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TELLURIDE PROJECT

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WHITESAIL LAKE MAP-AREA

ASSAYS

TELLURIDE PROJECT

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WHITESAIL LAKE, LINDQUIST LAKE AREA

<u>(August, 1979 - August 1983)</u>

CONFIDENTIAL

August 19, 1979

TELLURIDE PROJECT, TWEEDSMUIR PARK, WHITESAIL LAKE BRITISH COLUMBIA Resume of Visit August 1979 Dennis W. L. Fairbairn, P. Eng.

Don James - returned to town two days after I had arrived there.

- -- thought that chances of obtaining Government permission to mine in Tweedsmuir Park are nil. Reason: the Government would not be prepared to face the "flak" generated by such a move.
- -- only information he had <u>on paper</u> that we did not was the Report (Summary) by O. S. Papesik (geologist) in late 1956 after <u>last</u> field work.
- -- no maps of any kind, let alone the vital Mine Engineering plans and sections and geological maps.
- -- corrected my erroneous impression that drifting and sampling had been done on the main vein (the only underground exposure of the main vein was in the 4260 adit (x-cut), in which the adit was collared. All the drifting, some 1,400 feet, was in the "contact vein."
- -- explained that the main vein dips flatly to the northeast near the collar of the adit, (and on surface), disappears beneath the adit, and then reappears about 120 feet further northwest, with a flat dip to the southwest.

TALOS DAISE MAIN VEIN 4260' XCUT 4262 DRIFT SHEAR FAULT / VEIN MAIN VEIN CONTACT

looking west or northwest

- -- explained that raising which was thought to have been done on the main vein was actually on the "contact vein."
- -- pointed out, as does Papesik, that the contact vein appears to be of mineable width and grade only where the main vein joins the contact zone (the main vein splitting into stringers to be west of the contact vein, and <u>terminating against</u> the contact vein).
- -- repeating -- all the 1,400' [±] of drifting developed no ore in the main vein, nor did it provide any information about the main vein.
- -- there are contradictions in the various estimates of tonnage and grade. One estimate by Leaming (1955) assigns only 8,600 tons to reserves, and that in the 20 feet or so at the intersection of the main vein and the contact vein (grade --0.457 oz Au and 13.40 oz Ag).

Ross, in 1953, (could that be Rose?) assigns 106,000 tons of 0.255 and 6.34 oz to the main vein, and 88,000 tons of 0.40 oz and 12.24 oz to the contact vein.

Papesik, in 1955, assigns 90,000 tons at 0.25 and 7.0 oz to the main vein (including the intersecting zone of the "main" and the "contact"), and NONE to the contact vein.

Don James, 1955, assigns 100,000 tons at 0.28 and 9.5 oz to the main vein (including intersecting zone) and nil to the contact vein.

Based upon the foregoing, and in view of the segmented nature of the main vein, the flat dip of the main, and the rising footwall, and the 10° easterly dip of "main vein--contact vein" intersection, (all of which introduce rather troublesome mining problems), and, also, in view of the reported, but not verified, large zones of "barren" quartz in the main vein, my guess is that recoverable ore is of the order of 60,000 tons, at the most, with a grade of about 0.25 oz Au and 7.0 oz Ag (\$80/ton Au and \$55 -/ton Ag = \$135/ton ore).

We must get hold of the results of Pioneer's surface

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work and diamond drilling on the main vein -seemingly -- the only work done on the main vein -to get a more accurate picture of the tonnage, grade and geometry of the various faulted main vein blocks). (This, before we can make any meaningful cost estimates.)

Victoria Provincial Government

The foregoing was somewhat discouraging, but I decided that the proposition still warranted further investigation.

I managed an appointment with Nick Carter, Senior Geologist, Mineral Resources Branch (604-387-5975), for a confidential talk. Question -- "Is there, or is there not, a possibility of obtaining permission to mine the deposit?" Also -- "may I land in the park, and may I take samples?" Answer -- "Do it quickly and quietly and you will probably get away with it."

Carter is most sympathetic to the mining industry and reports to the Deputy Minister.

Carter felt that there was a possibility, but there was nothing at all to be done until after the B. C. Supreme Court case, (involving compensation to claim-owners dispossessed by changing park classifiction from B to A and by creation of "A" parks from Crown land), had been heard late this fall.

Carter felt there was nothing to be done re our obtaining a "first claim" on Deerhorn.

Fraser Sheppherd, who was on holidays during my Victoria visit, had previously suggested that there might be something to be done to establish a "first claim." I will follow up with Fraser.

Smithers Deerhorn

I managed to get to Smithers vis P.W.A. after a two-day delay.

I had reserved a jet ranger, (chopper), from Okanagon Helicopters, based in Smithers. I kept away from Houston to make myself and my mission less conspicuous. The flight to Deerhorn, about 150 miles from Smithers, took about one hour. Flew South, down the East edge of an advancing cloud bank, the bottom of which was at about 2,400' elevation. The cloud was just arriving at Deerhorn as we did. At 4,200', visibility was already poor; was able to spend only 22 minutes on the site. The flight cost over \$750--could not afford to abort--so did what I had to do in 22 minutes.

Found portal easily but there was <u>only</u> just enough flat space for the chopper to land.

The road from Whitesail to Lindquist and the portal seemed useable.

The cabin at Lindquist was standing and appeared OK.

The only other structure seen standing was the compr. house-shop, etc. at the portal; it can be rehabilitated.

The portal is in good shape and clear water in tunnel (x-cut) only to top of ties. Only one set of timbers examined--the first--they are still sound.

I had intended taking my samples from the x-cut at 172' to 207' where grade and width reported at 0.49 oz Au and 14.8 oz Ag across seven feet, but shortage of time (fog), and being alone and uncertainty re underground loose rock and inability, (back), to pack heavy loads over bad footing, precluded it.

Managed to find, to the east of the dump, what looked like a mound of selected quartz--well mineralized--and gathered up about 200 pounds in three duffel bags which I had obtained for the purpose from the H. B. C.

Could have obtained the sample from the outcrop at the portal, but time and uncertainty of grade made what I did to seem the wiser choice.

