| 848 | 888 | | | Hornfels: green-brown alteration (chlorite?) 6" section | | | | |
| | | | | of porphyry at 853.5. 12" section of porphyry | 872' | | | |
| | | | | at 862.5. Sparse quartz veinlets, sparse pyrite veinlets. | | | | |
| 888 | 927 | | | Light tan hornfels. Some quartz veinlets. Some irregular moly paint. Some quartz-moly veinlets | 912' | | | |
| | | | | Green-altered quartz-feldspar porphyry dike 916-918 | | | | |
| 927 | 962 | | | Light-colored hornfels with greenish tint. Sparse | 938' | | | |
| | | | | qtz. veinlets. Occasional moly paint. | | | | |
| 962 | 1042 | | | Light grey hornfels. Occasional quartz-moly veinlet | | | | |
| | | | | Occ. vuggy qtz. veinlet with moly and pyrite. Pyrite | 986' | | | |
| | | | | veinlets. Remnants of brown hornfels throughout. 1002- | | | | |
| | | | | 1015 several 12" sections of vuggy quartz with moly. | 1028' | | | |
| | | | | Streaks of remnant brown hornfels. | | | | |
| 1042 | 1062.5 | | | Highly silicified light grey rock cut by numerous | 1051' | | | |
| | | | | minute quartz veinlets and by quartz-moly veinlets. | | | | |
| 1062.5 | 1101 | | | Tan to brownish hornfels with dark remnants. Abundant | | | | |
| | | | | introduced quartz in places. Cut by quartz-moly veinlets. | 1078' | | | |
| | | | | Relatively low in qtz. veinlets and in pyrite veinlets. | | | | |
| | | | | Chlorite on some fractures. | | | | |
| 1101 | | | | END OF HOLE. | | | | |

S .T No. 1

J. R. WOODCOCK CONSULTANTS LTD.

PROPERTY. Fire Mtn.
CLAIM No. Fire 200
COORDINATES 6595, 220 N (meters)
123, 845 E
ELEVATION 5490 feet

HOLE No. Sanford 6 (Canadian Johns'Manville)
BEARING 120°
DIP
LENGTH
DIAMETER

DRILLED BY
STARTED: 1972
TERMINATED:
LOGGED BY: J. R. Woodcock

| FOOTAGE FROM | FOOTAGE TO | % RECOVERY | DELTA ANGLE | DESCRIPTION AND REMARKS | Specimen NO. | Specimen FROM | Specimen TO | ASSAY |
|---|---|---|---|---|---|---|---|---|
| 0 | 123' | | | Deep chocolate brown hornfels. Altered in places to light brown rock with dark streaks (Spec at 107) or to tan rock (spec. at 112). Tan colored hornfels has irregular lenses of dark rock which may be remnants or may be later alteration. Deep chocolate brown hornfels strongly magnetic in small local spots. Very sparse quartz veinlets. Sparse pyrite veinlets. | 121' 107' 112' | | | |
| 146.5 | 169 | | | Hornfels bleached to tan. Light brown (tan) hornfels is sericitized along pyrite veinlets to white rock. Appears to be brown selvages to watery veinlets (Spec. 148') | 149' | | | |
| 258 | 282 | | | Dappled brown and grey hornfels. Cut by pyrite-chlorite veinlets. | 266' | | | |

J. R. WOODCOCK CONSULTANTS LTD.

PROPERTY Fire Mtn. HOLE No. 5 (Canadian John-Mansville) DRILLED BY

CLAIM No. Fire 201 BEARING 302° STARTED: 1972

DIP -45 TERMINATED:

COORDINATES 6, 594, 935 N (meters) LENGTH 996 feet LOGGED BY: J. R. Woodcock

124, 675 E DIAMETER

ELEVATION 5810 feet

| FOOTAGE FROM | FOOTAGE TO | % RECOVERY | DELTA ANGLE | DESCRIPTION AND REMARKS | Specimen NO. | Specimen FROM | Specimen TO | ASSAY |
|---|---|---|---|---|---|---|---|---|
| 0 | 65.5 | | | Hornfels - greyish to tan. Cut by pyrite veinlets, all oxidized. Some quartz veinlets. | | | | |
| 65.5 | 74.5 | | | Quartz feldspar porphyry. Sericitized. Cut by quartz veinlets and by oxidized pyrite veinlets. Black biotite partly altered to muscovite. | 69' | | | |
| 74.5 | 89 | | | Hornfels - grey. Fully oxidized. Cut by a few quartz veinlets. Pyrite veinlets oxidized. | 79' | | | |
| | | | | | 90' | | | |
| 89 | 93 | | | Quartz feldspar porphyry dike. Fresh grey matrix. Somewhat sericitized. | | | | |
| 93 | 98 | | | Hornfels and porphyry | | | | |
| 98 | 361 | | | Quartz feldspar porphyry. Increasing alteration downwards | 124' | | | |
| | | | | Sparse quartz veinlets. Pyrite oxidized down to 130' | | | | |
| | | | | 124-177 brownish-orange color due to oxidation. Sections | | | | |
| | | | | (eg. 149-157) highly altered to clay-probably fault con- | | | | |
| | | | | trolled. Also, 172'-174' and 193.5'-196'. More quartz | | | | |
| | | | | veinlets in fault controlled sections. | | | | |
| | | | | 193'-200' some quartz-$MoS_2$ veinlets | | | | |
| | | | | 197-208.5' brown-orange oxidized with conspicuous | 206' | | | |
| | | | | relatively fresh hornblende phenocrysts. | | | | |
| | | | | 208.5' Alternating grey and brownish-stained porphyry. | | | | |
| | | | | Vuggy qtz. veins in places. Abundant qtz. veinlets in | | | | |
| | | | | places, some with $MoS_2$. Pyrite and quartz-pyrite veinlets | | | | |

J. R. WOODCOCK CONSULTANTS LTD.

PROPERTY. Fire Mtn. HOLE No. 5 DRILLED BY

CLAIM No. BEARING STARTED:

DIP TERMINATED:

COORDINATES LENGTH LOGGED BY:

DIAMETER

ELEVATION

| FOOTAGE FROM | FOOTAGE TO | % RECOVERY | DELTA ANGLE | DESCRIPTION AND REMARKS | Specimen NO. | Specimen FROM | Specimen TO | ASSAY |
|---|---|---|---|---|---|---|---|---|
| | | | | Little oxidation of pyrite; | | | | |
| | | | | 277-317' abundant quartz veinlets. | 305' | | | |
| | | | | 319' hornfels inclusion | | | | |
| | | | | 319.5'-322' relatively fresh porphyry | 320.5' | | | |
| | | | | 342'-361' good sericite alteration of feldspar including | | | | |
| | | | | orthoclase. Moly paint and moly-quartz veinlets. | | | | |
| | | | | 361' fault contact with hornfels. | | | | |
| 361 | 667 | | | White to gray silicified hornfels with willowy remnants of | | | | |
| | | | | dark brown to black hornfels. $MoS_2$ in clots. Quartz- | 402' | | | |
| | | | | $MoS_2$ veinlets (more than average). Pyrite and quartz | | | | |
| | | | | pyrite veinlets. Chlorite on slips in hornfels remnants. | | | | |
| | | | | 434'-436' Porphyry dike | | | | |
| | | | | 449'-450' Porphyry dike | | | | |
| | | | | 450'-476' High $MoS_2$ content (> 0.15 $MoS_2$) | 472' | | | |
| | | | | Brown envelopes around sericitized stringers. Specimen | 545' | | | |
| | | | | Scattered moly and qtz-moly veinlets. Appears to be more | | | | |
| | | | | moly associated with dark hornfels remnants than in grey | 539' | | | |
| | | | | silicified. Spec. 539 shows this. | | | | |
| 667 | 775 | | | White hornfels, coarser grained, less silicious than | 706' | | | |
| | | | | previous section. Feathery dark hornfels remnants. | | | | |
| | | | | Scattered quartz moly veinlets. | | | | |
| 775 | 802 | | | Light grey to dark grey hornfels with abundant dark horn- | | | | |

J. R. WOODCOCK CONSULTANTS LTD.

PROPERTY: Fire Mtn. HOLE No. 5 DRILLED BY:

CLAIM No.: BEARING: STARTED:

DIP: TERMINATED:

COORDINATES: LENGTH: LOGGED BY:

DIAMETER:

ELEVATION:

| FOOTAGE FROM | FOOTAGE TO | % RECOVERY | DELTA ANGLE | DESCRIPTION AND REMARKS | Specimen NO. | Specimen FROM | Specimen TO | ASSAY |
|---|---|---|---|---|---|---|---|---|
| | | | | fels remnants. Very sparse $MoS_2$. Chlorite along fractures | | | | |
| 802 | 821 | | | Remnant hornfels has brownish sericite (?) alteration. | | | | |
| | | | | Increase in quartz-moly veinlets. Galena veinlet with | | | | |
| | | | | unknown metallic minerals at 809. | | | | |
| 827 | 870 | | | Grey to tan hornfels cut by pyrite veinlets with white | | | | |
| | | | | alteration selvages, and by quartz-$MoS_2$ and | 850' | | | |
| | | | | quartz veinlets. (Selvage seen in spec. 850'). Tan | | | | |
| | | | | hornfels is an alteration of brown hornfels. Chlorite | | | | |
| | | | | along fractures. | | | | |
| 870 | 996 | | | Dark tan hornfels with dark streaks and spots | 896' | | | |
| | | | | grading in places to dark grey. Bleached zone mainly | 941' | | | |
| | | | | adjacent to pyrite veinlets (sericitization). Sparse | | | | |
| | | | | quartz-$MoS_2$ veinlets. Many chlorite-coated fractures | | | | |
| | | | | (spec. at 916) | 916' | | | |
| | | | | Quartz and qtz-$MoS_2$ veinlets appear to cut pyrite and | | | | |
| | | | | quartz pyrite veinlets with their alteration selvages | | | | |
| 996 | | | | END OF HOLE. | | | | |

# DIAMOND DRILL RECORD

NAME OF PROPERTY: Mt. Sanford, Project 71, Atlin, M.D.

