

MAP NO.

ASSESSMENT REPORT

I.S.N. 134664

DOCUMENT NO.:

092015

PROSPECTUS

MINING DISTRICT:

MATSON LAKE

CONFIDENTIAL

TYPE OF WORK:

Diamond Drilling

95 D 12

OPEN FILE

REPORT FILED UNDER: Noranda Exploration Co. Ltd.

DATE PERFORMED: 1975

DATE FILED: April 1976

LOCATION: LAT.: 60°30'N

AREA: Quartz Lake

LONG.: 127°58'W

VALUE \$:

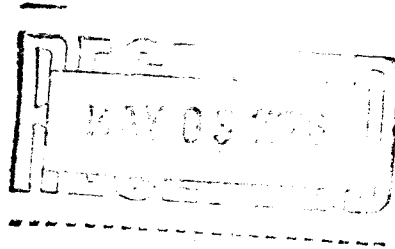
CLAIM NAME & NO.: SOUTH NAHANNI 1-50; QUARTZ 1-8; STRAT 1-96

WORK DONE BY: D. Pegg

WORK DONE FOR: Noranda Exploration Co. Ltd.

DATE TO GOOD STANDING

REMARKS: #3 MCMILLAN

SUMMARY REPORT  
QUARTZ LAKE PROJECT  
1975 Program  
95D/12

D.Pegg  
April 1976

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INTRODUCTION

This is a summary of work done by Noranda Exploration Company, Limited on the Quartz Lake property, or as it is also referred by, the McMillan property, during the field season of 1975.

Field work began on May 7 with camp construction, when the advance crew flew in from Watson Lake, Yukon Territory. They landed on the ice with an Otter aircraft and from there were ferried by helicopter to the camp site at 100,000N/100,000E, a distance of 3 miles.

The drill, drill equipment and fuel, camp and camp construction materials were moved to the camp site area by John Deere 350 Crawler Tractor. This machine, along with all the above equipment, had been flown to Little Quartz Lake by Otter aircraft on skis in March and moved up the hill towards the chosen camp site at that time.

Drilling started on May 12.

There were 1½-2 feet of snow at camp when first starting work.

This year it was found that ice was unsafe on Quartz Lake after May 10 and "break-up" was complete by May 26.

CAMP

The camp site was chosen near a small clearing on the steep easterly bank of the Quartz Creek. The drill supply pump was utilized to supply water to the camp as well as the

drill from Quartz Creek. Later, when the drill equipment was shipped out, a small pump used to supply water to the camp, approximately 150 feet distant with a lift of 40 feet.

The helicopter landing pad was located on the edge of the clearing.

The camp consisted of 4 tents, 14'x16' set up on plywood and frame and equipped with oil stoves. The drill crew left in mid-July and a few Noranda personnel stayed on until September. A plywood shack was then built over one of the tent frames and any remaining equipment was stored there for the winter.

Core was logged in plastic covered frame shelter 500 feet north of the camp. The core racks, which are also at this location, were covered at the end of the season. The core boxes were covered with separate plywood tops.

The camp was supplied by helicopter over "break-up" and by combined helicopter and float plane after that date.

It was intended at first to attempt to supply the camp by utilizing the drill tractor to meet a float plane at Quartz Lake. As the situation developed the tractor was needed for frequent drill moves and the old roads were at first in poor condition until after the spring runoff, so that minimal helicopter service proved satisfactory for camp supply.

Later it was found that the north road was the best route as a tractor road to Quartz Lake and the drill equipment was moved out in that direction, loading it on a single Otter aircraft with floats.

The south road has several soft spots, one creek crossing at Pyrite Creek, many short steep hills that would probably require winching a sloop, and many stump residuals on the road, which, although cut off flush with the ground, could be a problem for a sloop with low clearance, especially when the ground is wet or when frost is coming out.

A Noranda "Regional" camp with 206A helicopter was based on the north side of Quartz Lake near the end of June so that after that time this machine was available for movement of supplies and personnel to the Upper or Drill Camp, in conjunction with the float aircraft of B.C. Yukon Air Service from Watson Lake.

While drilling was in progress the camp was operated by Allen Drilling, the drill contractor.

Radio reception to Watson Lake and Whitehorse was quite satisfactory.

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CONTROL SURVEY AND GRIDS

A transit and steel chain survey was done by G.Lee of Noranda, to tie in all new (1975) drill holes to the steel pin at the #1 post of the Dorothy 1 mineral claim. This was the point which had been chosen by previous operators as the 100,000N/100,000E reference coordinate.

Reference points were conveniently established along the previously surveyed claim line extending north and south from that point. The mineral claims, South Nahanni 3,4,5,6,7, 48, 49 and Dorothy 1 had been surveyed in 1971 by White, Hosford and Impey, Dominion Land Surveyors of Whitehorse, Y.T. They found the central location line running north and south respectively from the #1 Post of Dorothy to have Azimuths of  $01^{\circ}02'10''$  and  $02^{\circ}17'30''$ .

According to Asarco a description of the various early grids on this property are as follows:

1. 1950-53 Drill Grid - (Keslen Grid)-based on a grid having a base line diverging approximately  $6^{\circ}$  easterly from the claim line (i.e. location line of Dorothy etc.). On this grid 0+00N is situated approximately 133 feet south of the #1 Post (South post) of the Dorothy mineral claim. 0+00E is situated approximately 115' west of the claim line. Lines for this grid are poor or practically non-existent.
2. 1953-E.M.Grid - The base line and the north-south claim line of the Dorothy claim are one and the same. 0-N and 0-E are situated on the claim line, (north-south location line)

at point 300' south of #1 Post of the Dorothy mineral claim. Markers for this grid have the prefix "A" but generally are faded or unreadable.

3. 1967 I.P. and Geochem Survey Grid - The base line for this grid is coincident with the base line for the 1953 E.M. Survey Grid, but the point 0+00N for this grid is situated 2600' south of the 0-N of the 1953 E.M. survey grid (i.e. 2900' south of Post #1 Dorothy). (This is the grid still generally noticeable on the property - the section lines and base and control lines are generally the same lines as the 1953-EM Grid above but are numbered 2600' higher in a north sequence).

This is the grid used for the 1975 Geophysical, Geological and Geochemical Surveys. Some lines had to be brushed out and a few additional lines were cut.

4. Present Drill or Property Grid

This grid is oriented (true) N-S and E-W with the point 100,000E and 100,000N centred on the #1 Post of the Dorothy claim.