Took a small 100 gram sample from the outcrop, which looked identical to the specimens which had been retained in an envelope by Joubin up until the present. The pilot, about to leave without me, I climbed) aboard. There was a fair amount of "loose" on the outcrop, and, with the pinch bar which I had bought, several hundred pounds of "ore" could have been obtained in an hour.

The chopper had to drop straight down to Lindquist Lake for visibility across to Whitesail.

I think that the "ore" which I obtained at the dump was from the contact vein rather than the main vein (the quartz was less white--less milky--and there appeared to be more S in it than is typical of the main vein). However, as long as the samples contain gold and silver in significant quantities, I am sure they will adequately serve the purpose--(extraction or concentration testing).

Subsequently

Samples flown to Vancouver air freight and in error by P.W.A., trans-shipped Air Canada, <u>air express</u>, to Toronto.

Joubin and I decided on Lakefield Research, Lakefield, Ontario, for laboratory testing.

I delivered the samples to Lakefield on August 16.

Lakefield contact is D. M. Wyslovzil, P. Eng., Box 430, Lakefield, Ontario.

Instructions: 1 crush, quarter and run each quarter for Au and Ag; 2 report results to Joubin or Fairbairn before performing any further work including spectrograph).

My guess is that the most economical and desirable process will be a simple grind and float.

Re mining and milling, I think we both feel that the most economical approach, (and the most acceptable approach to the Government), would be to mine, (in the Park), to haul (skid), ore to Whitesail, and mill either on the north shore of Whitesail Lake (which is all outside the park)--possibly at or near the "Little Whitesail"--Whitesail Narrows--or, after barging, to mill closer to civilization and manpower at Ootsa Lake. Flotation would create a minimum of tailing and waste disposal problems, and would be done outside the Park.

Within the Park, above the timberline, mining should create no more environmental problems than would the natural talus slopes and snow-slides.

Cost

Excluding cost of my professional services, my total out-of-pocket expenses for this trip totalled \$1,968.16.

Conclusion and Recommendations

> In spite of uncertainty re tonnage and grade, and where that tonnage is, and the geometry or exact location of each block of ore (and, hence, the mining costs), I believe that there is a profit to be made at Telluride and that we should proceed with cautious optimism. For example,

- <u>l</u> complete the extraction tests at Lakefield;
- 2 obtain accurate mine and geological maps (I do not know where or if they exist);
- 3 "syndicate" the project for financing of further work and recovery of pre-syndicate expenses;

and

4 after evaluation, if "go,"prepare environmental impact report.

D. W. L. Fairbairn, P. Eng.

Typed March 19, 1980

CONFIDENTIAL

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August 22, 1979

TELLURIDE PROJECT, BRITISH COLUMBIA Study of Recoverable Drilling and Underground Records Dennis W. L. Fairbairn, P. Eng.

Regarding the possibility of main-vein continuation to East of N-S striking fault (900' displacement?) which lies to the east of the main-vein --contact-vein area, there is room for <u>some</u> optimism here.

DDH 207 was drilled 2,000' [±] EAST of the portal, (to the east of the N-S fault?), picked up the aplitic belt, (contact vein), -- 25' intersection -- best assay -- 0.16 -- 2.14 across two feet -- but no main vein.

If the main vein continues its flat dip and roughly parallel strike to the "contact vein," the main vein could easily be missed in DDH's. On the other hand, the main vein, if extant, should outcrop.

I can find no reference to three DDH's (reported earlier by Franc R. Joubin) in the fault zone to the <u>east</u> of the main showings (which reportedly had picked up interlayered quartz stringers or drag slivers).

There is reference to three DDH's put down in 1953 by Deerhorn Mines Limited, which were intended to check the western extension of the vein systems to the west of the main vein.

DDH's 30-101 and 30-102 cut only what was thought to be the contact zone (but no main vein).

(signed D. W. L. Fairbairn)

D. W. L. Fairbairn, P. Eng.

Typed March 19, 1980

Vancouver, B.C. January 18, 1980

Mr. Dennis Fairbairn, P.Eng., General Manager, The Telluride Prospecting Syndicate, 131 Bloor Street West, Suite 416, Toronto, Ontario.

Dear Mr. Fairbairn:

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Re: Whitesail Lake, B.C. Gold-Silver Property

I have reviewed the several maps, geological reports and general reconnaissance reports that you supplied me with on Jan. 14, 1980 concerning the subject property. This particular property is located near the western extremity of Whitesail Lake, B.C.at 53 degrees 21 minutes N. Lat. and 127 degrees 16 minutes W. Long. Since this property is located just inside the western boundary of Tweedsmuir Park, I understand that your Syndicate will have to obtain special governmental permission to develop and essentially rejuvenate a small underground mine at that site. As a result of my preliminary review, I offer my support to you in your seeking this permission. My reasons for supporting your proposal are outlined briefly below.

(1.) EXISTING ENVIRONMENTAL CONDITIONS SHOULD NOT BE DAMAGED BY THE MINE Your proposal is to establish a small mine of 50-200 tons per day capacity. This will almost amount to a rejuvenation of the old Deer Horn Mine which closed down in 1955. Many of the old buildings and surface facilities from this previous mining operation still remain on this particular site.

This potential mine site lies at an elevation of approximately 4000-5800 feet elevation on the eastern slope of a mountain belonging to the Coast Mountain chain. This places the mine activity all above the timberline. In addition most of the mountainside is presently covered by talus. These factors would all serve to minimize the potential land disturbance at the mine site.

Reports from the several years of previous mining activity at that site indicate wild game was very scarce. Only an occasional moose, bear and wolverine were seen near the old camp. Fish were reported to be abundant in parts of Whitesail Lake. Preventing significant contamination or pollution of the streams and lakes in the immediate vicinity will probably be the main concern of the governmental agencies involved in environmental protection. Sound engineering design and responsible management of the entire proposed mining operation can ensure that pollution of the lakes and streams will not occur.

(2.) PROJECT DESCRIPTION

Your proposal to mine approximately 100,000 tons of ore should be possible with a minimum of disturbance to the existing surface environment. Locating almost all of the operations and service facilities underground is one proposal worth serious consideration. The mine itself will be an underground operation using selective techniques. This would ensure that a minimum of waste rock would need to be disposed of near the portal of an adit used for access to the mine workings. Camp and service facilities could also be accommodated underground. This would not only minimize surface disturbances but also conserve heating energy and eliminate concerns of high winter snow loads on conventional outdoor buildings.