HOLE NO. Sanford # 4 LENGTH 1,101 feet

LOCATION Fire Mt. Grid 4+00S 17+50W Old Grid

LATITUDE N 21,636,930' DEPARTURE N 412,400' (App.)

ELEVATION 5700' AZIMUTH 122° DIP -45

STARTED June 10, 1972 FINISHED July 7, 1972

Logged by L. J. Sch...

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg.# Thread Fract's | Avg.# Vein >1/10" | DESCRIPTION | SAMPLE NO. | SAMPLE % SULPHIDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE FOOTAGE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 17 | | | | Medium grey, hard, siliceous rock, exhibits slight "salt and pepper" texture from medium grains feldspar darker grey. Most feldspar grains weathered to light yellow to yellowish green Kaolin. Near surface intensely fractured. With brown and tan limonite on fracture surface. Some fractures show rich rusty or orange limonite. Molybdenum as trace, very fine specks on margin, granular quartz vein to 1/4 inch. Some greenish yellow limonite along quartz veins. Vugs common along quartz veins and throughout rock with fringing limonite. All sulphides but $MoS_2$ seem weathered out. | | $MoS_2$ | 0 | 17 | Trac |
| 17 | 21 | 1 | 50 | 10 | As above. Still intensely fractured but less broken than above. Quartz vein and veinlets very common. Trace fine pyrite (fresh) along quartz veins and disseminated. Trace disseminated Molybdenum. Some light chalky green argillic propylitic alteration along some veins. Grey coloring is actually a mottling of various greys, shows very fine micro tension fractures (anastomosing) with some micro Breccia. Orange and maroon limonite common on some fractures. Fine euhedral quartz crystals and cellular box work on many larger veins. Also vacant pyrite cubes. | | $MoS_2$ Py. | 17 " | 21 " | Trac Trac |
| 21 | 25 | 1/0 | 50 | 10 | As above. Minor molybdenum on (1). Molybdenum more prevalent than pyrite. Sponge box work (orange). | | $MoS_2$ Py. | 21 " | 25 " | Minor Trace |

EM. 6-1168

LABORDE LIMITED.

# DIAMOND DRILL RECORD

Hole No. 4 Sheet No. 2

NAME OF PROPERTY _____

HOLE NO. _____ LENGTH _____

LOCATION _____

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH _____ DIP _____

STARTED _____ FINISHED _____

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg.# Thread Fract's | Avg.# Vein >1/10" | DESCRIPTION | SAMPLE NO. | SAMPLE % SULPHIDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE FOOTAGE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 30 |  | 50 | 7 | As above, less broken at 27.5. 1/2 quartz vein with one side 1/10 inch molybdenum exclusively on (1). | | $MoS_2$ Py. | 25 " | 30 " | Minor Trace |
| 30 | 35 |  | ≈ 50 | 7 | As above. Dark rusty red limonite predominates along fractures with greenish yellow along fine fractures, and disseminated. More broken than above. Possible trace bornite. | | $MoS_2$ Py. | 30 " | 35 " | Trace " |
| 35 | 39 |  | >60 | 4 | Shear zone. Highly fractured and broken. 35-36 dark green rock with intense limonite. Rest grey with limonite. Weathered and staining of feldspar. Trace black glossy mineral. | | Py. $MoS_2$ | 35 " | 39 " | Trace " |
| 39 | 45 |  | 30 | 11 | Medium grey mottled siliceous chert, less stained than above. Limonite along fractures. Numerous very fine "shrinkage" cracks healed with quartz. Fine disseminated limonite probably from pyrite. | | $MoS_2$ Py. | 39 " | 45 " | Trac " |
| 45 | 47 | — | - | - | As above but sheared, higher feldspar content very kaolinized. Broken to pieces as small as 1/8 inch, light green yellow stain and weathering prevalent. No visible sulphides. | | | | | |
| 47 | 55 |  | 35 | 5 | Becomes harder, still abundant feldspar but less kaolinized. Light green-yellow coloring still prevalent, at 50' becomes harder, less kaolinized with trace pyrite and $MoS_2$ both very fine. | | $MoS_2$ Py. | 50 " | 55 " | Trac " |

# DIAMOND DRILL RECORD

Hole No. 4 Sheet No. 3

NAME OF PROPERTY _____

HOLE NO. _____ LENGTH _____

LOCATION _____

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH _____ DIP _____

STARTED _____ FINISHED _____

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg.# Thread Fract's | Avg.# Vein >1/10" | DESCRIPTION | SAMPLE NO. | SAMPLE % SULPHIDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE FOOTAGE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| 55 | 60 | V | 35 | 7 | As above. No visible sulphides. Quartz veins intensely stained, much limonite box work. 1mm stain halo around most other major fractures. Much less broken than previously noted. | | | | | |
| 60 | 65 | V | 35 | 7 | As above. Trace disseminated pyrite and on veins light green-yellow of feldspar weathering still prevalent but heavy limonite only on major fractures. Rock might be classified as arkosic quartzite. | | Py. | 60 | 65 | Trace |
| 65 | 70 | V | 30 | 5 | As above. At 67 indication of remnants of "flow bedding described in DDH # 1". With possible shaly interbed material @ 45° to A axis. Only slightest trace of pyrite at 69, reasonably sharp contact with lighter grey chert less speckled due to less feldspar grains. Contact @ 45°. | | Py. | 65 | 70 | Trace |
| 70 | 75 | / | 30 | | Hard medium grey chert well fractured. Little or no feldspar grains. Yellow limonite along major fractures. Only faintest trace of very fine pyrite. Numerous fine clear quartz-filled fractures, unstained. Much is aphanitic, some shows tendency to quartzite type fracture. Occasional vuggy quartz vein. | | | | | |
| 75 | 80 | / | 30 | 5 | As above but faint trace very fine $MoS_2$ on some quartz veins. | | $MoS_2$ | 75 | 80 | Trace |

EM. 6-1168

LANGRIDGE LIMITED.

# DIAMOND DRILL RECORD

Hole No. 4 Sheet No. 4

NAME OF PROPERTY _____

HOLE NO. _____ LENGTH _____

LOCATION _____

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH _____ DIP _____

STARTED _____ FINISHED _____

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg.# Thread Fract's | Avg.# Vein >1/10" | DESCRIPTION | SAMPLE NO. | SAMPLE % SULPHIDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE FOOTAGE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| 80 | 85 | /— | 20 | 5 | As above: at 84 becomes more fractured and fractures become filled with dark rusty limonite to the exclusion of yellow limonite. | | $MoS_2$ | 80 | 85 | Trace |
| 85 | 90 | // | 15 | 5 | As above. | | $MoS_2$ | 85 | 90 | Trace |
| 90 | 95 | / | 10 | 5 | As above at 92 1/2 inch wide vein quartz Breccia in feldspar matrix. More feldspar than above. | | $MoS_2$ | 90 | 95 | Trace |
| 95 | 100 | / | 12 | 3 | As above. Dark limonite along major fractures. Light yellowish hue to rock from weathered feldspars. Weathered to light yellow, occasional seams dark grey chert. Numerous fine quartz filled fractures. Fine sericite on some fractures. | | $MoS_2$<br>Py. | 95<br>" | 100<br>" | Trace<br>Trace |
| 100 | 105 | /0 | 20 | 2 | As above. 100 to 103 more abundant $MoS_2$ and pyrite. 103-104 brecciated, filled with clear grey quartz. | | $MoS_2$<br>Py. | 100<br>" | 105<br>" | Trace<br>Minor |
| 105 | 110 | / | 20 | 5 | As above. Scattered open vuggy quartz veins with limonite. Only faintest trace $MoS_2$, no Pyrite. | | | | | |
| 110 | 117 | /— | 30 | 1 | As above. Abundant brecciation of feldspathic chert and filling by clear grey granular quartz. $MoS_2$ tends to favor quartz veins. | | $MoS_2$<br>Py. | 110<br>" | 117<br>" | Trace<br>Trace |
| 117 | 120 | /0 | 16 | 2 | Becomes a slightly darker, less mottled grey, loses much of the yellow kaolin speckling. More broken and limonite stained on (1). | | | | | |

# DIAMOND DRILL RECORD

Hole No. 4 Sheet No. 5

NAME OF PROPERTY _____

HOLE NO. _____ LENGTH _____

LOCATION _____

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH _____ DIP _____

STARTED _____ FINISHED _____

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg.# Thread Fract's | Avg.# Vein >1/10" | DESCRIPTION | SAMPLE NO. | % SULPHIDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE FOOTAGE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| 120 | 125 | ∠ | 25 | 7 | As above. 120.5 to 123 shows granular, chalkly altered fracture surface. Numerous vuggy quartz veins with massive, euhedral pyrite and fine disseminated pyrite. $MoS_2$ on fine quartz veins. | | $MoS_2$<br>Py. | 120<br>" | 125<br>" | Trace<br>>1% |
| 125 | 130 | / | 25 | 6 | As above. White fresh altered surface continues. Rock is soft. Trace $MoS_2$ pyrite euhedral on veins disseminated. Major fractures limonite. | | $MoS_2$<br>Py. | 125<br>" | 130<br>" | Trace<br><1% |
| 130 | 135 | ∠ | 30 | 3 | Rock becomes harder. White altered fresh surface. Grades to grey chert. Disseminated fine fresh pyrite and massive on veins. Occasional trace fine $MoS_2$. Limonite mostly restricted to major fractures and vuggy quartz veins. Very little yellow kaolin, | | Py. | 130 | 135 | <1% |
| 135 | 140 | / | 30 | 5 | As above. But rock becomes more siliceous Possibly trace chalcopyrite 138-140. | | Py.<br>$MoS_2$<br>Chalco. | 135<br>"<br>138 | 140<br>"<br>" | <1%<br>Trace<br>Trace? |
| 140 | 145 | ∠ | 25 | 5 | As above. Still many fine quartz filled fractures. | | Py.<br>$MoS_2$ | 140<br>" | 145<br>" | <1%<br>Trace |
| 145 | 150 | / | 35 | 6 | As above. | | Py.<br>$MoS_2$ | 145<br>" | 150<br>" | <1%<br>Trace |
| 150 | 155 | / | 35 | 7 | (Split sample). As above. Trace chalcopyrite 152. Trace covellite 154. Heavy limonite along major quartz veins. Vuggy. | | Py.<br>$MoS_2$<br>Cov.<br>Chalco. | 150<br>"<br>152<br>154 | 155<br>" | <1%<br>Trace<br>Trace<br>Trace |

EM. 6-1168

LAKESIDE LIMITED.

