

KERR ADDISON MINES LIMITED

(FOR INTER-OFFICE USE ONLY)

823211

I.D.B.
A.H.C.
P.S.C.
D.M.H.
W.J.
D.A.L.
J.B.S.
FILE

To..... D. A. Lowrie From..... C. K. Wilton

Subject..... Lexington Cu-Au property, Greenwood, B.C. Date..... December 9, 1980 typed
February 10, 1981

I have studied the data which Fred Chow sent.

I made some notes and observations as follows:

Included are plans of the mineralized zone showing the blocks used in calculating his mineral reserve, with 10% dilution, which is stated for the main zone as follows:

Proven	222,061	tons	@ 1.22%	Cu	and	0.176	Au/ton
Probable	70,015	"	"	1.31	"	"	0.198
Possible	<u>191,004</u>	"	"	1.31	"	"	0.187
TOTAL	483,080			1.27			0.18

Phendler's table of mineral reserves is also included.

Complete zone

(indicated tons)	503,670	tons	@ 1.25%	Cu	and	0.195	ozs. Au/ton
High Grade	170,420	"	"	2.38%	"	"	0.526
In addition	209,000	"	(possible tons)				

Near surface, correlation is poor on dip, even in closely spaced holes (see section 20+75N). On section 14+00N, correlation of width and gold values is poor. This makes correlation of zones in longitudinal sections questionable also.

There seems to be no data such as mapping of the recent adit which was apparently not in the ore. It is apparent that the early work near the top of the quartz-feldspar dacite stock was in quartz veins which produced only small tonnages. Phendler (1979) says that the zone near the base of the dacite is a "gently dipping pipe-like zone of mineralization 400 metres in length, 50 metres in width with an average thickness of 20 metres. This "main zone" was said to have an indicated tonnage of 1,100,000 averaging 0.93% Cu and .13 oz. Au/ton (uncut). Phendler states that three percussion holes drilled by Granby in 1972 confirmed grade and thickness. This is questionable (see section 20+75N to compare Granby hole P-12 with D.D.H. 34).

Phendler says that the main minerals, pyrite and chalcopryrite, are in fractures and disseminations and to a lesser extent in quartz stockworks. Dr. N. Church (of the B.C. Dept. of Mines) said that fractures are strongly developed locally and the intensity of mineralization appears to be proportional to the relative development of fractures.

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To..... From.....

December 9, 1980 typed

Subject..... Date..... February 10, 1981

-2-

Even though both Phendler and Chow obtained a gold average grade per ton approaching .20 ozs./ton a casual examination of maps such as Fig. 5 (Cannon-Hicks associates longitudinal section) shows that only holes 13 (.10 Au/54'), 4 (.25 Au/80') and 21 (.23 Au/78') out of 32 diamond drill holes and 31 percussion holes have values in gold of .10 or better. Two other holes, P.74-2 and P.74-12 are considered by Phendler to be unreliable at depth due to excessive loss of drill cuttings. They averaged .14 ozs. Au/ton over 9.39 meters and .22 ozs. Au/ton across 8.18 meters, respectively.

The attached plan (from Fig. 4 of Cannon-Hicks plan) shows the dominant shear direction, weaker shear direction and cross-joints and tension fracture direction in the host rock in relation to the best holes. The report on geology, exploration and mining, 1970, says that the intensity of mineralization appears proportional to the relative development of fractures. It appears that the values in holes 13 and 4 could be related to the same mineralized fractures (the dominant shear direction) and the values in holes 21 and 26 could be related to the same dominant shear direction but not to the same shears. The dip of the blocks on the sections is about 20° which does not correspond with the 50-55° northeast dip of the fractures.

