

ARIS SUMMARY SHEET

District Geologist, Smithers

Off Confidential: 92.09.06

ASSESSMENT REPORT 21869

MINING DIVISION: Atlin

PROPERTY: Pictou  
LOCATION: LAT 59 34 30 LONG 133 40 00  
UTM 08 6604629 575321  
NTS 104N12E

CAMP: 053 Atlin Camp

CLAIM(S): Pictou (Mineral Lease 57), Scarab

OPERATOR(S): Connolly, S.

AUTHOR(S): Livgard, E.

REPORT YEAR: 1991, 55 Pages

COMMODITIES

SEARCHED FOR: Gold, Silver

KEYWORDS: Permian, Pennsylvannian, Serpentinites, Andesites, Basalts, Listwanites

WORK

DONE: Drilling, Geochemical, Physical

DIAD 480.8 m 2 hole(s); NQ

ROAD 0.3 km

SAMP 54 sample(s) ; AU, AG

MINFILE: 104N 044

LOG NO: DEC 04 1991 RD.

ACTION:

FILE NO:

**THE PICTOU PROJECT**

NTS 104 N/12E

59 34.5' NORTH LATITUDE  
133 40' WEST LONGITUDE

UTM: 576500m.E 6605500m.N

**SUB-RECORDER  
RECEIVED**  
*DEC 02 1991*  
M.R. # ..... \$.....  
VANCOUVER, B.C.

OWNER EL CENTRO CLAIMS;

John William Richard Smith  
Atlin, B.C.

OWNER MINERAL LEASE 57;

Shirley Connolly  
Atlin, B.C.

Operator:

**INTERNOVA RESOURCES LTD.**  
1520 - 609 Granville St., Vancouver, B.C. V7Y 1G5

Writer:

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**Livgard Consultants Ltd.**  
436 - 470 Granville St., Vancouver, B.C. V6C 1V5

November 26th, 1991

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**21,869**



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## 1.0 SUMMARY

Mineral Lease 57 (Pictou and Scarab) and the El Centro #I, II, III claims form a contiguous group in the Atlin Mining Division. The mineral lease is in good standing till 2008 subject to annual taxes. Assessment work for one year was filed on the El Centro claims at Atlin on the 6th of September 1991. The claims are located due east of the town of Atlin. The nearest large centre is Whitehorse across the provincial boundary into Yukon. The property lies on the broad flat flood plain of Pine Creek Valley.

The Atlin area has been an active exploration area since placer gold was discovered almost 100 years ago. Several "hardrock" showings have been located such as the Yellow Jacket to the northeast where spectacularly rich gold samples have been located in a geological setting similar to that at the Pictou-Scarab.

The gold in the area is generally located in listwanite - a quartz, carbonate (brucite) and mariposite mixture of altered ultra mafic intrusives and basalt-andesite of the Paleozoic Atlin terrane. The alteration is extensive and at times pervasive suggesting strong hydrothermal activity. Three or four sequences of low temperature epithermal silicification have been indentified. The channal way of the hydrothermal activity is a west dipping thrust zone which apparently has several planes of movement with strikes different to that of the andesite-ultra mafic contact. This structural interpretation would markedly increase the complexity of the geology at the Pictou showing.

Bulldozer site preparation and diamond drilling of four diamond drill holes was carried out during September 1991.

Drill hole #1 was drilled to check a gold-arsenic soil anomaly discovered by Homestake (1988). The hole encountered rock alteration, numerous dykes and associated silicification but no mineralization.

Hole #2 was drilled at the main showing below Homestake hole 88-01. It cut extreme alteration, thrust planes and minor slightly anomalous gold.

Holes # 3 and #4 were drilled 200 m south of the main showing to check a gold-arsenic soil anomaly discovered by Homestake (1988). The holes cut extensive extreme alteration and thrust planes but no gold values of note.

If the new interpretation of the structure is verified (by fence drilling) then it may be possible by considerable additional work, to locate extensions to the Pictou showing. In spite of the above statement no further work is recommended due to its difficulty and considerable cost.



## 2.0 CONCLUSIONS

The new interpretation of the structure at the Pictou showing, consisting of more than one thrust plane striking at an angle to the strike of the andesite-ultramafic contact, will, if verified, suggest a much more complex geological picture. In order to verify this interpretation the core from Homestake holes 88-01, 88-02 and Internova holes 91 #1, 2, 3, and 4 must be relogged with this in mind. Additional holes would also need to be drilled mainly for structural information. Following the above a structural interpretation should point to exploration targets.

In spite of the desirability of the above work, it is not recommended because of its complexity and cost in relationship to its odds for economic success.



### 3.0 INTRODUCTION

The El Centro I - III claims, located near the village of Atlin, in northwestern British Columbia, partly surround the Pictou property (Mineral Lease No. M57). This Mineral Lease covers a historically documented gold/silver showing in which thin quartz veins hosted in silica-carbonate-mariposite altered ultramafics (listwanite) carry gold and silver values of note.

Several exploration programmes have been conducted on this property over the last century, including rotary and diamond drilling programmes completed by Homestake Mineral Development Co. Ltd. in 1987 and 1988. The El Centro I-III claims were staked in September, 1989 to cover possible extensions of the alteration found in this drilling.

The writer supervised a diamond drill program on the Pictou claim and logged the core, on instruction of James Hirst, President of Internova Resources Ltd.

The program was carried out from September 1st to 20th, 1991. The drill contractor was E. Caron Diamond Drilling Ltd., Whitehorse. The samples were analysed for gold and silver by Northern Analytical Laboratories, Whitehorse. The drill core is stored with Shirley Connolly, Atlin.

This report is written to fulfill the assessment work requirements regarding work filed at Atlin, B.C. on September 6th, 1991 to keep the El Centro Claims # I, II, III in good standing until September 7th, 1992.

Additional work as described and declared in this report can be filed on the claims until September 7th, 1992.

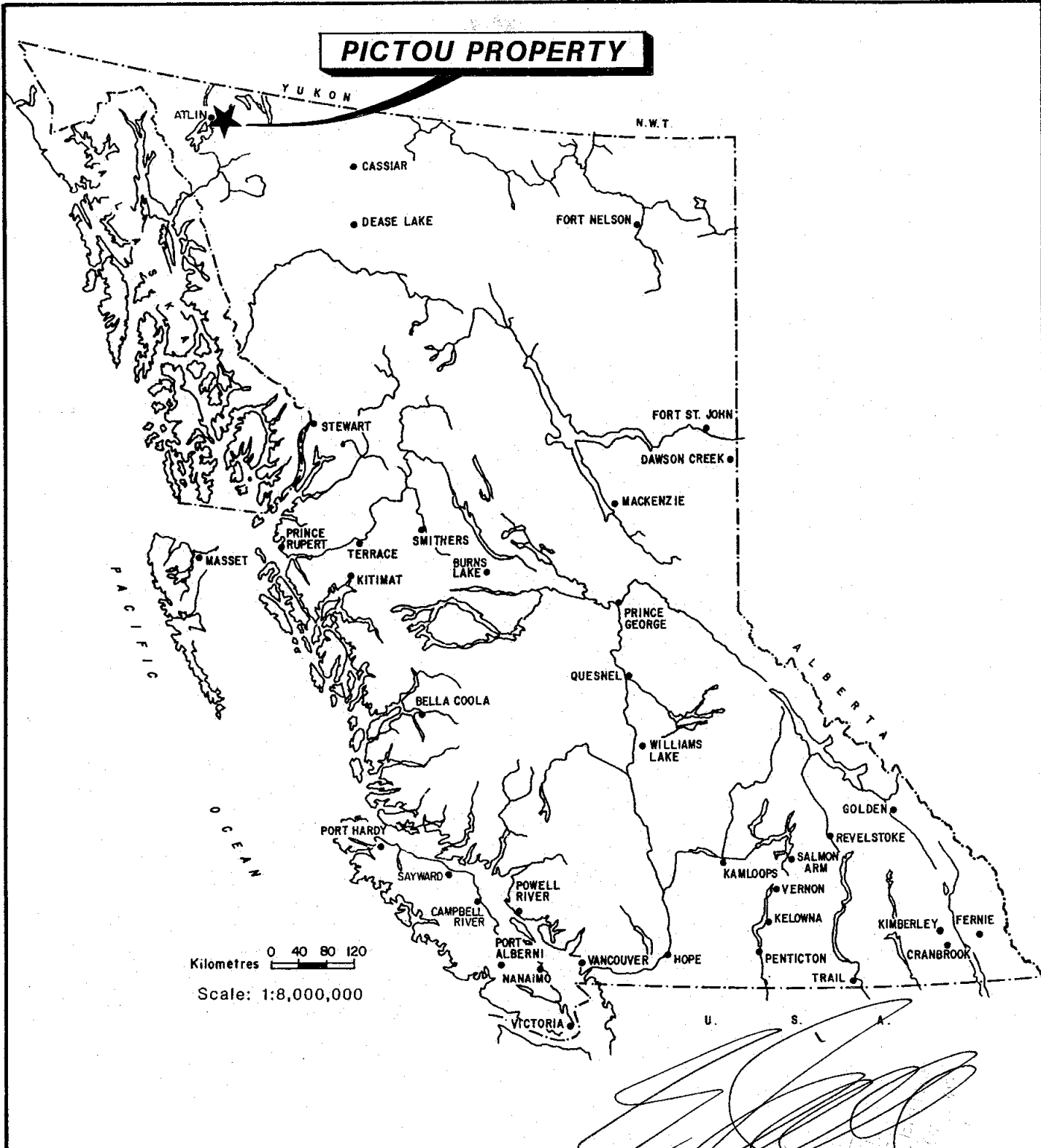
### 3.1 Claim Status

The property consists of three contiguous mineral claims, the El Centro I, El Centro II and El Centro III, totalling 48 units (1200 hectares). These mineral claims are owned by Mr. John William Richard Smith of Atlin, B.C. and are under option to Internova Resources Ltd. Partly within the boundaries of the El Centro I-III claims is Mineral Lease No. M57 known as the Pictou Property. This Lease is held by Ms. Shirley J. Connolly of Atlin and is under option to Internova Resources Ltd.

Also within the boundaries of the El Centro I-III claims are several other Mineral Leases, Crown Granted Claims, Mineral Reserves and the Atlin Airport, the Mineral Leases and Crown Grants are owned by parties other than the aforementioned. Figure 2, the Claim Map accompanying this report, is a copy from the Mineral Titles Reference Map 104N/12E.



