

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

85-207-14295

14,295

ENGINEERING REPORT 04/86
1984 DIAMOND DRILLING PROGRAM
FOR THE
HAMIL MINING PROPERTY
NORTH KOOTENAY LAKE AREA
ARGENTA, BRITISH COLUMBIA

Crown Grant L1547
Ham Claim 4289(4)
Elk Claim 4288 (4)

North Latitude 50° 13'
West Longitude 116° 55'
NTS 82K/2W

FILMED

For

BLUE LAKE RESOURCES LTD.
809 - 837 West Hastings Street
Vancouver, B.C. V7G 1S3

Prepared By

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KRUECKL CONSULTING SERVICES LIMITED
Richmond, B.C.

November 15, 1984

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INTRODUCTION

In a 1950 report prepared for Hamil Silver Lead Mines, an estimated 80,800 tons of ore grade material was believed to be exposed in the underground workings. Some diamond drilling was carried out to substantiate this however these records are no longer available.

On September 28, 1984 the Directors of Blue Lake Resources requested the writer and Wally Yahnke, a mining contractor, to visit the old Hamil Mine workings to assess the possibility for opening the mine to carry out a modest diamond drilling program. Based on this visit and an estimate of costs involved, it was decided to proceed with the program. This report was prepared to describe the field program, disclose findings and recommend ongoing programs for this property.

The drilling program was carried out in two parts:

- 1) Opening the underground workings by Wally Yahnke from October 6th to October 17, 1984.
- 2) Diamond Drilling Program by Kalmikoff Diamond Drilling from October 21st to 31st, 1984.

SUMMARY AND CONCLUSIONS

The property, located 5 kilometres directly north of the town of Argenta at the north end of Kootenay Lake, is an old silver-lead-zinc mine that carried out minor production during the 1910's and '30's. The total production amounted to 40 tons grading 30% oz. silver, 36% lead and 18% zinc per ton having a value of \$588 per ton at current market prices for metals. The underground workings involved approximately 1300 feet of drifting and cross-cutting and approximately 350 feet of vertical openings.

Exploration work carried out since the earlier production and prior to the current diamond drilling program disclosed mineralization having only 10 to 11 percent combine lead-zinc in veins up to 2 feet thick. It was therefore concluded that the 40 tons past production was from hand sorting material to be shipped. This conclusion

may not have been correct because the current drilling program, discovered a high grade ore zone having 36% zinc, 10% lead and 7 ounces silver over thicknesses up to 10 feet. This ore would have a gross value of \$500 Canadian at current market prices for metals. This zone is open on two sides.

The rocks of the area are schists and limestones with a steep regional dip to the east. The structure of the area consists of a complex series of fissures running in a north westerly direction. The geology of the area is not understood very well and geological mapping would be required at an early stage of any exploration program. It is felt that an important element to discovering additional ore on this property would be to understand the geological controls that guide the formation of mineralization in the limestone rocks.

Some new information for the current drilling program suggests one control which guides the formation of mineralization. The results of the current drilling program suggest that high grade mineralization having thicknesses up to 10 feet occur where limestone comes in contact with faults (i.e. faults F1, F2, F3 and F4) that appear to be the openings in the rock which have allowed mineralization to move upward replacing limestone.

The ore occurs in massive or schisted limestone along fissures running in a north westerly direction. The juncture of the north westerly fissures with other fissures from the south or south west appear favourable to ore deposition. The new ore-zone appears to be in such an environment and is a replacement of massive limestone by sphalerite and galena which carry silver values.

The property, which lies in a synclinal structure of carbonate rocks, is thought to be a northern extension of the Ainsworth formations. The strata containing the Blue Bell Mine located south of the Hamill property is also in a similar carbonate formation.

There is speculation that the carbonate rocks on this property extend 1½ kilometres south to Hamill Creek. A short shaft was dug near Hamill Creek which exposed ore grade material. Should examination of this be confirmed, it would further raise the potential of the property.

It is concluded the Crown Grant and the Ham and Elk claims should be explored further. Based on current drilling a high grade zone of ore has been found and there is a good opportunity to extend the size of this zone and find additional silver-lead-zinc orebodies on this property. An comprehensive 3 phase program of mineral exploration is recommended at an estimated cost of \$1,400,000. This program would develop the property to the point where a production decision can be made.

PROPERTY - LOCATION, ACCESS AND PHYSIOGRAPHY

The property is located in the Slocan Mining Division 5 kilometers due north of the village of Argenta at the north end of Kootenay Lake, British Columbia. The old mine workings lie on the north side of Hamill Creek and are reached by 5 kilometers of road from a point on the Argenta-Howser road 10 kilometers north of Argenta.

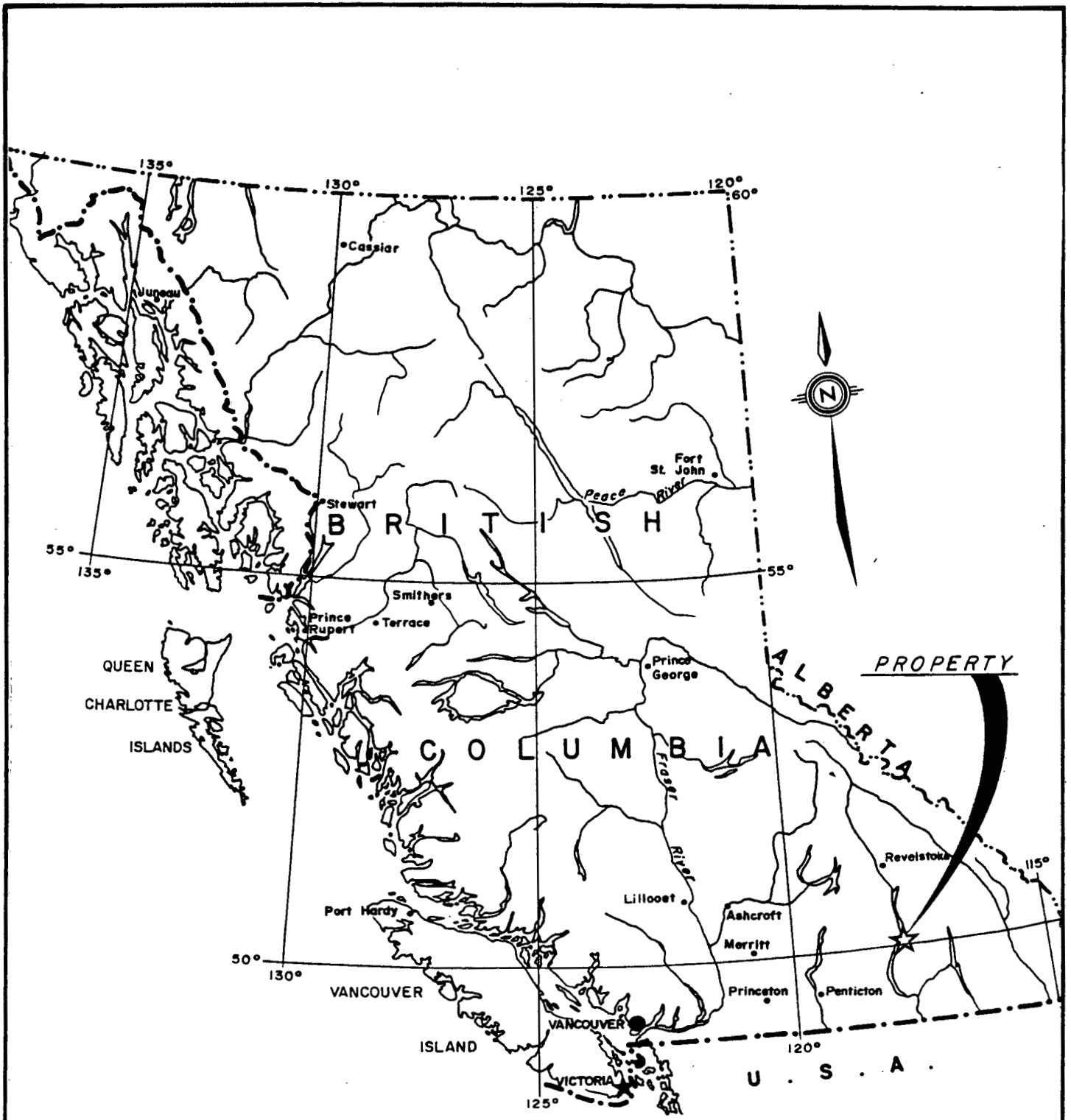
The topography of the area is mountainous, relief ranging from 1750 feet at Kootenay Lake to 4500 feet at an upland plateau near the shaft which is the upper most of the old mine workings. Mountain slopes have high relief and secondary drainages such as the Hamill Creek are deeply incised. Water for drilling may not be readily available.

CLAIM

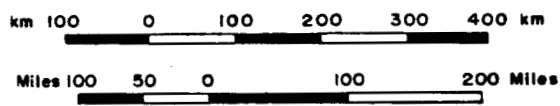
The Crown Grant L1547^A and the Ham and Elk claims owned by Blue Lake Resources Ltd. are located in the Slocan Mining Division. The following statistics have been filed with the Recorders office at at Kalso, B.C. concerning the Ham and Elk claims.