The data includes part of the logs of shallow holes 35 and 34 which are low in copper and gold and are near surface. In hole 35, footage 86-90, which ran .79% Cu and .03 Au is described as "good cp in stringers and segregations (2%) with biotite; footage 90-93 was fault gouge and 93-94.5 highly fractured with .05% Cu from 90-95. Footage 75-93 was described as "Dacite, highly altered zone, chlorite and shearing". In hole 35, footage 50 to 116 assayed from .04 to .49% Cu and from .005 to .06 ozs. Au/ton due to quartz pyrite chalcopryrite veining in dacite with foliation at 45-60° to the core axis. Logs of the better Cu-Au intersections at depth are not included in the data.

C. K. Wilton

CKW/sw

Attachments

Not 50

Two other holes
P-36 to P-37
had values of
.14/.28.4' and
.22/.29.8' so
there are
5 good holes
in gold out
of 32 d.d. holes
and 31 percussion
holes
CKW

How many of these holes
are in the "zone"

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DEC 10 1980

To D.A. Lowrie **From** W.M. Sirola
Subject Grenoble Resources, Lexington Property, **Date** December 9, 1980
Greenwood area, B.C. 82E-2

I.D.B.
A.H.C.
P.S.C.
D.M.H.
W.J.
D.A.L.
J.B.S.

FILE

In rummaging through a box of technical data acquired from Bob Seraphin, I found a report by a Tricon geologist who had prepared the enclosed isometric diagram of the main deposit of this property. This diagram is easy to look at and useful when talking to people about mining problems etc.

In addition to the diagram, Fred Chow tells me that he has some drill hole grade tabulation which will be included in this package.

W.M. Sirola,
Regional Exploration Manager.

WMS/al: Encl.

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DEC 10 1980

To D.A. Lowrie From W.M. Sirola
Subject Lone Star Mineral Reserves, Date December 9, 1980.
Greenwood District, B.C. 82-E-2

LEE
A.M.C.
R.S.C.
D.M.H.
W.J.
D.A.L.
J.B.S.

FILE

The reserves for the Lone Star pit area are broken down into those north of the 49th parallel on the Richmond claim and south of the 49th parallel on the Lone Star and Washington claims.

The mineralized zone on the Richmond claim (based on 14 diamond drill holes) has the dimensions: 1700 ft. x 300 ft. x 52 ft. for a total of 2,100,000 tons averaging 0.51 copper, 0.014 gold and 0.083 silver. The waste to ore ratio is 2.6:1.

The Lone Star reserves have been estimated to be somewhere between 2.3 and 4,000,000 tons with a grade ranging from 0.54 to 0.58% copper. The waste ore ratio varies from 5.7 to 8:1. Within these reserves is a higher grade plum for which estimates range from 400,000 tons at 0.95% cu to 610,000 tons at 0.99% cu. The deposit contains some gold which might average from .025 to .035 oz. per ton.

For reasons which are not very clear to me, Granby did not see fit to avail themselves of these reserves while their mill at Phoenix was still in operation.

We will research this information much more thoroughly before making any recommendations.

W.M. Sirola

W.M. Sirola,
Regional Exploration Manager.

WMS/al:

P.S.

I should have mentioned that these reserves could be used to augment the reserves on the Lexington property if we made a deal with Bob Seraphim and his partner. Seraphim has just advised me that Granby felt that the mill field available from the Lone Star area would not be adequate to keep their 2,000 tpd mill in operation. In addition the two top benches were oxydized and recoveries of this material would have been low. These problems were aggravated by the 50¢ per pound net smelter Granby was receiving at that time. *feed*

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DEC 15 1980

To D.A. Lowrie **From** December 12, 1980.

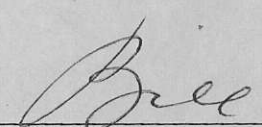
Subject Grenoble Mines, Lexington Property, **Date** December 12, 1980.
Greenwood, B.C. (82-E)

J.B.S.
CKW
FILE

Pursuant to yesterday's telephone conversation, it is my belief that the mineralization on this property is not stratiform inasmuch as it appears to be fracture controlled and exhibits no stratification. It is strata-bound in the sense that it is essentially confined to one rock unit and seemingly is conformable to the serpentine - dacite contact.