# PICTOU PROPERTY



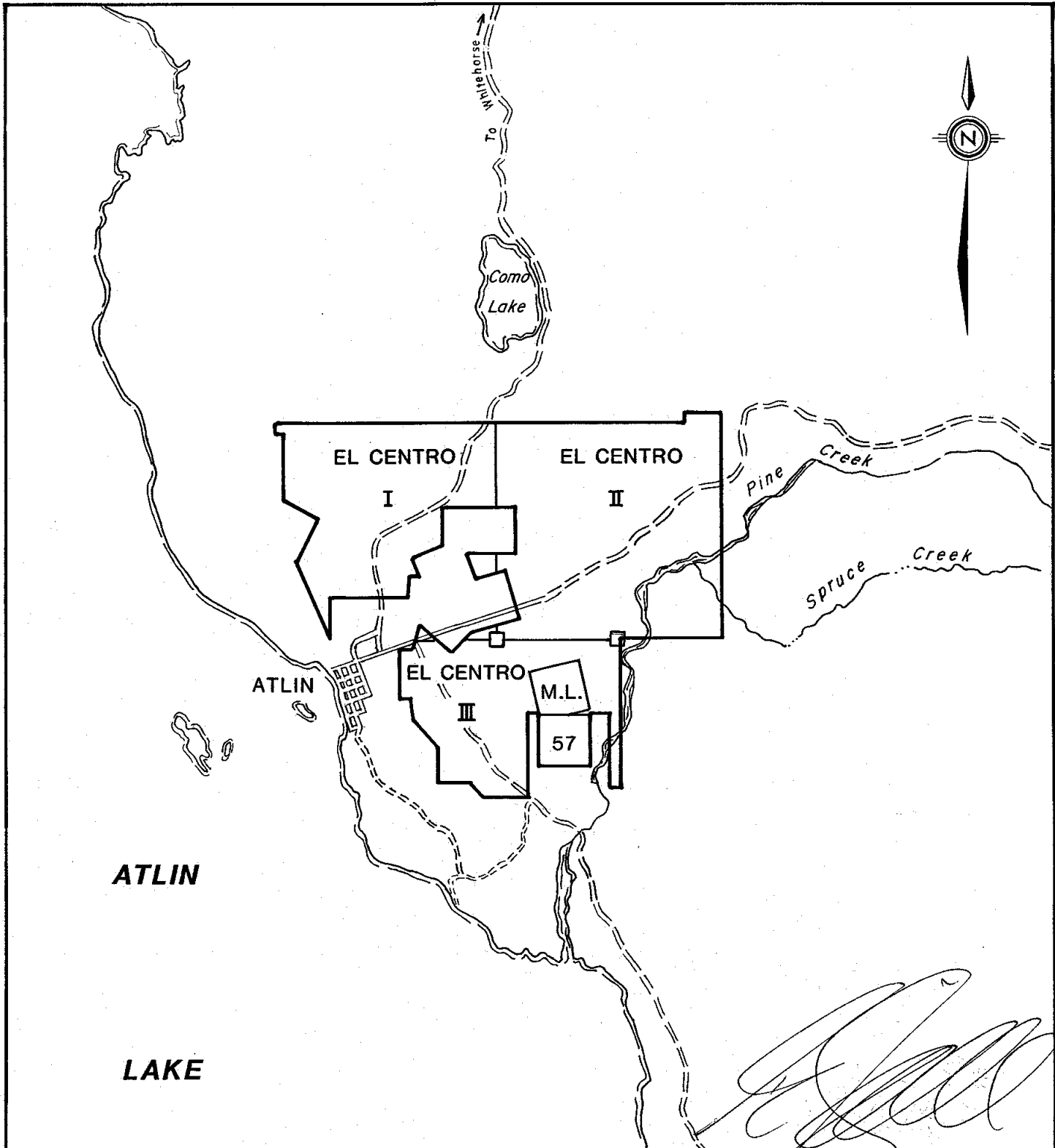
*[Handwritten signature]*

**INTERNOVA RESOURCES LTD.**  
**PICTOU PROPERTY**  
ATLIN MINING DIVISION, B. C.

**LOCATION MAP**

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DATE: NOVEMBER, 1991	SCALE: 1:8,000,000	FIGURE No. 1
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<b>INTERNOVA RESOURCES LTD.</b>		
<b>PICTOU PROPERTY</b>		
ATLIN MINING DIVISION, B. C.		
<b>CLAIM MAP</b>		
LIVGARD CONSULTANTS LTD.		
DATE: NOVEMBER, 1991	SCALE: 1: 50,000	FIGURE No. 2



Relevant claim data is listed below:

<u>Claim Name</u>	<u>Record</u>	<u>No. of Units</u>	<u>Rec. Date</u>	<u>Exp. Date</u>	
El Centro I	3675	16	07/Sep/89	07/Sep/92	(Pending acceptance of this assessment report)
El Centro II	3676	16	07/Sep/89	07/Sep/92	
El Centro III	3677	16	07/Sep/89	07/Sep/92	

None of the legal corner post locations have been verified by the writer.

The Pictou and Scarab Property consists of two contiguous reverted Crown Grants L5643 and L5644 both of which were located in 1933. Both claims were brought to lease in 1966 as Mining Lease 32. In 1987 the Lease was renewed by Homestake Mineral Development Co. Ltd. on behalf of the owner, Mrs. Shirley J. Connolly. Details of the property are outlined below:

<u>Claim Name</u>	<u>Record No.</u>	<u>Lot No.</u>	<u>Registered Owner</u>
Pictou	ML57	5643	Shirley J.
Scarab		5644	Connolly

The property is in good standing, pending payment of taxes until 2008.

The Mineral Lease is located within the Atlin Mining Division and comprise 101.8 acres.

On July 15, 1990 Internova Resources Ltd. entered into an agreement with Shirley Connolly. Internova has an option to purchase 100% in the property subject to a 2% net smelter return royalty.

### 3.2 Location and Access

The claims are located due east of the Town of Atlin, in northwestern B.C. They are within the Atlin Mining Division on Map Sheet 104N/12E and are centered at approximately 59° 34' N. Lat., 133° 40' W. Long. Access to the claims is excellent, the main road into Atlin traverses the El Centro I claim, there is a well-developed network of secondary roads on the property and the Atlin Airfield cuts across the claims. A full range of support services is available in Whitehorse, which is approximately two hours travel time away via the main road.

### 3.3 Topography, Climate and Vegetation

The Property lies in the Pine Creek Valley, which is relatively wide and flat. The property is in close proximity to where Pine Creek flows into Atlin Lake and, because of this, fluvial/flood plain sands and gravels cover much of the claim group. Less than 10% of the ground is rock outcrop.



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The area is in the rainshadow of the Coast Mountains and does not get the extreme amounts of snow and rain associated with that climatic zone. Temperatures are not as moderate as the coastal areas, therefore summers are relatively hot and winters can be very cold.

Local vegetation consists of a mixed uplands forest of poplar and spruce.

### 3.4 Exploration History

The Atlin Camp has been an active area of exploration since the initial Atlin gold rush of 1899. The hard rock exploration has located a number of gold deposits. The Yellow Jacket showing to the northeast sits in a geological setting similar to that at the Pictou-Scarab Mineral Lease. Some very spectacular gold showings and intersections have been obtained at and in the vicinity of the Yellow Jacket. A large amount of diamond drilling by Homestake in the last few years has encountered numerous gold intersections but these intersections are, however, very scattered. Most of the work on the property in question has been conducted on the Pictou-Scarab property.

Work on the Pictou property commenced sometime between the turn of the century and the 1920's, likely with general prospecting and definitely with the completion of an adit beneath the surface showing (McIvor, 1989).

Mineralization was first written up in 1931 by the Resident Mining Engineer, Mr. J.T. Mandy when he recorded "a zone of quartz veining and wallrock alteration over 20-60 feet". Rock samples from a quartz vein and from a rock dump in this zone had assays of 0.68-0.70 opt Au and 7.4-13.2 opt Ag.

The Pictou and Scarab Crown Granted claims were acquired by Mr. T. Connolly of Atlin in 1966 and subsequently brought to lease (Mining Lease No M32). The following year, Mr. Connolly sent a one tonne bulk sample to the Trail smelter, it assayed 0.295 opt Au, 8.0 opt Ag, 0.05% Cu, 0.2% Pb and 0.1% Zn. (McIvor, 1990).

This property was optioned by the Homestake Mineral Development Co. Ltd. in 1987 and they conducted an extensive exploration programme during 1987 and 1988. This work included soil/rock geochemical sampling, VLF-Magnetometer and IP surveys, trenching, detailed geologic mapping followed by both rotary and diamond drilling programmes (McIvor, 1989).

The geologic mapping found the predominant rock type to be altered ultramafic intrusives; the alteration includes serpentinization as well as a strong quartz-carbonate-mariposite ("listwanite") alteration. Feldspar prophyry dykes and andesites were noted in places (McIvor, 1989).

The geochemical sampling in 1987-88 yielded three soil anomalies. One of these surrounded the main showing.



The magnetic survey was useful in indicating differentiation between listwanites and serpentinites. No sulphides were detected and the VLF survey gave no useful results.

Trenching was conducted only over the "main zone" veins and there were several anomalous grab samples (up to 1.96 opt Au and 14.67 opt Ag); the best chip sample assay was 0.47 opt (14.3 g/T) Au over 2 metres (McIvor, 1989).

Seven rotary holes were drilled in 1987, five of which focused on the "main zone". These five holes were planned to test down-dip extensions of the mineralization and all five intersected "a sequence of intensely altered ultramafics underlain by equally altered andesitic volcanics" (McIvor, 1989). This drilling also determined that there is low-angle, westward-dipping contact between the ultramafics and the underlying andesites trending north northeast up the Pine Creek Valley. The 1990 soil sampling programme was designed to cross this trend. The survey gave scattered low values.

The rotary drilling on the "main zone" yielded only one "ore grade" intersection of 0.29 opt (8.8 g/T) Au over 1.5 metres. There were also several weakly anomalous sections, in the altered zone. The two rotary holes drilled to follow up other soil anomalies encountered altered but non-mineralized ultramafics (McIvor, 1989).

The 1988 diamond drilling programme consisted of two holes which were planned to further investigate the nature of the ultramafic/andesite contact at the main Pictou showing. Both holes encountered this contact but returned no anomalous assays (McIvor, 1989).

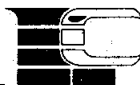
Subsequent to Homestake's work, the El Centro I-III claims were staked to partly surround the Pictou property. The claims and the Pictou property were then optioned by Internova Resources Ltd.