All drill holes have been finally surveyed or corrected to this grid which is an ideal grid rather than a cut grid.

DIAMOND DRILLING - 1975

A total of 27 holes - D.D.H. #94 - #120 were drilled. Total footage was 8299 feet. Contractor was Jim Thomas of H.Allen Drilling. The equipment used was a "38" diesel drill using BQ wire line equipment. To facilitate overburden penetration tri-cone bits with drill muds were used to case to bedrock. Overburden in the drilled area was generally sand, gravel and clay with usually a short section of boulders near bedrock. Mud and special chemicals were used sparingly, generally during the full coring routine, especially in broken or faulted ground and in the mineralized zone. Recovery was generally excellent and penetration rate was good.

One of the more difficult tasks encountered frequently was in getting the core out of the tube when drilling in muddy gouge zones. Here the core is like putty and tended to stick in the tube.

Two shifts were worked by the drillers. All holes were vertical and all casing was pulled. A coil stove was needed occasionally until June 15.

A John Deere 350 crawler tractor with blade especially speeded up the work. Drilling started May 12 and was completed July 15.

GEOPHYSICAL SURVEYS

VLF-EM Survey

This survey covered 25.28 line miles utilizing a VLF-EM receiver manufactured by Sabre Electronics. The main claims were overlapped from 15W to 90E on lines 4N to 60N and at the south camp on lines O-N to 40-S from 15-W to approximately 45-E. Noranda technicians did the survey.

Gravity Survey

During June and July a gravity survey was done by Walter Sharpe of Toronto using a Worden Gravity meter No.104 with metre constant of 0.10105 mgls.

32 line miles were covered over an area 2 miles by 2 miles with readings at 100 foot intervals. Separation between lines was generally 800 feet except over the main sulfide zone and the south zone.

Levels for elevation corrections were run by an assistant and rock density measurements on a number of core samples were run by Noranda.

Airborne Survey

During early August, lines were flown at 1320 feet spacing over the property with a Bell 206A helicopter using a Proton Magnetometer and a VLF-EM receiver built by Sabre Electronics. The survey was by Noranda personnel, except for the helicopter pilot and was in conjunction with a regional survey.

Total intensity of the magnetic field, the relative field strength of the horizontal component VLF-EM field transmitted from Seattle and the tilt angle of the VLF-EM field were all measured. The recording system consists of a frequency modulator and portable stereo tape recorder.

#### GEOCHEMICAL SURVEY

Soil samples were taken on four test lines. The holes were dug 1½ to 2 feet in depth and a brief description of each hole is included with this report:

Section 32-N from 10E to 12W at 100 foot centres  
Section 40-N from 10E to 12W at 100 foot centres  
Section 40-S from 15E to 15W at 100 foot centres  
0+00 Base Line from 0-N to 50-N at 200 foot centres.

Tests for total Cu, Zn, Pb and Ag were done in the Noranda Laboratory in Vancouver on all samples.

Tests for Hg on all samples were done by Chemex Labs Ltd., of North Vancouver.

#### GEOLOGICAL SURVEYS

Outcrop on the property is sparse, confined generally to the lower drainage of Quartz Creek and Pyrite Creek and to the top, easterly and southerly portions of Little Mountain. Considerable detailed surface geological work has been done on the property by former operators, mainly ASARCO, during the period 1949-1968. Having access to this information was considerable help to Noranda in their 1975 field program. Geological studies were channelled in three directions as follows:

1. Surface geology on the main property was examined by confirming the location, extent and rock types of the known outcrops. This survey consisted of traversing all grid lines on the main property from 15-W to 90-E on lines 76-N to 40-S. Additional traverses were run down Quartz Creek and Pyrite Creek and over the Little Mountain area. Most pre-1975 diamond drill sites were checked also. This work was done by D.Pegg and G.Lee.
2. G.Belik, Noranda Geologist, examined in detail the core obtained during the 1975 drilling program (report enclosed).
3. J.Stockwell, Noranda Geologist, directed a crew of six men on a program centred on Quartz Lake and the McMillan lead-zinc-silver deposit. Using reconnaissance prospecting, geochemistry and geophysics, under geological control, the project aimed for additional McMillan style deposits in the immediate area.

It appears the project area is underlain by two sedimentary units classified as Hadrynian and Cambro-Ordovician (G.S.C. Paper 68-38 and Maps 19-1966, 11-1968).

The Hadrynian consists of quartzites, wackes, conglomerates, green argillites and carbonates with the carbonates present in the middle division only of three informal divisions. A thrust fault zone relates these to the underlying Cambro-Ordovician black phyllitic shales, argillites, argillaceous quartzites and thin bedded grey-black limestones exposed in Quartz Creek Canyon, and western portion of the map area.

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MINERAL CLAIMS - STATUS

<u>Claim Names</u>	<u>Record Numbers</u>	<u>Due Date</u>
South Nahanni 3-7, 48,49	57467-72, 63341-2	Dec.31,1994
Dorothy,W.H.1 Fr.	57470, 64399	Dec.31,1994
South Nahanni 1,11,12,17	57465,57553-4,57558	Dec.31,1983
South Nahanni 16	57577	Dec.31,1981
South Nahanni 2,13,14	57466,57555-6	Dec.31,1980
South Nahanni 18,20,21,32	57559,57561-2,60054	Dec.31,1979
South Nahanni 8-10,15,19, 22-31,33-41,47,50	57550-2,57580,57560 57563-4,60046-53 60055-60063,60069 60043,69450-1 70364-69,70457-64 70645-52	Dec.31,1977 Dec.31,1977 Dec.31,1977 Dec.31,1977 Dec.31,1977 Dec.31,1977

Adjoining claims staked in the area by Noranda during 1975 are the

following:

Quartz 1-8      Record No. 84112-84119

Strat 1-79,81-96

Record No. 845-600,93401-32  
93493-6, 93433-42  
93497-500,93443-69

*A. Pegg*

PRELIMINARY GEOLOGICAL REPORT  
ON THE  
QUARTZ DEPOSIT, YUKON TERRITORY

INTRODUCTION

The Quartz Lake Deposit (McMillan option) was visited during the period June 10 to June 19, 1975. The general purpose for this visit was to examine, in detail, core obtained during the current drill program.