To the best of our knowledge no drilling has been done to the southeast (down plunge) from the known mineralization on the Lexington ground. However, this ground belongs to Seraphim and his associates and any intended work would necessitate a deal with Seraphim et al.

I tried again to reach Pat Bowes this morning and was told that he was signing an underwriting at Doherty Roadhouse. This would imply that Bowes and Nosalek still intend to raise some money from the public prior to dealing with people like ourselves.



W.M. Sirota,
Regional Exploration Manager.

WMS/al:

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P.S.C.
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W.J.
D.A.L.
J.B.S.

FILE

To..... P. S. Cross From..... D. A. Lowrie

Subject..... Lexington Property - Greenwood area, B.C., Date..... February 13, 1981
Owner - Grenoble Resources Ltd.

CONCLUSIONS

This property appears to be a good exploration prospect with a very small downside risk. The outlook for increased metal prices over the next few years is thought to be good but with present reserves and present prices and a used mill of say 350 t.p.d. capacity, the property should make a small return on investment. Additional ore is available on the adjacent property, however, the grade and tonnage available requires some investigation. No exploration has been performed to prove the possible extension of the Lexington "Main Zone" into the adjacent property at depth.

RECOMMENDATIONS

(1) A satisfactory agreement should be negotiated and approved.

(2) The terms would include:

1st year (\$100,000 work in the first stage
 (150,000 additional work in the first year

The first stage drilling will determine the continuity of ore grade material in the "Main Zone". If the continuity is good then the adjacent property should be acquired under option and some drilling performed to ascertain the "Main Zone" extension.

	<u>Work Schedule</u>		<u>Grenoble Resources</u>
	<u>Expenditures</u>		<u>Shares taken down</u>
1st year	\$250,000	for	100,000 shares
2nd year	300,000	for	100,000 shares
3rd year	400,000	for	100,000 shares

If the first stage drilling results are positive and favourable, then additional drilling and an underground sampling program will be logical next stages.

INTRODUCTION

The property has been explored within the past 20 years by several companies including Granby, Grenoble has driven an adit into the deposit and drilled a few holes to produce news (see attached G.C.N.L. report). It is established that the plunging pipe-like zone contains high grade zones and that several additional holes are required to establish confidence in the continuity of grade, thickness, and width.

KERR ADDISON MINES LIMITED

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To.....From.....

Subject.....Date.. February 13, 1981

-2-

OBJECTIVE

To negotiate an option agreement which would allow Kerr Addison to earn an interest in the property on equitable terms, with an early right to confirm the grade and tonnage.

PROPOSED INITIAL PROGRAM

It was proposed that five drill holes for a total of 3,050 feet would be drilled to substantiate the reserves and to establish intersections at 100 foot intervals along the plunge of the deposit. The reserves have been calculated from existing data by F. Chow, W. Sirola and C. Wilton. If the results of the initial program show that continuity of grade and tonnage persist along the plunge of the zone, then additional drilling will be performed to add to the reserves down plunge.

THE DEPOSIT

"Main Zone", Lexington Zone.

The dimensions of the mineralized zone are 400 metres x 50 metres wide x 20 metres thick.

This zone plunges at about 30 degrees to the southeast and lies within a porphyrite dacite near its lower contact with serpentinite. Mineralization consists of chalcopyrite and pyrite in fracture zones of varying intensity and the entire zone appears to be conformable with the underlying serpentinite. This conformity tends to reinforce our opinion that the mineralization is likely to be more or less continuous between the drill holes and that the grade should be less erratic than as indicated by the few holes which encountered low grade values. It appears from all data studied that the tonnage could be greatly enlarged by lowering the cut-off grade. The sparse information suggests that the grade gradually decreases along strike (not down plunge). Phendler's report that the main zone possible tonnage is about 1,100,000 tons of 0.93% Cu and 0.13 oz. Au per ton, may be realistic.

