



410156E0045 23 SWAYZE

DIAMOND DRILLING

TOWNSHIP: SWAYZE TWP.

REPORT NO: 23

WORK PERFORMED FOR: Can-Mac Exploration Ltd.

RECORDED HOLDER: SAME AS ABOVE (xx)

: OTHER ()

| <u>CLAIM NO.</u> | <u>HOLE NO.</u> | <u>FOOTAGE</u> | <u>DATE</u> | <u>NOTE</u> |
|--------------------|-----------------|----------------|-------------|-------------|
| 932196 | TL-88-1 | 256' | July/88 | (1) (2) |
| | TL-88-2 | 294' | July/88 | (1) (2) |
| | TL-88-3 | 255' | July/88 | (1) (2) |
| | TL-88-4 | 326' | July/88 | (1) (2) |
| | TL-88-5 | 236' | July/88 | (1) (2) |
| 932196 & 932503 | TL-88-6 | 336.7' | Aug/88 | (1) (2) |
| 932196 | TL-88-10 | 256' | Sept/88 | (1) (2) |
| | TL-88-11 | 303' | Sept/88 | (1) (2) |
| 932196 & 932503 | TL-88-12 | 304' | Sept-Oct/88 | (1) (2) |
| | TL-88-13 | 352' | Oct/88 | (1) (2) |

10201/2918.7'

NOTES: (1) # W8906.542, filed Jan/90

(2) Holes comparable to OMEP submission
OM88-5-L-173, Jun/91.

DIAMOND DRILL RECORD

FOR CAN-MAC EXPLORATION LTD.

BY GEOLOGICAL ENGINEERING SERVICES, NORTH BAY, ONTARIO.

TOPBOOT LAKE PROJECT, SWAYZE TOWNSHIP - DERRAUGH VEIN ZONE

HOLE NUMBER: T.L.-88-1

LOCATION: 0+65 W / 6+65 S 932196

LENGTH OF HOLE: 78.05 METRES (256 FEET)

AZIMUTH: 250 DEGREES

DIP: - 45 DEGREES

STARTED: 26 JULY, 1988

FINISHED: 27 JULY, 1988

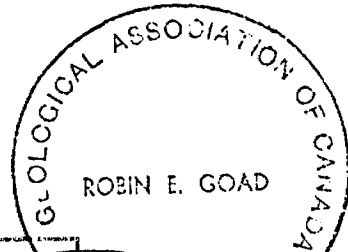
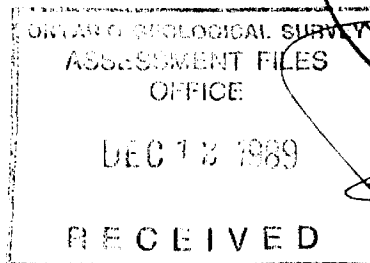
LOGGED BY: ROBIN E. GOAD

CONTRACTOR: LES ENTREPRISES JACQUES ROUSSEAU, ROUYN, QUEBEC.

CORE SIZE: BQ

DIP TESTS: 78.05 METRES (256 FEET) = 46 DEGREES

| SAMPLES: | | | Au PPB |
|------------|-----------------------|--|------------------|
| TL-88-1-1 | 11.6-12.35 M = 0.75 M | | 120 |
| TL-88-1-2 | 16.8-17.8 M = 1.0 M | | 50 |
| TL-88-1-3 | 18.1-19.1 M = 1.0 M | | 110 |
| TL-88-1-4 | 23.4-24.4 M = 1.0 M | | NIL |
| TL-88-1-5 | 32.65-33.65 M = 1.0 M | | NIL |
| TL-88-1-6 | 33.65-34.65 M = 1.0 M | | 10 |
| TL-88-1-7 | 34.65-35.65 M = 1.0 M | | NIL |
| TL-88-1-8 | 35.65-36.65 M = 1.0 M | | NIL |
| TL-88-1-9 | 36.65-37.65 M = 1.0 M | | NIL |
| TL-88-1-10 | 37.65-38.65 M = 1.0 M | | 50 |
| TL-88-1-11 | 38.65-39.65 M = 1.0 M | | 10 |
| TL-88-1-12 | 39.65-40.65 M = 1.0 M | | NIL |
| TL-88-1-13 | 40.65-41.65 M = 1.0 M | | 40 |
| TL-88-1-14 | 41.65-42.65 M = 1.0 M | | NIL |
| TL-88-1-15 | 42.65-43.65 M = 1.0 M | | NIL |
| TL-88-1-16 | 43.65-44.65 M = 1.0 M | | NIL |
| TL-88-1-17 | 44.65-45.65 M = 1.0 M | | NIL |
| TL-88-1-18 | 45.65-46.65 M = 1.0 M | | NIL |
| TL-88-1-19 | 46.65-47.65 M = 1.0 M | | 50 |
| TL-88-1-20 | 47.4-48.4 M = 1.0 M | | 1580/930/820/890 |
| TL-88-1-21 | 48.4-49.4 M = 1.0 M | | 620 |
| TL-88-1-22 | 49.3-50.3 M = 1.0 M | | 250 |
| TL-88-1-23 | 50.3-51.3 M = 1.0 M | | NIL |



SAMPLES CONTINUED:

| | | Au PPB |
|------------|---------------------|--------|
| TL-88-1-24 | 51.3-52.3 M = 1.0 M | 70 |
| TL-88-1-25 | 52.3-53.3 M = 1.0 M | 40 |
| TL-88-1-26 | 53.3-54.3 M = 1.0 M | 120 |
| TL-88-1-27 | 54.3-55.3 M = 1.0 M | 20 |
| TL-88-1-28 | 55.3-56.3 M = 1.0 M | NIL |
| TL-88-1-29 | 56.3-57.3 M = 1.0 M | NIL |
| TL-88-1-30 | 57.3-58.3 M = 1.0 M | NIL |
| TL-88-1-31 | 58.3-59.3 M = 1.0 M | NIL |
| TL-88-1-32 | 59.3-60.3 M = 1.0 M | NIL |
| TL-88-1-33 | 60.3-61.3 M = 1.0 M | NIL |
| TL-88-1-34 | 61.3-62.3 M = 1.0 M | NIL |
| TL-88-1-35 | 62.3-63.3 M = 1.0 M | NIL |
| TL-88-1-36 | 63.3-64.3 M = 1.0 M | NIL |
| TL-88-1-37 | 64.3-65.3 M = 1.0 M | NIL |
| TL-88-1-38 | 65.3-66.3 M = 1.0 M | NIL |
| TL-88-1-39 | 66.3-67.3 M = 1.0 M | NIL |

METERAGE

DESCRIPTION

0-1.8 M

CASING

1.8-42.25 M

TOPBOOT LAKE PORPHYRY INTRUSION

1.8-6.0 M

FELDSPAR PORPHYRY

Light green/gray, sericitic, carbonatized and chloritic feldspar porphyry composed of 20 %, fine-grained, 1 mm faint plagioclase phenocrysts in a fine-grained altered groundmass. Phenocrysts are subrounded (anhedral) and extensively altered to sericite. The groundmass is sericitic, carbonatized and chloritic emanating from fine, < 1 mm white carbonate > quartz, and/or chlorite, and/or epidote fractures and veinlets. Approximately 1 % chloritic, angular to rounded patches up to 3 cm are interpreted as altered xenoliths. They commonly have reaction rims where they are partially assimilated by the porphyry groundmass. Local areas of patchy to pervasive, beige silicification with traces (tr) disseminated (diss) pyrite (py) and streaks or patches of chlorite.

8.0 M Fine carbonate and/or epidote fractures and veinlets commonly @ 30 degrees to the core axis (C.A.).

5.8 M Carbonate > quartz veinlets, < 0.5 cm wide @ 65 degrees to the C.A.

6.0-32.65 M

SERICITE-CHLORITE-CARBONATE ALTERATION ZONE

Contact @ 75 degrees to the C.A. to altered diorite or feldspar porphyry. The rock is composed of light green, sericitic and carbonatized, fine-grained material with dark green patches or spots of chlorite comprising 10 to 15 % of the rock. Patchy to pervasive silicification is common consisting of a cryptocrystalline, chalcedonic, beige to pinkish-beige bleaching of the rock. Patches, fractures and stockworks of chlorite are also common in these areas. Fracture filling and diss Py occurs up to 3 % and is associated with the siliceous alteration and chloritic fractures. There are no discernable plagioclase phenocrysts.

6.1-6.4 M Locally ground and blocky core.

7.6-10.1 M 2 to 5 mm carbonate veinlets occur every 5 to 15 cm along the core, commonly @ 70 degrees to the C.A. with peripheral siliceous bleaching for 2 cm either side.

11.6-12.6 M Local very intense bleaching composed of pervasive carbonatization with patchy silicification and 1 % finely diss py. Epidote, carbonate and chlorite filled fractures up to 3 cm thick @ 25 degrees to the C.A.

12.6-19.8 M Zone of extensive bleaching but less

intense than the previously mentioned interval. Abundant light green sericite and carbonate with numerous fractures filled with epidote, carbonate and/or chlorite @ 25 degrees to the C.A. Several quartz +/- carbonate veinlets up to 15 cm thick. Less common patches of chlorite.

13.2-13.5 M Several quartz veinlets up to 1 cm thick @ 25 and 60 degrees to the C.A. Approximately (Approx) 1 to 2 % diss py associated with irregular patches of chlorite up to 2 cm in size. Local chloritic fractures.

14.7 M 1 cm white quartz-carbonate veinlet with chloritic margins @ 30 degrees to the C.A.

16.1 M 15 cm wide quartz and carbonate veinlet with streaks of chlorite @ 25 degrees to the C.A. The wall rock is bordered for 2 cm with fracture filling and diss py.

17.1 M 2 cm quartz and carbonate veinlet sub-parallel to the C.A. and bordered by 5 cm of fracture filling and diss py (2 to 3 %).

18.3-18.9 M 2 cm quartz-carbonate veinlet sub-parallel to the C.A. with parallel chlorite fractures containing 2 to 3 % fracture filling and diss py.

18.9-19.8 M Locally intense light green to beige bleaching with dark green patchy chlorite. 1 % diss py and quartz-carbonate veinlets up to 3 cm wide trending sub-parallel to the C.A. Some smaller < 0.5 cm veinlets up to 75 degrees to the C.A.

19.8-32.65 M Abundant patchy green chlorite and numerous quartz and carbonate veinlets, often bordered by chlorite streaks and fracture filling and finely diss py. The veinlets are typically 2 to 5 mm wide and commonly trend @ 25 and 65 degrees to the C.A.

32.65-42.25 M SILICEOUS ALTERATION ZONE

Gradational contact into a rock with less chlorite and sericite and increasing amounts of silica. The rock has a beige to pinkish-beige colouration which may be in part alkali feldspar metasomatism. Rock contains a greater concentration of sulphide with concentrations of up to 3 % py over 20 cm wide zones. The siliceous alteration is less feldspar destructive than the carbonate, sericite and chlorite alteration as faint to distinct plagioclase phenocrysts are locally apparent.

32.65-36.0 M Approx 5 % patchy chlorite and fracture filling chlorite with associated py.

36.0-39.0 M Massive pink, siliceous rock with few fractures. Contains chloritic patches up to 3 cm in size with siliceous reaction rims interpreted as altered xenoliths. Occasional carbonate

veinlets @ 30 and 70 degrees to the C.A. Local areas with 1 to 2 mm anhedral plagioclase phenocrysts.

38.4-39.0 M Locally abundant chlorite and carbonate fracture microbreccia.

39.0 M 3 cm quartz > carbonate veinlet 80 degrees

39.0-42.25 M Rock has a more reddish-pink colour because of a limonitic staining. Locally abundant (5 %) patchy chlorite with associated coarse 3 mm py.

42.25-43.5 M

LAMPROPHYRE DYKE

Sharp upper and lower contacts @ 75 and 45 degrees to the C.A., respectively to lamprophyre dyke. The rock is light to medium green in colour with 10 %, 1 to 2 mm hornblende phenocrysts, partially to completely pseudomorphed by chlorite. Local 1 mm plagioclase phenocrysts. Contains a 4 cm rounded pink altered xenolith with a tan coloured reaction rim.

43.5-47.4 M

TOPBOOT LAKE PORPHYRY INTRUSION

43.5-47.4 M

SILICEOUS ALTERATION ZONE

Siliceous alteration as previously described
43.5-43.8 M Abundant < 2 mm stockwork green chloritic and white carbonate veinlets

43.8-45.6 M Massive light pink to beige siliceous alteration with local < 2 mm wide white carbonate veinlets @ 25 and 75 degrees to the C.A.

45.8-47.4 M Fine-grained pink, siliceous altered rock but with 15 % plagioclase phenocrysts. The phenocrysts are at first faint and anhedral but grade down section into more distinct and euhedral, 1 to 2 mm crystals. Local chloritic fractures with diss py @ 10 degrees to the C.A. and 1 to 2 mm carbonate veinlets @ 20 degrees to the C.A.

47.4-49.3 M

MAIN DERRAUGH VEIN

Sharp pyritic upper contact @ 75 degrees to the C.A. and lower contact @ 50 degrees to the C.A. Zone of massive milky-white silica flooding and quartz veining. Multiple generation of quartz emplacement with minor yellow-brown carbonate fractures and clots. Tr finely diss py within the vein zone. Large 10 cm wide secondary vein @ 48.6 M and @ 65 degrees to the C.A. Local green coloured mica.

49.3-78.05 M

TOPBOOT LAKE PORPHYRY INTRUSION

49.3-63.3 M

SILICEOUS ALTERATION ZONE

Fine-grained, beige to pink siliceous alteration with local zones of carbonatization and chlorite

and carbonate fractures. Local microbreccia. Local zones of 15 to 20 %, 1 to 2 mm, anhedral to subhedral plagioclase phenocrysts.

49.3-53.0 M Abundant 1 mm to 3 cm carbonate veinlets commonly trending @ 45 and 75 degrees to the C.A. Local chloritic fractures are commonly oriented @ 35 degrees to the C.A.

53.0-63.3 M Chlorite patches and fractures become increasingly abundant. The fractures are commonly oriented @ 20 degrees to the C.A.

49.3-57.7 M Zone with discernable plagioclase phenocrysts.

59.3-59.6 M Local zone of chlorite microbreccia with 1 %, 2 mm coarse py.

60.0-60.5 M Same as above.

60.5-63.3 M Massive, fine-grained, siliceous alteration with 1 to 2 mm carbonate veinlets @ 40, 60 and 75 degrees to the C.A. The larger veinlets commonly have an associated bleaching with up to 5 % diss py over 2 cm.

62.8-63.3 M 1 to 4 mm anhedral to subhedral, beige siliceous specks which may be relict plagioclase phenocrysts.

63.3-68.4 M

CHLORITE-CARBONATE-SERICITE ALTERATION ZONE

Gradational contact to a rock with increasingly abundant sericite and chlorite, less silica and fewer carbonate veinlets but contains interstitial carbonate. Chlorite occurs as patches or fractures locally forming microbreccia. Tr finely diss py but locally concentrated up to 3 % as coarse fracture filling grains over 10 cm intervals.

63.3-67.3 M 25 %, 2 mm to 4 cm rounded patches of siliceous altered rock in a chloritic fracture microbreccia. The siliceous patches contain relict plagioclase phenocrysts. 1 to 3 mm carbonate veinlets commonly oriented @ 65 degrees to the C.A.

67.3-67.9 M Lamprophyre dyke composed of medium green/gray, fine-grained material with approx 5 to 10 %, 1 mm, chloritic hornblende phenocrysts and euhedral plagioclase phenocrysts. Contains < 1 % finely diss py. Upper contact is irregular whereas the lower contact is sharp @ 15 degrees to the C.A. Upper contact contains several partially detached chloritic xenoliths. 3 mm to 30 cm angular to rounded xenoliths also within the dyke with 1 to 2 %, 1 to 3 mm, coarse py.

68.4-78.05 M

WEAKLY ALTERED FELDSPAR PORPHYRY

Medium green/gray, fine-grained rock containing 25 %, 1 to 3 mm, anhedral to subhedral, sericitic plagioclase phenocrysts. Local 1 to 4 mm carbonate

veinlets are commonly oriented @ 40 to 60 degrees to the C.A. Local chloritic fractures and local areas with 10 to 50 cm zones of siliceous and carbonate alteration and bleaching.

70.2-70.65 M Zone of beige, siliceous and carbonate alteration and bleaching around carbonate and chlorite veinlets sub-parallel to the foliation.

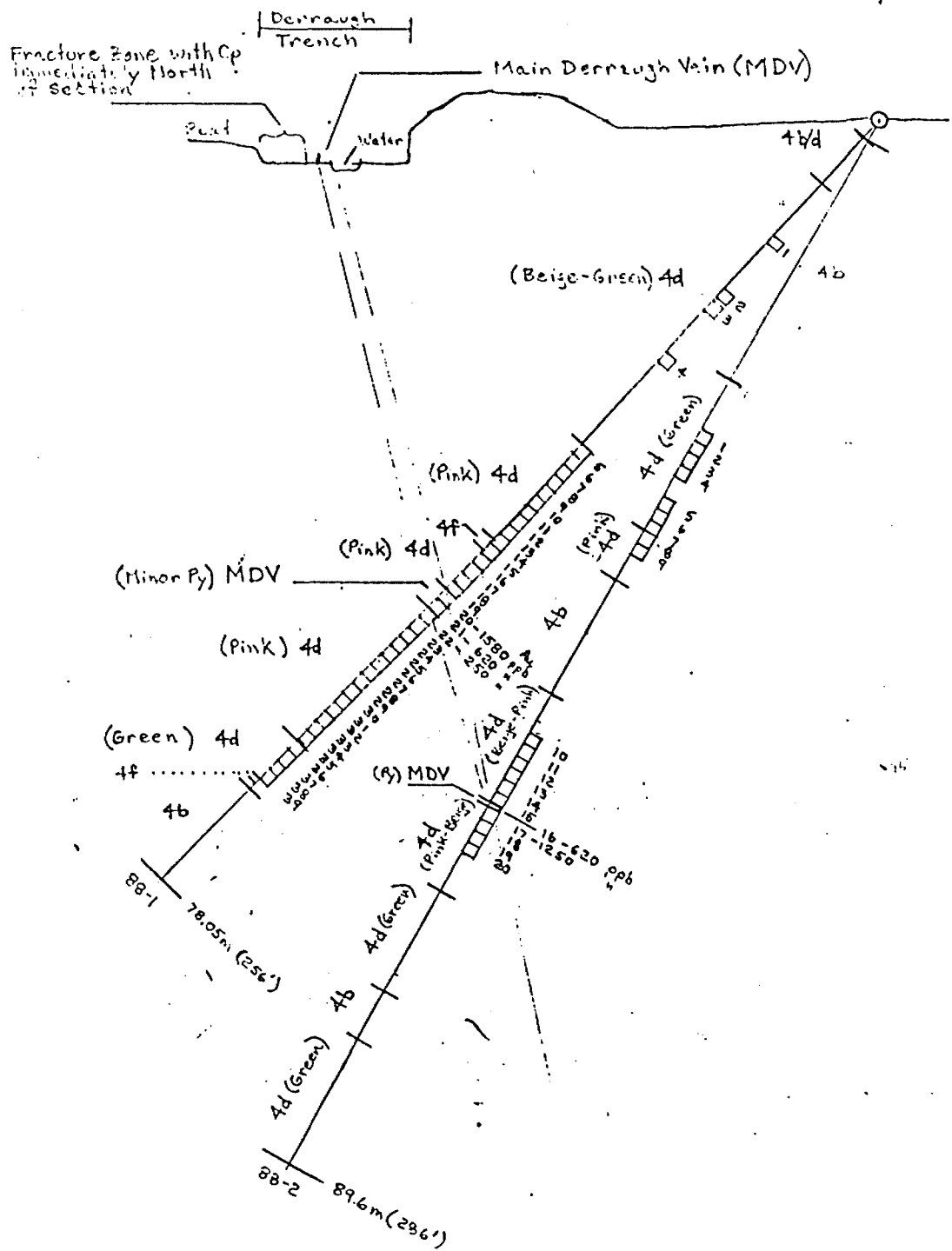
71.2-71.95 M Same as above.

73.2-73.6 M Same as above.

78.05 M (256 FEET) END OF HOLE

Az 250°

Elev. 0 —
10m —
20m —
30m —
40m —
50m —
60m —
70m —
80m —
90m —



CAN-MAC EXPLORATION LTD.
 Topbooth Lake Property
 Swayze Tp. Ontario

SECTION THROUGH
 D.D.H. TL88-1 & TL88-2
 (Derrraugh Vein)

Scale - 1:500

Date: July, 1988

Geological Engineering Services
 R.E.G./F.H.T.

DIAMOND DRILL RECORD

FOR CAN-MAC EXPLORATION LTD.

BY GEOLOGICAL ENGINEERING SERVICES, NORTH BAY, ONTARIO.

TOPBOOT LAKE PROJECT, SWAYZE TOWNSHIP - DERRAUGH VEIN ZONE.

HOLE NUMBER: T.L.-88-2

LOCATION: 0+65 W / 6+65 S 932196

LENGTH OF HOLE: 89.6 METRES (294 FEET)

AZIMUTH: 250 DEGREES

DIP: - 60 DEGREES

STARTED: 27 JULY, 1988

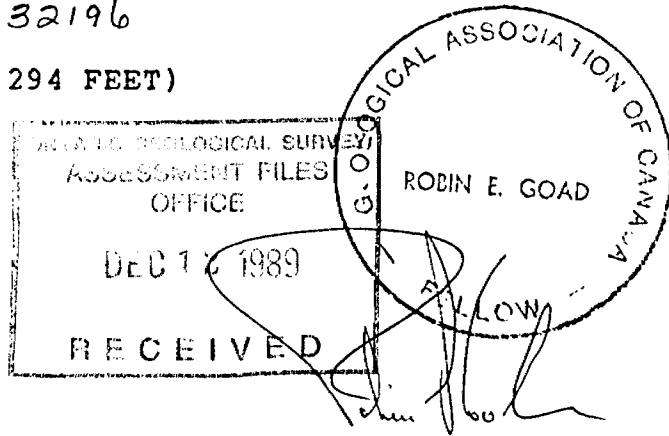
FINISHED: 28 JULY, 1988

LOGGED BY: ROBIN E. GOAD

CONTRACTOR: LES ENTREPRISES JACQUES ROUSSEAU, ROUYN, QUEBEC

CORE SIZE: BQ

DIP TESTS: 89.6 METRES (294 FEET) = 61 DEGREES



| SAMPLES: | | | Au PPB |
|------------|---------------------|----------|--------|
| TL-88-2-1 | 26.7-27.7 M = 1.0 M | 40 | |
| TL-88-2-2 | 27.7-28.7 M = 1.0 M | 10 | |
| TL-88-2-3 | 28.7-29.7 M = 1.0 M | NIL | |
| TL-88-2-4 | 29.7-30.7 M = 1.0 M | 10 | |
| TL-88-2-5 | 32.3-33.3 M = 1.0 M | 20/NIL | |
| TL-88-2-6 | 33.3-34.3 M = 1.0 M | 20 | |
| TL-88-2-7 | 34.3-35.3 M = 1.0 M | NIL | |
| TL-88-2-8 | 35.3-36.3 M = 1.0 M | NIL | |
| TL-88-2-9 | 36.3-37.3 M = 1.0 M | NIL | |
| TL-88-2-10 | 52.6-53.6 M = 1.0 M | 20 | |
| TL-88-2-11 | 53.6-54.6 M = 1.0 M | 20 | |
| TL-88-2-12 | 54.6-55.6 M = 1.0 M | 70 | |
| TL-88-2-13 | 55.6-56.6 M = 1.0 M | 40 | |
| TL-88-2-14 | 56.6-57.6 M = 1.0 M | 20 | |
| TL-88-2-15 | 57.6-58.6 M = 1.0 M | 190 | |
| TL-88-2-16 | 58.6-59.0 M = 1.0 M | 620 | |
| TL-88-2-17 | 59.0-60.0 M = 1.0 M | 1250/950 | |
| TL-88-2-18 | 60.0-61.0 M = 1.0 M | 40 | |
| TL-88-2-19 | 61.0-62.0 M = 1.0 M | 10 | |
| TL-88-2-20 | 62.0-63.0 M = 1.0 M | 10 | |

METERAGE

DESCRIPTION

0-1.8 M

CASING

1.8-58.6 M

TOPBOOT LAKE PORPHYRY INTRUSION

1.8-22.4 M

WEAKLY ALTERED FELDSPAR PORPHYRY

Approximately (approx) 25 to 30 %, fine-grained, 1 mm sericitic plagioclase phenocrysts in a fine-grained, chloritic and sericitic, altered groundmass. Numerous fine, 1 to 3 mm white carbonate (carb) veinlets which commonly trend @ 20 and 60 degrees to the core axis (C.A.). They typically occur every 3 to 5 cm and commonly in a criss-cross-like pattern. Abundant fine chloritic fractures and patches up to 1 cm in size. Approx 2 %, 1 to 5 cm chloritic xenoliths. Rock is pervasively to partially carbonatized, particularly marginal to carb fractures and veinlets. These areas are commonly bleached. Traces (tr) of disseminated (diss) pyrite (py) but locally concentrated to 1 to 2 % along chloritic fractures.

1.8-2.0 M Blocky core.

3.0-3.3 M Core locally vuggy because of the weathering of Carbonate.

4.5-6.5 M Locally blocky core because of an abundance of chloritic fractures and carbonate veinlets parallel to sub-parallel to the C.A.

8.9 M 5 cm wide quartz (qtz) > carb veinlet @ 60 degrees to the C.A. with marginal intense shearing composed of chlorite, carbonate and 2 % fracture filling py either side.

9.4 M 3 cm wide carb veinlet @ 40 degrees to the C.A.

22.4-35.2 M

SERICITE-CHLORITE-CARBONATE ALTERATION ZONE

Gradational contact into a feldspar destructive alteration. Plagioclase phenocrysts are only locally discernable with these zones having gradational contacts. Local chloritic xenoliths up to 5 cm. Core has a banding locally because of heterogenous silicification, carbonatization, sericitization and chloritic fractures. Bands are @ 40 degrees to the C.A. Bleaching is most intense marginal to qtz and carb veinlets. Siliceous banding progressively changes to intense chloritization. Rock contains tr diss py but locally 1 to 2 % within larger chloritic fractures. Numerous 1 to 3 mm carb veinlets commonly oriented @ 45, 80 and 20 degrees to the C.A.

23.2 M 40 cm wide zone of siliceous bleaching marginal to a 5 cm qtz-carb veinlet @ 40 degrees to the C.A.

24.7-26.0 M Locally intense beige coloured silicification marginal to carb veinlets and chloritic fractures @ 30 to 45 degrees to C.A.
27.0-30.7 M Locally abundant chlorite filled fractures with coarse 2 mm py. Fractures commonly trend @ 30 to 45 degrees to the C.A. Zones of intense siliceous bleaching commonly marginal to the larger veinlets grading peripherally into sericitic and carb alteration.
32.3-35.2 M Same as above.

35.2-39.4 M

SILICEOUS ALTERATION ZONE

Gradational contact into a rock with less chlorite and sericite and increasing amounts of silica. The rock has a beige to pinkish-beige colouration which may be in part alkali feldspar metasomatism. Rock contains a greater concentration of sulphide with concentrations of 1 to 2 % fracture filling py. Local areas with up to 25 %, 1 to 2 mm faint, subhedral plagioclase phenocrysts. Local 1 mm to 1 cm carb veinlets with marginal intense siliceous bleaching commonly @ 45 and 60 degrees to the C.A.

39.4-49.4 M

WEAKLY ALTERED FELDSPAR PORPHYRY

Gradational contact to sericitic feldspar porphyry composed of 25 to 30 %, 1 to 3 mm, anhedral to euhedral, sericitic plagioclase phenocrysts in a finer-grained, green/gray sericitic and chloritic groundmass. Numerous 1 mm to 1 cm carb veinlets, commonly with marginal siliceous bleaching. Some carb and chlorite veinlets contain 1 to 2 % py. Occasional 1 to 3 cm chloritic xenoliths. Fractures and veinlets commonly trend orthogonally @ 35 and 65 degrees to the C.A.

38.8-40.0 M Extensive bleaching marginal to fractures

41.6-44.5 M Same as above and local green mica.

43.8 M 1 cm qtz veinlet 4 cm offset and oriented @ 60 degrees to the C.A.

47.0-47.8 M Numerous 1 to 3 mm carb and chlorite veinlets oriented @ 40 degrees to the C.A. with peripheral siliceous bleaching up to 5 cm either side.

49.45-58.6 M

SILICEOUS ALTERATION ZONE

Sharp contact @ 70 degrees to the C.A. to fine-grained, beige to pinkish-beige, siliceous alteration as previously described. randomly oriented carbonate +/- qtz and chlorite veinlets and fractures but commonly @ 80 degrees, 50 degrees or sub-parallel to the C.A. Sulphides vary from tr to 1 % and locally 5 % adjacent to some chloritic fractures. Local zones with less altered, discernable plagioclase phenocrysts.

49.4-51.2 M Pervasive beige bleaching with faint specks where plagioclase phenocrysts have been pseudomorphed by sericite.

51.2-52.3 M Zone with numerous relict plagioclase phenocrysts.

52.3-53.0 M Patchy to pervasive siliceous bleaching.

