REPORT ON THE PROPERTY OF THE

LINGMAN LAKE GOLD MINES LIMITED

(No Personal Liability)

LINGMAN LAKE, DISTRICT OF PATRICIA, ONTARIO

July 23rd, 1948

DEVELOPMENT AND EXPLORATION

Since the last Report of June 23rd, 1947, all the development work on the property has been confined to underground exploration. The three compartment shaft has been sunk an additional level. This third level was established at 400 feet.

Drifting was conducted in the north and south zones on all levels. The total underground work to July 23rd, 1948, inclusive, is 5,931 feet of diamond drilling and a total of 2,492 lineal feet of drifting, cross-cutting and raises.

The above work was divided as follows: —

Level	Drifting	Cross-Cutting	Raising	Diamond Drilling
1st Level—150	742'	388'	....	3,106.1'
2nd Level—275	614'	313'	70'	2,550.6'
3rd Level—400	160'	205'	....	274.3'
	1,516'	906'	70'	5,931 '

NORTH ZONE

150 Foot Level:

The north zone was drifted along the strike for a total distance of 725 feet, of which 277 feet was ore. Two separate ore-sections were exposed in drifting which are as follows: —

Section "A" (east portion) — 4.6 feet wide by 142 feet long and averaging .35 ozs uncut.

Section "B" (west portion) — 5.7 feet wide by 135 feet long and averaging .45 ozs uncut.

Section "C" (adjoining Section "A" — 12.5 feet wide by 30 feet long and averaging .43 ozs uncut.

However, the full width of the ore in Section "A" was not exposed. Underground diamond drill hole No. U-20 exposed an additional width of ore from 0 to 17.4 feet which averages .33 ozs over 17.4 feet. Similarly, diamond drill hole No. U-21, 25 feet further west exposed a width of ore from 0 to 7.7 feet which averaged .67 ozs over 7.7 feet. The ore in these two diamond drill holes which are 25 feet apart, is not included in Section "A" and gives us a section 12 feet wide by 30 feet long and averaging .43 ozs. This section is designated as Section "C" and could be mined in conjunction with Section "A".

The average grade for ore [illegible] A, B and C runs in value about .37 ozs per t[illegible] and contains 180 tons per vertical foot making a[illegible] of 10 percent for dilution.

The important fact in the [illegible] this level is that out of every 2.6 feet [illegible] foot was in ore. Further, the total potent[illegible] zone from the diabase dyke east to diamond dri[illegible] No. 72 is 2,600 feet of which only 725 feet or approximately one third has been opened by drifting. To date, and as mentioned above, this drifting of 725 feet has exposed 180 tons per vertical foot.

275 Foot Level:

The north zone on this horizon exposed a portion of Section "A" ore-body which is 55 feet long with an average width of 6.0 feet and values of 1.22 ozs per ton uncut. More recently additional drifting in the north zone to the east opened a further section which ran .46 ozs per ton uncut over a width of 5.0 feet for a length of 65 feet. To date, the two ore-shoots on this level average .84 ozs per ton uncut over an average width of 5.5 feet over a combined length of 120 feet. Further, it appears that ore Section "A" on the 150 foot Level corresponds to this ore section on the 275 foot Level.

The 2101 Raise was collared in the north zone in ore Section "A" on the 275 foot Level and is now 55 feet vertically above the level. The average face values in this raise have been .99 ozs per ton uncut over an average width of 4.3 feet and the car samples ran an average of .56 ozs per ton for 278 tones of ore. However, the full width of the structure was not exposed in the raise and in places the ore is wider than the raise heading. Although all the assay values are not available, the raise at present is 90 feet vertically above the 275 foot Level and has revealed gold values equally as good as mentioned above.

Drifting to the west in order to intersect the downward extension of ore Section "B" from the 150 foot Level and subsequent drilling and diamond drill hole Nos. U-2-37 and U-2-39 revealed that this ore section was in the footwall of the west drift. The structure and geology is the same and this section should yield approximately the same tonnage and grade as Section "B" on the 150 foot Level. This is further based on the fact that surface diamond drill hole No. 17 intersected .47 ozs over a core length of 9.9 feet at a vertical depth of about 215 feet. This section of ore is approximately 55 feet above the collar of diamond drill holes No. U-2-37 and No. U-2-39.

It is expected that ore Sections "A" and "B" in the north zone on this level will yield the same tonnage as outlined on the 150 foot level. The grade should be the same if not better.

400 Foot Level:

The north zone on this horizon has been encountered in the 4100 cross-cut north at 150 feet north of the shaft. No values were encountered in the cross-cut and two drift headings will be driven east and west from this [illegible]. Structural and geological conditions on this horizon a[illegible] same and ore-conditions similar to the two upper should be encountered.

SOUTH ZONE

150 Foot Level:

The south zo[illegible] was [illegible]t drifted on this level b[illegible] is present at this [illegible] d has been indicated by diamo[illegible] drill holes.

275 Foot Level:

The south zone on this level has parallel ore-bodies and the first foot-wall ore sections averaged .31 ozs uncut over 2.4 feet for a length of 180 feet. There is another parallel hanging-wall structure which in diamond drilling revealed values of .43 ozs over 7.5 feet. It is planned to expose these values by driving a cross-cut into this body from 2100 Drift East.

On this same horizon the south zone has a horizontal displacement of about 200 feet and the ore section as outlined in surface diamond drill holes No. S-1, S-2, S-4 and S-5 lies 250 feet south of the shaft. A heading designated as 2099 Drift West is about 130 feet from this ore section. It will be recalled that these surface diamond drill holes gave the following values: —

No. S-1 .66 ozs over 12.9 feet of core.

No. S-2 .27 ozs over 10.6 feet and .19 ozs over 8.1 feet of core.

No. S-4 .45 ozs over 13.6 feet of core.

No. S-5 .37 ozs over 4.3 feet of core.

This section of the south zone should materially add to the tonnage as the drill hole intersections were wide and carried better than average gold values.

400 Foot Level:

On this level the cross-cut entered the south zone at a point 40 feet south of the shaft and exposed an ore-body which averaged .39 ozs over 7.3 feet. Ten feet south of this main intersection another hanging-wall ore-body was encountered which ran .28 ozs over 5.8 feet.

The first ore intersection averaged .38 ozs per ton over an average width of 4.8 feet for 60 feet. The car samples from this ore-body averaged .38 ozs per ton. At the present, both the drift faces to the east and west are in ore.

The hanging-wall ore-body will also be opened by drifting. Two drill holes intersected this hanging-wall structure about 23 feet on either sides of the cross-cut. This results in an ore-body which is 50 feet long open on both ends and, as intersected in the cross-cut and diamond drill holes averages .36 ozs over a width of 5.5 feet. During the first week of August 1948, this structure was opened to the west for a distance of 45 feet. The first 20 feet revealed some fine free gold. As outlined above this section should average 0.36 ozs and due to the good width will give a substantial tonnage.

These ore-bodies in the south zone are wider and stronger than those exposed on the upper levels. The ore sections although explored to a limited extent on the 400 foot Level indicate about 75 tons per vertical foot and by the time this section is fully explored plus the ore section in the vicinity of surface diamond drill holes No. S-1, S-2, S-4 and S-5 we expect to have a total of about 200 tons per vertical foot in the south zone.

MILLING

Representative mine samples were submitted to the Dominion Bureau of Mines at Ottawa and also to Mr. R. D. Lord, Metallurgist acting for Killborn Engineering Company Limited, of Toronto, Ontario. Both metallurgical reports indicate that the Lingman Lake ore can be economically recovered and does not present any difficult metallurgical problems.

The tests as conducted by Mr. Lord on straight cyanidation gave a gold recovery of 92.7% with grinding 94% minus 200 mesh. Further, the reports show that only one-third of the ore is refractory and that the remaining two-thirds is readily recovered by straight cyanidation. This might require selective mining in order to achieve an overall good mill recovery.

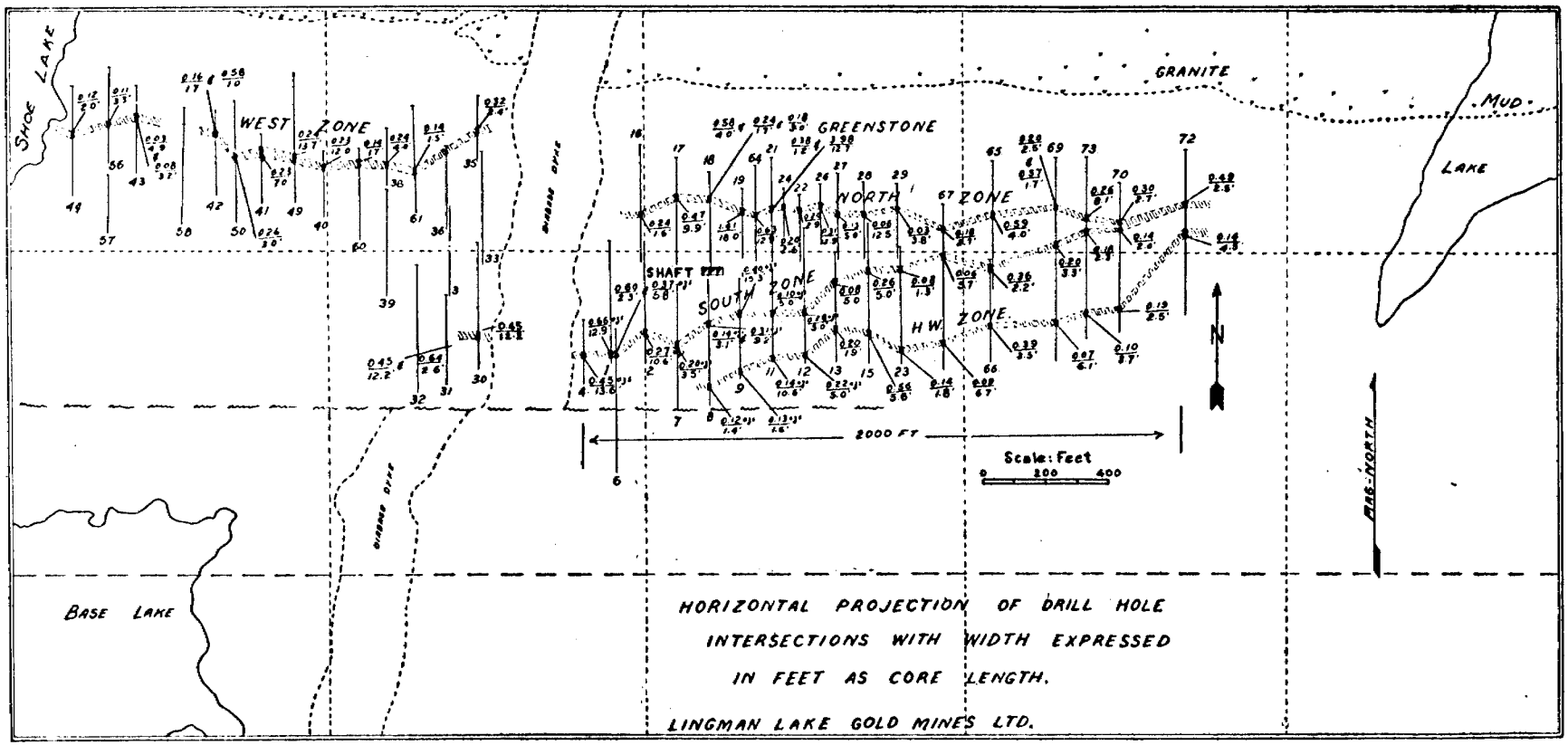
Additional milling tests will be undertaken in order to further study the best methods for gold recovery as well as to arrive at the type of mill design required. But the initial tests definitely indicate that the mill design will be of a general cyanidation type.

SUMMARY AND CONCLUSIONS

To date, the ore as developed in the north and south zones indicate a mine grade of 0.37 ozs per ton. The north zone east of the diabase dyke has so far been established over a total possible length of 2,000 feet. This north zone was explored by 725 feet of drifting on the 150 foot Level and uncovered 277 feet of ore which contains 180 tons per vertical foot.