Fred Chow's recalculation resulted in the following which includes 10% dilution.

Proven	222,061 tons	1.22% Cu	and	0.178 oz. Au/ton
Probable	70,015 tons	1.31 "	"	0.198 "
Possible	<u>191,004 tons</u>	<u>1.3</u> "	"	<u>0.187</u> "
TOTAL	483,080 "	1.27 "		0.18 "

...3

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To..... From.....

Subject..... Date February 13, 1981

-3-

LEXINGTON - GRENOBLE RESOURCES

Estimated - 500,000 tons
Cu = 1.3% Au = 0.17 oz./ton
Start-up cost - \$5,000,000

RECOVERABLE

Cu 80% and NSR Cu price = 50 cents/lb.
Cu = 26 lbs. x 0.8 x .5 = \$10.40
Au = 90% and Au = \$500 Can.
= 0.17 x .9 x 500 = \$76.50
Total recovery = \$86.90

MINING AND MILLING

300 t.p.d. or 75,000 t.p. yr.
Life = 6.7 years

Cost - Mining - \$50
Milling- 15
\$65

1. Net operating = 86.90 - 65.00 = \$21.90
Pay out = 3.1 years

or

2. 86.90 - 55.00 = \$31.90

Total net recovery = payout = 2.1 years

1. \$10,000,000)
2. \$15,000,000) using 500,000 tons

LEXINGTON

UNKNOWNNS

Copper price - probable increase over next six years in
excess of inflation

...4

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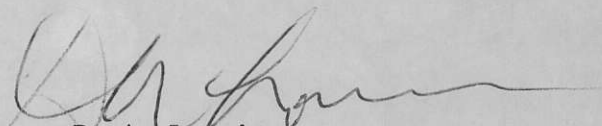
To.....From.....

Subject.....Date.. February 13, 1981

-4-

Gold prices - probable increases in excess of inflation
with copper @ NSR = 60 cents and costs as above
and Gold @ \$600 Can.

Net operating becomes	12.48
	+ <u>91.80</u>
	<u>104.28</u>
with costs of	<u>65.00</u>
Net	<u>39.28</u>
Or	104.28
with costs of	<u>55.00</u>
Net	<u>49.28</u>



D. A. Lowrie

DAL/sw

Attachments

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D.M.M.
W.J.
D.A.L.
J.B.S.

FILE

To P. S. Cross

From D. A. Lowrie

Subject Lexington and Lone Star Properties

Date February 16, 1981

Summary

There are good possibilities that the continuity of the "Main Zone" can be established by fill in drilling at a cost of about \$100,000. This cost would include the cost of a 900 foot hole to explore the continuity of the plunge into the Lone Star property to the southeast.

If continuity exists from section to section down plunge but not into the Lone Star property, the deposit should average 1.3% copper and 0.18 oz. Au/ton for approximately 400,000 - 500,000 tons.

Fred Chow estimates the reserves available on the Lone Star to be:

153,000 tons 0.7% Cu and 0.02 oz./ton Au
open pit

277,000 1.8% Cu and 0.02 oz./ton Au
underground

The Lone Star property can be obtained by an option agreement from its owners. Any move to acquire this property should await results of the initial drilling on the Lexington "Main Zone". The Lone Star is not economic by itself and this fact is recognized by the owners.

The elements of the Lexington agreement proposed are:

<u>Year</u>	<u>Work Expenditures</u>	<u>Grenoble Shares taken down</u>
1	250,000	100,000
2	300,000	100,000
3	400,000	100,000

4 By the end of 4th year-production decision. Kerr has the right to drop out after the first \$100,000 in the first year and at the end of each year thereafter.

If Kerr makes a positive production decision, Kerr will be deemed to have earned a 60% interest in the property. Grenoble may elect to contribute 40% of the development costs or to accept a 15% carried interest in the property.

