

Lithologic Log 42-7
Thermet Project 777

35'-40'

11-12 M

QZ LATTICE CRYSTALLINE TUFF - LIGHT GRAY TO GRAY; 40-50% FINE-MED GRAINED PORPHYRITIC XSTALS IN V. FINE GRAINED GRNDMASS; PHENOCRYSTS CONSIST OF: ~ 30-45% Euhedral-subhedral ~~plagioclase~~ FELDSPAR PEPPERED W MANY V. SM. MAFIC INCLUSIONS, MODERATELY ALTERED TO KAOLINITE(?), DIAM. .1-.5MM; 7-10% SUBHEDRAL-ANHEDRAL, CLEAR, QZ W DIAM. .1-.25MM; 5-7% Euhedral-subhedral BIO. W SM. FELSIC INCLUSIONS, W DIAM. .1-.25MM, STRONG HEMITIZATION + LIMONIZATION AROUND EDGES W SOME TOTAL REPLACEMENT; ~ 30% Euhedral-subhedral HB, <.25MM PREDOMINANTLY REPLACED BY LIMONITE, OTHERWISE, POSSESSES A LIGHT TRANSLUCENT GREEN QUALITY; MINOR DISSEMINATED PYRITE + GALENA. GRNDMASS CONSISTS PRED. OF A MODERATELY ALTERED + DEVITRIFIED ASH. ALTERATION PROD. ARE PRED. GREEN CLAYS (MONTMORILLONITE + ~~BAE~~ COLLOIDALITE) W MINOR RED CLAY/CLAYS. IT IS ALSO PEPPERED W MAFIC AND FELSIC INCLUSIONS WHICH ARE STRONGLY ALTERED TO - KAOLINITE, HEMITITE, + LIMONITE.

REST OF SAMPLE

XSTALLINE TUFF - RED TO DARK RED; 15-55% FINE-COARSE GRAINE PORPHYRITIC XSTALS IN A V. FINE GRAINED GRNDMASS; PHENOCRYSTS CONSISTS PRED. OF Euhedral-subhedral, MOD. KAOLINITIZED FELDSPAR, MINOR Euhedral TO SUBHEDRAL BIO/HB + QZ ACCOMPANIED BY MINOR HEMITIZATION + LIMONIZATION OF MAFICS. GRNDMASS CONSISTS OF A HIGHLY ALTERED ASH TO RED CLAY.

XSTALLINE TUFF - PALE YELLOW, WHITE, PALE PINK; CONSISTS PRED. OF A MOD. ALTERED + DEVITRIFIED ASH; 10-40% V FINE-MED. GRAINED PHENOCRYSTS # OF SUB-ANHEDRAL F-SPAR PRED. ALTERED TO KAOLINITE(?) WITH MINOR AMTS OF QZ, HB/BIO, LITHIC FRAG WITH MAFICS PRED. ALTERED TO LIMONITE.

40'-60' QTL LATITIC TUFF - REPEAT 35'-40' (11-12M) EXCEPT:

- 12-18M
- INCREASE IN AMT. OF PHENOCRYSTS, PRED. OF THE F-SPAR
 - INCREASE IN SIZE OF ALL PHENOCRYSTS - F-SPAR TO 2MM, OTHERS TO .5MM
 - INCREASE IN HEMITIZATION + LIMONIZATION OF MAFICS IN SOME REPLACEMENT BY

60-80 QTL LATITIC TUFF - REPEAT 40'-60' (12-18M) WITH:

- 18-24M
- INCREASE IN DIAM OF F-SPAR TO 2MM+, QTL TO 1MM, BIO TO 2MM+, ~~2~~
 - 1/3 OF MAFICS REPLACED BY HEM: DR LIM.

80'-160' QTL LATITIC TUFF - REPEAT 60'-90' (18M-24M) EXCEPT:

- 24-49M
- V. LITTLE HEMITIZATION + LIMONIZATION OF MAFICS SLIGHT
 - INCREASE OF ALTERATION OF GRND MASS TO BROWNISH RED CLAY

160-220 QTL LATITIC TUFF - REPEAT 80'-160' (24-49M) EXCEPT:

- 49-67M
- INCREASE IN AMT OF HB PHENOCRYSTS TO ~7-10%

220-240 QTL LATITIC TUFF - REPEAT 160-220' (49-67M) EXCEPT:

- 67M-73M
- DECREASE ^{IN} ~~OF~~ ALTERATION OF GRND MASS.