52.6 M 10 cm of chloritic and carbonate microbreccia.

53.0-53.5 M Zone with relict plagioclase phenocrysts and numerous carb veinlets, commonly @ 40 degrees to the C.A.

53.6-58.6 M Progressive increase in the number of fractures and veinlets towards the Main Derragh Vein. Approx 1 % py, most abundant in chloritic fractures. Progressively more intense pinkish-beige silicification.

53.6-57.0 M Chloritic fractures are oriented @ 50 to 60 degrees to the C.A.

57.0-58.6 M Microbrecciated and 2 % diss py

58.6-59.0 M

MAIN DERRAUGH VEIN

Sharp sheared upper contact with epidote and carbonate @ 35 degrees to the C.A. and sheared irregular lower contact @ 90 degrees to the C.A. Zone of massive milky-white qtz silica flooding, yellow-brown carbonate and 1 % finely diss py.

59.0-89.6 M

TOPBOOT LAKE PORPHYRY INTRUSION

59.0-66.3 M

SILICEOUS ALTERATION ZONE

Fine-grained, beige to pink, siliceous alteration with local zones of carbonatization and chlorite and carbonate fractures. Local microbreccia marginal to the main Derragh Vein. Local zones of less altered feldspar porphyry composed of 30 %, 1 to 3 mm, anhedral to subhedral plagioclase phenocrysts in a chloritic and siliceous, gray groundmass.

59.0-60.4 M Microbreccia composed of abundant carbonate +/- qtz veinlets, chloritic fractures and pervasive silicification with 1 to 2 % diss py. The larger veinlets commonly trend @ 60 degrees to the C.A.

60.4-61.8 M Massive, pinkish-beige, chert-like, pervasively silicified rock.

62.0-66.3 M Zone of less intense alteration with distinct plagioclase phenocrysts. Contains < 1 %, 1 to > 5 cm, chloritic, xenoliths with siliceous reaction rims. 1 mm Carb veinlets @ 60 to 80 degrees to the C.A.

64.8 M 30 cm zone of extensive bleaching around a 1 cm wide carbonate-chlorite veinlet @ 20 degrees to the C.A. Locally discernable plagioclase phenocrysts.

66.3-74.9 M

CHLORITE-CARBONATE-SERICITE ALTERATION ZONE

Sharp contact @ 45 degrees to the C.A. to a dark green chloritic rock with 3 to 5 %, 1 cm, irregular patches of pinkish-beige siliceous altered rock. Numerous hairline to 1 mm carbonate filled fractures commonly oriented @ 50, 70 and 25 degrees to the C.A. Local areas of siliceous alteration over core lengths up to 10 cm.

67.3 M 2 cm wide breccia @ 35 degrees to the C.A., comprised of 1 mm, green fragments in a fine-grained, gray siliceous matrix.

68.9 M 10 cm of siliceous bleaching.

69.8-70.6 M Locally extensive bleaching adjacent to 2 mm to 1 cm carbonate-gtz veinlets oriented @ 40 degrees to the C.A. Local brecciation comprised of 0.5 to 3 cm angular clasts in a siliceous matrix.

73.4 M 1 cm wide carb-chlorite veinlet @ 20 degrees to the C.A.

74.9-78.8 M

WEAKLY ALTERED FELDSPAR PORPHYRY

Medium green/gray, fine-grained rock containing 20 %, 1 mm, anhedral to subhedral, sericitic plagioclase phenocrysts. Upper contact is gradational, whereas the lower contact is sharp defined by a 2.5 cm carb veinlet @ 45 degrees to the C.A.

74.9-75.8 M Zone of intense beige, siliceous and carbonate alteration and bleaching with fine 1 mm specks of relict plagioclase phenocrysts pseudomorphed by sericite.

78.25-78.4 M Same as above with a sharp upper contact defined by a 2 mm carb veinlet @ 40 degrees to the C.A..

78.8-89.6 M

CHLORITIC ALTERED DIORITE OR INTERMEDIATE VOLCANIC

Numerous chloritic hornblende phenocrysts in a finer-grained dark green groundmass. Tr diss py. Local 1 to 3 mm carb veinlets commonly oriented @ 20 and 60 degrees to the C.A. Weak foliation @ 50 degrees to the C.A. defined by streaks of chlorite.

79.7-80.1 M Pervasive light green bleaching with 1 % finely diss py and irregular carbonate veinlets.

83.1 M 2 cm carb-chlorite veinlet oriented @ 85 degrees to the C.A.

88.1 M 2 cm carb veinlet oriented @ 15 degrees to the C.A.

89.6 M (294 FEET) END OF HOLE

D.D. # TL 88-3

DIP: -45°

AZIMUTH: 250°

LOCATION: TOPBOOT LAKE, SWAYZE TP. (Derragh Trench), Claim 932196,
Approximate Coordinates 100+64 mW / 6+49 mS

ELEVATION: 2-3 m above vein in Derragh Trench

STARTED: JULY 28/88

STOPPED: JULY 29/88

COMPANY: CAN-MAC EXPLORATION LTD.

PROPERTY: TOPBOOT LAKE

CONTRACTOR: Les Entreprises Jacques Rousseau, Rouyn, Quebec

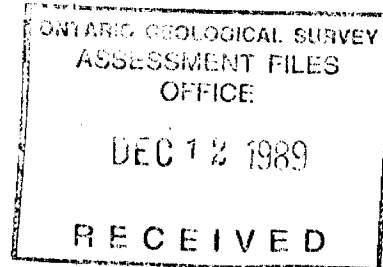
LOGGED BY: Frank H. Towns

DEPTH: 77.75 meters (255 feet)

CORE SIZE: BQ

DIP TESTS: 77.75m (255') -45°

Casing pulled



| | | |
|------------|--|--|
| 0-1.52m | CASING (0-5') | |
| 1.52-3.12m | 4b/ CARBONATIZED-CHLORITIC-SERICITIC PORPHYRY | Broken to rounded pieces of fgr. greenish-grey porphyry with feint sericitized plagioclase phenos in carbonatized, chloritic-sericitic matrix; also pieces of vuggy, dark green chloritized rock; 0.5 m GC. or lost core; some re-drilled core |
| 3.12-24.5 | 4b/d CARBONATIZED-CHLORITIC-SERICITIC PORPHYRY | Greenish-grey with beige alteration zones & patches up to 1 m. and as bands to several cm. wide about quartz-carbonate +/- chlorite veinlets (1-15 mm wide) which are scattered throughout; carbonatization is pervasive; ^{2%} quartz-carbonate veinlets are at CA 40-65°; mainly traces of disseminated Py; with local fracture fillings of Py; chloritic fractures at CA 15-20°, 30-40°, 60-70°; about 1% dark green chloritic, sub-angular to sub-rounded fragments 0.2-3 cm in size are scattered throughout; 10-20% sericitized plagioclase phenos are sub-angular to sub-rounded, 1-3 mm in size, disappearing in the beige alteration zones; gradational contact |
| 3.12-4.12 | | 1/2-1% Py disseminated as fracture fillings associated with chlorite-sericite & on quartz-carbonate veinlets @ CA 15-20°, 40-45° |
| 4.12-5.12 | | <1/2% Py disseminated & also associated with chloritic fragments |
| 5.12-6.12 | | 1/2% Py disseminated; beige alteration; veinlets quartz-carbonate |
| 6.12-7.12 | | 1/2% Py disseminated & fracture fillings @ CA 10-20°; beige alteration & quartz-carbonate veinlets |

| | | |
|------------|-------------|--|
| | 7.12-8.62 | < 1/2% disseminated Py, some with occasional quartz-carbonate veinlets; beige alteration |
| | 20.9 | Oxidized quartz-carbonate veinlets, 1cm wide @ CA 36; H ₂ O sens. |
| 24.5-26.47 | 4d / | BIEGE-PINKISH ALTERATION ZONE |
| | | More siliceous, less carbonate in matrix; few chloritic fragments; some chlorite in matrix, minor green mica; Traces of dissem Py & some Py with chloritic fracture fillings within 20 cm of Lamprophyre contact; |
| | 25.6-26.47 | f-2% quartz-carbonate veinlets ≤ 3mm wide @ CA 30-40°, 20-25° |
| | 26.47 | Contact with Lamprophyre @ approximately CA 60°; irregular but sharp. |
| 26.47-28.0 | 4f / | LAMPROPHYRE DYKE |
| | | Greenish-grey, fine, with chlorite phenocrysts ≤ 2mm size (2-5%); pervasively carbonatized; Trace Py, few carbonate veinlets; |
| | 26.53-27.37 | More strongly carbonatized with clots (≤ 5mm) of carbonate as well as some bands of beige carbonate; parts foliated @ CA 35-60°; few quartz-carbonate veinlets (≤ 2mm wide) at CA 45°, 60-65°, 15° |
| | 28.0 | Contact fairly sharp @ CA 70° |
| 28.0-35.06 | 4d / | PINK TO BEIGE-PINK SILICEOUS CARBONATE ALTERATION ZONE (WEAK TO NO. CARBONATE IN MATRIX) |
| | | Pink, more siliceous zones with more beige-pink zones; remnant chlorite patchy areas varying from several mm. to several cm.; also occasional chloritic fragments up to 5mm size; zone is cut by ≤ 5% quartz-carbonate veinlets 1-3mm wide at CA 15-20°, 35-45°, 50-60°; Trace - 1/2%, trace disseminated Py; local Cp in upper section. |
| | 28.0-29.8 | Relatively strong pink alteration; parts near massive, parts brecciated with chloritic matrix; local Cp disseminated within chlorite fracture fillings @ CA 20-25° & in chloritic patches. |
| | 29.8-35.06 | Mixed beige to pink alteration with remnant chloritic patches; quartz-carbonate veinlets & Py disseminated & with chloritic fracture fillings often @ CA 20-30° |
| | 35.06 | Contact with Main Derragh Vein somewhat undulating @ approximately CA 15° |
| 35.06-37.0 | | MAIN DERRAUGH VEIN |
| | | Minor disseminated Py, mostly with chlorite &/or sericitic fractures; vein is milky to locally translucent quartz + carbonate. |
| | 35.2-35.29 | several chlorite-carbonate veinlets (< 3mm wide) & ribbon mainly @ CA 20-25°, 30-35°; |

Cp

DDH. TL88-3

36.3-36.8 ^{20%} Sericitic fragments (a breccia) with a crude foliation in part @ CA 20° +/-; contacts of zone @ CA 45° (+/-) ≠ CA 60°

37.0 Vein contact @ CA 45°

37.0-40.1 4d/ PINK TO BEIGE SILICEOUS-CARBONATE ALTERATION ZONE (WEAK CARBONATE)
Mainly pink to pinkish; chloritized fragments - patches as remnants (5mm - several cm size); 5-15% anastomosing quartz-carbonate veinlets, 1mm - 2cm wide @ CA 20-30°, 40-50°, 60-70°; 1/2 - 1% disseminated Py ≠ Py with chloritic fracture fillings locally up to 5% over several cm.

39.6-40.1 Quartz-carbonate vein with sericite fracture fillings ≠ minor disseminated Py; vein appears brecciated in part; milky to greyish; contact @ 39.6 m @ CA 35°; contact @ 40.1 m in B.C. (broken core)

40.1-47.56 4d/ BEIGE TO PINKISH SILICEOUS-CARBONATE - CHLORITE-SERICITE ALTERATION ZONE (WEAK CARBONATE IN MATRIX)
Mainly beige to pale greenish-grey with pinkish patches ≠ bands (1-20cm) which are more siliceous; the greenish-grey areas have up to 20% hazy sericitized plagioclase phenos and a few green chloritic (≠ Py) sub-rounded fragments (or patches) ≤ 3cm size; 1/2% to locally 2% Py occurs as disseminations ≠ with chloritic fractures @ CA 5-10, 15-25°; 2% to locally 10% quartz-carbonate veinlets ≠ anastomosing veinlets 1-15mm wide @ CA 20-30°, 40-45°, 55-65°

40.1-40.80 Medium greenish-grey, chloritic-sericitic, carbonated, foliated @ CA 10-20° with 2% quartz-carbonate veinlets ≠ chlorite (some deformed by folding ≠ fracturing); contact @ 40.8 m @ CA 30° with 15mm wide quartz-carbonate veinlet with Epidote(?) - chlorite margin.

45.9-47.45 10% quartz-carbonate ≠ chlorite veinlets

47.56-61.68 4d/b BEIGE TO PINK SILICEOUS ALTERATION ZONE IN ALTERED PORPHYRY
Similar to unit above but more pale greenish-grey altered porphyry (plagioclase) zones (5-50cm) with ≤ 20% hazy to fairly distinct plagioclase phenos (sub-rounded to occasionally sub-angular) sericitic, 1-2mm in size in a sericite-chlorite matrix; few chloritized fragments ≠/or patches 1-3cm in size; 1-2% quartz-carbonate veinlets 1-20mm wide ≠ sometimes anastomosing scattered throughout; Trace to locally 1% disseminated Py ≠ some fracture fillings with chlorite; occasional weak carbonate in matrix
Minor green mica in beige alteration band

48.84

57.88-58.38 Pink-beige alteration zone flooded by quartz & parts cut by quartz-carbonate veinlets; some chlorite fracture fillings (+ Py); minor disseminated Py; contacts @ CA 60° & 40-45°; resembles portions of the Main Derragh Vein

61.68 Contact approximately at CA 30-35° between beige to pinkish alteration band (40cm wide) with green mica & altered porphyry below

61.68-73.35 4b 1/2 CARBONATIZED - SERICITIC - CHLORITIC PORPHYRY

Greenish-grey with up to 20% hazy to distinct, anhedral to subhedral, rounded to sub-angular, sericitic plagioclase phenos. set in a light to dark greenish-grey sericitic-chloritic generally carbonatized matrix; occasional chloritized fragments to 1cm in size; 1-2% scattered quartz-carbonate veinlets 1-10mm wide @ CA 15-30°, 45-60°, a few with disseminated Py; Trace to locally 1% disseminated Py, some with chloritic fractures

62.42-62.55 Beige siliceous alteration zone with 2cm quartz-carbonate veinlets @ CA 60°

73.35-77.75 4d/b CARBONATIZED - SERICITIC - CHLORITIC ALTERATION ZONE

Light to medium greenish-grey, carbonatized rock with occasional faint, plagioclase phenos (rounded); patchy light greenish-grey to white alteration; small clots, patches &/or rags of chlorite & Py throughout; scattered quartz-carbonate veinlets mainly 1-3mm wide at CA 5-15°, 35-45°, 50-60°; 1/2-1% disseminated Py (locally 2% Py); some Py on fractures @ CA 25°-30°, 45°

73.35 Sharp, irregular contact @ CA 45-65°
77.33-77.38 1cm wide quartz-carbonate & green mica veinlets @ CA 50° & 30°

77.75 End of Hole
(255')

Frank H. Toews B.Sc., F.G.A.C.
Geologist

SAMPLING & ASSAYING

DDH TL 88-3

| SAMPLE NO. | FROM | TO | LENGTH (meters) | Au (ppb) |
|------------|-------|-------|-----------------|-------------|
| TL88-3-1 | 3.12m | 4.12m | 1.0 m | 20 |
| -2 | 4.12 | 5.12 | 1.0 m | 20 |
| -3 | 5.12 | 6.12 | 1.0 m | 20 |
| -4 | 6.12 | 7.12 | 1.0 m | NIL |
| -5 | 7.12 | 8.62 | 1.5m | NIL |
| -6 | 24.47 | 26.47 | 2.0 m | NIL |
| -7 | 26.47 | 28.0 | 1.53m | 10 |
| -8 | 28.00 | 29.0 | 1.0 m | 1270 / 1300 |
| -9 | 29.00 | 30.0 | 1.0 m | 460 |
| -10 | 30.0 | 32.0 | 2.0 m | 30 |
| -11 | 32.0 | 34.0 | 2.0 m | 10 |
| -12 | 34.0 | 35.06 | 1.06 m | 210 |
| -13 | 35.06 | 36.06 | 1.00 m | 970 / 1000 |
| -14 | 36.06 | 37.0 | 0.94 m | 680 |
| -15 | 37.0 | 38.0 | 1.0 m | 250 |
| -16 | 38.0 | 39.0 | 1.0 m | 220 |
| -17 | 39.0 | 39.6 | 0.6 m | 60 |
| -18 | 39.6 | 40.1 | 0.5 m | 40 |
| -19 | 40.1 | 40.8 | 0.7 m | 30 |
| -20 | 40.8 | 41.8 | 1.0 m | 80 / 50 |
| -21 | 41.8 | 42.8 | 1.0 m | 50 |
| -22 | 42.8 | 43.8 | 1.0 m | 50 |
| -23 | 43.8 | 44.8 | 1.0 m | 30 |
| -24 | 44.8 | 45.8 | 1.0 m | 20 |
| -25 | 45.8 | 46.8 | 1.0 m | 20 |
| -26 | 46.8 | 47.56 | 0.76 m | 10 |
| -27 | 47.56 | 49.0 | 1.44 m | 10 |
| -28 | 49.0 | 51.0 | 2.0 m | 10 |
| -29 | 51.0 | 52.0 | 1.0 m | 10 |
| -30 | 52.0 | 53.0 | 1.0 m | 10 |
| -31 | 53.0 | 54.0 | 1.0 m | 10 |
| -32 | 54.0 | 56.0 | 2.0 m | NIL |
| -33 | 56.0 | 57.0 | 1.0 m | 10 |
| -34 | 57.0 | 57.88 | 0.88 m | NIL |
| -35 | 57.88 | 58.88 | 1.0 m | NIL |
| -36 | 58.88 | 60.0 | 1.12 m | NIL |
| -37 | 60.0 | 61.0 | 1.0 m | 10 |
| -38 | 61.0 | 61.68 | 0.68 m | NIL |
| -39 | 61.68 | 62.68 | 1.0 m | 10 |
| -40 | 62.68 | 63.69 | 1.0 m | NIL |
| -41 | 66.7 | 68.2 | 1.5 m | NIL |

SAMPLING & ASSAYING, ctd.

DDH TL88-3 ctd

| SAMPLE NO. | FROM | TO | LENGTH(meters) | Au (ppb) |
|------------|-------|-------|----------------|----------|
| TL88-3-42 | 72.35 | 74.35 | 2.0 m | 20/20 |
| -43 | 74.35 | 75.35 | 1.0 m | NIL |
| -44 | 75.35 | 76.35 | 1.0 m | NIL |
| -45 | 76.35 | 77.75 | 1.4 m | NIL |

DDH. * TL 88-4

DIP -60°

AZIMUTH 250°

LOCATION TOPBOOT LAKE, SWAYZE TP. (Derragh Trench), Claim 932196,
Approximate Coordinates Line 00+64mW/ 6+49mS

ELEVATION: 2-3 m above vein in Derragh Trench

STARTED: July 29/88

STOPPED: July 30/88

COMPANY: CAN-MAC EXPLORATION LTD.

PROPERTY: TOPBOOT LAKE

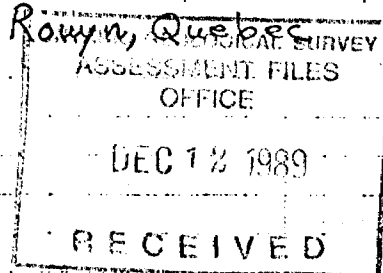
CONTRACTOR: Les Entreprises Jacques Rousseau, Rouyn, Quebec

LOGGED BY: Frank H. Toews

DEPTH: 99.4 meters (326 feet)

CORE SIZE: BQ

DIP TESTS: 99.4m (326') = 58 1/2° SE



Casing pulled

| | | |
|-------------------------|---|---|
| 0 - 5.18 m (0 - 17') | CASING | Sand, boulders; driller reported bedrock(?) ledge at about 4', then passed back into overburden |
| 5.18 - 10.7 | 4d/b GREEN CHLORITE - SERICITE - CARBONATE ALTERATION IN PORPHYRY | Pale greenish alteration with 20% patches & zones of pale to medium greenish-grey altered porphyry up to 10 cm in size with 10-20% rounded to sub-angular sericitized plagioclase phenos 1-5 mm in size set in a fine matrix of chlorite-sericite; plagioclase phenos are distinct to faint to invisible; carbonate is pervasive; few scattered, angular to sub-rounded, chloritized fragments 0.5-3 cm in size; Traces to < 1/2% disseminated Py occasionally with quartz-carbonate-chlorite veinlets which cut all rocks, are scattered throughout unit, vary from 1 mm to 3 cm in width & are oriented @ CA 40-50°, 15-20°, 30-35°, 60°; approximately 2-3% veinlets; contact is gradational with unit below |
| 10.7 - 16.16 | 4b/d ALTERED PORPHYRY WITH GREEN SERICITE - CARBONATE - CHLORITE ALTERATION ZONES | Medium to light greenish grey porphyry (& possible dioritic phases) with 20-25% pale greenish alteration bands & zones 1-30 cm wide; porphyry is similar to unit above with exception of dioritic?? phase; 2-3% quartz-carbonate-chlorite veinlets 1 mm - 1 cm @ CA 35-45°, 15-25°, 55°, 10°, cut all rocks; Traces Py; pervasive carbonate; |
| 13.7 - 14.3 | | Possible porphyritic (feldspar) diorite which is gradational |

into surrounding rocks; 5% white, rounded \pm 15% rounded feldspar phenos 1-2 mm in size, set in a light greenish-grey ^{gr.} matrix of feldspar-quartz-chlorite-sericite, occasional chloritic fragment; rock is affected by the beige alteration as well

16.6-23.8 4d/b GREEN SERICITE-CARBONATE-CHLORITE ALTERATION WITH SOME BEIGE SILICEOUS-CARBONATE ALTERATION \pm REMNANT ALTERED PORPHYRY

Pale greenish to greenish-grey with 5-10% beige to pale pinkish siliceous-carbonate alteration bands 2mm-10cm in width; occasional patches of remnant green-grey porphyry visible in the green alteration; scattered chloritic fragments, angular to rounded, \leq 2 cm in size; Trace to locally $\frac{1}{2}$ % disseminated Py; 2% scattered quartz-carbonate veinlets (with occasional chlorite \pm pyrite), 1-5mm wide @ CA 25-35°, 50-60°, 40-45°; occasional green mica is found in small remnant chloritic fragments(?) in the beige alteration \pm quartz veinlets which are contained by these bands

17.8-18.9 Beige alteration zone with Traces of Py and a 3cm wide quartz-carbonate vein with minor Py \pm minor green mica at CA 35° between 18.62-18.69m; occasional green mica in beige zone which contains some remnant porphyry

23.8 Gradational contact

23.8-38.2 4b/ GREEN-GRAY ALTERED PORPHYRY

Medium to medium-dark greenish-grey porphyry with 20-30% plagioclase phenos which are rounded to sub-angular, 1-3mm in size, pale greenish (sericitic) to occasionally white \pm are set in a f.gr. green-grey matrix of chlorite \pm sericite; rocks are carbonatized, with traces of Py; few scattered chloritic fragments which are angular to rounded, mainly 1-3 cm in size, \pm contain disseminated Py; one fragment is 17 cm long; \leq 1% quartz-carbonate \pm chlorite veinlets 1-5mm wide throughout @ CA 15-25°, 40-50°, 70°, 80°; contacts of rock unit are gradational into adjacent units

29.52-29.8 Beige siliceous-carbonate alteration zone with distinct contacts @ CA 40-45° \pm 45°, some remnant porphyry patches \pm minor green mica; zone is cross-cut by a 3cm wide quartz-carbonate-Py vein @ CA 30° \pm by 1-3mm wide quartz-carbonate veinlets @ CA 30-35° \pm 45-50° which also cross-cut the 3cm wide vein with $\frac{1}{2}$ % Py disseminations

36.15 Traces Cp in 3mm carbonate-quartz veinlet @ CA 45°

CP

| | | |
|--|-------------|---|
| | 37.0-37.3 | 1% Py with chlorite $\frac{1}{2}$ -carbonate $\frac{1}{2}$ -quartz veinlets @ CA 2°-15°; some beige patchy alteration present |
| | 38.2-52.1 | 4b/d GREEN PINK- CHLORITE-SERICITE-CARBONATE ALTERED PORPHYRY WITH BEIGE SILICEOUS $\frac{1}{2}$ -CARBONATE ALTERATION ZONES Approximately 20% of beige to pink siliceous $\frac{1}{2}$ -carbonate alteration as bands 0.5-4 cm wide and patchy zones with remnant porphyry \pm 50% medium ^{to light} green-grey porphyry zones with distinct to faint sericitized feldspar phenos in chloritic $\frac{1}{2}$ or sericitic matrix with variable carbonatization; scattered chloritic fragments angular to rounded 0.5-3 cm \pm occasionally 10 cm in size; Trace to locally $\frac{1}{2}$ % disseminated Py, sometimes associated with ^{scattered} chloritic fractures \pm chloritic fragments; 1-2% scattered quartz-carbonate ^{veinlets} 1-15 mm wide @ CA 25-35°, 50-60°, 10-15°; (more veinlets in lower part of unit) |
| | 37.0-37.33 | \leq 1% blebs, disseminated Py \pm disseminated Py \pm Cp in 1 cm chlorite-carb. @ CA 2°-5° |
| | 38.2-41.05 | 5-10% pink to beige siliceous-carbonate alteration patches and bands 0.3-3 cm wide @ CA 25-35° \pm 45-55° 38.69 minor disseminated Cp |
| | 47.77 | Green mica associated with chloritic fragments $\frac{1}{2}$ Py |
| | 48.24-48.33 | Foliated chloritic fragment @ CA 40-45° with disseminated Py \pm partly cut by chloritic fractures ($\frac{1}{2}$ Py) @ CA 25-35° |
| | 48.1-50.5 | Chloritic fractures ($\frac{1}{2}$ Py), sometimes anastomosing @ CA 25-35°, 40-45°, 15-20°, 2-5°; (\leq 9/10 cm) |
| | | 48.47 - similar to 47.77 m. |
| | | 49.31 - " " " |
| | | 49.86 - 5-10 mm wide light grey cherty veinlet with 2% quartz blebs, trains; veinlet @ CA 35-40°; minor Py margin |
| | 50.7-52.1 | 3-5% quartz $\frac{1}{2}$ -carbonate veinlets often associated with beige siliceous alteration haloes or bands; quartz veinlets are 1-5 mm wide, @ CA 40-45°, 50-60°, 20-30°; some veinlets are anastomosing \pm some are offset by chloritic $\frac{1}{2}$ -carbonate fractures |
| | | 51.17 - light grey cherty band \leq 5 mm wide at CA 40-45°, minor Py in band \pm wall rocks |
| | | 51.53-51.60 Quartz-carbonate vein with beige, sub-angular to rounded fragments; contacts irregular with beige host rock @ CA 40° \pm 60°; fracture fillings to ribbons of chlorite parallel \pm cut vein which has minor Py \pm some green mica |
| | | 51.60-51.68 chloritic veinlet, 2-8 mm wide @ CA 10-15° (oblique to Quartz vein) contains green mica near Quartz vein; chlorite veinlet shows a wispy termination \pm cross-cuts (offsets?) some quartz veinlets |
| | 52.1-52.55 | 4f/ LAMPROPHYRE? Well-foliated (CA 5-20°, sinuous?) greenish-grey, sericitic- |

Cp

Cp

| | |
|-------------|---|
| 52.1 | chloritic-carbonate alteration; Contact @ CA 35-45° partly overprinted by beige siliceous-carbonate alteration band 2cm wide (cross-cutting contact & foliation) @ CA 60°; This band is in turn cross-cut by 2mm wide quartz veinlet @ CA 15° which parallels the foliation |
| 52.35-52.53 | 15% anastomosing quartz & carbonate & chlorite ^{+Py} veinlets 1-15mm wide parallel to foliation & cross-cutting @ CA 30-40°, 50-60°; the cross-cutting veinlets are partly ptygmatically folded due to movement along the foliation |
| 52.51-52.55 | part of a fragment of pinkish siliceous alteration |
| 52.55-54.0 | MAIN DERRAUGH VEIN |
| 52.55 | Contact fairly regular at CA 45-50° |
| 52.55-52.81 | Quartz-carbonate vein; milky; sericite & chlorite veinlets & fractures; Trace Py; lower contact @ CA 50° |
| 52.81-54.0 | Brecciated beige to occasionally pinkish siliceous-carbonate alteration flooded by quartz & carbonate which also occurs as ^{later} veinlets 2-20mm ^{wide} some @ CA 35-50°, 15-20°; light green irregular sericitic veinlets are also present; Trace locally 1/2% disseminated Py |
| 53.4-54.0 | 1/2 to 1% disseminated Py |
| 54.0 | Contact irregular @ approximately CA 50° |
| 54.0-57.2 | 4d / BEIGE SILICEOUS-CARBONATE-SERICITE ^{-EPIDOTE?} ALTERATION ZONE (epidote?) Beige to very pale greenish with variable weak carbonate, local chlorite, occasional green mica associated with several 0.5-2cm chloritic fragments; 1/4-3% (locally) disseminated Py which also occurs in some fractures & chlorite; 5-10% quartz-carbonate veinlets 1-15mm wide, often anastomosing @ CA 25-35°, 40-50°, 65-70°, 5-15° and occasionally Py-bearing; larger veinlets contain wall rock fragments |
| 54.0-54.07 | Deformed quartz veinlets, Traces Py |
| 54.1-54.24 | Two pale greenish sericitic ^{epidote?} carbonated bands 2-4cm wide @ CA 55-60° |
| 54.65 | Pyritic fractures & chlorite @ CA 25° |
| 57.0-57.2 | Remnant chloritic patches in beige to pinkish groundmass |
| 57.13-57.23 | contact with lamprophyre? may be epidotized & is at CA 15° |
| 57.2-57.5 | 4f / LAMPROPHYRE? Altered to sericite-chlorite-carbonate; may be several rounded lathy amphibole crystals ≤5mm long altered to chlorite |