In view of the possibility that some ore may be derived from other properties, Kerr Addison may elect to construct a mill on a site of its

KERR ADDISON MINES LIMITED

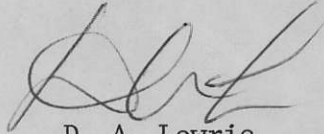
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To.....From.....

Subject.....Date February 16, 1981.....

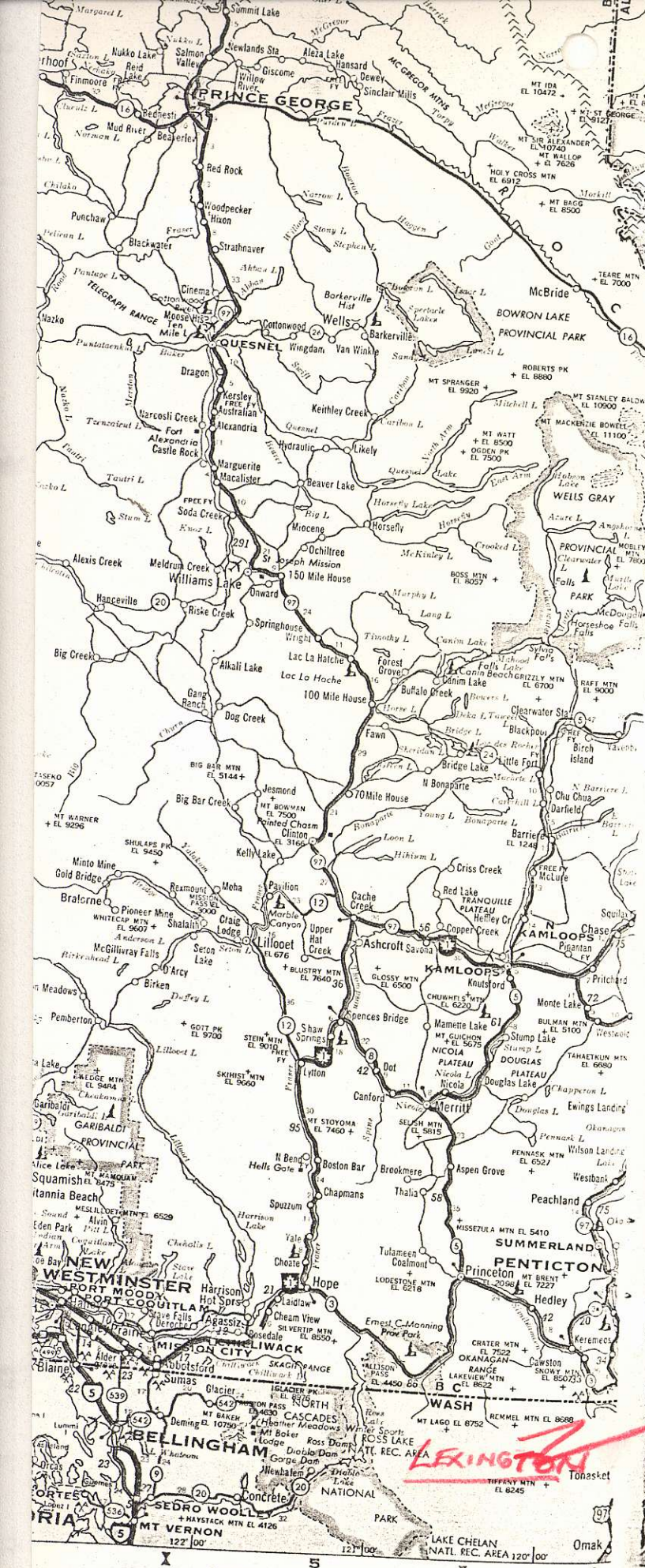
-2-

choosing and at its sole cost, if so decided.