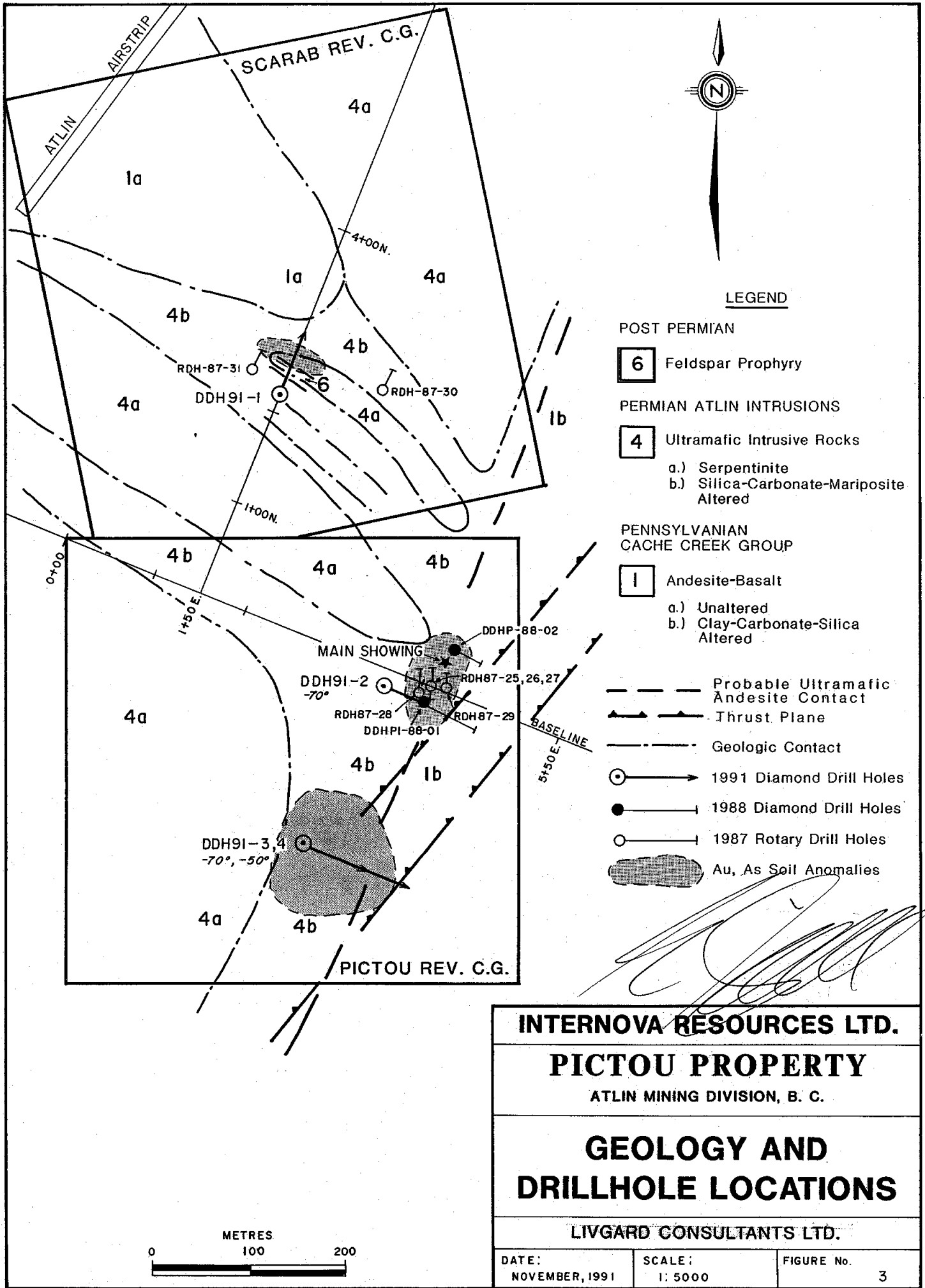
## 4.0 GEOLOGY

### 4.1 Regional Geology

The principal geologic province of the Atlin region is the Atlin Terrane. This is a northwest-trending package of Upper Paleozoic oceanic crustal rocks (Monger, 1975) which has been correlated with the Cache Creek Group of central and southern British Columbia.

This terrane is dominated by andesites and basalts which are intercalated with shallow water chemical sediments (limestone, dolomite, chert) and rare clastics. There are several Late Jurassic to early Tertiary granitic plutons intruding the package. Minor Tertiary volcanics and sediments occur in places (McIvor, 1988).





**LEGEND**

- POST PERMIAN**
- 6 Feldspar Propriety
- PERMIAN ATLIN INTRUSIONS**
- 4 Ultramafic Intrusive Rocks
    - a.) Serpentinite
    - b.) Silica-Carbonate-Mariposite Altered
- PENNSYLVANIAN CACHE CREEK GROUP**
- 1 Andesite-Basalt
    - a.) Unaltered
    - b.) Clay-Carbonate-Silica Altered
- Probable Ultramafic Andesite Contact  
 Thrust Plane  
 Geologic Contact  
 → 1991 Diamond Drill Holes  
 → 1988 Diamond Drill Holes  
 → 1987 Rotary Drill Holes  
 Au, As Soil Anomalies

**INTERNOVA RESOURCES LTD.**

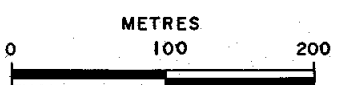
**PICTOU PROPERTY**

ATLIN MINING DIVISION, B. C.

**GEOLOGY AND DRILLHOLE LOCATIONS**

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DATE: NOVEMBER, 1991	SCALE: 1: 5000	FIGURE No. 3
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Also with the Atlin Terrane are several Permian ultramafic intrusives. These ultramafics are altered to either serpentinites or listwanites. Most of the lode gold occurrences in the Atlin Camp are associated with these listwanites, in close proximity to their contact with the Cache Creek Group rocks. Previous work has shown that extensive alteration occurs in both the ultramafics and underlying andesites, suggesting relatively extensive hydrothermal activity along these contacts (McIvor, 1988 & 1989, Ronning, 1987).

Gold-bearing mineralization occurs predominately in quartz and quartz-carbonate veins and vein stockworks associated with the hydrothermal alteration and consist of either free gold or gold in conjunction with pyrite, galena, sphalerite, tetrahedrite, arsenopyrite, chalcopyrite or pyrargyrite (McIvor, 1989).

#### 4.2 Property Geology

The Pictou-Scarab Mineral Lease 57 and the El Centro I, II and III claims are located in the ultramafic rocks of the Atlin Terrane.

A zone of listwanite alteration lies near the east border of the Mineral Lease. The altered zone has a long dimension of several kilometres and the width is from 100 to more than 200 metres. The strike appears to be  $020^{\circ}$  and the dip is about  $54^{\circ}$  to the west. The approximate centre of the zone is a contact between the ultramafics to the west (hanging wall) and andesitic volcanics to the east. It has been suggested that the contact is a thrust fault. The writer noted only minor indication of faulting such as fault gouge and slickensides at and near the contact. The possible fault indications may however, have been largely obliterated by listwanite alteration. The writer suggests however, that the thrust sheet(s) lie(s) below the contact and are independent of the contact with different strike(s) and dip(s). The listwanite alteration consists of serpentine-serpentine and carbonate (including brucite) - carbonate, silica-carbonate and silica and marposite/fuchsite in order of increasing intensity.

There appears to be a series of silicification events as follows:

Grey silica, very fine grained at times pervasive without pyrite - brecciation - white vuggy quartz with fine crystals and minor pyrite and grey quartz veins - brecciation and/or fracturing - glassy quartz stringers (may belong to the previous event) chalcedonic and (later?) light blue opaline silica.

The carbonate is invariably cream coloured fine grained, and at times it has a green cast probably from serpentine and at other times a brown cast probably from sericite. Most of the time the carbonate has flecks of marposite/fuchsite.



The only sulphides identified in the drill core was pyrite which occurs with the middle silicification event, pyrphotite and minor chalcopyrite which is found disseminated and in streaks with the andesite and in addition near surface in drill holes #3 and #4 marchasite and (doubtfully) cinnabar was identified (200m south of the Pictou showing).

The Pictou showing has given occasional high gold and silver values in blue quartz which may contain minor galena, sphalerite, arsenopyrite, chalcopyrite and a silver bearing sulphide. These minerals were not identified in the drill core other than minor chalcopyrite noted in serpentinized andesite.

The deposits and alterations are either - "CO<sub>2</sub>-Ca metasomatism of serpentinized ultramafics by mesothermal fluids" (ore deposits, tectonics and metallogeny in the Canadian Corillera - MDRU 1991). "- with an epithermal overprint -" (The Geology of the Atlin area. Mary Anne Bloodgood & Kim A. Belle Bontain) or "- is derived from serpentine by hydrothermal alteration and is composed principally of silica (quartz, chalcedony, opal) and magnesite. Often the alteration occurs adjacent to shear zones and is closely associated with thermal springs ---. Cinnabar is the only ore mineral associated with this type of deposit. It is accompanied by native mercury metacinnebar, pyrite, stibnite and marcasite. (Hydrothermal alteration for mineral workshop. University of Idaho. 1991 Peter L. Siewis).

There appears to be some difficulty in classifying the Pictou deposit.

In any case increased gold-silver grades if they are to occur should be located at higher temperatures, in thrust horsts at depth. Perhaps a continuation of the Pictou showing may be found in the horst to the east (under laying) at an unknown depth below the showing. A large number of dykes were intersected in the drilling. Most of these are feldspar prophyry dykes with a very fine grained grey groundmass and white feldspar phenocryst with blurred outlines. Strong silicification of the wall rock is associated with these dykes. Other dykes are diabase which occasionally are strongly altered and minor lamprohyre dykes.

## 5.0 DIAMOND DRILL PROGRAM

Four drill sites were prepared by Connolly Enterprises Ltd. using a large D6 bulldozer. Only about 200m additional road was required to access the drill sites. Most of this work was completed between the first and 6th of September 1991.

The diamond drillers, E. Caron Diamond Drilling Ltd., Whitehorse, moved in on September the 5th and commenced drilling on the 6th of September. The drill used was a B.B. 38 and the core size drilled was NQ 4.76 cm diameter. Four holes were drilled as follows:

Hole #	Collar Location*	Azimuth	Dip	Depth
91 #1	1+5E, 2+10N	020°	-50°	122.5m
91 #2	3+60E, 0+18S	110°	-70°	147.9m
91 #3	3+45E, 2+00S	110°	-70°	93.0m
91 #4	3+45E, 2+00S	110°	-50°	117.4m



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- \* The drill holes were located using the grid emplacement by Homestake in 1987 for use in their geophysical surveying.

The total footage drilled was 480.8 metres. The core was taken in to Atlin where the writer logged it and sampled sections of interest. Very low values were encountered. The best analysis was obtained in hole 91#2 near the main showing near the bottom of the hole (137.2m to 138.2m - possible thrust plane). One metre here gave 17.0 PPM (grams per tonne) in silver and 314 PPb (0.314 grams per tonne) in gold.

Hole 91#1 was drilled to cut across an area where Homestake had mapped alteration and obtained anomalous values in arsenic and gold.

The hole intersected altered andesite and altered ultramafic rocks (listwainite). These rocks were cut by some 15 dykes, mainly feldspar prophyry in the space of the 122 metre depth of the hole. Very strong silicification of the wall rock accompanied the feldspar prophyry dykes. Little sulphides were noted. Minor pyrite occurred throughout. Minor pyrphyotite and chalcopyrite was noted in the altered andesite.

Hole 91#2 was drilled to cut part of the main surface showing below Homestake 1988 diamond drill hole 01.

The hole intersected much alteration and silicification below the main showing at vertical depths of about 60 to 100 metres. The gold and silver values were uniformly low. The highest gold value was 49 parts per billion, and no silver value was over 1/10 part per million. The andesite-ultramafic contact was intersected at somewhere between 65m and 71 metre. The contact was also identified in hole 88.01 (Homestake core logs) at a depth of about 28 metres. This give a 54° westerly dip to the ultramafic-andesite contact assuming a 020° (Azim) strike of the contact as interpreted by geological surface mapping (Homestake, 1988).

Holes 91#3 and #4 are located 200 metres south of the main Pictou surface showing. The holes were drilled at 110° (azim) hole #3 dipping at 70° and hole #4 dipping at 50°. The holes were drilled to cut through a large gold-arsenic soil and rock chip anomaly outlined by Homestake (1988). The holes cut very extensive and intensive listwainite alteration both in the ultramafic and the underlying andesite. The contact is the same as that identified in holes near the main showing.

Gold and silver values were uniformly low. The highest gold value, 254 PPb, was obtained in a grey-black quartz vein (possible thrust plane).



## 6.0 INTERPRETATION

At a depth of 137 to 138 metres in hole 91#2 the values were 314 PPb gold and 17 PPM silver. The writer in logging this zone designated it "quartz vein" and described it as white, grey and black quartz cutting the core axis at 60°.

On constructing drill hole sections it was noted that several of these "black quartz" zone line up. Features such as (sub rounded) fragments in the "black quartz" suggest that these zones may be mylonized, silicified thrust sheets.

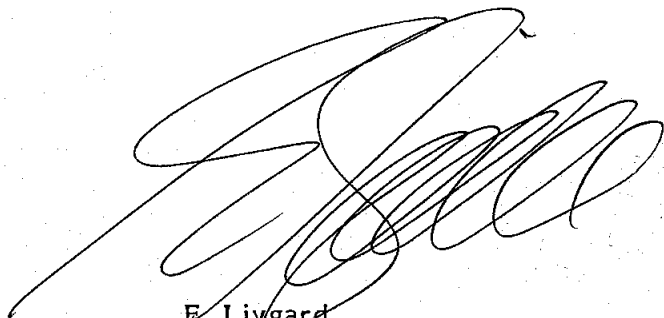
A possible thrust zone at 137-138m in hole 91#2 lying at 60° to the core axis corresponds to a zone in Homestake hole 88-01 from 88 to 90.6 metres which is described as brecciated graphic chert and foliation 60° to core axis.