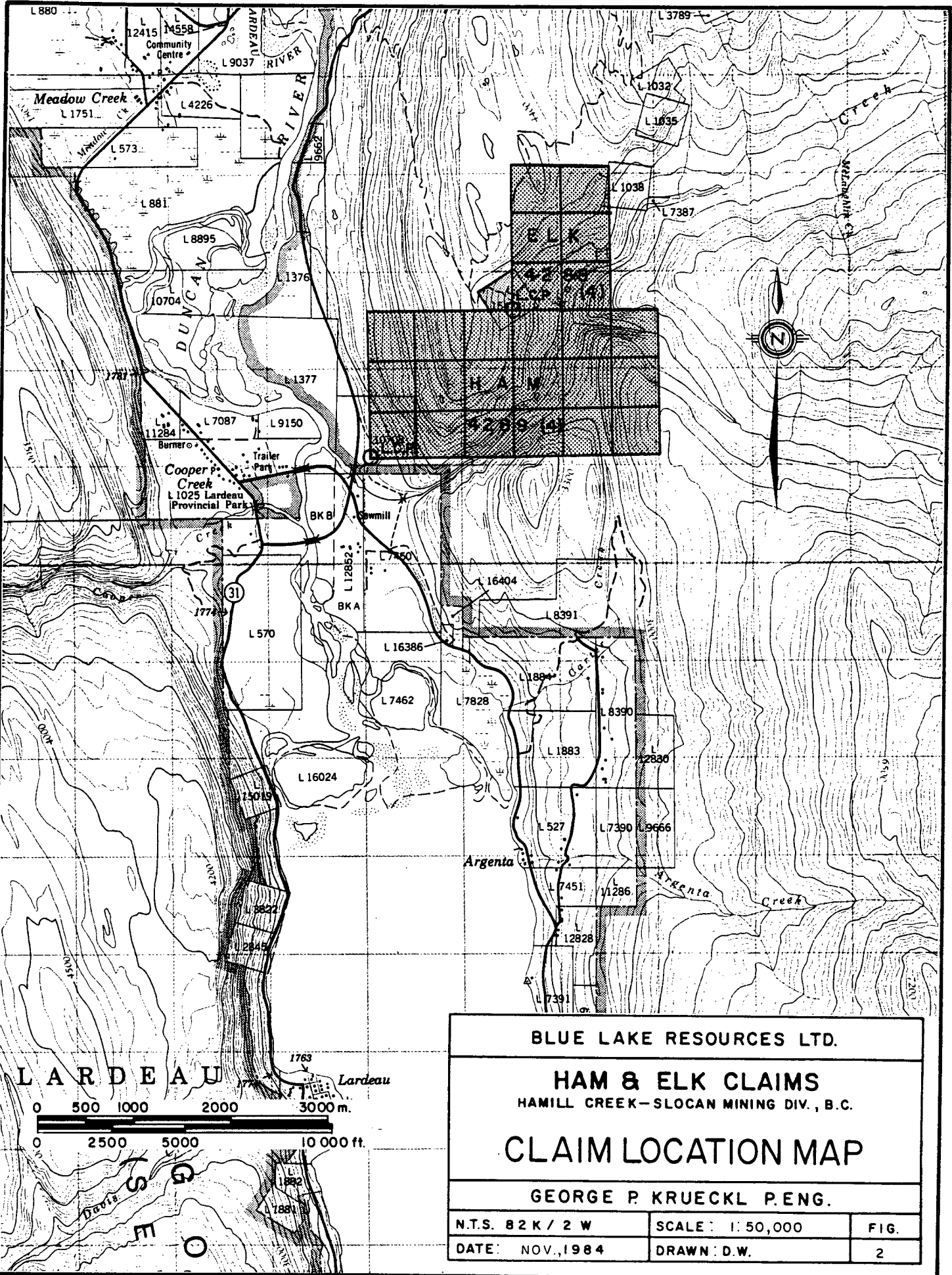
<u>Name</u>	<u>No. of Units</u>	<u>Record No.</u>	<u>Date Recorded</u>	<u>Expiry Date</u>	<u>Name of Recorder</u>
Ham	3N x 6E = 18	4289(4)	April 5, 1984	April 5, 1985	Dean de la Mothe
Elk	3N x 2E = 6	4288(4)	April 5, 1984	April 5, 1985	Dean de la Mothe

The writer does not accept responsibility for the legal status of the claim.



BLUE LAKE RESOURCES LTD.		
HAM & ELK CLAIMS HAMILL CREEK-SLOCAN MINING DIV., B.C.		
PROPERTY LOCATION MAP		
GEORGE P. KRUECKL P. ENG.		
N.T.S. 82 K / 2 W	SCALE: AS SHOWN	FIG.
DATE: NOV., 1984	DRAWN: D.W.	1





BLUE LAKE RESOURCES LTD.

HAM & ELK CLAIMS
 HAMILL CREEK-SLOCAN MINING DIV., B.C.

CLAIM LOCATION MAP

GEORGE P. KRUECKL P. ENG.

N.T.S. 82 K / 2 W

SCALE: 1:50,000

FIG.

DATE: NOV., 1984

DRAWN: D.W.

2

HISTORY - PREVIOUS DEVELOPMENT AND MINERALIZATION

The property was first developed in 1912 and has been worked at intervals since then. From 1917 to 1919 it was held by the British Alberta Mining Company, who shipped 22 tons of ore grading 29 oz. silver, 38% lead and 27% zinc. In 1937 and 1938, 20 tons were shipped assaying 0.015 oz. gold, 30.6 oz. silver, 42.2% lead and 4.7% zinc.

From 1950 to 1954 the Hamil Silver-Lead Mines, Ltd. operated the property. This company repaired the existing access road and rehabilitated the camp and old workings. In 1950 some diamond drilling was also carried out to outline an estimate 80,800 tons of oregrade material. Surface stripping in 1952 disclosed showings to the south and to the north of the old shaft, apparently on the shaft vein. To conclude the involvement of Hamil Silver-Lead Mines in the property a letter sent to Shareholders on July 12, 1954 stated the following, "Owing to the decreased price of base metals, operations at the Company's mine in the Slocan District were necessarily curtailed, the mine having been left in good condition for the renewal of work as soon as the market for Lead and Zinc becomes more favourable etc.... in the mean time your Directors have taken advantage of the discovery of uranium in paying quantities on and around Green River in the State of Utah." It is not known to the writer when Hamil Silver-Lead Mines Ltd. relinquished ownership to the property and further, it would appear no work other than the current work was carried out on this property since 1954.

De La Mothe Exploration Services staked the two claims: the Ham, Record No. 4289(4) and the Elk, Record No. 4288(4) in 1984 and acquired through option the Crown Grant L 1547. These in turn were optioned to Blue Lake Resources Ltd. The writer visited the property in August, 1984 and prepared an engineering report to assess the mine making potential of the property.

REGIONAL AND LOCAL GEOLOGICAL SETTING

The South Lardeau area (north end of Kootenay Lake to Duncan Lake) is within the Kootenay arc, which is a north-south trending structural belt of regional extent containing highly deformed Palaeozoic and Mesozoic rocks. These rocks are of sedimentary and volcanic origin and are mainly in a moderate to high grade of regional

metamorphism. They are tightly folded and strongly sheared. The arc extends from northeastern Washington in the south to the Columbia River near Revelstoke, B.C. in the north.










In the Lardeau and Kootenay Lake areas the rocks belong to the Hamill, Lardeau, Milford, Kaslo, and Slokan Groups. The Hamill is a quartzitic group of formations; the Lardeau group has a lower calcareous section containing the Badshot Limestone, overlain by a thick succession of schists and quartzites with lenticular masses of volcanic rock; the Milford group overlying the Lardeau rocks has a lower thick section of fine grained limestone overlain by dark argillite, slate or phyllite; the Kaslo group consists of several hundred feet of green phyllite and interlayered tuff, greywacke, green phyllite, chert etc. and the Slokan group consists variously of limestones, dolomites and argillites.