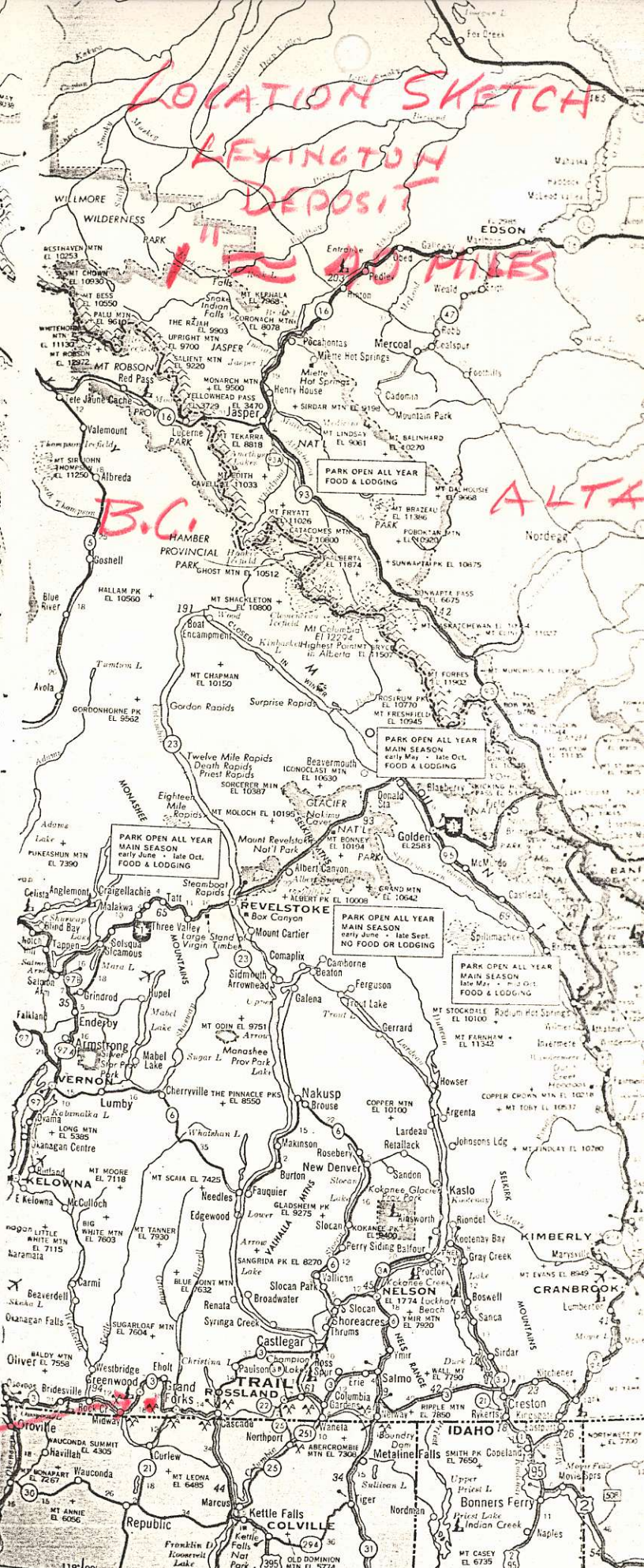


D. A. Lowrie

DAL/sw



For Washington see pages 86-87



For Idaho see page 31

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JAN 9 1981

To D.A. Lowrie From W.M. Sirola

Subject Grenoble Resources, Date December 23, 1980.
Lexington Property, Greenwood Area, B.C.
(82-E-2E)

I.D.B.
A.H.C.
P.S.C.
D.M.H.
W.J.
D.A.
J.B.S.
FILE

Herewith Fred Chow's reserve estimate together with a proposed diamond drilling program.

W.S. & D.A.

We have jointly determined that an initial 3,050 feet of diamond drilling would determine whether or not there would be any justification in drilling a total of 4,525 feet. Of this footage, 700 feet would be conditional.