# DIAMOND DRILL RECORD

Hole No. 4 Sheet No. 6

NAME OF PROPERTY _____

HOLE NO. _____ LENGTH _____

LOCATION _____

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH _____ DIP _____

STARTED _____ FINISHED _____

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg.# Thread Fract's | Avg.# Vein >1/10% | DESCRIPTION | SAMPLE NO. | SAMPLE % SULPHIDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE FOOTAGE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| 155 | 160 | | 35 | 6 | As above. | | Py. $MoS_2$ | 155 " | 160 " | 1% Trac |
| 160 | 165 | | 22 | 5 | As above. | | Py. $MoS_2$ | 160 " | 165 " | 1% Trac |
| 165 | 170 | | 28 | 6 | As above. | | Py. $MoS_2$ | 165 " | 170 " | 1% >Trac |
| 170 | 175 | | 30 | 5 | As above. 172-175 slightly more altered (feldspathized). | | Py. $MoS_2$ | 170 " | 175 " | 1% Trac |
| 175 | 176.5 | | 30 | 5 | As above. At 176.5 sharp, uneven contact with intrusive sill. @ 45° to A axis. | | Py. $MoS_2$ | 175 " | 176.5 " | 1% >Trac |
| 176.5 | 182.3 | | 25 | 1 | Fine grained granodiorite quartz feldspar porphyry with 10% fine to coarse biotite, clear grey quartz and light lime-green feldspar phenocrysts. Abundant fine disseminated pyrite, trace $MoS_2$. Sharp uneven faulted contact with country rocks. Limonitized major fractures. | | Py. $MoS_2$ | 176.5 " | 182.3 " | 1% Trac |
| 182.3 | 190 | | 20 | 3 | Grey chert as before. 193-194.5 even coloured grey brown aphanitic chert. / Sulphide shows bedding or flow structure. Scattered grains black finely cleavable mineral. Occasional visible quartz grains. May be dacite?. Chert ranges more or less siliceous and more or less arkosic. Highly fractured and healed. | | Py. $MoS_2$ | 182.3 " | 190 " | 1% Trac |

# DIAMOND DRILL RECORD

Hole No. 4 Sheet No. 7

NAME OF PROPERTY _____

HOLE NO. _____ LENGTH _____

LOCATION _____

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH _____ DIP _____

STARTED _____ FINISHED _____

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg.# Thread Fract's | Avg.# Vein >1/10" | DESCRIPTION | SAMPLE NO. | SAMPLE % SULPHIDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE FOOTAGE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| 190 | 195 | / | 25 | 3 | Grey chert. 190-193 more feldspathic with rusty spots from feldspar. 193-195 harder: Intensely fractured and healed. Takes on orange colour from weathered fractures. | | Py.<br>$MoS_2$ | 190<br>" | 195<br>" | <1%<br>Trace |
| 195 | 200 | / | 20 | 3 | (Split sample). As above. 195-199 relatively more feldspathized and reddish. No $MoS_2$, little pyrite. 199-200 lighter grey fresh surface trace $MoS_2$. 1" rusty fault Breccia @ 200'. | | Py.<br>MoS2 | 195<br>199 | 200<br>" | Trace<br>Trace |
| 200 | 205 | / | 30 | 4 | Becomes consistently light grey less feldspathic Black pyrolusite of sooty chalcocite on some fractures. Harder-loses sugary fracture surface. | | Py.<br>$MoS_2$ | 200<br>204 | 205 | <1%<br><1% |
| 205 | 210 | / | 16 | 1 | As above. Good $MoS_2$ vein 1/16 at 206.0. | | Py.<br>$MoS_2$ | 205<br>206<br>208 | 210<br>210 | <1%<br>On vei<br>Trace |
| 210 | 215 | / | 10 | 1 | As above. 214".0'-214'.3" green porphyritic dike similar to one described previously but coarser grained. Shiny black sulphide with pyrite 214'3". | | Py.<br>$MoS_2$ | 210<br>" | 215<br>" | <1%<br>Trace |
| 215 | 220 | / | 10 | 2 | As above. $MoS_2$ fine and disseminated but more prevalent. (Split sample). | | Py.<br>$MoS_2$ | 215<br>" | 220<br>" | <1%<br>>Trace |
| 220 | 225 | / | 14 | 1 | As above. $MoS_2$ very fine usually along unweathered filled quartz veins. | | Py.<br>$MoS_2$ | 220<br>" | 225<br>" | <1%<br>Trace |

EM.6-1168

LANGRIDGE LIMITED.

# DIAMOND DRILL RECORD

Hole No. 4 Sh No. 8

NAME OF PROPERTY _____

HOLE NO. _____ LENGTH _____

LOCATION _____

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH _____ DIP _____

STARTED _____ FINISHED _____

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg.# Thread Fract's | Avg.# Vein >1/10" | DESCRIPTION | SAMPLE NO. | SAMPLE % SULPHIDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE FOOTAGE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| 225 | 230 | / | 15 | 3 | As above. | | Py. $MoS_2$ | 225 " | 230 " | <1% Trace |
| 230 | 242.5 | / | 18 | 3 | As above. (Split sample 140-145). Pyrolusite common here and above. | | Py. $MoS_2$ | 230 " | 235 " | <1% Trace |
| 242.5 | 245.1 | / | 20 | 25 | Dark green sill, sharp uneven contact. Fine grained grey white quartz-dark Fe mineralizations 50/50. Very numerous white quartz veins in all orientations. Abundant scattered and massive shiny pyrite. | | Py. | 242.5 | 245.1 | 3% |
| 245.1 | 245.7 | | | | Massive barren quartz vein. | | - | - | - | - |
| 245.7 | 250 | / | 20 | 2 | As before. Grey siliceous rock. Pyrolusite still common, well fractured. | | Py. $MoS_2$ | 245.7 " | 250 " | <1% Trace |
| 250 | 255 | / | 15 | 2 | As above. Seems to be getting harder, more siliceous. Pyrolusite still common. | | Py. $MoS_2$ | 250 " | 255 " | <1% Trace |
| 255 | 260 | / | 23 | 2 | As above. Limonitization has decreased. Found only as coatings on major fractures. Areas in between major fractures are relatively free of Fe stain. Grey, still highly fractured and healed; occasional evidence of bedding. Resembles basic rock in DDH #1. | | Py. $MoS_2$ | 255 " | 260 " | <1% Trace |
| 260 | 265 | / | 20 | 7 | (Split sample). As above. 267 @ 30° 1/2 inche quartz vein. Some Fe stain, massive $MoS_2$ on both contacts. | | Py. $MoS_2$ " | 260 " 267 | 265 " | 1% >Trace |

EM. 6-1168

LANGRIDGE LIMITED.

# DIAMOND DRILL RECORD

Hole No. 4 She No. 9

NAME OF PROPERTY _____

HOLE NO. _____ LENGTH _____

LOCATION _____

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH _____ DIP _____

STARTED _____ FINISHED _____

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
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| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg.# Thread Fract's | Avg.# Vein >1/10" | DESCRIPTION | SAMPLE NO. | SAMPLE % SULPHIDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE FOOTAGE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| 265 | 270 | | 25 | 1 | As above. | | Py. $MoS_2$ | 265 " | 270 " | <1% Trac |
| 270 | 275 | | 21 | 4 | As above. | | Py. $MoS_2$ | 270 " | 275 " | <1% Trac |
| 275 | 296.5 | (Split sample 285-290) | 20 | 3 | As above. Hard medium grey chert, limonite stains on major fractures. Pyrolusite spots common on major fractures. Disseminated fine fresh pyrite. Massive pyrite on most major fractures. Occasional large euhedral pyrite on major fractures. Relict bedding vague but more evident than previously. Numerous white to grey filled quartz veins, various orientations, good $MoS_2$ veins at: 284.8, 285.0, 285.5, 290.0, 293.0, 293.2, 294.8. 287.5 one inch quartz vein (vuggy). Although still only present in very small amount the $MoS_2$ has become relatively more abundant and consistent. | | Py. $MoS_2$ | 275 " | 296.5 " | <1% >Trac |
| 296 | 319 | | 25 | 3 | As above. This and above contain zone which are very strongly silicified. $MoS_2$ veins at: 296.7 on/, 298.0 on-, 298.3 with 1/2 inch quartz on/. 299 on/, 300.7 on/, 306.5 on/, 307 on/, 312.5 on/, 314.5 on/, 315.5 on/, 316 on/, 317 on/. | | Py. $MoS_2$ | 296 " | 319 " | Trac Trac |