240-260 LOSS CIRCULATION

73-79M

260-280 QTL LATITIC TUFF - REPEAT 220-240 (67-73M) EXCEPT:

- 79-85M
- INCREASE IN ϕ OF PHENOCRYSTS TO ~65-80%

280-300 QTL LATITIC TUFF - REPEAT 260-280 (79-85M) EXCEPT:

- 85-91M
- MINOR INCREASE IN LIMONIZATION OF MAFICS

300-320 QZ LATITIC TUFF - REPEAT 280-300' (85-91M) EXCEPT:

91M - 97M - INCREASING HEMITIZATION OF MAFICS.

" " " ALTERATION OF GRNDMASS TO GREEN CLAYS.

320-340' QZ LATITIC TUFF - REPEAT 300-320' (91-97M) EXCEPT:

97-104M - MINOR CHLORITIZATION OF MAFICS.

340-~~620~~⁷⁴⁰ QZ LATITIC TUFF - REPEAT 320-340' (97-104M) EXCEPT:

104-215M - PALE GREENISH GRAY.

" FELDSPARS PRED. KAOLINIZED.

" MAFICS PRED. ALTERED TO CHL, HEMITITE, & OR. LIMONITE.

" GRNDMASS PRED ALTERED TO GREEN CLAYS, MINOR RED CLAYS.

740-760' QZ LATITIC TUFF - REPEAT 340-740' (104-215M) EXCEPT:

215-232M - DECREASE IN THE α OF PHENOCRYSTS TO 50-60% OF ROCK.

" MAFICS MOD. ALTERED TO CHL, MINOR ALTERATION TO HEM. & LIMON.

" HB XSTAL PRED. BLACK.

~~760-960'~~^{760-960'} QZ LATITIC TUFF - REPEAT ~~740-760'~~^(740-760') 740-760' (215-232M) EXCEPT:

232-293M - MAFICS PRED. ALT. TO CHL, W SOME REPLACEMENT.

960-1060' QZ LATITIC TUFF - REPEAT 760-960' (232-293M) EXCEPT:

293M-323M - INCREASE IN THE α OF PHENOCRYSTS TO ~ 60-75%

1060-1100 QZ LATITIC TUFF - REPEAT 760-960' (232-293M).

323-335M
~~32M~~

1100 - 1120

QZ LATITIC TUFF - REPEAT 960-1060 (293-323M) EXCEPT:

335 - 341M

- MINOR INCREASE IN HEMITIZATION & LIMONIZATION OF MAFICS

1120 - 1160

CRYSTALLINE TUFF - RED-BROWNISH RED; ^{PORPHYRITIC;} 30-40% FINE-MED. GRAINED ^{PHE-} ~~RED~~ PHENOCRYSTS

341 - 354M

PHYTTIC ~~MAFICS~~ IN A V. FINE GRAINED GRNDMASS; PHENOCRYSTS CON-

SIST OF: ~25-30% EMBEDRAL-SUBMEDRAL PLAG, MOD. ALTERED

SD = 40'

TO KAOLINITE, DIAM ^{1-.5mm} ~~35-45mm~~; < 5% SUBMEDRAL BIO/HB, DIAM. < .25MM;

~3% ANHEDRAL QZ & LITH FRAG, DIAM < .5MM. GRNDMASS CONSISTS

PRED OF A RED VOL. ASH.

1160 - 1180

QZ LATITIC TUFF - REPEAT 35'-40' (11-12M) EXCEPT:

354M - 360M

- PALE GREENISH GRAY.

- DECREASE IN THEC OF PHENOCRYSTS.

- MOD. CHLORITIZATION W/ MINOR HEMITIZATION + LIMONIZATION OF MAFICS.

1180 - 1220'

QZ LATITIC TUFF - REPEAT ^{1160'-1180' (354-360M)} ~~35'-40' (11-12M)~~ EXCEPT:

360 - 372M

- INCREASE IN ^{DIAM} ~~SIZE~~ OF PHENOCRYSTS - F-SPAR > 2MM, QZ + BIO - 1MM.

1220 - 1240'

QZ LATITIC TUFF - REPEAT 1180'-1220' (360-372M) EXCEPT:

372 - 378M

- INCREASE IN THEC OF PHENOCRYSTS.

1240 - 1260'

QZ LATITIC TUFF - REPEAT 1220-1240 (372-378M) EXCEPT:

378 - 384M

- DECREASE IN DIAM OF ALL PHENO. - FINE GRAINED.