Another possible thrust zone may lie at 98.5 - 99.2m in hole 91#2 and correspond to a zone described as graphitic chert in Homestake hole 88-01 or alternatively curve (convex upward) to intersect hole 88-01 at the andesite-ultramafic contact (28m).

In hole 91#3 possible thrust zones may lie at 36m and 90m and correspond to zones at 34m and 83-87m in hole 90#4.

The thrust zone intersections were projected to surface but will give an uncertain location due to the unknown curvature of the zones. From this surface projection it appears that the strike of the possible thrust zones is about 040° (azim) and dip 40° to 50° and maybe up to 70° northwesterly.

If this is correct the geology of the Pictou area may be much more complex than previously realized.



E. Livgard  
Livgard Consultants Ltd.  
Vancouver, B.C.

November 26, 1991





## 7.0 BIBLIOGRAPHY

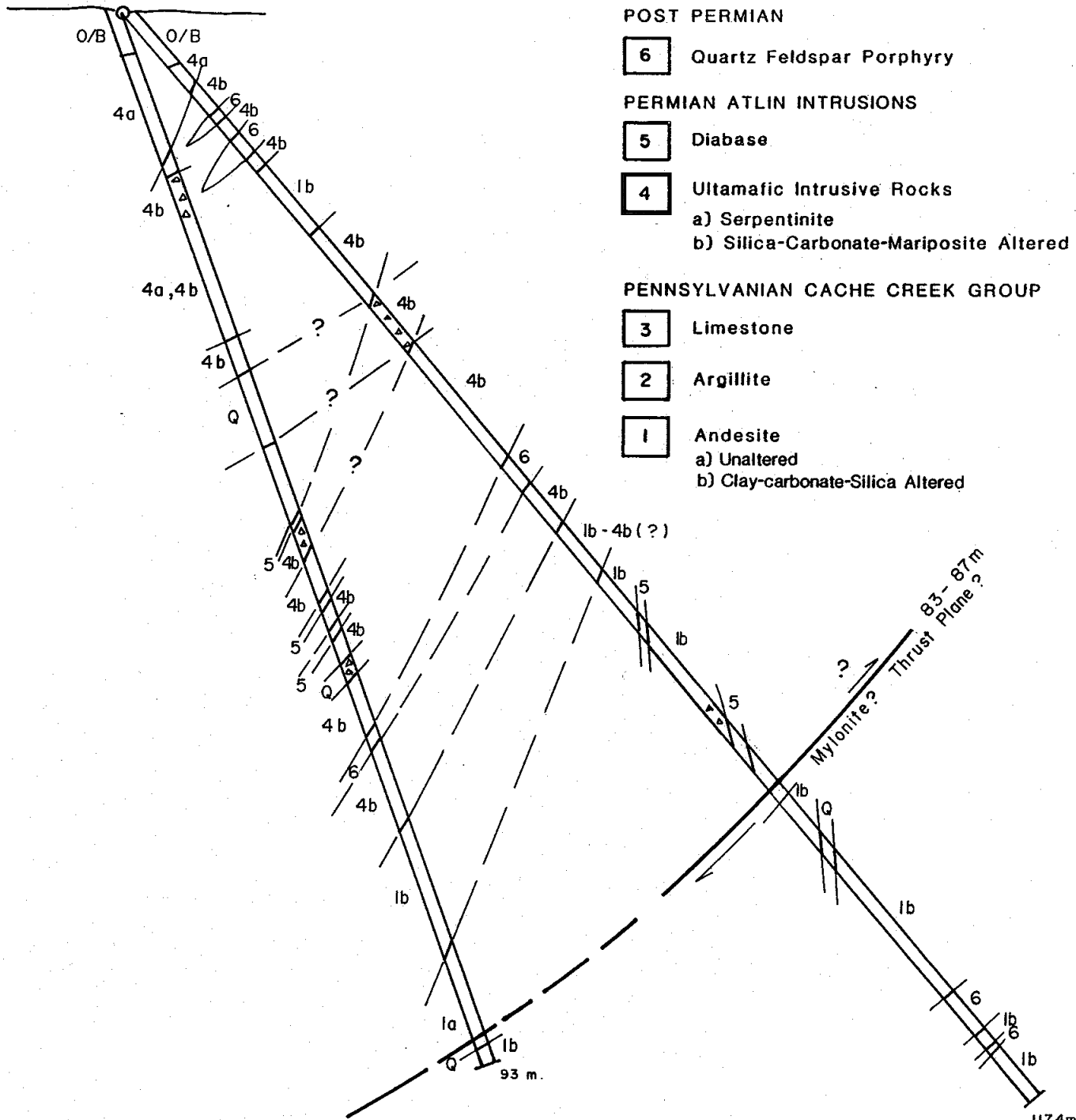
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DDH91#3      DDH 91#4  
 -70° Az 110°      -50° Az 110°

**LEGEND**

- Q Quartz
- POST PERMIAN**
- 6 Quartz Feldspar Porphyry
- PERMIAN ATLIN INTRUSIONS**
- 5 Diabase
- 4 Ultramafic Intrusive Rocks
  - a) Serpentinite
  - b) Silica-Carbonate-Mariposite Altered
- PENNSYLVANIAN CACHE CREEK GROUP**
- 3 Limestone
- 2 Argillite
- 1 Andesite
  - a) Unaltered
  - b) Clay-carbonate-Silica Altered



**INTERNOVA RESOURCES LTD.**

**PICTOU PROPERTY**

ATLIN MINING DIVISION, B. C.

**DRILL SECTIONS**

**DDH 91#3 & DDH 91#4**

LIVGARD CONSULTANTS LTD.

DATE:  
NOVEMBER, 1991

SCALE:  
1:500

FIGURE No.  
6

**SYMBOLS**

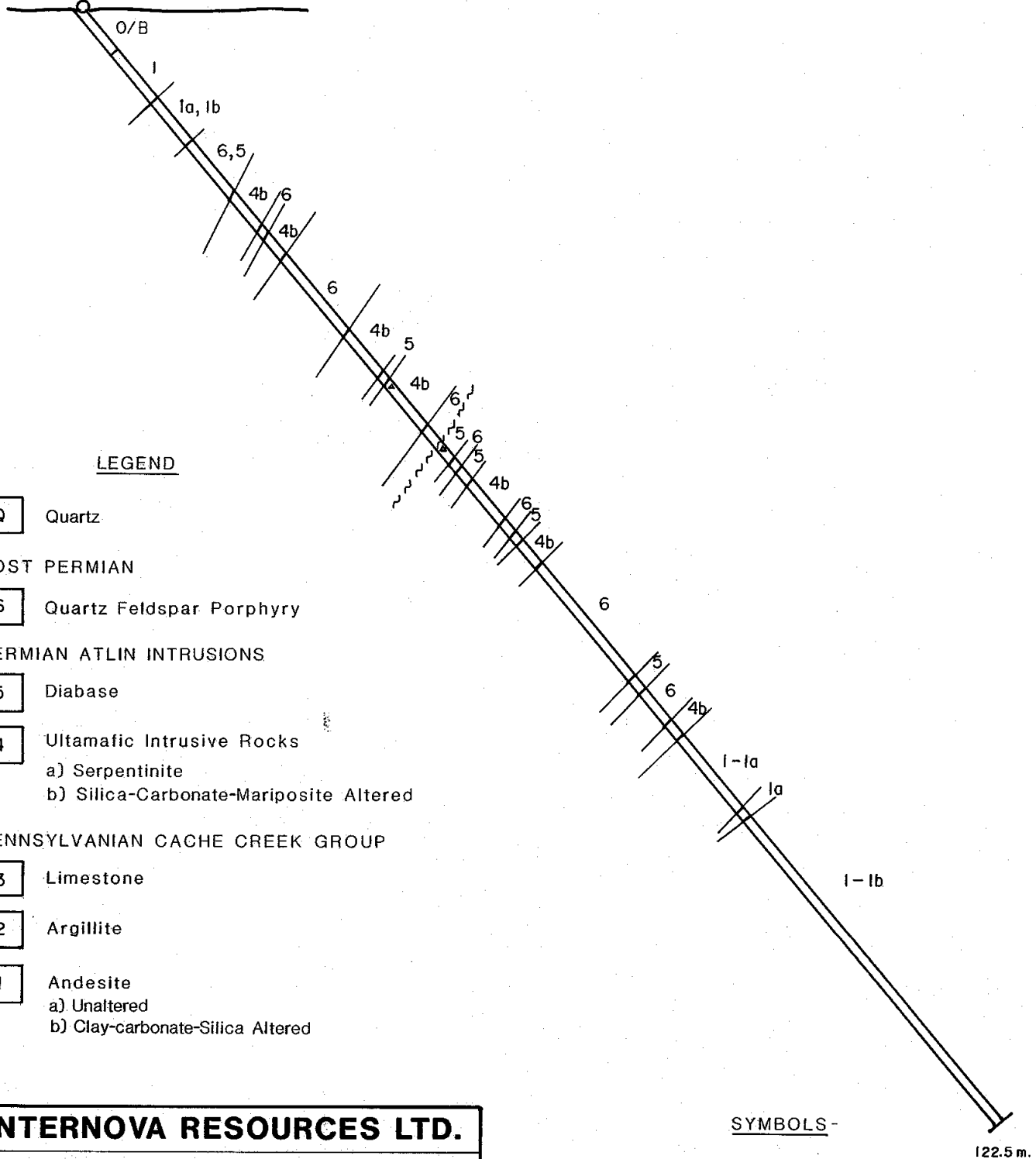
- ~~~~~ Fault
- ▲▲ Breccia
- == Contact
- ==> Interpreted Thrust Plane



*[Handwritten signature]*

DDH91 #1

-50° Az. 020



LEGEND

- Q Quartz
- POST PERMIAN
- 6 Quartz Feldspar Porphyry
- PERMIAN ATLIN INTRUSIONS
- 5 Diabase
- 4 Ultramafic Intrusive Rocks
  - a) Serpentinite
  - b) Silica-Carbonate-Mariposite Altered
- PENNSYLVANIAN CACHE CREEK GROUP
- 3 Limestone
- 2 Argillite
- 1 Andesite
  - a) Unaltered
  - b) Clay-carbonate-Silica Altered

**INTERNOVA RESOURCES LTD.**

**PICTOU PROPERTY**

ATLIN MINING DIVISION, B. C.

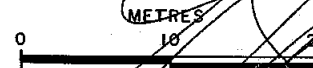
**DRILL SECTION**

**DDH 91#1**

LIVGARD CONSULTANTS LTD.

SYMBOLS-