The south zone appears to have the same grade of ore and after explored in the vicinity of surface diamond drill holes No. S-1, S-2, S-4 and S-5 should yield about 200 tons per vertical foot. At this point the south zone will have been developed along the strike for a total length of 600 feet. The total established length of the south zone east of the diabase dyke is also 2,000 feet.

The north and south zones have been explored underground only 25 percent of the total known favourable surface. Under these conditions, and based on previous surface diamond drill results, it is reasonable to assume that when both the north and south zones are fully explored they should yield an additional minimum of 200 tons per vertical foot. This would result in a total of approximately 580 tons per vertical foot. This assumption is based on the past and present development work. Further, the structural and geological conditions of the zones are the same along their entire strike and I feel that our future development program should yield equally as good results as those obtained to date. Further, there are other isolated sections of ore which are not considered and which may well prove to be important after the structural and geological conditions are better known. In addition to this, both zones have ore intersections in some of the surface diamond drill holes west of the diabase dyke, such as surface diamond drill hole No. S-30 which assayed .45 ozs over 12.2 feet of core.



Note: All values as intersected in each diamond drill hole are not shown in this sketch and for more detailed information reference should be made to the diamond drill records, especially so if any one attempts to calculate an average grade. This sketch shows in general, the relationship and disposition of each of the four ore zones and is an illustration and should not be used in making detailed calculations.

Raise 2101 illustrates that the ore has assay walls which is typical of a replacement ore-body such as the Lingman Lake ore. Further, two and three ounce samples will occur alongside 0.20 oz samples. These high values are not islotated and occur often enough which will help to maintain a good grade during mining operations.

Another very important geological feature is the fact that the north zone is flat dipping whereas the south zone is steep dipping. Both these zones should intersect each other at a vertical depth of about 1,000 feet and better ore conditions should be encountered below this horizon.

The mine is definitely taking shape and if hydro electric power could be brought to the property at a reasonable cost the underground development work could then be conducted on a more reasonable basis of cost.

Respectfully Submitted,

LINGMAN LAKE GOLD MINES LIMITED
(No Personal Liability)

M. G. SMERCHANSKI,
Consulting Mining Geologist.

SUPPLEMENTARY REPORT

LINGMAN LAKE GOLD MINES LIMITED

(No Personal Liability)

July 24th, 1948, to September 30th, 1948

NORTH ZONE

The 2102 Raise was driven in ore all the way from the 275 foot level to the 150 foot level. The feldspar porphyry which appears to be the controlling feature in reference to values in this zone was continuous between these two levels. In most places the full width of the ore was not exposed in the raise. But the average face samples from 55 feet vertical above the 275 foot level to the 150 foot level ran .64 ozs. It will be recalled that from the collar of the raises to 55 feet vertical above the 275 foot level the face samples ran .99 ozs over an average width of 4.3 feet. But here again the full width of the ore was not exposed.

On the 275 foot level in the west portion an ore section was revealed which ran .39 ozs over 4.3 feet for a total length of 75 feet. This section has not been fully explored.

On the 400 foot level the east section is now entering the ore section with the present face assaying 5.02 ozs over drift width. The car samples ran 1.02 ozs for 23 tons.

SOUTH ZONE

On the 275 foot level the hanging wall structure which was diamond drilled has now been opened by drifting which averaged .33 ozs over an average width of 4.1 feet for a length of 140 feet and is still open to the east. The east face in this section ran .44 ozs over 6.0 feet. To date both these structures have 100 tons per vertical foot and both faces are in ore and open to the east.

The south zone in the vicinity of surface diamond drill holes No. S-1, S-2, S-4 and S-5 is being explored by 2099 Drift West from the 275 foot level. To date this heading has exposed 70 feet of ore open to the west. This ore will continue west for another 100 feet until the diabase dyke is encountered. The ore in this section is displaced by minor faults and has been rather difficult to follow and as a result of this the entire width of ore has not been exposed by drifting. However, the average width will be about 5 feet and the grade will be about 0.37 ozs per ton.

The south zone now has about 150 tons per vertical foot and when fully explored will yield 200 tons per vertical foot and better.

On the 400 foot level the south zone has been extended to 100 feet west of the main cross-cut which indicates that on this horizon the south zone is of a better width and longer than on the 275 foot horizon.

On the 275 foot level this zone yielded 100 tons per vertical foot and after being fully developed on the 400 foot level will result in more than 100 tons per vertical foot.

During recent development on the 400 foot level in the hanging wall structure of the south zone, the drift heading designated as 4100 A Drift West revealed free gold on each drift face for a total length of about 35 feet.

M. G. SMERCHANSKI,
Consulting Mining Geologist.

October 1, 1948.

REPORT ON THE PRO... OF ...

LINGMAN LAKE GOLD MINES LIMITED

(No Personal Liability)

LINGMAN LAKE, NORTHWESTERN ONTARIO

FOREWORD

I arrived at Winnipeg on October 7th but Mr. Smerchanski was away at the property and being delayed by bad weather did not arrive until the 10th. He told me that through oil shortage and the necessity of equipment repair, work had been temporarily suspended and only a skeleton crew left at Lingman Lake. I therefore did not go in and this report is based on the plans and oral information. I left Winnipeg for Red Lake on the morning of October 14th.

SUMMARY

The principal feature of the summer's work is the exploratory work on an area on the North Zone on the 275-foot (second) level. This is 70 feet long, starting at a point 15 feet west of the centre of the main cross cut, and shows some unusually high grade values. By car samples it averages $23.98 per ton over a width of 5.6 feet, and by uncut face samples $52.50 per ton over a width of 3.9 feet, cutting all the face sample highs to a maximum of one ounce per ton, the average is .45 oz. gold or $15.75 per ton. Combining the car samples with the "cut" face samples, average gives—

Length 70 feet

Width 4.75 feet

Value $20.21 per ton.

It is probable that this showing is the downward continuation of the West Shoot on the North Zone on the 150-foot level, and an east rake is indicated.

A matter of interest also are the bulk samples taken. A total of 19 tons was broken on the First and Second Levels (for details see below) from which 2,000 lbs. was taken divided into four samples of 500 lbs. each, which have been sent to Ottawa for metallurgical tests. On the basis of the original face assays, these four samples average .43 oz. gold or $15.05 per ton and from the bulk assays .52 oz. gold or $18.20 per ton, combining the two gives .47 oz. gold or $16.45 per ton.

In addition to the above, values found in drilling underground are described under the headings for the levels and their positions indicated on the composite 20-scale plan. In most cases these values are within twenty feet of the present workings and are therefore extensions of the showings found in them.

During the period under review of approximately three months (June 23, 1947 to Sept. 20, 1947) a total advance was made of 721.3 feet, or 240.4 feet per month. Diamond drilling (all underground) amounted to 3,111.4 feet or 1,037.1 feet per month.

Arrangements have been made with the Patricia Transportation Company to take the freight from Winnipeg to Favourable Lake and negotiations are on with the Government to make a winter tractor road between Favourable and Lingman Lakes. In this way the expensive and unsatisfactory route by way of the Hudson Bay Railway, Ilford and Gods Lake will be avoided.

Underground work was suspended on Sept. 20, 1947 and it is hoped to be able to resume it sometime in January 1948. Diamond drilling however is still continuing.

In conclusion I would say that considering the difficult conditions under which the work has to be carried on, a very creditable progress has been made.

DEVELOPMENT

From June 23, 1947 to September 20, 1947, the following amount of underground work was done:

First (150-foot) Level—	
North Zone—Drifting East and West	187.6 feet
South Zone—Drifting West	6 feet
Total	193.6 feet
Second (275-foot) Level—	
North Zone—Drifting East and West	230.0 feet
South Zone—Drifting East	41.7 feet
South Zone—Drifting West	50.0 feet
Crosscutting North and South	206.0 feet
Total	527.7 feet
Grand Total	721.3 feet
Diamond Drilling—	
First Level	1,898.6 feet
Second Level	1,212.8 feet
Total	3,111.4 feet

THE FIRST (150-FOOT) LEVEL

On the North Zone since the date of last visit the drift has been continued to the east and 766 car or muck samples covering a straight line length of 147 feet (from 5 feet east of station 32 to 2 feet west of station 41) and a width of 6.3 feet average .102 oz. gold ($3.57) per ton. Reducing the length to 87 feet (by cutting off the eastern 60 feet) would raise the grade to .131 oz. gold ($4.69 per ton).

Face samples from 10 feet west of station 34 to 2 feet east of station 41, 113 feet average, .156 oz. gold or $6.46 per ton over 4.2 feet.

The East Drift has been back sampled from the shaft crosscut for a straight line distance of 132 feet, east of the same, for the 55 feet nearest the crosscut the values are low, but improve for the remainder of the distance, 77 feet where they average .291 oz. gold or $10.19 over 4.8 feet in width.

Comparing the face back and car samples, we have the following, the length 77 feet, being the same:

	Width Feet	Value per ton Oz.	Dollars
Car Samples	7.7	.302	10.51
Face Samples	3.6	.266	9.31
Back Samples	4.8	.291	10.19
Overall average	5.2	.294	10.29

This, it may be remarked, is the western part of the East Shoot described in the previous report, which from the car and face samples had a length of 117 feet, a width of 5.0 feet and a grade of .33 oz. gold or $11.55 per ton.

In the West Drift at this level nothing was found beyond that already described in the previous report.

DRILL HOLES

U-1-20 Flat, South, 24 feet E. of Station 22—
6.4—10 —3.6 feet—.41 oz.—$14.35
12.7—17.4—4.7 feet—.86 oz.—$29.70

U-1-21 Flat, South, 15 feet E. of Station 22—
Footage 0. —3.1—3.1 feet— .11 oz. | .697
Footage 3.1—3.9—0.8 feet—Ground core | 10.8
Footage 3.9—7.7—3.8 feet—1.28 oz. | incl. lost core
Footage 7.7—11.6—3.9 feet— .11 oz. | $21.25

U-1-23 Flat, North, 21 feet E. of Station 27—
Footage 0.3.3—3.3—.24 oz.—$8.40

U-1-28 Flat, North, 23 feet E. of Station 32—
Footage 0—3.2—3.2 feet—.14 oz.—$4.90

U-1-29 Flat, South, opposite U-1-28—
Footage 5.0—8.0—3.0 feet—.21 oz.—$7.35

U-1-30 Flat, South, 5 feet W. of Station 22—
Footage 2.3—5.7—3.4 feet—.07 oz.—$2.45

U-1-41 South, Flat, 5 feet W. of Station 34—
Footage 25.9—28.8—2.9 feet—.12 oz.—$4.20

U-1-54 South, Flat, 27 feet E. of Station 37—
Footage 0 — 2.3—2.3 feet—.26 oz.—$9.10
Footage 11.8—15.5—3.7 feet—.21 oz.—$7.35

U-1-64 South, Flat, at Station 17—
Footage 0 — 2.1—2.1 feet—.16 oz. | .143
Footage 4.8— 8.3—3.5 feet—.08 oz. | 11.8
Footage 8.3—11.7—3.4 feet—.18 oz. | incl. lost
Footage 11.7—12.1—0.4 feet—Ground Core | core
Footage 12.1—15.0—2.4 feet—.17 oz. | $5.00

U-1-66 S.E., Flat, East side of shaft station and 15 feet South of shaft—
Footage 42.6—45.0—2.4 feet—.41 oz. } $14.35
Footage 45.0—47.6—2.6 feet—.41 oz. } 5.0 feet

SECOND (275-FOOT) LEVEL

The East Drift on the South Zone (2100 E. Drift) has only been advanced 27 feet since the date of last report, and for that distance shows the following value: Car Samples .10 oz. or $3.50 per ton. For the last 12 feet to the face the grade improves and is .14 oz. gold or $4.90 per ton.

For the full distance of advance the face samples average .25 oz. gold or $8.75 over 2.5 feet. These values possibly indicate the beginning of another ore showing extending farther to the east.

The West Drift on this zone is 90 feet south of the East Drift. It has been extended westward for 50 feet but so far no values of note have been found. All the work on the North Zone at this level has been done since my last visit and in the East Drift adjoining the crosscut shows high grade ore. Car samples indicate the following:

Length 50 feet
Width 5.7 feet
Value .771 oz. gold or $26.99 per ton

If this be extended into the West drift it will have—
Length 70 feet
Width 5.6 feet
Value .685 oz. gold or $23.98 per ton.