Geology

Within the area tested by diamond-drill holes 94 to 110 inclusive, two distinct primary lithologies are recognized; 1) a lower carbonaceous to graphitic unit (Unit 1) and 2) an upper, predominantly siltstone-sandstone sequence (Unit 2).

Unit 1

Dark grey to black, carbonaceous and graphitic phyllite form the bulk of Unit 1. This fine-grained, well-foliated phyllite contains up to 50 percent quartz as laminations, pods and layers.

Locally, Unit 1 consists of light to medium grey carbonaceous quartzite. Within the quartzite, detrital grains are often preserved.

## Unit 2

Unit 2 consists of sandy siltstone, siltstone, quartzite and limestone. Maroon to purple siltstone generally is interbedded with fine - to coarse - laminated sandy siltstone. Laminations consist of alternating maroon and purple siltstone and white to green sandstone.

White to light green quartzite grades vertically and laterally into sandy siltstone.

Two fine-crystalline, grey limestone and sandy limestone members occur within Unit 2. The first, referred to as the Mine Limestone, is located 80 feet to 90 feet above the base of Unit 2. The Mine Limestone has a vertical thickness of 42 feet in bore hole 94 and thins rapidly, down dip, to the northeast.

The second limestone member, which will be designated the Basal Limestone, is located at the base of Unit 2 to 20 feet above the base of Unit 2. The Basal Limestone has a thickness of between 2 feet and 12 feet.

### Structure

Deformation, within the Quartz Lake area, resulted in:

- 1) compressional thrusting with associated shearing and folding
- and 2) steeply-dipping normal faults.

### Thrusts

The Black Fault, a zone of thrusting parallel to subparallel to stratigraphy, is the most prominent structural feature of the area. This zone of thrusting, inferred to extend from the base

of Unit 1, to approximately 100 feet to 200 feet above the base of Unit 2, trends north to northwest with an average dip of 30° to the northeast.

The top of the Black Thrust is characterized by small-scale drag folds with a weak axial-plane cleavage. Toward the base of the thrust, folding yields to shearing culminating in a zone, extending from the base of Unit 1, to 20 feet to 80 feet above the base of Unit 2, in which lithologies are moderately to intensely sheared.

Normal Faults.

Several normal faults with small displacements (5' - 10') are exposed in Mine Creek, west of the camp area. These faults, which post-date movement along the Black Thrust, strike north to northeast and dip 60° to 80° toward the east.

Mineralization

Within the Quartz Lake deposit, galena and sphalerite occur as partial to complete replacement of calcareous horizons within Unit 2. The Mine Limestone and Basal Limestone appear to have been the best hosts for lead-zinc mineralization.

Other sulphides present include; pyrite, arsenopyrite, boulangerite, tetrahedrite and chalcopyrite. Pyrite, the most abundant sulphide, occurs in zones of replacement, with or without galena and sphalerite, as disseminations, laminations and fracture fillings. Arsenopyrite and boulangerite generally

occur with, or in close proximity to, galena and sphalerite. Tetrahedrite and chalcopyrite are only locally evident.

Mineralization appears to be genetically related to development of the Black Fault. Sulphides are restricted to this zone of thrusting and sulphide deposition was, in part, synchronous with deformation.

#### Alteration

Fine hematite imparts a purple to maroon color to the siltstones and sandy siltstones of Unit 2. During mineralization, hematite was altered to pyrite resulting in a 'bleaching' of the host rocks. This alteration zone extends up to 300 feet above the base of Unit 2.

The top of the alteration zone is mark by alternating maroon (unaltered) and pink (weakly altered) siltstone or sandy siltstone. Alteration intensity gradually increases with depth culminating in a zone, 50 feet to 150 feet thick, of pale green siltstone.

#### Conclusions

Within the Quartz Lake area, galena and sphalerite occur as replacement of calcareous horizons within a zone of shearing referred to as the Black Fault. The host rocks are characteristically 'bleached' and display a well developed foliation.

The following conclusions have possible exploration applications:

- 1) Mineralization is related to the development of the Black Fault.
- 2) The zone of shearing and alteration extend well above and below mineralized horizons.
- 3) During mineralization, lead and zinc possibly were derived from Unit 1.

Discussion

The following may affect the viability of the Quartz Lake deposit;

- 1) Host rocks above and below 'ore' horizons often are intensely sheared.
- 2) In some areas blocks of 'ore' appear to occur en echelon; a result of a step-like series of normal faults.

Gary Belik  
Geologist

June 25, 1975

GEOLOGY OF THE QUARTZ LAKE  
DEPOSIT, YUKON TERRITORY

INTRODUCTION

The Quartz Lake deposit (McMillan Option) was visited during the periods June 10 to June 19 and July 4 to July 10, 1975. The general purpose for these visits was to examine, in detail, core obtained during the current drill program.

GEOLOGY

Within the area tested by diamond drilling, two distinct primary lithologies are recognized; 1) a lower carbonaceous to graphitic unit (Unit 1) and 2) an upper, predominantly siltstone-sandstone sequence (Unit 2).

Unit 1

Dark grey to black, carbonaceous and graphitic phyllite form the bulk of Unit 1. This fine-grained, well-foliated phyllite contains up to 50 percent quartz as laminations, pods and layers.

Locally, Unit 1 consists of light to medium grey carbonaceous quartzite. Within the quartzite, detailed grains often are preserved.

Unit 2

Unit 2 consists of sandy siltstone, siltstone, quartzite and limestone. Maroon to purple siltstone generally is interbedded with fine- to coarse-laminated sandy siltstone. Laminations consist of alternating maroon and purple siltstone and white to green sandstone.

White to light green quartzite grades vertically and laterally into sandy siltstone.

Fine crystalline, grey limestone and sandy limestone occur within Unit 2. The thickest and most continuous limestone member, referred to as the Mine Limestone, is located 20 feet to 400 feet above the base of Unit 2. The Mine Limestone attains a maximum thickness of 80 feet.

## STRUCTURE

Deformation, within the Quartz Lake area, resulted in:

- 1) Compressional shearing with the development of a penetrative foliation, folds and axial plane cleavage.
- 2) a later brittle shear, parallel to subparallel to the earlier foliation, resulting in gouge and/or breccia.
- 3) steeply dipping normal faults.

### Shearing

The Black Fault, a zone of compressional shearing parallel to subparallel to stratigraphy, is the most prominent structural feature of the area. This zone of shearing, inferred to extend along the contact between Unit 1 and Unit 2, trends north to northwest with an average dip of 30° to the northeast.