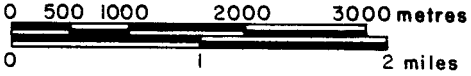
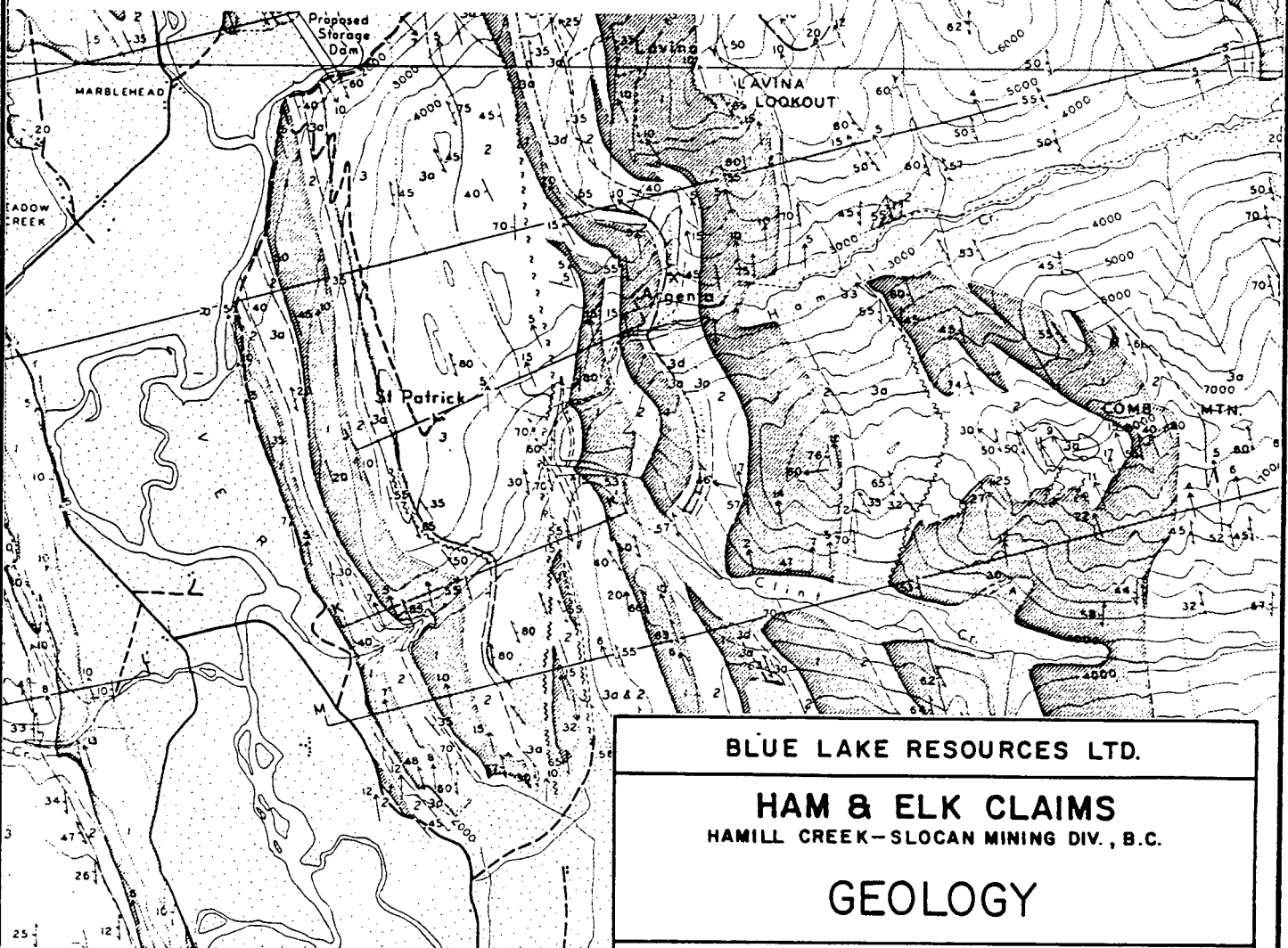
The Hamill property is believed to be in the Upper Index Formation of the Lardeau Group of rocks which also contains the Badshot Formation. The Upper Index Formation consists of feldspar-chlorite schists in places calcareous which also include a variety of other rock types, mainly of volcanic origin. All of these rocks are in general calcareous, having locally lenses of limestone and quartzite. The Upper and Lower Index Formations overlie the Badshot Formation. The Upper Index Formation is found mainly in the St. Patrick syncline, a synclinal structure that extends from Hamill Creek in the south, through the Hamill property, and north to the west side of Howser Ridge.

Two phases of folding are clearly displayed in the rocks of the St. Patrick syncline located in the north Kootenay Lake area as described above. The phase I folds in this area are isoclinal and extremely attenuated. These folds plunge to the north at about 10 degrees. Their limbs and axial planes are curved and have been folded on Phase II structures.

The axes of Phase II folds plunge at about the same angle to the north as the Phase I folds. The Phase II folds range in shape from very tight to relatively open, and in size from a few feet across to folds with axial planes several miles apart. The axial planes of Phase II folds change systematically from low to moderate westerly dip along Kootenay Lake through a steep westerly dip at the north end of the lake to a vertical

LEGEND

-  Areas of little or no outcrop.
- BROADVIEW FORMATION**
-  6 Green and grey quartzite, greywacke, grit and fine grained mica schist.
- JOWETT FORMATION**
-  5 Fine grained green chlorite schist.
- TRIUNE, AJAX, AND SHARON CREEK FORMATIONS**
-  4 4c- dark grey to black argillite. 4b- massive grey quartzite. 4a- grey and black quartzite.
- INDEX FORMATION**
-  3 Interlayered fine grained green and grey schist, minor limestone and quartzite.
- UPPER INDEX: mainly fine grained green schist.
- 3d- chlorite schist.
- 3c- green mica schist and garnet mica schist.
- LOWER INDEX: mainly fine grained grey schist.
- grey and white limestone, brownish quartzite,
- 3b- minor green and grey schist.
-  3a Fine grained grey mica schist and garnet mica schist.
- BADSHOT AND MOHICAN FORMATIONS**
-  2 Grey and white crystalline limestone and dolomite and interlayered limestone and mica schist.
- MARSH ADAMS FORMATION**
-  Grey and brown micaceous quartzite, mica schist and white quartzite.
-  A Amphibolite



BLUE LAKE RESOURCES LTD.		
HAM & ELK CLAIMS		
HAMILL CREEK-SLOCAN MINING DIV., B.C.		
GEOLOGY		
GEORGE P. KRUECKL P. ENG.		
N.T.S. 82 K / 2 W	SCALE: 1:63,360	FIG.
DATE: NOV., 1984	DRAWN: D.W.	3

or northeasterly dip west of Duncan lake. The change in dip is accompanied by a swing in the strike from north along Kootenay Lake to northwest, west of Duncan Lake.

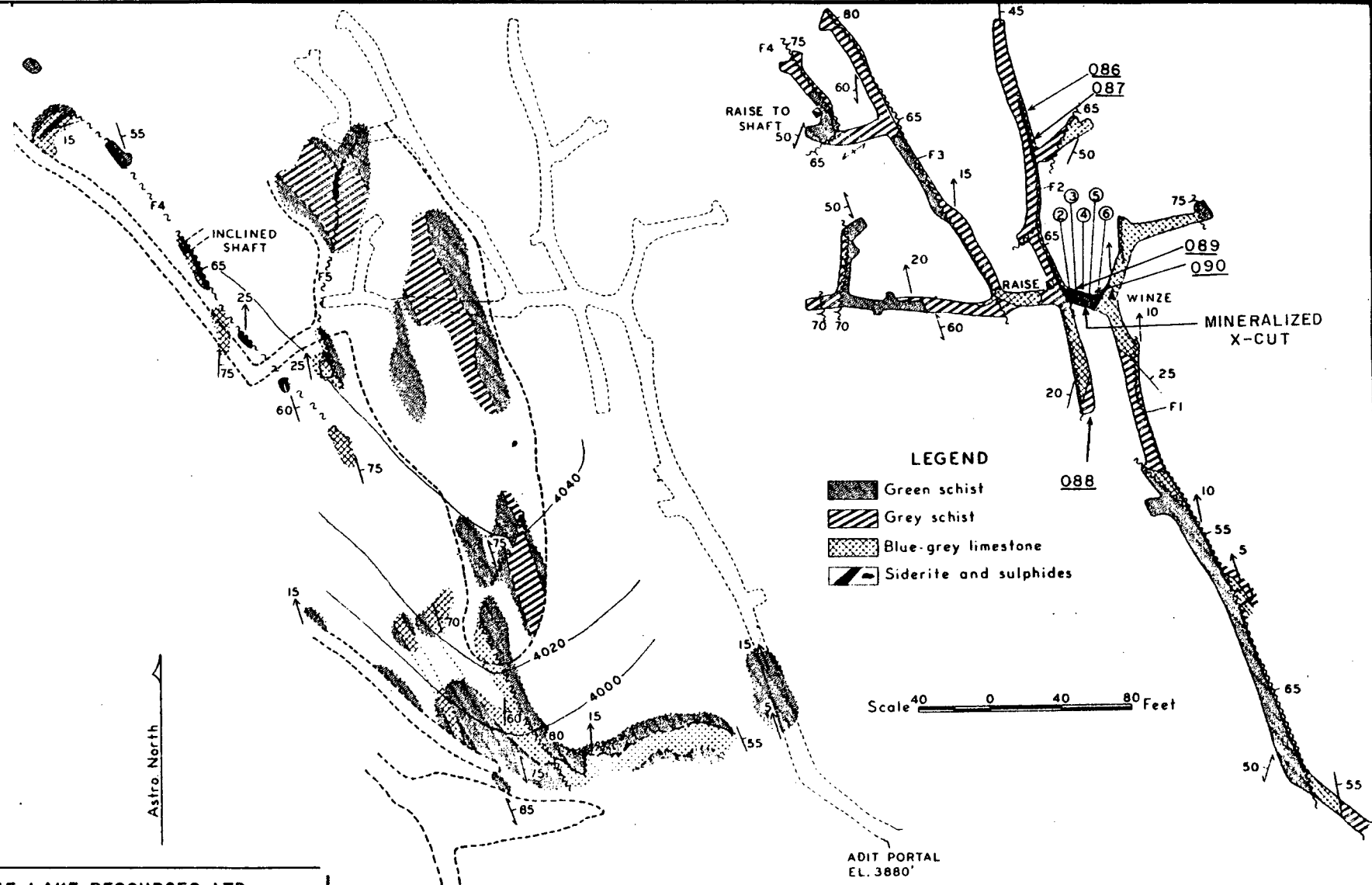
The Lardeau district from the north end of Kootenay lake to the Columbia River near Revelstoke contains a variety of lead-zinc deposits, mainly in two groups—one in the south Lardeau around Duncan Lake and the other in the central Lardeau around Ferguson and Camborne.