57.5 well-
 rock is foliated @ CA 15° to sub-parallel to CA;
 Possible epidotization at lower contact which is @
 CA 20°-35° (irregular); quartz veinlets cut contact
 & alteration

57.5- 77.55 4d/ BEIGE- PINKISH- PALE GREENISH SILICEOUS-CARBONATE- EPIDOTE-CHLORITE
 -SERICITE ALTERATION ZONE

Groundmass is variable with beige to slightly pink to pale
 green (epidotized) containing variable amounts (Nil to locally
 50%, average 15-20%) of chloritic patches, clots, flecks
 & occasionally 0.8-2.0 cm wide bands; patches are 0.5-1.0 cm size;
 disseminated & blebs Py often (but not always) show an association
 with the chlorite; Trace to locally 2% Py (average 1/2%);
 occasionally faint, rounded, sericitized plagioclase phenos?
 1-3 mm in size in the chlorite patches; 1/2% to locally
 5% (over 20cm) of quartz-carbonate (1/4 chlorite) are
 scattered throughout unit, in widths of 1-5 mm & occasionally
 up to 6 cm @ CA 15-20°, 25-35°, 45-50°, 60-70°; veinlets
 may occur as individuals or anastomosing groups

- 57.5-61.3 3-5% quartz-carbonate veinlets
- 61.37-61.44 Zone of quartz flooding in pinkish alteration plus 15 mm
 quartz-carbonate veinlet 1/4 chlorite 1/4 Py @ CA 55°
- 64.4 2-3 cm chloritic patch with 30% Py (massive-disseminated)
- 69.05-69.15 Quartz-carbonate vein 1/4 chlorite ribbons @ CA 45-50°;
 Trace Py yellowish-epidote (pervasive in felsic matrix but variable)
- 71.0- 77.06 More pale greenish alteration minor beige; more carbonate;
 74.77 2-3 cm quartz-carbonate-chlorite vein @ CA 30°
 with Py blebs (1-2%); vein is irregular; stronger Epidote over 20cm
 & occasional Py veinlet
- 73.27 Minor Cp with disseminated Py
- 75.0-75.16 Several 5-5 mm quartz-carbonate veinlets @ CA 30°
- 77.55 Contact fairly abrupt in that chlorite disappears & the pale
 greenish to beige matrix remains

77.55-84.8 4d/ PALE GREENISH TO BEIGE EPIDOTE-SILICEOUS-CARBONATE-
 -SERICITE 1/4-CHLORITE ALTERATION ZONE

(epidotized)
 Pale greenish to beige siliceous-carbonate-sericite alteration
 with 10% zones (10-15cm wide) with remnants of chlorite alteration
 as 2-10% chloritic grains & occasional darker patches; 1/2-1%
 disseminated Py & fracture fillings; a few scattered
 chloritic fragments 2-10 mm in size often with
 associated green mica; 1% scattered quartz-carbonate
 veinlets 1-10 mm wide at CA 15-25°, 35-45°, some with
 disseminated Py (see below for wider veins);

- 3p)
- 77.55 Minor Cp disseminations in 1-3 mm carbonate-quartz veinlets @ CA 15-20°; ^{few} ^{epidotized} Py blebs (≤ 2 mm) in wall rocks
- 78.55-78.67 Pale greenish ^{epidotized} siliceous, sericitic alteration + 1-2% Py fractures
- 78.67-78.75 Mixture of quartz-carbonate vein with sericite + ^{epidote?} shreds \pm 1/2-1% disseminated Py \pm a few Py fractures, vein contacts \pm foliation @ about CA 40°
- 78.75-78.85 Pale greenish ^{epidotized} siliceous, sericitic, carbonated (1/2) alteration with a few quartz-carbonate veinlets \pm minor Py
- 78.85-79.05 Quartz-carbonate vein with irregular boundaries containing rags to angular fragments of pale green siliceous, sericitic altered rock \pm 1/2% disseminations \pm fractures with Py
- 79.41-79.50 Quartz-carbonate vein @ CA 30-35° with 1/2-1% disseminated Py \pm fracture fillings parallel to contacts; some wall rock inclusions
- 79.65-79.9 Two 8-10 mm wide quartz-carbonate veinlets with some Py; veinlets @ CA 10°
- 80.2 Patchy areas with chlorite spotting begin
- 81.18-81.16 Quartz-carbonate vein with 1/2% (?) Py; contacts @ CA 20-25° \pm 35°
- 81.42 Quartz-carbonate vein 1.5-2.0 cm wide with minor Py and contacts at CA 30° \pm 40°; Green mica in chlorite fragments @ 81.45m
- 81.6-81.7 Irregular quartz-carbonate vein with 2% Py @ low angle to CA
- 83.71 Minor Galena + Cp in small quartz-carbonate patch near 5 mm veinlet
- 84.8 Contact @ CA 55° with unit below
- 84.8 - 86.94 Ad/MIXED PALE GREEN EPIDOTIZED TO BEIGE SERICITE-SILICEOUS-CARBONATE \pm GREEN CHLORITE ALTERATION ZONE
- Pale green to beige alteration similar to unit above; the green-chlorite-carbonate patches to bands are darker with more chlorite \pm sericite and vary from 2-15 cm in size often containing beige alteration veinlets \pm or bands within them; Trace to locally 1% Py disseminated in all rocks (1/2% average Py); 1-3% quartz-carbonate (1/2% disseminated Py) veinlets (\pm 5 mm) throughout @ CA 10-20°, 30-40°; occasionally ladder-like oblique to CA
- 88.6 Minor Galena + Cp in Carbonate fracture filling
- 86.8-86.94 Quartz-carbonate vein with fine Py fracture fillings parallel to sub-parallel upper contact @ CA 50°; near lower contact Py @ CA 70°; within vein Py fractures are oblique to vein contact @ CA 35°, 2-5°; the lower contact of vein is irregular with apophyses into unit below; \leq 1% disseminated Py in vein \pm in wall rocks; about 2% Py in vein
- 87.36 Minor Cp with disseminated Py in carbonate veinlet @ CA 40°

Gz+Cp

Gal-Cp

tz

DICK

Cp

86.94-91.15

4d/ BEIGE TO SLIGHTLY PINKISH TO GREENISH SILICEOUS-CARBONATE-CHLORITE-SERICITE ALTERATION ZONE

Rock is somewhat variable in patchy silicification & carbonatization; overall color is a ~~medium~~ medium to light greenish grey with zones having a slightly beige to occasionally faint pinkish cast; approximately 5-20% chlorite as small (<1-5mm) irregular clots, vags, spots in a pale greenish to beige to light grey ground mass of felsic minerals (feldspar?) - quartz(?) - carbonate-sericite) some blotchy pinkish to beige carbonate ≤ 5 mm in size; trace to locally 1% disseminated Py, sometimes with chloritic fractures; a few scattered, rounded-sub-rounded chloritic fragments 1-3cm in size; rock is moderately to strongly carbonatized especially near contact with diorite unit below; $\frac{1}{2}$ -1% quartz-carbonate veinlets (1% Py 1% chlorite) at CA 2-10°, 15-25°, 30-35° and 1-5 mm wide;

91.15

Contact with diorite is sharp, irregular with several embayments

91.15-99.4

4e/ DIORITE-CHLORITE-CARBONATE ALTERATION

Approximately 30% mafic
Rock has various shades of medium greenish-grey, f.gr. (1mm +/-); more or less equigranular; chloritized & faintly strongly carbonatized; scattered dark green, sub-angular to rounded chloritic fragments 0.5-5cm in size; Traces disseminated Py; $\frac{1}{2}$ -1% scattered quartz-carbonate 1% chlorite veinlets, 1-5 mm wide @ CA 15-20°, 25-35°, 65-70°, sometimes anastomosing

97.1

98.75-99.4

locally $\leq 1\%$ disseminated Py
More felsic & slightly coarser grained

99.4m (326')

END OF HOLE

Additional Cp observation during splitting of core

79.29-79.32

Minor disseminated Cp in carbonate patches ≤ 5 mm in size

Frank H. Toews B.Sc., F.G.A.C.
Geologist

SAMPLING & ASSAYING

DDH ● 88-4

| SAMPLE NO. | FROM | TO | LENGTH (meters) | Au (ppb) |
|------------|-------|-------|-----------------|----------|
| TL 88-4-1 | 17.8 | 19.0 | 1.2 m | 10 |
| -2 | 19.0 | 20.0 | 1.0 | Nil |
| -3 | 20.0 | 21.0 | 1.0 | 10 |
| -4 | 21.0 | 22.0 | 1.0 | 10 |
| -5 | 22.0 | 23.1 | 1.1 m | Nil |
| -6 | 28.5 | 29.5 | 1.0 m | Nil |
| -7 | 29.5 | 29.8 | 0.3 | Nil |
| -8 | 29.8 | 30.8 | 1.0 | Nil |
| -9 | 36.0 | 37.0 | 1.0 m | Nil |
| -10 | 37.0 | 37.5 | 0.5 | Nil |
| -11 | 37.5 | 38.5 | 1.0 | Nil |
| -12 | 38.5 | 39.5 | 1.0 | Nil |
| -13 | 39.5 | 40.5 | 1.0 | Nil |
| -14 | 40.5 | 41.5 | 1.0 | Nil |
| -15 | 41.5 | 42.5 | 1.0 | Nil |
| -16 | 42.5 | 43.5 | 1.0 | 20 |
| -17 | 43.5 | 44.5 | 1.0 | Nil |
| -18 | 44.5 | 45.5 | 1.0 | Nil |
| -19 | 45.5 | 46.5 | 1.0 | Nil |
| -20 | 46.5 | 47.5 | 1.0 | Nil |
| -21 | 47.5 | 48.5 | 1.0 | Nil |
| -22 | 48.5 | 49.5 | 1.0 | Nil |
| -23 | 49.5 | 50.5 | 1.0 | Nil |
| -24 | 50.5 | 51.5 | 1.0 | Nil |
| -25 | 51.5 | 52.0 | 0.5 | 60 |
| -26 | 52.0 | 52.55 | 0.5 | Nil |
| -27 | 52.55 | 53.40 | 0.85 | Nil |
| -28 | 53.40 | 54.00 | 0.6 | 370/270 |
| -29 | 54.0 | 55.0 | 1.0 | 130 |
| -30 | 55.0 | 56.0 | 1.0 | 40 |
| -31 | 56.0 | 57.2 | 1.2 | 90/140 |
| -32 | 57.2 | 57.5 | 0.3 | Nil |
| -33 | 57.5 | 58.5 | 1.0 | Nil |
| -34 | 58.5 | 59.5 | 1.0 | Nil |
| -35 | 59.5 | 60.5 | 1.0 | 10 |
| -36 | 60.5 | 61.2 | 0.7 | Nil |
| -37 | 61.2 | 61.7 | 0.5 | Nil |
| -38 | 61.7 | 62.7 | 1.0 | Nil |
| -39 | 62.7 | 63.7 | 1.0 | Nil |
| -40 | 63.7 | 64.7 | 1.0 | Nil |
| -41 | 64.7 | 65.7 | 1.0 | Nil |
| -42 | 65.7 | 66.7 | 1.0 | Nil |

● MPLING & ASSAYING ctd.

| SAMPLE NO. | FROM | TO | LENGTH (meters) | Au (ppb) |
|------------|-------|-------|-----------------|----------|
| TL88-4-43 | 66.7 | 67.7 | 1.0 m | Nil |
| -44 | 67.7 | 68.7 | 1.0 m | Nil |
| -45 | 68.7 | 69.3 | 0.6 m | 40/20 |
| -46 | 69.3 | 70.3 | 1.0 m | Nil |
| -47 | 70.3 | 71.3 | 1.0 | Nil |
| -48 | 71.3 | 72.5 | 1.2 | Nil |
| -49 | 72.5 | 73.5 | 1.0 | Nil |
| -50 | 73.5 | 74.5 | 1.0 | Nil |
| -51 | 74.5 | 75.5 | 1.0 | Nil |
| -52 | 75.5 | 76.5 | 1.0 | Nil |
| -53 | 76.5 | 77.5 | 1.0 | Nil |
| -54 | 77.5 | 78.55 | 1.05 | Nil |
| -55 | 78.55 | 79.50 | 0.95 | 70/90 |
| -56 | 79.50 | 80.5 | 1.0 | Nil |
| -57 | 80.5 | 81.0 | 0.5 | Nil |
| -58 | 81.0 | 81.7 | 0.7 | Nil |
| -59 | 81.7 | 82.7 | 1.0 | Nil |
| -60 | 82.7 | 83.7 | 1.0 | 10 |
| -61 | 83.7 | 84.8 | 1.1 | 20 |
| -62 | 84.8 | 85.52 | 0.72 | Nil |
| -63 | 85.52 | 86.52 | 1.0 | 10 |
| -64 | 86.52 | 87.02 | 0.5 | 50/60 |
| -65 | 87.02 | 88.0 | 0.98 | 10 |
| -66 | 88.0 | 89.0 | 1.0 | Nil |
| -67 | 89.0 | 90.0 | 1.0 | Nil |
| -68 | 90.0 | 91.15 | 1.15 | Nil |
| -69 | 91.15 | 92.15 | 1.0 | Nil |
| -70 | 92.15 | 93.15 | 1.0 | 10 |

Az. 250°

Elev. 0

10m

20m

30m

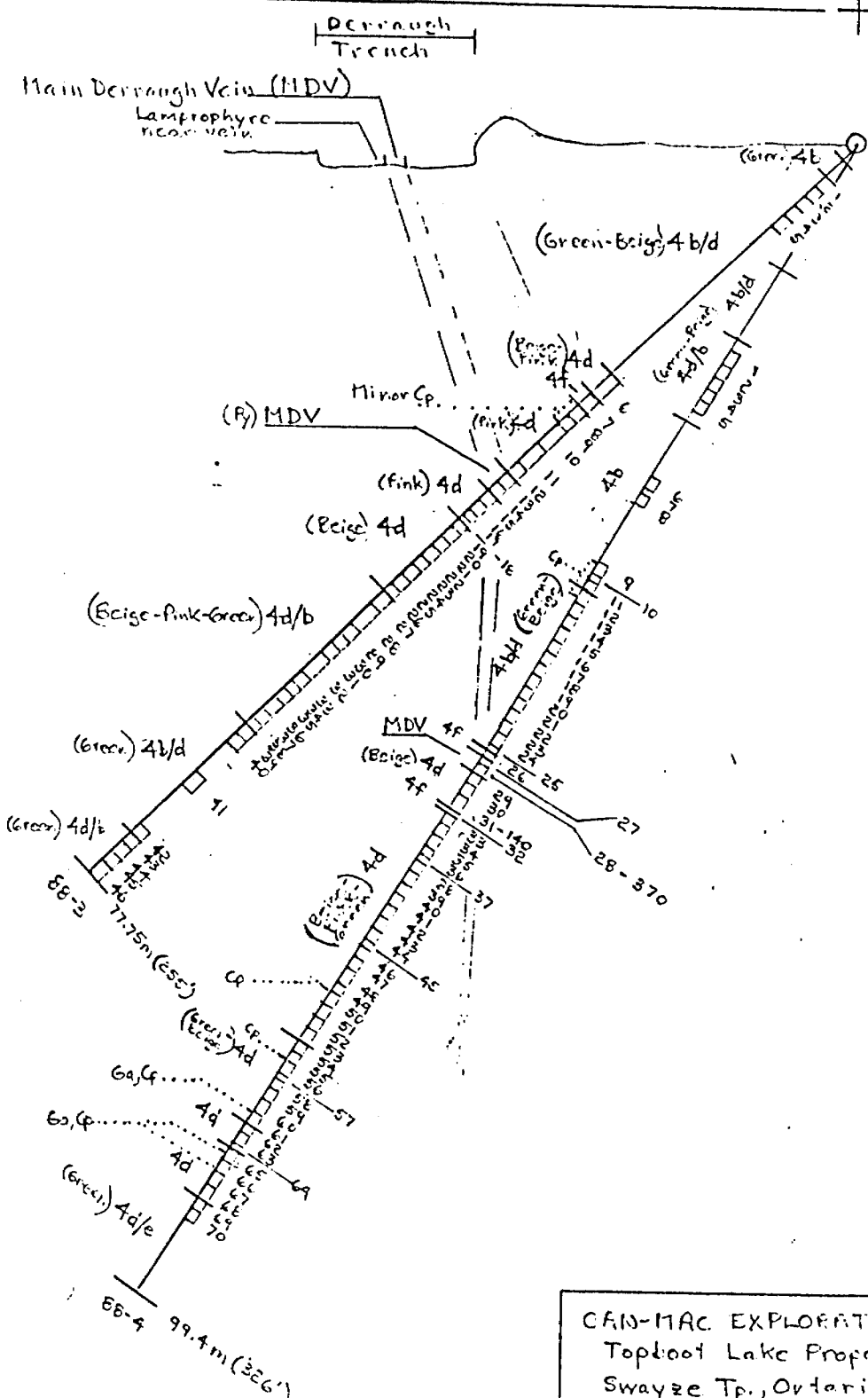
40m

50m

60m

70m

80m



CAN-MAC EXPLORATIONS LTD.
 Topfoot Lake Property
 Swayze Tp., Ontario

SECTION THROUGH
 D.D.H. TL88-3 & TL88-4
 (Derragh Vein)

Scale - 1:500

Date: July, 1980

Geological Engineering Services
 F.H.T.

DDH #: TL 88-5

DIP: -45°

AZIMUTH:

LOCATION: TOPBOOT LAKE, SWAYZE TP. (Derragh Trench); Claim 932196;
Approximately Line 00+62 m W / 6+93 m S

ELEVATION: 3-4 m above vein in Derragh Trench; ± 2 m above 88-1

STARTED: July 30, 1988

STOPPED: July 31, 1988

COMPANY: CAN-MAC EXPLORATION LTD

PROPERTY: TOPBOOT LAKE

CONTRACTOR: Les Entreprises Jacques Rousseau, Rouyn, Quebec

LOGGED BY: Frank H. Toews

DEPTH: 71.96 meters (236 feet)

CORE SIZE: BQ

DIP TESTS: 71.96 m (236') -43 1/2°

ONTARIO GEOLOGICAL SURVEY
ASSESSMENT FILES
OFFICE

DEC 1 1989

RECEIVED

Casing pulled

0-0.91 m
(0-3')

CASING

0.91-7.0

Ad/ BEIGE-PALE GREEN SERICITE-CARBONATE-CHLORITE SILICIFICATION
ALTERATION ZONE

Rocks have beige to pale green sericite-carbonate-feldspar groundmass with variable (0-10%) chlorite mainly as small clots, rags & occasionally a small (1 cm) patch of chlorite-rich material; the chlorite rags or streaks are often aligned parallel to the foliation @ CA 20-30° where present; carbonatization is pervasive from weak to relatively strong in the lower part of unit; silicification is variable being more extensive in the upper part of unit; Fgr. disseminated Py is present as Trace to locally 1/2% over ≤ 10 cm, mainly in wall rocks & minor amounts in some quartz-carbonate veinlets; locally see possible pale greenish, 1 mm ±, anhedral plagioclase phenos; Quartz-carbonate^{± chlorite} veinlets, 1-5 mm wide mainly, often irregular, anastomosing & sometimes deformed, are scattered throughout in amounts of 1/2% - 5% locally over 15-20 cm; a few veins are 1-2 cm wide; veinlets are oriented @ CA 10-15°, 25-30°, 50-55°, 65-70° & also sub-parallel to CA; veinlets^{often} cross-cut foliation when present; contact is gradational

0.91-2.0 m

Broken core, some re-drilled pieces; GC. approximately 25 cm; some of the BC due to oxidized vuggy carbonate-quartz veinlets @ CA 2-15°, 60-70°; some foliation @ CA 25-35°

2.0-2.11

2.0 m - some pieces of broken quartz-carbonate vein
Quartz-carbonate veinlet 1 cm wide along one side of core.
Some oxidation; minor Py; wall rocks silicified & have 1/2% Py

TL 88-5

| | |
|-------------|---|
| 2.75 m | Possible plagioclase phenos. |
| 4.62 | 1 cm Quartz-carbonate veinlet @ CA 20-30°; minor Py |
| 5.28-5.48 | Several 1-2 cm wide Quartz-carbonate veinlets plus Silica-carbonate flooding & brecciation of wall rocks; one central relatively good "vein" @ CA 55°; contacts of zone are @ CA 55° & 35° (oblique to each other) |
| 5.64-6.05 | Minor chloritic fractures; Traces of Py 3% Quartz-carbonate & chlorite veinlets irregular @ CA 25-50°; veinlets cut foliation (@ CA 30-35°) and are also partly offset by it; at offsets get chlorite concentrated in places; ≤ 1/2% Py in wall rocks; some carbonate is oxidized near oxidized chloritic fracture @ CA 25° @ 5.9 m |
| 6.0-6.5 | Foliation @ CA 20-30° |
| 7.0-15.15 m | 4d/b GREEN SERICITE-CHLORITE-SILICEOUS-CARBONATE-EPIDOTE ALTERATION ZONE (Epidote in part) Rocks are medium greenish-grey to pale green, to locally somewhat beige; light greenish-grey to pale green f.g.r. sericite & siliceous carbonate groundmass with clots, vags & patches (≤ 10 cm) of chloritic ^{1/2% carbonate} material, sometimes showing anhedral to rounded plagioclase phenos ≤ 1 mm; the groundmass also occurs as bands (≤ 10 cm) @ CA 25-30, 50-60°; Trace-1/2% of f.g.r. disseminated Py; occasional rounded chloritic fragment 1-3 cm size; scattered 1-5 mm carbonate-quartz veinlets-gashes (occasional both) |
| 7.9-11.95 | 3-5% carbonate-quartz veinlets & gashes @ CA 60-70, 50-55, 35-45, 15-25°; cut all rocks; barren of sulfide |
| 10.35-10.90 | barren, vuggy, oxidized quartz-carbonate veinlets |
| 11.87-11.95 | as above |
| 12.8-13.8 | less than 1/2% to locally 2% disseminated Py + occasional fracture @ 25° |
| 13.80-13.88 | Shear zone @ CA 35-40° & 45-50°; partly oxidized, sericite-chlorite-carbonate with 1/2% disseminated Py; (some G.C. here); few quartz-carbonate veinlets & gashes parallel to cross-cutting foliation; one is partly folded; a few gashes sub-perpendicular to the lower contact & cross-cutting the foliation (CA 45°) in the wall rocks below shear zone. |
| 13.88-14.05 | Foliated (shear) @ CA 45-50°; oxidized @ 14.02 m; Trace to 1/2% disseminated Py |
| 12.65-15.02 | Foliation @ CA 25-30°; in places appears to be cut by groundmass alteration bands @ CA 60° |
| 15.05-15.15 | More siliceous & more epidote(?); cut by carbonate veinlets |
| 15.15 | Very irregular sharp contact @ about CA 35° |
| 15.15-27.48 | 4b/d GREEN CHLORITE-CARBONATE-SERICITE ALTERATION ZONE Medium to light greenish-grey; relatively massive; f.g.r. |

- with local zones of pale green to beige? alteration patches & bands 1/2 to locally 3-5% carbonate-quartz-chlorite veinlets, 1-5mm wide @ CA 60-70°, 5-15°, 30-35°; local Py disseminated & fracture filling; carbonate is pervasive but variable
- 15.15-17.94 Darker, ^{greenish-grey} more chloritic with scattered remnant greenish sericitic, angular to rounded plagioclase phenos ≤ 3 mm in size; rock gradually becomes a lighter shade of greenish-grey, & more sericitic (?)
- 17.7-17.94 pale greenish, somewhat banded to patchy sericitic, more siliceous alteration with several quartz-carbonate-chlorite veinlets ≤ 5 mm wide, @ CA 50-55°, 65° 15-20°, 30-35°
- (Small 4b - possibly) 17.94-19.17 (4b) Rock gradually becomes light greenish grey with $\leq 20\%$ greenish, sericitic plagioclase phenos which are 1-2mm in size, rounded, faint to fairly visible; occasional chloritic fragment 0.5-2.0 cm in size
- 18.65-19.1 $\leq 1\%$ Py as small blebs, disseminations often in or adjacent to quartz-carbonate-chlorite veinlets (1/2 pale green alteration haloes) @ CA 20-25°, 35-40°
- 19.17 Contact is fairly sharp but irregular @ about CA 25-30° with section below
- 19.7-20.4 Similar to 7.0-15.15m (4d/b); several quartz-carbonate-chlorite veinlets 3-10mm wide @ CA 20, 50 & 70° plus few 1-2mm wide carbonate-quartz veinlets & gashes @ CA 15-25°, 35-40°; 1/2% Py as disseminations & occasional fracture filling @ CA 15°;
- 20.2m - fracture with chlorite-carbonate-epidote(?) irregular but sub-parallel to CA, continuous to 20.77m; gradual lower contact
- 20.4-27.48 Similar to 15.15-17.94; 2% carbonate-quartz veinlets & gashes 1-2mm wide @ CA 55-65°, 30-40°, 15-25°
- 23.0-24.42 carbonate-quartz veinlet 2mm wide @ CA 0-10° with bleaching halo; veinlet cross-cuts other carbonate-quartz veinlets & gashes;
- 22.84 bleb Py, 1cm long
- 23.71 quartz-carbonate chlorite veinlet 5mm wide @ CA 60° with bleaching
- 25.06 quartz-carbonate chlorite veinlet 1cm wide @ CA 65° with bleaching
- 25.65 quartz-carbonate chlorite veinlet 5-10mm wide @ CA 40° with bleaching; chlorite parallels & cross-cuts veinlet
- Rock gradational into unit below; difficult to delineate a contact
- 27.48-33.2 4d/b GREEN CHLORITE-CARBONATE-SERICITE ALTERATION ZONE
- Darker to medium greenish-grey; matrix or ground mass

(More sericite?)
 becomes increasingly lighter greenish in proportion to the darker patchy chloritic material which also occurs as rags & spots; patches ≤ 4 cm with some remnant plagioclase phenos visible; 1-2% carbonate-quartz & quartz-carbonate-chlorite veinlets & gashes 1-5 mm, cut all phases of alteration @ CA 50-60°, 15-25°, 30-35°; Traces of Py

28.5-28.85 1-2 mm quartz-carbonate veinlets @ CA 5-10° with bleaching halo, in places appears to be cut by carbonate-quartz veinlets @ CA 50-60°

32.95-33.0 minor disseminated Py associated with carbonate veinlet wall rock & chloritic patch

30.36 Py, Cp on margin of 5 mm quartz-carbonate veinlet @ CA 35-40°

30.53-31.3 Chlorite $\frac{1}{2}$ carbonate fracture @ CA 0-10° with Py $\frac{1}{2}$ Cp

33.2 contact: gradational

(Cp)

33.2 - 36.3 4d/b PALE, GREENISH (EPIDOTIZED IN PART) TO SLIGHTLY BEIGE SILICEOUS - CARBONATE-SERICITE-CHLORITE ALTERATION ZONE

Pale greenish (Epidotized) to slightly beige, f.g.m. altered groundmass containing ^{20-25%} patchy bands (≤ 20 cm) and patches (≤ 5 cm) of dark-med. green-grey chloritic ^{carbonate} material, some with distinct to feint sub-angular to rounded slightly greenish plagioclase phenos 1-4 mm in size; also chlorite spotting; 1% quartz-carbonate $\frac{1}{2}$ chlorite & carbonate-quartz veinlets & gashes 1-5 mm wide @ CA 20-25°, 40-50°, 60° cut all alteration; the groundmass is variably siliceous; Trace to locally 1% disseminated & small blebs & fracture fillings of Py, partly associated with wall rocks & quartz-carbonate veinlets, partly with chloritic alteration & also in the groundmass; Py grains ≤ 1 mm size; a few of the pyritic fracture fillings @ CA 35-45° appear to cross-cut some of the quartz-carbonate-chlorite veinlets around 35.7 m

(Cp)

35.3 Minor Cp with 1% disseminated Py in chloritic veinlet @ CA 20° & wall rocks

36.3 Contact fairly distinct but very locally gradational @ CA 25° with 1% disseminated Py oriented parallel to contact & a Pyritic fracture filling @ CA 30-35° oriented oblique to the contact within 1 cm of the unit below.