In the East Drift east of Station 51 (50 feet from the crosscut) the value of the car samples drop and for the remaining distance to the east face (66 feet) only averages .043 oz. gold or $1.51 per ton.

The face samples for the same length as the car samples, 70 feet, average 1.5 oz. per ton over 3.9 feet. Cutting all "high" to one ounce gives an average grade of .45 oz. gold or $15.75 per ton. For the remainder of the distance to the face (66 feet) the assays are low, the better ones only averaging .13 oz. gold or $4.55 over 3.2 feet.

In the West Drift on this zone from ten feet west of the crosscut to the end, a distance of 110 feet both the car and the face samples show only occasional scattered values, of which the best is a car sample from the West face where 23 cars ran .64 oz. gold or $22.40 per ton. It is possible, however, that going west the drift has got south of the ore as two flat drill holes put out north show values from six to ten feet of the drift. The first of these holes is U-2-37, which at footage 10.0—18.1—8.1 feet including 0.3 feet lost core ran .215 oz. gold or $7.53 per ton, and about 20 feet west of it is U-2-39, which at footage 6.0—15.3—9.3 feet including 2.0 feet of lost core ran .16 oz. gold or $5.74 per ton.

Diamond drilling results on the Second Level apart from the two holes already mentioned comprise the following:

U-2-32 South Zone, East Drift, South, Flat 10 feet East of Station 23:
Footage 7.1—10.5—3.4 feet—.40 oz.—$14.00
Footage 29.0—36.0—7.0 feet—.75 oz.—$26.25

U-2-34 South Zone, East Drift, South, Flat 7 feet East of Station 20:
Footage 23.4—25.0—1.6 feet—.16 oz.—$5.12

U-2-40 South Zone, East Drift, South, Flat, 12 feet east of Station 29:
Footage 41.5—43.2—1.7 feet—.32 oz.—$11.20

U-2-48 North Zone, East Drift, South, Flat, 3 feet west of Station 48:
Footage 0—6.9—6.9 feet—.40 oz.—$14.00

U-2-53 North Zone, East Drift, North, Flat, 6 feet east of Station 51:
Footage 5.2—8.0—2.8 feet—.10 oz.—$3.50

U-2-62 2100 Crosscut North, N.E.—45 at Station 36:
Footage 72.6—75.4—2.8 feet—1.64 oz.—$57.40
75.4—76.5—1.1 feet—Ground Core

BULK SAMPLES

No. 1 Sample—This was taken on the First Level from the 100 East Drift on the North Zone between stations 19 and 23. The back was blasted down and 3,000 lbs. taken by retaining every 4th shovelful which lot was further reduced in the same manner to 750 lbs. of which 500 lbs. was arranged for shipment and 250 lbs. kept for a composite.

Original face samples—Length 31 feet
Width 53 feet
Value .44 oz. gold
Bulk sample assay .40 oz. gold.

No. 2 Sample—Also on the First Level from the 1,100 West Drift between Stations 24 and 28. Nine tons were broken, from which slightly over two tons (4,000 lbs.) was obtained by first cutting (4th shovelful). The final cutting (every fifth shovelful) amounted to 500 lbs. for shipment, the remainder being retained for a composite sample.

Original face samples—Length 53 feet
Width 7.4 feet
Value .54 oz. gold
Bulk sample .54 oz. gold.

No. 3 Sample—Second Level 2,100 East Drift from two sections, one 12 feet long, just east of station 26 and the other at from 24 to 30 feet east of station 19, the two sections being 54 feet apart; 3½ to 4 mine carloads broken from which finally 500 lbs. was obtained for shipment.

Original face samples—Combined length 31 feet
Width 3.4 feet
Value .28 oz. gold
Bulk sample .54 oz. gold.

No. 4 Sample—Equal amounts were taken from the three previous samples from which 500 lbs. was taken as a final sample. In addition to the above, a 150-lb. composite sample of the same composition as No. 4 was prepared for shipment to the mine office at Winnipeg for check assay.

All samples were dried to one percent moisture and placed in twelve steel drums averaging, when filled, 166⅔ lbs. each. The lids of the drums were welded in place to prevent oxidation before treatment. These samples have been sent to the Metallurgical Division of the Mines Branch at Ottawa. The average of the face and bulk samples is herewith shown:-

	Face *Oz. per ton*	*Bulk* *Oz. per ton*
No. 1	.44	.40
No. 2	.54	.54
No. 3	.28	.56
No. 4	.45	.58
Average	.43	.52

It would appear from this that the bulk samples average nearly 22 percent higher than the face samples and that the combined average is .47 oz. per ton or $16.45 per ton.

PROGRAMME

This is taken from Mr. M. G. Smerchanski's letter of Oct. 24, 1947. Underground mining work was suspended on September 20, 1947, consequent on a shortage of diesel oil and the necessity of overhauling the plant.

One compressor unit was converted to gasoline and diamond drilling continued until October 6, 1947. In the meantime one compressor was overhauled and placed in operating condition. No. 2 compressor, however, is still being overhauled and the work is held up owing to some of the spare parts not being obtainable.

At present there is on the property nine men and drilling is being carried on from the surface, but if necessary and advisable can drill underground as there is sufficient gasoline on hand for that purpose. The surface drilling programme will explore the North Zone ahead of 2101 East Drift at the 375, 475 and 575 horizons.

Expect to recommence underground development some time in January, 1948, and will supplement the present mining plant with a boiler, which will give a larger air capacity, and enable more development headings to be driven.

At present are endeavouring to get the Patricia Transportation Company to deliver the freight from Winnipeg to Lingman Lake, and also have contacted the government with reference to building a winter tractor road from Favourable Lake to Lingman Lake. The Patricia Transportation Company will definitely convey the freight to Favourable Lake and negotiations are now in progress to get it to move the freight all the way to Lingman Lake, and if arrangements can be made the Lingman Lake Gold Mines Ltd., will not have to move the freight itself. As of October 17, 1947

"Diamond drill hole No. 70 intersected what appears to be a new hanging wall structure in the North Zone. As a result of this we have decided to collar a diamond drill hole on the 275 level or on the 150 level in order to intersect the general section immediately ahead of the face in 2101 Drift East. The immediate plan will be to intersect this zone both on the 275 foot and 375 foot horizons. Under these conditions it is our intention to continue the underground drilling for the time being."

M. G. S.

Respectfully submitted,
J. A. REID,
Consulting Mining Engineer.

JAR:M.
Toronto, Ontario,
November 12th, 1947.

APPENDIX

(1) A composite 20 scale plan of the underground workings showing the drilling. On this is marked in red the location of the drill hole values which are figured in dollars ($35.00) and shown in pencil.

Engineer's Report

LINGMAN LAKE GOLD MINES LIMITED

(No Personal Liability)

404 Ca... Permanen... Bldg.

TO...O • ONTARIO

Lingman Lake ARCH. M. 2064
by R. Thomson - September 18, 1947

In conversation with Mark Smerchanski I learned many facts about the property.

INTRODUCTION

The property of Lingman Lake Gold Mines Limited consists of 21 claims, PA 6130 to 8, 6196 to 6204, 6391, 6633 and 4, in the Patricia Mining Division.

General Notes

A campaign of diamond drilling has been carried out resulting in a number of intersections distributed along three zones. From these intersections tentative estimates of the grade and tonnage have been made.

Underground operations on two levels have investigated a certain length of zones outlined by diamond drilling. From this work the grade and size of the ore showings can be estimated (for the distance investigated) with much greater accuracy than from the diamond drilling. It would seem adviseable to determine how closely underground operations check with the drilling. It seems probably that even the underground operations do not permit a reliable estimate of grade and tonnage. The underground workings were tested by (1) face sampling, (2) car samples, (3) bulk samples (4) diamond drilling from underground. A factor (a percentage of length investigated) that appeared to be ore was made by Mark S.; in places he mentioned 40%.

Consideration may also be given to any geological relationships that might change the tentative estimates for the first 300 feet to greater depth. Chief of these is the possibility that the diorite plunges east and that underneath it no ore may be found. On the surface no ore has been discovered west of the diorite. Although the relation may not hold for future work, the association of ore values with shearing, diorite and porphyry may be significant. This imposes a decided limit on the total length of ore structure.

Other Showings Not On Lingman Lake Property

In the question of power developing, power for mining and milling in this vicinity the presence of encouraging showings on properties adjacent to Lingman Lake Property is as important as on the property. The direct extensions of the ore zones may be considered first. To the west some diamond drilling has been done and the outlook is not particularly favourable. More drilling is planned.

Apparently in the northern part of Lingside Mines a small gold occurrences has been found but Mark S. spoke as though he did not regard it as being of economic importance.

Winora Gold Mines Limited

M. S. reports that some gold occurrences have been found in diamond drilling in the N.W. corner of this property. Possibly there are more or less direct extensions of the Lingman Lake ore zones. The association with diorite appears similar. They have not been investigated in any detail.

Other Properties

Mining Corp.

They found some gold occurrences near Seeber Lake to the west in 1946. Apparently some work was done this year but results not known.

Teck-Hughes

This year this company made a rich gold find, apparently a blow-out traceable some 60 feet and have staked 100 claims for prospecting next year. Apparently there is nothing proved up so far.

Most of the other properties have not been prospected or work to date has not shown up anything of value. In this connection M. S. has compiled (scale 1"-400') a geological map of many of the properties, the work being done under his direction.

Lingman Lake

General Geology

The general area has been described and mapped in a reconnaissance fashion by J. Satterly. Report on the property available to the writer included one by Reid and Smerchanski and one by Cyril Knight marked "confidential""for Department of Mines use only " and sent to the writer by J. Satterly. Rocks exposed in the area are all of precambrianage.

Economic Geology

Considerations of Depth

In general it may be said that if ore is proved to about two levels (250 or 300 feet vertical) and no factors are known that would limit its continuation in depth it may be assumed that the ore body will continue. Leaving for the moment the amount of ore proved to this depth, three factors may be considered in regard to depth continuation (1) Length of zone on surface, (2) Matter of probably extension of gabbro and porphyry with andesites ie continuation of favourable situation, (3) Possibility of granites coming in at relatively shallow depth; that is, unfavourable host rock.

(1) The length of ore bearing structure would appear to be satisfactory.
(2) The possibility of ore being restricted to the sheared gabbro-quartz porphyry association and this pitching to the east must be considered. If this should prove true, assuming that the ore zone maintained its horizontal length and grade the tonnage would remain the same provided that there is sufficient ground to protect the easterly extension. There would be an increase in cost of mining.
(3)The large granite mass to the north is only about 400 feet from the north zone and less than 1000 feet from the south. It must be pointed out that this is a large area and not a minor intrusion. Consideration may be given to two factors (a) the granite as an unfavourable host rock (b) gold deposits in close proximity to granites are often of erratic gold content and likely to be discontinuous. In regard to the outline of the granite at depth, apparently nothing is reported that would suggest its coming in at shallow depth. Possibly the presence of abundant porphyryddikes in the ore zone is the only observation having any bearing on this matter.

Economic Geology Summary

A successful and encouraging diamond drill campaign has been completed - some underground work has been done but not enough to permit conclusions to be drawn. For power installation there are three possibilites (a) negative, (b) wait until further development will have cleared the picture, (c) take a chance on incomplete knowledge.

In respect to sampling it may be pointed out that the diamond drill intersections refer to a zone and not to ore lenses, or possible stopes. This is very noticeable in the D.D.H. assays quoted in M. Smerchanski's reports.

From late 1938 until May 1945 no work was done. In May 1945 a drill campaign under the direction of M. G. Smerchanski was begun, and by February 1st, 1946, 19000 feet of drilling had been done.

In July 1946 a shaft and two levels were started (at 150 and 275 feet) cross cuts to the north zone were run from the first level and across cut to the south zone on the second level. Some drifting was done from the three cross cuts along the ore zones and an underground diamond drill program was carried out.