The geology the Hamil property has been described as follows, "The rocks on the surface are massive banded crystalline limestone, greenish mica schists, carbonaceous schists, and grey mica schists. They strike north 20 degrees west and dip steeply east.—The local structure is complex and not fully understood. Flat attitudes in the adit workings indicate a dragfolded or crumpled zone on the major structure, but the form and extent of the crumpling are not known.—These rocks are fissured and fractured in a direction, northerly to northwesterly and dip steeply to the east, conforming in general with the formational dip. Steep westerly dipping minor fractures strike a little east of north."

According to the literature, the limestone and schist formation in the underground workings, which contains the mineralization can be traced from the surface shaft, the upper most showing at elevation 4040 feet, to Hamil Creek at elevation 2350 feet considerably below the tunnel adit where a shaft was sunk years ago on an ore exposure.

1984 DIAMOND DRILLING PROGRAM

The modest drilling program proposed for the site was to consist of 500 feet of BQ core drilling involving 7 to 8 holes. Due to the late time of year and the corresponding poor weather the program was curtailed at 272 feet. The amount of drilling carried out, however, was adequate to assess the potential of the property. Two very interesting intersections of high grade ore were made. A total of 5 holes were drilled as follows:



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HAM & ELK CLAIMS
HAMILL CREEK-SLOCAN MINING DIV., B.C.

PLAN OF OLD WORKINGS

GEORGE P. KRUECKL P.ENG.