36.3 - 47.9 4b/d GREENISH-GREY SERICITE-CARBONATE-CHLORITE ALTERED PORPHYRY WITH BEIGE-PALE GREENISH SILICEOUS CARBONATE ALTERATION

Medium to light greenish-grey sericitic $\frac{1}{2}$ carbonate $\frac{1}{2}$ chlorite groundmass with up to 25% rounded to occasionally sub-angular, slightly greenish ^{to white} plagioclase phenos 1-2 mm in size & appearing feint to quite distinct; scattered rounded to angular chloritic fragments 0.5-2 cm in size occasionally with a 1 mm

wide reaction rim; $\leq 1/2\%$ fragments (one is felsic) bands of pale greenish to beige siliceous carbonate up to 27 cm wide in one case, but mainly 0.2-3 cm wide & often cored by 1-5 mm wide quartz-carbonate & chlorite veinlets which occasionally can be seen to cross-cut the alteration bands; Trace to locally ($\leq 10\text{cm}$) 2-3% Py as dissemination & fracture fillings in the host rock, the alteration bands & associated with some of the quartz-carbonate veinlets; in the vicinity of 43.15 m minor disseminated Cp + Py is also found in or adjacent to a couple of quartz-carbonate-chlorite veinlets; 1-5% quartz-carbonate & chlorite veinlets are @ CA 55-65°, 40-50°, 30-35°, 15°; pyritic fracture fillings can also be found in these orientations; 1/2-1% Py on average

37.7 Pale greenish to beige alteration band 2-3 cm wide @ CA 15° containing sub-parallel to crosscutting quartz-carbonate-chlorite veinlet 3-5 mm wide; also 2-3 mm wide veinlet 1/2 Py @ CA 30° cross-cuts alteration band; $\leq 1\%$ disseminated Py within band and in wall rocks

38.5-38.77 Similar alteration band to 37.7 m with 3 cm wide quartz-carbonate-chlorite veinlet @ CA 55-60° containing wall rock fragments & some disseminated Py plus fracture fillings with chlorite-Py; alteration band contains one hazy, faint porphyritic patch-band and 1-2% Py as disseminations & fracture fillings @ CA 40°, 70°, 50° as well as several other quartz-carbonate-chlorite veinlets 1-2 mm wide; upper hazy contact of band @ CA 50-55°; lower contact hazy (plus offshoot) @ CA 60-65° which is cross-cut by Py veinlet @ CA 45° (Py veinlet also cross-cuts a 1-2 mm wide quartz-carbonate-chlorite veinlet @ CA 60° near lower contact)

39.45-40.25 1 mm quartz-carbonate veinlet sub-parallel to CA with beige halo intersecting 10+ alteration bands 0.5-3 cm wide with quartz-carbonate 1/2 Py cores @ CA 60-70°; at 39.46 m a 3 cm-wide band contains quartz-carbonate-chlorite veinlet 2-3 mm wide with Py & an adjacent 1 cm. long fragment altered to green mica & Py in fractures in the fragment

40.8-41.3 12 (+) Pyritic fractures 1/2 Chlorite cut some alteration bands & quartz-carbonate veinlets

41.95-43.1 Scattered Py-chlorite fractures

43.1-43.25 Several 2-5 mm wide quartz-carbonate-chlorite-pyrite veinlets & gashes @ CA 25°, 60-70° & irregular; one @ CA 25° & one @ CA 70° also contain several Cp grains; 1/2-1% Py in fractures & disseminations in zone wall rocks

Cp

Cp 39.7m

Cp

43.25-47.9 Distinct plagioclase phenos are often in more patchy to banded zones 10-20 cm in length with faint to non-existent phenos in the intervening areas; quartz-carbonate veinlets decreasing to $\frac{1}{2}$ -2% locally; still have trace to 1% Py as disseminations & scattered fracture fillings $\frac{1}{2}$ -chlorite @ CA 25-35°, 40-50°, 60°, 70°, 85°; scattered beige to pink-pale greenish alteration bands 2 mm to several cm wide $\frac{1}{2}$ -quartz-carbonate cores @ CA 50-60°, 70°, 20-25°
 45.2-45.3 Chlorite-sericite-epidote fracture @ CA 5° with Cp, Py smear
 45.95 Rounded f.g. felsic fragment with chlorite flecks & 1 mm chloritic reaction rim, partly cut by quartz veinlet
 47.9 Gradational Contact

47.9-53.40

4d/ PINK-BEIGE SILICEOUS-CARBONATE-SERICITE & CHLORITE ALTERATION ZONE

pervasive but variable

Pale pink to beige siliceous-carbonate alteration as bands, patchy to more massive zones (≤ 2 m size) containing remnant hazy patches ($< 10\%$) of medium to light grey-greenish-grey porphyritic rock with fairly distinct to faint, rounded to occasionally sub-angular, white to slightly greenish plagioclase phenos 1-2 mm in size & up to 20% by volume in a f.g. groundmass; $< 1\%$ scattered, rounded to sub-angular chloritic fragments < 1 to $\frac{3}{4}$ cm in size; 1-3% quartz-carbonate $\frac{1}{2}$ -chlorite veinlets & gashes 1-5 mm wide, uniform to more irregular in shape @ CA 65-75°, 45-50°, 25-35°, 5-10°, sometimes forming stockworks of narrow veinlets; $\frac{1}{2}$ -1% (locally) disseminated & fracture fillings ($\frac{1}{2}$ -chlorite) of Py sometimes occurring as small blebs (< 5 mm); Pyritic fractures @ CA 55-60°, 35-45°, 20-25°;
 Shear zone, 5 cm wide at contact with Main Derragh Vein

47.9-49.0

More banded to anastomosing veins of pink-beige siliceous-carbonate alteration which is not always cored by quartz-carbonate $\frac{1}{2}$ -chlorite veinlets; this leaves patches of porphyritic rock with medium to light greenish-grey to light grey rock; sometimes plagioclase phenos fairly distinct in the siliceous-carbonate alteration bands; occasional wider quartz-carbonate veinlet contains small angular fragments of altered wall-rocks; Trace to $\frac{1}{2}\%$ Py as disseminations & fracture fillings

49.0-50.65

Near massive, beige, with few vague grey faintly porphyritic patches several cm. in size; few scattered

- chloritic fragments; $\approx 1\%$ quartz-carbonate veinlets & gashes; some plagioclase phenos still visible in parts of beige groundmass; $\frac{1}{2}\%$ disseminated & fracture fillings with Py; occasional spot of green mica
- 49-49.8 5% clear rounded quartz grains 1-2 mm in size
- 49.3 4 cm patch of quartz-carbonate & Py with apophyses; green mica associated with typical fracture adjacent
- 50.55-50.65 2% Py disseminated; 1 mm (+) size grains
- 50.65-52.9 Patchy light greyish areas with plagioclase phenos visible; 1-2% quartz-carbonate & chlorite veinlets, gashes; $\frac{1}{2}\%$ Py disseminated plus fracture fillings; few chloritic fragments
- 52.9-53.35 Appears more pinkish; cataclastic; upper contact about @ CA 80° where chloritic fractures (+ Py) brecciate rock ^{+ quartz veinlets} over 1 cm width; some faint plagioclase phenos visible in patches; $\frac{1}{2}$ -1% disseminated Py & Cp in fractures @ CA 15-40°; $\approx 3\%$ ≤ 2 mm quartz-carbonate gashes & veinlets @ CA 30-70°; may be some silica flooding; rock more siliceous within 7 cm of shear zone below; rock part of vein?
- 53.35-53.40 Shear Zone - Medium to light greenish-grey, cataclastic, with felsic fragments ≤ 1 mm to occasionally 1 cm; fragments are rounded to ^{very pale yellowish-green} avoid to angular, set in a wispy matrix of chlorite, sericite & epidote(?) ^{threads}; some fine disseminated Py & Cp; rock is foliated @ CA 65°-50° which deforms and offsets some irregular quartz-carbonate veinlets 1-3 mm wide & which appear to cross-cut the foliation which in turn cross-cuts the veinlets; upper contact of shear zone is regular @ CA 70° while lower contact is more irregular @ about CA 50°-60°; some of the fine sericitic-epidote(?) chloritic threads penetrate the contact & enter the Main Derrough Vein below
- 53.40-53.96 MAIN DERROUGH VEIN ZONE
- 53.40-53.66 No quartz vein proper but extensive, white-grey patchy quartz flooding with pinkish to beige alteration patches & clots; fine crackle fracture fillings of carbonate & chlorite; fine, pale green, wispy sericitic shears impart a foliation @ CA 20-45° in places; $\frac{1}{2}\%$ to locally 1% disseminated Py, < 1 mm to 2 mm size grains; lower contact @ about CA 65° (broken core)
- 53.66-53.71 Pale yellow quartz vein: originally white quartz (+ feldspar?) now

altered to a pale yellow color due to patchy staining by pale yellow Epidote(?); vein is altered by 5% anastomosing, late quartz ± chlorite veinlets, ≤ 1mm wide & in the lower part by very fine ragged, horsetail-like, chloritic veinlets emanating from the brecciated zone below; Contact about CA 65°

Darkly Wall rock(?)

53.71-53.74

than

Quartz & pale yellowish Epidote alteration similar but softer than above and with fine ^{black} chlorite spotting; in addition the quartz is finely brecciated by numerous fine black, anastomosing chlorite veinlets & cut by 10% wispy threads of pale yellowish Epidote; a gross foliation results @ about CA 65-70°; some carbonate present

53.74-53.88

Similar to 53.71-53.74 but chlorite veinlets less dense, host rock is felsic & siliceous to 53.78 (quartz + feldspar(?)) + some carbonate with an overall pale yellowish-grey color & cataclastic appearance with a gross foliation @ about CA 50°; pale yellowish, wispy Epidote threads throughout; rock is cut by 5-10%, 1-2mm to locally 5mm wide ^{white} quartz ± carbonate ± chlorite veinlets (possibly of more than one generation) some of which are regular @ CA 30° and others irregular, somewhat pyroclastically deformed (possibly along foliation planes) @ about CA 15° (earlier phase of veining?); a 2-5mm wide, white quartz veinlet with some transverse chlorite fracturing occurs along the contact with unit below; this veinlet is partly broken up & an apophyses ≤ 1mm wide @ CA 70° crosses the contact which appears to be partly gradational

53.88-53.98

Rock is more homogeneous, felsic (Qz + Fsp + Carb), f. gr.; foliated @ about CA 55° (oblique to lower contact); light-medium patchy grey with a pale yellowish cast due to Epidotization as very fine shreds of pale yellow epidote & some coarser apple-green epidote; chlorite is also present as very fine fractures & peppering; few flakes of sericite; several 1-2mm white quartz-chlorite veinlets @ CA 60° & 2-5° & one tapered, 12mm long translucent quartz veinlet < 1mm wide parallel to CA 60° veinlets & containing f. gr. Galena & minor Cp

53.98m - lower contact sharp @ CA 75° with white-grey quartz-carbonate veinlet occupying most of contact with pink alteration zone below; pale yellowish Epidote selvage along contact as well as minor Py; few shreds of pale yellow epidote penetrate pink alteration zone adjacent to contact

53.98-54.76

Ad/

PINKISH SILICEOUS-CARBONATE ALTERATION ZONE

Pinkish-grey cast with patchy to banded slightly deeper pink siliceous-carbonate alteration; some

Gal + Cu

TL 88-5

chloritic spots; some feint to fairly distinct, rounded white to beige-pinkish plagioclase phenos, 1-4 mm in size in patchy areas; pink bands up to 3 cm wide are oriented @ CA 15-25 with some 1-2 mm oblique pink veinlets @ CA 40°; 1-2 mm wide quartz-carbonate $\frac{1}{2}$ chlorite veinlets parallel & cross-cut the bands as well as the pink veinlets; quartz-carbonate veinlets (<5%) are @ CA 15-25°, 50-55°, 35-40°; some are gashes; $\frac{1}{2}$ % to locally 2% Py is disseminated in all rocks sometimes in chlorite & epidote & sericite fractures @ CA 20°, 30°, 55-60°
gradational contact

54.76

54.76 - 57.53 4d/ BEIGE

SILICEOUS-CARBONATE ALTERATION ZONE ^{-SERICITE-CHLORITE} (in ^{altered?} porphyritic Diorite)

Patchy to banded beige to slightly pinkish siliceous-carbonate alteration in a light to medium greenish-grey rock (diorite?) with 5% (?) spots & occasionally acicular blades of chlorite (after amphibole?) up to 2 mm long along with feint white to beige rounded to sub-angular plagioclase phenocrysts 1-4 mm in size in a fine felsic matrix with sericite; alteration bands are @ CA 2-15°, 40-55°, cored by & cut by quartz-carbonate veinlets < 1 to 3 mm wide; the alteration bands are often intersecting; Py is disseminated in all rocks & occasionally in quartz-carbonate veinlets in amounts of < $\frac{1}{2}$ % to locally 1%.

Ca-Py

55.45

Disseminated Py & a coating of Galeua partly covers a fracture @ CA 15° with some chlorite & sericite near the intersection with another conjugate fracture $\frac{1}{2}$ quartz-carbonate @ CA 15°; the first fracture is along an apophyses of the beige alteration zone below.

55.53-56.85

Beige alteration zone with patches of host rock; zone is probably sub-parallel to CA; Trace to locally 1% disseminated Py; zone cut by 2-3% quartz-carbonate veinlets, 1-2 mm wide @ CA 40-50°; some sericite-epidote fractures @ CA 15-25°; lower contact is a band < 1 cm wide sub-parallel to CA with cross-branches which extends to 57.1 m

57.4-57.53

Beige alteration band with hazy boundaries @ about CA 55° with 55 mm wide quartz-carbonate veinlet @ about CA 60°; band contains patch of host rock; < 1% disseminated Py in band, minor Py in veinlet and several chlorite-pyrite fractures @ CA 45°, 60-65° one of which appears to be cut by quartz-carbonate veinlet & another enters unit below

57.53

Somewhat gradational contact

57.53-63.65 4d/e CARBONATE-CHLORITE-^{SERICITE} ALTERED ZONE (IN? DIORITE - PORPHYRITIC)
WITH SOME SILICEOUS-CARBONATE ALTERATION

Medium greenish-grey carbonatized (variable, pervasive) with 5% chlorite spotting & sometimes acicular (after hornblende?); scattered beige to pale greenish, rounded plagioclase phenos ≤ 5 mm in a f.g.r. matrix of plagioclase & sericite; local beige siliceous carbonate alteration; scattered rounded chloritic (+P) fragments 0.3-1 cm & occasionally 3 cm; 1% to locally 5% quartz-carbonate-chlorite-Py veinlets 1-5 mm in size @ CA 30-40, 50-60, 15-25; Py is disseminated & can occur with chloritic fractures @ CA 50-55, 35-45; 1/2% to locally 2%.

57.75

Py fracture @ CA 75°, ≤ 1 mm wide

57.8-58.2

About 20 carbonate-quartz veinlets < 1 to 2 mm wide @ CA 50-60; at 58.1 m a conjugate(?) veinlet 2-5 mm wide @ CA 60-65° cross-cuts several of the previous set; this veinlet & the immediate wall rocks contain about 15% Py blebs, disseminations.

58.6-58.8

Several 1-2 mm veinlets of beige alteration @ CA 2-15°

59.85

Quartz-carbonate veinlet 8-20 mm wide @ CA 55-60 with angular wall-rock inclusions; minor disseminated Py which may be related to a fracture sub-parallel to CA which the veinlet cuts(?)

60.65-60.8

Bands (≤ 6 cm wide) of beige siliceous-carbonate alteration with hazy boundaries @ CA 65°, cut by & cored by quartz-carbonate +/- chlorite veinlets 1-5 mm wide @ CA 45-55, 65-75; 1/2% disseminated Py & also in a cross-cutting chloritic fracture @ CA 35°; one veinlet with minor Py, Cp @ CA 70-75°

60.95

≤ 1 cm wide quartz-carbonate veinlet @ CA 35°

61.65

1-2 mm Py-chlorite veinlet

62.81-63.55

Sinuuous Carbonate-chlorite +/- Py + Cp(?) fracture &/or veinlet @ sub-parallel to CA; intersects a 1-5 mm wide, branching quartz-carbonate-chlorite-Py veinlet @ CA 2-20° which runs from 62.22-63.55; 1/2% Py blebs, dissemination in wall rocks

63.65-64.23

4d/ BEIGE

SILICEOUS-CARBONATE ALTERATION ZONE

Massive; f.g.r.; beige; 1/2-1% disseminated Py; cut by 2-3%, ≤ 1 mm wide quartz-carbonate +/- chlorite veinlets with some associated Py @ CA 35-50° & one sub-parallel to CA; one 5 mm wide quartz-carbonate-chlorite-Py veinlet @ CA 75° with some Epidote; Py fracture filling @ CA 40° at 64.24 m; Contacts are hazy @ CA 10-15° & @ 5-10°

64.23-96

4d/e CARBONATE-CHLORITE-SERICITE ALTERED ZONE (IN ? DIORITE-PORPHYRITIC)

- As for 57.53-63.65 but with some darker sections
- 64.53 4cm x 2cm ovoid chloritic fragment
- 65.65 Py-Chlorite veinlet @ CA 30°
- 65.55 1-2 mm wide quartz-carbonate-epidote(?) - Py veinlet @ CA 20-25°; may have narrow beige alteration halo
- 64.73-66.52 2mm wide quartz-carbonate veinlet sub-parallel to CA
- 66.08-66.65 Seven Py-chlorite fracture fillings ≤ 0.5 mm wide @ CA 35-45°, 55-60°
- 66.8 2-3 cm. wide Quartz-carbonate chlorite veinlet in broken core; some Epidote & disseminated Py; one contact (upper) @ CA 40-45° with Py margin in part, Epidote alteration veinlets in wall rock; plus disseminate & a fracture filling with Py @ CA 65° in wall rocks.
- 67.75-68.3 3-5 mm wide carbonate-quartz veinlet @ CA 10°
- 71.84-71.96 Less carbonatized, more granular f.gr (1-2 mm) diorite with some plagioclase phenos ≤ 3 mm; rock is predominately feldspar with chlorite-sericite in matrix; on possible hornblende pheno 2-mm size; contact is bleached compared with the medium-greenish-gray of the rock; contact @ CA 10° mainly; few Py grains.
- 71.96 (236') End of Hole

Additional Cp observations during core splitting

- 39.7 Local disseminated Cp associated with chlorite in carbonate-quartz veinlet @ CA 70°
- 53.71-53.74 < 1/2% disseminated Py, Cp
- 56.8 Cp smears on contact of carbonate veinlet @ CA 45-50° & some Cp surrounds a few Py grains in wall rock
- 61.79 Chloritic fracture @ CA 40-45° with disseminated Py + minor Cp

Frank H. Tewa B.Sc., F.G.A.C.
Geologist

SAMPLING & ASSAYING

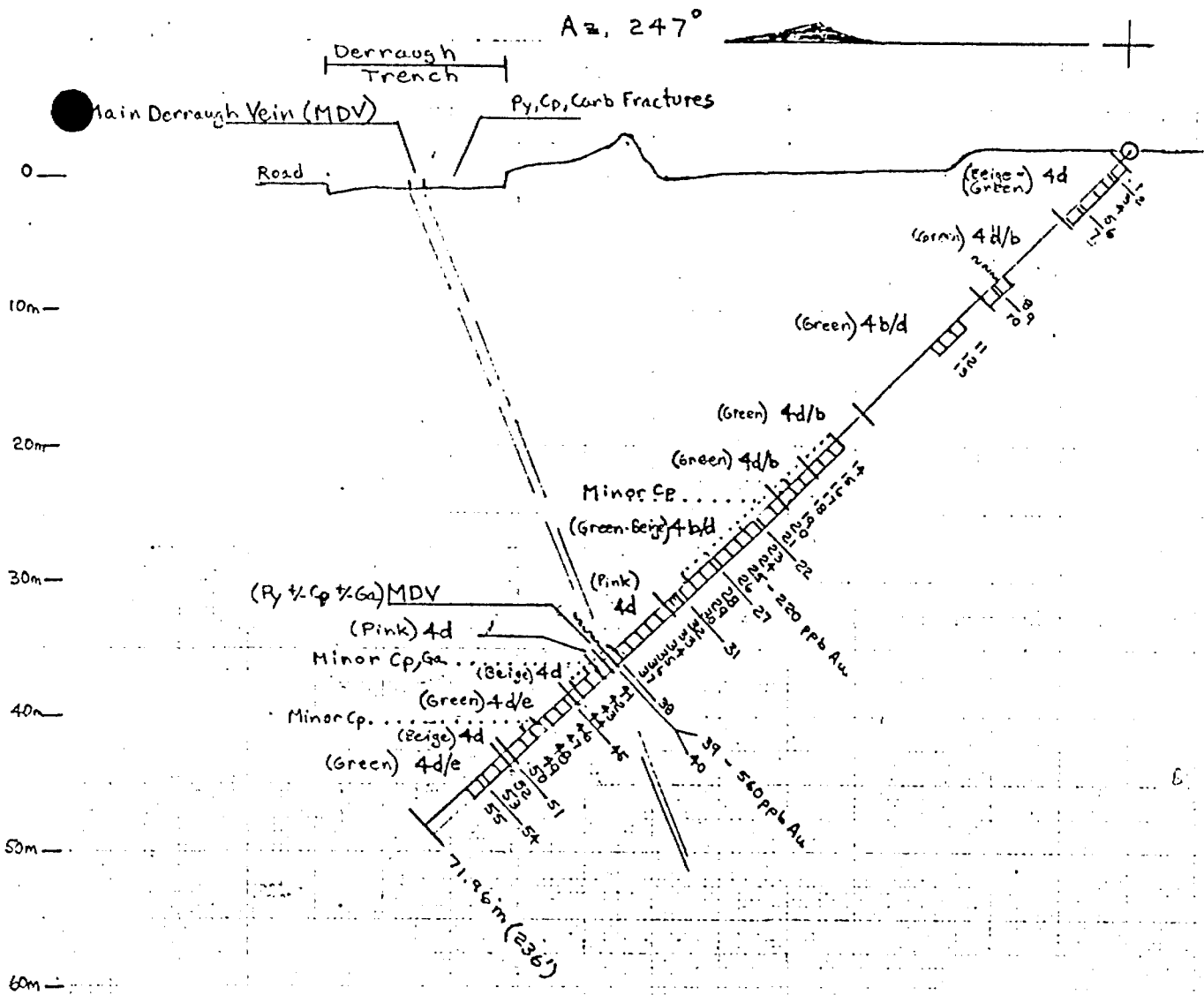
DP # TL 88-5

| SAMPLE NO. | FROM | TO | LENGTH (meters) | Au (ppb) |
|------------|-------|-------|-----------------|----------|
| TL88-5-1 | 0.91 | 2.0 | 1.09m | |
| -2 | 2.00 | 2.25 | 0.25 | |
| -3 | 2.25 | 3.0 | 0.75 | |
| -4 | 3.0 | 4.0 | 1.0 | |
| -5 | 4.0 | 5.28 | 1.28 | |
| -6 | 5.28 | 5.52 | 0.24 | |
| -7 | 5.52 | 6.80 | 1.28 | |
| -8 | 12.8 | 13.8 | 1.0 | |
| -9 | 13.80 | 14.05 | 0.25 | |
| -10 | 14.05 | 15.15 | 1.10 | |
| -11 | 17.6 | 18.6 | 1.0 | |
| -12 | 18.6 | 19.7 | 1.1 | |
| -13 | 19.7 | 20.5 | 0.8 | |
| -14 | 30.3 | 31.3 | 1.0 | 80 |
| -15 | 31.3 | 32.3 | 1.0 | 90 |
| -16 | 32.3 | 33.3 | 1.0 | 20 |
| -17 | 33.3 | 34.3 | 1.0 | Nil |
| -18 | 34.3 | 35.3 | 1.0 | Nil |
| -19 | 35.3 | 36.3 | 1.0 | 40 |
| -20 | 36.3 | 37.3 | 1.0 | Nil |
| -21 | 37.3 | 38.5 | 1.2 | Nil |
| -22 | 38.5 | 38.8 | 0.3 | Nil |
| -23 | 38.8 | 39.8 | 1.0 | Nil |
| -24 | 39.8 | 40.8 | 1.0 | Nil |
| -25 | 40.8 | 41.8 | 1.0 | 210/220 |
| -26 | 41.8 | 42.8 | 1.0 | |
| -27 | 42.8 | 43.3 | 0.5 | |
| -28 | 43.3 | 44.3 | 1.0 | |
| -29 | 44.3 | 45.3 | 1.0 | Nil |
| -30 | 45.3 | 46.3 | 1.0 | Nil |
| -31 | 46.3 | 46.9 | 0.6 | Nil |
| -32 | 46.9 | 47.9 | 1.0 | Nil |
| -33 | 47.9 | 48.9 | 1.0 | Nil |
| -34 | 48.9 | 49.9 | 1.0 | Nil |
| -35 | 49.9 | 50.9 | 1.0 | Nil |
| -36 | 50.9 | 51.9 | 1.0 | Nil |
| -37 | 51.9 | 52.9 | 1.0 | Nil |
| -38 | 52.9 | 53.4 | 0.5 | Nil |
| -39 | 53.4 | 53.71 | 0.31 | 480/560 |
| -40 | 53.71 | 53.96 | 0.25 | Nil |
| -41 | 53.96 | 55.0 | 1.04 | 50 |
| -42 | 55.0 | 56.0 | 1.0 | Nil |

SAMPLING & ASSAYING

DH * TL 88-5, ctd.

| SAMPLE NO. | FROM. | TO | LENGTH (meters) | Au (ppb) |
|------------|-------|-------|-----------------|----------|
| TL 88-5-43 | 56.0 | 57.0 | 1.0 m | Nil |
| -44 | 57.0 | 57.53 | 0.53 | Nil |
| -45 | 57.53 | 58.2 | 0.67 | Nil |
| -46 | 58.2 | 59.2 | 1.0 | Nil |
| -47 | 59.2 | 60.2 | 1.0 | Nil |
| -48 | 60.2 | 61.70 | 1.50 | Nil |
| -49 | 61.70 | 62.65 | 0.95 | Nil |
| -50 | 62.65 | 63.65 | 1.0 | 20 |
| -51 | 63.65 | 64.23 | 0.58 | Nil |
| -52 | 64.23 | 65.30 | 1.07 | 10 |
| -53 | 65.3 | 66.4 | 1.1 | 30 |
| -54 | 66.4 | 67.0 | 0.6 | Nil |
| -55 | 67.0 | 68.1 | 1.1 | Nil |



CAN-MAC EXPLORATION LTD.
 Topboot Lake Property
 Swayze Tp., Ontario

SECTION THROUGH
 D.D.H. TL88-5
 (Derraugh Vein)

Scale - 1:500

Date: July, 1988

Geological Engineering Services
 F.H.T.

DDH: TL 88-6
 DIP: -47½°
 AZIMUTH: 245°

LOCATION: TOPBOOT LAKE, SWAYZE TP. (Derrault Trench); Claim 932196
 Approximately Line 00+50mW/ 6+14ms

ELEVATION: ~ Same Elevation as vein in Derrault Trench & ~3 meters below TL88-3

STARTED: August 1, 1988.

STOPPED: August 2, 1988

COMPANY: CAN-MAC EXPLORATION LTD.