- ~~~~~ Fault
- △△ Breccia
- == Contact
- ==> Interpreted Thrust Plane

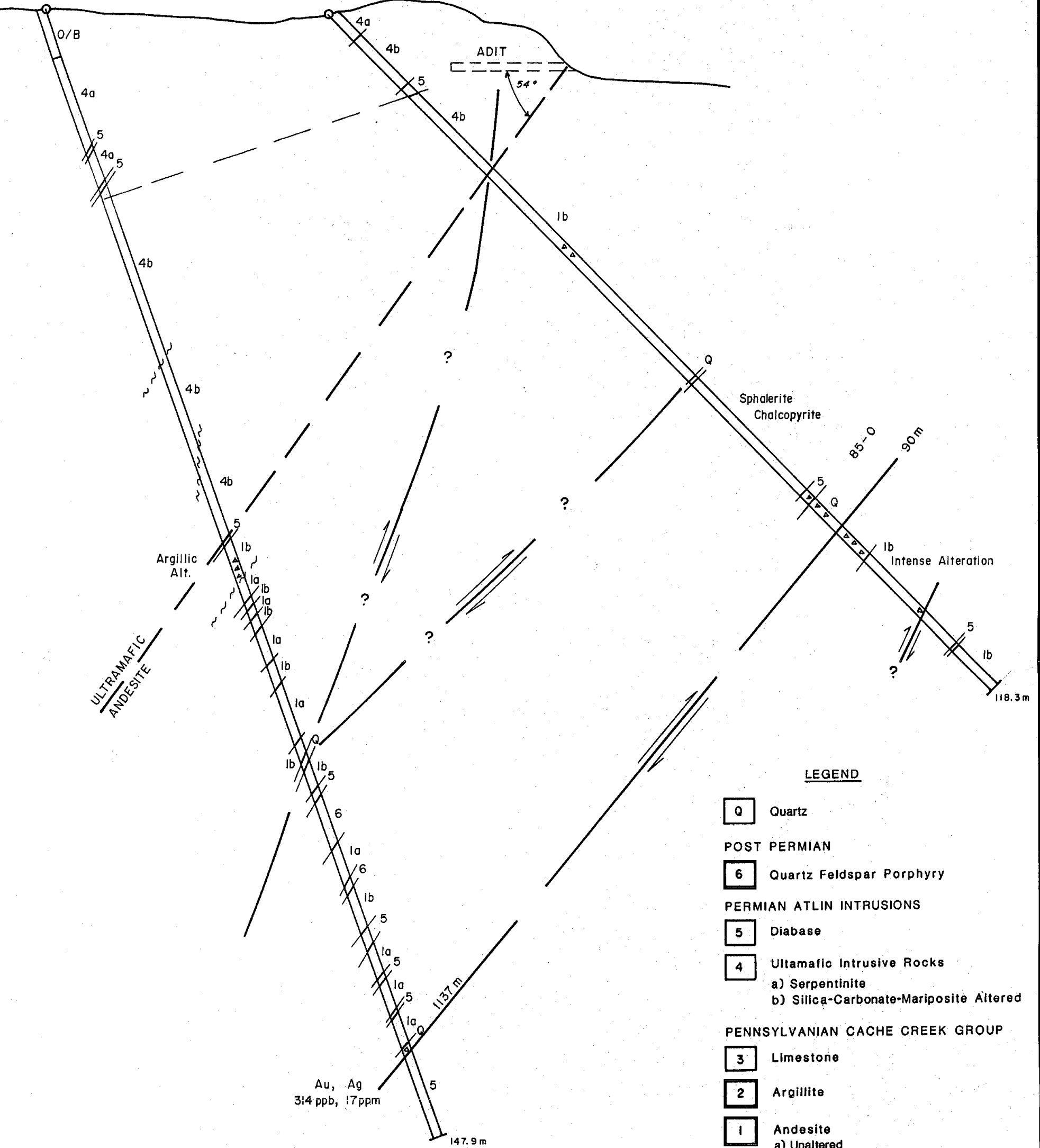


122.5 m.

DATE: NOVEMBER, 1991	SCALE: 1: 500	FIGURE No. 4
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DDH 91#2  
-70° Az 110°

DDH PI 88-01  
-50° Az 110° MAIN SHOWING



**LEGEND**

- Q** Quartz
- POST PERMIAN**
- 6** Quartz Feldspar Porphyry
- PERMIAN ATLIN INTRUSIONS**
- 5** Diabase
- 4** Ultramafic Intrusive Rocks
  - a) Serpentinite
  - b) Silica-Carbonate-Mariposite Altered
- PENNSYLVANIAN CACHE CREEK GROUP**
- 3** Limestone
- 2** Argillite
- 1** Andesite
  - a) Unaltered
  - b) Clay-carbonate-Silica Altered