Edited + Typed Jan 1961

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REPORT ON THE PROPERTY OF THE

LINGMAN LAKE GOLD MINES LIMITED

(No Personal Liability)

LINGMAN LAKE DISTRICT OF PATRICIA, ONTARIO

November 1st, 1946

The property of the Lingman Lake Gold Mines Limited consists of 21 claims and is situated in the Lingman Lake area, District of Kenora, Patricia Portion in North-western Ontario. The necessary work for patent application on the Lingman Lake Gold Mines property has been completed and the patent rights are now in the process of being granted.

The general geology and the initial diamond drilling program was outlined in a general report dated February 1, 1946 and this report is based on the subsequent work which was carried out on the Lingman Lake Property.

NORTH ZONE

This zone had an indicated length of 500 feet with an average width of 8 feet and an average grade of $52.00 per ton (uncut) based on gold values at $38.50 per ton or $47.25 per ton (uncut) based on gold values at $35.00 per ton. The "North Zone" has been further extended to the East and now has a total indicated length of 1,400 feet open to the East.

The following are the diamond drill hole intersections as cut in the "North Zone":

Drill Hole No.	*Footage*	*Core Length*	*Vertical Depth*	*Grade Oz.*	*Grade $35.00 Oz.*
16	155.4 - 159.4	4.0	110	.11	$ 3.85
	228.4 - 230	1.6	161	.24	8.40
17	142 - 144.7	2.7	100	.30	10.50
	154.6 - 161.2	6.6	110	.08	2.80
	224.6 - 228.9	4.3	158	.06	2.10
	273.4 - 280.7	7.3	195	.14	4.90
	286.1 - 296	9.9	203	.47	16.45
18	57.8 - 60.	2.2	41	.30	10.50
	121.5 - 125.5	4.0	86	.58	20.30
	293.3 - 295	1.7	206	.24	8.40
	317.3 - 320.3	3.0	223	.18	6.30
19	64.8 - 65.6	0.8	45	.17	5.95
	290 - 308	18.0	210	1.41	49.35
21	111.7 - 112.9	1.2	78	.38	13.30
	227.5 - 240.2	12.7	164	3.98	139.30
22	94.1 - 97	2.9	67	.20	7.00
	243.5 - 247	No core recovery — ground			
24	136.7 - 139.3	2.6	97	.20	7.00
25	200 - 203	3.0	141	.10	3.50
26	129.1 - 142	12.9	95	.31	10.85
27	205 - 210	5.0	145	.13	4.55
	226.5 - 238	11.5	161	.04	1.40
28	210 - 222.5	12.5	150	.06	2.10
	305 - 307.2	2.2	214	.09	3.15
29	228 - 231.8	3.8	161	.03	1.05
67	622.4 - 625.1	2.7	437	0.18	6.30
65	352.2 - 356.2	4.0	246	0.59	20.65
	392.2 - 394.3	2.1	275	0.21	7.35
69	691.5 - 693.2	1.7	484	0.37	12.95
	741.5 - 744.0	2.5	519	0.20	7.00
73	535 - 543.1	8.1	378	0.26	9.10
70	494.3 - 497	2.7	346	0.30	10.50
72	482.5 - 485	2.5	338	0.49	17.15

The total length on the "North Zone" of 1,400 feet as outlined by the above mentioned drill holes gives an average of $36.65 (uncut) based on gold values at $35.00 per oz., over an average width of 5.8 feet.

The "North Zone" has an indicated figure of 810 tons per vertical foot with an average value of $36.65 per ton (uncut).

SOUTH ZONE

This zone had an indicated length of 900 feet with an average width of 7.1 feet and an average grade of $14.40 per ton (uncut) based on gold at $38.50 per oz., or a grade of $13.10 per ton (uncut) based on gold at $35.00 per oz.

The "South Zone" has been further extended to the East for 700 feet giving this Zone a total length of 1,600 feet, open to the East.

The following are the drill hole intersections in the **"South Zone"**.

Drill Hole No.	Footage	Core Length	Vertical Depth	Grade Oz.	Grade $35.00 Oz.
1	24.1 - 37.0	12.9	21	.66	$ 23.10
2	120.0 - 130.6	10.6	88	.27	9.45
	306.9 - 315	8.1	218	.19	6.65
4	141.4 - 155.0	13.6	104	.45	15.75
5	172.1 - 176.4	4.3	122	.37	12.95
6	478.4 - 484.5	6.1	337	.22	7.70
	486.7 - 488.4	1.7	341	.22	7.70
	495.9 - 498.2	2.3	348	.60	21.00
	505.6 - 511.4	5.8	356	.37	12.95
7	284 - 287.5	3.5	200	.20	7.00
	459.3 - 460.5	1.2	322	.12	4.20
8	177.5 - 178.9	1.4	125	.12	4.20
	407 - 416.2	9.2	288	.31	10.85
	438.2 - 442.9	4.7	308	.18	6.30
	447.6 - 449.6	2.0	313	.16	5.60
9	320.9 - 329.1	8.2	227	.15	5.25
	350 - 365.3	15.3	250	.40	14.00
10	57.3 - 59.7	2.4	40	.32	11.20
11	233.7 - 238.7	5.0	165	.10	3.50
	265.9 - 267.3	1.4	186	.14	4.90
12	225.3 - 228.3	3.0	159	.28	9.80
13	31.1 - 37.9	6.8	24	.12	4.20
	390 - 395	5.0	274	.08	2.80
15	15 - 18.5	3.5	12	.07	2.45
	430 - 435	5.0	302	.26	9.10
23	219.2 - 220.5	1.3	154	.08	2.80
30	99.8 - 100.9	1.1	70	.24	8.40
	150 - 162.2	12.2	108	.45	15.75
	349 - 351.6	2.6	245	.64	22.40
67	572.7 - 578.4	5.7	402	0.06	2.10
65	100 - 102.2	2.2	71	0.36	12.60
69	555.7 - 559	3.3	411	0.20	7.00
73	526.1 - 528.4	2.3	369	0.18	6.30
70	440 - 445.5	5.5	309	0.12	4.20

This gives a total indicated length of 1,600 feet with an average width of 6.0 feet and an average value of $10.50 per ton (uncut) based on gold at $35.00 per oz.

The **"South Zone"** has an indicated tonnage of 960 tons per vertical foot with an average value of $10.50 per ton (uncut).

WEST ZONE

This Zone is the same and has an indicated length of 800 feet with an average width of 6.3 feet and an average grade of $8.22 per ton (uncut) based on gold at $35.00 per oz., and has an indicated figure of 500 tons per vertical foot.

The following are the drill hole intersections in the **"West Zone"**.

Drill Hole No.	Footage	Core Length	Vertical Depth	Grade Oz.	Grade $35.00 Oz.
38	110 - 114	4.0	78	.24	$ 8.40
40	251 - 263	12.0	178	.23	8.05
41	258.3 - 265.3	7.0	182	.23	8.05
42	290.9 - 292.6	1.7	204	.16	5.60
	302.9 - 303.9	1.0	212	.58	20.30
43	231.7 - 236.6	4.9	164	.03	1.05
	263.7 - 266.9	3.2	185	.08	2.80
49	208 - 221.7	13.7	150	.24	8.40
50	130.6 - 133.5	2.9	92	.26	9.10
	284.0 - 287	3.0	200	.26	9.10

HANGING-WALL ZONE

This Zone is located in the Hanging-Wall of the "South Zone" and has been traced by diamond drilling for a total length of 1,600 feet. In the original diamond drilling program it was difficult to establish any definite zone, but subsequent diamond drilling revealed a definite zone to which we gave the term "Hanging-Wall Zone".

A complete list of the diamond drill hole intersections of the "Hanging-Wall Zone" is as follows:

Drill Hole No.	Footage	Core Length	Vertical Depth	Grade Oz.	Grade $35.00 Oz.
8	97.7 - 100.8	3.1	69	.14	$ 4.90
9	40.0 - 41.6	1.6	28	.13	4.55
11	19.6 - 30.2	10.6	17	.14	4.90
12	32.3 - 37.3	5.0	24	.22	7.70
13	175.4 - 177.3	1.9	123	.20	7.00
15	145.6 - 151.4	5.8	104	.56	19.60
23	73.7 - 75.5	1.8	52	.14	4.90
67	136.9 - 143.6	6.7	98	.09	3.15
66	165.8 - 169.3	3.5	115	.39	13.65
69	177.1 - 183.2	6.1	126	.07	2.45
73	130 - 133.7	3.7	91	.10	3.50
70	102.4 - 104.9	2.5	71	0.19	6.65
72	380.5 - 385	4.5	266	0.14	4.90

The "Hanging-Wall Zone" was drilled at 100-foot intervals with the exception of Diamond Drill Holes 65-69 and 70-72, which are 200 feet apart. This Zone has an indicated length of 1,600 feet with an average width of 4.4 feet and an average value of $6.75 per ton (uncut) based on gold at $35.00 per oz. The indicated figure is 700 tons per vertical foot.

SUMMARY OF DIAMOND DRILLING PROGRAM

The "North Zone" is 1,400 feet long and open to the East. Similarly, the "South Zone" is 1,600 feet long and from the diamond drilling data available to date there is the suggestion that at a point 1,900 feet East of the Diabase Dyke both the "North Zone" and "South Zone" merge to form one main zone. This interpretation is based on diamond drill hole No. 72 which revealed one intersection of 0.49 ozs., instead of two intersections representing both the "North" and "South Zones". The sketch on the horizontal projection of the diamond drill hole intersections further substantiates the fact that the "North" and "South Zones" have a tendency to converge towards each other the greater their distance to the East from the Diabase Dyke. However, it is expected that subsequent diamond drilling on the extension of the strike to the East of these Zones will either prove or disprove this condition.

Most of the Diamond Drill Holes were spaced at 100-foot intervals with the exception of drill holes 65-69 and 70-72, which were spaced at 200—foot intervals. As mentioned in my previous report, the assumption that ore is continuous between the diamond drill hole intersections is open to question. Further, the swell and pinch of a replacement ore body both on strike and dip make diamond drilling interpretations difficult, but every Diamond Drill Hole in each of the zones outlined above has revealed typical ore structure and gold values were encountered in every hole. This fact is illustrated in the sketch which shows the horizontal projection of the drill holes.

A summary of the indicated tonnage on all the zones based on the "core length" intersections is as follows:

NORTH ZONE

810 tons per vertical foot with a grade of $36.65 per ton (uncut).

SOUTH ZONE

960 tons per vertical foot with a grade of $10.50 per ton (uncut).

WEST ZONE

500 tons per vertical foot with a grade of $8.22 per ton (uncut).

HANGING-WALL ZONE

700 tons per vertical foot with a grade of $6.75 per ton (uncut).

This indicates a possible 2,970 tons of ore per vertical foot. This figure will be somewhat less depending on the actual dip of the ore body. Basing the calculations on "core length" and assuming that the dip of the ore body is 70° and that all drill hole intersections were at 45°, the corrected figure would be less by about 15% or approximately a total of 2,525 tons per vertical foot or 250,000 tons for every 100 feet in depth. This tonnage data makes the assumption reasonable for the purpose of getting a preliminary view of the ultimate possibilities. The indicated tonnage suggests a daily operation of about 350-400 tons.

The final "cut grade" will be determined from the underground development work. Consequently it is most difficult at this time to give a true "cut grade" but the average "uncut grade" is sufficiently high to warrant an exceptionally good grade of ore which has good mining widths.

The area to the East of Diamond Drill Hole No. 72 is covered by overburden for a distance of about 900 feet. Since Diamond Drill Hole No. 72 revealed favourable geological conditions and gold values of 0.49 ozs., it is reasonable to assume that further gold values are likely to be intersected in this section. This would further increase the tonnage possibilities of the "North' and "South Zones".

SURFACE PLANT

The cookery, bunk house, hoist room, assay office, change house, steel shop and powder magazines were constructed prior to the commencement of the underground operation. Similarly, the hoist and compressors were installed and the head-frame prepared for the sinking operations. The head-frame is well constructed and if necessary can be used for production purposes.