PROPERTY: TOPBOOT LAKE

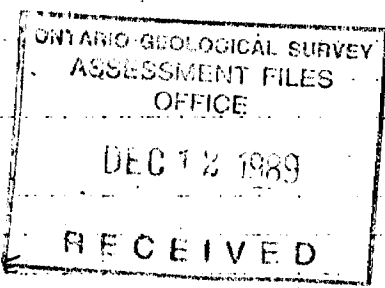
CONTRACTOR: Les Entreprises Jacques Rousseau, Rouyn, Quebec

LOGGED BY: Frank H. Toews

DEPTH: 102.64m (336.7')

CORE SIZE: BQ

DIP TESTS: 90.25m (296') - 45½°



Casing pulled

| | | |
|-------------------|--------|---|
| 0-1.83m (0-6') | CASING | |
| 1.83-3.0m | 4b/ | SERICITE-CARBONATE [±] CHLORITE [±] EPIDOTE ALTERATION ZONE IN PORPHYRY Medium to light greenish-grey rock with ≤ 25% white to pale green, sericitized, rounded to sub-angular, ^{1-3mm} plagioclase phenos, set in a fine sericitic groundmass; phenos are distinct to hazy in outline; Trace to ½% disseminated Py; carbonate is pervasive but variable; Epidote is patchy |
| 1.83-2.5m | | Broken core, ground core; lower 20cm of core has oxidized fractures & carbonate-bearing veinlets @ CA 10-25°, 55-60°; some core is re-drilled |
| 2.5-3.0 | | Several bands of partly oxidized, beige siliceous carbonate, 0.3-1.0 cm wide at CA 60°, 30-35°; several oxidized fractures @ CA 20-25°, 60°; several oxidized carbonate veinlets ≤ 2mm wide @ CA 65°, 35° the latter cutting a beige alteration band; gradational contact |
| 3.0-6.65 | 4d/b | BEIGE TO PALE GREENISH-GREY CARBONATE [±] SILICEOUS-SERICITE-CHLORITE ALTERATION ZONE Banded to patchy siliceous-carbonate alteration which is pale greenish-grey to beige & pervasive but variable; near contact with vein below it is slightly pinkish; Trace to locally ½% Py |
| 3.0-3.8 | | Banded siliceous-carbonate alteration with 0.5-2.0 cm wide bands @ CA 40-50°, some cut obliquely by a few 1-3 mm quartz-carbonate veinlets @ CA 25-30°, 50°, 10°; Nil to 5% plagioclase phenos are still discernable |

3.8-5.6

in the bands of the medium to darker greenish-grey host rock & to some extent in the beige to light-pale greenish-grey alteration bands with hazy to fairly sharp boundaries; Trace Py

3.8 m - contact in broken core

Patchy or more pervasive beige = pale greenish siliceous-carbonate alteration (+ Epidote?) groundmass with remnant darker medium greenish-grey patches of host rock from <0.5-2 cm size; occasional faint plagioclase phenos visible; 1-3% quartz-carbonate & chlorite veinlets & anastomosing gashes, 1-3 mm wide @ CA 40-50°, 70°, 25-30°; sometimes wall rocks more siliceous
3.97 m <1 to 2 mm wide Py fracture fillings & associated Py blebs, disseminations @ CA 25° cut some quartz-carbonate veinlets

5.4-5.6, contact bifurcates @ low angle to CA leaving a roughly wedge shaped portion of unit below; contact somewhat hazy

5.6-6.65

Medium to light greenish-grey to pinkish near contact with vein; rock is sericitic with some Epidote, f.g.r.; foliated @ about CA 20-25° decreasing to about CA 15° near vein contact which is oblique to the foliation; 1/2-1%, 1-3 mm wide, quartz-carbonate veinlets @ CA 50°, 70°, 20-25° often deformed somewhat ptygmatically or offset 1-2 mm along the foliation. (? possibly some faint phenos?) Traces Py; occasional chloritic fragment, elongate in plane of foliation 0.3 cm to <1 cm size

6.37-6.65 m patchy beige alteration begins, increasing from about 10 cm from vein where rock is beige-pink to pale greenish when epidote is present; several pyritic veinlets or lenses 1/2 quartz @ CA 20° parallel to foliation & within 2-3 cm of vein contact. Pyritic 1/2-chlorite fractures parallel the vein contact @ CA 20°, plus disseminated Py; within 2 cm of vein contact are several 2-3 mm wide quartz-carbonate gashes sub-parallel to parallel to contact with disseminated & small blebs (1-3 mm) of Py; 1/2% to locally 3% Py nearer the contact

6.65-8.23

DERRAUGH

TRENCH "VEIN NO. 2" (DT V2)

Patchy to vein-like light grey to milky quartz-carbonate containing ^{40-60°} patches & fragments (≤ 1-15 cm) of f.g.r., sericitic (Epidote), pale greenish to beige siliceous-carbonate altered rock, sometimes with discernable white 1 mm plagioclase phenos; ≤ 1/2% disseminated Py (≤ 1 mm) occurs in quartz-carbonate & the fragments; at the lower contact a 1 cm wide late(?) ^{sheared, foliated} quartz-carbonate-chlorite veinlet parallels the contact @ CA 15-20° adjacent to patchy, milky quartz with fragments; ≤ 30% ragged, bifurcating chlorite

Cp - Galena

8.23-14.2

4d/ BEIGE SERICITE-CARBONATE $\frac{1}{2}$ - SILICEOUS $\frac{1}{2}$ - CHLORITE $\frac{1}{2}$ -EPIDOTE ALTERATION ZONE

veinlets < 1 to 5mm wide $\frac{1}{2}$ vein and wall-rock fragments; chlorite is later, but more or parallels the contact; @ 7.2m fracture @ CA 20° with Py-Cp scales & minor Cp Galena (Ga) adjacent to fracture

to slightly greenish,

Beige f.gr., sericitic, with patchy light greyish zone showing some feint to distinct, rounded, white to slightly greenish plagioclase phenos 1-3mm in size within 1 meter of vein contact; carbonate is pervasive but variable; parts are foliated @ CA 10-25; $\frac{1}{2}$ -1% scattered angular to rounded chloritic fragments, < 1-3 cm in size, partly altered to green mica; $\frac{1}{2}$ to more locally 3-5% quartz-carbonate veinlets & gashes, 1-5 mm wide, occasionally chlorite $\frac{1}{2}$ -Py bearing, @ CA 15-25°, 40-55° sometimes sub-parallel to CA; veinlets are often irregular "ptygmatically" deformed &/or with small offsets, sometimes along foliation planes, which the veinlets cross-cut; generally trace to $\frac{1}{2}$ % disseminated Py; Gradational contact

8:23- 8.5

Foliation $\frac{1}{2}$ chlorite @ CA 10° to subparallel CA; oblique to vein contact, some slightly pinkish patches; some Epidote & green mica; $\frac{1}{2}$ % disseminated Py, some within quartz-carbonate $\frac{1}{2}$ -chlorite veinlets

11.15-12.00

≤ 5 % quartz-carbonate veinlets & gashes; minor Py & green mica

13.15-14.05

$\frac{1}{2}$ -1% disseminated, small (< 5mm) blebs & fracture fillings with Py

13.82 - 4cm chloritic fragment, foliated & oriented parallel to foliation @ CA 20°; fragment has narrow alteration rim of green mica $\frac{1}{2}$ -Epidote plus internal veinlet of green mica parallel to foliation

13.98 - fracture with disseminated Py+Cp @ CA 30°

Cp

14.2-20.0

4b/d BEIGE SILICEOUS-CARBONATE-SERICITE-CHLORITE $\frac{1}{2}$ -EPIDOTE ALTERATION IN PORPHYRITIC ROCK

Light to medium greenish-grey with patchy areas with rounded to hazy, 1-3mm, white to slightly greenish plagioclase phenos in f.gr, sericitic $\frac{1}{2}$ -chlorite groundmass; patchy to locally banded beige carbonate-siliceous-carbonate alteration @ CA 25-45°, also as ≤ 1 cm haloes about $\frac{1}{2}$ carbonate & quartz-carbonate $\frac{1}{2}$ chlorite veinlets & gashes 1-5mm wide @ CA 25-45°, 60-70°; scattered, rounded to angular chloritic fragments 0.5-3cm in size; Trace to locally 1% disseminated Py & occasional 2mm blebs & occasionally as quartz-carbonate-Py veinlets; Gradational contact

| | | | |
|---|---|--|---|
| <p>14.2 - 15.6 14.75 - 16.4 15.21 19.85</p> | <p>20.0 - 30.0 21.08 21.57 22.65 - 23.25 30.0</p> | <p>4b / GREENISH-GREY CHLORITE-SERICITE-CARBONATE ALTERED PORPHYRY</p> | <p>½% - 1% disseminated Py. Foliated parts @ CA 20-30° Py & Cp scales on fractures @ CA 25° ± 35° Minor Cp on chloritic fracture filling @ CA 45°</p> <p>Medium to lighter greenish grey with 20-30% relatively distinct to faint, rounded, 1-4 mm, white to slightly greenish sericitic plagioclase phenos in a f.gr. chloritic &/or sericitic ^{feldspar + quartz} ground mass; carbonate is pervasive but variable; scattered, rounded to sub-angular, chloritic & epidote fragments 0.5-3 cm. in size; ≤ ½% scattered, carbonate-quartz & chlorite veinlets, 1-5 mm wide @ CA 50-60°, 70-75°, 30-40°, 15-25°; Trace - ½% disseminated Py; chlorite & sericite & carbonate & epidote & Py fractures @ CA 30-45° 45-55° 10-15° locally upto 8-10/20 cm., average 12/10 cm Minor Cp in carbonate fracture @ CA 45° 1 cm chloritic fragment with disseminated Cp</p> <p>Chlorite & Epidote & Py fractures @ CA 30-45°; 8-10/20 cm.</p> <p>Gradational contact</p> |
| <p>30.0 - 34.5</p> | <p>4d / BEIGE GREY</p> | <p>SILICEOUS-CARBONATE ALTERATION IN LIGHT GREENISH-SERICITIC-CHLORITIC-FEINTLY PORPHYRITIC ROCK</p> <p>Patchy to banded (≤ 1 cm) beige siliceous-carbonate & epidote alteration which also occurs as haloes about some quartz-carbonate veinlets; host rock is light greenish-grey with areas containing faint 1-2 mm sericitic plagioclase phenos set in a f.gr. sericitic-chloritic ground mass; some quartz visible; scattered chloritic, rounded to sub-angular fragments, 0.5-5 cm in size; carbonate & silicification variable; 1-2% scattered quartz-carbonate ^{& chlorite} veinlets, mainly 1-3 mm wide @ CA 40-50°, 60-70°, 15-25°; scattered chloritic (& Py & carbonate) fractures @ CA 15-25°, 30-40°, 50-60°; Trace to locally 1% disseminated Py & some fracture fillings</p> <p>≤ 3 cm wide zone of quartz-carbonate ^{& Py} vein with chlorite ribbons @ about CA 50-55° containing some wall rock fragments; irregular, narrow apophyses with Py & chlorite are oriented @ about CA 10-30°; bleaching near main vein; may be some Epidote present</p> <p>8 cm chloritic fragment with ≤ 1% disseminated Py</p> <p>Gradational contact</p> | |
| <p>34.5 - 45.91</p> | <p>4d/b BEIGE</p> | <p>TO LIGHT GREY SILICEOUS-CARBONATE & EPIDOTE ALTERATION IN LIGHT GREENISH-GREY TO LIGHT GREY PORPHYRITIC ROCK (PISGITE)</p> <p>Patchy to banded (≤ 10 cm) beige to light grey siliceous &</p> | |

Carbonate alteration which also occurs as haloes (\approx km) about quartz-carbonate veinlets; silicification & carbonate alteration is pervasive but variable; host rock contains < 25% feint to fairly distinct, rounded white to slightly greenish sericitic plagioclase phenos, 1-3 mm in size, set in a sericitic-chloritic f.g.r. groundmass; scattered, rounded, chloritic fragments 1-14 cm long; 1-2% to locally 5% quartz-carbonate & chlorite veinlets, often 1-5 mm wide, but occasionally 1-3 cm wide; chlorite fractures & Py sometimes cross-cut the veinlets which increase towards the Main Derragh Vein & are oriented @ CA 50-65°, 70-80°, 25-35°; chloritic fractures with Py become increasingly numerous towards the Main Derragh Vein varying in amounts from 2/10 cm to \leq 10/10 cm oriented @ CA 50-60°, 35-45°, 10-25°; < 1/2 to 1% Py as disseminations & in chloritic fracture fillings & minor in quartz-carbonate veinlets. Rocks appear cataclastic & epidotized near Main Derragh Vein.

- 41.0 Chloritic fractures & Py begin to increase to 8-10/10 cm
- 43.41 1-2 cm wide quartz-carbonate veinlet @ CA 70-75° with chlorite margin & chlorite fracture filling & Py fracture filling
- 44.32 2-4 cm wide quartz-carbonate vein with wall rock inclusion; contacts @ CA 75-80° & CA 40°; Chlorite fractures @ CA 75-80°; disseminated Py & fracture filling @ 80° & 50° plus quartz-carbonate veinlets @ CA 60°, 30° in beige silicified zone near upper contact of vein
- 44.47 0.5-1.5 cm wide quartz-carbonate veinlet @ CA 30-35° partly cut by chloritic fractures @ CA 30° & 45° oblique to vein contacts
- 44.90 1-2 cm wide quartz-carbonate veinlet @ CA 35-45° with wall-rock fragments; partly cut by chloritic fractures
- 45.42-45.55 Irregular epidote veinlets, pale yellowish-green; also a 0.5 cm wide, quartz-carbonate veinlet @ CA 50° which has been disrupted by chloritic fractures @ CA 30° & sub-parallel to CA
- 45.55 3 cm wide quartz-carbonate vein @ CA 60-65° with marginal epidote (vein may cut epidote veinlets oblique to quartz vein); several wall-rock inclusions; quartz vein is cut & partly offset by chloritic fractures @ CA 25° & sub-parallel to CA
- 45.65-45.91 Rock appears cataclastic; patchy Epidotization as fine streaks of pale yellow Epidote & also as staining on some 2-5 mm wide quartz veinlets @ CA 20-25°, 35-45°, 50° & gashes sub-parallel to CA; few of the veinlets contain wall-rock inclusions & some are broken up or cut by irregular chloritic fractures; host rock is epidotized

± more felsic within 5 cm of the Main Derragh Vein with < 1% disseminated Py ± some chloritic fracture fillings @ CA 15-20° oblique to vein contact; quartz-carbonate veinlets are anastomosing ± amount to 5-10% of zone; rock appears foliated parallel to main vein contact within 1 cm of main vein
 Contact irregular to regular @ CA 30-35°

45.91

45.91-47.60 MAIN DERRAUGH VEIN

45.91-46.03 Milky white quartz-carbonate veins with contacts @ CA 30-35° ± 45°; 5% anastomosing chlorite ± Py ± Epidote ribbons mainly oriented obliquely to contacts; some threads ± veinlets of pale yellowish-green epidote; < 1/2% disseminated Py in quartz ± chloritic ribbons

46.03-46.05 Brecciated, cataclastic, epidotized (threads, irregular veinlets) matrix of quartz-carbonate ± chlorite; rounded, white carbonate fragments ≤ 5 mm size; foliation @ CA 45°; - 1/2-1% disseminated Py; may be wall rock material mixed in:

46.05-46.12 Wall-rock inclusion; medium greenish-grey; cataclastic; carbonatized; some chlorite in matrix ± as late fracture fillings; some epidote ^{silicified} threads; contacts @ about CA 45° with epidote threads ^(shears) parallel; adjacent to lower contact is a segmented quartz-carbonate veinlet ≤ 1 cm wide @ CA 35° which is an apophysis of the Main Derragh Vein; late chlorite cross-fractures cut the veinlet ± later pale yellowish-green epidote threads ± veinlets ^(shears) appear to cut some of the chlorite, border the quartz-carbonate veinlet, as well as appearing to segment part of the veinlet; < 1/2% disseminated Py in quartz-carbonate veinlet ± wall rock inclusion; possible minor green mica in veinlet

46.12-46.23 60-70% milky to translucent quartz-carbonate with < 25% light grey to beige, f. gr, silicified fragments with quartz-carbonate veinlets; few chloritic ± Py fracture fillings irregular but oriented @ about CA 10-25° oblique to contact with wall rock inclusion above; late, pale yellowish-green epidote (± sericite(?)) network veinlets ±/or staining of granulated quartz-carbonate veinlets < 1-5 mm wide, appear to cut all rocks; adjacent to contact with wall rock inclusion above is < 1% fine disseminated to fine ragged fracture fillings with Cp occur over 1-cm along with Py disseminations; remainder of section has 1/2% disseminated Py ± small fracture fillings with Py in silicified fragments ± quartz-carbonate vein material.

Cp

① Cp

46.23-47.20 50% milky white to translucent quartz-carbonate with about 50% light grey to beige, silicified, figr. fragments which are internally shattered by < 1-2 mm wide quartz-carbonate veinlets; chloritic (± sericite) fractures with disseminated Py @ CA 50-60°, 15-30° cut all rocks; some green mica spots; Py occurs as ≤ 1 mm disseminations & small blebs < 3 mm in size in both vein material & fragments; Py often associated with chlorite; 1/2% Py overall

(Cp) 46.93 Minor fine disseminated Cp along with Py

47.20-47.60 Similar to above, but < 15% silicified fragments; Contact with silicified vein wall rocks @ about CA 15-20° with some apophyses

47.60-48.40 4d/ BEIGE TO LIGHT-MEDIUM GREY SILICEOUS-CARBONATE ALTERATION ZONE

Similar to parts of unit from 34.5 - 45.91 m

47.60 - 47.80 in Beige, figr, pervasive silicification & carbonate fracture fillings as fragments in Main Derragh Vein; 5-10% somewhat irregular quartz-carbonate veinlets < 1 cm wide @ sub-parallel CA near vein & @ CA 15-30° more or less parallel to vein contact above; 8-10%^{late} chlorite-Py & Sericite fractures @ CA 20-25° which cross gradational contact with rocks below & sometimes offset quartz-carbonate veinlets; 1/2-1% disseminated Py & small blebs ≤ 2 mm in size, occurs in all rocks

47.80-48.40 Light-medium grey with patchy beige to slightly pinkish siliceous-carbonate alteration; possible very feint plagioclase phenos; ≤ 10% clear, rounded quartz grains ≤ 2 mm size; 3% quartz-carbonate veinlets < 1 to 5 mm wide, partly anastomosing @ CA 60-70°, 30-40°, 15-20°; numerous^{late} chlorite-Py-Sericite fractures @ CA 20-30°, 40-45° & sub-parallel to CA (some offset quartz-carbonate veinlets & all would be oblique to Main Derragh Vein contact & to contact with unit below); several small chloritic fragments; 1/2-1% disseminated Py

48.40 Contact @ CA 30-35° with quartz-carbonate veinlet ≤ 1 cm wide @ contact

48.40-48.95 4d/b(?) FOLIATED MEDIUM-LIGHT GREY-GREENISH GREY CHLORITE-SERICITE-CARBONATE-EPIDOTE ALTERATION ZONE

Probably tectonically deformed & altered porphyritic rock; somewhat gradational into unit below; faint to distinct, rounded plagioclase phenos up to several mm in size are sometimes visible; rock appears cataclastic more so in upper part of unit; rock has a patchy pale yellowish cast due to pervasive epidotization which is variable as is carbonate alteration; several small (≤ 5 mm) chloritic fragments present;

48.4-48.85 Strongly foliated @ CA 30-35° to 15-20°; cataclastic; 5% quartz-carbonate ^{to chlorite} veinlets 1 mm - 2 cm wide @ CA 25-35°, 45°, 60-70° & sub-parallel to CA; veinlets cross-cut & parallel the foliation & may be deformed along the foliation planes; patchy beige silicification in vicinity of veinlets; Trace Py

48.85-49.90 Foliation varies from CA 15-20° increasing to CA 50°; <1% quartz-carbonate veinlets, 1-3 mm wide, at CA 20-25°, 35-45°, 50-60° & 5-10° often cross-cutting foliation & sometimes deformed along foliation planes.

49.90-49.95 Partly cataclastic & more strongly foliated @ CA 50-60° & 5 mm quartz-carbonate veinlet parallel foliation @ CA 60°.

49.95-72.4 4d/b BEIGE ZONE SILICEOUS (CARBONATE)-SERICITE-CHLORITE ALTERATION IN PORPHYRY

chlorite Patchy to banded beige to occasionally slightly pinkish alteration in light to medium grey to greenish-grey faintly to distinctly porphyritic rock with up to 25% rounded, white to slightly greenish; sericitized plagioclase phenos, 1-3 mm in size set in a f.g. sericitic-chloritic groundmass; siliceous (carbonate) alteration can be pervasive but variable, often more intense near quartz-carbonate veining which is found throughout in amounts varying from 1% to locally 35% (over 25 cm); veinlets & gashes often 0.1 - 1 cm wide @ CA 15-25°, 40-50°, 60-70°; 5-10% average 2-3% quartz-carbonate veinlets; scattered chloritic fragments 1-10 cm in size; Trace to locally 2% (over 5 cm) disseminated Py in wall rocks, in quartz-carbonate veinlets & often on chlorite & sericite & epidote fractures @ CA 60-70°, 45-55°, 25-35°, 5-15°; average less than 1/2% Py

50.04-50.22 Chloritic fractures & Py @ CA 60-70°; quartz-carbonate veinlets @ CA 50-60°, 35-45°; some gashes of quartz-carbonate cutting 10 cm chloritic fragment with blebs of Py < 1 cm in size associated with quartz; more intense silicification

- near contact with quartz-carbonate vein below.
- 50.22-50.5 CP? Quartz-carbonate vein with 25% wall rock inclusions; vein contacts approximately @ CA 35-45° ± 15°; vein is milky white with cream to beige carbonate as patches and veinlets which partly rim fragments of vein as well as cross-cut the quartz & fragments; < 1/2% disseminated Py + Cp in fragments & vein; silicification is more intense near vein & in fragments; some chlorite (± Py) fractures parallel to oblique to vein contacts in wall rocks
- 50.56 Minor Cp associated with 2-5 mm quartz-carbonate veinlet sub-parallel to CA (possibly synthesis of main vein above)
- 51.9-51.25 Quartz-carbonate vein with 50% wall rock inclusions; vein contacts @ CA 40° ± 15-20° (may be oblique to vein from 50.22-50.5 m); inclusions cut by numerous veinlets of quartz-carbonate; 1/2% disseminated Py in inclusions & wall rocks, minor Py in vein
- 51.58-51.67 Two chlorite-quartz ± epidote ± green mica veinlets (1-5 mm) with disseminated Py @ CA 30° & 50°
- 51.30-52.2 Chloritic ± Epidote fractures with disseminated Py @ CA 50-60 30-40°; 1-5/5 cm; some fractures offset quartz-carbonate veinlets
- 52.2-52.5 20-25% quartz-carbonate veinlets 0.2-4 cm wide @ CA 50-70°, 25-35°; larger veinlets contain wall rock fragments; ≤ 1/2% disseminated Py in wall rocks & fragments; possibly minor Cp coating some Py grain
- 52.5-56.28 Scattered Pyritic-chloritic fractures @ CA 60-70°, 45-50°, 25-35°
- 54.12 Minor disseminated Cp with 1/2% disseminated Py & some scaly Cp on chlorite-epidote-carbonate fracture also @ CA 260°
- 55.15 Py, Cp in chloritic veinlet 1 mm wide @ CA 50-55°
- 56.64-69.6 Plagioclase plenums more distinct; < 1% to locally 2% quartz-carbonate ± chlorite ± Py veinlets mainly 1-2 mm wide; Py + minor Cp on chloritic fracture @ CA 30-35° @ 57.8 m
- 60.65-61.04 More intense chloritic alteration with some green mica &/or epidote in several chloritic fragments 0.5-2 cm size; Py rims or replaces some fragments; green mica found in some of the quartz-carbonate veinlets in the alteration zone; Py in fracture fillings with chlorite & in some quartz-carbonate veinlets as well as in host rock; 1/2% Py
- 64.5-65.5 Chlorite ± Sericite ± carbonate fractures @ CA 55-65°, 35-45°, 15°, 2-5/10 cm; occasional minor Py on fractures
- 66.6-66.7 5% quartz-carbonate veinlets, 1-3 mm wide @ CA 60-80°, ≤ 2% disseminated Py mainly in wall rocks
- 66.83-66.89 Brown-pinkish siliceous alteration band @ CA 55-65° with chloritic fragment altered to green mica + Py; cut by later quartz-carbonate veinlets; minor disseminated Py
- 66.9-67.15 5% quartz-carbonate veinlets & gashes, 1-5 mm wide @ CA 65°, 50-55°, 30°; minor Py disseminated in wall rock & veinlets

69.85-70.22 Quartz-carbonate \pm chlorite vein; contacts @ CA 25° & @ sub-parallel to 10° CA; some wall-rock inclusions; $\frac{1}{2}$ -1% Py in vein as disseminations & fracture fillings with chlorite; quartz is milky to greyish; vein & wall rocks are cut by later, 1-2 mm wide, quartz-carbonate veinlets @ CA 50-70°; Py disseminations & small blebs occur in wall rocks also ($\frac{1}{2}$ -1% Py); pale yellowish-green epidotization also occurs in wall rocks & inclusions & is more pervasive from this area downward in hole

70.22-71.25 10% quartz-carbonate veinlets & gashes, 1-5 mm wide, mainly @ CA 60-70°, 45-55°, 25-35°, 5-10°; Trace to locally 2% disseminated Py; average $\frac{1}{2}$ % Py; wall rocks show pervasive epidotization as well

71.25-72.6 Patchy silicification, chlorite still present as patchy to spotted areas; epidotization of f.g. groundmass increasing toward unit below; 1% quartz-carbonate veinlets & gashes 1-5 mm wide @ CA 20-25°, 30-35°; $\frac{1}{2}$ -1% disseminated Py

72.6 Gradational contact

72.6 - 87.3 Ad/Pale greenish to beige epidotized, sericitic, siliceous \pm carbonate \pm chlorite alteration zone

F.g. ^{v. sp.} relatively homogeneous, pale greenish, ^{pervasively} epidotized, sericitic plagioclase-rich rock, ^{of} variable hardness with sections of remnant chlorite spotting & sections of beige &/or patchy slightly pinkish siliceous \pm carbonate alteration, sometimes occurring as bands up to several cm. wide; $\leq 1\%$ scattered quartz-carbonate \pm chlorite \pm pyrite veinlets mainly less than 5 mm wide @ CA 10-15°, 25-30°, 40-50°, 65° & $\frac{1}{2}$ % to locally 2% disseminated Py & fracture fillings of Py \pm chlorite @ CA 20-30°, 40-60° sometimes associated with quartz; minor localized disseminated Cp is occasionally found associated with Py & possibly chlorite; average $\frac{1}{2}$ -1% Py; scattered fractures @ CA 35-55° with chlorite streaks (lineations) oriented @ parallel to < 15° to CA

72.72-74.05 Patchy areas with $\frac{1}{2}$ -2% chloritic spotting & occasional slightly pinkish patch

Cp? 74.37 Possible minor Cp associated with chlorite-Py fracture @ CA 35-40°

Cp 74.59 Some Cp associated with intersecting Py fractures @ CA 45° & 55-60°

77.25-77.50 Two milky to grey, sheared(?) ^{cherty?} quartz \pm carbonate veins 1-3 cm. wide @ CA 30° & 40°; minor disseminated Py in veins but grey bands may be finely disseminated sulphide(?);

- 77.66 local Green Mica in fracture
- 77.8 1-2 cm wide zone of sheared(?) quartz-Pyrite veinlets @ CA 40-45°
- 78.4-78.6 2% disseminated frags of Py & Qz oriented @ about CA 30-45°
- 78.83 0.5-1 cm wide quartz-Py ^{& carbonate} veinlet @ CA 25°
- 79.8 2 cm wide quartz-carbonate-sericite veinlet @ CA 40° with offshoot @ CA 25°; some chlorite & minor hematite present; <1% disseminated Py & Cp in veinlet which appears banded parallel contacts
- 81.18 Mud on fracture @ CA 20°
- 81.75 Possible minor Cp with disseminated Py on fracture surface @ CA 10-15° with some chlorite streaks oblique to CA; (81.73 m - Cross fracture @ CA 30-35° with scaley Py & Cp?)
- 81.86 Two Chlorite-carbonate-quartz-Py veinlets, 1-2 mm wide with possible minor Cp
- 82.07-84.55 Rock has faint pinkish cast with parts showing 1% disseminated chlorite spotting & locally (in lower 1/2) up to 5% chloritic rags and irregular patches 0.5-2cm in size; minor amounts of disseminated Cp occur with Py in ground mass & associated with ^{few} chlorite-carbonate-quartz-Py veinlets 1-2 mm wide @ CA 50-55° & with one quartz-chlorite-Py veinlet 2 mm wide @ CA 5-10°; Cp in area from about 79.0-84.25 m. with 1/2% to locally 1% sulphides (Py & Cp)
- 84.56-88.95 Still faint pinkish cast to felsic groundmass but with about 3% disseminated chlorite spotting, rock may resemble parts of unit from 87.3 - 101.1 m; locally some rags of chlorite; few carbonate-quartz veinlets; 1/2% to locally 5% (over 5cm) disseminated & fracture fillings of Py & Chlorite & carbonate & epidote @ CA 25-35°, 50-60°, 5°
- 85.95-87.3 Pale greenish to beige to slightly pinkish alteration zone with epidote-sericite-siliceous-carbonate & a banded zone of patchy chlorite between 86.29-86.57 m; 2-3% quartz-carbonate & chlorite & Py veinlets & gashes mainly 1-5 mm wide with a few 1 cm wide; veinlets are oriented @ CA 65-70°, 80°, 35-40°, 5-15°; 1/2% to locally 1% disseminated Py; 10% veinlets from 86.04-86.25 m
- 87.3 Contact is hazy @ CA 20° with unit below & semi-gradational as some faint pinkish patches extend into unit below

87.3-101.28 4d/e(?) GREENISH-GREY SERICITE-CHLORITE-CARBONATE & SILICEOUS ALTERATION ZONE IN DIORITIC ROCK WHICH IS LOCALLY FAINTLY PORPHYRITIC
 Medium to light greenish-grey; f.g.; groundmass of pale

greenish to white, sericitized ^{on chloritized} plagioclase with variable amounts of chlorite as small grains, larger (≤ 4 mm) lathy grains (after amphibole?), rag, cbs & patchy areas with $\leq 15\%$ chlorite; scattered sections with rounded, 1-4 mm, feintly (plagioclase) porphyritic rock; carbonate alteration is pervasive but highly variable; some parts with beige siliceous alteration patches & bands ≤ 5 cm wide; other areas may be grey but hard & siliceous over 10-15 cm; 1-2% carbonate & quartz-carbonate $\frac{1}{2}$ -chlorite veinlets, mainly 1-5 mm wide, occur throughout at orientations of CA 25-40, 50-60, 10-20, 2-5; Trace to locally 2% Py occurs throughout as disseminations, often associated with chlorite, as small veinlets $\frac{1}{2}$ -chlorite, as small blebs, & sometimes within quartz-carbonate veinlets; average $\leq \frac{1}{2}\%$ Py.