**SYMBOLS**

- ~~~~~ Fault
- ▲▲ Breccia
- ==== Contact
- ==== Interpreted Thrust Plane



*[Signature]*

<b>INTERNOVA RESOURCES LTD.</b>		
<b>PICTOU PROPERTY</b>		
ATLIN MINING DIVISION, B. C.		
<b>DRILL SECTIONS</b>		
<b>DDH 91#2 &amp; DDH PI 88-01</b>		
LIVGARD CONSULTANTS LTD.		
DATE: NOVEMBER, 1991	SCALE: 1:500	FIGURE No. 5

September 18, 1991

Work Order # 13402

Egil Livgard  
 Internova  
 Suite 438 - 470 Granville St.  
 Vancouver, B.C.

Assay Certificate For Samples Provided

Sample #	Au ppb	Ag ppm		
9615	289	<0.1	D.D.H	9/1# 3 72.3-75.8m
9616	24	<0.1	"	73.8-76.8m
9617	12	<0.1	"	76.8-79.8m
9618	11	<0.1	"	79.8-82.3m

Certified by Chyoki



September 11, 1991

Work Order # 13380

Inter Nova.  
Livgard Consultants  
Suite 436 - 470 Granville St.  
Vancouver, Yukon

Assay Certificate For Samples Provided

Sample #	Au ppb	Ag ppm	
49261	>6000*	1658.0*	SELECTED SAMPLE MAIN SHOWING
49262	244	18.1	QUARTZ-PYRITE FROM SURFACE AT HOLE 90#1

\*Recommend fire assay gravimetric

Certified by Chyokki



September 18, 1991

Work Order # 13400

Egil Livgard  
Internova  
Suite 438 - 750 Granville St.  
Vancouver, B.C.

Assay Certificate For Samples Provided

Sample #	Au ppb	Ag ppm		
49263	25	0.9	D.P.H # 90 #1	10.7 - 11.4 m
49264	11	1.0	"	19.8 - 20.9 m
49265	21	1.1	"	50.2 - 50.9 m
49266	12	1.0	"	79.2 - 80.0 m
49267	5	0.7	"	86.0 - 87.7 m
49268	10	0.4	"	88.6 - 90.3 m
49269	11	0.5	"	101.8 - 103.4 m
49270	7	0.4	"	106.4 - 108.7 m
49271	6	0.3	"	112.5 - 113.7 m
49272	9	0.9	91 #4	9.8 - 11.1 m
49273	16	0.8	"	11.1 - 12.5 m
49274	<5	0.9	"	12.5 - 14.3 m
49275	5	0.9	"	30.3 - 31.9 m
49276	8	4.1	"	31.9 - 33.2 m
49277	32	3.2	"	33.2 - 36.0 m
49278	7	0.9	"	50.8 - 52.7 m
49279	254	1.2	"	52.7 - 54.4 m
49280	7	0.9	"	54.4 - 56.9 m
49281	32	0.7	"	56.9 - 57.4 m
49282	16	1.1	"	57.4 - 58.5 m
49283	51	1.1	"	58.5 - 60.4 m
49284	10	0.7	"	65.7 - 66.3 m
49285	16	0.9	"	74.2 - 77.1 m
49286	12	0.9	"	85.4 - 87.2 m
49287	52	1.2	"	87.8 - 89.3 m

Certified by Chyokki

September 18, 1991

Work Order # 13400

Egil Livgard  
 Internova  
 Suite 438 - 750 Granville St.  
 Vancouver, B.C.

Assay Certificate For Samples Provided

Sample #	Au ppb	Ag ppm		
49288	33	0.9	D.D.# 91#4	89.3 - 91.5 m
49289	44	1.1	"	92.2 - 94.4 m
49290	24	1.0	"	102.1 - 104.3 m
49291	10	0.7	"	104.3 - 105.8 m
49292	11	0.8	" 91#3	14.6 - 17.1 m
49293	23	0.3	"	17.1 - 18.6 m
49294	19	0.7	"	18.6 - 19.8 m
49295	22	1.0	"	32.0 - 35.1 m
49296	148	6.6	"	46.6 - 48.0 m
49297	43	1.7	"	57.0 - 58.7 m
49298	109	6.4	"	58.7 - 60.7 m
49299	53	2.3	"	60.7 - 62.3 m

Certified by Cityolki





September 26, 1991

Work Order # 13428

 Internova Resources  
 436 - 470 Granville St.  
 Vancouver, B.C.  
 V6C 1V5

## Assay Certificate For Samples Provided

Sample #	Au ppb	Ag ppm		
9619	<5	<0.1	D.D.H #91 #2	215 - 222
9620	49	<0.1	"	222 - 226
9621	39	<0.1		226 - 233
9622	<5	<0.1		234 - 244
9623	<5	<0.1		244 - 246
9624	<5	<0.1		246 - 252
9625	11	<0.1		265 - 272
9626	10	<0.1		285 - 294 1/2
9627	35	<0.1		303 1/2 - 313 1/2
9628	9	<0.1		313 1/2 - 320
9629	314	17.0		450 - 453

 Certified by Chyoki






DRILL HOLE No. 91#1

INTERNOVA RESOURCES LTD.

DIAMOND DRILL HOLE LOG.

PAGE 3 OF 7 LOGGED BY \_\_\_\_\_

COLLAR LOCATION \_\_\_\_\_ AZIMUTH \_\_\_\_\_ DIP \_\_\_\_\_ ELEVATION \_\_\_\_\_ DEPTH \_\_\_\_\_ CORE SIZE \_\_\_\_\_

FROM	TO	DESCRIPTION	SAMPLE No.	FROM	TO	WIDTH	Ag oz/t	Pb %	Zn %
22.9	24.4	ALTERED ULTRABASIC (AS ABOVE) MINOR MARIPOSITE MINOR SEALED FRACTURES 30° TO CORE CONTACT AT 60°							
24.4	25.2	Dyke (AS ABOVE)							
25.2	27.4	ALTERED ULTRABASIC - CARBONATE, 30% QUARTZ WHITE WITH VUGS, 10-15% MARIPOSITE. 25.2-25.7 SHEARING 55° TO CORE MINOR PYRITE 25.7-27.4 INCREASING SILICIFICATION - QUARTZ VEINS, 1mm WITH BORDERING PYRITE - CRISS-CROSSING 25 TO 55° TO CORE 1-2% PYRITE.							
27.4	35.5	Dyke 27.4-28.5 VERY FINE GRAINED, FRACTURED AND BRECCIATED THIGHTLY SEALED MINOR FINE QUARTZ PHENOCRYSTS 28.7-35.5 MUCH FELDSPAR PHENOCRYSTS UP TO 5mm SIZE BLOTCHY GREY FAINT GREENISH CORE WITH 1/4% DISSEMINATED PYRITE. FRACTURING EVERY 2-30cm 30° TO CORE SEALED WITH CARBONATE AND QUARTZ AND SLIVERS OF PYRITE. CONTACT 75° TO CORE							
35.5	40.4	ALTERED ULTRABASIC 60% CARBONATE 40% SERPENTINE, MINOR QUARTZ, NO MARIPOSITE TO 30m 38.1-42.7 10% MARIPOSITE, WEAK STRATIFICATION 40° TO CORE 38.7-40.4 INCREASING MARIPOSITE TO 20%, A FEW STREAKS OF QUARTZ-CARBONATE STAINED WITH HEMATITE 60-70° TO CORE							

DRILL HOLE No. 91 #1

INTERNOVA RESOURCES LTD.

DIAMOND DRILL HOLE LOG.

PAGE 4 OF 7 LOGGED BY \_\_\_\_\_

COLLAR LOCATION \_\_\_\_\_ AZIMUTH \_\_\_\_\_ DIP \_\_\_\_\_ ELEVATION \_\_\_\_\_ DEPTH \_\_\_\_\_ CORE SIZE \_\_\_\_\_

FROM	TO	DESCRIPTION	SAMPLE No.	FROM	TO	WIDTH	Ag oz/t	Pb%	Zn%
		AT 39.6 GREY QUARTZ WITH PYRITE AND HEMATITE STAIN 70% CORE - OFFSET 2-3cm BY 2-3cm WHITE AND GLASSY QUARTZ STRINGERS WITH CAVITIES AND OXIDE 25% TO CORE.							
40.4	41.2	AT 40.0 BRECCIA (4cm) WITH SILICA CEMENT CONTACT 30° TO CORE DYKE - BLOTCHY GREY, LIGHT GREEN, DARK GREEN VERY FINE GRAINED DIABASE(?) LAST 30cm BLEACHED							
41.2	44.8	AT 41.2 10cm GONGE ALTERED ULTRABASIC - CARBONATE HIGHLY SILICIFIED, 15% MARIPOSITE, PARTLY BRECCIATED							
		41.4-42.4 STRONGLY BRECCIATED WITH GREY SILICA CEMENT 43-44.8 AS ABOVE WITH BUDE STRATIFICATION 35° TO CORE. AT 43.9 2cm QUARTZ-CARBONATE STRINGER CROSSING STRATIFICATION 25° TO CORE							
44.8	45.6	ALTERED ULTRABASIC - INCREASING TO TOTAL SILICIFICATION, - LIGHT GREY WITH MINOR PYRITE THEN LIGHT BLUE (CALLEDONIC) OPALINE FOLLOWED BY PART BRECCIATION AND CRISS-CROSSING WHITE, MUGGY, BARREN QUARTZ.							
45.6	47.3	DYKE - LIGHT GREY DENSE WITH WHITE FELDSPAR PHENOCRYSTS - HAIRLINE QUARTZ EVERY FEW CM AT 55° TO CORE.							
47.3	49.9	BRECCIA - CARBONATE, MARIPOSITE, DYKE FRAGMENTS SOME SILICIFICATION, FRACTURES 55° TO CORE							



DRILL HOLE No. 91 #1

INTERNOVA RESOURCES LTD.

DIAMOND DRILL HOLE LOG.

PAGE 6 OF 7 LOGGED BY \_\_\_\_\_

COLLAR LOCATION \_\_\_\_\_ AZIMUTH \_\_\_\_\_ DIP \_\_\_\_\_ ELEVATION \_\_\_\_\_ DEPTH \_\_\_\_\_ CORE SIZE \_\_\_\_\_

FROM	TO	DESCRIPTION	SAMPLE No.	FROM	TO	WIDTH	Ag <sup>PPM</sup> <del>g/t</del>	Pb%	Zn%	As <sup>PPb</sup>
61.3	73.8	Dyke - LIGHT GREY, CRYPTOCRYSTALLINE MUCH FELDSPAR PHENOCRYSTS, MINOR FRACTURING 25° TO CORE.								
73.8	75.0	At 68.0 MINOR BRECCIATION Lamprophyre Dyke - VERY FINE GRAINED GREY, SLIGHTLY REDDISH - 5% 1-2mm BLACK PHENOCRYSTS								
75.0	78.4	Dyke - FELDSPAR PORPHYRY - AS ABOVE								
78.4	80.0	AT LOWER CONTACT 5cm QUARTZ VEIN 85° TO CORE ALTERED ULTRABASIC - MAINLY CARBONATE, 3% MARIPOSITE, SILICIFICATION NEAR CONTACTS FIRST 30cm HAS 5% PYRITE								
80.0	87.7	79.2-80.0 FRAGMENTED CORE TO 5cm FRAGMENTS ALTERED ULTRABASIC WITH CARBONATE AND MARIPOSITE AND DYKE OF VERY FINE GRAINED, CREAM, REDDISH FRAGMENTS! <u>ANDESITE</u> - VERY FINE GRAINED DARK GREENISH GREY - OCCASIONAL DARKER ROUNDED INDISTINCT PATCHES, OCCASIONAL LIGHT CARBONATE ALTERATION - SILICIFICATION THROUGHOUT. 83.1-83.6 FRACTURING EVERY 5-10cm 55° TO CORE - CARBONATE 83.9-84.2 CORE FRAGMENTED AT 80.7 QUARTZ STRINGER 2-30mm 25° TO CORE, 2mm CARBONATE ALTERATION OF WALL ROCK. AT 86.9 FRACT 20° TO CORE WITH GROVES 37° TO CORE 86.0-87.2 FRACTURES 30° TO CORE SEALED WITH PYRRHOTITE AND PYRITE FRACTURES 5-100 AND 45° TO CORE COATED WITH PYRITE AND OCCASIONALLY CHALCOPYRITE 1/2-1mm SEALED AND OPEN FRACTURE 87.2-87.7 NO CHALCO - PYRITE AND PYRRHOTITE IN SEALED AND OPEN FRACTURE	49266	79.2	80.0	0.8m	1.0			12
			49267	86.0	87.7	1.7m	0.7			5

DRILL HOLE No. 91#1

INTERNOVA RESOURCES LTD.

DIAMOND DRILL HOLE LOG.

PAGE 7 OF 7 LOGGED BY \_\_\_\_\_

COLLAR LOCATION \_\_\_\_\_ AZIMUTH \_\_\_\_\_ DIP \_\_\_\_\_ ELEVATION \_\_\_\_\_ DEPTH \_\_\_\_\_ CORE SIZE \_\_\_\_\_

FROM	TO	DESCRIPTION	SAMPLE No.	FROM	TO	WIDTH	Ag <sup>PPM</sup> <del>oz/t</del>	Pb%	Zn%	Au <sup>PPb</sup>
87.7	87.9	STRONG SILICIFICATION - SOME CARBONATE AND SERPENTINIZATION ON AND NEAR FRACTURES.								
87.9	88.4	Dyke - MAINLY MAFIC - SOME ALTERED FELDSPAR. ANDESITE - HIGHLY SILICIFIED, MINOR PYRITE AND PYRRHOTITE FINELY DISSEMINATED AND ON SEALED FRACTURES.								
88.4	88.6	Dyke - AS ABOVE	49268	88.6	90.3	1.7m	0.4			10
88.4	122.5	ANDESITE - LIGHTER AND DARKER GREEN PATCHES. LIGHTER PATCHES ARE PARTIAL CARBONATE? ROCK EXTREMELY DISTURBED	49269	101.8	103.4	1.6m	0.5			11
		STRONG SILICIFICATION	49270	106.4	108.7	2.3m	0.4			7
		IRREGULAR DARK STREAKS WITH PYRITE AND PYRRHOTITE - 0.5 TO 1.0% THROUGHOUT	49271	112.5	113.7	1.2m	0.3			6
		EXTREMELY THOUGH - MINOR PYRITE, PYRRHOTITE								
88.6-89.6		SOFT								
89.6-89.8		AT 94.5								
		10cm BRECCIA (HOMOLITHIC) 1/2cm QUARTZ STRINGERS TO CORE								
101.8-103.4		1 1/2% PYRITE, PYRRHOTITE								