MINE DEVELOPMENT

Shaft sinking operations were commenced during the third week in July. There was a considerable period of delay due to the fact that delivery on certain parts of our hoist was delayed. Similarly, the labour problem was rather difficult in that we were unable to obtain trained men.

The three-compartment shaft was down to the 150 foot level and the station collared on September 19th. A large double station was cut on the 150 foot level. The station on the second level was collared at the 275 foot elevation and is now being cut. On the completion of this development, lateral work will be commenced on the 150 foot level and two cross-cuts driven North and South in order to intersect the "North" and "South" Zones, and drifting will commence in these ore zones within the very near future.

An underground drill is now available on the property and it is our intention to explore and intersect the "North" and "South Zones" in the vicinity of the underground workings at greater depth and to obtain more detailed information on strike of these ore zones.

M. G. SMERCHANSKI,

Engineer's Report

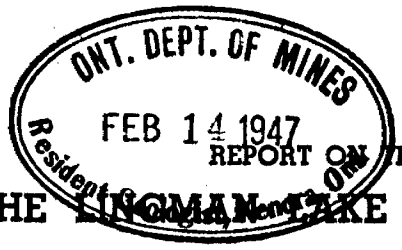
LINGMAN LAKE GOLD MINES LIMITED

(No Personal Liability)

710 Star Building

TORONTO - ONTARIO

J. A. REID
Mining Engineer



REPORT ON THE PROPERTY OF
THE LINGMAN LAKE GOLD MINES LIMITED
LINGMAN LAKE DISTRICT OF PATRICIA, ONTARIO

FOREWORD—

The Writer left the Cochenour Willans Mine at Red Lake on the afternoon of January 20th, and arrived at Lingman Lake on the morning of the 21st. That day and the two succeeding it were employed in studying plans, records, and drill cores; also the proposed shaft site was inspected and material gathered for this report. He left Lingman Lake at 8.30 a.m. on January 24th, but was delayed by bad weather at Berens River Landing and did not arrive at the Cochenour Willans Mine until the morning of the following day, 25th. Both trips to and from the property were made in the Company's aeroplane and on each occasion the writer was accompanied by Mr. M. G. Smerchanski, Geologist and Engineer in charge of operations.

In respect to the values, widths and lengths given below, it must be remembered that they are indicative of promise only, the true value of these factors can only be determined by actual underground work. Grade can only be determined by closely spaced sampling (at 5 foot intervals generally, or less with high grade deposits). Diamond drill intersections are too widely spaced to give more than an approximation of expectant value, except on large low grade ore bodies where the valuable constituent is very uniformly distributed.

SUMMARY

Systematic exploration by diamond drilling on the property has indicated two mineralized zones carrying promising gold values over good widths. These zones strike about east and west and are supposed to dip south at 65 degrees, and, east of the diabase dike, appear to be from 250 to possibly 400 feet apart. Along the South Zone there are indicated seven lenses in a horizontal distance of 880 feet. The overall average of these lenses is $15.27 per ton (uncut) and 9 feet in width. The lenses, however, are not in the same plane and were intersected at vertical depths of from 40 feet to about 250 feet.

On the North Zone, starting about 250 feet east of the dike, there is a stretch 300 feet long which has some very high assays. Making a drastic reduction of these, we have the following:

Length	300 feet
Width	7.9 feet
Value (cut)	$34.62 per ton,
Average vertical depth	190 feet

In view of these results it is the writer's opinion that they justify further exploration by underground work.

The zones persist west of the dike but to date the results have been less consistent than those east of it, with the exception, however, that in drill holes 40 and 41 (the former being 600 feet west of the dike), there are two intersections at 100 feet along the strike averaging $8.86 over 8.5 feet. As these intersections have about the same vertical depth (182 and 184 feet), they may be in the same lens and indicate another ore body coming in to the west.

Check sampling was done by engineers connected with the Freeport Sulphur Company. Freeport checked the samples they took, four times, and the two last runs were within five per cent. of the company's results. The writer also checked four samples and likewise got an agreement within five per cent. (see below). Two of the writer's samples were of high grade ore which gave practically complete agreement, and as the samples were not quite identical, being the separate halves of drill cores, it is to be inferred that the values are fairly evenly distributed.

Preliminary development will have to be done, using diesel oil for power as the district has but scanty fuel resources. There is, however, about 18 miles distant, a hydro electric power site on the Ponask River with possibilities up to 3000 horse power which can be harnessed when the productive stage is approaching. In respect to the drilling campaign, it has been very systematically and efficiently executed and reflects credit on the engineer and geologist in charge of operations.

In conclusion, the writer would state that he regards the property of the Lingman Lake Gold Mines Limited as a very promising gold prospect and that the results obtained to date justify extensive additional development.

RECOMMENDATIONS

(1) That the shaft be sunk according to specifications, and the zones explored at two levels therefrom. There are two sites shown on the plan (Exhibit B.) The writer favours the Northern one, as it would tend to equalize the amount of cross cutting to reach the ore zones to the second level at any rate. He likewise favours putting the two levels at the 150 foot and 300 foot horizons.

(2) If the rock outcrop on which the shaft will be sunk is strongly sheared, and local conditions render it feasible, it is suggested that the shaft be oriented across the schistosity and not parallel to it to avoid sloughing in stations and consequent expense in timbering as has occurred at other mines.

It is expected that sinking can commence some time in April.

(3) That during the open season the power site on the Ponask River be surveyed, its possibilities determined and a preliminary cost estimate submitted.

ACKNOWLEDGEMENT

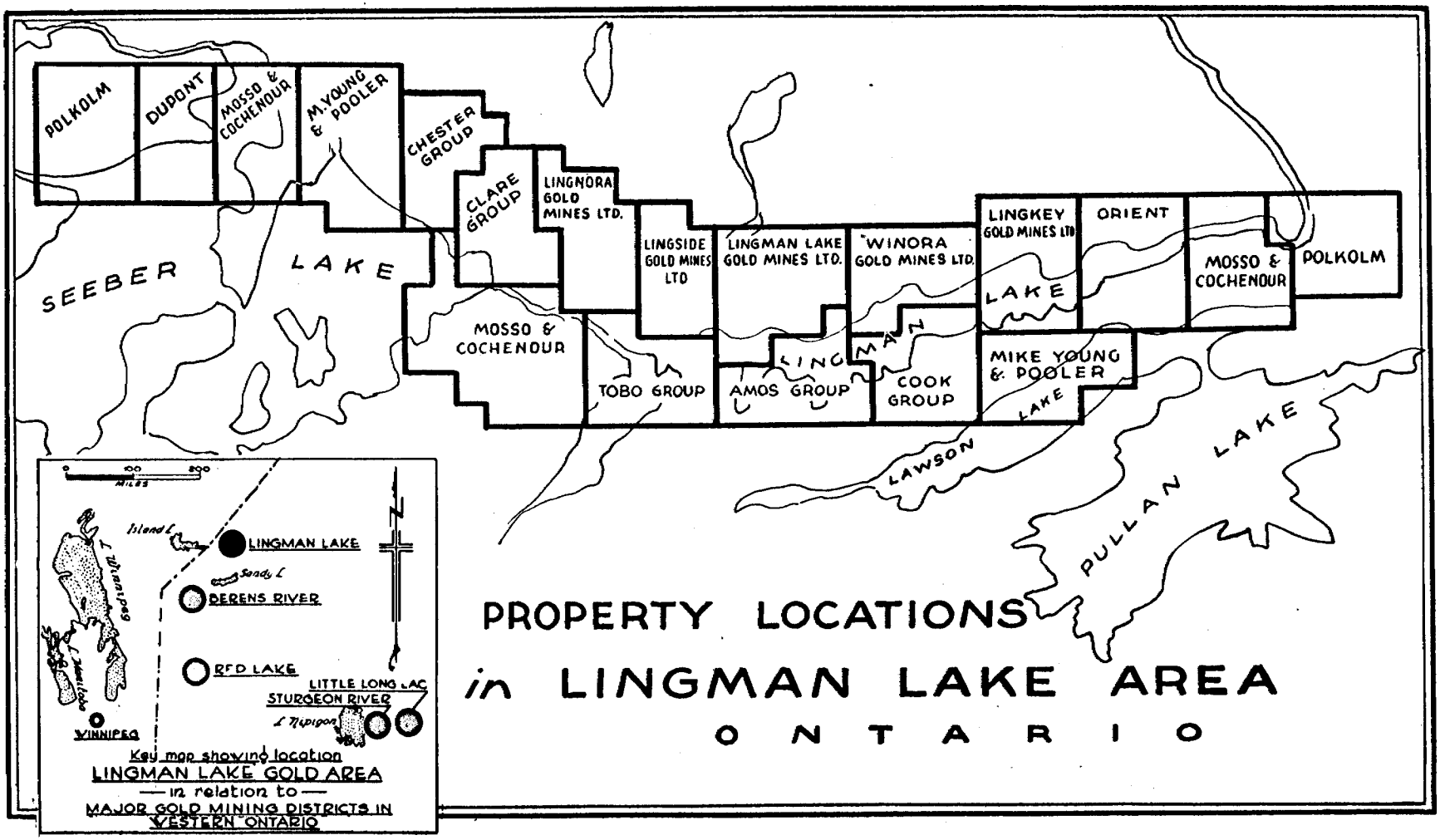
During the writer's trip to and from the property and stay there he received every assistance and facility from Mr. M. G. Smerchanski, geologist and engineer in charge, which is herewith gratefully acknowledged.

GENERAL INFORMATION

The property of the Lingman Lake Gold Mines Limited is in North Western Ontario. It is 195 miles by air, north and a little east, of Red Lake; the distance being taken by air in two stages; 125 miles to Berens River Landing and then 70 miles from there to Lingman Lake. Under reasonably favourable conditions, the trip, including the stop at Berens River Landing, takes 2½ to 3 hours. From Lac de Bonnet the distance is 210 miles in a north-easterly direction, a stop also being made at Berens River Landing. The Canadian Pacific Airways has regular trips two or three times a week from Lac de Bonnet to Berens River but from there to Lingman Lake is a special trip. The Lingman Lake Gold Mines Limited, however, has its own aeroplane which makes trips to and from the property to Lac de Bonnet, Winnipeg, and other points.

The winter tractor road to the Berens River Mine also has a branch connecting with Lingman Lake.

The terrain occupied by the claims, apart from a few inconspicuous ridges, is quite flat. It has also been ravaged by fire in the past and has no timber resources of note. On the Ponask River, distant about 18 miles, in a direction slightly east of north, there is a power site, consisting of a falls with a drop of 50 feet which, is stated to have possibilities of 2500-3000 horse power.



All maps are drawn from information believed to be reliable, but individual ownership and exact locations are not certified. — Lingman Long Lake Gold Mines Limited (No Personal Liability).

PROPERTY

The property of the company consists of a solid block of twenty-one (21) unsurveyed claims, viz. P.A. 6130-1-2-3-4-5-6-7-8, P. A. 6196-7-8-9, P. A. 6200-1-2-3-4, P. A. 6391, and P. A. 6633-4, and comprises approximately (as they are unsurveyed) 840 acres. Part of the group adjoins the west end of Lingman Lake, on the North side, and the remainder a little north of it. (See Key Map in Exhibit "A".)

GEOLOGY

The geological mapping to date carried out by Mr. M. G. Smerchanski is mainly confined to six claims, P.A. 6132-3-4-5-6-7, in the North-western part of the group.

Apart from a large diabase dike, with a northerly strike, described in more detail below, the mapped area is underlain by ancient Pre-Cambrian or Archean rocks, having an east-west strike, and an assumed dip (from drill data) of about 65 degrees south. The most northerly of these formations consists of granitic rock of presumed Algoman age intrusive into and younger than those to the south. South of the granite, there is a zone 3400 or 3500 feet wide of intermixed gabbro and greenstone (andesite) which, in the Northern part, is cut by bodies of quartz and feldspar porphyry that are presumably genetically connected with the granite to the North. South of the gabbro-greenstone area there is another band, classified as diorite, 1200 to 1400 feet wide and this is succeeded by another bank of greenstone, 350 to 400 feet in width. South of the second greenstone band, there is a zone of sedimentary rocks, argillite, greywacke and iron formation, near the shore of Lingman Lake, whose width has not been determined.

