

# 6295

*original  
noted*

PRELIMINARY GEOLOGICAL-GEOPHYSICAL REPORT

ON

PHOTOGEOLOGICAL COMPILATION, GEOLOGICAL FIELD MAPPING,  
PROSPECTING AND REFRACTION SEISMIC SURVEYS

PLACER MINING LEASES NOS. 5332, 6106, 7067, 7068,  
7073, 7074, 7092 AND 7117, CARIBOO MINING DIVISION,  
(LAT. 53°02'N. AND LONG. 121°58'W.) BARKERVILLE  
DESIGNATED PLACER AREA, BRITISH COLUMBIA  
MAP # P 93H/4W

FOR

TANACANA MINES LTD.  
1075 West Georgia Street  
Vancouver, B. C.  
V6E 3G2

BY

WM. HOWARD MYERS, P.Eng. (B.C.), P.Geol. (Alberta)  
GEOLOGICAL-GEOPHYSICAL CONSULTANT  
301 - 510 West Hastings Street  
Vancouver, B. C.  
V6B 1L8

May 25, 1977

MINERAL RESOURCES BRANCH  
ASSESSMENT REPORT

NO. \_\_\_\_\_

*W.H.M.*

TABLE OF CONTENTS

	<u>PAGE</u>
INTRODUCTION .....	1
HISTORY .....	3
GEOLOGY .....	5
PLACER GOLD DEPOSITS .....	6
RESULTS .....	8
Photogeological Compilation .....	9
Field Mapping and Prospecting .....	9
Refraction Seismic Survey .....	11
CONCLUSIONS .....	13
RECOMMENDATIONS .....	15

APPENDIX

BIBLIOGRAPHY

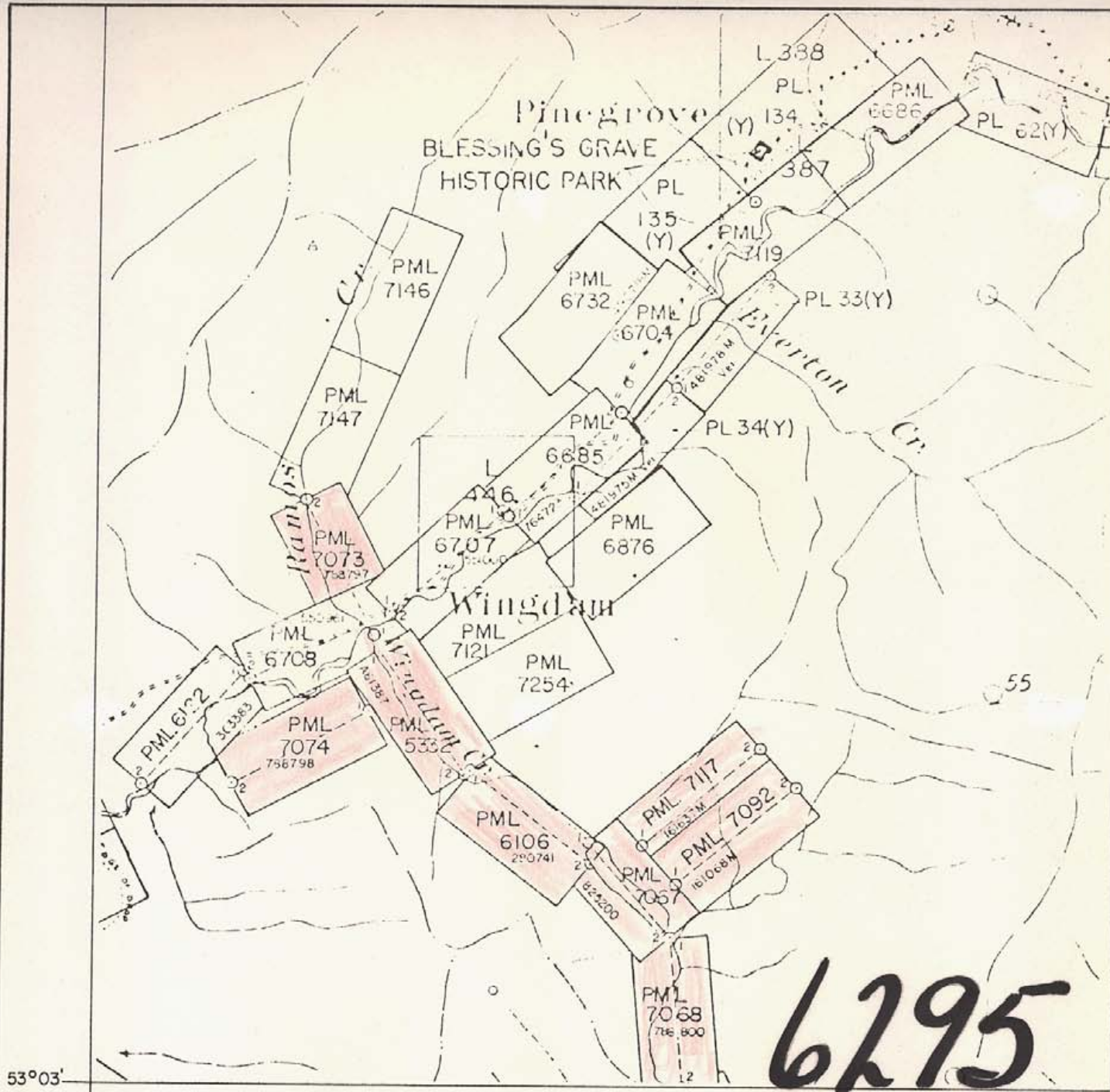
CERTIFICATE

ILLUSTRATIONS

2 maps in pocket of report

- #1* 1. Results of the Photogeological compilation, Geological Field Mapping and Prospecting
- #2* 2. Results of Refraction Seismic Survey
- 3. Index Map

*W.H.M.*



6295

53°03'  
122°00'

TANACANA MINES LTD.  
VANCOUVER, BRITISH COLUMBIA

WINGDAM - LIGHTNING CREEK AREA  
CARIBOO MINING DIVISION, B.C.