AT 100.6		FRACTURING 35% CORE 1/2cm QUARTZ WITH PYRITE AND PYRRHOTITE, MINOR CHALCOOPYRITE SERPENTINE AND TAIL OF FRACTURES.								

END



DRILL HOLE No. 91 # 2

INTERNOVA RESOURCES LTD.

PAGE 1 OF 8 LOGGED BY E. LINGARD

PICOU (MST)

DIAMOND DRILL HOLE LOG.

COLLAR LOCATION 3460E 0+18S HOME STAKE'S 1988 GEOPHYSICS GRID AZIMUTH 110° DIP -70° ELEVATION \_\_\_\_\_ DEPTH 147.9 m CORE SIZE NQ

FROM	TO	DESCRIPTION	SAMPLE No.	FROM	TO	WIDTH	Ag oz/t	Pb%	Zn%
0	5.8	OVERBURDEN							
5.8	7.9	ULTRABASICS - SERPENTINIZED (50%), PARTLY OXIDIZED							
7.9	19.8	ULTRABASICS - SERPENTINIZED (80%) MINOR CARBONATE STRINGERS MINOR BRECCIATION AT IRREGULAR INTERVALS AT 17.7 8cm (MUD) GOUGE AND SMALL FRAGMENTS 20cm OF 60% QUART-CARBONATE 60° TO CORE							
19.8	20.3	AT 19.5 MINOR DYKE GREY, BROWN AND BLACK FLECKS, ALSO FRACTURED, SERPENTINIZED ULTRABASIC HAS 3-4 SPECKS OF MAGNETITE WITH CHALCOOPYRITE CENTERED. FRACTURE SURFACES COATED WITH RED-NOT HEMATITE COLOUR POSSIBLY GROUND UP IMPURE CINNABAR. - MINOR MARIPOSITE OF FRACTURES.							
20.3	24.4	DYKE IN FINE GRAINED GREEN WITH BLACK FLECKS (DIABASE)							
24.4	25.0	ULTRABASIC - SERPENTINIZED, GRADUALLY INCREASING CARBONATE TO 40%							
25.0	28.7	DYKE AS ABOVE AT 25.0 CONTACT 55 TO 60° TO CORE - MINOR MOVEMENT							
28.7	29.1	ULTRABASIC - ALTERED, 20% SERPENTINE, 20% BLACK REMNANTS (HORNBLende?) 60% CARBONATE SAME MARIPOSITE TOWARD THE END							
29.1	33.4	SILICIFICATION, VERY VERY FINE GRAINED (CRYPTOCRYSTALLINE) GREY SILICA CUT BY WHITE QUARTZ WITH MINOR MARIPOSITE (CONTACT 40° TO CORE) Dyke - CREAM TO BROWN GROUND MASS WITH WHITE SLIGHT GREENISH (ALTERED) FELDSPAR PHANOCRYSTS TO 5mm SIZE.							

DRILL HOLE No. 91#2

INTERNOVA RESOURCES LTD.

DIAMOND DRILL HOLE LOG.

PAGE 2 OF 8 LOGGED BY \_\_\_\_\_

COLLAR LOCATION \_\_\_\_\_ AZIMUTH \_\_\_\_\_ DIP \_\_\_\_\_ ELEVATION \_\_\_\_\_ DEPTH \_\_\_\_\_ CORE SIZE \_\_\_\_\_

FROM	TO	DESCRIPTION	SAMPLE No.	FROM	TO	WIDTH	Ag oz/t	Pb %	Zn %
33.4	33.7	SILICIFICATION - BRECCIATED CRYSTALINE SILICA SEALED WITH WHITE QUARTZ.							
33.7	36.3	ULTRABASIC-ALTERED, 10% SERPENTINE AND 5% BLACK REMENANTS, 5% MARIPOSITE, 10% CARBONATE, 70% SILICA - MINOR REDDISH PATCHES							
36.3	40.2	BLACK QUARTZ 40% TO CORE AND 70% TO CORE. ULTRABASIC-ALTERED 70% SERPENTINE VARYING TO 30%. - DENSE SOLID CORE							
40.2	41.2	AT 40.2 FRACTURING 1/2 CM GAUGE.							
41.2	56.4	ULTRABASIC-ALTERED - CARBONATE 30%, 30% BLACK REMENANTS, 30% SERPENTINE, 10% QUARTZ-STRINGERS 20% TO CORE WITH HEMATITE STAIN							
56.4	59.1	ULTRABASIC-ALTERED IN PART, 30% SERPENTINE MINOR CARBONATE. VERY LITTLE FRACTURING							
		AT 47.1 2 CM GAUGE 50% TO CORE							
		AT 53.0 FRACTURE WITH HEMATITE 55% TO CORE AND MINOR QUARTZ							
		55.5-56.4 INCREASING SERPENTINE AND CARBONATE							
		AT 56.4 QUARTZ STRINGER 60% TO CORE							
56.4	59.1	ULTRABASIC-ALTERED, 15% SERPENTINE, 10% DARK REMENANTS, 20% SILICA, 50% CARBONATE AND 5% MARIPOSITE.							
59.1	61.3	AT 56.6 MINOR GAUGE AND FRAGMENTS, FRACTURE 25% TO CORE AND FRACTURE 60% TO CORE WITH 1 CM QUARTZ AND CARBONATE.							
		ULTRABASIC-ALTERED, 60% SERPENTINE 30% BLACK REMENANTS, 10% CARBONATE							
		AT 61.3 OPEN FRACTURE 55% TO CORE							



DRILL HOLE No. 91 # 2

INTERNOVA RESOURCES LTD.

DIAMOND DRILL HOLE LOG.

PAGE 4 OF 8 LOGGED BY \_\_\_\_\_

COLLAR LOCATION \_\_\_\_\_ AZIMUTH \_\_\_\_\_ DIP \_\_\_\_\_ ELEVATION \_\_\_\_\_ DEPTH \_\_\_\_\_ CORE SIZE \_\_\_\_\_

FROM	TO	DESCRIPTION	SAMPLE No.	FROM	TO	WIDTH	Ag oz/t	Pb %	Zn %
68.9	71.0	<p>MUD AND SLUDGE - 30% FRAGMENTS FULL RECOVERY!</p> <p>68.9-69.2 GREY BLACK MUD AND 10cm GREY SILICA WITH 20% WHITE QUARTZ.</p> <p>69.2-69.4 CREAM MUD (CLAY ALTERATION)</p> <p>69.4-69.9 FRAGMENTS 0 TO 5cm, GREY SILICA WITH 10% WHITE QUARTZ, MINOR CARBONATE FRACTURING 50% TO CORE</p> <p>69.9-71.0 CREAM <del>MUD</del> CLAY AND 30% FRAGMENTS 1cm. QUARTZ-CARBONATE STRINGERS, 1/2cm WIDE, IN THE MUD</p> <p>AT 71.0 SLICKENSIDES 25° TO CORE BROWN (BRIGHT) AND LIGHT GREEN (1mm) ON SLICKENSIDE.</p>							
71.0	71.3	DYKE - DARK BROWN WITH GREEN AND WHITE FLECKS							
71.3	74.4	CARBONATE CREAM AND LIGHT BROWN (SERICITE) 5% 25% FEATHERY BLACK? GRAPHITE?, 25% GREY SILICA.							
74.4	75.0	<p>BRECCIA 50% of <del>the</del> FRAGMENTS ARE DARK CONSISTING OF A FINE INTERMIX OF BLACK AND WHITE MINERALS, VERY FINE GRAINED (<del>with</del> ARGILLITE-SILICATE)</p> <p>50% of FRAGMENTS ARE BROWN CARBONATE, SERICITE AND QUARTZ. SEQUENCE: 1 BRECCIATION</p> <p>2 INTROD. OF GREY SILICA</p> <p>3 BRECCIATION</p> <p>4 INTROD. OF WHITE QUARTZ WITH MINOR PYRITE</p> <p>5 FRACTURING</p> <p>6 INTROD. OF GLASSY QUARTZ ? WITH PYRITE ?</p>							
75.0	76.8	<p>CARBONATE - LIGHT BROWN SERICITIC, 30% GREY SILICA, 5% FEATHERY GRAPHITE, 1% PYRITE DISSEMINATED AND ON FRACTURES</p> <p>AT 76.5 FRACTURE 25° TO CORE - MOVEMENT, FRAGMENTED, MINOR CLAY</p>							



DRILL HOLE No. 91#2

INTERNOVA RESOURCES LTD.

DIAMOND DRILL HOLE LOG.

PAGE 6 OF 8 LOGGED BY \_\_\_\_\_

COLLAR LOCATION \_\_\_\_\_ AZIMUTH \_\_\_\_\_ DIP \_\_\_\_\_ ELEVATION \_\_\_\_\_ DEPTH \_\_\_\_\_ CORE SIZE \_\_\_\_\_

FROM	TO	DESCRIPTION	SAMPLE No.	FROM	TO	WIDTH	Ag oz/t	Pb %	Zn %
97.6	98.5	ANDESITE BLOTCHY LIGHT AND DARK GREEN							
98.5	99.2	<del>ARGILLITE (?)</del> 40% BLACK AND 40% GREY SILICA MYLONIZED ZONE 20% CARBONATE, SERICITE EXTREMELY DISTURBED							
99.2	102.7	DyKE LIGHT GREY WITH WHITE FELDSPAR PHENOCRYSTS							
102.7	103.5	<del>ARGILLITE</del> BLACK WITH LIGHT PATCHES AND FLECKS SILICIFIED (MYLONIZED ZONE)?							
103.5	103.8	DyKE AS ABOVE							
103.8	104.4	DyKE VERY FINE GRAINED LIGHT TO DARK GREEN GROUNDMASS, GREEN PHENOCRYSTS OF ALTERED FELDSPAR							
104.4	104.6	DyKE - LIGHT GREY WITH WHITE FELDSPAR PHENOCRYST							
104.6	109.8	ANDESITE BLOTCHY LIGHT AND DARK GREEN SERPENTINIZED 10-30%							
109.8	110.1	1067-1079 CARBONATE-SERICITE GREY SILICA 20-30%							
110.1	111.9	DyKE LIGHT GREY WITH WHITE PHENOCRYSTS							
111.9	115.5	DyKE VERY FINE GRAINED WHITE AND GREEN AND LIGHT GREEN (ALTERED) PHENOCRYSTS.							
		ANDESITE, 80-60% SERPENTINE, 10% CARBONATE AND QUARTZ STRINGERS.							
		112.2-112.4 CARBONATE AND CLAY ASSOCIATE WITH FRACTURE 25% CORE 112.5-113.9 CARBONATE (50%?) CLAY ALTERATION ASSOCIATED WITH FRACTURE 25% TO CORE.							
115.5	116.3	DyKE VERY FINE GRAINED GREY, MINOR CROSS CUTTING QUARTZ-CARBONATE STRINGERS.							
116.3	122.1	ANDESITE 50% CARBONATE-QUARTZ AT 116.8 FRACTURING 40° TO CORE							

DRILL HOLE No. 91#2

INTERNOVA RESOURCES LTD.

DIAMOND DRILL HOLE LOG.

PAGE 7 OF 8 LOGGED BY \_\_\_\_\_

COLLAR LOCATION \_\_\_\_\_ AZIMUTH \_\_\_\_\_ DIP \_\_\_\_\_ ELEVATION \_\_\_\_\_ DEPTH \_\_\_\_\_ CORE SIZE \_\_\_\_\_

FROM	TO	DESCRIPTION	SAMPLE No.	FROM	TO	WIDTH	Ag oz/t	Pb%	Zn%
		116.8-117.8 CARBONATE - CREAM AND BROWN 20% GREY SILICA FRACTURING 5-10° TO CORE, MINOR CLAY WHITE QUARTZ 25% TO CORE							
122.1	124.4	119.8-120.7 CARBONATE - CREAM AND BROWN, 30% GRAY SILICA, QUARTZ 40% CORE DYKE FINE GRAINED DARK GREEN AND WHITE MINOR WHITE FELDSPAR PHENOCRYST MINOR QUARTZ STRINGERS 30-40% CORE							
124.4	124.9								
124.9	125.3	ANDESITE, 50% SERPENTINE							
		" 50% CARBONATE AND QUARTZ, 40% SERPENTINE 10% BLACK REMNANT.							
125.3	125.8								
125.8	126.2	CARBONATE - CREAM AND BROWN, 30% QUARTZ, 1% DISSEM. PYRITE							
126.2	126.5	ANDESITE - SILICIFIED, MINOR CARBONATE							
		CARBONATE - CREAM AND BROWN, 30% QUARTZ, 1% SERPENTINE FRACTURE AND QUARTZ STRINGER 40% CORE 1-2% PYRITE							
126.5	128.5	ANDESITE 20% SERPENTINE, MINOR CARBONATE MINOR HAIRLINE FRACTURES WITH QUARTZ, CARBONATE AND MINOR PYRITE AND PYRRHOTITE.							
128.5	129	DYKE VERY FINE GRAINED GREEN AND WHITE, CARBONATIZED ALONG FRACTURE 5° TO CORE CONTACT PRECIPITATED AND CARBONATIZED							
129	132.2	ANDESITE, 10% CARBONATE							
		AT 130.8 QUARTZ STRINGER 20% TO CORE							
132.2	133.4	CARBONATE CREAM, 20% GRAY SILICA BEN GRAY, WHITE QUARTZ 40% CORE WITH 1% PYRITE							

DRILL HOLE No. 91#2

INTERNOVA RESOURCES LTD.

DIAMOND DRILL HOLE LOG.

PAGE 8 OF 8 LOGGED BY \_\_\_\_\_

COLLAR LOCATION \_\_\_\_\_ AZIMUTH \_\_\_\_\_ DIP \_\_\_\_\_ ELEVATION \_\_\_\_\_ DEPTH \_\_\_\_\_ CORE SIZE \_\_\_\_\_

FROM	TO	DESCRIPTION	SAMPLE No.	FROM	TO	WIDTH	Ag <sup>PPM</sup> <del>oz/t</del>	Pb%	Zn%	Au Ppb
133.4	137.2	Dyke FINE GRAINE GREEN AND WHITE								
137.2	138.2	137.4-137.6 BLEACHED, CARBONATIZED, SPECKS OF MARIPOSITE MINOR FRACTURING S <sub>2</sub> TO CORE	9029	137.2	138.2	1.0m	17.0			314
138.2	147.9	QUARTZ VEIN PARTLY FRAGMENTED SOME FRASMENTS OF DYKE, MINOR CARBONATE WHITE, GREY AND BLACK QUARTZ 60° TO CORE FIRST HALF 5% PYRITE (THrust ZONE?) Dyke - LEACHED, SLIGHTLY SANDY BLEACHED LIGHT CREAM FLECKS OF MARIPOSITE INCREASINGLY FRESH TO DARK GREEN TO 143.9m.								