N.T.S. 82K/2W	SCALE: AS SHOWN	FIG.
DATE: NOV., 1984	DRAWN: D.W.	4

SURFACE GEOLOGY

- Lineations and axes of minor folds
- ↗ Attitude of layering
- ↘ Attitude of schistosity
- ~~~~~ Shear zone

SYMBOLS

- Edge of stripping or cat road
- Open pit
- ② Sample number

UNDERGROUND GEOLOGY

FROM: G.S.C. BULLETIN № 49
BY JAMES T. FYLES.

<u>Hole No.</u>	<u>Azimuth</u>	<u>Dip</u>	<u>Length</u>	<u>Remarks</u>
84-1	242°	-25°	48'	
84-2	242°	-55°	48'	10.5' ore intersection
84-3	218°	-48°	58'	
84-4	258°	-40°	4'	Abandoned
84-5	90°	-32°	<u>114'</u>	5.5' ore intersection
			272'	

Water for drilling was obtained from the winze.

In addition to poor weather conditions the following operating problems were encountered.

- 1) Due to high moisture levels in the compressor air that operates the underground equipment condensation would result and cause freezing of pumps and drill motors. To alleviate this condition it would have been necessary to install a large collecting chamber (tank) in the underground airline to drain off the moisture. This was not possible as the airline was located on the ground. This problem resulted in an average daily drilling rate of only 30' whereas 50' per day should have easily been achieved.
- 2) Inadequate room for operating the drilling equipment underground resulted in an inefficient operation and also for this reason DDH 84-4 was abandoned, losing one day of drilling time.

MINERALIZATION

Lead-zinc mineralization on the property is related to fissures and fractures that have a northerly to north westerly trend and steep dip to the east. These fissures and fractures conform in general with the dip of schists and limestone formations in the area. Based on previous work carried out in the underground workings prior to the current drilling, the mineralization in the fissures ranges from scattered grains to veins a foot or more in width. This replacement type of mineralization was repeatedly sampled and reported to average between 10 and 11 percent combine lead-zinc (see August 1984 report by the writer). The underground sampling by the writer confirmed these lower mineral values the results of which are listed below and the location of samples are given in Figure 4.

On examination of the underground working by the writer, it was felt that all of the previous exploration work exposed only the peripheral mineralization to a higher grade body of ore not yet discovered. The current drilling program discovered high grade mineralization averaging 45% combined lead-zinc with 7 ounces silver per ton over widths up to 10 feet. A condensed log of the 1984 drilling carried out has been included in the Appendix.

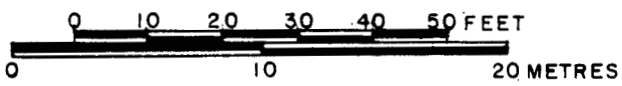
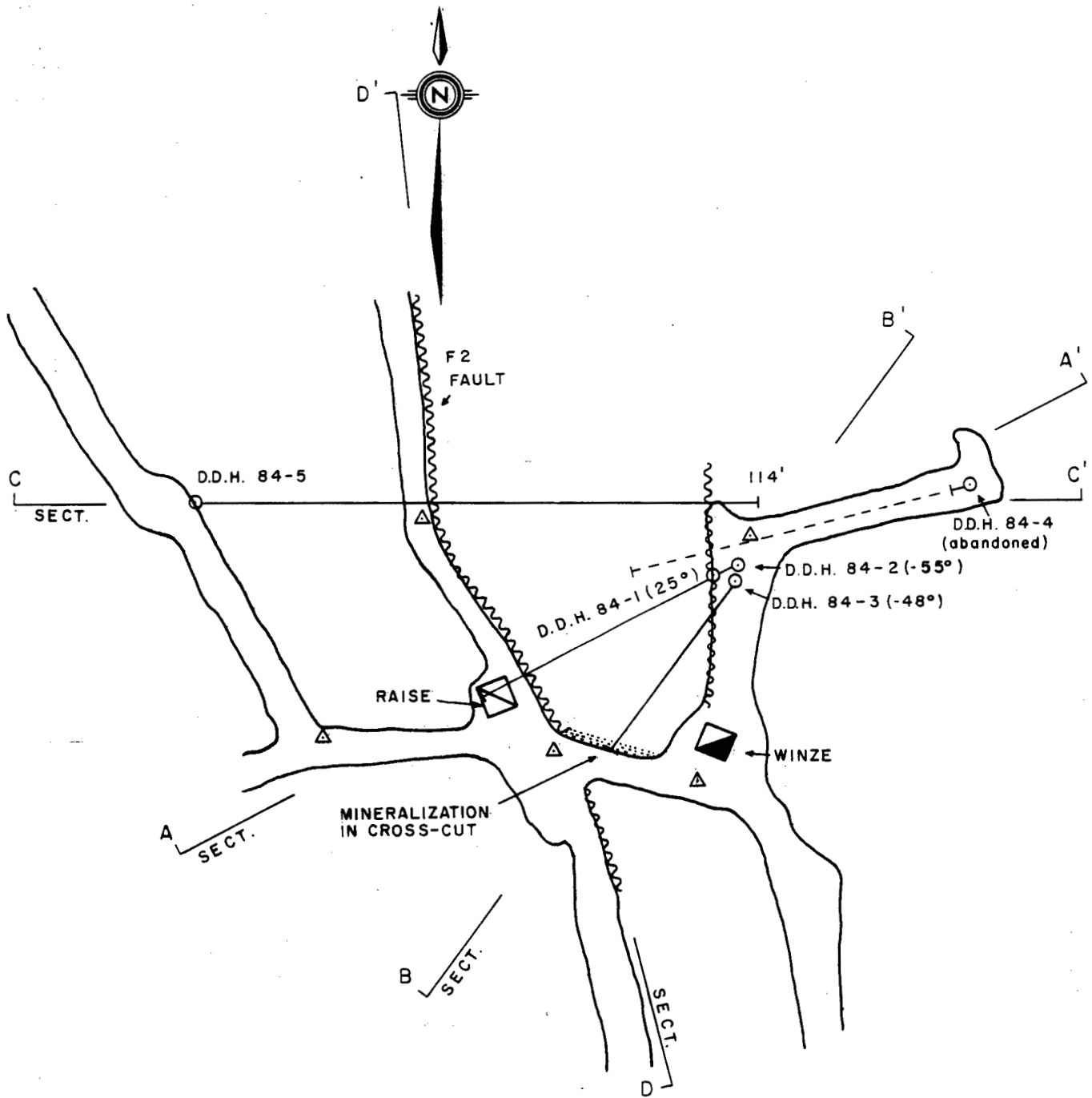
Chip Sampling Carried Out Underground by the Writer

<u>Sample No.</u>	<u>Sample Length</u>	<u>Ag</u> oz/t	<u>Pb</u> %	<u>Zn</u> %
086	1.5'	0.94	1.96	15.80
087	1.5'	1.18	1.14	18.30
088	.5'	1.86	13.10	1.50
089	3.0'	6.98	0.19	24.00
090	2.0'	0.48	0.70	8.22

(Copy of the certified assay results are shown in the Appendix.)

The first hole drilled (84-1) had the objective of intersecting the north extension of the mineralization exposed in the X-cut that was sampled by the writer and James T. Fyles who reported his results in Bulletin No. 49 published in 1964. These sample locations are shown in Figure 4. No mineralization was intersected in this first drill hole and it was concluded that the mineralization did not plunge at -15 degrees to the north as indicated in Fyles report. The second hole drilled from the same set-up as the first was positioned to have the same bearing as the first hole and to intersect the extension of the mineralization assuming a plunge of -50 degrees. This hole (84-2) intersected 10.5 feet of massive sulphide ore consisting of primarily sphalerite and some galena (see Figures 5 and 6). This ore ran 5.1 ounces per ton silver, 9.8% lead and 36% zinc.

Hole No. 84-3 was also drilled from the same position as 84-1 and 84-2. The bearing of this hole was changed however to investigate the southern limit of the ore zone intersected in hole 84-2. No mineral intersection was made in Hole No. 84-3. It should be noted that for both Hole Nos. 84-1 and 84-3 the limestone formation, which would carry the replacement type of mineralization was not in contact with fault F2 as was the case in Hole No. 84-2. The F2 fault appears therefore to be the opening in



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HAM & ELK CLAIMS HAMILL CREEK - SLOCAN MINING DIV., B.C.		
PLAN OF DRILL HOLE LOCATIONS		
GEORGE P. KRUECKL P. ENG.		
N.T.S. 82 K/2 W	SCALE: 1:300	FIG.
DATE: NOV., 1984	DRAWN: D.W.	5

LOOKING NORTH

RAISE 87'

ADIT LEVEL
≈ 3880' ELEV.

GREEN SCHIST

D.D.H. 84-1 (-25°)

GREY
SCHIST

48'

GREEN
SCHIST

48'

GREEN SCHIST

D.D.H. 84-2 (-53°)

48'

LIMESTONE

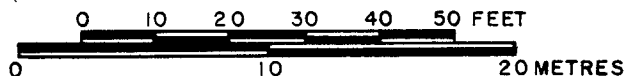
ore zone

PROJECTION OF WINZE

66'

F2
FAULT

DIRECTION OF SIGHT FOR INCLINE
SECTION



BLUE LAKE RESOURCES LTD.

HAM & ELK CLAIMS
HAMILL CREEK-SLOCAN MINING DIV., B.C.

CROSS SECTION
A-A'

GEORGE P. KRUECKL P. ENG.

N.T.S. 82 K/2 W

SCALE: 1:300

FIG

DATE: NOV., 1984

DRAWN: D.W.

6

the rock which has allowed mineralizations to move upward replacing limestone that is in contact with the fault (Figure 7).

Hole 84-4 was positioned to intersect the depth extension of the ore intersected in 84-2. This hole was abandoned at 4 feet when it was realized that not enough operating room was available to drill this hole efficiently. It would have taken 3 to 4 days to complete the hole because of inadequate clearance for drill rods.

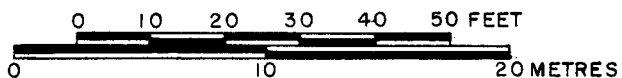
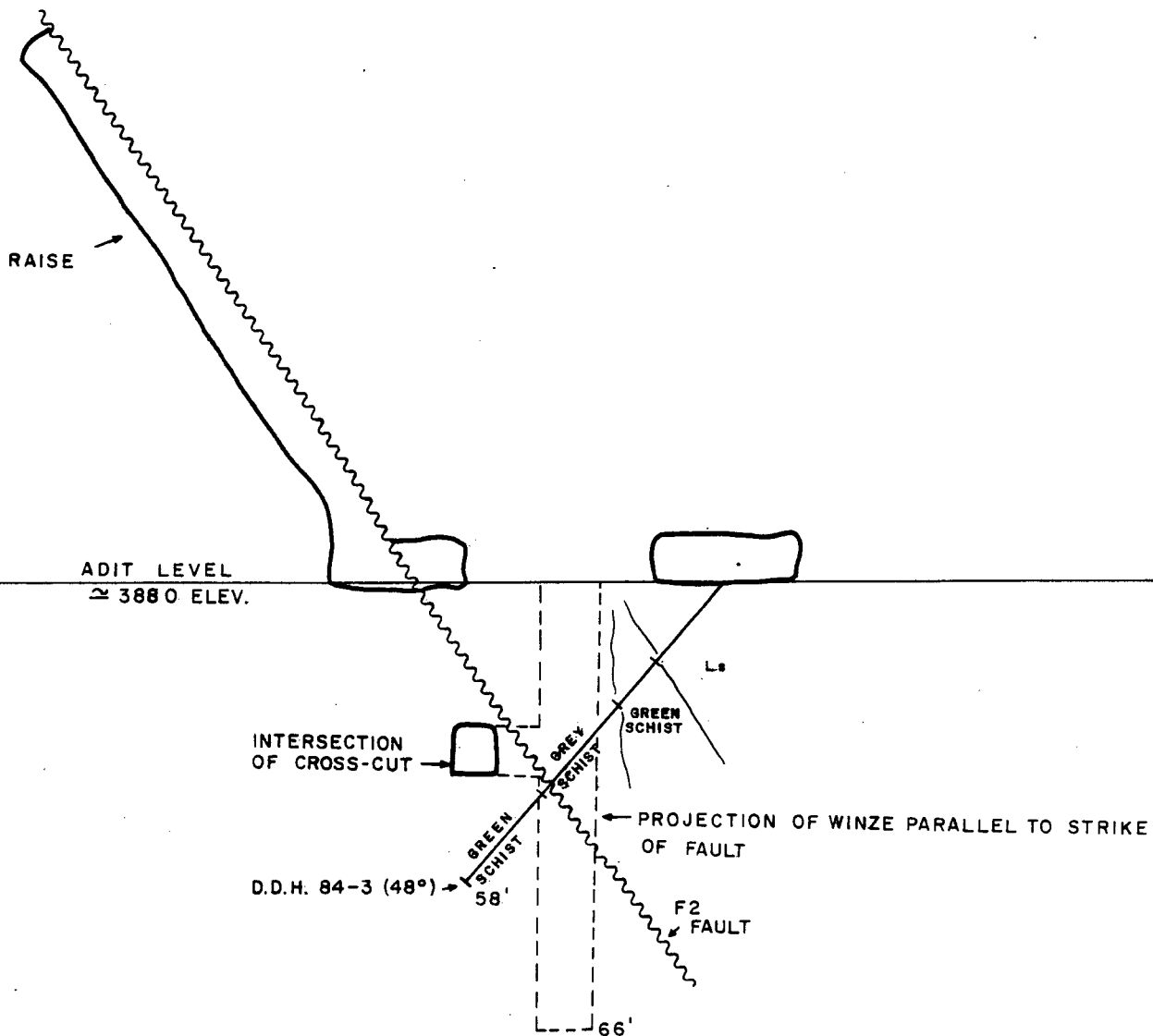