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The mill to concentrate the gold-silver containing minerals in the ore would be a simple one-product flotation plant. This mill could either be located underground at the mine-site or outside of the Park entirely.

Your report on mineral process testwork conducted on a sample of the ore (from Lakefield Research of Canada Ltd., dated Oct. 19, 1979) indicates that a medium grind fineness (approx. 60% -200 mesh) will liberate the valuable minerals in the ore. This will be followed by froth flotation to concentrate the valuable minerals in the ore. The froth concentrate will include almost all of the sulphide minerals contained in the ore. The goldsilver-sulphide concentrate will be transported out of the Whitesail Lake area for additional processing to recover the gold and silver values.

The mill tailing which will remain should consist primarily of the quartz host rock. With essentially all of the sulphides removed there should be no problem of potential acid mine water generation. The coarse fraction of this mill tailing (approx. 50% of the total tailing) might be placed back in the mined-out areas as "fill" for ground support. The tailing fines would have to be stored in a tailing pond which could be located outside of Tweedsmuir Park. A detailed contour map of the area indicates that several crossvalley impoundment sites immediately west of the mine site, warrant study as potential tailing impoundment areas.

Tailing impoundments can be constructed so that no seepage nor contaminated supernatant need enter the surrounding lake system. Satisfactory disposal of the tailing outside of Tweedsmuir Park should therefore be possible.

(3.) FEATURES OF NATIONAL INTEREST

The gold and silver that can be produced from this small mining operation can add significantly to Canada's reserves and improve our foreign exchange position.

I understand that one of the members of your Syndicate is Mr. Franc Joubin, who originally discovered the subject gold-silver bearing quartz vein in 1944. It would seem just that if anyone is to obtain permission to mine these resources, your Syndicate should.

In conclusion, I support your attempt to secure permission to develop this Whitesail Lake property into a mine. This mining operation should be possible with a minimum of impact on the existing environment. In fact, since your Syndicate will have to commit to perform land reclamation work following closure of your proposed mine, this site might well be returned to a more natural state than presently exists.

Sincerely, Augult Poling

George W. Poling, P. Eng.

Head, Dept. Mining & Mineral Process Eng. University of British Columbia

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Confidential

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To Selected Prospects

INFORMATION MEMORANDUM TELLURIDE PROSPECTING SYNDICATE

The mineral deposit of interest to this Syndicate is situated in a provincial park of the Province of British Columbia, reasonably accessible to centres of servicing and transportation.

In the early forties, gold and silver tellurides were discovered by Franc R. Joubin, a geologist-prospector, in a five-to-fifteen foot wide quartz vein, extending for several hundred feet of length.

At that time, the discovery was subjected to surface trenching and diamond drilling under the direction of Joubin. This work was discontinued because of relatively-low tonnage indications and the then-low gold and silver prices.

During a three-year period in the mid-fifties, an eastern Canadian company directed by Joubin completed one summer of underground development of the deposit.

Again the property was abandoned, principally because the indicated tonnage of ore was then insufficient to support profitable production at existing gold and silver prices. Shortly thereafter, the Crown-leased claims reverted to the Crown, and the surveys were cancelled.

All of the foregoing trenching, some diamond drilling and drifting, according to an independent professional engineer, indicates the presence of 100,000 tons of ore which contains an average of 0.28 oz of gold and 9.5 oz of silver per ton.

At 1979-1980 gold and silver prices of \$600 and \$30 per ounce in Canadian funds, respectively, the value of this probable ore is \$435 per ton. The gross value of the indicated ore is in excess of \$40 million.

Dennis W. L. Fairbairn, P. Eng., after a recent reexamination of the property, some re-sampling and preliminary mill-test research, believes that the known ore-block can be exploited for a total capital and operating outlay of about \$7 million. A syndicate, Telluride Prospecting Syndicate, has been incorporated in Ontario, with Fairbairn and Joubin as principals, for the purpose of securing and preparing this property for production, subject to Government approval. A company prospectus accompanies this information circular.

An initial issue of 200 shares is offered at \$100 per share. Use of this sum is to secure mining rights to the deposit and, if successful, commence with the production engineering necessary.

January 14, 1980

Franc R. Joubin, P. Eng.

Attachment Prospectus

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FRANC. R. JOUBIN

Tweedsmuir Park Land Application in regard to Telluride Project, B. C.

History of Prospect

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The area is located at the north-westerly tip of Tweedsmuir Park (a B class provincial park). The subject area will practically become isolated from the Park Area after final Alcan flooding to the Whitesail Lake Reservoir. The subject area, although just within the Park border, is not included in any Conservancy Area. The subject area was once totally comprised of leased mineral claims, at which time mineral exploration was conducted including underground development of a small gold-silver ore-body.

The presence of the gold-silver body was first recognized by geologist Franc. R. Joubin, in the early 1940's and claims were staked under his direction for development by Pioneer Gold Mines Limited. The limited trenching and diamond drilling done at that time indicated reserves too small and of too low grade (gold @ \$35. p. oz.) to encourage recovery and the claims were returned to the Harrison Bros.

In the mid 1950's, Franc. R. Joubin with finances provided by the Deerhorn Mines Company, returned and undertook the first underground development to increase the reserve tonnage, if possible. He failed to do so and control of the claims passed to others and the leases eventually lapsed.

All development of the gold-silver body was initiated and directed by Joubin, and he retains full technical records of the work done.

Subsequent Events

The improved prices of gold and silver prompted Joubin to re-assess the prospect's merits in 1979 when he, with a few associates re-examined the property, had a mining consultant evaluate its present merits, had samples of the ore successfully tested to determine if gold and silver could be recovered without use of toxic reagents and had a preliminary environmental study made by an environmental specialist. A study of the applicable Act and Amendments indicated a monitored mining activity could be possible in a B Class park by discretion of the appropriate Ministers (Environment and Mining).

Accordingly on January 23, 1980 approval was sought to proceed to a land application from the Hon. R. D. McClelland and

the Hon. James R. Chabot. Approval was not granted. Recent public statements by provincial officials have suggsted that they may now be more amenable to certain such requests. Accordingly, a group led by Franc. R. Joubin proposes the following.