CLAIM LOCATION MAP OF PLACER LEASES No.'s  
5332, 6106, 7067, 7068, 7073, 7074, 7092, 7117

SCALE: 1 inch = 1/2 mile

From Map P934/4W - MAY 7, 1976

W H HOWARD MYERS, P. Eng. (B.C.), P. Geol. (ALBERTA)  
CONSULTANT, VANCOUVER, B.C. - MAY 25, 1977



Expiry Date: June 16, 1977 W.H.M.

*W.H. Myers*

## ABSTRACT

Field work on the eight placer leases in the Wingdam area, some 25 miles east of the town of Quesnel, B. C., was carried out from May 2 to May 9, inclusive, 1977. The work consisted of geological field mapping, prospecting drift covered areas for pebble count, heavy mineral content and shallow refraction seismic surveys. A base map was prepared earlier from enlarged aerial photographs of the area together with the photogeology. The results of the work are shown on the two maps enclosed with the report. The monies spent on this work by Tanacana Mines Ltd. was claimed for assessment work filed on May 10, 1977.

The results of the work are considered to be very significant and potential. Possible gold mineralization with quartz veins and oxidized pyrite was observed in many of the outcrops on the ridges and steep slopes on both sides of Lightning Creek. The flat near the confluence of Wingdam and Lightning Creeks, where placer mining equipment was set up by Tanacana Mines Ltd., appears to be a large slide. The slide material includes bedrock partially covered with glacial drift. Subsequent erosion by Lightning Creek has produced a low bench some 10 feet above the present creek bed. Refraction seismic work on the bench indicated a very irregular and broken bedrock some 13 to 18 feet below the surface. No normal gravel velocities were recorded by the seismic work above bedrock. The seismic work indicated a possible deep channel immediately southeast of the flat as shown on the map. No further detail could be obtained on the trend or depth due to restricted surface conditions and thick clay overburden. A possible bench or channel, with a northerly trend, was mapped some 2,500 feet southeast of Lightning Creek near the southeast boundary of lease #5332. Bedrock is exposed on both sides of the channel or bench. A refraction seismic profile on the bench indicated a depth of 35 feet to bedrock near the center of the topographic flat. Typical glacial drift velocities were recorded from the surface to 17 feet. Normal gravel velocities were recorded on the refraction seismic work from 17 feet to 35 feet where average bedrock velocities were recorded. Further exploration work and/or testing is recommended in this immediate area to better outline the indicated bench or channel and test for possible placer gold content.

W.M.

PRELIMINARY REPORT ON RESULTS OF PHOTO GEOLOGICAL COMPILATION, GEOLOGICAL FIELD MAPPING, PROSPECTING AND REFRACTION SEISMIC SURVEYS IN THE AREA OF PLACER MINING LEASES NOS. 5332, 6106, 7067, 7068, 7073, 7074, 7092 AND 7117, LOCATED IN THE WINGDAM-LIGHTNING CREEK AREA, CARIBOO MINING DIVISION, BRITISH COLUMBIA.

---

INTRODUCTION:

This preliminary report on the eight placer mining leases owned by Tanacana Mines Ltd. was written at the request of Mr. Lee Offerdahl, President of the Company. The monies paid for the work have been claimed as part of the assessment work on the leases on the "Affidavit on Application to Record Work" Form J filed on May 10, 1977. Verbal permission was obtained from the Chief Gold Commissioner in Victoria to submit the report to him within thirty days after the filing of the affidavit of work. The original and one carbon of this report is, therefore, being forwarded direct to Victoria.

The eight placer mining leases are located in the Wingdom area, Cariboo Mining Division, British Columbia, some 24 miles east of Quesnel, B. C. The leases are located at approximately 121° 58'W longitude and 53° 02'N latitude. The leases are plotted on British Columbia Placer Titles Reference Map 93H/4W. A portion of this map showing the eight leases is enclosed with this report. The eight leases are identified as Nos. 5332, 6106, 7067, 7068, 7073, 7074, 7092 and 7117.

The leases are all in good standing and consolidated under Consolidation #277/z. Assessment work and rentals were filed on May 10, 1977 for two years on all but one lease. Assessment work and rental on lease #7068 was filed for one year only since there was insufficient work for two years.

*W.M.*

The leases are readily accessible via Provincial Highway #26 from Quesnel to Wells, B. C. The leases located south of Lightning Creek are accessible via a bulldozed trail from Lightning up the right bank of Wingdam Creek to Wingdam Lake located on placer mining lease No. 7067. None of the area of the leases has been logged in recent years and the underbrush and trees are quite thick in most of the area. There are local areas, however, which are void of trees and underbrush northwest of Wingdam Lake.

The terrain in the area of the leases bordering the Lightning Creek incised valley, is quite rugged. The terrain on the leases above the valley is moderate. Elevations vary from 3100 in the valley of Lightning Creek to 4100 above sea level above Wingdam Lake on leases 7092 and 7117.