Hole 84-5 was positioned to intersect approximately the same depth extension of the ore intersected in 84-2 as was intended for Hole No. 84-4. Hole 84-5 intersected 5.5 feet of massive sphalerite and galena at the F2 fault however the intersection was at an oblique angle resulting a true width of 2.7 feet. It should be noted that the foot wall rock for this intersection was a calcareous schist which probably does not have the mineral replacement potential that limestone has. The hanging wall rock was green schist which has no potential for mineral replacement. Two days were required to complete the hole and poor weather conditions curtailed the drilling of additional holes (Figure 8).

To show more clearly the locations of drill hole intersections on the F2 fault an inclined section parallel to the plane of the fault was prepared as given in Figure 9. It is suggested that in the next drilling program the first drill hole intersection should be in the area indicated and this drill hole should be drilled from the same position as Hole No. 84-4 that was abandoned in the present program. Prior to drilling this first hole the roof of the drift should be enlarged by blasting to a height of at least 12 feet.

The following assay results were obtained from the drilling carried out:

<u>Drill Hole No.</u>	<u>Sample No.</u>	<u>Footage</u>	<u>Intersection</u>	<u>Au</u>	<u>Ag</u>	<u>Pb</u>	<u>Zn</u>
DDH 84-2	99725	1.5 - 6.5	5.0'	.003	.22	0.18	2.70
DDH 84-2 (fault)	99726	26.5 - 27.8	1.3'	.004	6.10	11.18	33.10
	99727	27.8 - 28.5	0.7	.004	4.04	7.47	11.60
	99728	28.5 - 29.5	1.0	.006	8.47	14.78	38.40
		29.5 - 33.0	3.5	(No core recovery)			
	99729	33.0 - 34.5	1.5	0.10	4.15	8.23	16.00
	99730	34.5 - 37.0	2.5	0.10	4.15	3.80	47.90
Average		26.5 - 37.0	10.5	.008	5.12	8.06	33.33

LOOKING NORTH



BLUE LAKE RESOURCES LTD.

HAM & ELK CLAIMS
HAMILL CREEK-SLOCAN MINING DIV., B.C.

CROSS SECTION
B-B'

GEORGE P. KRUECKL P.ENG.

N.T.S. 82 K/2 W

SCALE : 1 : 300

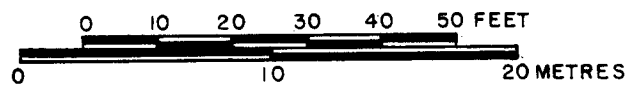
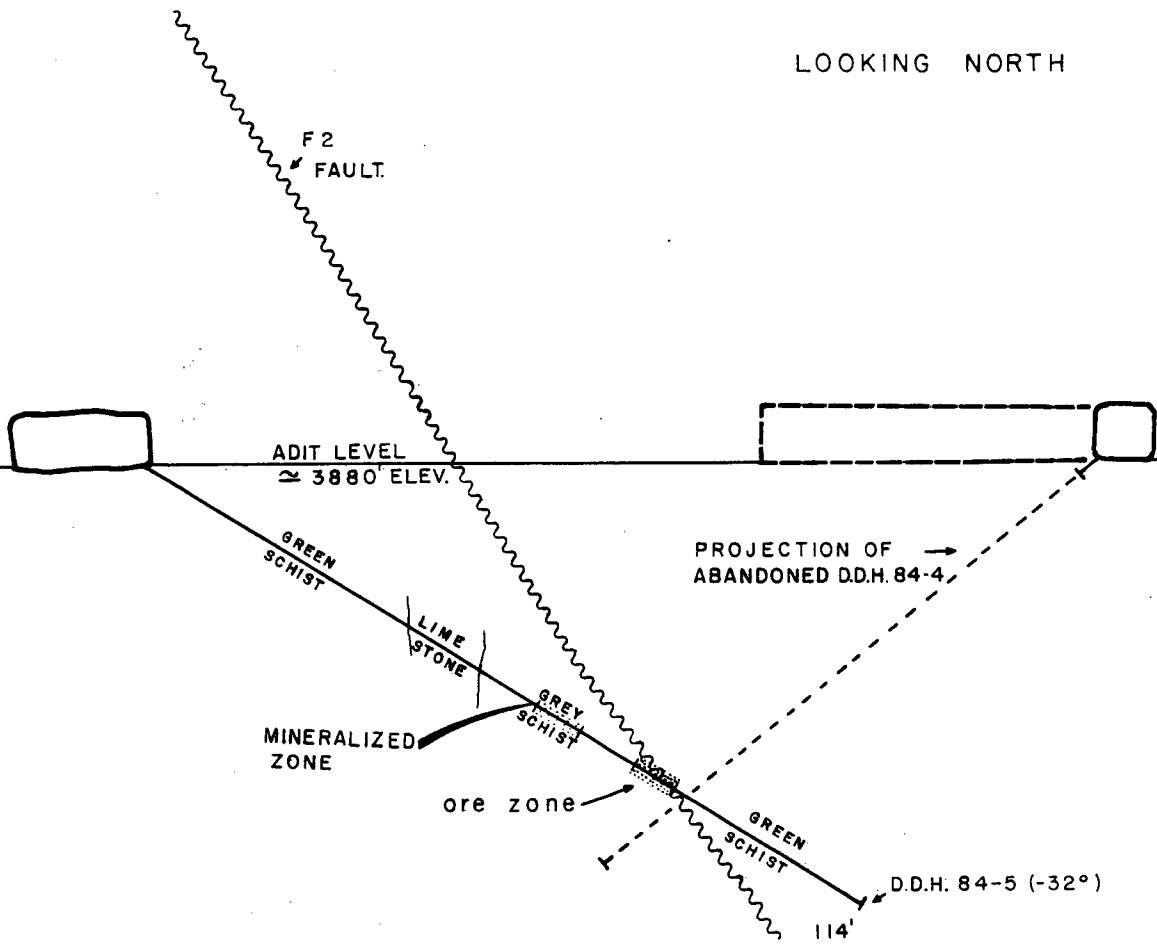
FIG.

DATE : NOV. , 1984

DRAWN : D.W.

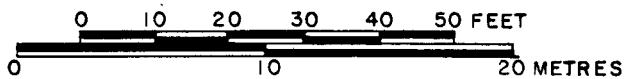
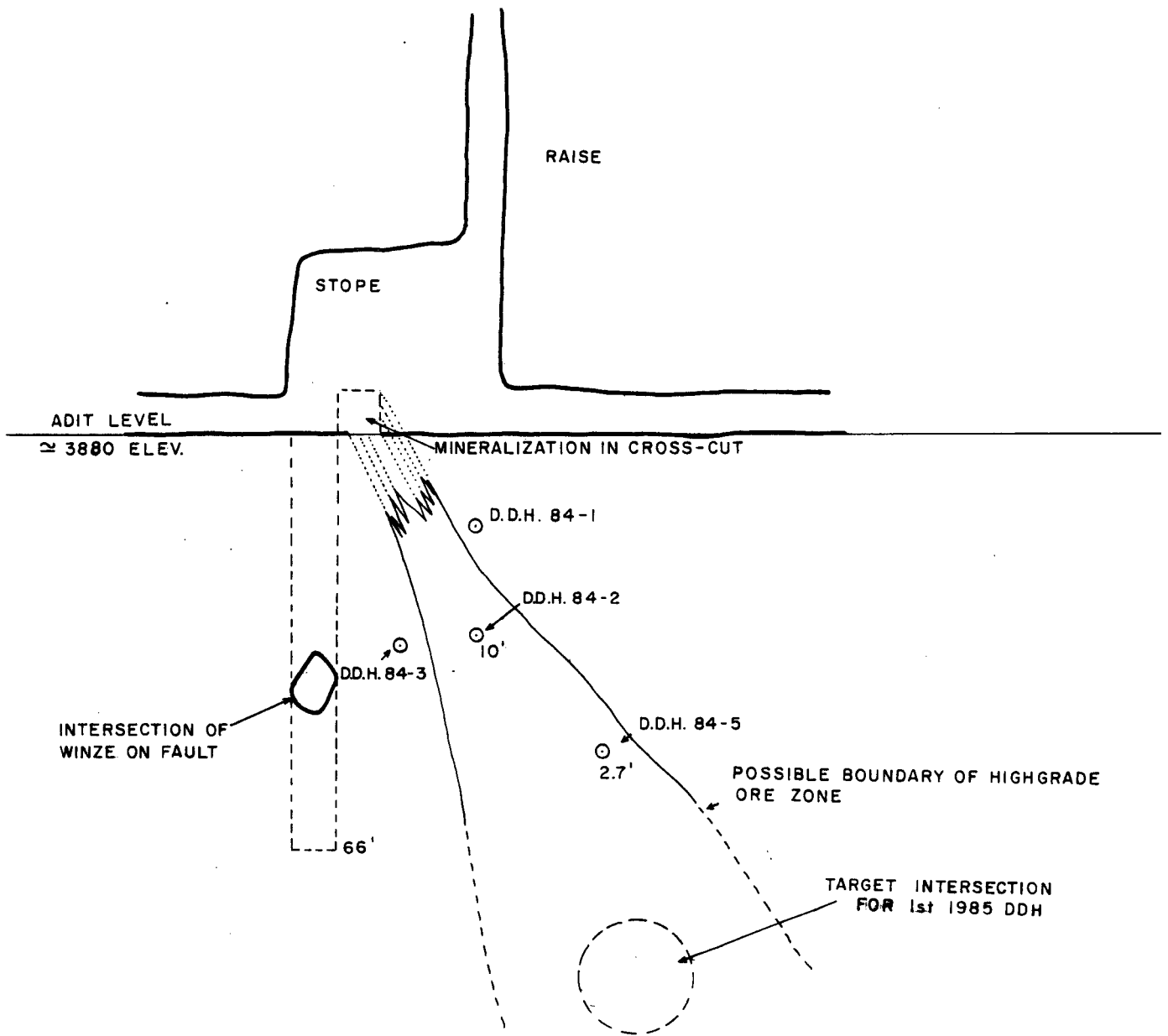
7

LOOKING NORTH



BLUE LAKE RESOURCES LTD.		
HAM & ELK CLAIMS HAMILL CREEK - SLOCAN MINING DIV., B.C.		
CROSS SECTION C-C'		
GEORGE P. KRUECKL P.ENG.		
N.T.S. 82 K/2 W	SCALE: 1:300	FIG.
DATE: NOV., 1984	DRAWN: D.W.	8

LOOKING EAST



NOTE : DRILL HOLE INTERSECTIONS PARALLEL TO PLANE OF F2 FAULT

BLUE LAKE RESOURCES LTD.

HAM & ELK CLAIMS
HAMILL CREEK-SLOCAN MINING DIV., B.C.

INCLINED SECTION
D-D'

GEORGE P. KRUECKL P.ENG.

N.T.S. 82 K/2 W

SCALE : 1 : 300

FIG.

DATE : NOV. , 1984

DRAWN : D.W.

9

<u>Drill Hole No.</u>	<u>Sample No.</u>	<u>Footage</u>	<u>Intersection</u>	<u>Au</u>	<u>Ag</u>	<u>Pb</u>	<u>Zn</u>
DH 84-5	99731-3	59.5 - 67.0	7.5'	.004	1.29	2.25	5.84
DDH 84-5 (fault gouge)	99734	77.7 - 80.3	2.6	.004	8.35	10.14	47.90
	99735	80.3 - 82.3	2.0	.004	16.32	21.36	39.70
	99736	82.3 - 82.6	0.3	.003	1.82	2.28	5.40
	99737	82.6 - 83.2	0.6	.012	11.05	13.07	46.00
Average		77.7 - 83.2	5.5	.005	11.19	14.11	42.39

(Copies of the assay results are shown in the Appendix.)

Average for two intersections 10' + 2.7' true width Gold .007 oz/t, Silver 6.87 oz/t, Lead 9.80%, Zince 35.94%.

Sample 99730 was also submitted for a semiquantitative spectrograph analysis to identify any other elements that may be present in significant quantities. A copy of this is in the Appendix.

Four nearly parallel fissures are found underground each variously mineralized. The fissure investigated by the current program was F2. Fissures F1, F3 and F4 require similar exploration. One of these fissures connects via an inclined raise with a shaft that has its collar on top of the ridge at 4040 feet. The shaft contains a vein 2 to 5 feet wide that carries galena, some dark brown sphalerite, and a little pyrite in a mass of limonite, lead carbonate and other gangue minerals. According to the literature this surface exposure was traced from the shaft at the top of the ridge, to Hamil Creek at elevation 2350 feet considerably below the tunnel adit.

In 1952 the vein exposed in the shaft was further exposed by trenching 70 feet to the south and 90 feet to the north of the shaft. The writer visited these trenches as reported in his August 1984 report. The mineralization was poorly exposed, however, some very oxidized and leached areas were sampled at the time and the following assays were obtained:

<u>Sample No.</u>	<u>Sample Length</u>	<u>Trench</u>	<u>Ag oz/ton</u>	<u>Cu %</u>	<u>Pb %</u>	<u>Zn %</u>
HS #1	1½ feet	Shaft Collar	0.98	.016	1.47	6.21
HS #2	5½ feet	North of Shaft	3.11	.037	5.13	8.95
HS #3	2 feet	#1 South of Shaft	0.61	.010	.99	2.63
HS #4	3 feet	#2 South of Shaft	0.22	.007	.18	3.19

(Copies of the certified assay results are shown in the Appendix.)

CONCLUSIONS

It would appear that the type of mineralization on this property is similar to the limestone replacement ores of the Blue Bell Mine located in a similar formation to the south of this property. The ore is a replacement of massive limestone by sphalerite, galena and some pyrite, the galena probably carrying the high values of silver.

It is felt that an important element to finding new ore on this property would be to understand the geological controls that determine the formation of mineralization in these limestone rocks. Considerable trenching and detailed geological mapping should be one of the key features of any exploration program recommended.

The evidence presented from the current drilling program suggests that at least one high grade ore zone of unknown dimension exists on this property. In addition, the following has been concluded from the current drilling program.

- 1) Mineralization identified in past years in the old workings did not identify the high grade ore zone found in the current drilling and represents only peripheral mineralization.
- 2) High grade mineralization having widths greater than 2 feet appear to occur in locations where the F2 fault coincides with the limestone formation in either the hanging wall or footwall.
- 3) The location and trend of the high grade ore has been identified by the current drilling and therefore future drilling would be advised to follow the trend indicated.