- 88-92.25 Area of ^{some} Vuggy carbonate veinlets & patches
- 87.3-87.7 Some small patchy, feintly pinkish alteration in felsic matrix
- 87.73-88.62 Six 5-20° CA fractures $\frac{1}{2}$ chlorite $\frac{1}{2}$ Py cutting several 5-20° CA carbonate-quartz veinlets 1-3 mm wide, as well as CA 60° veinlets
- 88.35-88.96 Fractures $\frac{1}{2}$ chlorite @ CA 55-65°, 30°; 1/5 cm to 3/5 cm
- 91.85-92.55 Several chlorite-carbonate $\frac{1}{2}$ Py veinlets @ CA 5-15°
- 93.85-94.56 Pyrite fracture fillings & veinlets, ≤ 3 mm wide @ CA 25-35°, 15-20°, as well as disseminated Py & several chlorite-carbonate-quartz-Py veinlets ≤ 1 mm wide @ CA 45°, 60°; $\frac{1}{2}$ to locally 2% Py (over 5-10 cm); average 1% Py; some of the Py veinlets cross-cut a few quartz-carbonate veinlets which are oriented @ CA 35-45°; local patchy beige silicification
- 94.67-94.85 Several quartz-carbonate-chlorite-Py veinlets 1-3 mm wide @ CA 50-60° with haloes of beige silicification; one veinlet at 94.77 has Pyritic fractures as branches @ CA 5-15° one of which contains possible Cp
- Cp? Porphy? 94.85-96.15 (H/d) Relatively homogeneous, medium greenish-grey porphyritic rock with gradational contacts; $\leq 10\%$ feint to fairly distinct pale greenish to white, rounded plagioclase phenos in a f.gr. matrix of chlorite-sericite; $\frac{1}{2}\%$ disseminated Py; 1% carbonate-quartz ^{chlorite} veinlets & gashes @ CA 65-75°, 35-45°, 1-5 mm wide; one chlorite-pyrite-Cp fracture @ CA 30° at 95.83m; few small (≤ 1 cm) chloritic fragments partly replaced by Py.
- 96.25-96.35 Banded to patchy, beige to slightly pinkish, siliceous alteration @ about CA 55°; cut by 1-2 mm wide carbonate-quartz $\frac{1}{2}$ -chlorite $\frac{1}{2}$ -Py veinlets & gashes @ CA 50-60°, 35-40°; $\leq \frac{1}{2}\%$ disseminated Py; 96.27m-1-2 cm size patch of blebs & disseminated Py with minor disseminated Cp

Cp

96.8-97.15

Internal to core in a siliceous beige-green band.
Patchy grey to beige to slightly pinkish siliceous alteration; disseminated Py, some associated with small chloritic rags, some with chloritic & epidote fractures @ CA 35-40°; minor Cp with disseminated Py in epidotized, siliceous band @ CA 40° at 97.81 m;

98.5

Chlorite-sericite-Py fractures @ CA 30-40°

98.95-99.01

Carbonate veins with wall rock fragments (50%); contacts @ about CA 45° & 50-60°; minor Py in wall rocks; some late chlorite fractures; local silicification (beige).

99.04-99.6

Patchy beige silicification (25-30% by volume) & some banding @ about CA 40-50°; cut by carbonate-quartz-chlorite veinlets & gashes 1-5 mm wide @ 60-70°, 30-40°, 10-15°

100.82-101.15

Grey to beige silicification + carbonatization cut by few carbonate-quartz veinlets & gashes & by chloritic fractures @ CA 45-50°, 20-25°; minor disseminated Py

101.15-101.28

Carbonate-quartz veining & silicification; 15% wall rock inclusions; chloritic fracture fillings; zone is tectonically brecciated in part; minor disseminated Py; contacts are irregular @ about CA 40-50°

101.28-102.64

GREENISH-GREY CHLORITE-SERICITE-CARBONATE ALTERED ROCK

Medium greenish-grey chloritic, sericitic, carbonatized, f.m.gr., well-foliated, lamprophyre(?) with traces of Py; Foliation @ CA 45° (oblique to vein zone contact) changing through to about CA 20°; chlorite oriented parallel to sub-parallel to foliation; groundmass is f.gr sericitic feldspar-carbonate; occasionally see 1-2 mm size possible plagioclase phenos(?); few carbonate veinlets cross-cutting foliation & oriented @ CA 45-50°, 20-30°, 1-3 mm wide

102.64 m
(336.7')

END OF HOLE

(See p. 14 & 15 for additional observations of Chalcopyrite & Galena during core splitting)

Frank H. Toew B.Sc., F.G.A.C.
Geologist

- 14.35m Possible Cp with Py-chlorite fracture @ CA 35°
14.76 2% disseminated Py with minor Cp
- 21.88 Scaly Cp + Py in curved fracture @ CA 40-50°
24.25 Carbonate veinlet ≤ 1 mm wide @ CA 35° with Py +/- Cp +/- Galena
- 26.19-26.52 Several fractures @ CA 35-40° with Py & minor grains
& scales of Cp +/- carbonate +/- epidote +/- chlorite
27.26 Py +/- Cp disseminated on a chlorite-epidote-carbonate fracture @ CA 15°
27.36 Cp + Py disseminated along chlorite-epidote fracture @ CA 50-55°
- 27.6-27.93 Minor Cp + disseminated Py on chlorite-epidote fracture sub-parallel to CA
28.19 Py +/- Cp with chlorite-epidote fracture @ CA 70°
- 35.79 Disseminated Py & possible scaly Cp on carbonate-chlorite fracture @ CA 55°
35.87 Scaly Cp & disseminated Py on carbonate-chlorite fracture @ CA 35-40°
36.10 Scaly Cp on carbonate-sericite-chlorite fracture @ CA 10-15°
42.55 Minor disseminated Cp associated with carbonate fracture @ CA 50°
- 58.15 Py +/- Cp disseminated in chloritic fracture @ CA 10-20°
56.81 Carbonate veinlet with malachite @ CA 45°; veinlet cuts a chloritic fragment
64.45 Scaly Py + Cp(?) on fracture @ CA 40-45°
64.95 Py + Cp(?) with chlorite-sericite fracture @ CA 15°
66.77 2 cm chloritic fragment with disseminated Py + Cp near margin of fragment; sulfides partly associated with a chloritic fracture @ CA 20°
- 78.06 Scaly to disseminated Py, Cp with chlorite-carbonate fracture @ CA 45° & with intersecting epidote-sericite-Py +/- Cp fracture @ CA 35°
78.96 Py + Cp disseminated on fracture @ CA 30°
81.0 Scaly Py + Cp on fracture @ CA 35-40° which cross-cuts a 2 mm quartz-carbonate veinlet @ CA 35°
81.41 Py + Cp in a 1-2 mm chlorite-carbonate-quartz(?) veinlet @ CA 40-45° plus Galena smear on a cross-fracture @ CA 35-40°
81.91 Disseminated Cp associated with fracture @ CA 40°
82.07 Py +/- Cp disseminated in an irregular "lense-like" body of quartz-carbonate-chlorite @ about CA 35° (chloritic veinlets parallel & cross-cut quartz-carbonate in the "lense" which is about ≤ 1 cm X 5 cm)
82.12 Chlorite-quartz-carbonate-Py-epidote veinlet with Cp @ CA 55°

- 82.18 Similar to 82.12 m.
- 82.28 Minor Cp with $\frac{1}{2}$ % disseminated Py
- 82.43-83.05 Carbonate-epidote-chlorite +/- quartz fracture irregular but sub-parallel CA with Py +/- Cp, plus another epidote-chlorite-sericite fracture sub-parallel to CA but oblique to previous fracture with occasional Cp & chlorite streaks which are oriented oblique to CA
- 83.55 Minor disseminated Cp on intersecting fractures @ CA 25-30° & 35°
- 83.98 Cp, Py on a chlorite-epidote-sericite fracture @ CA 45°
- 84.24 Minor disseminated Cp with Py
- 85.5 Py +/- Cp on a chlorite-epidote fracture @ CA 40°
- 85.79 Minor Cp with Py on a chlorite-epidote fracture @ CA 40° where it intersects a veinlet of carbonate-quartz-chlorite-epidote @ CA 70°
- 98.35 Py + minor Cp disseminated on a chlorite-sericite-epidote fracture @ CA 15-25° which cuts carbonate-quartz veinlets @ CA 40°, 60°, 25°
- 99.28 $\leq \frac{1}{2}$ % disseminated Py with a speck of Cp?

F.H.T.

SAMPLING & ASSAYING

DDH TL 88-6

| SAMPLE NO. | FROM | TO | LENGTH (meters) | Au (ppb) |
|------------|-------|-------|-----------------|--------------------|
| TL 88-6-1 | 2.5 | 3.8 | 1.3 m | Nil |
| -2 | 3.8 | 5.35 | 1.55 | Nil |
| -3 | 5.35 | 6.35 | 1.0 | 20 |
| -4 | 5.35 | 6.65 | 0.3 | 30 |
| -5 | 6.65 | 7.44 | 0.79 | 1290/1570 |
| -6 | 7.44 | 8.23 | 0.79 | 20 |
| -7 | 8.23 | 9.0 | 0.77 | 20 |
| -8 | 9.0 | 10.0 | 1.0 | Nil |
| -9 | 10.0 | 11.0 | 1.0 | Nil |
| -10 | 11.0 | 12.0 | 1.0 | Nil |
| -11 | 12.0 | 13.0 | 1.0 | 10 |
| -12 | 13.0 | 13.9 | 0.9 | 10 |
| -13 | 13.9 | 15.25 | 1.35 | 20 |
| -14 | 15.25 | 16.0 | 0.75 | Nil |
| -15 | 16.0 | 17.0 | 1.0 | Not Sampled |
| -16 | 17.0 | 18.0 | 1.0 | Not Sampled |
| -17 | 18.0 | 19.0 | 1.0 | Not Sampled |
| -18 | 19.0 | 20.0 | 1.0 | Nil |
| -19 | 20.0 | 21.0 | 1.0 | Nil |
| -20 | 21.0 | 22.65 | 1.65 | 20 |
| -21 | 22.6 | 23.25 | 0.65 | Nil |
| -22 | 23.25 | 25.0 | 1.75 | Nil |
| -23 | 25.0 | 26.0 | 1.0 | Nil |
| -24 | 26.0 | 27.0 | 1.0 | Nil |
| -25 | 27.0 | 28.2 | 1.2 | Nil |
| -26 | 28.2 | 30.0 | 1.8 | Nil |
| -27 | 30.0 | 32.35 | 2.35 | Not Sampled |
| -28 | 32.35 | 33.35 | 1.0 | 50 |
| -29 | 33.35 | 33.85 | 0.5 | 270/330 |
| -30 | 33.85 | 34.85 | 1.0 | Nil |
| -31 | 34.85 | 35.75 | 0.9 | Nil |
| -32 | 35.75 | 36.15 | 0.4 | Nil |
| -33 | 36.15 | 37.25 | 1.1 | Nil |
| -34 | 37.25 | 39.0 | 1.75 | Nil |
| -35 | 39.0 | 40.0 | 1.0 | Nil |
| -36 | 40.0 | 41.0 | 1.0 | Nil |
| -37 | 41.0 | 42.0 | 1.0 | Nil |
| -38 | 42.0 | 43.0 | 1.0 | Nil |
| -39 | 43.0 | 44.0 | 1.0 | Nil |
| -40 | 44.0 | 44.5 | 0.5 | 20 |
| -41 | 44.5 | 45.5 | 1.0 | Nil |
| -42 | 44.50 | 45.91 | 0.41 | 80 |
| -43 | 45.91 | 46.20 | 0.29 | 1200 (0.044 oz/ft) |
| -44 | 46.20 | 46.90 | 0.70 | 220 |
| -45 | 46.90 | 47.60 | 0.70 | 60 |

TL 88-6 cfd.

(B)

| SAMPLE NO. | FROM | TO | LENGTH (Meters) | Aw(ppb) |
|------------|-------|-------|-----------------|---------|
| TL 88-6-46 | 47.60 | 48.4 | 0.8m | 240 |
| -47 | 48.4 | 48.85 | 0.45 | 520 |
| -48 | 48.85 | 49.95 | 1.10 | 70 |
| -49 | 49.95 | 50.2 | 0.25 | 120 |
| -50 | 50.2 | 50.65 | 0.45 | 330 |
| -51 | 50.65 | 51.25 | 0.60 | 330 |
| -52 | 51.25 | 52.20 | 0.95 | 270 |
| -53 | 52.2 | 52.5 | 0.3 | Nil |
| -54 | 52.5 | 53.5 | 1.0 | 130 |
| -55 | 53.5 | 54.5 | 1.0 | Nil |
| -56 | 54.5 | 55.5 | 1.0 | Nil |
| -57 | 55.5 | 56.5 | 1.0 | 110 |
| -58 | 56.5 | 57.5 | 1.0 | Nil |
| -59 | 57.5 | 58.5 | 1.0 | Nil |
| -60 | 58.5 | 59.5 | 1.0 | Nil |
| -61 | 59.5 | 61.5 | 2.0 | Nil |
| -62 | 64.9 | 65.5 | 0.6 | Nil |
| -63 | 65.5 | 66.0 | 0.5 | Nil |
| -64 | 66.0 | 67.0 | 1.0 | 10 |
| -65 | 67.0 | 68.0 | 1.0 | Nil |
| -66 | 68.0 | 69.0 | 1.0 | Nil |
| -67 | 69.0 | 69.75 | 0.75 | 10 |
| -68 | 69.75 | 70.25 | 0.50 | 70/60 |
| -69 | 70.25 | 71.25 | 1.0 | 20 |
| -70 | 71.25 | 72.65 | 1.40 | 290 |
| -71 | 72.65 | 74.30 | 1.65 | 40 |
| -72 | 74.30 | 74.70 | 0.40 | 20 |
| -73 | 74.70 | 76.25 | 1.55 | 30 |
| -74 | 76.25 | 77.25 | 1.0 | 20 |
| -75 | 77.25 | 78.00 | 0.75 | 140/80 |
| -76 | 78.0 | 79.0 | 1.0 | 70 |
| -77 | 79.0 | 80.0 | 1.0 | 20 |
| -78 | 80.0 | 81.4 | 1.4 | 10 |
| -79 | 81.40 | 82.25 | 0.85 | 10 |
| -80 | 82.25 | 83.25 | 1.0 | 40 |
| -81 | 83.25 | 84.25 | 1.0 | 70 |
| -82 | 84.25 | 84.75 | 0.5 | 20 |
| -83 | 84.75 | 85.5 | 0.75 | 10 |
| -84 | 85.5 | 86.0 | 0.5 | 20 |
| -85 | 86.0 | 86.3 | 0.3 | 100 |
| -86 | 86.3 | 87.3 | 1.0 | 250/230 |
| -87 | 87.3 | 89.0 | 1.7 | 70 |
| -88 | 92.35 | 93.85 | 1.5 | 30 |
| -89 | 93.85 | 94.85 | 1.0 | 40 |

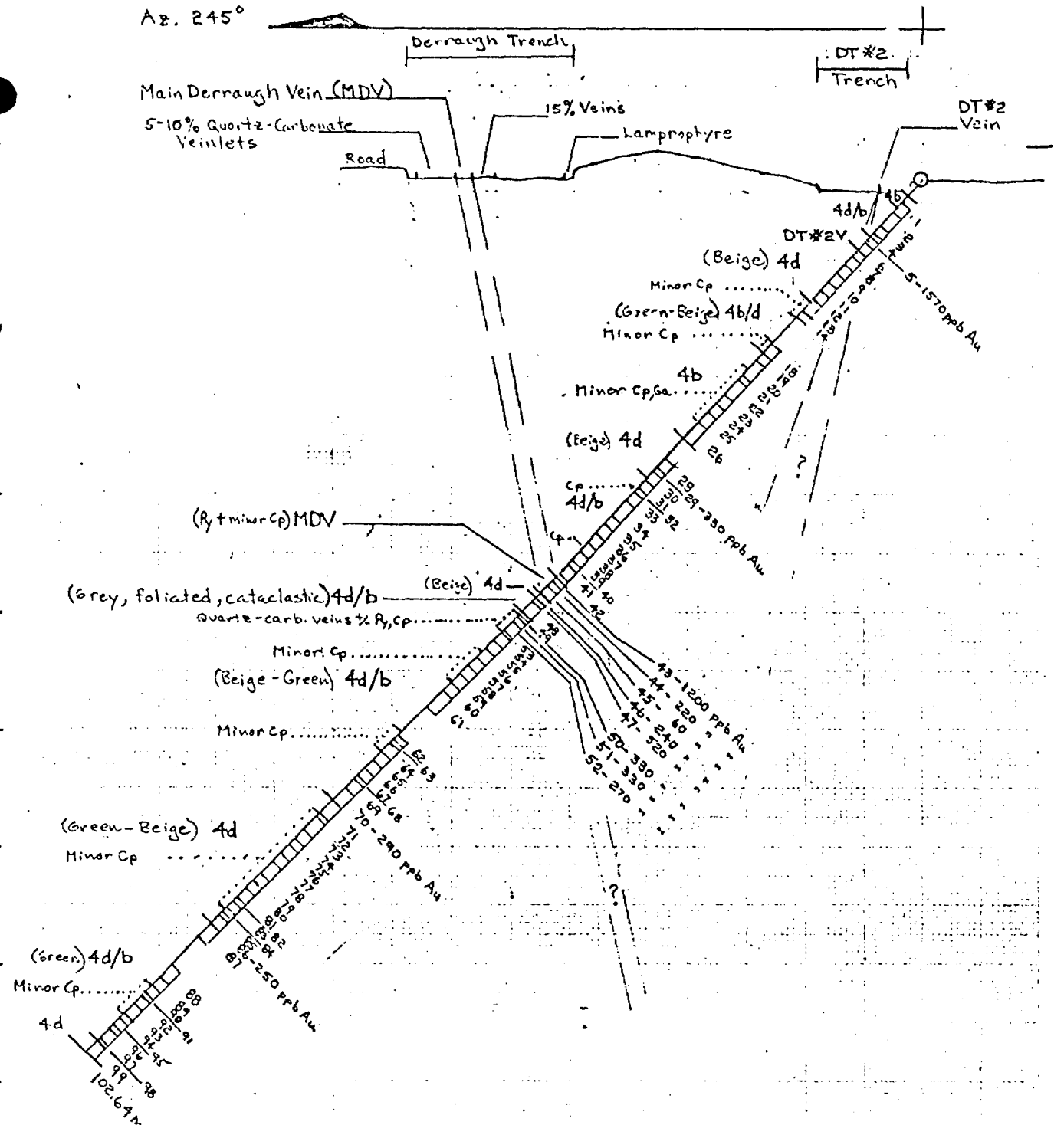
TL 88-6 ctd.

⑥

| SAMPLE NO | FROM | TO | LENGTH (Meters) | Au (ppb) |
|------------|--------|--------|-----------------|----------|
| TL 88-6-90 | 94.85 | 95.75 | 0.90 m | 250 |
| -91 | 95.75 | 96.25 | 0.5 | 70 |
| -92 | 96.25 | 97.15 | 0.9 | 10 |
| -93 | 97.15 | 98.30 | 1.15 | 100/60 |
| -94 | 98.30 | 98.90 | 0.60 | 40 |
| -95 | 98.90 | 99.60 | 0.70 | 20 |
| -96 | 99.6 | 100.8 | 1.2 | 40 |
| -97 | 100.8 | 101.15 | 0.35 | 10 |
| -98 | 101.15 | 101.28 | 0.13 | 30 |
| -99 | 101.28 | 102.64 | 1.36 | N:1 |

Az. 245°

Elev. 0
10m
20m
30m
40m
50m
60m
70m
80m



CAN-MAC EXPLORATION LTD.
 Topboot Lake Property
 Swayze Tp., Ontario

SECTION THROUGH
 D.I.H. TL88-6
 (Derragh Vein)

Scale = 1:500

Date: August, 1988

Geological Engineering Services
 F.H.T.

DIAMOND DRILL RECORD

FOR CAN-MAC EXPLORATION LTD.

BY GEOLOGICAL ENGINEERING SERVICES, NORTH BAY, ONTARIO.

TOPBOOT LAKE PROJECT, SWAYZE TOWNSHIP - DERRAUGH VEIN ZONE

HOLE NUMBER: T.L.-88-10

LOCATION: 1+10 W / 6+17.5 S 932 503

LENGTH OF HOLE: 78.0 METRES (256 FEET)

AZIMUTH: 130 DEGREES

DIP: - 45 DEGREES

STARTED: SEPT 28 1988

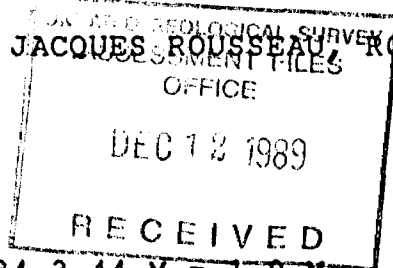
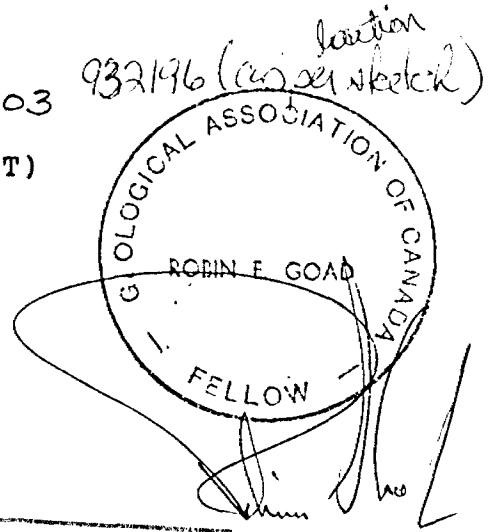
FINISHED: SEPT 29 1988

LOGGED BY: ROBIN E. GOAD

CONTRACTOR: LES ENTREPRISES JACQUES ROUSSEAU, ROUYN, QUEBEC.

CORE SIZE: BQ

DIP TESTS: NONE



| SAMPLES: | | | Au PPB |
|-------------|-----------------------|---------|--------|
| TL-88-10-1 | 2.34-3.44 M = 1.0 M | 110 | |
| TL-88-10-2 | 11.4-12.4 M = 1.0 M | 20 | |
| TL-88-10-3 | 12.4-13.4 M = 1.0 M | 10 | |
| TL-88-10-4 | 13.4-14.4 M = 1.0 M | NIL | |
| TL-88-10-5 | 14.4-15.4 M = 1.0 M | 40 | |
| TL-88-10-6 | 17.7-18.7 M = 1.0 M | 20 | |
| TL-88-10-7 | 18.7-19.7 M = 1.0 M | 30 | |
| TL-88-10-8 | 19.7-20.7 M = 1.0 M | 30 | |
| TL-88-10-9 | 20.7-21.7 M = 1.0 M | 130/120 | |
| TL-88-10-10 | 21.7-22.7 M = 1.0 M | 80 | |
| TL-88-10-11 | 22.7-23.7 M = 1.0 M | 80 | |
| TL-88-10-12 | 23.7-24.7 M = 1.0 M | 110/90 | |
| TL-88-10-13 | 26.0-27.0 M = 1.0 M | 110 | |
| TL-88-10-14 | 66.7-67.7 M = 1.0 M | 10 | |
| TL-88-10-15 | 67.7-69.15 M = 1.45 M | 20 | |
| TL-88-10-16 | 69.15-70.15 M = 1.0 M | NIL | |
| TL-88-10-17 | 71.2-72.2 M = 1.0 M | 10 | |

METERAGE

DESCRIPTION

0-1.2 M

CASING

1.2-67.7 M

TOPBOOT LAKE PORPHYRY INTRUSION

1.2-2.94 M

SILICEOUS ALTERATION ZONE

Beige to weakly pink, fine-grained siliceous rock with local 25 %, 1-2 mm faint, subhedral, sericitic plagioclase phenocrysts. 1-2 %, 2-5 mm chloritic patches are interpreted as altered xenoliths. Approximately 1 %, 1-3 mm, fine-grained, chert-like, siliceous veinlets are commonly at 30 degrees to the core axis (C.A.). Numerous healed siliceous fractures.

2.6-2.94 M microbrecciated with numerous stockwork, hairline siliceous and chloritic fractures.

2.94-11.4 M

CHLORITIC AND SILICEOUS ALTERATION ZONE

Greenish gray altered porphyry comprised of up to 20 %, 1-2 mm, faint to distinct, euhedral to subhedral plagioclase phenocrysts in a finer-grained chloritic and/or siliceous groundmass. A beige to pinkish beige, patchy siliceous alteration bleaches the rock with sharp to gradational contacts. The patchy nature of the alteration may be in part controlled by the xenoliths observed in less altered porphyry. Chloritic alteration occurs as wisps throughout the groundmass. Numerous quartz (qtz) +/- carbonate (carb), chloritic and chert-like siliceous fractures and veinlets in random orientation (locally microbrecciated). Larger qtz +/- carb veinlets (up to 2 cm wide) are commonly at 40 degrees to the C.A. Trace (tr) disseminated (diss) pyrite (py) although locally concentrated up to 5 % over 2 cm intervals where there are abundant veinlets.

4.5-5.6 M microbrecciated; beige, siliceous bleaching; and faint sericitic phenocrysts.

4.5 M 1 cm wide qtz veinlet @ 15 degrees to the C.A.

4.6 M 1 cm wide qtz veinlet @ 40 degrees to the C.A.

7.8-11.4 M Gradation to increasingly more siliceous alteration and fractures are healed.

10.2 M 3 cm wide qtz veinlet @ 35 degrees to the C.A.

11.94-27.9 M

SILICEOUS ALTERATION ZONE

Pervasive beige to pinkish beige, fine-grained, siliceous alteration with no visible plagioclase phenocrysts. However, there are gradations into areas with 25 %, 1-2 mm plagioclase phenocrysts in

a grey siliceous alteration with less alteration. Numerous (2 %) < 1-3 mm, siliceous, randomly oriented hairline fractures and larger qtz veinlets up to 1 cm wide. Local chloritic wisps and fractures, and epidote and sericite filled fractures. Local areas with tr. to 1 % diss. and fracture filling py associated with the more chloritic areas. The siliceous fractures are in random orientation but commonly 40 to 70 degrees to the C.A.

11.4-16.0 M Tr. to 1 % diss. and fracture filling py with local 5 cm intervals with 2 to 3 % py.

16.0 M 5 to 8 cm wide chloritic band with sharp contacts @ 70 degrees to the C.A. and fine anastomosing chloritic fractures. The rock is interpreted as an altered lamprophyre dyke.

16.1-17.1 M Less intensely altered zone with 25 %, 1-2 mm plagioclase phenocrysts in a gray, fine-grained siliceous groundmass.

18.5-26.2 M siliceous alteration has a pervasive locally intense pink to pinkish red stain believed to be hematization. Dark green to black, pyritic fractures and 1 % diss. py. Approximately 1 % 1 to 5 mm wide, white qtz veinlets commonly @ 45 and 60 degrees to the C.A. Numerous hairline, pyritic epidote and sericite filled fractures 60 to 90 degrees to the C.A. Py locally up to 2 % in 10 cm wide patches.

25.2-27.9 M Pervasive beige to pinkish beige siliceous bleaching with healed siliceous fractures and occasional 1-2 mm chloritic wisps.

27.9-67.7 M

FELDSPAR PORPHYRY WITH HETEROGENOUS SILICEOUS AND LOCAL CARBONATE ALTERATION

25 to 30 %, 1-3 mm, euhedral to subhedral plagioclase phenocrysts in a finer-grained, gray, siliceous groundmass. < 1 %, 1-3 cm angular, chloritic xenoliths. Patches of pervasive beige siliceous alteration up to 4 m locally overprints the porphyry with gradational to sharp contacts. Phenocrysts are locally visible in the altered localities. Areas with siliceous bleaching contain 1-5 %, 1-3 mm wide qtz veinlets commonly 60 to 70 degrees to the C.A. and numerous hairline chloritic and epidote filled fractures.

42.4-67.7 M 1 % angular chloritic xenoliths and 1 %, 1-3 mm wide qtz > carb veinlets commonly @ 35 and 50 degrees to the C.A.

52.0-59.8 M Locally abundant interstitial carbonate.

52.0 2, 2 cm wide qtz-carb veinlets @ 60 degrees to the C.A.

52.2 M 4 cm wide qtz-carb veinlet @ 40 degrees to the C.A.

56.4-56.6 M Irregular Qtz veinlets with 5 cm intervals containing up to 5 % coarse-grained py.
58.8-67.7 M Patches of pervasive fine-grained beige siliceous bleaching possibly arising from preferential alteration to xenoliths in the protolith.
59.8-60.3 M Sharp contact into bleaching as above.
62.5-62.85 M Sharp contact into bleaching as above with tr. diss. py.
63.2-63.4 M as above with local wisps of green mica.
63.8-64.0 M as above with a pink colouration.

67.7-69.15 M DERRAUGH VEIN ZONE
Sharp upper contact @ 45 degrees to the C.A. into a zone of Qtz veining and silica flooding with irregular chloritic fractures containing 1 % fine py. Lower contact is brecciated and gradational into altered porphyry.