Developer's Undertaking

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- 1. To develop and place into production, in an orderly way, this gold/silver deposit.
- 2. This would probably be on a seasonal operation basis (June to October, both inclusive).
- 3. The project would provide "start-up" employment for probably 30 persons over a six month period.
- 4. The on-going seasonal operation would provide work for probably 15 persons under normal working conditions. Additionally, a profit-sharing formula for employees is contemplated.
- 5. All supplies and services would be purchased locally, if there available.
- 6. In addition to payment of all normal metal-mining taxes, we would allocate from net profits, after capital recovery, a percentage of profit toward a Tweedmuir Park Conservation Fund.
- 7. We would accept a provincial corporation (B. C. Development Corp.?) as a joint venture associate for up to 25% working interest, provided this election was made at time of land grant.
- 8, We would cooperate, at cost only, with provincial and/ or federal agencies in regard to serving as a radio out-post contact, recording meteorological data, wildlife observations, etc. during the normal work season.
- 9. We would provide good conduct and financial security bonds.

Government Contributions

- A surface and mineral lands lease of not less than 500 acres, for a 15 year period, subject to performance qualifications. Also minimal road and water access corridors to the "outside".
- 2. The right to recover all minerals from the lease area viewed by us as economic.
- 3. The right to conduct limited additional exploration and development in the lease area.

We are

- 1. A small corporate group that would become registered in B. C.
- 2. The principals are British Columbians, all with professional engineering degrees earned in B. C. and all of whom have held important mine or environment management positions in B. C. They are: Franc. R. Joubin, Ronald D. Johnson and Dennis Fairbairn.
- 3. Banking references are:-

Guaranty Trust Company, Toronto Canadian Imperial Bank of Commerce, Toronto The Bank of Nova Scotia, Toronto 3.

Franc. R. Joubin

January 28, 1983

Encl. - Map

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BRIEF

THE DEERHORN TELLURIDE

GOLD-SILVER DEPOSIT

WHITESAIL LAKE, LINDQUIST LAKE, AREA

OMENICA MINING DIVISION

BRITISH COLUMBIA

Dennis Fairbairn, P. Eng.(Mining) August 1983

TELLURIDE

- A. ECONOMIC FACTORS
 - Location: Two miles from north side slope of Lindquist Lake; brush and slide-rock for 50% of distance above timber-line. About six miles from the existing SW corner of Whitesail Lake; latitude 53-20, longitude 127-18. Trail is alongside of Little Whitesail Lake.

 - 3. Railroad: CNR at Burns Lake and CNR at Houston
 - 4. <u>Airport and Helicopter Base</u>: From Smithers 150 miles +/-From Houston 80 miles +/-
 - 5. <u>Road Distances</u>: Houston to Nadina R. existing 35 miles Nadina R. to Wistaria on Ootsa Ur. existing 10 miles Houston to Ootsa L. existing 45 miles "Deerhorn Landing", Whitesail Lake to Mineportal. To be re-built. 6 miles
 - 6. <u>Water Route</u>: Wistaria Landing to "Deerhorn Landing"... 55 miles Wistaria to Lindquist (if & when flooded) 59 miles
 - 7. Ice on Lakes: Freeze-up early December
 - Whitesail Lake opens up early May
 - · Lindquist Lake opens up late June
 - Feasibility unknown for lake-ice transport

8. <u>Snow Depths</u>: At adit, excessive after mid-October; accessible early July Property free of snow - mid-July, Aug. & Sep. to mid-October

9. <u>Water Supply</u>: At workings, from creek at elevation 4,300 ft. Good volume and about 40 ft. head at adit. Winter probably nil.

10. Ore Reserves: a. Contact Fissure nil
b. Main Vein:
 probable ... 60,000 tons @ 0.25 opt Au.
 (Fairbairn) @ 7.00 opt Ag.
 possible ... 100,000 tons @0.28 opt Au.
 (D.H. James), '55 @ 9.5 opt Ag.

12. <u>Occurrence</u>:

- a. Dimensions: length between outcrops 2,600 ft. semi-exposed 1,075 ft. down-dip length 150-200 ft. thickness about.... 9.5 ft.
- b. Mineralogy: gold predominantly in Tetradymite silver predominantly in Hessite "no" free gold "sulphides", about 10% are pyrite, galena, sphalerite, chalco-py, magnetite, scheelite

c. Extraction: free milling 95% recovery @ 62% minus 200-mesh in float cons cons. - 10% -- balance milky quartz Successful concentration by gravity methods is possible, but not likely to be competitive with floatation.

13. Strikes and Dips:

a. Main vein -- N-80-W (approx.) -- dips: 30 deg. NE @ surface outcrops 30 deg. SW @ contact zone flat, @ centre of trough

- b. Contact Fissure: E-W @ 55-60 degrees S
- c. Sediments: E-W @ 50-70 degrees S
- d. Contact of main vein and fissure zone ... 10 degrees E
- e. Dip of bottom of main vein trough not known
- f. Faults ... 1. those cutting main vein are north-trending with apparently minor displacement, right hand 2. major fault @ E end of deposit - 900 ft. displacement, left hand (some mineralization?)

14. Local Geology:

Deposit is at E contact of Coast Range batholith with the Hazelton Group, (sediments and volcanics). The slates, at the contact with the grey, medium-grained Quartz-Diorite, are metamorphosed to andalusite schists.

15. Underground Rock Conditions:

The main vein is in the granitics and is flat-lying The Quartz-Diorite contact is frozen Back conditions should be ideal, and suitable for room and pillar extraction, (with only minor pillars).

B. UNKNOWNS OR UNCERTAINTIES TO BE INVESTIGATED AND/OR DETERMINED PRIOR TO PRODUCTION DECISION

- 1. Geometry of Main Vein Deposit
 - i.e. a. slopes of ore-bearing trough sides
 - b. dip of trough bottom
 - c. location and extent of barren zones, if any
 - d. location and displacement of cross faults
 - e. probable working height of ore face
- 2. <u>Tonnage and grade of proven, possible, and probable ore</u> in main vein
- 3. Liklihood of existence of additional ore-bodies
 - a. to the East of the "main" N-S fault
 - b. on strike, to the west of the main vein
 - c. in high-grade "blows", probably in Main Vein F.W.
- 4. Optimum Extraction Rate

i.e. optimum number of underground working faces, (partakes of "geometry", above).