Reports by others state that the series of mineralized fissures contained in the schist and limestone rocks in the old workings has been traced on surface from the shaft to Hamil Creek a distance of 1½ kilometers south of the old workings. To the writer's knowledge, no geophysical or geochemical or geological mapping had been carried out to confirm the extension of this mineralized zone. There is mention, however, in one old report that a short shaft was dug near Hamil Creek which exposed ore grade material. Should this extension be confirmed it would be very significant and would further raise the potential of this property.

Evidence from the available literature, sampling and past exploration suggest that additional high grade ore bodies may be found by carrying out grass roots exploration involving geological mapping, geochemical sampling, geophysics and trenching. It is concluded that the property is very interesting and would warrant a comprehensive exploration program. A revised 3 phase program of mineral exploration is recommended.

COST OF 1984 DRILLING PROGRAM

The work carried out at the Hamil property site involved mucking out the caved underground workings, replacing old timbers, scaling the back of drifts, shoring up poor section by timbering and finally carrying out 272 feet of underground diamond drilling. The following is a breakdown of expenses.

1.	Timbering and mucking out caved workings	17,000.00
2.	Diamond drilling 272 feet @ 17.25 and including field costs and drilling muds	5,125.75
3.	Mobilization and demobilization of drilling contractor	452.00
4.	Fuel for compressor	592.78
5.	Underground lamps rental	75.00
6.	Engineering fees and supplies for field work	3,665.06
7.	Accommodations and meals	483.26
8.	Transportation	982.75
9.	Report preparation	2,025.29
10.	Assaying	<u>358.25</u>
	Total	30,760.14

REFERENCES

Report of the Minister of Mines

1937 page A37; 1938 page A35; 1950 page A151; 1951 page A179 & 180;
1952 page A 193 & 194; 1953 page A147; 1954 page A 144.

G.S.C. Memoir 161 page 50 & 51.

Report on the Crown Grant L1547 and Ham & Elk Claims with Record No.'s 4289(4) & 4288(4) Hamill Creek, North Kootenay, Agenta prepared by G. Krueckl, August 1984.

Ministry of Energy, Mines and Petroleum Resources: Resource Data Section-- Name of Property; St. Patrick, Regina, Flora, Marie.--Production Data.

Prospectus of Hamil Silver-Lead Mines, Limited - May, 1950.

Financial statement for Statutory Meeting of Hamil Silver-Lead Mines Limited, December, 1950

Hamil Silver-Lead Mines, Limited news releases dated December 23, 1950 and April 20 1951.

Information Bulletin - Hamil Silver-Lead Mines, Limited March 1951.

Progress Report - Hamil Silver-Lead Mines Limited - October 4, 1951.

Letter to Shareholders - July 12, 1954.

Bulletin No. 49 - Geology of the Duncan Lake Area by James T. Fyles.

RECOMMENDATIONS

The current drilling program has intersected a very interesting ore zone. This should be explored further to develop tonnage, as soon as weather permits. Prior to the current drilling program, the Hamil property had no work done on it since the early 1950's. Many successful advances in exploration techniques have been developed in the last 30 years. It is therefore recommended that the next phase of the work also include some grass roots exploration for the purpose of delineating new targets. A comprehensive 3 phase program of mineral exploration is recommended involving geochemistry, geophysics, trenching, geological mapping and diamond drilling. The program has as its primary objective to develop the property to the point where a production decision can be made.

Phase 1

Carry out underground and surface diamond drilling to further delineate the ore body identified in the 1984 drilling program. Based on information available and current drilling the ore bodies on this property would appear to be massive replacement tabular sulphide zones and since no geochemistry and geophysics appears to have been carried out in the past on this property it is recommended both these exploration techniques should be successful. Geochemical soil sampling, VLF-EM 16 and magnetometer surveys should be carried out in the first phase over the most favorable areas.

Phase 2

Additional surface diamond drilling should be carried out to further delineate the ore body discovered in the 1984 drilling program. Trenching and geological mapping of anomalies and ore zone projections indicated in phase 1 should be carried out to not only expose ore zones for sampling but also to develop an understanding of the complex geology discussed in the past literature of the property. A preliminary feasibility report may be required at this point to investigate the need for developing new underground workings for the purpose of carrying out further exploration work and ore testing.

Phase 3

Based on the results of Phase 1 and 2 carry out additional diamond drilling and develop new underground workings.

ESTIMATED COST OF THE PROPOSED WORK PROGRAM

Phase I

Bring government survey control into the area and resurvey the underground workings	\$ 5,000
Underground and surface diamond drilling 1000 meters @ \$85.00/metre	85,000
Survey of Grid (18,000 meters of line @ \$75/km)	1,350
Geophysical Surveys - 600 points - 15 km @ \$350/km	5,250
Geochemical Survey - 300 points - @ \$15.00	4,500
Engineering	25,000
Preparation of Reports	8,000
Assaying	4,000
Contingency	<u>11,900</u>
Sub-Total	150,000

Phase II

Surface Diamond Drilling 2,000 meters @ \$85.00/metre	170,000
Surveying	5,000
Trenching (150 hours @ \$100/hr)	15,000
Geological Mapping (20 days)	10,000
Assaying	7,000
Engineering	25,000
Preparation of Reports	12,000
Contingency	<u>26,000</u>
Sub-Total	270,000

Phase III

Develop New Underground Workings 2000' x \$300/ft.	600,000
Diamond Drilling (2000 meters @ \$85)	170,000
Engineering	60,000
Bulk Sampling	5,000