If the additional drilling on the Lexington ground established a minimum of 400,000 tons with an average grade of 1.2% copper and 0.18 oz. per ton of gold, then it would seem feasible to option Seraphim's adjoining claims with the thought of extending the deposit down plunge. That portion of the Lone Star group on which the possible extension occurs has not been drilled in the past and as Fred points out, the minimum length of drill hole would be 890 feet which would have to intersect a cigar-shaped target with a maximum dimension of 100-150 feet. The cost of investigating the Seraphim ground apart from any option payments would be in the order of \$80,000 to \$100,000. However, such a program would certainly be justified if the Lexington property lived up to its potential.

Too low

Preliminary calculations using current metal prices, \$30 operating costs and a \$6,000,000 capital investment including interest, would have a net present value of approximately \$7 million when the cash flow is discounted at 20% compound interest. These calculations are based on a 200 tpd plant operating 330 days per year. The capital cost would be repaid in less than 2 years.

Too low

Pat Bowes said over the telephone this morning just about what he has told us in the past. He is interested in making a deal but has not yet made his peace with Nosalek who still hopes that he can make a market on the drilling information obtained in recent time. I doubt that this is the case inasmuch as the impending drill core assays do not really add very much to the picture. Bowes has agreed to a meeting early in the new year and we will see what happens at that time.

Bill
W.M. Sirola,
Regional Exploration Manager.

WMS/al: Encl.

P.S. We recognize that a drop in the price of gold to the \$500 level would eliminate the profitability of this operation.

KERR ALJISON MINES LIMITED

(FOR INTER-OFFICE USE ONLY)

To W.M. Sirola From F. Chow

Subject Proposed Diamond Drilling on Date December 18, 1980.
Lexington Property, Greenwood, B.C.
82-E-2E

INTRODUCTION

The Lexington Property consists of located mineral claims and Crown Grants, totalling 20 claims. It is located 11 km. southeast of Greenwood, B.C. close to the U.S. border. Presently, Grenoble Energy Limited holds the property by option agreements.

During November-December, 1980 the writer made a study of the mineral reserves within the Lexington Property tabulated as follow:

ESTIMATED DRILL INDICATED MINERAL RESERVES

1. <u>Main Zone</u> :	<u>Category</u>	<u>Tons</u> <u>@ 10% dilution factor</u>	<u>Grade</u>	
			<u>Cu %</u>	<u>Au oz/T</u>
<u>(North)</u>	Proven	222,060	1.22	0.176
	Probable	70,010	1.31	0.198
	Possible	191,000	1.31	0.187
	TOTAL	483,080	1.27	0.184
2. <u>South Zone</u> :				
Upper Band	Proven	16,250	0.82	0.098
	Probable	4,020	0.89	0.089
	Total	20,274	0.83	0.096
Lower Band	Proven	24,240	0.77	0.051
	TOTAL	44,515	0.80	0.072

PURPOSE OF PROPOSED DRILLING

Preliminary calculations have projected a viable operation on the Lexington Property when a minimum of 400,000 tons of proven mineral reserves, grading about 1.2% cu and 0.18 oz/T Au have been established.

The 400,000 tons may be proven by further diamond drilling to bring the probable and possible mineral reserves to the proven category of similar grade.

KERR ADDISON MINES LIMITED

(FOR INTER-OFFICE USE ONLY)

To W.M. Sirola From E. Chow
 Subject Lexington Property Date December 18/80

PAGE 2.