The diabase dike above mentioned extends entirely across the mapped area. It has an average width of 220 feet and 500 feet north of the base, it is cut by an east-west fault which has shifted points on the northern segment 250 to 300 feet east. North of this fault the dike runs pretty straight N. 10 E. and a dip (determined from drilling) of 76 degrees east. About 1200 feet south of the fault, the dike shows a pronounced bend or swing to the west. There are no outcrops along the bend so that the apparent curve may be due to another fault parallel to the first, which, looking north from where latitude 1690 crosses an outcrop (dike) has a displacement of about 700 feet to the east. The dike is probably of Matachewan age, i.e. post Algoman and pre-Cobalt, and, as such, is later than the ore showings, and has only an accidental relationship to them. It is, however, described in some detail as its behaviour along the strike seems connected with certain important structural features of the area.

Two types of porphyry were seen; one consisting of white feldspar phenocrysts in a dark coloured, rather glassy ground mass, and another called quartz porphyry, with irregular "eyes" or rather lenticles of quartz in a fine grained ground mass of sericite schist. This latter is associated with some of the ore showings and from its appearance may not be intrusive but a phase of the hydro thermal alteration of the rocks in which it occurs.

STRUCTURE

This has been mentioned under "Geology", but for convenience and clarity will be recapitulated here. All the formations mentioned, except the diabase dike, strike about east-west and are assumed to dip 65 degrees south. Five hundred feet north of the base line between stations 20+00 and 23+00, a strike (east-west) fault cuts the diabase dike and shifts the Northern segment 250-300 feet east relative to the south segment. This fault is crossed by drill holes No. 6, No. 10 and No. 14, but from examination of the log of No. 6 (the only one at the moment in the writer's possession), no certain evidence of its intersection can be found, so that its dip at present is unknown. It may be remarked here that the fixation of faults from diamond drill intersections is always difficult and uncertain and in many cases impossible. Further south, a pronounced swing or bend of the diabase to the west indicates another probable strike fault parallel to the first, which is tentatively located about 1100 feet south of station 12+00 on the base line and appears to have shifted the North segment of the dike relative to the south 700 feet to the east. It would appear from the above that the combined movement along the two faults as shown by the diabase dike is around 1000 feet to the east. As both of these faults shift the dike, the movement along them in respect to it is definitely post ore. This supposition, however, does not preclude the possibility that the original or primary shearing may be pre-ore, as once a shear zone or fissure is established in the earth's crust, it forms a line of weakness which may be the locus of movements in various directions and at different times.

In the logs of drill holes 17 and 21, a strong fault zone 10-15 feet wide is indicated. At footages 34 and 74 feet respectively, projecting these intersections to the surface gives a strike of N. 82 E, the dip, however, as in the case of the other faults mentioned is undeterminable.

ORE SHOWINGS

The principal ore showings on the property are in two shear zones known as the North and South Zones, both of which are traversed by the diabase dike. They strike about east-west, or a little north of east and are assumed to dip 65 degrees south. They appear to diverge going west, as east of the dike they are 250-400 feet apart and west of it 600 to 700 feet.

From the drilling results the ore showings seem lenticular. The most favourable host rock is andesite or greenstone, and an especially good conjunction is off the "noses" or ends of bodies of quartz porphyry. The gangue or vein matter is mostly silicified andesite with some carbonate and quartz. Sulphide mineralization is good but not particularly heavy or massive. The principal mineral of that type is pyrite accompanied by some arsenopyrite, occasional pyrrhotite and rare chalcopyrite. Visible gold is uncommon, in fact, the only occurrence seen by the writer was some very fine and not very definite colors in a very rich section of core which assayed over 22 ounces of gold to the ton.

On the South Zone, east of the dike and intersected by drill holes 5, 4, 1 and 2, at vertical depths varying from 50 to 75 feet, there is a series of rather closely spaced lenses making up what might be considered a single ore body 200 feet long; 9.9 feet wide, averaging $12.12 per ton (uncut). Then there is a blank space of 100 feet, traversed by No. 7 drill hole which shows nothing of note. The drill holes 8, 9, 11, 12, 13 and 15 intersect four possible separated lenses at vertical depths varying from 40 to 247 feet, in a horizontal distance of 500 feet. These lenses average $10.26 (uncut) per ton over 8.4 feet in width. If each of the seven lenses be allowed a length of 100 feet (the drill hole interval), there is a possible total length, irrespective of depth of 700 feet, average width of 9 feet, average vertical depth 116 feet, and uncut value of $15.27 per ton. In addition to the above, there are in the drill holes various other scattered assays of good to fair tenor which cannot be correlated.

On this zone west of the dike, drill hole 30 (50-75 feet west of the dike) from footage 150-162.2-12.2 feet ran $17.71 per ton at a vertical depth of 110 feet. The next two holes west of it, 31 and 32, show nothing of note.

The North Zone east of the dike in drill holes 17, 18, 19 and 21, has very high assays in the last two, 5.92 ounces over 3.4 feet and 22.52 ounces over 2.2 feet respectively. These give the following averages:

Horizontal length	300 feet
Width (core length)	7.9 feet
Value (uncut)	$97.31 per ton
Average Vertical depth	190 feet

Reducing the high wide sections in drill holes 19 and 21 to $38.50 in each instance, we have:

Horizontal length	300 feet
Width (core length)	7.9 feet
Value (cut)	$34.62 per ton
Average Vertical depth	190 feet

West of the dike on this zone, for a distance of 600 feet, the values are scattered, but at drill hole 40 (600 feet west) from footage 251-263 12 feet averages $8.86 and in drill hole 41, 100 feet further west, footage 258.3-256.3 7.0 feet ran the same, $8.86 per ton.

These two intersections have almost the same elevation, i.e. vertical depths of 182 and 184 feet respectively so that they may be on the same lens. This shows evidence of the appearance of a new ore body to the west.

CHECK SAMPLING

Twenty-two core samples from drill holes 4, 6, 9 and 13 were checked by the Freeport Sulphur Company's engineers and all or part of the samples assayed four times.

In comment on this sort of work, the writer would say that the results obtained on individual samples have little significance, the accuracy of the checking depending on the number of the samples investigated. In other words, all other things being equal, the greater the number of samples checked the closer will be the agreement. In general, if the variation is 10 per cent. or less, the agreement can be regarded as good; from 10 to 20 per cent. fair, and above 20 per cent. poor.

The summation of the checking and variation of the same is as follows:

Lingman	1st check	Variation	Remarks
22 samples	22 samples	per cent.	
7.09	4.71	33.6	Low and poor
Lingman	2nd check	Variation	
10 samples	10 samples	per cent.	
3.21	2.78	13.4	Low and fair
Lingman	3rd check	Variation	
22 samples	22 samples	per cent.	
7.09	6.82	3.8	Low and good
	4th (regrind)		
Lingman	check	Variation	
21 samples	21 samples	per cent.	
6.85	6.53	4.7	Low and good

The writer took four core samples from drill holes 1, 19, 21 and 25, which were sent to J. W. N. Bell of Haileybury, and there carefully ground and each one assayed in triplicate. The results are tabulated as follows:

No. of Sample	Drill Hole	Lingman Assay oz. per ton	Bell Assay oz. per ton
1	1	1.08	.88
2	25	.54	.44
3	19	5.92	6.08
4	21	.38	.87
	Summation	7.92	8.27

This gives a variation of 4.4 per cent. on the high side and the agreement can be regarded as good.

In comment on the above, the writer would say that when three out of five checks give an agreement under five per cent. (4.25) it is as close as can be obtained on material of this nature. In respect to the high grade ore shown in the last tabulation, it is noticeable that in the summation of two high grade samples, Lingman and Bell are in practical agreement, 7.00 for the former and 6.96 for the latter, and as the material in each case was not exactly identical, being separate halves of two core sections, it would appear that the gold values are fairly uniformly distributed.

PROPOSED SHAFT

The proposed shaft is to have three compartments and 7' x 17' in outside dimensions, with two 4'-2" x 4'-7" hoisting compartments and a somewhat smaller manway. It will be located on a bifurcated rock outcrop on a section line extending north from station 33+00 on which drill holes 9, 10 and 19 are located. At this place the North and South Zones are close together (about 250 feet apart) and good values were found on both. On the South Zone $13.05 per ton over 15.3 feet, in drill hole 9, and on the North in drill hole 19, $85.47 per ton over 11.2 feet (in both cases, uncut). In the original location of the shaft (see Exhibit "B") it was placed on the south lobe of the rock outcrop. At this location, at an assumed depth of 65 degrees south, the South Zone at the 150 level would be at the shaft and at the 300 level 70 feet south. The North Zone at the 150 level would be 250 feet distant, and at the 300 level, 180 feet. Other things being equal the writer favours placing the shaft on the North lobe of the rock outcrop, equidistant between the projections of the veins or zones on the 300 level. This would give the same amount of crosscutting, 125 feet, at this horizon to both veins. It would shorten the distance to the North vein at the 150 level to 195 feet and increase the distance to the South vein from zero to 60 feet, thereby equalizing the amount of crosscutting necessary to find both veins. The two positions of the shaft and the projectives of the veins are shown on Exhibit "B".

If it is possible, it would be advisable to place the shaft, normal, or at right angle to the schistosity, as otherwise, if the ground should be heavy and inclined to slough, it would involve some extra expense in timbering stations.

It is the intention to explore the property at two levels, of which the first will be at 150 feet. In respect to the second level, Mr. Smerchanski is inclined to favour 275 feet, while the writer's preference is for 300 feet. There is not much difference between them, but the latter gives a slightly greater depth and is a better horizon for exploration if the ore bodies are of larger size. It is the intention to put in pockets at the level stations and use skips for handling the spoil from lateral development. This was decided on owing to the difficulty and expense in such an isolated region of getting sufficient cars to use cages. These (cages) are much more convenient for handling supplies, equipment and men. They have, however, a lower carrying capacity in respect to ore or spoil, and hence a somewhat higher power cost, which latter factor is important in view of the fact that diesel oil will have to be used in the preliminary work.

In any case, it is to be remembered that this shaft is for exploration rather than for production.

Two offers have been made for sinking:

(1) Forsberg & Finney—$62.00 per foot of shaft, $12.00 per foot of drifting, and $13.00 per foot of crosscutting, and 52¢ per cubic foot for stations.

(2) Kolak—$61.00 per foot for sinking, $12.00 per foot for drifting and crosscutting, and 45¢ per cubic foot for station work.

In each case the contractor supplies labour and explosives, machine parts, does all the timbering required, and likewise his own Workmen's Compensation. The Company provides drills, power, hoisting facilities, material—other than mentioned above. It (the Company) also boards the Contractor's men, charging $1.40 per board shift.

In contracts of this nature it is not always advisable to accept the lowest tender. The writer does not know Kolak, but does know Forsberg & Finney, who recently completed contracts for both sinking and lateral work at the Cochenour Willans Mine, and while there, did efficient work and gave entire satisfaction to the Management.