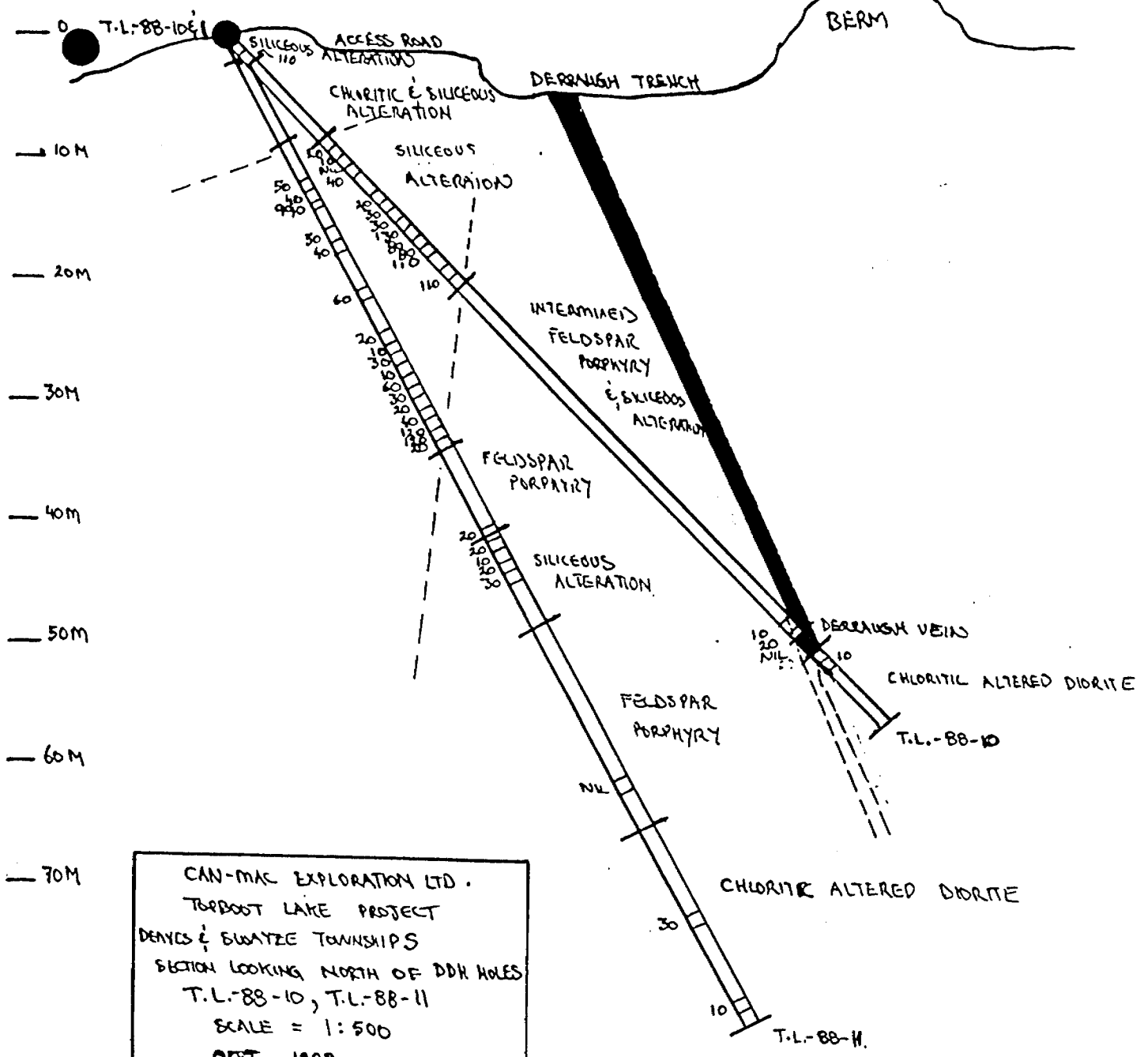
69.15-78.0 M TOPBOOT LAKE PORPHYRY INTRUSION
69.15-78.0 M FELDSPAR PORPHYRY
25-30 %, 1-2 mm plagioclase phenocrysts in a finer-grained medium gray chloritic groundmass with interstitial carbonate.
71.2-74.5 M 1 % diss. py.

78.0 M END OF HOLE
256 FEET

WEST

Az 130°

EAST



CAN-MAC EXPLORATION LTD.
 TORBOST LAKE PROJECT
 DENNIS & BWAYZE TOWNSHIPS
 SECTION LOOKING NORTH OF DDH HOLES
 T.L.-88-10, T.L.-88-11
 SCALE = 1:500
 OCT., 1988
 BY RODIN E. GARD M.B.C. F.G.A.C.
 GEOLOGICAL ENGINEERING SERVICES

DIAMOND DRILL RECORD

FOR CAN-MAC EXPLORATION LTD.

BY GEOLOGICAL ENGINEERING SERVICES, NORTH BAY, ONTARIO.

TOPBOOT LAKE PROJECT, SWAYZE TOWNSHIP - DERRAUGH VEIN ZONE

HOLE NUMBER: T.L.-88-11

LOCATION: 1+10 W / 6+17.5 S 932503 932196 (as per location sketch)

LENGTH OF HOLE: 92.4 METRES (303 FEET)

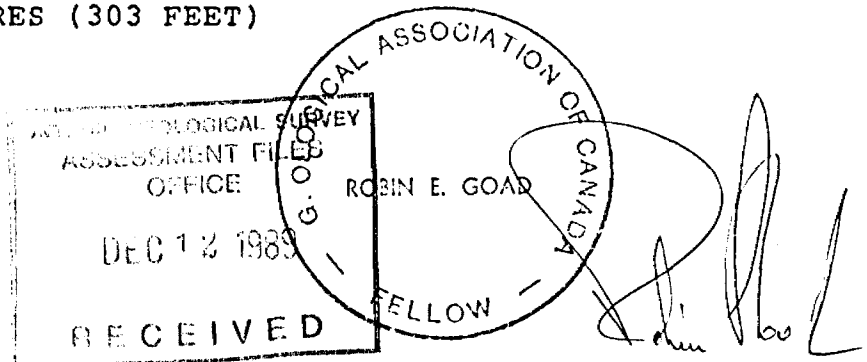
AZIMUTH: 130 DEGREES

DIP: - 60 DEGREES

STARTED: SEPT 29 1988

FINISHED: SEPT 30 1988

LOGGED BY: ROBIN E. GOAD



CONTRACTOR: LES ENTREPRISES JACQUES ROUSSEAU, ROUYN, QUEBEC.

CORE SIZE: BQ

DIP TESTS: NONE

| SAMPLES: | | | Au PPB |
|-------------|-----------------------|---------|--------|
| TL-88-11-1 | 13.6-14.6 M = 1.0 M | 50 | |
| TL-88-11-2 | 14.6-15.6 M = 1.0 M | 40 | |
| TL-88-11-3 | 15.6-16.1 M = 0.5 M | 990/940 | |
| TL-88-11-4 | 18.05-19.05 M = 1.0 M | 50 | |
| TL-88-11-5 | 19.05-20.05 M = 1.0 M | 40 | |
| TL-88-11-6 | 23.35-24.35 M = 1.0 M | 60 | |
| TL-88-11-7 | 26.9-27.9 M = 1.0 M | 20 | |
| TL-88-11-8 | 27.9-28.9 M = 1.0 M | 10 | |
| TL-88-11-9 | 28.9-29.9 M = 1.0 M | 30 | |
| TL-88-11-10 | 29.9-30.9 M = 1.0 M | 10 | |
| TL-88-11-11 | 30.9-31.9 M = 1.0 M | 60 | |
| TL-88-11-12 | 31.9-32.9 M = 1.0 M | 30 | |
| TL-88-11-13 | 32.9-33.9 M = 1.0 M | 20 | |
| TL-88-11-14 | 33.9-34.9 M = 1.0 M | 40 | |
| TL-88-11-15 | 34.9-35.9 M = 1.0 M | 100/120 | |
| TL-88-11-16 | 35.9-36.9 M = 1.0 M | 120 | |
| TL-88-11-17 | 36.9-37.9 M = 1.0 M | 20 | |
| TL-88-11-18 | 45.85-46.85 M = 1.0 M | 20 | |
| TL-88-11-19 | 46.85-47.85 M = 1.0 M | 20 | |
| TL-88-11-20 | 47.85-48.85 M = 1.0 M | 10 | |
| TL-88-11-21 | 48.85-49.85 M = 1.0 M | 20 | |
| TL-88-11-22 | 49.85-50.85 M = 1.0 M | 30 | |
| TL-88-11-23 | 69.55-70.55 M = 1.0 M | NIL | |
| TL-88-11-24 | 82.25-83.25 M = 1.0 M | 30 | |
| TL-88-11-25 | 90.35-91.35 M = 1.0 M | 10 | |

METERAGE

DESCRIPTION

0-1.2 M

CASING

1.2-92.4 M

TOPBOOT LAKE PORPHYRY INTRUSION

1.2-2.2 M

SILICEOUS ALTERATION ZONE

Beige to weakly pink, fine-grained siliceous rock with stockwork chloritic and siliceous hairline fractures and veinlets. Some fractures and veinlets commonly trend @ 30 and 60 degrees to the core axis (C.A.).

2.0-2.2 M Pervasive pink stain interpreted as hematization marginal to a 1 cm quartz (qtz)-carbonate (carb) veinlet @ 35 degrees to the C.A.

2.2-9.7 M

CHLORITIC AND SILICEOUS ALTERATION ZONE

Medium to light greenish gray altered porphyry comprised of up to 20 %, 1-2 mm, faint to distinct, euhedral to subhedral plagioclase phenocrysts in a finer-grained chloritic and/or siliceous groundmass. The rock contains < 1 %, 3 mm to 3 cm, angular, chloritic xenoliths. The rock contains numerous hairline, stockwork chloritic and siliceous, chert-like fractures and qtz veinlets up to 5 mm wide. Fractures and veinlets locally form siliceous, pyritic microbreccias over several cm or tens of cm. Phenocrysts in these localities are faint, sericitic and subhedral. A beige to pinkish beige, pyritic, patchy, siliceous alteration locally bleaches the rock and overprints the chloritic alteration with sharp to gradational contacts. The patchy nature of the alteration may be in part controlled by the xenoliths observed in less altered porphyry.

4.1 M 2 cm wide qtz +/- carb @ 70 degrees to the C.A.

8.0 M 2 and 1 cm wide qtz veinlets @ 35 degrees to the C.A.

8.3 M Irregular patches of milky white qtz over 15 cm.

8.3-9.1 M Microbreccia with qtz patches, fractures and veinlets and marginal pervasive beige, fine-grained siliceous alteration and trace (tr) disseminated (diss) pyrite (py).

9.7-37.9 M

SILICEOUS ALTERATION ZONE

Pervasive beige to pinkish beige, fine-grained, siliceous alteration with chloritic hairline fractures and wisps, qtz veinlets and patches, and local sericite and epidote filled fractures. The siliceous alteration grades into intervals with a pink to red colouration believed to be hematization or alkali feldspar.

9.7-10.0 M Zone of intense microbrecciation

comprised of chloritic and siliceous stockwork hairline fractures and larger qtz veinlets up to 1 cm wide.

10.0 M 10 cm wide qtz veinlet trending @ 35 to the C.A.

12.5-13.2 M Locally intense pink to reddish pink stained siliceous alteration containing chloritic streaks up to 2 cm long defining a foliation @ 60 degrees to the C.A. Tr. diss. py.

13.65 M 2.0 cm wide qtz veinlet @ 80 degrees to the C.A.

13.6-16.1 M Averages 1 % diss. py. with local intervals up to 2-3 % py.

16.1-17.7 M Zone of less altered feldspar porphyry comprised of up to 25 %, 1 mm, subhedral, faint plagioclase phenocrysts in a finer-grained, light gray siliceous groundmass. Hairline chloritic fractures @ 45 degrees to the C.A.

17.7-22.8 M Zone of intense pink to pinkish red, pervasive stain (alteration) with < 1 % fracture filling py, chloritic wisps and fractures, and qtz > carb veinlets in random orientation.

22.8-23.2 M Locally abundant dark gray-green chloritic patches.

23.35-24.4 Intense pervasive, beige, siliceous alteration with healed siliceous fractures and 1-2 % diss. py.

24.4-24.5 M Zone of intense fracturing to microbrecciation with larger fractures commonly trending @ 45 degrees to the C.A.

25.4-26.9 M Zones of less intense alteration and bleaching with faint to distinct plagioclase phenocrysts.

26.9-37.9 M Intense beige alteration as previously described containing < 1 % angular chloritic patches up to 4 cm and believed to be altered xenoliths. Numerous fractures and veinlets in random orientation locally forming microbreccia.

Qtz veinlets comprise 3 % of the rock and locally 50 % over 20 cm intervals. The veinlets are typically @ a low angle to the C.A. Chloritic hairline fractures locally define a poorly developed foliation @ 50 degrees to the C.A. Py. concentration varies from tr. up to 2 % over 2 M intervals.

36.5-37.9 M Intense beige alteration with healed fractures but no appreciable veining. Rock contains fine chloritic wisps and approximately 1 % diss. py.

37.9-45.85 M

FELDSPAR PORPHYRY

Silicified feldspar porphyry comprised of 25 to 30 %, 1-3 mm, euhedral to subhedral plagioclase

phenocrysts in a finer-grained, light gray, siliceous groundmass. Zones of intense siliceous bleaching occur in patches up to 50 cm long @ 10 cm to 1 M intervals with sharp to gradational contacts.

40.0 M 1 cm wide qtz veinlet @ approximately 15 degrees to the C.A.

42.3 M Intense siliceous bleaching over 15 cm marginal to a 1 cm wide siliceous, chert-like veinlet @ 45 degrees to the C.A.

42.7 M 30 cm wide zone of intense siliceous bleaching and numerous healed siliceous hairline fractures.

43.0-45.2 M Approximately 2 %, 1mm-1cm wide qtz veinlets and siliceous fractures commonly @ 50-60 degrees to the C.A.

45.85-54.95 M SILICEOUS ALTERATION ZONE

Intense, pervasive, beige, siliceous alteration as previously described but contains up to 30 % chloritic wisps and streaks. Veinlets and fractures are common throughout the zone but local intervals are devoid of fractures. Approximately 2 % diss. Py diminishing in abundance with increasing depth. Py is particularly abundant marginal to the chloritic and siliceous fractures.

45.85-50.2 M 3 % diss. Py. and locally 5 % over 5 cm intervals marginal to chloritic and siliceous fractures.

51.5 30 cm wide zone of siliceous bleaching around 2 0.5 cm wide siliceous veinlets @ 50 degrees to the C.A.

52.2 M 15 cm band of alteration marginal to 2, 3 mm wide siliceous veinlets @ 45 degrees to the C.A.

52.7 M 3 cm wide qtz veinlet @ 55 degrees to the C.A.

52.8 M 30 cm band of intense siliceous alteration around a 0.5 cm pyritic band @ 75 degrees to the C.A.

53.1-54.95 M Local zones of less altered feldspar porphyry comprised of faint subhedral plagioclase phenocrysts in a fine-grained siliceous groundmass.

54.95-73.4 M FELDSPAR PORPHYRY

Feldspar porphyritic rock comprised of 63.2-63.4 M as above with local wisps of 25 %, 1-3 mm, plagioclase phenocrysts in a light to medium green-gray, fine grained groundmass. Rock has < 1 % angular, chloritic xenoliths up to 5 cm. Approximately 1 % diss. py. occurs in groundmass and locally 2 % over 1 M intervals. Porphyry

grades from a siliceous alteration to a more chloritic and carbonatized alteration with depth. Qtz +/- carb veinlets 1 mm to 10 cm wide are abundant and commonly trend @ 35 degrees to the C.A. Numerous chloritic and chert-like, siliceous fractures. Local patches of pervasive, beige siliceous alteration with sharp irregular contacts.

54.95-70.0 M Predominantly siliceous alteration.
59.8 M 15 cm wide zone of siliceous bleaching.
60.9 M 10 cm wide qtz vein with irregular contacts @ a low angle to the C.A.
70.0-73.4 M Alteration is dominated by chlorite and carb.
70.3 M 50 cm zone of intense siliceous bleaching.

73.4-92.4 M

CHLORITIC ALTERED DIORITE

Medium to dark green mottled textured rock comprised of chloritic patches and wisps in a lighter epidotized and carbonatized groundmass. The chloritic patches are interpreted as retrograde altered hornblende. Local zones of intense siliceous bleaching (as previously described) overprint the chlorite and carb. Occasional carb > qtz veinlets occur up to 4 cm wide. Numerous epidote and chlorite filled fractures. Py is locally 1 % over 1 M intervals. Local interfingering of feldspar porphyry (as previously described) up to 1.5 M long.

84.7 M 5 cm wide zone of qtz and carb veinlets @ 45 degrees to the C.A.

88.4-88.05 M Fine-grained dark green rock with numerous hairline epidote filled fractures commonly @ 80 degrees to the C.A. Occasional carb. > qtz veinlets and patches up to 1 cm wide commonly @ 30 degrees to the C.A. Local concentrations of up to 2 % finely diss. py. in siliceous altered bands. This finer-grained rock is believed to be the contact zone of the intrusion but may be mafic volcanics.

88.05-92.4 M Same as above but with a sericitic alteration defining a poorly developed foliation @ 70 degrees to the C.A. Fractures and veinlets comprise 5 % of the rock. Locally abundant py (2-3 % fracture filling py) but averages < 1 %.

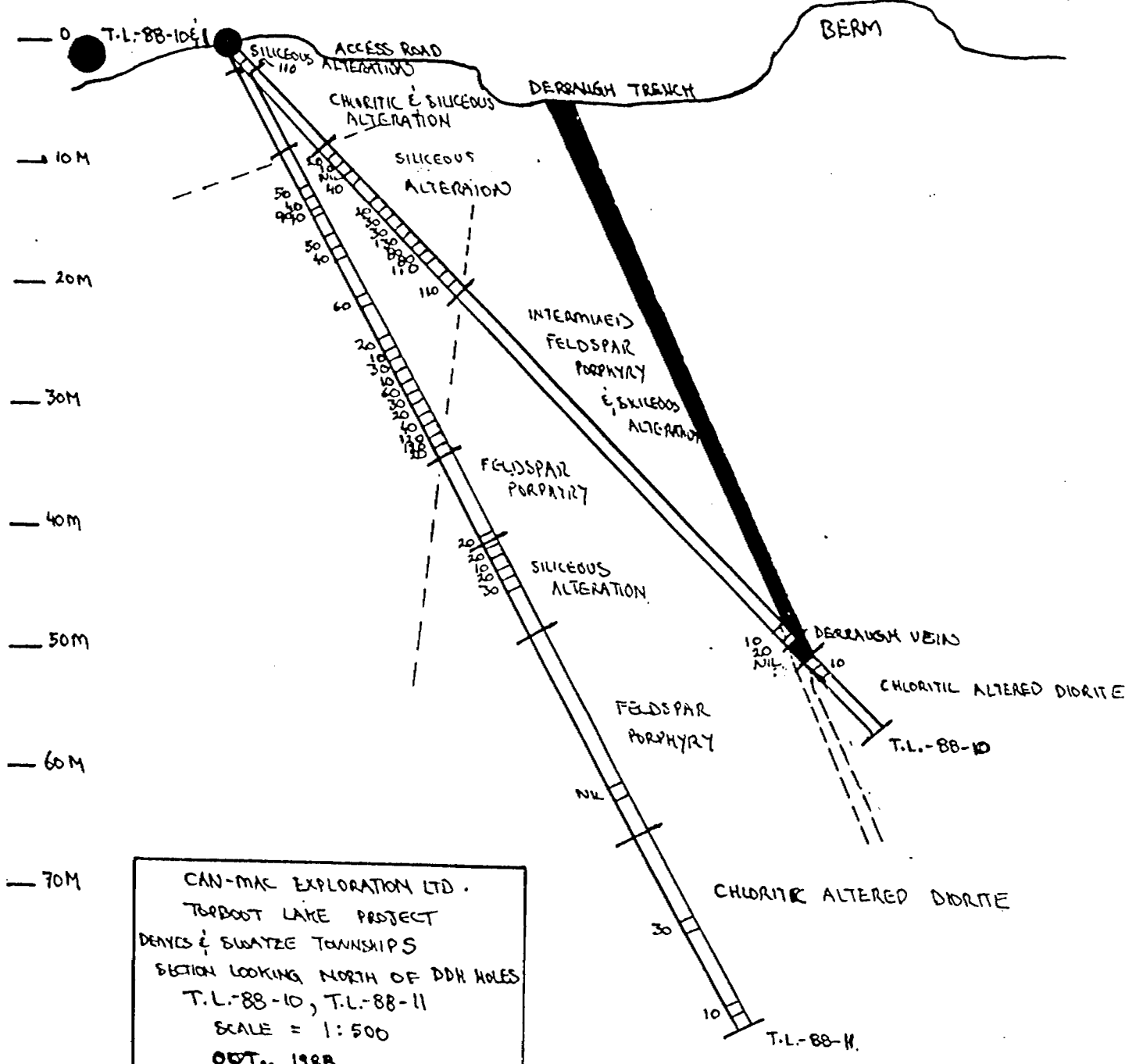
92.4 M
(303 FEET)

END OF HOLE

Az 130°

WEST

EAST



CAN-MAC EXPLORATION LTD.
 TORBOST LAKE PROJECT
 DENNIS & SWATZE TOWNSHIPS
 SECTION LOOKING NORTH OF DDH HOLES
 T.L.-88-10, T.L.-88-11
 SCALE = 1:500
 OCT., 1988
 BY RODIN E. GARD M.B.C. F.G.A.C.
 GEOLOGICAL ENGINEERING SERVICES

DIAMOND DRILL RECORD

FOR CAN-MAC EXPLORATION LTD.

BY GEOLOGICAL ENGINEERING SERVICES, NORTH BAY, ONTARIO.

TOPBOOT LAKE PROJECT, SWAYZE TOWNSHIP - DERRAUGH VEIN ZONE

HOLE NUMBER: T.L.-88-12

LOCATION: 1+07.5 W / 5+90 S 932503

LENGTH OF HOLE: 92.7 METRES (304 FEET)

AZIMUTH: 104 DEGREES

DIP: - 45 DEGREES

STARTED: SEPT 30 1988

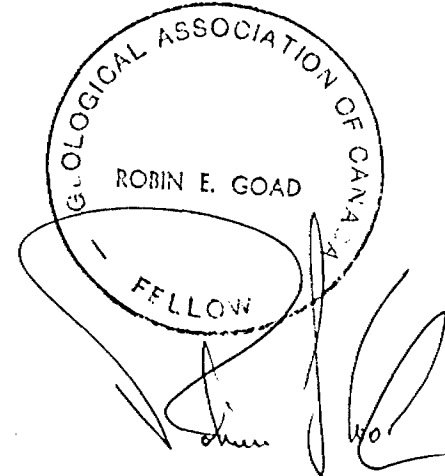
FINISHED: ^{OCT 1} SEPT., 1988

LOGGED BY: ROBIN E. GOAD

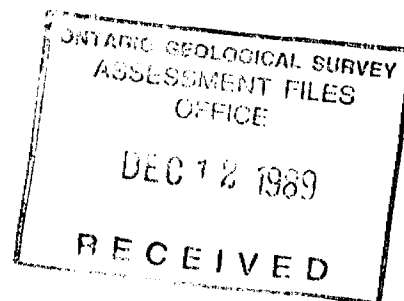
CONTRACTOR: LES ENTREPRISES JACQUES ROUSSEAU, ROUYN, QUEBEC

CORE SIZE: BQ

DIP TESTS: NONE



| SAMPLES: | | | Au PPB |
|-------------|---------------------|--|--------|
| TL-88-12-1 | 8.5-9.5 M = 1.0 M | | 20 |
| TL-88-12-2 | 41.0-42.0 M = 1.0 M | | 400 |
| TL-88-12-3 | 42.0-43.0 M = 1.0 M | | 150 |
| TL-88-12-4 | 43.0-44.0 M = 1.0 M | | 50 |
| TL-88-12-5 | 44.0-45.0 M = 1.0 M | | 450 |
| TL-88-12-6 | 45.0-46.0 M = 1.0 M | | 20 |
| TL-88-12-7 | 46.0-47.0 M = 1.0 M | | 100 |
| TL-88-12-8 | 47.0-48.0 M = 1.0 M | | 30 |
| TL-88-12-9 | 56.9-57.9 M = 1.0 M | | 20 |
| TL-88-12-10 | 57.9-58.9 M = 1.0 M | | 30/30 |
| TL-88-12-11 | 58.9-59.9 M = 1.0 M | | 10 |



METERAGE

DESCRIPTION

0-1.2 M

CASING

1.2-43.0 M

TOPBOOT LAKE PORPHYRY INTRUSION

1.2-10.6 M

CHLORITIC ALTERED DIORITE

Medium green-gray mottled textured rock comprised of chlorite wisps and patches in a leucocratic groundmass with abundant interstitial carbonate (carb). Abundant epidote and chlorite filled fractures and < 1 mm - 5 mm carb. veinlets (latter commonly trending @ 45 degrees to the C.A. Occasional lighter green zones are overprinted by a siliceous alteration containing up to 3 % py over 10 cm. Patches of altered feldspar porphyry comprised of fine, 1 mm, sericitic plagioclase phenocrysts in a siliceous groundmass occur towards the bottom of the interval.

10.6-20.65 M

ALTERED FELDSPAR PORPHYRY

Altered feldspar porphyry comprised of 30 %, 1-3 mm, euhedral to subhedral plagioclase phenocrysts in a finer-grained siliceous groundmass with occasional chloritic xenoliths up to 2 cm long. Groundmass is progressively stained by a pink alteration down section and is believed to result from hematization or alkali feldspar. Occasional quartz (qtz) > carb. +/- chlorite veinlets up to 2 cm wide and chloritic hairline fractures. Beige to weakly pink, fine-grained siliceous alteration heterogeneously throughout the rock and is locally feldspar destructive.

10.6-11.6 M Fine-grained siliceous bleaching with faint sericitic plagioclase phenocrysts.

14.5 M 30 cm of pervasive siliceous bleaching.

marginal to a 1 cm wide qtz veinlet @ 25 degrees to the core axis (C.A.).

15.6 M 4.0 cm qtz-carb-chlorite veinlet sub-parallel to the C.A.

16.2 m 3.0 cm qtz-carb-chlorite veinlet @20 degrees to the C.A.

17.0-18.5 M Abundant siliceous, chert-like fractures with marginal siliceous bleaching.

19.0-20.65 M Increasing feldspar destructive siliceous alteration and pink staining.

20.65-35.3 M

CHLORITIC AND SILICEOUS ALTERATION ZONE

Sharp contact @ 70 degrees to pervasive, pinkish-beige, fine-grained siliceous altered rock with green chloritic wisps and patches and abundant qtz > carb veinlets and hairline chloritic and epidote filled fractures.

20.65-20.9 M Microbreccia comprised of qtz., carb., chlorite and epidote filled stockwork fractures.

20.9-21.5 M Sharp contacts @ 70 degrees to C.A. to breccia comprised of 15 % angular to rounded clasts in a siliceous matrix.

35.3-41.1 M

ALTERED FELDSPAR PORPHYRY

Sharp contact @ 35 degrees to the C.A. to beige siliceous alteration with faint sericitic plagioclase phenocrysts grading into less altered feldspar porphyry. Less altered porphyry is comprised of 25 %, 1-2 mm plagioclase phenocrysts in a light gray siliceous groundmass and occasional chloritic, angular xenoliths up to 3 cm. Abundant qtz veinlets and healed chloritic and siliceous fractures.

41.1-43.0 M

SILICEOUS ALTERATION ZONE

Pervasive beige to pinkish beige, fine-grained, siliceous alteration locally microbrecciated with stockwork hairline chloritic and siliceous fractures and qtz veinlets. Tr. to 1 % diss. py.

43.0-45.0 M

DERRAUGH VEIN ZONE

Irregular, brecciated, sericitic contacts into white to cream coloured bull qtz with numerous stockwork healed fractures.

45.0-92.7 M

TOPBOOT LAKE PORPHYRY INTRUSION

45.0-46.4 M

SILICEOUS ALTERATION ZONE

Microbrecciated and locally mylonitic pervasive pinkish-beige, fine-grained, siliceous rock with anastomosing to stockwork chloritic, sericitic and siliceous fractures. The anastomosing fractures are essentially 45 degrees to the C.A. Occasional qtz +/- carb veinlets and irregular qtz patches up to 15 cm wide.

46.4-49.2 M

ALTERED FELDSPAR PORPHYRY

Gradational contact into altered feldspar porphyry comprised of 25 %, 1-2 mm, euhedral to subhedral plagioclase phenocrysts in a finer-grained, light gray, siliceous groundmass. 2 %, 1-3 mm wide qtz veinlets commonly @ 70 degrees to the C.A.

49.2-84.9 M

SILICEOUS ALTERATION ZONE

Gradational contact into pervasive, fine-grained pinkish-beige to light green siliceous rock. < 1 % qtz and carb veinlets and irregular qtz patches up to 70 cm wide. Variable py content from tr. to 1 %. Occasional emerald green wisps believed to be green mica. Fine sericitic laminations @ 70 degrees to the C.A.

58.0-58.7 M Irregular patchy qtz > carb > chlorite vein containing clasts of the wall rock.

66.3 4 cm wide qtz > carb > chlorite vein @ 45 degrees to the C.A.

71.6-74.5 M Areas of less intense siliceous bleaching and visible plagioclase phenocrysts.

72.6-72.9 M Numerous hairline siliceous fractures @ 60 degrees to the C.A.

74.0-75.0 M Locally microbrecciated comprised of numerous irregular siliceous fractures and qtz-carb veinlets.

75.5-84.9 M Areas of less altered medium gray porphyry.

82.0-83.0 M Microbreccia comprised of fine-grained, pinkish-beige bleached rock with numerous irregular stockwork siliceous and epidote filled fractures and fine qtz-carb veinlets and patches.