The climate in the area of the leases is moderate to cold. This portion of British Columbia does experience chinook conditions during the winter months and the climate becomes very moderate for brief periods. Snowfall in the area is moderate to heavy. The majority of the snow falls in January and February. Most of the snow is gone by the 1st of May except for the higher elevations and in shaded areas. Field conditions are very good in early May for field mapping and prospecting in that the underbrush and leaves are not out and there are very few mosquitoes. During this time small gullies are running water exposing gravel for pebble count and furnish water for panning of heavy mineral samples.

The published maps and reports used in this report are listed under the Bibliography in the Appendix of the report. The photo geological work and the preparation of a base map from an enlarged aerial photograph was done during the period November 24 to 28, 1976, inclusive. Aerial photographs

W.M.M.

Nos. 1948: 91 and 92 were enlarged to a scale of approximately 1" = 460' for the base map. The eight placer mining leases were plotted on the base map from the British Columbia Placer Titles Reference Map 93H/4W. The base map also contains linemants and physical features resulting from the photo geological compilation.

The field work which included geological mapping, prospecting and refraction seismic surveys was carried out from May 2 to May 9, 1977, inclusive.

Bed rock outcrops were examined for structure and stratigraphy together with alteration and possible mineralization. The drift covered areas were prospected for gravel content and pebble count together with panning gravel for heavy mineral content. The results of the mapping and prospecting is shown on the map titled "Results of Geological Mapping and Prospecting" enclosed in the pocket of the report. The location of the refraction seismic surveys together with the data from seismic work is shown on the map titled "Results of Refraction Seismic Surveys" enclosed in the pocket of the report.

#### HISTORY:

The Cariboo area of Central British Columbia is well known for its production of both placer and lode gold. Since the gold rush, which started in 1861, the general Cariboo Area has produced many millions of dollars worth of gold from both lode and palcer mining. A large portion of the gold taken from placer operations was never reported. During the gold rush there were many thousands prospectors and miners operating small placer diggings centered near Barkerville. Some very rich placer deposits were worked on Lightning, Keithleyand Williams Creeks. Lode gold was produced from two underground mines near Wells, B. C.

*W. H. Myers*

Since the gold rush there has been very little exploration for or production of placer gold in the Cariboo area. A very significant discovery of placer gold on Mary Creek in the Cottonwood Area, some three miles west of Wingdam, was made in October 1972. The deposit is quite rich, near the surface and the gold is very coarse. The extent of this deposit is not yet known, however, the fact that the gold is coarse and near the surface may well produce some substantial placer gold deposits in an area which up to now has not produced a great deal of placer gold. A re-evaluation of the old Tertiary drainage pattern must now be made and exploration work carried out on this basis. This new drainage pattern extends also into the Wingdam area in the vicinity of the placer leases held by Tanacana Mines.

The rich auriferous gravel on bedrock some 160 feet below the present Lightning Creek near Wingdam, in the vicinity of the placer leases held by Tanacana mines was discovered in the early 1900. Gold was discovered further up Lightning Creek by Ned Cambell in July 1861. Numerous churn drill holes were put down in an effort to outline and evaluate the deep gravels. Several attempts have been made to mine these rich gravel with various underground mining techniques. Very little or no gold has been mined from this deep channel due to the "slum" and heavy ground encountered. The only sizeable gold production in the Wingdam area was from a bench on the south side of Lightning Creek some 85 to 125 feet below the surface. Gold values obtained in the churn drill holes ran as high as \$95.00 per cubic yard at \$30.00 an ounce gold. The origin of the gold is believed to be residual in that the glacial drift which filled the original valley some 600 feet deep was eroded or washed away and the gold remained on bedrock or false bedrock. There is no placer gold activity on these deeper deposits at the present time.

*W.H.M.*



GEOLOGY:

Bedrock, though concealed over a large portion of the leases by rock debris and vegetation, outcrops on the tops of ridges, on steeper slopes and at various places along the stream beds. The rock debris consists mainly of morainal matter and land slide material on the steep slopes of Lightning Creek. In many places on the sides of the valley of Lightning Creek the slides contain bedrock as well as glacial drift material. The bench on the south side of Lightning Creek on lease #5332, where operations were set up by Tanacana Mines, is believed to be a bedrock slide from higher up the steep valley of Lightning Creek. The general areas of slide material is shown on the enclosed geological map with this report. These slide areas were outlined by geological mapping and the refraction seismic surveys.

Bedrock in the immediate area of the leases is composed of limestone, sericite schist, slate, argillite and quartz, etc., of the Cariboo Series. The Cariboo Series is Precambrian in age and is the same formation containing commercial lode gold deposits in the Wells-Barkerville area to the east. Throughout the general Cariboo area, the Cariboo Series of rocks are more favourable and contain the better lode gold mineralization. Gold mineralization in the form of replacement type ore bodies and quartz veins with pyrite and gold are present in the Cariboo Series in the underground workings of Wells, B. C. Bedrock to the south of the lease block is composed of shale, argillite, greenstone basalt, andesite and flow-breccia tuff of the Quesnel River Group. This series is younger in age and rests unconformably on the Cariboo Series. Gold mineralization is not too prevalent in this formation.

W.H.M.