PROPOSED DIAMOND DRILLING

	<u>Location</u>	<u>Hole Depth, ft.</u>	<u>Remarks</u>
(1)	15+00 ^N / 0+25 ^E	520	Fill-in @ 100'-interval on strike
(2)	12+00 ^N / 1+20 ^E	640	To locate mineral zone and to prove continuity from section 10 ^N to 14 ^N
(3)	13+00 ^N / 0+90 ^E	560	Fill-in @ 100'-interval on strike
(4)	11+00 ^N / 1+40 ^E	650	Fill-in @ 100'-interval on strike
(5)	9+00 ^N / 1+70 ^E	680	To prove continuity of mineral zone 100' east of section 10 ^N
(6)	8± ^N /	(700)	To be re-drilled later when more is known about dyke
(7)	6+80 ^N / 2+20 ^E	725	To check extension of zone down plunge southeast of dyke
(8)	5+80 ^N / 2+25 ^E	750	To check extension of zone down plunge southeast of dyke.
	5+50 ^N / 2+35 ^E		Property boundary, Lincoln M.C./ Jean Fr. (Bob Seraphim's)
TOTAL		3,825 plus (700)	

Drilling the first five holes totalling 3,050 feet would establish drill holes at 100-foot centres along the length of the mineral reserve. The results would be a check for continuity and hopefully bring the probable and possible reserves to the proven category. This would be Kerr's initial program and maybe involvement.

THE SEARCH FOR ADDITIONAL MINERAL RESERVES ON LEXINGTON MAIN ZONE

Additional reserves down the plunge of the structure are possible but the search for it faces many problems, i.e. (1) drilling to depths past 500' is difficult to maintain on line; (2) the pipe-like zone, approximately 100-ft. wide is a small target to intersect at depth; (3) drilling will be costly, and (4) limited ground (approximately 200 ft.) on strike to prospect within property before the structure plunges into adjoining ground belonging to Bob Seraphim.

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(FOR INTER-OFFICE USE ONLY)

To W.M. Sirola From F. Chow

Subject Lexington Property Date Dec. 18/80

PAGE 3.

SEARCH FOR DOWN PLUNGE EXTENSION ON BOB SERAPHIM'S LONE STAR GROUP

If the Lexington zone continues southeast then the structure could extend for another 800 feet through Seraphim's Jean Fr. and likely end in the Orphan C.G. Claim, at the junction of the northeasterly fault offsetting the southeasterly bearing diorite dyke(?).

The surface elevation decreases slightly towards the southeast over the prospect area; therefore, the depth to the zone increases with the plunge at approximately 35/100'. A drill hole spotted at 400 ft. from the common boundary would have to be drilled 890 ft. to pass the target.

SUGGESTIONS ON DRILLING

In diamond drilling the hole should be advanced at a slow, controlled rate to minimize deflection. BQ should be the minimum size used. It is recommended that NQ size equipment be employed.

SEARCH FOR ADDITIONAL RESERVES ON BOB SERAPHIM'S LONE STAR GROUP OTHER THAN THE LEXINGTON ZONE

To augment the ore to the Lexington mill, a study was made of the adjoining property from which about 400,000 tons grading 1% cu and 0.02 oz./Ton Au was mined in 1978. A preliminary study of the Lone Star Group of claims reveals only low grade gold in association with copper mineralization. There are proven and probable zones* of 1%-2% cu with 0.02+ oz. Au available by underground mining.

The country rocks and the host rocks are the same on both properties and show similar dips and plunging structures or zones. The mineralization on the Lone Star claims is widespread and occurs in multiple bands and zones.

* In the United States, about 4,000' south of the Lexington boundary, an area 300' x 300' south of the open pit has been drilled out at 100-foot centres showing three or more horizons of 1% plus copper.

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To W.M. Sirola From F. Chow
Subject Lexington Property Date Dec. 18/80

PAGE 4.

* A large low-grade copper and/or copper-molybdenum deposit may be found south of the Lexington property but, more likely to occur in the United States, about 4,000 ft. south of Lexington boundary. (See separate report "Preliminary Study of the Lone Star Group of Claims").


Fred Chow.

FC/al:

* This is speculation based on a higher MoS₂ content in drill holes CG-4,5,6+7 drilled by Coastal Mining in 1973. Only 1 drill hole # CG-6 was assayed & indicated a grade of 0.28% Cu, 0.043% Mo/100ft.

NA.