The top of the Black Fault is characterized by small-scale drag folds with a weak axial-plane cleavage. Toward the base of Unit 2, folding yields to shearing culminating in a zone, extending from the base of Unit 1, to 20 feet to 150 feet above the base of Unit 2, in which lithologies are moderately to intensely sheared.

### Normal Faults

Several normal faults with small displacements (5' - 10') are exposed in Mine Creek, west of the camp area. These faults, which postdate movement along the Black Thrust, strike north to northeast and dip 60° to 80° toward the east.

## MINERALIZATION

Within the Quartz Lake deposit, galena and sphalerite occur as partial to complete replacements of calcareous horizons within Unit 2. The Mine Limestone appears to have been the best host for lead-zinc mineralization.

### Mineralogy

Within the Quartz Lake deposit, sulphides present, in approximate order of decreasing abundance, include:

Pyrite ( $\text{FeS}_2$ )  
Sphalerite ( $[\text{Zn}, \text{Fe}] \text{S}$ )

Galena (PbS)  
 Arsenopyrite (FeAsS)  
 Boulangerite (Pb<sub>5</sub>Sb<sub>4</sub>S<sub>11</sub>)  
 Meneghinite (Pb<sub>13</sub>Sb<sub>7</sub>S<sub>14</sub>)  
 Tetrahedrite ([Cu,Fe]<sub>12</sub>Sb<sub>4</sub>S<sub>13</sub>)  
 Chalcopyrite (CuFeS<sub>2</sub>)

Pyrite, the most abundant sulphide, occurs in amounts between 5 percent and 70 percent. Although quantitatively variable, pyrite generally is associated with lead-zinc mineralization.

Galena and sphalerite, the chief ore minerals, occur in close association as disseminations, laminations, pods and layers. Galena and sphalerite generally are coarser grained than pyrite.

Arsenopyrite occurs in clusters of disseminated laths up to 2mm in size. An association between lead-zinc and arsenopyrite was observed.

Boulangerite occurs as plumose, radiating fibres in small cavities and as compact masses within sphalerite-rich sections of ore.

Meneghinite, although locally abundant, occurs as minor disseminations within galena and sphalerite.

Chalcopyrite and tetrahedrite are only locally evident.

Within the Quartz Lake deposit the gangue consists primarily of pyrite, quartz and carbonates with minor amounts of sericite and clay. Carbonates present include: calcite, dolomite, ankerite(?) and siderite(?).

#### Form of the Deposit

The Quartz Lake deposit is lenticular with a northwesterly elongation. The main mineralized zone has a continuous strike length of more than 1500 feet and an average width of 400 feet. An average thickness for the deposit would be approximately 20 feet.

#### Stratigraphic Controls

Stratigraphy was important in the localization of ore minerals. Calcareous members of Unit 2, notably the Mine Limestone, appear to have been the best hosts for lead-zinc mineralization.

#### Structural Controls

Mineralization appears to be genetically related to development of the Black Fault. Sulphides are restricted to the zone of penetrative shearing and sulphide deposition was, in part, synchronous with deformation.

The well-developed foliation within the Black Fault was important for the channeling of 'ore-forming' fluids but does not appear to be solely responsible for the overall distribution of lead-zinc mineralization. Evident is a close correlation between the localization of lead-zinc mineralization within the Mine Limestone and an antiform structure. This structure is best illustrated in a structure-contour map of the Mine Limestone.

#### Alteration

Fine hematite imparts a purple to maroon colour to the siltstones and sandy siltstones of Unit 2. During mineralization, hematite was altered to pyrite resulting in a 'bleaching' of the host rocks. This alteration zone extends up to 300 feet above the base of Unit 2.

The top of the alteration zone is marked by alternating maroon (unaltered) and pink (weakly altered) siltstone or sandy siltstone. Alteration intensity gradually increases with depth culminating in a zone, 50 feet to 150 feet thick, of pale green siltstone.

#### CONCLUSIONS

Within the Quartz Lake deposit, lead-zinc mineralization occurs as partial to complete replacements of a calcareous members within a sandstone-siltstone sequence of uncertain age. The host rocks are characteristically 'bleached' and display a well-developed, penetrative foliation.

Mineralization appears to be genetically related to the development of the Black Fault, a zone of compressional shearing parallel to subparallel to stratigraphy. Structure as well as stratigraphy appear to have been important parameters influencing mineralization.

Gary Belik,  
Geologist  
February 2, 1976.

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B.L. 0+00 ———

15E ———

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SOIL GRID  
 McMillan - 1975  
 Hg - P.P.B.  
 1" = 500'

60

40S

15W

190

66

46

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N.S.

250

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94

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N.S.