The rocks of the Cariboo Series lie in the southwest limb of a broad anticlinal structure whose axis lies approximately three miles north northeast of the lease block. The axis of the anticline plunges to the northwest from 20 to 40 degrees. The strata of the Cariboo Series have a prevailing strike of north 30 to 40 degrees west and generally dip southwest, however, the beds are distorted in places by minor folding and faulting. Bedding planes are often distorted or obscured by shearing. The best bedrock outcrop in the area of the lease block, located northwest of Wingdam Lake, is composed of sericite schist and quartzite. The strike and dip conforms in general to the regional structure mentioned above. There is considerable shearing in the outcrop with alteration and quartz with pyrite and possible gold mineralization. Outcrops on the northwest side of Lightning Creek consist of slate and argillite of the Cariboo Series. The rocks contain a high degree of shearing and bedding planes obscured. There appears to be some major faulting in this area, however, the fault could not be mapped. Many parts of the outcrop contain quartz veins with pyrite and possible gold mineralization. In most of the outcrop area the pyrite has been oxidized.

#### PLACER GOLD DEPOSITS:

Placer gold deposits in the Cariboo area can be divided into three general categories or types, based on the mode of occurrence. The pre-glacial or Tertiary deposits are often called "gut gravel". Rich placer gold deposits were located in areas where favourable placer traps existed in the old Tertiary stream drainage pattern. The Tertiary drainage pattern was substantially different than the present drainage or post-glacial pattern. The Tertiary drainage in the general Wingdam area was northerly and probably related to the Fraser River when it flowed north into the Peace River drainage

W.H.M.

(British Columbia Department of Mines, Bulletin # 3 and # 11, Douglas Lay, 1940, 1941). Many of the rich placer deposits of the Tertiary drainage were eroded or gouged out by subsequent glaciation. The remaining placer deposits of the Tertiary drainage were covered with glacial debris. Inter-glacial deposits of auriferous gravel were deposited during and in between the three glacial epochs which took place in the general Cariboo area. The placer gold in these deposits was derived from the erosion or gouging by the glacier of original "gut gravels" in the old Tertiary streams. Some of the interglacial deposits are residual in that the sand and gravel were washed away by streams formed by the melting glacier. Other interglacial deposits were formed in areas favourable for placer traps (change in direction or gradient) of the stream resulting from the melting glacier. Post Glacial or Recent deposits are those formed in the present stream bed in the form of bars or benches. The source of the placer gold in these deposits is from the previously described deposits and erosion of exposed lode gold mineralization.

Placer traps, where gold and other heavy minerals are concentrated, are the result of a change in velocity of the stream. This change in velocity is produced by a change in direction of the stream or a change in the gradient of the stream bed. In general coarse gold or nuggets, over a quarter of an ounce in size, are not carried very far by the stream. The sand, gravel and rocks are moved and eroded by the stream and the gold stays fairly close to its original source. Therefore, in order to have auriferous gravels there must be lode gold mineralization in the immediate vicinity. There is lode gold mineralization in evidence in most all of the bedrock outcrops on the ridges in the general Wingdam area. The origin of the rich

W.H.S.

auriferous gravels on bedrock some 160 feet below the surface of Lightning Creek is no doubt from the erosion of local lode gold mineralization in the immediate area. There is evidence that the Lightning Creek valley was filled with glacial drift at one time to a depth of over 600 feet. The incision or cutting down of the Lightning Creek valley caused by stream piracy from a tributary of the southwesterly flowing Swift River or Cottonwood River drainage, removed the clay sand gravel and rocks of the glacial drift material and concentrated the gold on or near bedrock. There is fairly good evidence in the general area that Lightning Creek at one time flowed northerly through Beaver Pass to the Willow River. During this time the drainage of the general Wingdam area was northerly. The divide between the northerly drainage of Lightning Creek and its tributaries and the Swift and Cottonwood River drainage to the south was approximately two miles southwest of Wingdam. This information is the result of the recent photo geological studies, field mapping and refraction seismic rock by the writer. The field mapping and seismic surveys indicates a possible northwesterly trending channel or bench approximately 2,000 feet southeast of Lightning Creek near the southeast end of lease # 5332. Bedrock outcrops on both sides of the channel or bench. A preliminary refraction seismic profile across the flat indicates a depth to bedrock of some 35 feet with a cover of some 14 feet of glacial drift with approximately 21 feet of fairly clean (no clay) gravel on bedrock. The trend of the bench or channel appears to be approximately N10° to 30° east.

RESULTS:

The results of the photo geological compilation, prospecting, field geological mapping and refraction seismic surveys are tabulated under the different categories.

10/20/71

### Photogeological Compilation and Base Map

1. Fairly strong and persistent set of linearments in the southeast portion of the map area. The trend is from N35° to 50° East. For the most part these linearments are located away from the main valley of Lightning Creek however they are more or less parallel to the valley. To the northeast, near the northeast corner of the map area the linearments show an interference pattern and change in direction to a more northerly trend. It is very interesting to note that the possible channel or bench identified near the southeast boundary of lease #5332 trends into this area. No field work was done in this area to the northeast since it is outside of the lease block and access very difficult. This trend is also parallel to major fault trends to the northeast in the Wells area.
2. Another set of linearments trending northwest is shown on the base map. These linearments are less abundant, however, they are fairly persistent and occur over most of the map area. These northwest trending linearments are parallel to the strike of the bedding in the Cariboo Series of rocks. This trend is also roughly parallel to some major fault trends mapped in the general Cariboo area.

### Field Mapping and Prospecting

1. Outcrops immediately northwest of Wingdam Lake is composed of sericite schist and quartzite. The rocks are sheared with alteration and mineralization with quartz veins and pyrite. This is typical gold mineralization in the Cariboo Series with the quartz veins trending east-west. The vein vary in width from one to three inches. The pyrite in most of the quartz has been oxidized. The rocks appear to be in

WJM

close proximity to major faulting, however, the actual fault could not be identified and is probably located immediately southwest of the outcrop near Wingdam Creek. The area on the southwest side of Wingdam Creek is covered with thick clay.