DIAMOND DRILLING

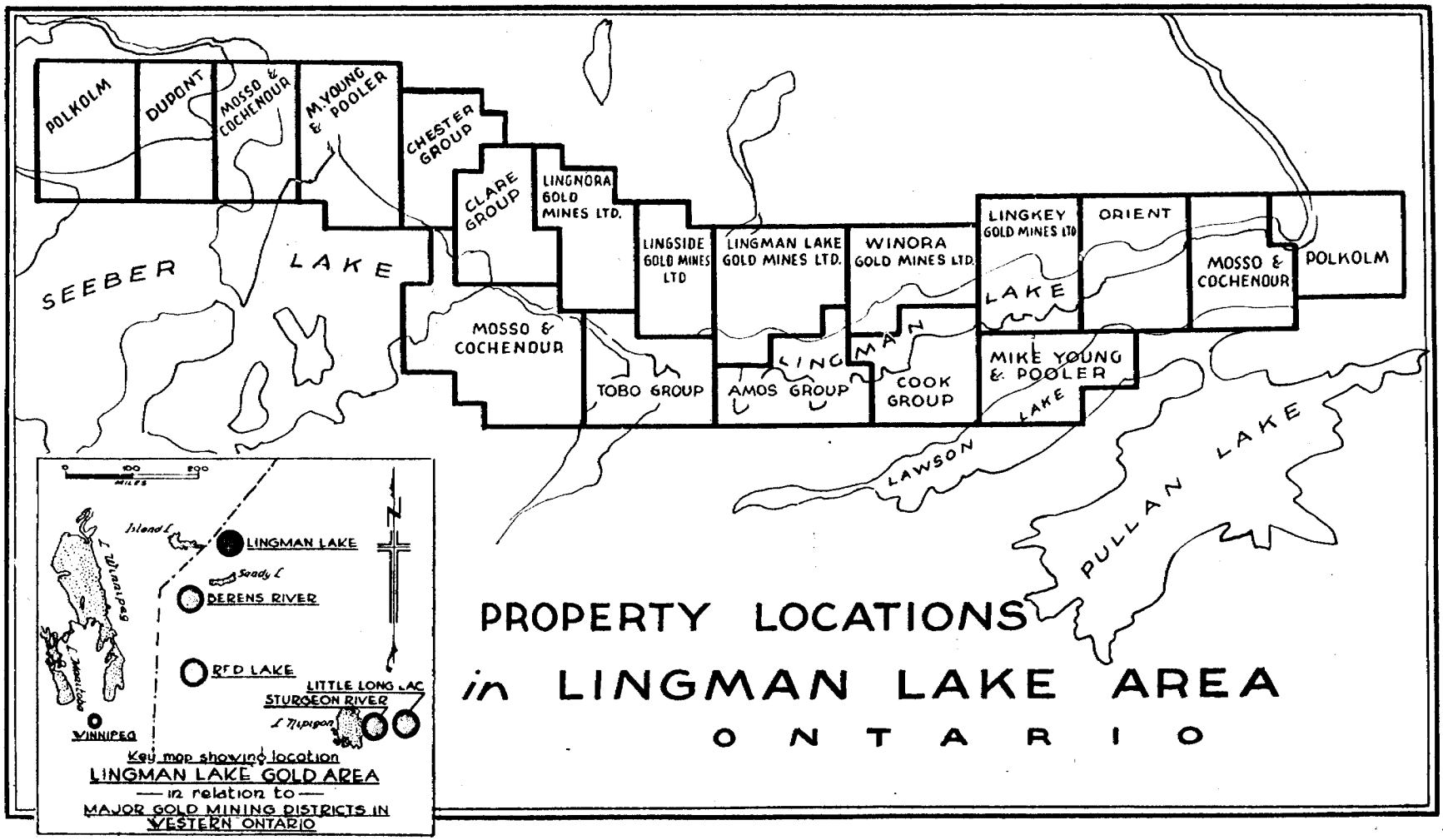
On January 23rd, the total drill footage amounted to 18,920 feet. At the time of visit only one drill was running at the far west end of the North Zone. It was expected, however, that another would be started to explore the west end of the South Zone and it is the intention to continue drilling east and west of the area already explored.

Respectfully submitted,

(By) J. A. REID,
Consulting Mining Engineer.

Toronto, February 19th, 1946.

(See Area Map on Back Cover)



All maps are drawn from information believed to be reliable, but individual ownership and exact locations are not certified. — Lingman Long Lake Gold Mines Limited (No Personal Liability).

REPORT ON THE PROPERTY OF THE LINGMAN LAKE GOLD MINES LIMITED

(No Personal Liability)

LINGMAN LAKE DISTRICT OF PATRICIA, ONTARIO

February 1st, 1946

The Property of the Lingman Lake Gold Mines Limited consists of 21 claims and is situated in the Lingman Lake area District of Kenora, Patricia Portion in north-western Ontario.

The geology of the property is principally composed of Keewatin volcanics and intrusives which have been intruded by Algoman Quartz-porphyry and feldspar-porphyry intrusives. The general schistosity of these formations are east-west and are cut by a diabase dyke about 200 feet wide which has a north-south strike. In the earlier stages of development the geological theory existed that the favourable ore bearing horizons did not extend to the west of the diabase dyke. However, the existence of the "west zone" definitely proves that the dyke is post ore and genetically has no bearing on the occurrence of the gold values.

The gold bearing zones on the Lingman Lake property are of a replacement type located in a prominent shear zone. The quartz-porphyry body appears to lie between two shear zones which are known as the "north zone" and "south zone". The quartz prophyry which in places is a "sericiteschist", has been highly altered. In other places the replacement has been so extensive that the rock is almost entirely quartz. This quartz-porphyry body is genetically related to the occurrence of gold values.

Diamond drilling was started on May 15th, 1945, and the drilling operations are still in progress. To date 19,000 feet of diamond drilling have been completed, 12,000 feet of which have been drilled on what is known as the "north zone" and "south zone" and 7,000 feet have been drilled in the general area within which lies the "west zone".

Similarly, potential ore conditions appear to exist along the entire strike of the north zone and ore intersections have been revealed in diamond drilling on what is known as the "west zone." Prospecting has disclosed very interesting results and it is therefore expected that other ore horizons will be revealed in diamond drilling. Due to the size of the favourable area the ultimate possibilities are exceptionally bright.

The diamond drilling completed between May 15th 1945, and February 1st, 1946, is shown below:

East of the diabase dyke:	
North Zone	5,305
South Zone	6,996
West of the diabase dyke:	
North Zone	4,857
South Zone	2,262
TOTAL	19,420

SOUTH ZONE

This zone is a shear which lies south of the quartz-porphyry body and gold values are present in the silicified portion of the shear. The ore bodies have an east-west strike and appear to dip south at about 70 degrees with a suggested plunge to the south-east. These ore bodies are of a replacement type. The ore is mainly quartz with a small percentage of carbonate as well as silicified volcanics. The mineralization is mainly pyrite with lesser amounts of arseno-pyrite, chalcopyrite, some pyrrhotite and occasionally galena. The total percentage of sulphides is about 2% of which 1.5% is pyrite and the remaining .5% is arsenopyrite, chalcopyrite and pyrrhotite. Gold values appear to be associated with the zones of silicification. This is especially so where arsenopyrite needles are present. However, silicified portions with only pyrite also carry gold values. Visible gold was not seen in this zone. Under these conditions it does not necessarily follow that the gold values are associated with arsenopyrite mineralization, but are rather associated with the zones of silicification.

A complete list of interscetions in the south zone are as follows:

Drill Hole No.	*Footage*	*Core Length*	*Vertical Depth*	*Grade* Oz.	*$38.50* Oz.
1	24.1 - 37.0	12.9	21	.66	$25.40
2	120.0 - 130.6	10.6	88	.27	10.40
	306.9 - 315	8.1	218	.19	7.30
4	141.4 - 155.0	13.6	104	.45	17.30
5	172.1 - 176.4	4.3	122	.37	14.25
6	478.4 - 484.5	6.1	337	.22	8.45
	486.7 - 488.4	1.7	341	.22	8.45
	495.9 - 498.2	2.3	348	.60	23.10
	505.6 - 511.4	5.8	356	.37	14.25
7	284 - 287.5	3.5	200	.20	7.70
	459.3 - 460.5	1.2	322	.12	4.60
8	97.7 - 100.8	3.1	69	.14	5.40
	177.5 - 178.9	1.4	125	.12	4.60
	407 - 416.2	9.2	288	.31	11.95
	438.2 - 442.9	4.7	308	.18	6.93
	447.6 - 449.6	2.0	313	.16	6.16
9	40.0 - 41.6	1.6	28	.13	5.00
	320.9 - 329.1	8.2	227	.15	5.77
	350 - 365.3	15.3	250	.40	15.40
10	57.3 - 59.7	2.4	40	.32	12.30
11	19.6 - 30.2	10.6	17	.14	5.40
	233.7 - 238.7	5.0	165	.10	3.85
	265.9 - 267.3	1.4	186	.14	5.40
12	32.3 - 37.3	5.0	24	.22	8.45
	225.3 - 228.3	3.0	159	.28	10.78
13	31.1 - 37.9	6.8	24	.12	4.60
	175.4 - 177.3	1.9	123	.20	7.70
	390 - 395	5.0	274	.08	3.08
15	15 - 18.5	3.5	12	.07	2.70
	145.6 - 151.4	5.8	104	.56	21.55
	430 - 435	5.0	302	.26	10.00
23	73.7 - 75.5	1.8	52	.14	5.40
	219.2 - 220.5	1.3	154	.08	3.10
30	99.8 - 100.9	1.1	70	.24	9.25
	150 - 162.2	12.2	108	.45	17.30
	349 - 351.6	2.6	245	.64	24.65

The south zone indicates a length of 900 feet open to the east with an average width of 7.1 feet and an average grade of $14.40 per ton (uncut).

NORTH ZONE

This zone is a shear which lies north of the quartz-porphyry body and as on the "south zone" the gold values are present in the carbonated and silicified portions of this shear. This zone has revealed some free gold intersections which ran as high as 6 ounces to the ton over core lengths of 4 feet.

The following are the drill hole intersections in the north zone:

Drill Hole No.	Footage	Core Length	Vertical Depth	Grade Oz.	Grade $38.50 Oz.
16	155.4 - 159.4	4.0	110	.11	$ 4.25
	228.4 - 230	1.6	161	.24	9.25
17	142 - 144.7	2.7	100	.30	11.55
	154.6 - 161.2	6.6	110	.08	3.10
	224.6 - 228.9	4.3	158	.06	2.30
	273.4 - 280.7	7.3	195	.14	5.40
	286.1 - 296	9.9	203	.47	18.10
18	57.8 - 60	2.2	41	.30	11.55
	121.5 - 125.5	4.0	86	.58	22.33
	293.3 - 295	1.7	206	.24	9.25
	317.3 - 320.3	3.0	223	.18	6.93
19	64.8 - 65.6	0.8	45	.17	6.55
	290 - 308	18.0	210	1.41	54.30
21	111.7 - 112.9	1.2	78	.38	14.63
	227.5 - 240.2	12.7	164	3.98	153.23
22	94.1 - 97	2.9	67	.20	7.70
	243.5 - 247	No core recovery — ground			
24	136.7 - 139.3	2.6	97	.20	7.70
25	200 - 203	3.0	141	.10	3.85
26	129.1 - 142	12.9	95	.31	11.95
27	205 - 210	5.0	145	.13	5.00
	226.5 - 238	11.5	161	.04	1.55
28	210 - 222.5	12.5	150	.06	2.30
	305 - 307.2	2.2	214	.09	3.45
29	228 - 231.8	3.8	161	.03	1.15

The "north zone" was drilled at 100 foot intervals and also has an indicated length of 500 feet with an average width of 8 feet and an average grade of $52.00 per ton (uncut). It must be noted that in calculating the average of this zone the values were taken in drill hole numbers 17, 18, 19, 21, 24, 26 and 27. Further, it must be remembered that on this "north zone", from drill hole No. 17 and for a distance of 175 feet west to the diabase dyke the surface trenches and shallow diamond drilling conducted in previous years revealed very good ore grade intersections. Yet drill holes 17 and 20 failed to intersect gold values. This might be due to fault conditions. Therefore, it is likely that there may be an additional length of 175 feet on the north zone which might give us a total length of 675 feet. The values in drill hole number 22 were not considered, because the core was ground where the ore intersection might have existed. However, drill hole numbers 24, 22, 26 and 27 were spaced at 50 foot intervals as compared with the hundred foot space interval in drill hole numbers 17, 18, 19 and 20.

WEST ZONE

This zone lies within the north structure and commences about 600 feet west of the diabase dyke. This zone has been traced for about 800 feet, from diamond drill hole No. 38 to No. 43. The "west zone" has been intersected by diamond drill hole Nos. 38, 40, 41, 42, 43, 49 and 50 at 100 foot intervals except for the 200 foot interval existing between diamond drill hole Nos. 38 - 40, and 42 - 43. Under these conditions there is an indicated length of 800 feet with an average width of 6.3 feet and an average grade of $9.00 per ton (uncut). However, the fact that this ore body lies within the same structural occurrence as the "north zone" is a very important feature because it suggests the possibility of strong structural conditions which exist along the strike, and further suggests the possibility that other ore bodies might exist on strike as well as on dip.