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B.L. 0+00

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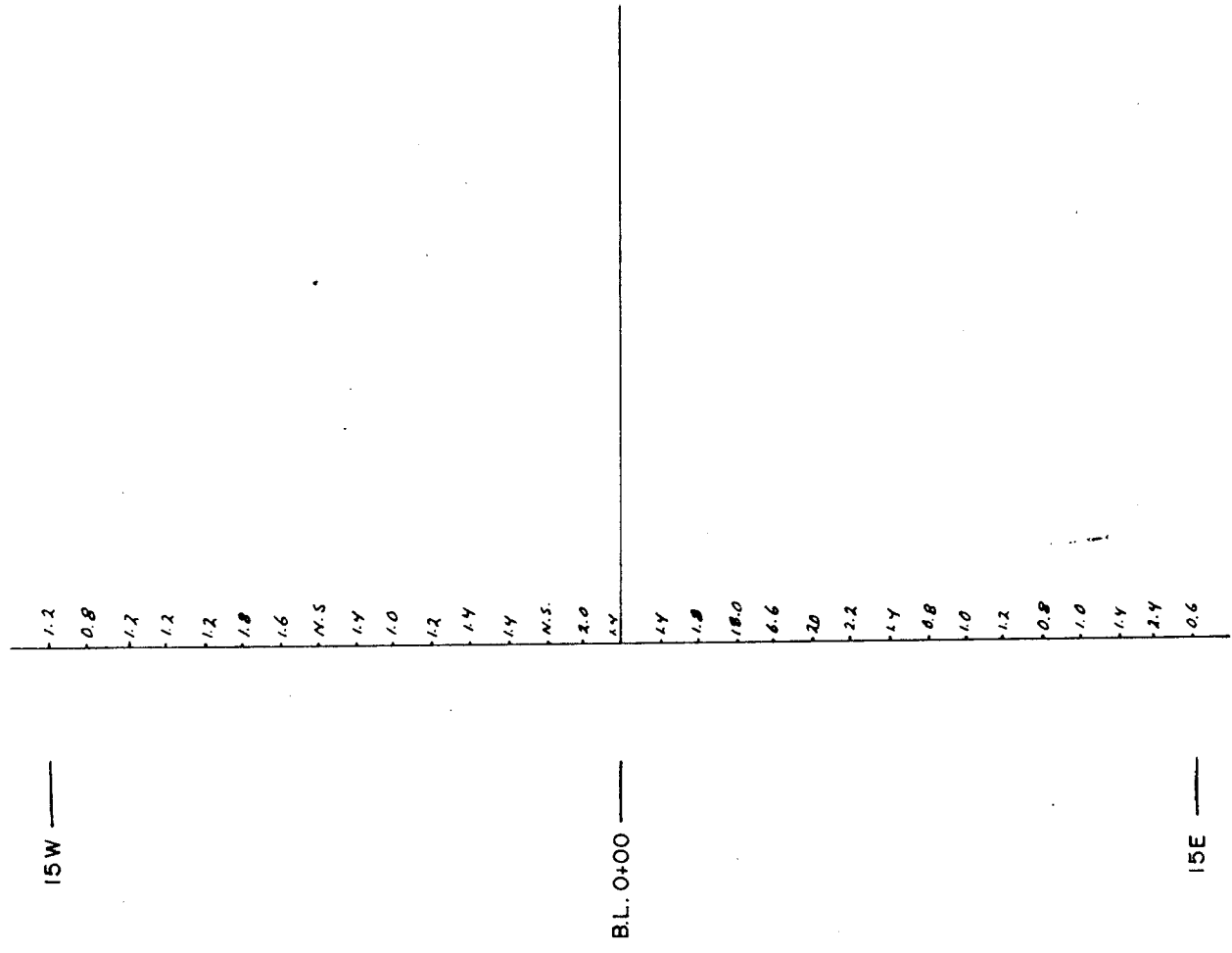
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SOIL GRID  
McMillan - 1975  
Zn - P.P.M.  
1" = 500'

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100-100-100

40S



SOIL GRID  
McMillan - 1975  
Ag - P.P.M.  
1" = 500'

40S

15W ———

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N.S.

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N.S.

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BL. 0+00 ———

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18

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8

10

12

14

15E ———

SOIL GRID  
McMillan - 1975  
Cu - P.P.M.  
1" = 500'

40S

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N.S.  
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N.S.  
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110  
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86  
150  
120  
32  
32  
32  
21  
16  
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18  
26

15W

BL. 0+00

15E

SOIL GRID  
McMillan - 1975  
Pb - P.P.M.  
1" = 500'

48N

44N

40N

36N

32N

28N

24N

20N

16N

12N

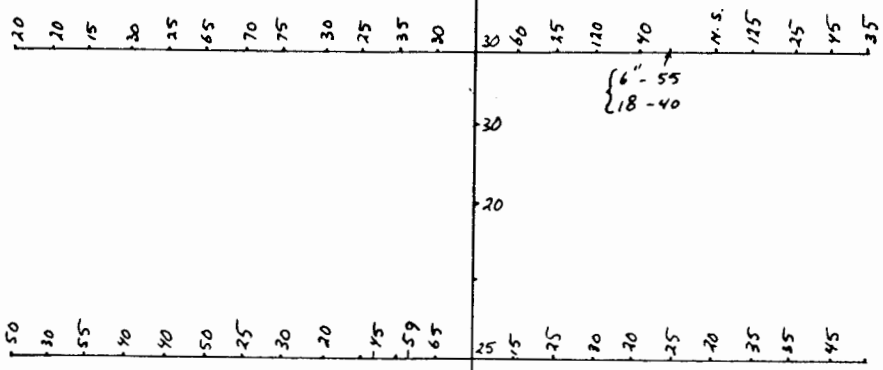
8N

4N

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O B L U

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16"-50  
18"-50  
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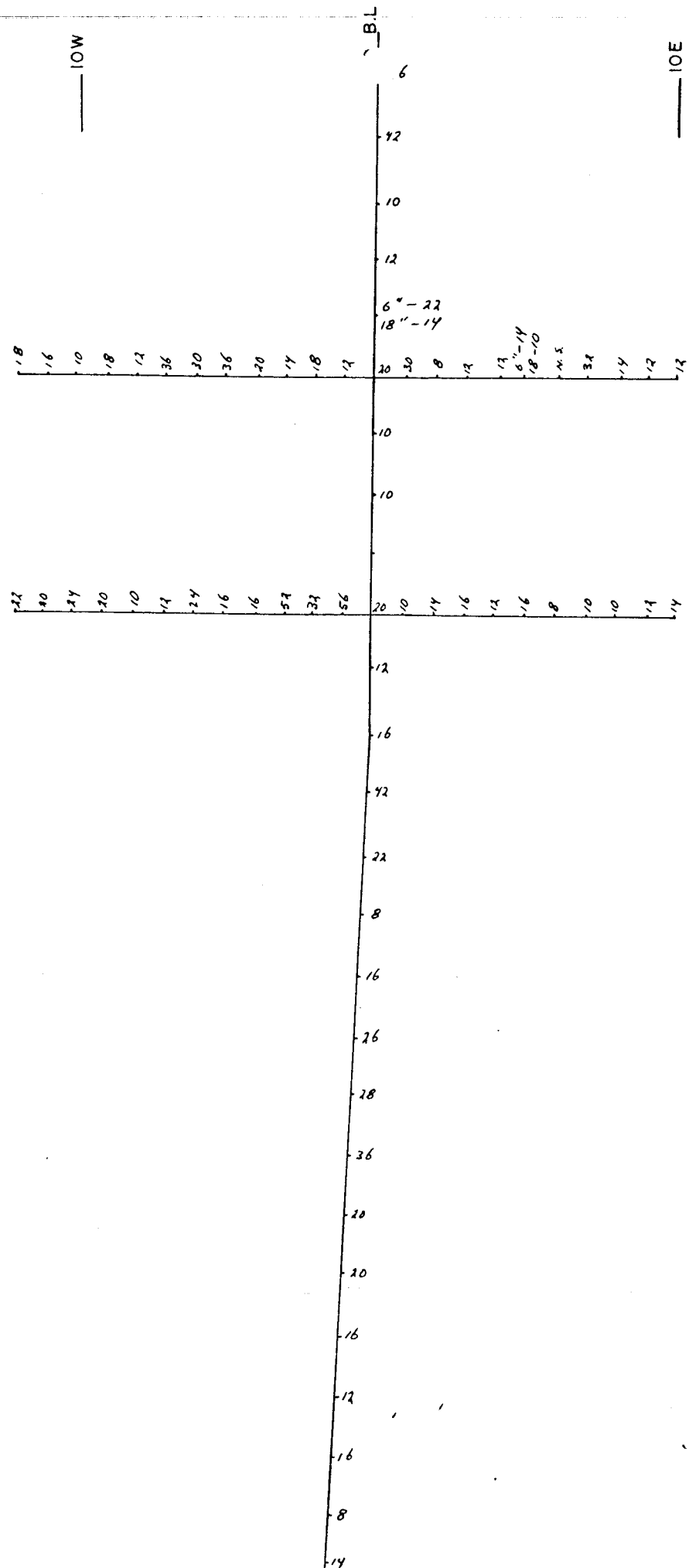