- 5. Feasibility of Operating Periods
 - i.e. winter ice conditions on Ootsa and Whitesail Lakes, (support adequate for tractor sleds, etc., and fixed wing aircraft - slush-layer?)
 - adequate manpower accommodation
 - adequate plant protection
 - possible manpower problems
 - reliability of winter flying and communications conditions
- 6. Environmental or Governmental Restrictions
- 7. Governmental Participation and/or Support
- 8. When and if Alcan flooding to the 3,000 ft. contour will occur
- 9. Water Transportation (Summer)

a. The most economical method of ore transport (open barge, flat barge and containers, etc.)

- b. To own or to contract water transport facilities
- 10. Precious Metal Extraction -- where? ... by whom?

a. own mill? - 1. on Lake Whitesail or Ootsa? (to reduce tonnage hauled to 10% of ore) 2. on railroad at Houston?

Ъ.	custom	mill?	1.	Placer	r at Ho	oust	ton?	
			<u>_</u> 2.	Other	mills	in	region?	

- c. direct ship? high-silica flux direct to smelter?
- 11. Precious Metal Extraction how?
 - a. Gravity?
 - b. Cyanide or other solution?
 - c. Flotation?
 - d. Roasting-gravity?

12. Gold and Silver Price Forecasting

13. Amount and Timing of Money Requirements for:

a. pre-production development expenses
b. pre-production capital (structures and equipment)
c. operating account

- 14. Availability of Labour and Power
- 15. Availability and Organization of Good Management and Supervision
- C. SUGGESTED OPERATING PLAN

The resolution or determination of the unknowns or uncertainties need not be difficult or time-consuming. It will, simply, require some work, and will follow, quickly, after some development diamond-drilling, and some surface prospecting, stripping, trenching, and sampling, combined with on-site investigations - all under the direction of a competent gold-mining operator.

Following the above, a list of alternative operational plans or approaches can be considered as to economic feasibility. A still-hypothetical model, subject to adjustments dictated by information resulting from the above development work, would, in this author's view as an experienced small gold mine operator, resemble the following:

(1) Operational Period and Work Schedule

a. mid-May to mid-October

- b. 120 days per year
- c. six days per week, two shifts per day
- (2) Rate of Production and Life Expectancy

a. 100 tons per day, 2,500 tons per month, 12,000 tons/year
b. at 0.25opt Au, 7.00 opt Ag.
c. 12,000 tons per year - 5 years' life

(3) <u>Camp</u>

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Mobile trailers where possible, (for such as cook-house, bunk-house, shop, stores, office, assay office, etc.), otherwise, fixed and winter-proofed structures.

Location: a. <u>If No Alcan flooding</u>, on high flats near existing Alcan Sweeney MT. road at west end of Whitesail Lake.

b. <u>If flooding</u>, on high ground near existing road at Little Whitesail on north shore of Lindquist Lake.

> c. N.B. All locations must be clear of slides or snow-rock fall hazards from above.

(4) <u>Access</u>

Immediately after breakup, helicopter, followed by boat and barge (possibly, earlier reco by snowmobile).

(5) Mining Method

- 1. Tunnel access at lowest level of main vein trough
- 2. Trackless heading on strike, in ore, at the above grade
- 3. Room-and-pillar method "scoop-tram" type haulage
- 4. Rob pillars after each segment mined out
- 5. Repeat above tunnel access, etc. as dictated by significant elevation changes in bottom of trough (cross-faults).

(6) Underground Equipment

- a. Two tractor-mounted pneumatic drills, (side-slopes will probably demand tractor-mounting).
- b. "Scoop-tram" type loading and hauling plus, possible scraping if road grades demand it.

(7) Establishment

a. Labour - (two-shift-per-day operation)

underground	12 8	men men
ore-haul	3	men
b. Staff - manager engineer sampler/assayer cookhouse	1 1 1 3	man man man men
c. Total	29	men

(8) Living and Cooking accommodation and equipment

(9) Surface and Mining Equipment

diesel-electric generator, surface distribution, air-compressor, fuel tanks, loader-cat, jeep, truck, assay-office, shop equipment, fans, pumps, etc.

(10) Ore Handling

a. Load containers below portal, (consider primary crushing by gravity fall from portal)

- b. Haul containers to dock on lake
- c. Load containers on barge
- d. Unload containers at Wistaria Landing
- e. Truck containers to concentrator or to railroad for direct shipment

(11) Concentrator

^The most logical choice would be a modular flotation plant, owned or leased by the Company, (unless a local custom concentrator such as that of Placer at Houston, is clearly the more profitable choice).

Noting the 10-to-1 concentration ratio, an expected, simple, +95% gold-silver recovery, and the relatively long and slow water haul, the possible locations of the concentrator are:

a. Outside the Park, at the deposit, on Whitesail

Lake, or

- b. Wistaria Landing, or
- c. Nadina River, or
- d. Houston

The ultimate choice will probably be between Whitesail Lake and Houston; of these two, the author's choice would be Houston.

TELLURIDE

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Limited Partnership

Concept

To exploit, economically, a high-grade, but limited tonnage, semi-developed, Gold/Silver deposit which is located in the Lindquist Lake area and on the border of Tweedsmuir Park in the Omineca Mining Division of British Columbia

There will be a sole Promotor/Managing Director, namely

Dennis W. L. Fairbairn, P. Eng.

DRAFT PROSPECTUS FOR THE TELLURIDE LIMITED PARTNERSHIP

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The lands sought by the Partnership from the British Columbia Government are in the Tweedsmuir Park area and are on the north shore of Lindquist Lake in the Omineca Mining Division of British Columbia.

In the early forties, gold and silver tellurides were discovered by Franc Joubin, Chief Geologist of Pioneer Gold Mines, in a 5-to-15 foot thick quartz vein.

The discovery was followed, in the mid-forties, by surface trenching and diamond drilling under the direction of Joubin for Pioneer Gold Mines. At this time, Dennis Fairbairn was Chief Engineer for Pioneer and was informed of this development project. Pioneer withdrew in 1946 because of relatively low tonnage indications and low gold and silver prices.