# DIAMOND DRILL RECORD

Hole No. 4 Sheet No. 10

NAME OF PROPERTY _____

HOLE NO. _____ LENGTH _____

LOCATION _____

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH _____ DIP _____

STARTED _____ FINISHED _____

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
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| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg.# Thread Fract's | Avg.# Vein >1/10% | DESCRIPTION | SAMPLE NO. | SAMPLE % SULPHIDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE FOOTAGE TOT |
|---|---|---|---|---|---|---|---|---|---|---|
| 319 | 326.5 | / | 22 | 4 | Medium grey chert, hard low feldspar content. Abundant secondary quartz veins & Veinlets. Scattered lenses of tan shaly interbedding material. Fine disseminated pyrite. Fine $MoS_2$ mostly associated with quartz veinlets, limonite only occasional on major fractures and vuggy quartz veins. Good $MoS_2$ veins - 324 on /. 324.5 on /. | | Pyr. $MoS_2$ | 319 " | 326.5 " | <1% Tra |
| 326.5 | 338.5 | / | 25 | 3 | Becomes a lighter more translucent grey "poorer" chert most of the fine fractures Stained limonite orange with rusty orange stain to 4mm in wall rock. Intensely fractured and quartz healed. (328.5-330.0) dark grey - black mottled evident sedimentary material. $MoS_2$ scattered with occasional grains on most quartz veins. $MoS_2$ veins: 328.5 on X. 330.8 on /, 338 on /. 332 on /. | | Pyr. $MoS_2$ | 326.5 " | 338.5 " | 1% >Tra |
| 338.5 | 347.0 | / | 15 | 3 | Rock remains hard and siliceous but picks up a maroon pervasive colour. 339.5-343 more highly shattered (pieces 2 in.) with stronger than normal limonite on major and open quartz fractures, less quartz veining. $MoS_2$ good veins 341 on —. | | Pyr. $MoS_2$ | 338.5 " | 347.0 " | <1% Tra |
| 347.0 | 366.5 | / | 15 | 4 | As before, translucent grey chert with relict bedding. Limonite on major fractures and vuggy quartz veins. Light yellow orange Fe stain around minor (tighter) fractures. Occasional massive pyrite on veins @ / and occasional feldspar masses on veins. Good $MoS_2$ veins. 350.0 on /, 2 @ 352.5 with 1 inch | | Pyr. $MoS_2$ | 347 " | 366.5 " | <1% Tra |

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# DIAMOND DRILL RECORD

Hole No. 4 Sheet No. 11

NAME OF PROPERTY _____

HOLE NO. _____ LENGTH _____

LOCATION _____

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH _____ DIP _____

STARTED _____ FINISHED _____

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
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| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg. # Thread Fract's | Avg.# Vein >1/10% | DESCRIPTION | SAMPLE NO. | SAMPLE % SULPHIDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE FOOTAGE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | quartz vein on /, 356 on /, 362.5 on /, 363 on /, 365 on /. 362 - 4 inches zone of vuggy quartz and fracturing with intense limonite development and massive pyrite & cubes. 362 $MoS_2$ crystals 2mm on quartz vein on /. | | | | | |
| 366.5 | 386.0 | / | 25 | 4 | As above. # quartz veinlets still low. 367-368 open quartz fractures with limonite and feldspar in nearby rock. Good $MoS_2$ vein: 370.5 with 1/4 inch quartz 3mm $MoS_2$ on /, 372.6-373.6 - 4 good veins on /. 373.4 - 2 inch quartz with disseminated $MoS_2$ (split sample). 373.5-375 split sample, 375-380 split sample. 377.5 on —. Around 380 the number of granular white quartz veins increases to about 10 per 5'. Many quartz veins have occasional scattered Moly flakes. Good $MoS_2$ veins. 384 on /, 386.5 on /. | | Pyr. $MoS_2$ | 366.5 " | 386.0 " | 1% >Trac |
| 386.0 | 407 | / | 25 | 5 | Rock becomes more granular, darker grey, shows mottled colour and distorted structure more clearly, well fractured and healed. 388 fracture on / with much sericite. 389 - 1/4 quzrts vein on / with cream coloured feldspar abundant, sericite on occasional other fractures. Good $MoS_2$ - 389.5 on /, 392 on /, 392.5 on /\. Occasional vein with mostly feldspar. Very little Fe stain sericite fairly common on major fractures (Split section 400-405). | | Pyr. $MoS_2$ | 386.0 " | 407 " | <1% >Trac |

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# DIAMOND DRILL RECORD

Hole No. 4 Sheet No. 12

NAME OF PROPERTY _____

HOLE NO. _____ LENGTH _____

LOCATION _____

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH _____ DIP _____

STARTED _____ FINISHED _____

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
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| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg.# Thread Fract's | Avg.# Vein >1/10% | DESCRIPTION | SAMPLE NO. | SAMPLE % SULPHIDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE FOOTAGE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| 407 | 415 | / | 30 | 10 | Grades back to lighter grey translucent rock with more quartz veins both tight and vuggy. Limonite stain on major fractures and veins. Euhedral and massive pyrite on major fractures. | | Pyr. $MoS_2$ | 407 " | 415 " | >1% Trace |
| 415 | 436.5 | / | 15 | 7 | As above but without Fe stain. Fe stain occurs only occasionaly on major fractures. Mixture of translucent light grey and vaguely bedded dark grey to black rock. Contacts vague. Rock changes from every 1" to 6 inches. Minor carbonate present on some veins and some with $MoS_2$. Sericite on most major fractures. Good $MoS_2$ veins: 415 on -- with quartz, 417.5 on /, 418 on /, 423 on -- (417.0-417.5 split sample) 424.5 on /, 428.5 on /, 430.5 - 3 inches fractures with Fe stain. Carbonate quartz. pyrite, sericite veins mostly on 45° to A axis. Are also $MoS_2$ on veins but less than " good throughout the rock. Begin around 420 to find occasional veins with pyrite, moly and calcite (carbonate). Good veins: 430.2, 435 on /, some $MoS_2$ in pyrite. 431 begin slight Fe stain on occasional major and fine fractures about 6 inches apart. 436.5 on --. | | Pyr. $MoS_2$ | 415 " | 436.5 " | 1% >Trac |
| 436.5 | 484.5 | / | 15 | 7 | As above. Good moly veins - 438 on /, 443 on /, 445.5 on / with 1/4 inch quartz (445-450 split sample). 447.5 on / with 1/4 inch quartz. 448.9 on / with 1/4 inch vuggy quartz. | | Pyr. $MoS_2$ | 436.5 " | 484.5 " | -1% >Trac |

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# DIAMOND DRILL RECORD

Hole No. 4 Sheet No. 13

NAME OF PROPERTY _____

HOLE NO. _____ LENGTH _____

LOCATION _____

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH _____ DIP _____

STARTED _____ FINISHED _____

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
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| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg.# Thread Fract's | Avg.# Vein >1/10% | DESCRIPTION | SAMPLE NO. | SAMPLE % SULPHIDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE FOOTAGE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | red and healed with much feldspar. Fe stain only on occasional major fractures. Dark green to light bluish green chlorite on clay on most fractures, little visible sericite. Good $MoS_2$ veins 484.5 on / with 1/2 inch clear vuggy quartz vein. 494 on / with 1/4 inch quartz, 500 on /, 503.5 on /, 504 on /, 503 begin to see sericite on fractures. 504.5-505 feldspathic tight breccia zone. | | | | | |
| 506 | 526 | V | 35 | 18 | As above but becomes more granular and obviously sedimentary. Evidence of soft sediment flow, micro fractures between layers of lineated sediment. Numerous. mostly feldspar vein~1/10 inch. Abundant quartz veins. Scattered chlorite and sericite. Only occasional weak carbonates. $MoS_2$ on fine fines scattered. Lots of fresh pyrite on veins. Good $MoS_2$ - 507 on /, 509 on /, 511 on /, 512.5 on /, 513 on / with 1/8 inch quartz, 525 on /. (515-520 split sample). | | Pyr. $MoS_2$ | 506 " | 526 " | 1% >Trac |
| 526 | 548 | V | 25 | 14 | As above. Slight increase in granularity. Lots of massive vein pyrite. $MoS_2$ thinveins scattered between veins. Chlorite and sericite common still. Fe on occasional major fractures. Many quartz crystals. $MoS_2$ mostly on tight quartz veins. Good $MoS_2$ veins 529 on / with 1/2 inch quartz. 534.5 on /, | | Pyr. $MoS_2$ | 526 " | 548 " | 1% Trace |
| (Split in 10 foot sections) | | | | | | | | | | |

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# DIAMOND DRILL RECORD

Hole No. 4 Sheet No. 14

NAME OF PROPERTY _____

HOLE NO. _____ LENGTH _____

LOCATION _____

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH _____ DIP _____

STARTED _____ FINISHED _____

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
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| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg.# Thread Fract's | Avg.# Vein >1/10% | DESCRIPTION | SAMPLE NO. | SAMPLE % SULPHIDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE FOOTAGE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Most veins are quartz, feldspar (often kaolinized) euhedral pyrite, sericite, occasional $MoS_2$. The smaller veins appear to be quartz, occasional moly, minor feldspar along edge with narrow bleached halo. Often find fine clear or stained quartz crystals in vuggy quartz veins. Occasional $MoS_2$ in foliated radiating flowers. Slight trace carbonate at 460 on massive euhedral pyrite vein with feldspar. Fe stain on most major fractures. 442-452 $MoS_2$: 461.5 on /, 463.1 on /, 463.5 on /, 469.0 on /, 465.1 on /, 469.7 - 1/2 inch massive pyrite vein on / with abundant dark green clay mineral. 464.0 - 2 inches feldspar quartz vein with trace $MoS_2$. Kaolinized feldspar, $MoS_2$: 271 on /, 1/4 inch quartz. Feldspar common on massive and euhedral pyrite veins & sericite with quartz. Beyond 470 sericite increases. Some fractures show only sericite quartz vein slight increase. Many have a speck or 2 of $MoS_2$. Only occasional Fe stain on major fractures. 482 on - begin to see some dark green (chloritic?) material on some pyrite veins. | | | | | |
| 484.5 | 506 | / | 30 | 15 | Little translucent grey rocks, goes to medium grey slightly granular looking mottled. bedded, fractured and healed, relatively abundant quartz veins. 484.5-484.7 fractu- | | Pyr. $MoS_2$ | 484.5 | 506 | 1% Tra |