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SOIL GRID  
McMillan - 1975



48N  
44N  
40N  
36N  
32N  
28N  
24N  
20N  
16N  
12N  
8N  
4N  
0+00



SOIL  
McMillan  
CUT



48N

44N

40N

36N

32N

28N

24N

20N

16N

12N

8N

4N

LOW

O.B.L.

IOE

340	370	350	170	220	150	180	190	150	120	150	170	190	170	150	170	190	170	150	170
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160	170	190	130	77	120	200	150	130	720	240	250	150	260	200	220	110	190	170	200	288	130	190
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110  
290  
350  
130  
76  
120  
110  
160  
150  
140  
210  
86  
110

6"-130  
18-90

6"-260  
18"-210

N.S.

052015

NORANDA EXPLORATION CO. LTD.

LOCATION Quartz Lk

PROJECT 912 B-11 SHEET 1

95 D/12 Y.T.

SAMPLE Nos. \_\_\_\_\_

MATERIAL SOIL

COLLECTOR \_\_\_\_\_ DATE \_\_\_\_\_

REMARKS Vol C 2 Pb Ag.

ANALYST R.F. DATE Aug 12.5/75

T.T. No.	SAMPLE No.	1	2 C	3	4 Z	5	6 Pb	7	8 Ag.	G.C.I. NUMBER
25	32N-10E		14		190		26		1.8	
6	9		12		130		26		1.2	
7	8		10		88		22		1.0	
8	7		10		210		24		1.4	
9	6		8		170		22		0.8	
30	5		16		190		24		0.8	
1	4		12		120		22		1.0	
2	3		16		120		20		1.2	
3	2		14		200		32		1.4	
4	1		10		86		22		0.8	
5	32N-00		20		150		32		0.8	
6	32N-1W		56		250		94		1.4	
7	1.7		32		240		64		1.4	
8	2.5		52		720		410		3.6	
9	4		16		130		26		1.2	
40	5		16		150		28		0.8	
1	6		24		300		28		1.2	
2	7		12		120		28		1.2	
3	8		10		72		24		1.8	
4	9		20		130		18		1.2	
5	10		24		140		30		1.2	
6	11		20		170		26		1.2	
7	32N-12W		22		160		22		1.2	
8	00-00		14		100		22		1.0	
9	2N		8		52		20		0.8	
50	4		16		110		22		1.0	
1	6		12		86		26		1.0	
2	8		16		210		24		1.2	

NORANDA EXPLORATION CO. LTD.

LOCATION Quartz Lake PROJECT 912 # 8-11 SHEET 2  
95 D/12 Yukon  
 MATERIAL Soil COLLECTOR \_\_\_\_\_ DATE 1/1  
 ANALYST RF DATE Aug 1 25/25  
 REMARKS Tot Cu Zn Pb Ag

T.T. No.	SAMPLE No.	1	2 Cu	3	4 Zn	5	6 Pb	7	8 Ag	G.C.I. NUMBER
54	00-12N		20		150		22		1.0	
5	14N		36		160		38		1.2	
6	16N		28		110		32		1.6	
7	18N		26		120		32		1.6	
8	20N		16		76		16		0.8	
9	22N		8		130		16		1.2	
10	24N		22		350		44		1.8	
11	26N		42		290		38		2.0	
12	28N		16		110		34		1.6	
13	30N		12		100		20		1.6	
14	36N		10		76		22		1.4	
15	38N		10		140		26		1.4	
16	42N 6"		22		130		24		1.2	
17	42N 18"		14		90		26		1.4	
18	44N		12		120		24		1.8	
19	46N		10		110		24		1.0	
20	48N		42		410		76		1.6	
1	00-50N		36		350		100		1.8	
2	40N-10E		12		170		20		1.2	
3	9E		12		140		22		1.2	
4	8E		14		150		22		0.8	
5	7E		32		370		26		1.6	
6	5E 6"		14		260		18		1.0	
7	5E 18"		10		110		20		1.4	
8	4E		12		120		24		1.2	
9	3E		12		250		28		2.2	
30	2E		8		100		20		0.8	
1	1E		30		260		22		1.2	

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NORANDA EXPLORATION CO. LTD.

LOCATION Quartz Lake PROJECT 912 #8-11/22 SHEET 3  
95D12 Y.T.  
 MATERIAL Soil SAMPLE Nos. \_\_\_\_\_  
 COLLECTOR \_\_\_\_\_ DATE / /  
 ANALYST RF DATE Aug /25/75  
 REMARKS Tot Cu Zn Pb Ag

T.T. No.	SAMPLE No.	1	2 Cu	3	4 Zn	5	6 Pb	7	8 Ag	G.C.I. NUMBER
83	40N - 1 W		12		330		30		1.4	
4	2		18		450		40		1.4	
5	3		14		120		22		1.0	
6	4		20		150		40		0.8	
7	5		36		190		58		1.4	
8	6		30		480		1350		3.4	
9	7		36		150		88		2.8	
90	8		12		200		26		0.8	
1	9		18		170		20		1.0	
2	10		10		350		26		0.8	
3	11		16		340		22		1.0	
4	40N - 12 W		18		320		24		0.8	
5	40S - 15 E		12		190		26		0.6	
6	14		12		120		28		2.4	
7	13		10		180		30		1.4	
8	12		8		90		26		1.0	
9	40S - 11 E		10		74		22		0.8	
100	Check A/P		54		50		30		1.0	
1	40S - 10 E		18		130		32		1.2	
2	9		16		160		32		1.0	
3	8		14		110		32		0.8	
4	7		20		150		130		1.4	
5	6		34		250		150		2.2	
6	5		30		180		86		2.0	
7	4		86		150		48		6.6	
8	3		150		190		110		18.0	
9	2		32		260		32		1.8	

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# CHEMEX LABS LTD.