During a three-year period in the mid-fifties, Deerborn Mines Limited, an eastern Canadian company directed by Joubin, completed about 2,000 feet of underground cross-cutting, drifiting, and raising, in addition to 6,700 feet of surface diamond drilling. Work by Deerhorn ceased after the 1955 season because grade and tonnage, particularly tonnage, were considered insufficient to support profitable production at existing gold and silver prices. There has been no further work on these deposits since 1955. Shortly thereafter, the Crown leased claims reverted to the Crown, and the surveys were cancelled.

The NE-striking 4260 adit, which had been collared in the outcropping, EW-striking main vein, crosscut the vein for 52 feet, and exposed, across a true width of 7 feet, average values of 0.25 oz of gold and 6.5 oz of silver per ton. The vein dipped below the adit floor, and when it reappeared after a dip reversal, for 35 feet exposed, across the same 7-foot true width, averaged 0.49 oz of gold and 14.3 oz of silver per ton.

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All of the foregoing trenching, diamond drilling and drifting, according to Donald H. James, P. Eng., indicates in the main vein 100,000 tons of ore which contains an average of 0.28 oz of gold and 9.5 oz of silver per ton. The average true width of the vein is about 9 feet.

At gold and silver prices assumed at \$300 and \$10 per ounce Canadian, respectively, the value of this probable ore is \$175 per ton. The gross value of 100,000 tons is \$17,500,000.

Relatively cheap mining is possible firstly, since the main vein ore outcrops to surface, where it averages 9 feet in thickness; secondly, the 100,000 tons of reserves occur in the first 200 feet down-dip from the surface; and thirdly, by over 1400 feet of existing tunnel along strike and in the "footwall" of the vein.

A representative bulk sample of ore was collected by Fairbairn at the mine-site. This assayed about 0.25 oz of gold and 5.5 oz of silver per ton. Extraction testing, now in progress, indicates simple metallurgy and excellent recovery.

A suitable mill-site, outside the Park, exists within four miles of the mine-site.

Both mining and milling could proceed with no adverse environmental impact. Similarly, transportation would proceed over existing road and waterways. Preliminary estimates indicate that, providing Governmental agreement is obtained, the project should prove profitable.

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A limited offering of "preferred units" in the Limited Partnership is proposed in order to provide \$15,000 for a First Phase to cover the costs of initial project research and land acquisition. This First Phase would require one year or less, depending upon the Government's approval and dispatch. Given Government authority, a Phase Two feasibility study and production should be completed within six months following which Third Phase production development should be possible within one year.

The coordinators and participating developers of this project are

Dennis W. L. Fairbairn, P. Eng., Geologist and Mining Engineer; Franc R. Joubin, P. Eng., Consulting Geologist; and

all with considerable successful experience in British Columbia (in regard to this prospect and its region) and in the British Columbia mining industry.

TELLURIDE

Limited Partnership

Structure

- 1 Initial ownership will be divided into 1,000 "preferred units," with each 10 such units having 1% of the value.
- 2 Initially, in order to provide the \$15,000.00 cash which will be required for the first phase and used for project research only, 150 of the above "preferred" units will be issued to Limited Partners at \$100.00 per unit.
- <u>3</u> The interests of the holders of the initial 150 "preferred shares" issued will not be diluted without a mutual agreement having been reached at the Advisory Committee level (see 5 below).
- 4 The Partnership's Managing Director shall have sole control and management of the project.
- 5 Each "preferred unit" holder holing 10 units or more shall be a member of the Advisory Committee.
- 6 Major financing of \$500,000 for Phases II and III will be provided by issuance of 500,000 "common units" purchaseable by preferred unit holders on a pro rata basis.
- 7 "Preferred unit" holders will be privileged to exchange "preferred units" for "common units" preferentially (on a basis to be determined).
- 8 For moneys-worth contributed, the Promoter/Managing Director will be granted 500 "preferred units" which are to be held in trust.
- 9 The project research, a progressive exercise, will continue for a maximum of one year.
- 10 It will be noted for income tax purposes that a Limited Partner is contributing capital by buying units of ownership for the purpose of providing speculative capital to assist in finding a commercial mineral deposit.
- 11 The Agreement will be interpreted under the laws of the Province of British Columbia (Ontario?).

TELESRIDE

Project Research

Will embrace investigations relating to

1 land acquisition

2 technical operations

3 actual operations

4 costs and profitability

1 Land Acquisition

The type of mining land title which could be obtained and the terms under which such title would be obtained must await governmental policy developments with reference to minerals in parks.

Estimated cost of investigation

\$ 1,200.00

2 Technical Operations

Will cover

- **a** The determination of mining and milling methods to be employed. (Metallurgy is currently under active study by Lakefield Research).
- **b** The preparation of a preliminary expert environmental impact report based on the proposed mining and milling methods, (a, above).

Estimated cost of investigation

\$ 5,400.00

3 Actual Operations

The investigation will embrace

- <u>a</u> the stipulation of mining and ancilliary equipment;
- b the determination of the number and classification of mining personnel;
- c the determination of the mill location and the stipulation of mill equipment;

Actual Operations (continued)

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- <u>d</u> the determination of the number and classification of milling personnel;
- e the determination of the method of transport from mine to mill, the specific equipment to be utilized, and the personnel required;
- <u>f</u> the determination of the number, the qualifications, and the responsibilities of supervisory and management personnel;
- g a proposal covering the marketing of the "concentrates."