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# DIAMOND DRILL RECORD

Hole No. 4 Sheet No. 15

NAME OF PROPERTY. _____

HOLE NO. _____ LENGTH _____

LOCATION _____

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH _____ DIP _____

STARTED _____ FINISHED _____

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
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| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg.# Thread Fract's | Avg.# Vein >1/10" | DESCRIPTION | SAMPLE NO. | SAMPLE % SULPHIDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE FOOTAGE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 535.5 on /, 536 on \, 537 on \| , 547 on / with 1/2 inch quartz. Rock is mottled shades of grey, much distortion of bedding. Highly fractured and healed as well as later fractures. Bedding lineation at 45°. 533.4-534.6 - dark and light green highly fractured sill rock. Offset with quartz veins. Fe stain on fractures. Invades country rock through fractures and bleaches it. Pyrite. No $MoS_2$. Extremely fractured but semi healed. Blue tinge to chlorite-coating common. Many quartz veins with less than good Moly contain scattered grains MoS2. Quartz, pyrite, feldspar, chlorite, sericite, occasional $MoS_2$. | | | | | |
| 548 | 566 | / | 25 | 15 | As above. 557 on / - 1 inch fine to medium grained sill with green pyroxene or amphibole phenocrysts. 1/4 inch quartz with $MoS_2$ on either side. 568.5 on -- similar sill only fractured and offset internally with Fe stain. Fe stain otherwise absent.entirely. Good MoS2 veins: 551 on /. 552 on /. 552.5 on /. 553 on /. 557 on /. 556 on \|. 553.5 on /. 555.3 on --. 560.5 on /. 563.5 on /. 562.0 - 1.5" granular sill on./ | | Pyr. $MoS_2$ | 548 " | 566 " | 1% >Trace |
| 566 | 601.5 | / | 45 | 20 | Light grey to cream white chert. Well fractured and healed with clear grey quartz. Aphanitic with scattered green coarse grained Angular, soft possible chlorite or amphibole. Many quartz veins over 1/10" have fresh pyrite cores. No Fe stain and scattered. | | Pyr. $MoS_2$ | 566 " | 611.5 " | >1% >Trace |

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# DIAMOND DRILL RECORD

Hole No. 4 Sheet No. 16

NAME OF PROPERTY _____

HOLE NO. _____ LENGTH _____

LOCATION _____

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH _____ DIP _____

STARTED _____ FINISHED _____

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
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| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg.# Thread Fract's | Avg.# Vein >1/10% | DESCRIPTION | SAMPLE NO. | SAMPLE % SULPHIDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE FOOTAGE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | $MoS_2$ on many veins. 576 - 2 inches gouge zone with greenish cream kaolin or mylonite. Good $MoS_2$ veins 570.9 on /. 572 on / with 1/2 inch quartz. 574 on /. 580-581.5 on /. 583 on /. 592 on /. Veins quartz, feldspar, pyrite less sericite, chlorite, but still prevalent. 596 - 2 inches fault gouge cemented with pyrite. | | | | | |
| 601.5 | 608.0 | / | 25 | 6 | As 548-566. Dark grey once bedded. Slightly granular, fracture and healed. No Fe stain. Good $MoS_2$ 604.5 on /. 609 on / (very good). 609.2 / (very good). | | Pyr. $MoS_2$ | 601 " | 608.0 " | 1% Trace |
| 608.0 | 637.5 | / | 25 | 7 | As 566-611.5 light grey with greenish cast. many quartz veins. Occasional Moly on many quartz veins. Chlorite and sericite on fractures. 617-625 only very slight trace $MoS_2$. 624. sphalerite with moly in carb vein 1/8" on /. Good $MoS_2$ values. 612.2 on /. 616.5 on /. 636 on /. 625 to 631 no good veins but scattered $MoS_2$ on quartz veins. 631-635 very low $MoS_2$, Some massive 1/4 inch pyrite veins. | | Pyr. $MoS_2$ Sphal. | 608.0 " 624 | 637.5 " | >1% Trace 100% c Sulphi |
| 637.5 | 647.0 | / | 15 | 5 | Grey and dark green mottled, highly fractured and healed. Similar to dark grey rock from 548-566. Relict bedding much more contorted. Micro shear or micro shrinkage cracks filled with clear quartz; occasional very fine Moly on very fine quartz veins. Few quartz veins. 643 calcite on /. | | Pyr. $MoS_2$ | 637.5 " | 647 " | 1% <Trac |

# DIAMOND DRILL RECORD

Hole No. 4 Sh. No. 17

NAME OF PROPERTY _____

HOLE NO. _____ LENGTH _____

LOCATION _____

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH _____ DIP _____

STARTED _____ FINISHED _____

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUT |
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| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg.# Thread Fract's | Avg.# Vein >1/10% | DESCRIPTION | SAMPLE NO. | SAMPLE % SULPHIDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE TO |
|---|---|---|---|---|---|---|---|---|---|---|
| 647 | 663 | ↓/ | 5 | 5 | Similar to above but contains more grey chert. A few more quartz veins than above. No Fe stain. Rock is much less fractured. 662 - 1/2 inch quartz and calcite vein on / with pyrite with galena. Good $MoS_2$ veins: 652 on \ with 1/4" quartz. 661.8 on /. | | Pyr. $MoS_2$ GL | 647 " 662 | 663 663 | 1% Tr 25% |
| 663 | 678 | ↓ | 23 | 7 | Dark grey, hard, slightly argillaceous chert relict bedding. Interbeds of light grey chert. Fractured and healed. Disseminated and vein pyrite. Fine talc and chlorite on some fractures. Pyrite, quartz, & Pyrite. feldspar, quartz veins common. Good $MoS_2$: 665.2 on --; 666.5 on /; 670 on /; 673-674 on /; 678 on /. Massive 1/6" pyrite on / @ 670. | | Pyr. $MoS_2$ | 663 " | 678 " | 1% Tr |
| 678 | 686 | ↓ | 16 | 6 | Becomes lighter grey but <u>not translucent</u> grey chert. Relict bedding still evident. Breaks easily along relict bedding. Talc on some fractures. 684.5-685 light green talc along fractures. Cut by good $MoS_2$ on /. | | Pyr. $MoS_2$ | 678 " | 686 " | 1% Tr |
| 686 | 731 | ↓ | 20 | 6 | Becomes darker grey, bedding and lineation along bedding as well as fractures along bedding are very common. Highly fractured and healed. 686-688 - dark brown with bleaching halo around all fine fractures. Dark blue earthy material coating some non mineral fractures. Occasional massive pyrite vein. 889.5 and 890 on / massive pyrite quartz, | | Pyr. $MoS_2$ Chalco. 689.5 Chalco. 690 | 686 " | 731 " | 1% Tr Mir Mir |

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# DIAMOND DRILL RECORD



NAME OF PROPERTY _____

HOLE NO. _____ LENGTH _____

LOCATION _____

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH _____ DIP _____

STARTED _____ FINISHED _____

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
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| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg.# Thread Fract's | Avg.# Vein >1/10% | DESCRIPTION | SAMPLE NO. | SAMPLE % SULPHIDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE FOOTAGE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | feldspar trace carbonate (calc.) vein with minor chalcopyrite. Good $MoS_2$ veins; 890.5 on / with 1/4 inch quartz, 891 on /; 894.5 on /; 895.2 on /; 895.3 on / with 1/2 inch massive quartz, snow white carbonate with sericite; 699 on /; 700.5 on / with 1/4 inch quartz. Around 695 carbonate, quartz, pyrite with $MoS_2$ veins become common; although not present on many "good" veins, the $MoS_2$ occurs fairly regularly as specks on quartz veins. 720-721 fine grained phase dark green dacite with lighter green plagioclase phenocrysts and country rock. Xenoliths to 1.5 inch angular, partly altered. Cut or replaces earlier intrusive on upper end. Which is brown and green and ptygmatically folded with fracturing around it. Good $MoS_2$ - 716 on /, 718 on /, 723.5 on /, 729 on /, 729.5 on /. | | | | | |
| 731 | 789 | ↙ | 25 | 5 | As above. A bit more granular, shows as darker spots on core and as granular fracture surface. Chlorite or sericite and blue green coating common on good $MoS_2$ veins. 1/16 inch green clay on some fractures. 736.5 - 1/2 inch quartz with pyrite on /; Good $MoS_2$; on 732 on /; 738 on /; 739.5 on /; 741.5-742.5 on /. 744 on /; 748.5 on /; 748.7 on / with 1/4 inch vuggy quartz; 756 on / with 1/4 inch quartz, feldspar; 758 on / with 1/2 inch vuggy quartz, pyrite, $MoS_2$ euhedral. Possibly fine tan barite crystals on some fractures. | | Pyr. $MoS_2$ | 731 " | 789 " | 1% Trac |