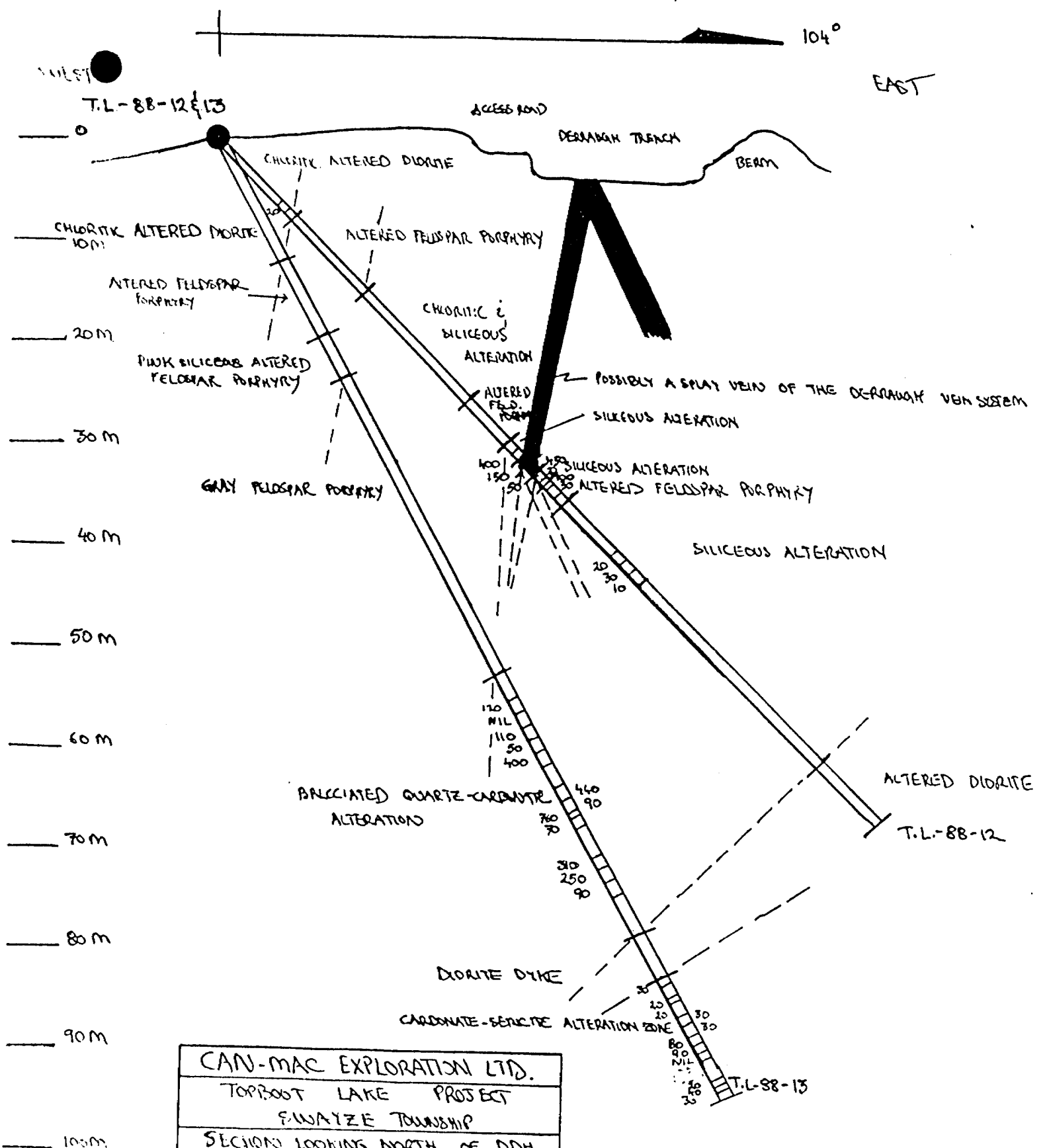
84.9-92.7 M

ALTERED DIORITE

Medium to dark green-gray mottled textured rock comprised of chloritic wisps and patches in a leucocratic groundmass with interstitial carbonate. Occasional carbonate veinlets 1 to 5 mm wide and tr. diss. py. Local interfingering of feldspar porphyry with sericitic plagioclase phenocrysts.

92.7 M
(304 FEET)

END OF HOLE



| |
|-----------------------------------|
| CAN-MAC EXPLORATION LTD. |
| TOPBOOT LAKE PROJECT |
| FWAYZE TOWNSHIP |
| SECTION LOOKING NORTH OF DDH |
| HOLE# T.L.-88-12 É T.L.-88-13 |
| SCALE = 1:500 |
| OCT., 1988 |
| BY ROBIN E. GUAD, M.Sc., F.G.A.C. |
| GEOLOGICAL ENGINEERING SERVICES |

DIAMOND DRILL RECORD

FOR CAN-MAC EXPLORATION LTD.

BY GEOLOGICAL ENGINEERING SERVICES, NORTH BAY, ONTARIO.

TOPBOOT LAKE PROJECT, SWAYZE TOWNSHIP - DERRAUGH VEIN ZONE

HOLE NUMBER: T.L.-88-13

LOCATION: 1+07.5 W / 5+90 S 932503

LENGTH OF HOLE: 107.3 METRES (352 FEET)

AZIMUTH: 104 DEGREES

DIP: - 60 DEGREES

STARTED: ^{OCT. 1} SEPT., 1988

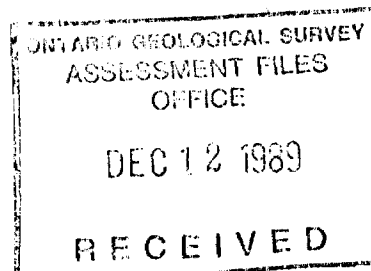
FINISHED: ^{OCT. 2} SEPT., 1988

LOGGED BY: FRANK TAGLIAMONTE

CONTRACTOR: LES ENTREPRISES JACQUES ROUSSEAU, ROUYN, QUEBEC.

CORE SIZE: BQ

DIP TESTS: NONE



| SAMPLES: | | | Au PPB |
|-------------|-----------------------|---------|--------|
| TL-88-13-1 | 62.3-63.7 M = 1.4 M | 120 | |
| TL-88-13-2 | 63.7-65.2 M = 1.5 M | NIL | |
| TL-88-13-3 | 65.2-66.7 M = 1.5 M | 110 | |
| TL-88-13-4 | 66.7-68.1 M = 1.4 M | 50 | |
| TL-88-13-5 | 68.1-69.5 M = 1.4 M | 400 | |
| TL-88-13-6 | 72.4-73.9 M = 1.5 M | 440 | |
| TL-88-13-7 | 73.9-75.0 M = 1.1 M | 90 | |
| TL-88-13-8 | 75.0-75.3 M = 0.3 M | 740/760 | |
| TL-88-13-9 | 75.3-76.5 M = 1.2 M | 70 | |
| TL-88-13-10 | 79.8-81.2 M = 1.4 M | 310 | |
| TL-88-13-11 | 81.2-82.7 M = 1.5 M | 250 | |
| TL-88-13-12 | 82.7-84.1 M = 1.4 M | 90 | |
| TL-88-13-13 | 93.7-94.3 M = 0.6 M | 30 | |
| TL-88-13-14 | 95.4-96.0 M = 0.6 M | 20 | |
| TL-88-13-15 | 96.0-97.5 M = 1.5 M | 20 | |
| TL-88-13-16 | 97.5-98.7 M = 1.2 M | 30 | |
| TL-88-13-17 | 98.7-100.3 M = 1.6 M | 30 | |
| TL-88-13-18 | 100.3-101.3 M = 1.0 M | 80 | |
| TL-88-13-19 | 101.3-102.4 M = 1.1 M | 90/80 | |
| TL-88-13-20 | 102.4-103.2 M = 0.8 M | NIL | |
| TL-88-13-21 | 105.5-106.1 M = 0.6 M | 20 | |
| TL-88-13-22 | 106.1-106.7 M = 0.5 M | 40 | |
| TL-88-13-23 | 106.7-107.3 M = 0.6 M | 30 | |

METERAGE

DESCRIPTION

- 0-1.2 M CASING
- 1.2-107.3 M TOPBOOT LAKE PORPHYRY INTRUSION
 1.2-13.4 M ALTERED AND BRECCIATED DIORITE
 Variable pearly gray and dark charcoal gray groundmass - vaguely porphyritic and vaguely foliated. Random black chloritic "clots" and flakes as well as black siliceous fractures - some with pyrite. Local brecciated patches. Fracturing with limonitic staining @ 40 degrees to the Core Axis (C.A.).
 7.3-13.4 M Darker gray, silicified, hard, vaguely, loosely porphyritic. Random seams and grains of pyrite (py) with up to 25 % py.
- 13.4-21.8 M PINK ALTERED FELDSPAR PORPHYRY
 Gradational but defineable contact, weakly foliated @ 65 degrees to the C.A. to pink altered aphanitic feldspar porphyry. Alternating and mixed zone of gray and pink porphyritic material and pink vaguely porphyritic or aphanitic material. Random tear drop-like dark green and pale green clasts.
- 21.8-26.3 M PINK SILICEOUS ALTERED FELDSPAR PORPHYRY
 Pale pink, very fine-grained, aphanitic indistinctly foliated rock. 25 % quartz-carbonate veinlets and streaks.
- 26.3-59.3 M GRAY FELDSPAR PORPHYRY
 Uniformly fine-grained feldspar porphyry. Pearly white feldspar phenocrysts. Occasional gray and pale green, aphanitic, crushed or broken shard. Lined with pearly white quartz veinlets and stockworks. Random sparse disseminated pyrite. Random bright green fuschite clasts.
 49.1-51.5 M Patchy areas of alteration with random semi-rounded pale green fuschite. Laced with pearly white quartz veinlets.
 53.9 M 25 cm of foliated diorite possibly a fragment, fairly granular with sharp foliated contacts @ 40 degrees to the C.A.
 55.2-59.3 M Bands and fragments of foliated diorite intermixed with quartz-carbonate alteration zone material.
- 59.3-88.4 M BRECCIATED QUARTZ-CARBONATE ALTERATION ZONE
 Variable zone of aphanitic, pale yellow and beige fragments intermixed with 40 % pearly white quartz. Pale yellow sericitic matrix with threads and seams of 10 % sericite. Sparse, very fine disseminated py. Occasional thin 1 mm py threads.

0.25-0.5 % py. Random fractures @ 50 to 65 degrees to the C.A.

61.3-76.7 M Quartz-carbonate stringer and breccia zone.

70.4-77.3 M Diorite fragment as previously described.

75.0-75.3 M Series of hairline, siliceous threads with fine disseminated py.

75.1 M 4 cm siliceous seam with threads of fine granular py (50 %) @ 55 degrees to the C.A.

76.7 M Slip with gouge @ 25 degrees to the C.A.

76.7-88.4 M Prominently brecciated and fragmented zone. Mottled, pearly gray and charcoal gray intermixing siliceous material. 10 % pearly white quartz threads and fragments. Random sparse fine py. 2 to 3 % sericite threads and seams.

88.4-93.7 M

DIORITE DYKE

Dark green, fine-grained, granular diorite dyke with foliation @ 60 degrees to the C.A. Sharp contacts. Some destruction of grains.

93.7-107.3 M

MINERALIZED CARBONATE-SERICITE ALTERATION ZONE

Lemon yellow and beige, aphanitic groundmass. Moderately hard - dirty gray carbonate. Vague brecciation/fragmentation that appears compacted and foliated. Vague foliation @ 60 degrees to the C.A. Locally thinly laminated. Pervasively sericitic. Thin hair-like threads and irregular patches. Random cross-cutting quartz-carbonate threads and veinlets - usually associated with fine granular py. Patchy disseminated and wormy seams of granular py. 3 % PY.

94.5-95.1 M Porous possibly kaolinitic zone

101.3-104.1 M Prominently thinly laminated, lemon coloured zone with sharp contacts. Moderately hard. Carbonated, silicified and sericitic. Laminations @ 60 degrees to the C.A. Random fine beads and wormy, discontinuous seams of py.

102.9 M 1 cm dirty gray quartz veinlet with fine granular py @ 25 degrees to the C.A.

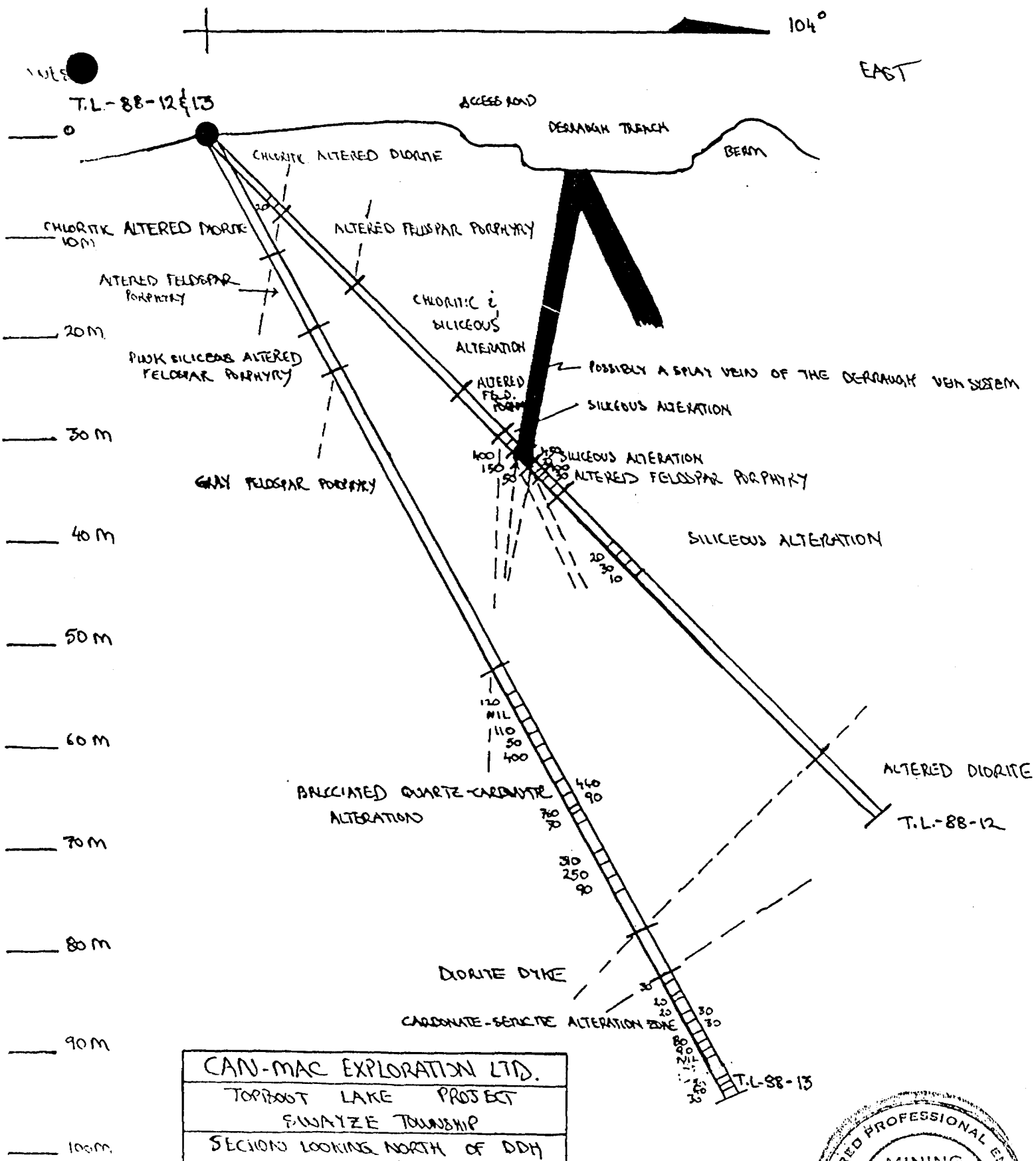
104.1-107.3 M Alternating gray-green bands and massive lemon coloured bands with fine, disseminated and irregular seams of spongy py patches (py grains in a gray quartz matrix) 3 % PY.

107.3 M
(352 FEET)

END OF HOLE

F. P. Fasliamonte





| |
|-----------------------------------|
| CAN-MAC EXPLORATION LTD. |
| TOPBOOT LAKE PROJECT |
| EWAYZE TOWNSHIP |
| SECTIONS LOOKING NORTH OF DDH |
| HOLE# T.L.-88-12 & T.L.-88-13 |
| SCALE = 1:500 |
| OCT., 1988 |
| BY ROBIN E. GUAD, M.Sc., F.G.A.C. |
| GEOLOGICAL ENGINEERING SERVICES |



| | | | | | | | | | | | | |
|----|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------------|-------------------|-------------------|-----------------|--------|------|
| | 607119 | 607120 | 607127 | 607128 | 607138 | 607138 | 9172141 | 917213 | 865382 | P | 917210 | 9894 |
| | P | P | P | P | P | P | P | P | P | P | P | P |
| | 931809 | 931810 | 931811 | 931812 | 917205 | 917206 | 917207 | 917208 | 917209 | 8945 | | |
| | 607119 | 607121 | 607126 | | 607134 | 607137 | 588997 | 588998 | 588999 | 5890 | | |
| | P | P | P | P | P | P | P | P | P | P | P | P |
| | 930727 | 930726 | 866475 | 932513 | 917204 | 917203 | 917202 | 917201 | 894600 | 8945 | | |
| | 607117 | 607122 | 607125 | 607130 | 607133 | 808273 | 606247 | 606246 | 606245 | 6062 | | |
| | P | P | P | P | P | P | P | P | P | P | P | P |
| | 866472 | 866473 | 866474 | 932514 | 894595 | 894596 | 894597 | 894598 | 894599 | 8945 | | |
| 5M | 607116 | 607123 | 607124 | 607131 | 607132 | 606274 | 606248 | 606249 | 606260 | 6062 | | |
| | P | P | P | P | P | P | P | P | P | P | P | P |
| | 866468 | 866467 | 866466 | | | 894594 | 894593 | 894592 | 894591 | 894590 | 8945 | |
| | 607063 | | | | | | | | | | | |
| | P | | | | | | | | | | | |
| | 932511 | Swayze Lake | 932513 | | | | | | | | | 8945 |
| | 787764 | | | | | | | | | | | |
| | P | | | | | | | | | | | |
| | 932504 | 1027201 | | | | | | | | | | |
| | 787760 | | | | | | | | | | | |
| | P | | | | | | | | | | | |
| 4M | 787763 | 1027202 | | | | | | | | | | |
| | 787762 | | | | | | | | | | | |
| | P | | | | | | | | | | | |
| | 1025254 | 1025255 | | | | | | | | | | |
| | 1034198 | 1034199 | | | | | | | | | | |
| | P | P | | | | | | | | | | |
| | 1025259 | 1025258 | 1025257 | 1025256 | | | | | | | | |
| | 1034201 | 1034200 | 1034206 | 1034207 | | | | | | | | |
| | P | P | P | P | | | | | | | | |
| | 1025260 | 1025261 | 1025262 | 1025263 | 1025264 | 1025265 | | | | | | |
| | 1034202 | 1034203 | 1034209 | 1034208 | 1034212 | 1034213 | | | | | | |
| | P | P | P | P | P | P | | | | | | |
| 3M | 1025271 | 1025270 | 1025269 | 1025268 | 1025267 | 1034214 | 1026266 | 932054 | 932055 | 932056 | 9320 | |
| | 1034205 | 1034204 | 1034210 | 1034211 | 1034215 | | | | | | | |
| | P | P | P | P | P | P | | | | | | |
| | 1025272 | 1025273 | 1025274 | 1025275 | 1025276 | 1026277 | | | | | | |
| | 1034178 | 1034179 | 1034186 | 1034187 | 1034190 | 1034191 | 932061 | 932062 | 932067 | 9320 | | |
| | 615983 | 615982 | 616001 | 615966 | 615965 | 615956 | 615955 | 615944 | 615938 | 6159 | | |
| | P | P | P | P | P | P | | | | | | |
| | 1025283 | 1025282 | 1025281 | 1025280 | 1025279 | 1034192 | | | | | | |
| | 1034181 | 1034180 | 1034189 | 1034188 | 1034193 | 1026278 | 932077 | 932078 | 932079 | 9320 | | |
| | 615984 | 615981 | 615974 | 615967 | 615964 | 615957 | 615954 | 615945 | 615939 | 6159 | | |
| | P | P | P | P | P | P | | | | | | |
| | 1025284 | 1025285 | 996297 | 996302 | 996307 | 996312 | | | | | | |
| | 1034182 | 1034183 | 615975 | 615968 | 615963 | 615958 | 615953 | 932097 | 932096 | 9320 | | |
| | 615985 | 615980 | 615970 | 615969 | 615962 | 615959 | 615952 | 615947 | 615941 | 6159 | | |
| | P | P | P | P | P | P | | | | | | |
| 2M | 1025287 | 1025286 | 996296 | 996301 | 996306 | 996311 | | | | | | |
| | 1034185 | 1034184 | 615976 | 615969 | 615962 | 615959 | 615952 | 996313 | 996314 | 996315 | 9963 | |
| | 615986 | 615970 | 615970 | 615969 | 615962 | 615959 | 615952 | 615947 | 615941 | 6159 | | |
| | P | P | P | P | P | P | | | | | | |

Work perf reported
work applied

SWAYZE TWP.

Denyes Twp.

Swayze River

Freymond



Mining Act

Name and Postal Address of Recorded Holder: CAN-MAC Exploration Ltd.
Box 1118, Hildebrandt St., Barry's Bay, ON

Prospector's Licence No.: T-315
K0J IBO SWAYZE

Summary of Work Performance and Distribution of Credits

| Total Work Days Cr. claimed 4059 1961.4 | Mining Claim | | Work Days Cr. | Mining Claim | | Work Days Cr. | Mining Claim | | Work Days Cr. |
|--|---|--------|---------------|--------------|--------|---------------|--------------|--------|---------------|
| | Prefix | Number | | Prefix | Number | | Prefix | Number | |
| for Performance of the following work. (Check one only) | See "Schedule A" attached | | | | | | | | |
| <input type="checkbox"/> Manual Work | <div style="border: 2px solid black; padding: 10px; display: inline-block;"> <p>RECORDED</p> <p>JUN 02 1989</p> </div> | | | | | | | | |
| <input type="checkbox"/> Shaft Sinking Drifting or other Lateral Work. | | | | | | | | | |
| <input type="checkbox"/> Compressed Air, other Power driven or mechanical equip. | | | | | | | | | |
| <input type="checkbox"/> Power Stripping | | | | | | | | | |
| <input checked="" type="checkbox"/> Diamond or other Core drilling | | | | | | | | | |
| <input type="checkbox"/> Land Survey | | | | | | | | | |

All the work was performed on Mining Claim(s): 932196, 932502, 932503, 932505

Required Information eg: type of equipment, Names, Addresses, etc. (See Table Below)

Diamond Driller: Les Entreprises Jacques Rousseau
Rouyn-Noranda, Quebec

| | |
|--------------------------------------|---|
| DDH#TL88-1: 256 ft. - July 26-27/88 | <p>* 4059 days - 1961.4 = 2097.6 DAYS CR.</p> |
| DDH#TL88-2: 294 ft. - " 27-28/88 | |
| DDH#TL88-3: 255 ft. - " 28-29/88 | |
| DDH#TL88-4: 326 ft. - " 29-30/88 | |
| DDH#TL88-5: 236 ft. - " 30-31/88 | |
| DDH#TL88-6: 336.7ft. - Aug. 1-2/88 | |
| DDH#TL88-7: 310 ft. - " 3-4/88 | |
| DDH#TL88-8: 446 ft. - " 4-5/88 | |
| DDH#TL88-9: 384 ft. - " 5-6/88 | |
| DDH#TL88-10: 256 ft. - Sept 28-29/88 | |
| DDH#TL88-11: 303 ft. - " 29-30/88 | |
| DDH#TL88-12: 304 ft. - " 30-Oct 1/88 | |
| DDH#TL88-13: 352 ft. - Oct 1-2/88 | |

4,058.7 ft.

RECEIVED
JUN 2 1989

RECEIVED
MAY 26 1989

Date of Report: May 26/89
Recorded Holder or Agent (Signature): *[Signature]*

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying: John C. Hildebrandt
Box 388, Barry's Bay, ON K0J IBO

Date Certified: May 26/89
Certified by (Signature): *[Signature]*

Table of Information/Attachments Required by the Mining Recorder

| Type of Work | Specific information per type | Other information (Common to 2 or more types) | Attachments |
|---|---|---|--|
| Manual Work | Nil | Names and addresses of men who performed manual work/operated equipment, together with dates and hours of employment. | Work Sketch: these are required to show the location and extent of work in relation to the nearest claim post. |
| Shaft Sinking, Drifting or other Lateral Work | | | |
| Compressed air, other power driven or mechanical equip. | Type of equipment | Names and addresses of owner or operator together with dates when drilling/testing | |
| Power Stripping | Type of equipment and amount expended. Note: Proof of actual cost must be submitted within 30 days of recording. | | |

SCHEDULE "A"

Claim #

866466 - 74
467 - 74
468 - 34
866472 - 34
473 - 74
474 - 74
475 - 74
930726 - 74
727 - 74
931809 - 74
810 - 74
811 - 74
812 - 74
932196 - ~~0~~
932503 - ~~0~~
504 - ~~0~~
511 - 10.2
512 - 54
513 - 54
514 - 54
515 - 54
P1027201 - 68
202 - 68
203 - 67

1311.2 days

DENYES

866469 - ~~0~~
470 - ~~0~~
866471 - 54
931819 - 74
820 - 74
821 - 74
932197 - ~~0~~
198 - 64
199 - 74
200 - 34
932501 - ~~0~~
502 - ~~0~~
932505 - ~~0~~
506 - ~~0~~
507 - 44
508 - 74
509 - 74
510 - 10.2

650.2 days.

Total - 1961.4 days

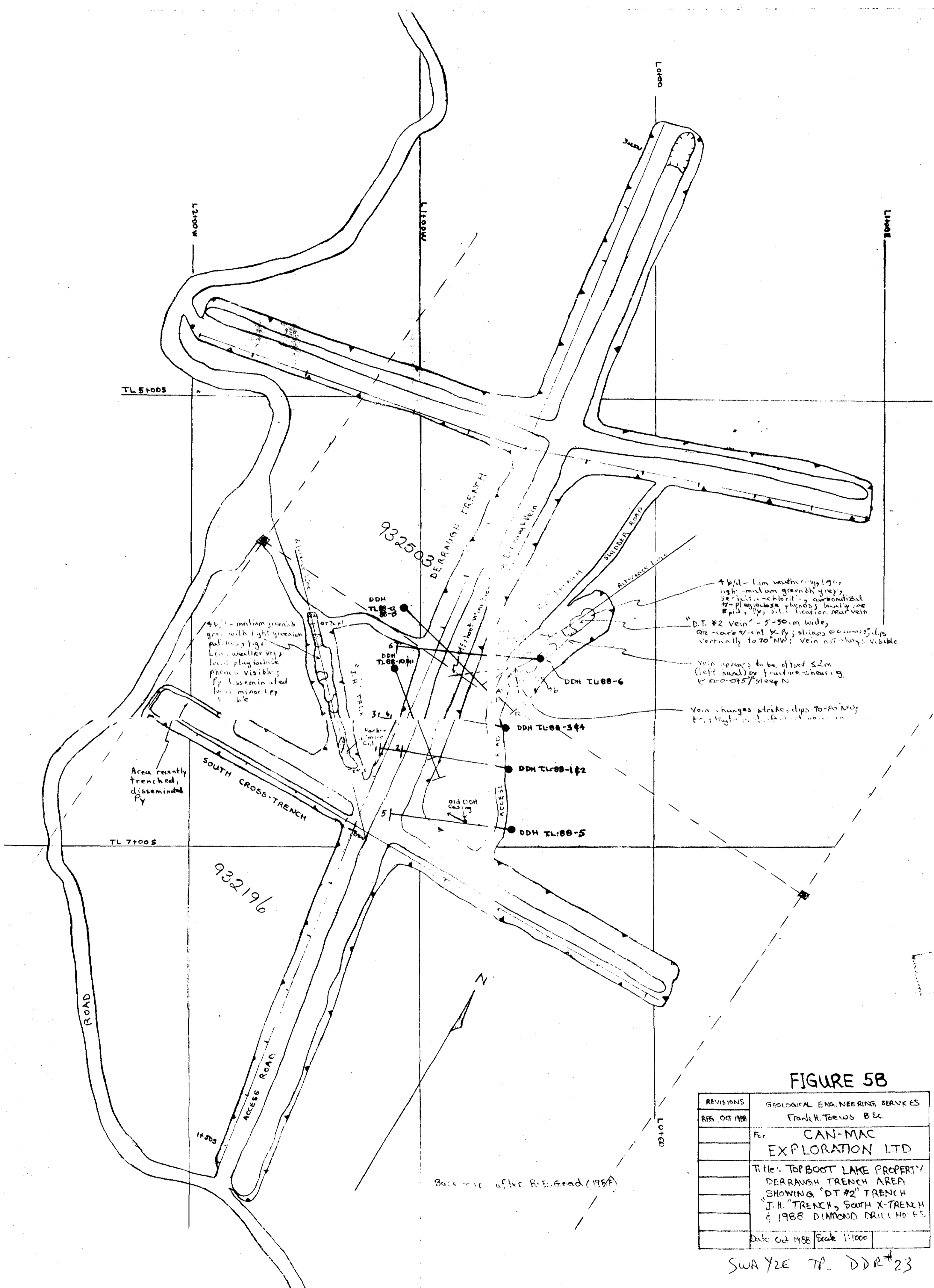


FIGURE 5B

| | | |
|---------------|---|--------------|
| REVISIONS | GEOLOGICAL ENGINEERING SERVICES | |
| REV. OCT 1988 | Frank H. Towles B.E.C. | |
| | For CAN-MAC EXPLORATION LTD | |
| | Title: TOP BOOT LAKE PROPERTY DERRAGH TRENCH AREA SHOWING "DT #2" TRENCH "J.H." TRENCH, SOUTH X-TRENCH & 1988 DIAMOND DRILL HOLES | |
| | Date Oct 1988 | Scale 1:1000 |

SWAYZE TP. DDR#23

Base map after R.E. Good (1958)