2. Near the boundary between leases #5332 and #6106, some 2,500 feet northwest of Wingdam Lake there is a sharp drop in topography producing a flat area, slightly marshy with bedrock exposed on the steep slope to the northwest. This flat area contained approximately 35 feet of glacial drift and gravel above bedrock on seismic profile across the flat. It could well represent a high level bench or channel trending northerly.
3. Outcrops of argillite and quartzite on Ramos Creek, near the center of lease #7147, exhibited mineralization and quartz veins similar to that near Wingdam Lake. Further down Ramos Creek on lease #7073, hard boulder clay conceals the bedrock. Some placer gold has been produced in the past on lower Ramos Creek on the hardpan or false bedrock. Most of the gold produced on Ramos Creek was fine and uneconomical.
4. The flat on the south side of Lightning Creek near the northwest boundary of lease # 5332 has been prospected for a number of years without too much success. Test pits on the flat under the supervision of the writer in 1972 showed bedrock from 13 to 17 feet below the surface with a mixture of unsorted clay gravel and large rocks with small gold values. Recent mapping and prospecting of this immediate area indicates a good possibility of a fairly large bedrock slide from approximately 2,000 feet up Wingdam Creek has produced the flat or bench conditions in the area

W.H.M.

of the operations near Lightning Creek. The recent field work indicates the possibility of a deep channel trending north immediately southeast of the shallow bedrock buried under the slide material. This possible channel is shown on the enclosed map.

5. The field work indicates thick clay deposits southwest of Wingdam Creek. In some areas the clay is over 25 feet thick in outcrop. Seismic surveys indicate substantial additional clay below the surface on this side of Wingdam Creek.
6. A pebble count up Wingdam Creek and the small gullies running into the main creek shows a marked change some 1,500 feet up from the Lightning Creek confluence. From 1,500 feet up Wingdam Creek to the bench or flat mentioned earlier the gravel is much more rounded and considerably more quartz grains and rocks. In this area there is also more black sands and heavy minerals in the panned samples.

#### Refraction Seismic Surveys

1. The refraction seismic surveys uses a timer (which reads to one tenth of a millisecond) to record the velocity of a shock wave, (produced by a hammer on a steel plate), in the different layers above and in bedrock. The shock wave is produced every 10 feet and is timed through the use of an inertia switch on the hammer and a geophone which transmits the energy to the timer. In this survey a Nimbus ES-1A timer was used. The instruments are manufactured in West Sacramento, California, by the Nimbus Instrument Company which produces both reflection and refraction seismic instruments. The seismic profiles vary in length depending on the depth desired and are reversed so that dip calculations can be computed on the layers and bedrock. From the velocities of the

WFM

different layers the type of material above bedrock can be identified as well as depth calculations to the layers and bedrock by means of the formula

$$T_1 = \frac{D}{2} \sqrt{\frac{V_2 - V_1}{V_2 + V_1}}$$

where T is the thickness of the layer, D the distance to the change in velocity on the surface and V is the velocity in the different layers. As many as four layers were recorded on many profiles run in the area of the leases. An average of three layers were recorded including bedrock velocities. The location of the profiles and results are shown on the enclosed map titled "Location and Results of Refraction Seismic Surveys".

2. Reconnaissance seismic profiles on the flat near Lightning Creek on the northwest portion of lease #5332 indicated bedrock at a depth from 13' to 18' feet below the surface. Bedrock is very irregular and the sharp variation of bedrock (velocities or plots on velocity curve) indicates a possible of badly broken or fractured bedrock below the flat. in this flat area no typical gravel velocities were obtained above bedrock with the seismic work. Velocities of the material above bedrock were typical of those from unconsolidated material. In some areas of the flat typical clay and or hardpan velocities were obtained. Just above the flat, on the southwest bank of Wingdam Creek, no bedrock velocities were obtained. One profile in this area contained typical clay and hardpan velocities to a depth in excess of 25 feet below the surface. This is in the area where a possible deep channel is indicated on the map.

*W. Myers*



3. Approximately one half mile up Wingdam Creek near the boundary between leases #5332 and #6106, on the flat described earlier, the seismic profile on the flat indicated a bedrock depth of 35 feet. The profile indicated 17 feet of typical glacial drift velocities and gravel velocities from 17 feet to 35 feet. The gravel velocities were 4,500 feet per second, typical of gravel velocities.
4. Refraction seismic profiles in other portions of the lease area, showed glacial drift or clay on bedrock. The location of the seismic profiles and results of same are shown on the enclosed Refraction Seismic Survey Map.

#### CONCLUSIONS

The conclusions resulting from the recent photogeological compilation, field mapping, prospecting and refraction seismic surveys which are tabulated below are not necessarily in order of importance.

1. The northeast trending linearments on the aerial photographs in the southeast portion of the map area, which are in general parallel to Lightning Creek, apparently are related to glacial deposits and/or the old northerly drainage pattern.
2. Part of the northwesterly trending linearments, on the aerial photographs are probably the result of major fault trends and/or strike or bedding shears, observed in several places in the Cariboo area, which result in stream deflections and variations in depth and type of glacial deposits.
3. The steep valley of Lightning Creek contains many slides. Some of the slides are quite large and contain substantial amounts of bedrock. Most of the slides are on the southwest side of the valley. The flat or

*W.H.M.*

bench on the south side of Lightning Creek near the creek on lease #5332, appears to be a slide containing bedrock and is not a true bench.