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# DIAMOND DRILL RECORD

Hole No. 4 Sheet No. 19

NAME OF PROPERTY _____

HOLE NO. _____ LENGTH _____

LOCATION _____

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH _____ DIP _____

STARTED _____ FINISHED _____

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
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| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg.# Thread Fract's | Avg.# Vein >1/10% | DESCRIPTION | SAMPLE NO. | SAMPLE % SULPHIDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE FOOTAGE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 750.5 - 3 inches quartz veins with vu gs. 766-771 - More fractured on /. Good $MoS_2$ on 759 on / with 1/2 inch quartz, minor feldspar, 760 on /; 760.5 on -- with 1/4 inch vein quartz; 771 on /; 775.5 on /; 782 on /; 787 on /. 764 on / with 1/4" quartz veins. | | | | | |
| 789 | 798.5 | / | | | Becomes intensely fractured and blocky and more altered (softer), chlorite and sericite common. Shearing evident. 794.5-795 - Clay and grains fault gouge. Pyrite still common; only trace $MoS_2$ on scattered quartz veins. | | Pyr. $MoS_2$ | 789 " | 798.5 " | <1% Trace |
| 798.5 | 799.5 | / | | | Fine grained green d acite (?) porphyry. Zoned plagioclase phenocrysts biotite, quartz, pyrite. Altered fractured Mo on veins 799 and 799.3 on /. Pyrite disseminated. | | Pyr. $MoS_2$ | 798.5 " | 799.5 " | 1% Trace |
| 799.5 | 826.0 | / | 15 | 5 | Dacite porphyry very crowded, medium to dark green. Very fine to aphanitic medium green ground mass. >30% dark green euhedral plagioclase phenocrysts with difficult to see polysynthetic twinning striae. Many are zoned, green rim; white center. Occur as hexagonal blades, show slight prefered orientation to lie with 2 longest axis normal to 45° to A axis. Average 3-4 inches long but range from medium sand size to about 1 inch. Some large non-twinned feldspar crystals. 5-10% clear grey rounded quartz. 5% euhedral biotite. occasional muscovite, >3% fresh disseminated pyrite, mostly fine some coarse, also on | | Pyr. $MoS_2$ | 799.5 " | 826.0 " | 3% < Tra |

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# DIAMOND DRILL RECORD

Hole No. 4 Sheet No. 20

NAME OF PROPERTY _____

HOLE NO. _____ LENGTH _____

LOCATION _____

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH _____ DIP _____

STARTED _____ FINISHED _____

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
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| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg.# Thread Fract's | Avg.# Vein >1/10% | DESCRIPTION | SAMPLE NO. | SAMPLE % SULPHIDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE FOOTAGE TOTA |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | fractures. Occasional trace $MoS_2$ disseminated and on quartz veins with 1/8 inch vein green actinolite. $MoS_2$ at 800.5 on / with 1/4 " vuggy quartz; 803.5 on /, 1/4 inch vuggy quartz with pyrite. $MoS_2$, tan boxwork, chlorite; 804 on /, 1/4 inch quartz, feldspar, pyrite, trace $MoS_2$ vuggy; 805 on /, 1/4 inch vuggy quartz with trace $MoS_2$, 808 on /, 1/4" vuggy quartz with feldspar, pyrite $MoS_2$, 809 on -- 1/8" vuggy quartz, pyrite; 810.1 on / ibid.; 812.5 on /, 1/4 inch vuggy quartz (clear grey $MoS_2$); 823 on /, quartz. Chlorite and pyrite on most fine fractures. | | | | | |
| 826.0 | 831.5 | / | 25 | 15 | Medium grey with greenish cast chert similar to before dacite. More fractured. Pyrite on veins but very little disseminated, hard. Chlorite and/or sericite on many fractures. Good $MoS_2$; 827 on / with 1/2 inch vuggy good quartz crystals. 827.5 on /; 828.5 on / with 1/2 inch quartz; 828.5-.7 fine grained dacite (green) no $MoS_2$; 829 on /, 830.3 on/. | | Pyr. $MoS_2$ | 826.0 " | 831.5 " | <1% Trace |
| 831.5 | 848.0 | / | 30 | 20 | Dacite porphyry. More evenly fine grained. Smaller, fewer phenocrysts. Scattered 0.3 inch, rounded white to clear phenocrysts. Abundant white quartz veining. Soft, altered. Breaks easily. Occasional disseminated and vein $MoS_2$. Plagioclase becomes blue green and softer. More and finer pyrite. Good $MoS_2$. 842.5 on --; Clay minerals and evidence of movement on some fractures. | | Pyr. $MoS_2$ | 831.5 " | 848.0 " | >2% Trace |

EM.6-1168

LANGRIDGE LIMITED.

# DIAMOND DRILL RECORD

Hole No. 4 Sheet No. 21

NAME OF PROPERTY _____

HOLE NO. _____ LENGTH _____

LOCATION _____

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH _____ DIP _____

STARTED _____ FINISHED _____

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg.# Trace Fract's | Avg.# Vein >1/10% | DESCRIPTION | SAMPLE NO. | SAMPLE % SULPHIDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE FOOTAGE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| 848 | 909.5 | / | 30 | 4 | Grey chert. More fractured and blocky, relatively little pyrite and almost no $MoS_2$ to about 853, then present still only in very small amounts. Minute fractures with clay and/or chlorite abound. Rock breaks in small chunks easily. Feels more granular. A bit like the altered argilliceous chert, this granularity comes and goes. Good $MoS_2$; 848.5 on /, 854.5 with 1/2" quartz on /, 860 on /, 871 on / with 1/2 inch quartz, 891 on /, 903.5 on / with 1 inch quartz and pyrite vuggy. 853-853.8, 862.5-863.5 - Dacite porphyry as first described. (with 3 inches chert xenolith)., around 865 start to see clearly banding black, more argillaceous beds. 1/8 to 1 inch thick interbedded with grey chert with greenish cast sometimes. 870.0-870.25 - Aphanitic dark green sill with vaque white phenocrysts and black reaction rim. Moly becomes slightly more abundant around 880. still < trace but on more quartz veins. Granular gouge on some fractures. 894.0-895 Very broken (into 1 inch pieces) with middle 4 inches as clay rich gouge. 894-902 - very broken and blocky, less than 2 inches chunks Phylite common enough in places ie 901-902 to form shine. $MoS_2$ specks on occasional quartz veins but much less than good part of hole. Pyrite very scattered except on some fractures. 908-908.4 - fine grained green sill with medium green phenocrysts. | | Pyr. $MoS_2$ | 848 " | 909.5 " | << 1% Trace |

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# DIAMOND DRILL RECORD

Hole No. 4 Sheet No. 22

NAME OF PROPERTY _____

HOLE NO. _____ LENGTH _____

LOCATION _____

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH _____ DIP _____

STARTED _____ FINISHED _____

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg.# Thread Fract's | Avg.# Vein >1/10% | DESCRIPTION | SAMPLE NO. | SAMPLE % SULPHIDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE FOOTAGE TOTA |
|---|---|---|---|---|---|---|---|---|---|---|
| 909.5 | 932.5 | // | | | Grey chert, very broken. Little visible $MoS_2$. Chlorite, sericite and green clay alteration products common. 915-917 - Altered fine grained green Dacite porphyry. 919.7- 1 inch green Dacite. 927-932.5 - broken to 1 inch angular pieces. Good $MoS_2$ 925 on /; 927 on / with 1/2 inch quartz; 932.5-933 on / with quartz zones of alteration appear to have less $MoS_2$. Short footage of harder rock in altered zones appears to show more $MoS_2$. | | Pyr. $MoS_2$ | 909.5 " | 932.5 " | 1% Trac |
| 932.5 | 1005.0 | / | 40 | | Grey bedded chert, less broken than above but still well fractured. Euhedral pyrite on fractures. 969-971 - Fine grained Dacite porphyry, green, Mo on veins, quartz on ends of sill. Very altered, lots of clay coating fractures. Good $MoS_2$; 934 on / with quartz pyrite feldspar. 935 on / 935.5 on --, 941 on /; 943.5 on /; 947 on --, 950 on / with 1/8 inch quartz, 952.5 on /, 953.5 on /; 955 on /; 962 on /; 969 on /; 974.5 on /; 975.5 on --; 978.5 on --; 982.5 on / with 1/2 inch vein quartz, trace pyrite. 983.5 on /; 985 on / with 1/2 inch vein quartz, 985.5 on / with 1/2 inch quartz; 987 on / with quartz. Sericite common on fractures. 989.0 on /; 992.5 on/ with 1/2 inch vuggy quartz pyrite feldspar, 1000.5 on --; 1000-1002.5 on / with 1/2" inch vein quartz feldspar. | | Pyr. $MoS_2$ | 932.5 " | 1005.0 " | 1% Trac |