Ore Testing	25,000
Assaying	7,000
Preparation of Reports	25,000
Contingency	<u>88,000</u>
Sub-Total	\$ 980,000

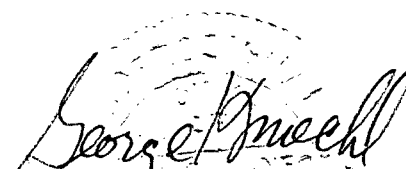
TOTAL PROGRAM \$1,400,000

CERTIFICATE

I, George P. Krueckl, of the City of Richmond, Province of British Columbia, hereby certify as follows:

1. I am a Consulting Geological Engineer with an office at 4860 Fortune Avenue, Richmond, B.C., V7E 4H9.
2. I am a registered Professional Engineer of the Province of British Columbia.
3. I graduated with a degree of Bachelor of Science, Geological Engineering, from the University of Saskatchewan, 1962.
4. I have practised my profession for 22 years.
5. I have no direct or indirect interest in the shares of Blue Lake Resources Ltd., or in the Crown grant and the Ham and Elk claims, subject of this report, nor do I intend to have any interest.
6. Permission is granted to publish this report dated November 15, 1984, in a Statement of Material Facts or in the Prospectus for Blue Lake Resources Ltd. Written permission from the author is required to publish this report for any other purpose.

Dated at Richmond, Province of British Columbia, this 15th day of November, 1984.


George P. Krueckl, P. Eng.
Consulting Engineer
#12308

APPENDIX

CONDENSED DRILL CORE LOGS

HAMIL PROPERTY

<u>Hole Number</u>	<u>Footage</u>	<u>Rock Type</u>	<u>Remarks</u>
84 - 1	0 - 9	Quartz Carbonate Schist	
	9 - 21	Siliceous Grey Limestone	fissure @ 18'
	21 - 26.5	Green Schist	fissure @ 26.5' (F2 Fault)
	26.5 - 39	Quartz Carbonate Schist	
	39 - 48	Green Schist	End of Hole
84 - 2	0 - 12	Quartz Carbonate Schist	Fault Zone @ 1' - 7' (F1 Fault)
	12 - 37	Siliceous Grey Limestone	Fault Zone @ 29.5-33 (F2 Fault) <u>Massive Sulphides</u> <u>from 26.5 tp 37.0</u>
	37 - 48	Green Schist	End of Hole
84 - 3	0 - 16	Siliceous Grey Limestone	Fault Zone @ 5' - 9' (F1 Fault)
	16 - 24	Green Schist	Fissures @ 16' and 24'
	24 - 40	Quartz Carbonate Schist	Fault Zone @ 28' to 31' F2 Fault @ 38'
	40 - 58	Green Schist	End of Hole
84 - 4	0 - 4'	Siliceous Grey Limestone	Hole Abandoned
84 - 5	0 - 42	Green Schist	fissure @ 14' and 37'
	42 - 53	Siliceous Grey Limestone	
	53 - 83	Quartz Carbonate Schist	Fault @ 82' (F2 Fault) Mineralized from 60' to 67' <u>Massive Sulphides</u> <u>from 77.7 to 83.2</u>
	83-114	Green Schist	End of Hole



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212 Brooksbank Ave.
North Vancouver, B.C.
Canada V7J 2C1
Telephone: (604) 984-0221
Telex: 043-52597

CERTIFICATE OF ASSAY

TO : BLUE LAKE RESOURCES LTD.

** CERT. # : A8416456-001-A
INVOICE # : I8416456
DATE : 5-OCT-84
P.O. # : NONE
ELDEN 1634

809 - 837 W. HASTINGS ST.
VANCOUVER, B.C.
V6C 1B6

ATTN: GEORGE KRUECKL

Sample description	Prep code	Pb %	Zn %	Ag FA oz/T
87086	207	1.96	15.80	0.94
87087	207	1.14	18.30	1.18
87088	207	13.10	1.58	0.86
87089	207	0.19	24.00	6.98
87090	207	0.70	8.22	0.48

Ag
(g/tonne)

87086 32.22
87 40.45
88 29.48
89 239.27
90 16.45

.....
Registered Assayer, Province of British Columbia





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North Vancouver, B.C.
Canada V7J 2C1
Telephone: (604) 984-0221
Telex: 043-52597

CERTIFICATE OF ASSAY

TO : BLUE LAKE RESOURCES LTD.

** CERT. # : A8417743-001-A
INVOICE # : 18417743
DATE : 20-NOV-84
P.O. # : NONE
ELDEN 1668

809 - 837 W. HASTINGS ST.
VANCOUVER, B.C.
V6C 1B6

CORRECTED COPY for Ag & Au

ATTN: GEORGE KRUECKI

Sample description	Prep code	Pb %	Zn %	Ag FA oz/T	Au FA oz/T		
99725	207	0.18	2.70	0.22	0.003	--	--
99726	207	11.18	33.10	6.10	0.004	--	--
99727	207	7.47	11.60	4.04	0.004	--	--
99728	207	14.78	38.40	8.47	0.006	--	--
99729	207	8.23	16.00	4.15	0.010	--	--
99730	207	3.80	47.90	4.15	0.010	--	--
99731	207	1.45	5.22	0.68	0.004	--	--
99732	207	4.06	9.13	2.28	0.004	--	--
99733	207	2.06	4.99	1.36	0.003	--	--
99734	207	10.14	47.90	8.35	0.008	--	--
99735	207	21.36	39.70	16.32	0.004	--	--
99736	207	2.28	5.40	1.82	0.003	--	--
99737	207	13.07	46.00	11.05	0.012	--	--

corrected

	Ag (g/tonne)	Au
99725	7.54	0.10
26	209.11	0.14
27	138.49	0.14
28	290.35	0.21
29	142.26	0.34
30	142.26	0.34
31	286.24	0.27
32	23.31	0.14
33	78.16	0.14
34	46.62	0.10
35	559.45	0.14
36	62.39	0.10
37	378.74	0.14

Blwatts

.....
Registered Assayer, Province of British Columbia





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CERTIFICATE OF ANALYSIS

TO : BLUE LAKE RESOURCES LTD.
809 - 837 W. HASTINGS ST.
VANCOUVER, B.C.
V6C 1B6

** CERT. # : A8417744-001-A
INVOICE # : I8417744
DATE : 13-NOV-84
P.O. # : NONE
ELDEN 1668

ATTN: GEORGE KRUECKL

Parameter Description	Sample # 1
Sample preparation code	214
Aluminium (pct)	3
Antimony (ppm)	100
Arsenic (ppm)	<100
Barium (ppm)	150
Beryllium (ppm)	<2
Bismuth (ppm)	<5
Boron (ppm)	150
Cadmium (ppm)	1000
Calcium (pct)	0.5
Chromium (ppm)	<20
Cobalt (ppm)	20
Copper (ppm)	2000
Germanium (ppm)	<10
Iron (pct)	5
Lead (ppm)	>5000
Magnesium (pct)	0.2
Manganese (ppm)	500
Molybdenum (ppm)	<100
Nickel (ppm)	20
Niobium (ppm)	<200
Potassium (pct)	0.5
Silicon (pct)	5
Silver (ppm)	100
Sodium (pct)	--
Thorium (ppm)	<500
Tin (ppm)	200
Titanium (ppm)	700
Vanadium (ppm)	<100
Zinc (ppm)	>10000
Zirconium (ppm)	70

! SEMIQUANTITATIVE SPECTROGRAPH ANALYSIS !

Sample description information
Sample # 1 99730

Preparation code description
214 Bag pulp

NOTE: UNABLE TO REPORT SODIUM DUE TO SPECTRAL INTERFERECE BY ZINC

Certified by



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Specialists in Mineral Environments

705 WEST 15th STREET NORTH VANCOUVER, B.C. CANADA V7M 1T2

PHONE: (604)980-5814 OR (604)988-4524

TELEX: 04-352828

CERTIFICATE OF ASSAY

COMPANY: BLUE LAKE RESOURCES
PROJECT: HAMILL SILVER
ATTENTION: G. KRVECKL

FILE: 4-747
DATE: AUGUST 10/84
TYPE: ROCK ASSAY

We hereby certify that the following are assay results for samples submitted.

SAMPLE NUMBER	AG G/TONNE	AG OZ/TON	CU %	PB %	ZN %
HS#1	33.7	0.98	.016	1.47	6.21
HS#2	106.5	3.11	.037	5.13	8.95
HS#3	20.9	0.61	.010	.99	2.63
HS#4	7.6	0.22	.007	.18	3.19

Certified by



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