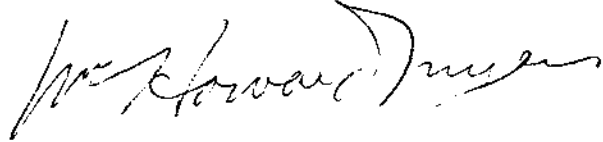
4. The flat area some half mile up Wingdam Creek appears to be a true bench or channel approximately 500' higher than the present Lightning Creek. The bench or channel appears to have a northerly to northeasterly trend and could well be part of the drainage pattern when Lightning Creek drained to the north through Beaver Pass to the Willow River.
5. Mineralization with quartz, pyrite and oxidized pyrite and possibly gold was noted in outcrops on ridges on both sides of Lightning Creek. Gold values have been reported in assays of similar mineralization in the general area in government reports.

*W.H.M.*

RECOMMENDATIONS:

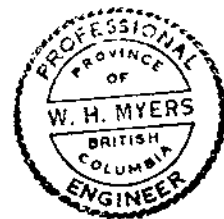
Further exploration work in the form of refraction seismic surveys, test pitting and possible drilling, is recommended on the indicated bench or channel near the southeast boundary of lease #5332. If drilling is done on the above location consideration should be given to the possible drilling for the deep channel indicated near the northwestern boundary of the lease above Lightning Creek. Access roads will have to be built to both areas before further work can be done. The existing old road to Wingdam Lake can be used in part but is much too steep just below the #2 post of lease #5332.

Respectfully submitted,



Wm. Howard Myers, P.Eng. (B/C), P.Geol. (Alberta)  
Geological-Geophysical Consultant  
301 - 510 West Hastings Street  
Vancouver, B. C.  
V6B 1L8

May 25, 1977



Expiry Date: June 16, 1978

*W.H.M.*

*W.H.M.*

APPENDIX

WKM

BIBLIOGRAPHY

British Columbia Department of Mines  
Bulletin # 3 Douglas Lay, 1940  
Bulletin #11 Douglas Lay, 1941

Canada Department of Mines  
Memoir #181, G. Hanson, 1935  
Bulletin #149, Johnson & Unglow, 1926

Geological Survey of Canada  
Maps of the Provincial Auriferous Creeks in the Cariboo Mining  
Division  
British Columbia - Amos Bowman, 1895.

Department of Mines and Resources - Canada Mines and Geology Branch  
Map # 336 A  
Map # 563 A  
Map # 564 A  
Map # 335 A  
Map # 562 A

*WKM*

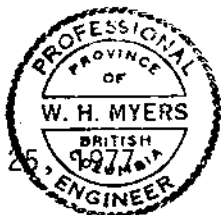
CERTIFICATE

I, William Howard Myers, do hereby certify that I am an independent geological-geophysical consultant with offices at Suite 301 - 510 West Hastings Street, Vancouver, B. C. I have been actively engaged in my profession as an independent consultant in both oil and mining since 1952. I have been specializing in the exploration for and production of placer gold for the past twelve years. I am a professional geologist member, P.Geol. # 16704, fo the Association of Professional Engineers, Geologists and Geophysicists of Alberta, and a non-resident member (P.Eng.) of the Professional Engineers of British Columbia.

I graduated from Fresno State College, Fresno, California, in 1939 with a B.Sc. degree in Geology. I did graduate work at Stanford University, Standford, California, for M.Sc. degree in geology from 1939 to 1941.

Information for this report is from published and unpublished maps and reports on the general Cariboo region together with my field work and studies of the Cariboo area over the past twelve years. The photo geological studies of the area of the placer mining leases was carried out from November 24 to 28, inclusive, 1976. The field mapping, prospecting and refraction seismic surveys was done from May 2 to May 9, 1977, inclusive. Published maps and reports used in this report are listed in the Bibliography.

I was elected a director of Tanacana Mines Ltd. in April 1977, however, I have no interest in any securities of the Company and do not expect to receive any interest in the securities of the Company to be issued as a result of writing this report.



*W. Howard Myers*  
Wm. Howard Myers, P.Eng. (B.C.), P.Geol. (Alberta)  
Consultant

S.P. #720  
5016445



Cariboo Mining Div.  
**RECORDED**

DEPARTMENT OF MINES AND PETROLEUM RESOURCES

MAY 20 1977.

PLACER MINING ACT

Quesnel, B. C.

Receipt No. \_\_\_\_\_

FORM J

**Affidavit on Application to Record Work**

I, KEITH G. MORTON Agent for TANAGANA MINES, LTD.  
(Name) (Name)  
General Delivery c/o Russell & DuMoulin  
(Address) (Address)  
Quesnel, B.C. V2J 3J1 1075 W. Georgia St., Vancouver, B.C. V6E 3G2  
 Valid subsisting F.M.C. No. 149227 Valid subsisting F.M.C. No. 149346

MAKE OATH AND SAY:

1. I have done, or caused to be done, work on Placer Mining Lease(s) No.(s) 5332, under Consolidation # 277/2.

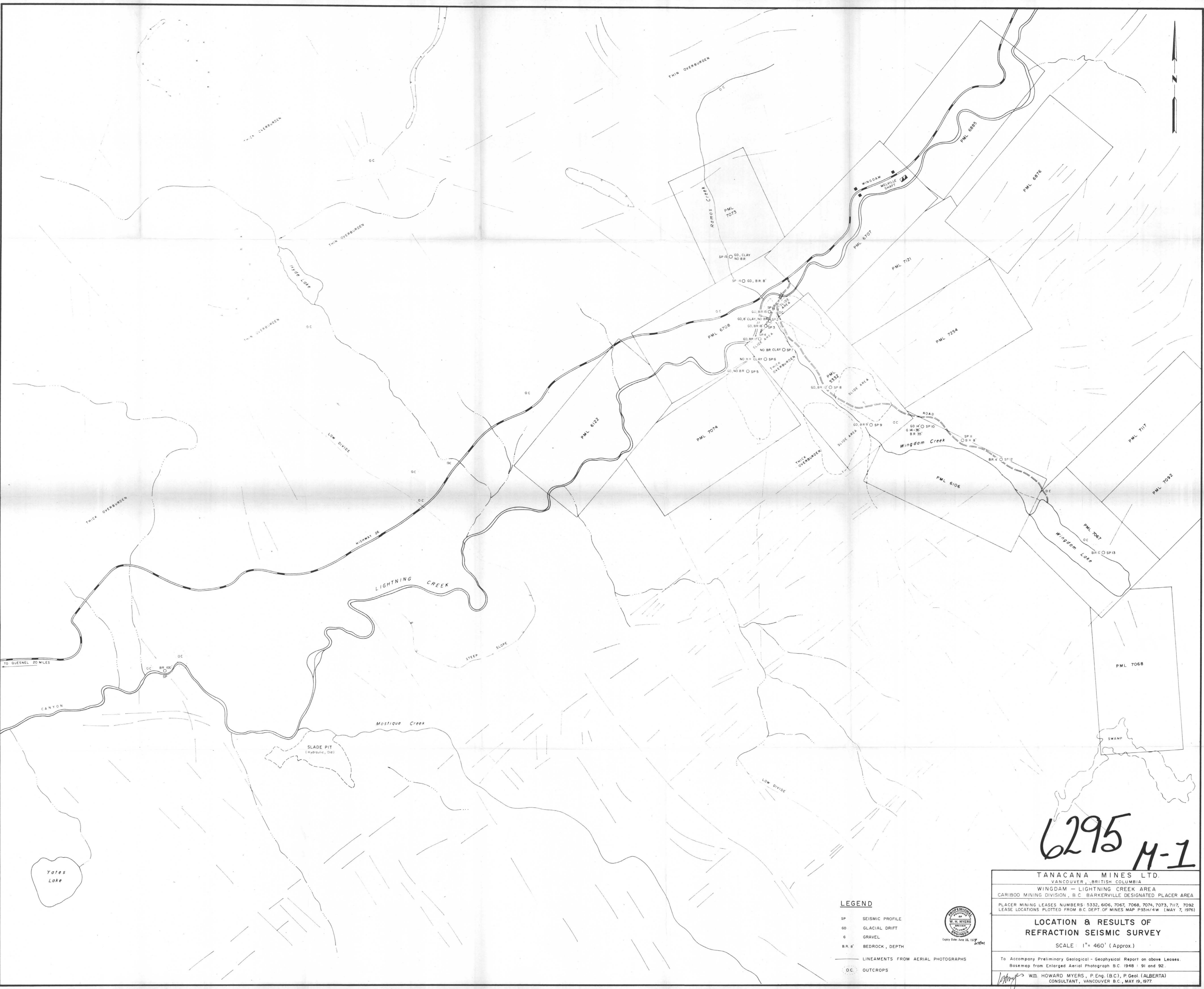
Situate at Wingdam in the Cariboo Mining Division, to the value of at least \_\_\_\_\_ dollars. Work was done from the 11th day of May 1976, to the 10th day of May 1977.

2. The following is a detailed statement of such work and of the value thereof:  
 (Set out full particulars of the work done in the 12 months in which such work is required to be done.)

	COST
Photogeological compilation of general Wingdam-Lightning Creek area. Enlarge photograph of lease area for base map for field work, approx. scale 1"=500'. 5 days (Nov. 24 to 28 incl.) @ \$150/day--	\$ 750.00
Geological field mapping & prospecting, May 2-5 incl., 4 days @ \$150/day--	600.00
Geological Survey (Refraction seismic profiles) for bedrock depth & relief, May 6 to 9, incl., 4 days @ \$250/day--	1,000.00
(All work done by Wm Howard Myers, P.Eng.(B.C.), P.Geol.(Alberta). Report to be filed within 30 ds.	
Physical work done by Keith Morton from May 11-25, 156 Hrs hard labour @ \$6.50/hr + 129 Hrs. common labour @ \$3/hr., 25 cu.yd., from pit 10'x12'x12' total deep-1,400.00	
(Sluicing, processing, testing)	2,750.00
	<b>TOTAL \$ 3,750.00</b>

I wish to apply \$ 3,750.00 to Placer Mining Lease(s) No.(s) as follows:

Dollar Value	Placer Mining Lease No.