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# DIAMOND DRILL RECORD

Hole No. 4 Sheet No. 23

NAME OF PROPERTY _____

HOLE NO. _____ LENGTH _____

LOCATION _____

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH _____ DIP _____

STARTED _____ FINISHED _____

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg.# Thread Fract's | Avg.# Veins >1/10% | DESCRIPTION | SAMPLE NO. | SAMPLE % SULPHIDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE TOT |
|---|---|---|---|---|---|---|---|---|---|---|
| 1005.0 | 1013 | ↙ | 70 | 5 | Similar to above but very shattered, sheared. 1008-1008.5 - Less fractured. 1007-1010 - 3/4 inch vuggy quartz vein on /; occasional $MoS_2$. Some feldspar. | | Pyr. $MoS_2$ | 1005 " | 1013 " | <1% Tra |
| 1013 | 1041 | ↙ | 23 | 3 | Almost hard, light grey translucent chert. Fractured and healed. Sericite on fractures. Occasional bedding traces. From 1027 - dark brown-black silt or shaly relict bedding becomes consistent from every 1 to 6 inch from 1/4 to 1 inch thick. Slight trace Fe tan, red stain on quartz feldspar fractures. 1036-1036.5: Good $MoS_2$; 1019 on / with 1/4 inch quartz; 1020 on / with 1/2 inch vein quartz with pyrite. 1024 on/with vein quartz, chlorite. 1031 on /; 1037 on / with 1/2 inch vein quartz. | | Pyr. $MoS_2$ | 1013 " | 1041 " | <1% Tra |
| 1041 | 1063 | ↙ | 30 | 4 | Similar to above but more fractured and more broken. More open fractures. 1043.5-1044 Shear zone. Chlorite and/or sericite common, less pyrite than usual. More unhealed fractures. Very little moly. Occasional on quartz vein. Good $MoS_2$ - 1058 on / with 1/2 inch quartz; 1060 on / with 1/4 inch quartz. | | Pyr. $MoS_2$ | 1041 " | 1063 " | < Tr |
| 1063 | 1101 T.D. | ↙ | 18 | 3 | Cherty argillite, mottled shades of darker grey. Bedded fractured and healed, fractured. Fewer quartz veins of all sizes. Light and dark green alteration in and along fractures not uncommon. Disseminated pyrite. Mo on scattered quartz veins. Good $MoS_2$; 1068 on /, 1068.2 on /; | | Pyr. $MoS_2$ Chal-co | 1063 1063 1085.5 | 1101 1101 1101 | > T |

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# DIAMOND DRILL RECORD

Hole No. 4 S No. 24

NAME OF PROPERTY _____

HOLE NO. _____ LENGTH _____

LOCATION _____

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH _____ DIP _____

STARTED _____ FINISHED _____

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg.# Thread Fract's | Avg.# Veins >1/10% | DESCRIPTION | SAMPLE NO. | SAMPLE % SULPH-IDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE FOOTAGE TOTA |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1068.6 on /; 1071 on /; 1072.5 on / with boudinage quartz at necks. 1088 on /, 1 inch vein quartz. 1091.5 on / with quartz pyrite, talc. From 1081.5 becomes less fractured and broken. 1085.5 on /, quartz, pyrite, feldspar trace chalcopyrite. 1109 on /; 1" dark green sill with lighter green phenocrysts of actinolite to 3/4 inch bounded by 1/4 inch bleached host rock.<br><br>END OF HOLE. | | | | | |

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LANGRIDGE LIMITED.

Hole No. 5 Sheet No. 1

# DIAMOND DRILL RECORD

Logged By L.J. [illegible]en

NAME OF PROPERTY Mt. SANFORD, PROJECT 71, ATLIN M.D.

HOLE NO. Sanford # 5 LENGTH

LOCATION Same as 4 drilling west @ 45°

LATITUDE DEPARTURE

ELEVATION AZIMUTH DIP

STARTED FINISHED

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg.# Thread Fract's | Avg.# Vein >1/10% | DESCRIPTION | SAMPLE NO. | SAMPLE % SULPHIDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE FOOTAGE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 55 | L | >50 | | Grey chert, highly fractured (near surface) yellow and rusty limonite on fractures. No visible sulphides. Numerous micro fractures on spots filled with black chert (photo) bedded. | | | | | |
| 55 | 64 | L | 18 | 5 | Grey chert, relict bedding. Speck led with black lenticular fine grains and filled tension fractures. Many of the specks have weathered yellow. Occasional vuggy quartz veins. Silicification halo around many quartz veins. Un-weathered. Gradually becoming less fractured. <1% fine disseminated pyrite, occasional faint trace $MoS_2$ on quartz veins. Photo 151' example of silicification around fractured veins. Green colour due to fine limonite (pervasive). 62' - 2 inches on / crowded porphyry. Crear yellow phenocrysts of plagioclase in grey groundmass. Contacts grade vaguely over 2mm. Many fine fractures lightly limonized. Pyrite increases to about 1%. | | Pyr. | 55 | 64 | <1% |
| 64 | 66 | F | | | Dark green fine grained actinolite rich intrusive. Occasional chert zenolith. Pyrite fine and disseminated. | | Pyr. | 64 | 66 | 1% |
| 66 | 75 | F | 35 | 5 | Yellow to yellowish grey porphyry, crowded Yellow plagioclase phenocrysts sub hedral due to resorbtion. 5-10% biotite, coarse, occasional muscovite, possibly 1% amphibole. Abundant pyrite on veinlets and fractures. | | Pyr. | 66 | 75 | 1% |

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LANGRIDGE LIMITED.

# DIAMOND DRILL RECORD

Hole No. 5 Sheet No. 2

NAME OF PROPERTY _____

HOLE NO. _____ LENGTH _____

LOCATION _____

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH _____ DIP _____

STARTED _____ FINISHED _____

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
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| | | | | | |

| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg.# Thread Fract's | Avg.# Vein >1/10% | DESCRIPTION | SAMPLE NO. | SAMPLE % SULPHIDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE FOOTAGE TOT |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 5-10% large (4mm) rounded quartz phenocrysts. No disseminated pyrite. 74- 2 inches xenolith of fine pyroxene rich rock. Upper contact with actinolite rich rock sharp with 2mm bleach halo in porphyry. | | | | | |
| 75 | 89 | ↙ | 25 | 5 | Grey chert. Many very fine tension fractures filled with black chert. Many fine veins have <1mm bleached or rusty halo. Beyond 77 begins to pick up more disseminated pyrite. 80.5 - 3 inch zone of silification around fracture on /. 81.5 - 2 inches of fine porphyry. 81.5-82 - 6 inches of porphyry, sparse, with visible biotite. From 82-82.5 - 1/4 inches stringer of very fine unporphyritic phase of porphyry off of main sill. 83.5 small corner of porphyry. 84 - 3 inches rusty broken stuff down to 1/8 inch. 84.2-84.9 - Porphyry stringers. 85.5-86 - Stringers, grey quartz, may be porphyry. | | Pyr. | 75 | 89 | <1% |
| 89 | 92.5 | ↙ | | | Grey to slightly yellow porphyry. Sharp contact at slightly vague (clouded) on /. Limonite on major fractures. | | Pyr. | 89 | 92.5 | <1% |
| 92.5 | 95 | ↙ | | | Sharp contact on / with grey chert. | | Pyr. | 92.5 | 95 | <1% |
| 95 | 96 | ↙ | | | Green porphyry. | | Pyr. | 95 | 96 | <1% |
| 96 | 97.5 | ↙ | | | Grey chert. | | Pyr. | 96 | 97.5 | <1% |

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LANGRIDGE LIMITED.

# DIAMOND DRILL RECORD

Hole No. 5 Sheet No. 3

NAME OF PROPERTY _____

HOLE NO. _____ LENGTH _____

LOCATION _____

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH _____ DIP _____

STARTED _____ FINISHED _____

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
|---|---|---|---|---|---|
| | | | | | |
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| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg.# Thread Fract's | Avg.# Vein >1/10% | DESCRIPTION | SAMPLE NO. | SAMPLE % SULPHIDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE FOOTAGE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| 97.5 | 99 | / | | | Sharp contact with grey green porphyry. Phenocrysts light to dark green zoned. | | Pyr. | 97.5 | 99 | 1% |
| 99 | 103 | ↙ | 25 | 1 | Porphyry. Medium green grey, quite fresh. Medium to sparse green plagioclase phenocrysts, 5% biotite, 5% hornblende. Plagioclase phenocrysts are less clear than in DDH # 4. Minute disseminated pyrite. 5-10% limonite on major fractures. Rusting halo to 2mm around many fractures. 102 on / 1/4 inch vuggy pyrite, quartz vein. 5-10% clear grey rounded quartz phenocrysts to 5mm. Good $MoS_2$ veins 101.5 on /. | | Pyr. $MoS_2$ | 99 " | 103 " | 2% Faint trace |
| 103 | 121 | ↙ | 25 | 5 | Porphyry becomes light yellow tan overall. Orange to yellow limonite intergranular in matrix. Feldspar going to cream white. Trace Mo on occasional quartz veins. Many quartz veins exhibit grey silicification halo that is unstained. ie 105'. occasional sections from 1 inch to 1 feet of grey green unaltered porphyry. Occasional muscovite in porphyry. 109-110 staining is rusty red. 110 - 2 inches granular shear zone on /. Good $MoS_2$ 119.5 on —. — | | Pyr. $MoS_2$ | 103 " | 121 " | 2% Faint Trace |
| 121 | 145 | ↙ | 25 | 4 | As above. 122-122.5 more intense weathering on / and 124.5-125, 125.5-126, evidenced by more intense limonite stain and possibly shear. Faint trace Mo. on some quartz veins. 134 - 2 inch crystals in mass of orange limonite. Around 140 massive pyrite veins increase to about 4 per | | Pyr. $MoS_2$ | 121 " | 145 " | 2% Faint Trace |