Estimated cost of investigation \$ 2,000.00

4 Costs and Profitability

Will embrace the determination of

- <u>a</u> the annual quantity to be mined and milled and the value of mill heads and tailings;
- b the unit mining costs;

<u>c</u> the unit transportation costs;

- d the unit milling costs;
- e dollar marketing and administrative costs;
- <u>f</u> total dollar capital costs, including costs of:

mine equipment, camps, transporation equipment, mill equipment and structures, services, and preproduction expenses

g miscellaneous dollar costs, such as provision for post-production rehabilitation, taxes, royalties, etc.;

h profitability

Estimated cost of investigation

\$ 1,400.00

Summary of Estimated Cost of Project Research

1	Land Acquisition	\$ 1,200.00
2	Technical operations	5,400.00
3	Actual operations	2,000.00
<u>4</u>	Costs and Profitability	1,400.00
Total	Estimated Cost of Project Research	\$10,000.00
Estim	ated Cost of Professional Time	\$ 5,000.00

Grand Total Cost

\$15,000.00

WHITESAIL GOLD SILVER TUNGSTEN LINDQUIST LAKE PROPERTY (Formerly Deer Horn Mines)

Location and Access

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This property comprising 28 claims and one fraction held under lease from Provincial Government is located in the Whitesail Lake Area, west central British Columbia. 53° 21' N.Lat., 127° 16' W. Longitude.

Burns Lake on the Canadian National Railway is the chief rail centre and provides all normal facilities of communication and commerce, including chartered air service. Good all weather roads lead south from Burns Lake, a distance of 45 miles, to Wistaria Landing on Dotsa Lake. From Wistaria Landing the property can be reached via lake boat ascending the Whitesail River to southwest end of Whitesail Lake and thence by road for a distance of three miles.

Lindquist Lake will accommodate float planes and is connected with property by two miles of good road.

Development of property at Haven Lake by Phelps Dodge Corporation will result in road being constructed and port facilities installed at the head of Doan Channel, 45 miles to the south. Construction of 20 miles of additional road on easy grade will provide connection to this road and direct access to tidewater for economical transport of freight and supplies. (See map attached.)

Mineral Showings

Comprehensive descriptions of geology and mineral occurrences are contained in G.S.C. Memoir 299 by S. Duffel and are transcribed below in their entirety.

A. Gold Silver Occurrences (Page 93 - Item 17)

This property of twenty-eight claims and one fraction was held by the Harrison brothers of Wistaria until 1951 when it was taken over by Deer Horn Mines Limited. The property lies on the southeastern slope of Lindquist Peak, astride the contact between the main mass of Coast Intrusions and the metamorphosed Hazelton group rocks. A wide quartz vein outcrops in the batholithic rocks near the contact and dips gently northward towards the sedimentary and volcanic rocks of the Hazelton group. This quartz vein, though displaced by north-trending faults, may be followed westward across the property for about 2,600 feet. Metallic minerals in the vein are mainly pyrite, galena, sphalerite, chalcopyrite, and telluride minerals, hessite and altaite. Gold is rarely present in the free state and only as a residual mineral in cavities and veinlets; it is most commonly intimately associated with hessite and may be present as rare disseminations in other minerals such as pyrite (Warren, 1947).

WHITESAIL - Page 2.

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Pioneer Gold Mines Limited developed these claims from 1944 to 1946. A good pack-trail was built from the head of Whitesail Lake to the property, and camps were established both at Whitesail Lake and at timber-line below the showings. Some surface work and a total of 12,540 feet of diamond drilling explored the vein. The drilling indicated that the vein dipped gently north towards the Hazelton group rocks and that there is a slope distance of 150 feet in the granitic rocks before the contact is reached. Indications are that the vein breaks into stringers at the contact which dips south at about 55 degrees. Exploration of the contact zone by diamond drilling showed mineralization across vein widths of 2 to 4 feet.

Assay returns on samples taken along the vein varied considerably in gold and silver content. This is most probably due to the abundance or scarcity of hessite.

Because of the faulted nature of the vein it is broken into a number of individual sections. The following values for eight sections were taken from a 1946 company report.

Section	Length	Width	Gold	Silver	
No.	Feet	Feet	Ounces	Ounces	
1A	50	3.0	0.16	1.6	
1 B	25	4.3	0.217	1.6	
2	One Hole	2.2	0.02	0.4	
3	/ 150	7.5	0.228	3.62	
4	270	7.8	0.295	5.6	
5A	80	19.0	0.18	4.3	ORE
5B	270	10.7	0.294	8.2	
6	128	6.0	0,19	7.27	`5Locks
7	.90	17.3	0.06	1.8	
8	(90	10.0	0.21	9.15	

Pioneer Gold Mines Limited dropped the option in 1946 and little further work was done until 1951 when the property was taken over by Deer Horn Mines Limited. In 1952 a small crew of men worked at the property all summer clearing out trenches, re-examining diamond drill core, and locating road grade from Lindquist Lake to the showings as well as generally re-checking values on the property. Further preparations for active development were carried out during 1953. It is reported (Western Miner, August 1953) that a "1,075-foot section of the exposed vein returned assays of 0.255 ounce gold and 6.3 ounces silver a ton over an average width of 9.5 feet. Diamond drilling on this structure indicated a developed length of 600 feet with an average width of 11.2 feet and grade of 0.283 ounce gold and 8.3 ounces silver a ton. Depth of this structure appears limited to 200 feet where a junction with the contact zone occurs. This . . . zone has been developed to a limited extent by diamond drilling with results indicating a length of 725 feet, average width of 8.7 feet and a grade of 0.407 ounce gold and 12.24 ounces silver per ton."

Underground development began late in 1954 and continued till November 1955 when operations were suspended. During that period the Company reports it completed 1,822 feet of drifting, 113 feet of

cont'd.

WHITESAIL - Page 3.

raising, 3,075 feet of underground drilling, and 2,997 feet of surface diamond drilling.

The property includes, besides the gold-silver deposit, a scheelitebearing metamorphic zone that will be described later under a separate heading.

B. Tungsten Occurrences (Page 101 - Item 17)

This property, described under gold deposits, also includes a tungsten deposit of considerable size. During exploration of the gold deposit, scheelite, though not common, was noted in the core but the main deposit is separate from the gold occurrence and lies 800 to 1,000 feet west of the most westerly pit exposing the gold bearing quartz vein. The scheelite occurrence extends northwesterly for at least a claim's length.

The part of the property on which the scheelite deposit occurs lies astride the contact between the main mass of the Coast Intrusions on the southwest, which there consist of granite, quartz diorite and diorite, and metamorphosed tuff, greywacke, shale, slate, and flows of Hazelton group. The shale and slate contain andalusite, epidote, chlorite, and zoisite, and silicification is widespread in the volcanic rocks. Minor amounts of skarn are present, but none was noted near the scheelite occurrence. There, epidote, chlorite, and quartz, and some andalusite in the shale and slate are characteristic.