6295 M-1

**LEGEND**

- SP SEISMIC PROFILE
- GD GLACIAL DRIFT
- G GRAVEL
- B.R. # BEDROCK, DEPTH
- LINEAMENTS FROM AERIAL PHOTOGRAPHS
- OC OUTCROPS



TANACANA MINES LTD.  
 VANCOUVER, BRITISH COLUMBIA  
 WINGDAM - LIGHTNING CREEK AREA  
 CARIBOO MINING DIVISION, B.C. BARKERVILLE DESIGNATED PLACER AREA  
 PLACER MINING LEASES NUMBERS: 5332, 6106, 7067, 7068, 7074, 7073, 7117, 7092  
 LEASE LOCATIONS PLOTTED FROM B.C. DEPT. OF MINES MAP P93H/4W (MAY 7, 1976)

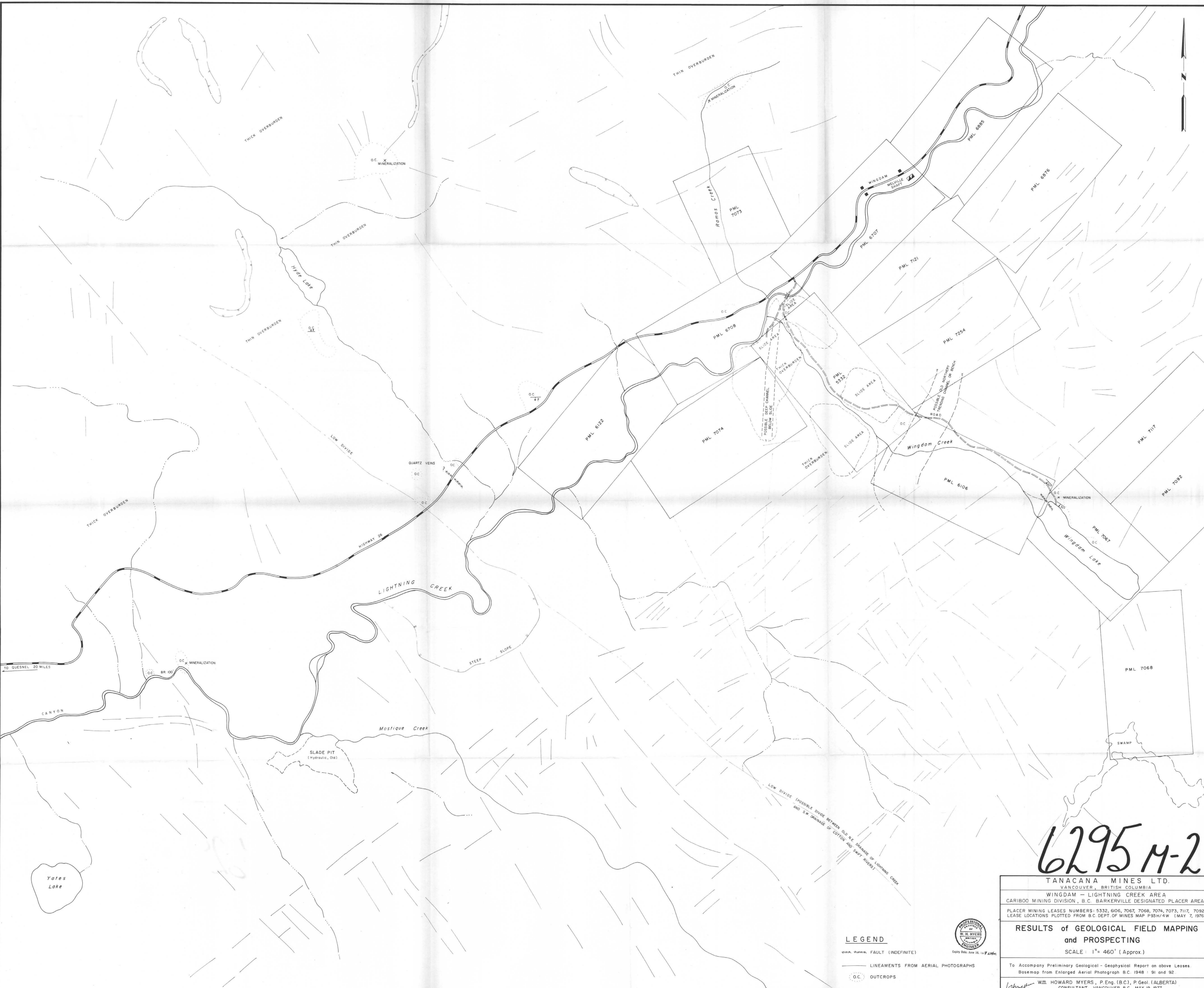
**LOCATION & RESULTS OF  
 REFRACTION SEISMIC SURVEY**

SCALE: 1" = 460' (Approx.)

To Accompany Preliminary Geological - Geophysical Report on above Leases.  
 Base map from Enlarged Aerial Photograph B.C. 1948 : 91 and 92.

W.H. MYERS, P. Eng. (B.C.), P. Geol. (ALBERTA)  
 CONSULTANT, VANCOUVER B.C., MAY 19, 1977





6295 M-2

TANACANA MINES LTD.  
 VANCOUVER, BRITISH COLUMBIA  
 WINGDAM - LIGHTNING CREEK AREA  
 CARIBOO MINING DIVISION, B.C. BARKERVILLE DESIGNATED PLACER AREA  
 PLACER MINING LEASES NUMBERS: 5332, 6106, 7067, 7068, 7074, 7073, 7117, 7092  
 LEASE LOCATIONS PLOTTED FROM B.C. DEPT. OF MINES MAP P93H/4W (MAY 7, 1976)

**RESULTS of GEOLOGICAL FIELD MAPPING  
 and PROSPECTING**  
 SCALE: 1" = 460' (Approx.)

To Accompany Preliminary Geological - Geophysical Report on above Leases.  
 Basemap from Enlarged Aerial Photograph B.C. 1948 : 91 and 92  
 W.M. HOWARD MYERS, P. Eng. (B.C.), P. Geol. (ALBERTA)  
 CONSULTANT, VANCOUVER B.C., MAY 19, 1977

**LEGEND**

- FAULT (INDEFINITE)
- LINEAMENTS FROM AERIAL PHOTOGRAPHS
- C. OUTCROPS