212 BROOKSBANK AVE.  
 NORTH VANCOUVER, B.C.  
 CANADA V7J 2C1  
 TELEPHONE: 935-0648  
 AREA CODE: 604  
 TELEX: 043-52597

•ANALYTICAL CHEMISTS    •GEOCHEMISTS    •REGISTERED ASSAYERS

## CERTIFICATE OF ANALYSIS

TO: Rossbacher Laboratory Ltd.  
 2225 S. Springer Ave.  
 Burnaby, B.C.

ATTN: Peter Rossbacher

CERTIFICATE NO. 35958  
 INVOICE NO. 15072  
 RECEIVED Sept. 3/75  
 ANALYSED Sept. 10/75

SAMPLE NO. :	PPB Mercury
00 - 42N (6")	50
48 (18")	50
44	45
46	25
48	130
00 - 50N	90
40N - 10E	35
9	45
8	25
7	125
5 (6")	55
5 (18")	40
4	40
3	120
2	25
1E	60
00	30
1W	30
2	35
3	25
4	30
5	75
6	70
7	65
8	25
9	30
10	15
11	20
40N - 12W	20
40S - 15E	25
14	45
13	30
12	25
11	25
10	50
9	25
8	25
7	50
6	115
5E	55
	185

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95D/12  
QUARTZ LK.

# CHEMEX LABS LTD.

212 BROOKSBANK AVE.  
NORTH VANCOUVER, B.C.  
CANADA V7J 2C1  
TELEPHONE: 985-0648  
AREA CODE: 604  
TELEX: 043-52597

8-11/22  
VANC. FILE

•ANALYTICAL CHEMISTS    •GEOCHEMISTS    •REGISTERED ASSAYERS

## CERTIFICATE OF ANALYSIS

TO: Rossbacher Laboratory Ltd.  
2225 S. Springer Ave.  
Burnaby, B.C.

CERTIFICATE NO. 35957

INVOICE NO. 15072

RECEIVED September 3/75

ATTN: Peter Rossbacher

ANALYSED September 10/75

SAMPLE NO. :	PPB Mercury
32N - 9E	45
8	35
7	35
6	20
5	25
4	20
3	30
2	25
1E	15
00	25
1W	65
1.7	50
2.5	45
4	20
5	30
6	25
7W	50
8W	40
9	40
10	55
11	30
32N - 12W	50
00 - 00	30
00 - 2N	25
4	30
6	30
8	40
10	35
12	50
14	65
16	45
18	40
20	35
22	15
24	30
26	95
28	40
30	25
36	20
00 - 38N	30
STD.	185

Project 912-D  
QUARTZ LAKE PROPERTY  
WATSON LAKE AREA, Y.T.

GEOCHEMICAL - SOIL SURVEY  
SOIL DESCRIPTION

Section Line 40N

- 1-W Coarse sand. Good "B" @ 6". Spine of Ridge
- 2-W Coarse sand. Good "B" @ 6". Spine of Ridge
- 3-W Fine gravel. Side hill down to Qtz Cr. fair to poor, but wide, "B"
- 4-W Patchy "B" at 6". Rest dark coarse sand & gravel. Side hill.
- 5-W No "B". Sandy clay & gravel with top consisting of 6" to 8" black soil. Sample taken at 1 foot.
- 6-W West bank of Quartz Creek. Mostly gravel. Fair sandy "B" zone at 10".
- 7-W Fair "B". Clay, sand, gravel chips. Thick organic layer.
- 8-W Fair to good patchy "B". Sand, gravel boulders.
- 9-W Fine sand (mainly). No "B" of merit. Sample 8" depth.
- 10-W Good "B" at 10" (grey brown) in sand, fine gravel, few small boulders.
- 11-W Good "B" 2 6" to 10" in sand gravel. 1/3 way down long side hill
- 12-W Boulders - sand - gravel - boulders. Good "B" at 10".

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SECTION 40N

0/B.L.

Sand & gravel. Top of ridge. Fair narrow "B" @ 6".

1-E Boulders, clay and sand, very poor "B". Sample @ 8".

2-E Clay & sand/sand/gravel. Fair "B" at 8".

3-E "B" zone @ 4" to 6". then boulders - sand gravel.  
Sample taken at 6".

4-E "B" zone @ 4" to 6". then boulders - sand gravel.  
Sample taken at 6".

5-E Red "B" @ 1½ inches. Grey brown @ 6" below boulders.  
Top 8 inch boulders to fine sand in bottom 3/4.

6-E Road and drilling area. No samples taken.

7-E Sand and gravel. Very poor "B".

8-E 1½ feet sand and gravel. "B" zone 4" thick. 6" to Brown B

9-E 1½ feet sand and gravel. "B" zone 4" thick. 6" to Brown B

10-E 1' feet sand and gravel. "B" zone 4" thick. 6" to Brown B.

SECTION 32N

1-E Gravel and chips. Very poor "B"

2-E Gravel and chips. Very poor "B"

3-E Gravel and chips. Very poor "B"

4-E Clay. Poor "B"

Jack Pine Ridge Glacial Till

5-E Top of bench. Clay

6-E Sand and gravel - more sandy. Good "B"

7-E Sand and gravel - more sandy. Good "B"

8-E Sand and gravel - less sandy. Good "B"

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- 9-E Sand and gravel. Good "B"
- 10-E Sand and gravel. Good "B"
- 1-W Good "B" at 8" rest sand and gravel.  
1+70W Sand and gravel on top of cliff. Very poor "B" or none.  
Sample @ 8"
- 2+50W Quartz Creek side. All gravel. No B
- 4-W Sand, fair "B" zone. Sample @ 6"
- 5-W Sand, minor small boulders, good "B" zone at 8"  
(30' west of DDH #42. Slightly higher at foot of slope).
- 6-W Boulders, gravel, narrow "B" zone. 8" depth.
- 7-W Sand down to gravel and small boulders. Good (3") "B"  
zone @ 6".
- 8-W Fine sand to gravel; few small boulders. Good "B"
- 9-W ½" thick "B" zone. Grey gravel, boulders and sand.  
Top-east edge of draw.
- 10-W Near bottom of draw - edge of creek tributary. Coarse  
sand and gravel. Very poor "B" (grey brown) at 10".
- 11-W Half way up gully side. Narrow "B" @ 7". Rest coarse  
sand and gravel.
- 12-W Shallow draw. Grey black sand and dirt. Little or no "B".