The following are the drill hole intersections in the west zone:

Drill Hole No.	Footage	Core Length	Vertical Depth	Grade Oz.	Grade $38.50 Oz.
38	110 - 114	4.0	78	.24	$ 9.25
40	251 - 263	12.0	178	.23	8.85
41	258.3 - 265.3	7.0	182	.23	8.85
42	290.9 - 292.6	1.7	204	.16	6.15
	302.9 - 303.9	1.0	2.12	.58	22.35
43	231.7 - 236.6	4.9	164	.03	1.15
	263.7 - 266.9	3.2	185	.08	3.10
49	208 - 221.7	13.7	150	.24	9.25
50	130.6 - 133.5	2.9	92	.26	10.00
	284.0 - 287	3.0	200	.26	10.00

DISCUSSIONS:

1. Diamond Drill Hole Interpretations:

All diamond drill holes have been spaced at 100 foot intervals. In such an initial program the assumption that ore is continuous between the diamond drill hole intersections is certainly open to question. Further, the walls in a replacement ore body are "assay-walls" and will pinch and swell on dip as well as on strike. However, the consistent intersections make the assumption reasonable in obtaining a preliminary view of the ore possibilities. The Lingman Lake gold deposits are of a replacement type. Ore bodies of this type usually yield better underground results than indicated in the diamond drilling program. The nature and peculiar structural occurrence of a replacement ore body of this type make diamond drilling interpretations difficult.

2. Transportation:

The location of the Lingman Lake property is no handicap in reference to the problem of transportation. A 350 daily tonnage operation would require about 1200 tons of freight per year. The present freight rate into the area from Winnipeg is approximately .05¢ per pound or .85¢ per ton

of ore milled or approximately .02 ozs. per ton of ore milled. However, our freight rate can be further reduced to about .03½¢ or .04¢ per pound from Winnipeg to the Lingman Lake property. This can and will be accomplished by moving the freight by boat via Lake Winnipeg to the mouth of Black River in the late fall and by freighting by tractor train from Black River to the porperty over a tractor haul of about 210 miles, which compares with the present Ilford — Lingman Lake distance of about 210 miles. The actual saving comes in the water transportation which is only a fraction of a cent per pound as compared with the present rate of .01½¢ per pound for rail transportation from Winnipeg to Ilford.

Further, there is sufficient available warehouse storage space at the mouth of Black River to accommodate all the necessary freight for the Lingman Lake property.

The recent announcement by the Ontario Government in reference to the construction of a road into the Red Lake area will improve our transportation problem. Lingman Lake is 200 air miles from Red Lake, and this distance compares favourably with the air distance into other mining areas. Under these conditions air express and passenger rates from Red Lake to Lingman Lake will enable us to operate on a cost just as reasonable and comparable to other operating mines under similar conditions.

3. Power:

Sufficient water power is available in the area for our Lingman Lake mining operations. There are several sites which could be developed and arrangements have been made to prepare the necessary preliminary survey and plans in reference to these sites. On the completion of this survey we will have definite cost figures on each power site and will be able to make the final decisions accordingly.

4. Drilling Costs:

Our total expenditures including over-head, buildings, transportation, all surface exploration, engineering, etc., as expended on the property to the end of January 31, 1946, were approximately $76,108.00. During this same time we have concluded a program of diamond drilling with a total footage of 19,420 feet. This gives us an average cost of about $3.95 per foot. This cost compares very favourably with drilling costs in other mining areas. It must be remembered that last year we were unable to deliver all our winter freight to the property and had to rely on aeroplane transportation for a large precentage of our supplies. This transportation item increased our cost of diamond drilling. This further substantiates the fact that we can get more reasonable costs in reference to the development work conducted on this property.

5. Underground Developments:

The shaft location has been selected and over 400 tons of freight have been delivered to the property in order to conduct the necessary underground development. A three-compartment shaft will be sunk and levels developed at 150-foot intervals. A contract for this underground work has been granted and it is expected that the costs of shaft sinking should not exceed $110.00 per foot and that the drifting should be approximately $18.00 per foot. These costs are comparable to those established in the Red Lake mining area.

6. Surface Plant:

Office, bunk house and cookery buildings were constructed last year to accommodate the exploratory crew. However, in order to accommodate our underground crew we are now constructing a permanent bunk house and cookery near the shore of the lake and a compressor and hoist-room, blacksmith, change house, assay office and powder magazine near the collar of the shaft. A saw mill is now in operation preparing finished lumber in order to complete the construction of these buildings.

CONCLUSIONS

1. The preliminary diamond drilling program has outlined an indicated tonnage of about 1,420 tons per vertical foot on the North, South and West zones. This indicates that an operation of about 350 tons per day will be justified with a fairly good grade of ore over very good mining widths. There is no doubt but what the above mentioned figure of tons per vertical foot will be increased after the additional 50% of the total area which now remains to be explored on the extension of the North and South zone is completed. Diamond drill hole Nos, 23 and 29 reveal the presence of quartz-porphyry. Therefore the speculative possibilities of recurrent ore-zones to the east in the low ground are very favourable.

2. The favourable geological conditions existing to the East of the explored North zone and South zone will add further to the final tonnage possibilities in this area.

3. Other surface areas remain to be explored. About 500 feet South of "Base Lake" a chalco-pyrite quartz vein has been uncovered which will have to be explored and drilled in detail.

4. Sufficient supplies and lumber are now on the property to construct the necessary camps and head frame structures in order to proceed with the underground exploration.

RECOMMENDATIONS

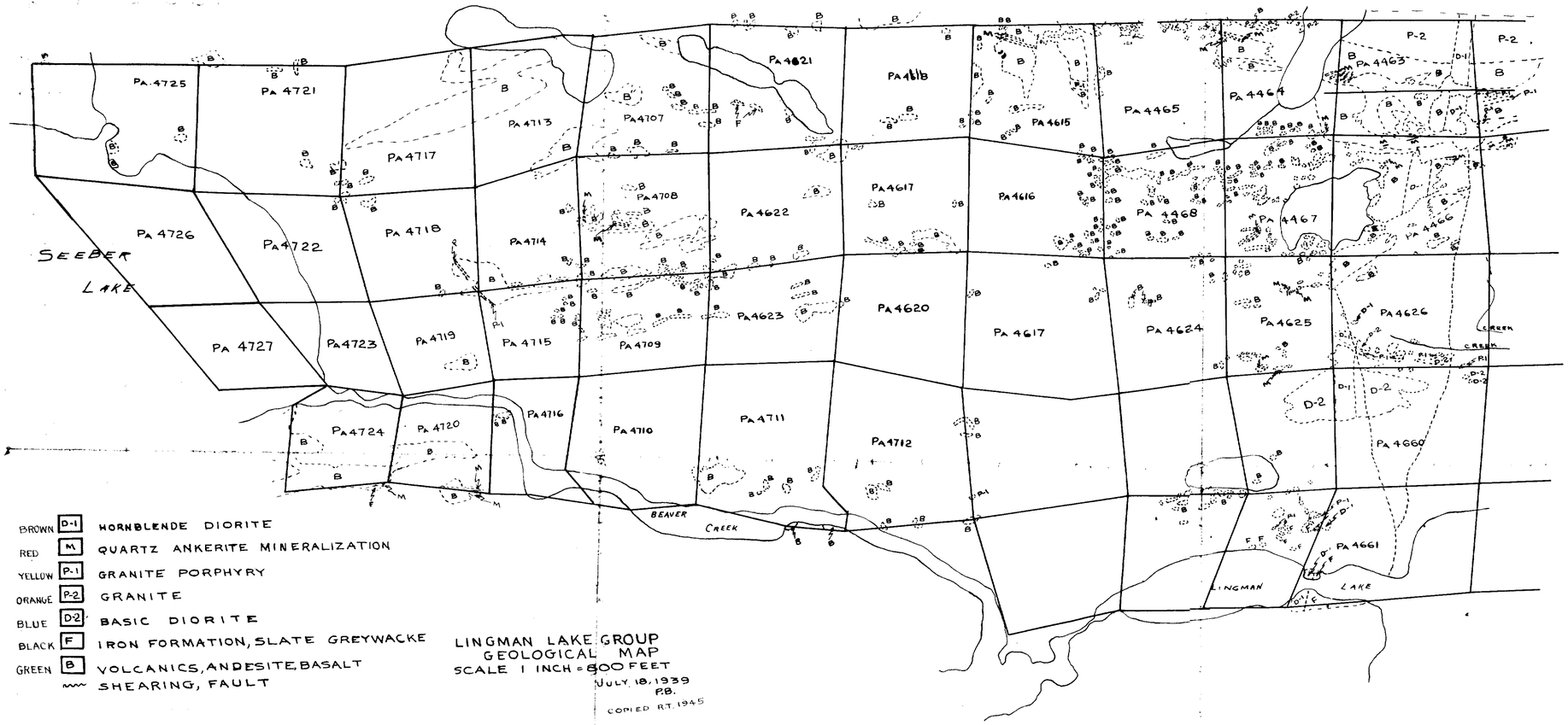
1. Proceed with the underground exploration and block out the ore sections. This development should be pushed with aggressiveness.

2. Continue the diamond drilling program to explore the remaining 50% of the unexplored "North-South-Zones" structures.

3. Construct and complete a permanent surface plant, a portion of which is now under construction.

Signed M. G. SMERCHANSKI,

February 1st, 1946.

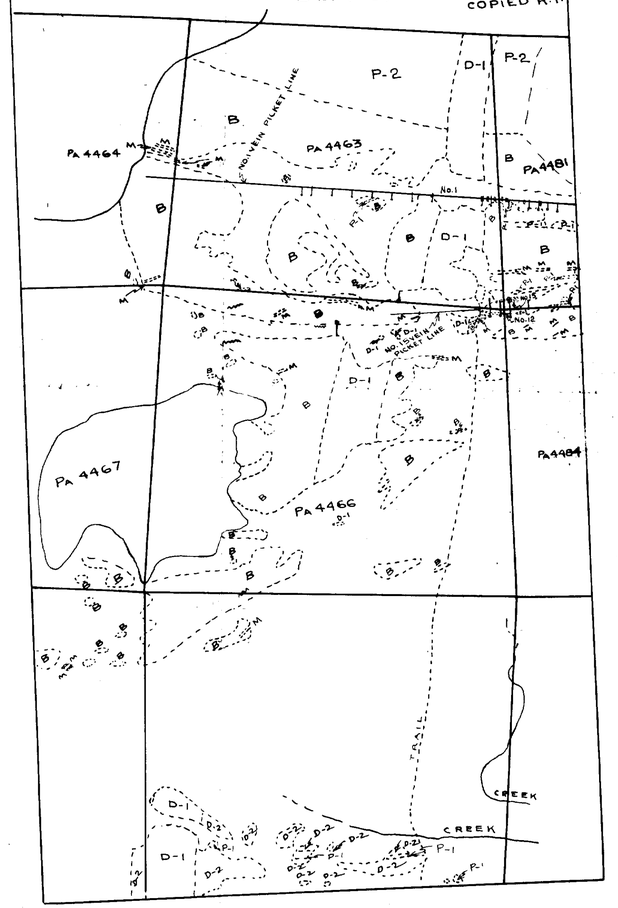


BROWN D-1 HORNBLENDE DIORITE
RED M QUARTZ ANKERITE MINERALIZATION
YELLOW P-1 GRANITE PORPHYRY
ORANGE P-2 GRANITE
BLUE D-2 BASIC DIORITE
BLACK F IRON FORMATION, SLATE GREYWACKE
GREEN B VOLCANICS, ANDESITE, BASALT
SHEARING, FAULT

LINGMAN LAKE GROUP
GEOLOGICAL MAP
SCALE 1 INCH = 800 FEET
JULY 18, 1939
P.B.
COPIED R.T. 1945

63.3332

LINGMAN LAKE
GROUP - GEOLOGICAL MAP
OF MAIN AREA OF VEINS
SCALE - ONE INCH = 400 FT.
SEPT. 9, 1938
COPIED R.T.



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