		139-139.8 50% QUARTZ - WHITE AND GREY 50° TO CORE AT 143.9 FRACTURE 35° TO CORE WITH 1/2cm QUARTZ SEM CLAY								
		143.9-146 Dyke - LIGHT, LEACHED, BLEACHED								
		146-147.9 Dyke VERY FINE GRAINED LIGHT, WITH GREEN FLECKS								
<p><i>END</i></p>										











DRILL HOLE No. 91 # 3

INTERNOVA RESOURCES LTD.

DIAMOND DRILL HOLE LOG.

PAGE 5 OF 6 LOGGED BY \_\_\_\_\_

COLLAR LOCATION \_\_\_\_\_ AZIMUTH \_\_\_\_\_ DIP \_\_\_\_\_ ELEVATION \_\_\_\_\_ DEPTH \_\_\_\_\_ CORE SIZE \_\_\_\_\_

FROM	TO	DESCRIPTION	SAMPLE No.	FROM	TO	WIDTH	Ag oz/t	Pb%	Zn%
64.5	67.4	<p>100% SILICA, 15% CARBONATE, 5% MARIPOSITE                      10% IRREGULAR STRINGERS OF WHITE QUARTZ                      AND CARBONATE - FRACTURING 50°, 25° AND 10° TO CORE                      AT 65.7                      10cm Dyke AS ABOVE                      66.2-66.5                      " "                      67.2-67.4                      WHITE QUARTZ                      5cm gouge ON THE CONTACT - MOVEMENT 35° AND 45° TO CORE</p>							
67.4	69.2	<p>Dyke EXTREMELY DISTURBED                      15% SERPENTINE 10% CARBONATE MAINLY                      ALONG FRACTURES 65° TO CORE AND IN                      2-3cm WIDE BRECCIAS 65° TO CORE                      68.6-69.2                      0.3m CORE                      AT 69.2                      5cm gouge AND FRAGMENT.</p>							
69.2	70.6	<p>QUARTZ 50% CARBONATE 50% WITH IRREGULAR                      BLACK FEATHERLY INCLUSIONS                      (POSSIBLY GRAPHITE(?))                      AT 69.2                      0.3m GREY SILICA WITH PYRITE, BRECCIATED                      AND SEALED WITH VUGGY WHITE QUARTZ                      CUT BY GLASSY CHALCEDONIC OR OPALINE                      SILICA</p>							
70.6	71.3	<p>ALTERED ULTRABASIC - SILICIFIED, SLIGHT                      SHEARING 40° TO CORE, MINOR CARBONATE ALONG                      FRACTURES.</p>							
71.3	82.3	<p>CARBONATE - QUARTZ, 40% CARBONATE WITH 10%                      BLACK FEATHERY GRAPHITE(?), 40% QUARTZ                      MINOR MARIPOSITE, 1-2% PYRITE                      SOME SERICITATION - OPEN FRACTURES 50-53° TO CORE                      TO 73.8                      SLIGHT GREEN CASE                      SOME SERPENTINE</p>							

DRILL HOLE No. 91#3

INTERNOVA RESOURCES LTD.

DIAMOND DRILL HOLE LOG.

PAGE 6 OF 6 LOGGED BY \_\_\_\_\_

COLLAR LOCATION \_\_\_\_\_ AZIMUTH \_\_\_\_\_ DIP \_\_\_\_\_ ELEVATION \_\_\_\_\_ DEPTH \_\_\_\_\_ CORE SIZE \_\_\_\_\_

FROM	TO	DESCRIPTION	SAMPLE No.	FROM	TO	WIDTH	Ag <del>PPM</del>	Pb%	Zn%	As PPM
		AT 73.8 815cm WHITE QUARTZ 70° to CORE								
		74.8-75.1 40% BLACK FEATHERY MINERAL	9615	72.3	73.8	1.5m	< 0.1			289
		76.2-76.8 " " " "	16	73.8	76.8	3.0m	< 0.1			24
		76.8-77.1 50% WHITE AND GLASSY QUARTZ, IRREGULAR 40°, 25°, 75° to CORE	17	76.8	79.8	3.0m	< 0.4			12
		77.1-82.3 SLIGHTLY DARKER CREAM COLOURED CARBONATE STREAKS OF PYRITE AND WHITE QUARTZ ALSO PATCHES STREAKS TO AND 60° to CORE, WHITE NUGGY QUARTZ 10-25° to CORE	18	79.8	82.3	2.5m	< 0.1			11
82.3	84.1	ANDESITE SOME SILICIFICATION FRACTURING EVERY 3-4cm 25-40° to CORE CARBONATIZEN ON EACH WALL.								
		82.9-83.2 CARBONATE-SILICA, LIGHT BROWN REDDISH (SERICITE)								
		83.8-84.0 " " " "								
84.1	85.7	CARBONATE (50%) QUARTZ (40%) 10% FEATHERY GRAPHITE (?) SLIGHT FOLIATION 45° to CORE								
		85.1-85.3 SHALE								
		AT 85.6 5cm WHITE AND GLASSY QUARTZ WITH MINOR PYRITE 15° to CORE								
85.7	86.6	CARBONATE 50%, QUARTZ 30%, 10% FEATHERY GRAPHITE (?) 10% SERPENTINE								
86.6	88.9	ANDESITE, 20% CARBONATE, 10% SERPENTINE MINOR THIN FRACTURES WITH CARBONATE								
88.9	89.3	DYKE GREY FINE GRAINED WITH WHITE FELDSPAR PHENOCRYSTS.								
89.3	93.0	ANDESITE								
		89.3-89.9 50% CARBONATE 50% BLACK QUARTZ								
		AT 90.3 5cm SHALE? THEN 10cm CARBONATE AND BLACK QUARTZ								
		AT 92.7 2cm QUARTZ 45° to CORE WHITE GLASSY, 3cm CARBONATE IN EACH WALL.								

END









DRILL HOLE No. 9/#4

INTERNOVA RESOURCES LTD.

DIAMOND DRILL HOLE LOG.

PAGE 4 OF 8 LOGGED BY \_\_\_\_\_

COLLAR LOCATION \_\_\_\_\_ AZIMUTH \_\_\_\_\_ DIP \_\_\_\_\_ ELEVATION \_\_\_\_\_ DEPTH \_\_\_\_\_ CORE SIZE \_\_\_\_\_

FROM	TO	DESCRIPTION	SAMPLE No.	FROM	TO	WIDTH	Ag oz/t	Pb %	Zn %
		31.4-31.9 BRECCIATED-CARBONATE AND GREY SILICA CEMENTED WITH LIGHT BLUE GRAZING (?)							
31.9	36.0	AT 32.0 6cm CARBONATE AND QUARTZ 20% CORE BRECCIA GREY SILICA CEMENTED WITH CARBONATE AND MARIPOSITE, FINE SPECKS OF MAGNETITE 32.6-36 GREY SILICA-CARBONATE BRECCIA AGAIN AND SEALED WITH WHITE QUARTZ AND CARBONATE AT 33.7 10cm QUARTZ VEIN 60% CORE, GREY AND BLACK AT 34.1 3 " " " " AT 36 4 " " " " 34.6 16 " " " " 35.2 5 " " " " 35.8-36.0 20 " " " "							
36.0	42.4	ALTERED ULTRABASIC, 60% CARBONATE 2% SERPENTINE MARIPOSITE 5%, SILICA 10%, SPECKS OF MAGNETITE 38.0-39.2 INCREASING CROSS-CUTTING WHITE AND GLASS QUARTZ 40.7-41.0 50% SILICA, FRACTURE 30% CORE							
42.4	43.6	ALTERED ULTRABASIC, CREAM VERY SLIGHTLY GREEN CARBONATE 70% - SLIGHT STRATIFICATION 30% CORE INCREASING SILICA IN 10% CRISS-CROSSING STRINGERS							
43.6	45.7	ALTERED ULTRABASIC SILICA 80% (?), 10% MARIPOSITE MINOR MAGNETITE, CRISS-CROSSING QUARTZ STRINGERS 25% CORE MAINLY - MINOR CARBONATE							
45.7	46.6	ALTERED ULTRABASIC, CARBONATE 60%, SERPENTINE 30% MINOR MAGNETITE, CRISS-CROSSING QUARTZ STRINGERS							







DRILL HOLE No. 9/#4

INTERNOVA RESOURCES LTD.

PAGE 8 OF 8 LOGGED BY \_\_\_\_\_

DIAMOND DRILL HOLE LOG.

COLLAR LOCATION \_\_\_\_\_ AZIMUTH \_\_\_\_\_ DIP \_\_\_\_\_ ELEVATION \_\_\_\_\_ DEPTH \_\_\_\_\_ CORE SIZE \_\_\_\_\_

FROM	TO	DESCRIPTION	SAMPLE No.	FROM	TO	WIDTH	Ag oz/t	Pb%	Zn%
105.2-105.8		30% QUARTZ WITH FINE GRAIN DISSEMINATED PYRITE, MINOR IRREGULAR BLACK STREAKS.							
105.8	109.9	DyKE LIGHT GRAY HOMOGENOUS WITH BLURRED WHITE FELDSPAR PHENOCRYST.							
109.9	111.1	ANDESITE - 10cm CARBONATE QUARTZ AT UPPER CONTACT							
111.1	111.9	30 " " " " LOWER							
		DyKE AS ABOVE							
		AT 111.6 10% QUARTZ CARBONATE 30% CORE							
111.9	117.4	ANDESITE							
		AT CONTACT CARBONATE, QUARTZ (20-50)							
		CRISS-CROSSING QUARTZ CARBONATE HAIRLINES							
		10°, 25° AND 50° TO CORE							
		115.9-116.8 60% CARBONATE - QUARTZ - 10% GREEN (SERPENTINE?)							
		MINOR MAGNETITE - A FEW SPECKS OF PYRITE.							

~~END~~

APPENDIX C

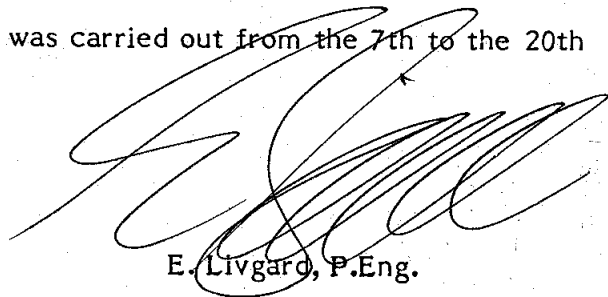
COST DECLARATION

Diamond Drilling - E. Caron Diamond Drilling Ltd. Holes 91#1, 2, 3 and 4 Total drill footage: 480.8 metres Total cost (incl. MOB-DEMOB, MUD etc.)	\$46,904.52
Drill Site Preparation and Rehabilitation Connolly Enterprises Ltd. 65 1/2 hours catwork - D60 and MOB & DE MOB	6,737.26
Analysis - Northern Analytical	855.00
Core Logging, Supervision and Expenses - E. Livgard (B.Sc.Geol.) P.Eng.	7,100.82
Report and Maps	<u>2,252.00</u>
	<u>\$63,849.60</u>

Of this total the following work was carried out between September 1st, 1991 and September 6th, 1991 and filed as assessment work on September 6th, 1991.

Drill Site Preparation Costing	\$ 2,240.00
Diamond Drilling Costing	1,500.00
Hole Location, Supervision and Logging by the Writer, Costing	<u>1,280.00</u>
Totalling	<u>\$ 5,020.00</u>

The remaining work costing \$58,829.60 was carried out from the 7th to the 20th of September 1991.



E. Livgard, P.Eng.



LIVGARD CONSULTANTS LTD.

230 - 470 Granville St., Vancouver, B.C. V6C 1V5 Ph. 669-2426

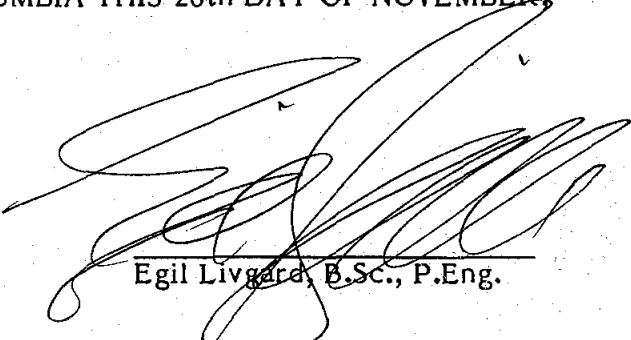
## APPENDIX D

### CERTIFICATE

I, EGIL LIVGARD, of 1990 King Albert Avenue, Coquitlam, B.C., DO HEREBY CERTIFY:

1. I am a Consulting Geological Engineer, practicing from #436 - 470 Granville Street, Vancouver, B.C.
2. I am a graduate of the University of British Columbia, with a B.Sc., 1960 in Geological Sciences.
3. I am a registered member in good standing of the Association of Professional Engineers of the Province of British Columbia (Registration No. 07236).
4. I have practised by profession as an underground geologist, engineer and mine manager (8 years), as exploration geologist (6 years) and as a consulting geological engineer (17 years).
5. This report dated November 26, 1991 is based on the references as listed in the Appendix and on work on the property from September 1st to 20th, 1991.
6. I am a Director of Internova Resources Ltd. and have an option to acquire common shares in the company.

DATED AT VANCOUVER, BRITISH COLUMBIA THIS 26th DAY OF NOVEMBER, 1991.

  
Egil Livgard, B.Sc., P.Eng.



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