(SECTION) 0+00 Base Line (Surveyed Claim Line)

- 0-N Much red brown clay. Good "B".
- 2-N Clay - poor "B"
- 4-N Clay
- 6-N On road edge. 1' organic then clay and gravel. Poor "B".
- 8-N Deep humous layer. Then dark clay-gravel. No "B".
- 10-N Dark gravel in side hill slide(?). Poor to no "B".

QUARTZ LAKE PROJECT  
SOIL SAMPLING

LINE 40-S

<u>15E</u>	Jack Pine Ridge	Good red brown "B"
<u>14E</u>	Jack Pine Ridge	Good red brown "B"
<u>13E</u>		Fair red brown "B"
<u>12E</u>		Moderate B. grey brown clay. Some small boulders
<u>11E</u>		Black (organic) with gravel
<u>10E</u>		1½' black (organic) then grey clay
<u>9E</u>		10" black
<u>8E</u>		8" black to clay. gravel fair light brown
<u>7E</u>		black 1½ feet. Poor "B"
<u>6E</u>		8" organic to clay. Poor B (grey brown)
<u>5E</u>		16" very black in rooty alder slope. then clay
<u>4E</u>		10" moss - roots. 6" organic. poor "B"
<u>3E</u>		Large moss covered boulders & side hill alders. Thick black.
<u>2E</u>		1' organic to grey brown & boulders.
<u>1E</u>		Thin organic to grey brown, sand, gravel. clay. Good "B"
O		(20 feet S-E because of swampy area. Grey brown clay and gravel side hill.

- 1-W Thick organic on boulders & roots. Grey black. Poor "B". Probably organic.
- 2-W Organic. Boggy. No sample
- 3-W Side ridge. Good orange brown "B"
- 4-W Very good red brown "B"
- 5-W Thick red brown "B"
- 6-W Excellent "B" red brown "B"
- 7-W Fair "B"
- 8-W Boggy. No sample
- 9-W Fair brown B at 6"
- 10-W Good "B"
- 11-W Good "B"
- 12-W Good "B"
- 13-W Fair brown "B"
- 14-W Fair brown "B"
- 15-W Fair brown "B"

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## QUARTZ LAKE PROPERTY - FINAL SURVEY July 2, 1975

All holes vertical  
measurements in feet

DDH #	Collar Elevation	Coordinate North	Coordinate East	Hole Depth	Overburden	Top of Zone	Width	Pb+Zn %	Oz/T Ag	% Pb	% Zn
94	508.9	100,496.8	99,967.6	380	55	60.3	3.7	8.52	1.29	3.12	5.40
						67.4	1.6	7.08	0.89	1.28	5.80
						100	45	21.35	3.33	6.69	14.66
95	507.3	100,686.5	99,976.8	177	61	104	23	20.03	1.84	4.63	15.40
96	517.0	100,875.1	99,997.5	178	64	135	5	3.04	0.29	0.74	2.30
97	518.6	100,975.3	100,117.4	194	92	113	15	15.42	1.70	4.23	11.20
98	537.5	101,162.9	100,155.4	268	117	202	15.5	10.71	1.09	2.79	7.92
99	541.3	101,048.5	100,238.5	250	110	nil	nil	nil	-	-	-
100	517.9	100,851.7	100,224.7	175	98	143	5	8.12	1.08	3.12	5.00
101	508.6	100,660.2	100,194.5	150	73	105	15.5	18.23	2.00	4.11	14.12
102	508.7	100,564.5	100,065.6	152	47	113	8	7.76	0.45	1.24	6.52
103	512.1	100,366.2	100,049.5	175	46.5	nil	nil	-	-	-	-
104	533.8	101,291.7	100,238.3	265	120	nil	nil	-	-	-	-
105	521.6	101,393.2	100,184.2	292	114	246	5	6.80	0.93	2.32	4.48
106	500.3	101,467.4	100,063.5	250	86	195	5	17.92	2.21	4.92	13.0
107	503.8	101,633.0	100,295.9	348	117	208	1.8	4.54	0.15	.34	4.20
108	497.7	101,848.9	100,128.0	303	113	232	5	4.50	0.46	1.00	3.50
109	526.2	101,486.1	100,415.8	337	130	297	6	9.24	1.06	2.64	6.60
						297	13.5	5.92	0.76	1.93	3.99
110	557.0	100,932.4	100,405.9	298	130	261.5	12.0	9.02	1.04	2.63	6.39

## Quartz Lake Property - Final Survey

DDH#	Collar Elevation	Coordinate North	Coordinate East	Hole Depth	Overburden	Top of Zone	Width	Pb+Zn %	Oz/T Ag	% Pb	% Zn
111	510.9	100,542.2	100,353.6	203		164	9.5	10.29	0.90	2.20	8.09
112	549.5	101,223.2	100,435.2	347	145	321	6	11.08	1.06	2.68	8.40
113	559.3	101,394.5	100,668.9	416	203	231.5	6.5	6.13	1.78	2.98	3.15
						368.5	3.0	9.32	1.12	3.12	6.20
						375.0	2.0	3.52	0.48	1.12	2.40
						397.0	2.0	3.04	0.32	0.64	2.40
114	568.9	101,064.5	100,612.3	368	220	260	5.0	6.64	0.68	2.04	4.60
115	597.9	100,727.0	100,602.4	413		298	5.0	1.60	0.10	0.12	1.48
116	645.3	99,332.0	100,234.8	549	-	nil	-	-	-	-	-
117	608.4	99,388.2	99,936.8	405	-	nil	-	-	-	-	-
118	584.6	101,194.6	100,831.6	479	-	-	-	-	-	-	-
119	594.6	100,877.9	100,811.4	446	200	372	5.0	5.24	0.10	0.04	5.20
120	589.6	101,579.9	100,901.2	481	250	nil	-	-	-	-	-