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# DIAMOND DRILL RECORD

Hole No. 5 Sheet No. 4

NAME OF PROPERTY _____

HOLE NO. _____ LENGTH _____

LOCATION _____

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH _____ DIP _____

STARTED _____ FINISHED _____

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
|---|---|---|---|---|---|
| | | | | | |
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| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg.# Thread Fract's | Avg.# Vein >1/10% | DESCRIPTION | SAMPLE NO. | SAMPLE % SULPHIDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE FOOTAGE TOTA |
|---|---|---|---|---|---|---|---|---|---|---|
| 145 | 166 | | 30 | 5 | As above. Pervasive silicification around veins absent. 145-147 brown matrix. 147-153.5 Intensive limonitization on/ soft yellow limonite with quartz grains. 155.5-157 Intense limonitization. 159.6 on / 1 inch green clay rich zone possible shear. Pyrite often has dull to shiny red weathering coating and golden coating. Good $MoS_2$ 162.5 on / with 1/8 inch quartz, pyrite. $MoS_2$, 165.5 on / with 1/4 inch quartz : pyrite. | | Pyr. | 145 | 166 | 2% |
| 166 | 210 | | 35 | 7 | Porphyry <5% biotite. 166-171 - Brown with cream plagioclase phenocrysts grey quartz veins and grey silicified halos around some fracture to 3/4". 171-175 - Yellow and soft from intense limonitization. 175-178 Brown. 178-Grey with limonite on major fractures fading beyond 184 grey with cream plagioclase phenocrysts, clear grey quartz veins and occasional silicification halos around 186 begin to see scattered black hornblende crystals to 188. Occasional trace $MoS_2$ on larger quartz veins on /. 188.5-192.5 as above, green porphyry. 192.5-195.5 yellow porphyry, altered intensely limonitized. 195.5-198.5 mottled brown + grey. 198.5 grey green with increased massive pyrite on veins mostly on /. Fe stain on major fractures green zoned plagioclase phenocrysts crowded to 1 cm. Good $MoS_2$ veins 201 on/ . 205 on / with 1/4 inch quartz | | Pyr. | 166 | 210 | 1% |

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# DIAMOND DRILL RECORD

Hole No. 5 Sheet No. 5

NAME OF PROPERTY _____

HOLE NO. _____ LENGTH _____

LOCATION _____

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH _____ DIP _____

STARTED _____ FINISHED _____

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
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| | | | | | |

| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein | Avg.# Thread Fract's >1/32" | Avg.# Vein | DESCRIPTION | SAMPLE NO. | SAMPLE FOOTAGE | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | vuggy. 206.5 on / with pyrite. 207.5 on / with 1/4 inch vuggy quartz pyrite; biotite and hornblende begin to pick up around 207. | | | | |
| 210 | 233 | K | 15 | 6 | Grey porphyry medium to crowded. Plagioclase phenocrysts from cream through light/green to dark green. Grey groundmass. Pyrite as disseminated and massive on veins. 210-214.5 more limonite on major fractures. 225-227 more limonite on major fractures. Numerous fine grey quartz veins. Zones of silicification around some veins. 220 - 1/2 inch vuggy quartz with pyrite and silicification halo 1/2 inch. 227 - 1/2 inch on / vuggy quartz pyrite trace $MoS_2$ barite ?. Biotite <5% increases slightly for short distances. $MoS_2$ veins. 214 on / with 1/4" quartz pyrite, 217.5 on / with 1/4 inch pyrite quartz. 229 on / with 1 inch silicification halo around quartz pyrite vein. 210-233 most quartz veins of 1/10 or larger contain occasional specks of $MoS_2$. | | Pyr. $MoS_2$ | 210 " | 233 " | 3% Trace (Faint |
| 233 | 320 | K | 15 | 6 | 233-238 No $MoS_2$. Scattered limonite on major fractures. Minor muscovite in porphyry. Good $MoS_2$ - 251 on /. 254-276.5 as above. Very poor in $MoS_2$ only very scattered fine flakes on quartz veins. One "good" vein. 267 on /. 267-272 limonite on major fractures. Most of rest of rock is limonite free. Limonite zone shows plagioclase phenocrysts cream white, rest are green. Occasional green clay mineral on pyrite veins. | | Pyr. $MoS_2$ | 233 " | 320 " | Very faint trace |

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# DIAMOND DRILL RECORD

Hole No. 5 Sheet No. 6

NAME OF PROPERTY _____

HOLE NO. _____ LENGTH _____

LOCATION _____

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH _____ DIP _____

STARTED _____ FINISHED _____

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
|---|---|---|---|---|---|
| | | | | | |
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| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg.# Thread Fract's | Avg.# Vein >1/10% | DESCRIPTION | SAMPLE NO. | SAMPLE % SULPHIDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE FOOTAGE TOTA |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 276-279.5 limonite on fractures cream phenocrysts. 283-283.5 limonite on fractures. 287-292 limonite on fractures, weak alteration of phenocrysts. 293.5-294 , 295-296.5 grey chert xenoliths only slightly assimilated into porphyry at edges. Massive vein pyrite shows genesis after porphyry/ Good $MoS_2$ veins 282.5 on / with 1/4 inch quartz. 298 on /. 299-319 Massive vein pyrite common. Limonite on fractures. Most phenocrysts to cream. 319-320 dark grey lineated schistose rock, long thin lens of black material prebably biotite. Good $MoS_2$ down center of this rock on /. lineation and contact at /. | | | | | |
| 320 | 361 | K | 25 | 6 | Goes to more mafic rich phase. >20% biotite and hornblende (fine crystals), with cream coloured plagioclase phenocrysts. Darker grey matrix. More limonite on fractures. 329-335, 337-342 slight pinkish cast to some plagioclase phenocrysts. 339 Good $MoS_2$ on /. Occasional scattered Mo on quartz veins. 343.5 on /. with 1/8 inch quartz. 346.5 on /, 358 on /. with 1/8 inch quartz pyrite. Around 349 grades back to green phase of porphyry. | | Pyr. $MoS_2$ | 320 " | 361 " | 2% Very faint trace |
| 361 | 362 | | | | Shear or highly altered zone between porphyry and chert. Rock is highly altered, soft, plagioclase gone to kaolin, 2 inches of shattered chert. | | Pyr. | 361 | 362 | <1% |

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# DIAMOND DRILL RECORD

Hole No. 5 Sheet No. 7

NAME OF PROPERTY _____

HOLE NO. _____ LENGTH _____

LOCATION _____

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH _____ DIP _____

STARTED _____ FINISHED _____

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
|---|---|---|---|---|---|
| | | | | | |
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| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg.# Thread Fract's | Avg.# Vein >1/10% | DESCRIPTION | SAMPLE NO. | SAMPLE % SULPHIDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE FOOTAGE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| 362 | 411 | / | 20 | 5 | Hard, medium grey bed chert, or fine quartzite, silicified. Disseminated and vein pyrite. Noticeably more $MoS_2$ though still very weak. Light grey specks on core surface, possible feldspar material. grey translucent chert. Good $MoS_2$: 362 on /; with argillaceous interbeds. Actually looks very much like fine quartzite. 365.8 on /. trace possible chalcocite, pyrite. 367 on / with 1/2 inch quartz. 372 on / with 1/8 inch quartz. 373 on /. 373.5 on / with 1/2 inch quartz. 379 on /, 390 on /, 390.8 on / with 1/4 inch quartz. 391 on / with 1/4 inch quartz with pyrite. 375 - 3 inches shear zone, breccia cemented with limonite. More limonite on fractures 2 feet either side of shear, bedding at about 45°. From about 377, argillic content appears to increase slightly. Good $MoS_2$ 397 on /, 398.5 on / with 1/4 inch quartz, 390 on / with 1/2 inch quartz, 391 on /, 410 on / with 1/4 inch quartz. Numerous fractures. | | Pyr. $MoS_2$ | 362 " | 411 411 | 1% Trace |
| 411 | 456 | | 20 | 5 | Bedded medium grey chert. 413.5-417 broken, fine light yellow clay on most pieces. Occasional Mo on fine quartz veins. Good $MoS_2$: 420 on /, 423 on |, 426 on |, 430.2 on | 430.3-432 on |. 426.5-427.2 green porphyry, sharp even contacts on — . | | Pyr. $MoS_2$ | 411 " | 456 456 | 2% Trace |

EM. 6-1168

LANGRIDGE LIMITED

# DIAMOND DRILL RECORD

Hole No. 5 Sheet No. 8

NAME OF PROPERTY _____

HOLE NO. _____ LENGTH _____

LOCATION _____

LATITUDE _____ DEPARTURE _____

ELEVATION _____ AZIMUTH _____ DIP _____

STARTED _____ FINISHED _____

| FOOTAGE | DIP | AZIMUTH | FOOTAGE | DIP | AZIMUTH |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| FOOTAGE FROM | FOOTAGE TO | Fracture & Vein Pattern | Avg.# Thread Fract's | Avg.# Vein >1/10% | DESCRIPTION | SAMPLE NO. | SAMPLE % SULPH-IDES | SAMPLE FOOTAGE FROM | SAMPLE FOOTAGE TO | SAMPLE FOOTAGE TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 434-435.5 porphyry sill. Green crowded 2mm phenocrysts, with inner dike of grey with 1cm cream coloured phenocrysts. 449.2-450.2 Crowded green porphyry. 3% pyrite, frace covelite. 443 on / with pyrite and quartz. Good $MoS_2$: 435.5 with 1/2 inch white phase of porphyry on --, 435.9 on /, 439.8 on /, 445 on /, 455.5 on — with 1/2 inch quartz, 452 on / with vuggy quartz. | | | | | |
| 456 | 638 | / | 20 | 7 | Hard grey bedded chert. Most quartz veins contain scattered specks of Mo. Bedding contorted. Around 490 pick up sericite on fractures. Scattered Mo on most quartz veins. 524-524.9 broken zone. Good $MoS_2$: 461.5 on /, 462.5 on / with 1/4 inch quartz, 463 on /, 492.5 on /, 527.3 on /, 528 on /, 528.5 on / with 1/4 inch quartz, pyrite, feldspar, chlorite. 464 on — 2 inch porphyry sill with 50% massive pyrite. Around 523 begin to see light coating of green chloritic material on fractures. Also more feldspar, cream white on fractures. Around 578 becomes darker grey. Good $MoS_2$: 531 on /, 548.2 on /, 549.3 on /, 569.5 on /, 589 on / with 1/2 inch quartz, 609.5 on /, 611.5 on /, 635.2 on /, 630 on /, 631 on / with 1/4 inch quartz, 627 on / with 1/4 inch quartz. | | Pyr. $MoS_2$ | 456 " | 638 638 | >1% Trace |

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