At the scheelite deposit the strike of the contact of the granitic rocks turns sharply from northwest to north for a short distance forming an embayment of the Hazelton group rocks. The general effect of contact metamorphism of the sediments in this embayment is more marked than elsewhere in the vicinity. The volcanic rocks particularly appear to have been minutely fractured and cut by a stockwork of quartz stringers that carry scheelite. The stringers vary in width from a fraction of an inch to 4 inches but are commonly 1 inch to 2 inches wide. About 500 feet east of the main showing volcanic rocks are cut by numerous stringers of quartz containing small amounts of scheelite, commonly along their borders. Two veins up to 2 feet wide, which also cut the volcanic rocks at this point, contain no scheelite. Assays of samples proved the average scheelite content of this occurrence to be much lower than that of the main deposit. In addition to the scheelite and quartz a few grains: of pyrite and chalcopyrite were noted in the country rock and quartz stringers. These outcrops are above timberline and at most points are covered by talus that contains sufficient scheelite to give a spectacular appearance under ultraviolet light at night.

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WHITESAIL LAKE MAP-AREA

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Whitesail Lake Map-Area

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Figure 1. Index map of west-central British Columbia, showing position of Whitesail Lake map-area.

Whitesail Lake Map-Area

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LIMITED

45 LESMILL ROAD

DON MILLS ONTARIO

445-5755



Dr. Franc. R. Joubin, 170 Bloor St. W. Suite 418, Toronto, Ontario.

Re: Whitesail - gold silver telluride sample

A sample of quartz vein material, weighing about 250 grams containing minor sulphides was received from Dr. F. R. Joubin, August 6, 1969 with instructions to attempt whatever tests possible to determine the practicality of preparing a gold-silver concentrate. Cyanidation was not to be considered.

The sample was assayed for gold and silver with results as indicated below:

Sample	Au oz./ton	2. • •	Ag oz./ton
Whitesail	0.70	1	20.0

It was noted by Dr. Joubin in his instructions that free gold was in all probability not present in the sample and that most, if not all of the gold and silver was contained in several gold and silver tellurides. Other metallic minerals present included monor amounts of pyrite galena sphalerte and chalcopyrite.

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LIMITED

45 LESMILL ROAD

DON MILLS ONTARIO

445-5755

Discussion:

Owing to the very small amount of sample available only a limited number of tests could be preformed. Flotation tests were ruled out entirely and the absence of gold in the elemental form precluded application of the mercury amalgamation technique. Not enough meterial was available for conventional tableing tests, however, a similar action may be produced with a super panner and hence this technique was applied. Heavy media separation offered an additional means of evaluating the degree of liberation at various grain sizes. In addition a conventional screen analysis was undertaken to indicate the most useful grind. The tests performed indicate that liberation of the gold bearing minerals does not reach a useful level until a grind of minus 325 mesh is employed. The fact that superpanning while concentrating about 1% of the sulfides, chiefly galena and chalcopyrite, failed as a means of concentrating the tellurides indicates that tableing would not likely prove to be a useful method of concentration particularily in view of the fine grinding requirements indicated above.

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LIMITED

45 LESMILL ROAD

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DON MILLS ONTARIO

445-5755

The heavy media test was carried out here simply to indicate the degree of liberation achieved at 80% minus 200 mesh. The results of this test, when considered in conjunction with the screen analysis data, clearly indicate that a good physical separation of the heavy minerals takes place at a grind near 325 mesh. A second heavy media test carried out at 100% minus 325 mesh would serve to confirm this assumption.

In consideration of the above data, it is reasonable to expect that a good high-grade concentrate could be made, using a bulk sulphide flotation process on ore ground to 100% minus 325 mesh. About ten pounds of sample would be required to carry out some small scale tests of this type.

Test Data

Sample preparation:

The sample was crushed and then ground in a laboratory ball mill to produce a product of about 80% minus 200 mesh.

-4 -

LIMITED

45 LESMILL ROAD

Screen Analysis:

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DON MILLS ONTARIO

445-5755

Mesh	Wgt gms	Wgt%	Au oz/ton	Ag oz/ton	% Distri Au	bution Ag
-65+100	0.11	0.22	-	1.27	-	0.01
-100+150	2.58	5.16	0.23	8.77	1.58	2.17
-150+200	6.37	12.74	0.36	16.1	6.11	9.80
-200+325	12.92	25.84	0.59	22.0	20.5	27.2
- 325	28.02	56.04	0.96	22.7	71.8	60.8
_Calc'd Head	_	100.0	0.75	20.8	100.0	100.0
Assay Head	-	-	0.70	20.0	-	-

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45 LESMILL ROAD

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445-5755

Superpanner:

A twenty gram sample of 100% - 100 mesh material was submitted to Mr. W. Hicks, Mineralogist, Ontario Department of Mines, with a request to attempt to prepare a heavy mineral concentrate by means of superpanning. Mr. Hicks returned a mineral concentrate consisting of "galena and chalcopyrite" together with the gangue fraction.

,				<u>% Dis</u>	tributi
Product	% Wgt.	Au oz./ton	Ag oz./ton	Au	Ag
Gangue	99.0	0.48	13.4	84.0	82.0
Concentrate	1.0	9.0	290.0	16.0	18.0
Calc'd Head	100.0	0.57	16.1	100.0	100.0
Assay Head -		0.70	20.0	-	-

Heavy Media:

A thirty gram sample was taken and deslimed. The dried sample was then subjected to a standard heavy media separation employing a separatory funnel. Bromoform at SG. 2.96 was used as the heavy media.

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LIMITED				
45 LESMILL ROAD	DON MILLS ONTARIO	445-5755		

Heavy media contd'

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Product	% Wgt	Au oz/ton	Ag oz/ton	% Distribution au	Ag
Sink	6.9	5.45	200.1	60.0	67.6
Float	93.1	0.27	7.15	40.0	32.4
Calc'd Head	100.0	0.63	20.5	100.0	100.0
Assay Head	-	0.70	20.0	- -	-

X-RAY ASSAY LABORATORIES LIMITED

EgBurt

E. J. Brooker, Ph.D. Manage