1260 - 1280

QZ LATITIC TUFF - REPEAT 1220-1240 (372-378M) EXCEPT:

384 - 390M

- F-SPAR PRED. PINK

1280'-1360' QTZ LATITIC TUFF - REPEAT 1220'-1240' (372-378M).

390-396M

1300'-1340' QTZ LATITIC TUFF - REPEAT 1220'-1240' (372-378M) EXCEPT:

396-408M

- ~~INCREASE~~ INCREASE IN AMT. OF GRANDMASS TO GREEN CLAYS; PRED. GREENISH GRAY COLOR.

1340'-1380' QTZ LATITIC TUFF - REPEAT ~~1220'-1240'~~ 1300'-1340' (396-408M) EXCEPT:

408-421M

- SMALL INCREASES IN HEMITIZATION OF MAFICS + AMT. OF MAFICS.

1380'-1420' XSTALLINE TUFF - RED-GRAYISH RED; PORPHYRITIC; 10-25% FINE-

421-433M

MED. GRAINED PHENOCRYSTS IN A V. FINE GRANDMASS; PHENOCRYSTS CONSIST PRED. OF Euhedral-Subhedral, MOD. KAOLINIZED PLAG

40 = 40'

W. AVE. DIAM. OF 1MM; MINOR AMTS OF Euhedral-Subhedral Bt, Hb/Px W AVE. DIAMS OF .25MM + .5MM RESP + ANHEDRAL QTZ W AVE. DIAM OF <.25MM;

1420'-1440' QTZ LATITIC TUFF - REPEAT 740'-760' (215-232M) EXCEPT:

433-439M

- GRANDMASS POORLY-MOD. ALTERED + DEVITRIFIED TO GREEN + BROWNISH RED CLAYS; PRED. LIGHT GRAY-GRAY IN COLOR.

1440'-1480' QTZ LATITIC TUFF - REPEAT 960'-1000' (293-323M)

439M-451M

1480'-~~1500'~~ XSTALLINE TUFF - GRAY-BROWNISH RED; PORPHYRITIC; 20-30% FINE-

451M-~~469M~~

MED. GRAINED PHENOCRYSTS; PHENOCRYSTS CONSIST PRED. OF Euhedral

-Subhedral MOD. KAOLINIZED PLAG. W AVE. DIAM. .25-.5MM; MINOR AMTS ANHEDRAL

OF QTZ, MAFICS, + OBSIDIAN <.25MM IN DIAM., MANY CALCITE + CHALCEDONY FILLED FRACTURES. APPROX 1/4 OF TUFF CONSISTS OF ROUNDED-SUBROUNDED GRAVEL SUGGESTING AN INTERFLOW REGION.

1500' - 1540' QTB LATITIC TUFF - REPEAT 1440' - 1480' (439 - 451 m)

457 - 469 m =

1540 - 1500 CRYSTALLINE TUFF - BUFF; PORPHYRITIC; 10% FINE-MED. GRAINED PHENOCRYSTS

469 - 476 m IN V. FINE GRAINED MATRIX. PHENOCRYSTS CONSIST PRED. OF BILLOBED PLAG.
W. DIA. OF 1.25 - 5 mm. GRAD MASS CONSIST PRED. OF PARTIALLY ALTERED
AND DEVITRIFIED ASH. HIGHLY FRACTURED W. YELLOWISH ORANGE CHALCEDONY
FILL

1560 - 1600 QTB LATITIC TUFF - REPEAT 1440' - 1480' (439 - 451 m)

476 m - 488 m

1600 - 1680 QTB LATITIC TUFF - REPEAT 1440' - 1480' (439 - 451 m) EXCEPT:

488 - 512 m - DECREASE IN THE % OF PHENOCRYSTS TO 50-60%
- INCREASE IN AMT. OF GRAD MASS TO PRED. GREEN CLAYS; COLOR
PRED. GREEN GRAY

1680' - 1760' QTB LATITIC TUFF - REPEAT 1600 - 1680 (488 - 512 m) EXCEPT:

512 - 537 m - GREEN GRAY - DARK GREEN GRAY
- DECREASE IN THE % OF PHENOCRYSTS TO 30-40%
- INCREASE IN ALTERATION OF MAFICS TO MOD. HEMITIZATION

1760' - 1800' QTB LATITIC TUFF - REPEAT 1600 - 1680 (488 - 512 m) EXCEPT:

537 - 549 m - MOD-STRONG HEMITIZATION OF MAFICS

1800' - 1820' QTB LATITIC TUFF - REPEAT 1600 - 1680 (488 - 512 m) EXCEPT:

549 m - 555 m - GRAD MASS ~~MA~~ STRONGLY ALTERED TO RED CLAYS; BROWNISH RED COLOR

1820' - 1920' QTB LATITIC TUFF - REPEAT 1600 - 1680 (488 - 512 m) EXCEPT:

555 - 579 m - DARK GREEN GRAY COLOR
- MANY CHALCEDONY FILLED FRACTURES

1900-1920' TUFF - LIGHT BUFF-BUFF; FINE GRAINED; LESS THAN 10% PHENOCRYSTS OF
579-585M SUBHEDRAL PLAG < .25 MM IN DIAM. GRND MASS CONSISTS PRED. OF ~~ASH~~
ASH. HEAVILY FRACTURED W CHALCEDONY FILL - SUGGESTS INTERFLOW ZONE

1920-1980' ^{WELDED}
RHYODABITE^v XTAL TUFF - PINK TO BROWNISH PINK; ~~to~~ PORPHYRITIC; 60-70% FINE-
585-604M MED GRAINED PHENOCRYSTS; PHENOCRYSTS CONSIST PRED. OF EUHEDRAL -
SUBHEDRAL ~~PLAG~~ MOD. KALINIZED PLAG. W AVE DIAM .75MM; MOD. AMT
OF EUHEDRAL-SUBHEDRAL HB W AVE. DIAM .5MM + ANHEDRAL QTZ; GRND-
MASS FINE GRAINED ASH. MANY CHALCEDONY FILLED FRACTURED. MAFICS
INCREASE IN CHLORITIZATION IN DEPTH FROM MIDDLE TO HEAVY. ACCESS MAGNETITE

1980-2020' ^{WELDED}
QTZ LATITIC^v TUFF - GRAYISH GREEN-GRAYISH PINK; PORPHYRITIC; 30-40%
604-616M FINE-MED GRAINED PHENOCRYSTS IN FINE GRAINED MATRIX; PHENOCRYSTS
CONSIST PRED. OF EUHEDRAL-SUBHEDRAL ~~PLAG~~ MOD. KALINIZED F-SPAR
W AVE. DIAM. OF .5-1MM, MOD. AMT. OF ANHEDRAL QTZ + EUHEDRAL -
SUBHEDRAL PRED. CHLORITIZED HB. GRND MASS PRED. ALTERED TO
GREEN-YELLOW CLAYS, MINOR DISSEM METALLIC SULFIDES. ACCESS MAG?

2020-2040' QTZ LATITIC TUFF - REPEAT 1980-2020 (604-616M) EXCEPT:
616-622M - GRNDMASS PRED. ALTERED TO GREEN CLAYS. GREEN-GRAY COLOR
- MINOR HEALITIZATION OF MAFICS

2180'
2040-~~2140~~ ^{TO LIGHT GRAY}
622-665M QTZITE - WHITE; TRANSLUCENT-OPAQUE; VITREOUS LUSTER (IN PLACES FOR
USUALLY ASSOC. W FRACTURING-
CELANEOUS); V. FINE GRAINED TO FINE GRAINED ~~to~~ MOST BOUNDARIES
OBSCURED BY COMPACTION/HYDROTHERMAL PROCESSES; CONSISTS PRED. OF
QTZ; VERY WELL CEMENTED; ~~W/AAA~~ CEMENT IS PRED SILICA MINOR CALCITE;

HARKLEY TO CONGOIDAL FRACTURING. FORMATION IS HIGHLY FRACTURED (MANY OPEN) ACCOMPANIED BY PRE-D. QTL XSTALS OF CHALCEDONY W MINOR CALCITE. THE METALLIC SULFIDES (GALENA + PYRITE) ARE USUALLY ASSOC. W THE ^{MINOR} FRACTURING ~~W~~ AND EXHIBIT INCREASING HEMITIZATION W DEPTH

2180-2340 LOSS CIRCULATION
665m - 713m

²³⁸⁰
2340-~~2500~~ QZITE - REPEAT 2040-2180 (622-665m) EXCEPT:
713 - 726m
- COLOR VARIES FROM BUFF-WHITE
- LUSTER - SUBVITREOUS TO PORCELANEOLS

2380-2420 LOSS CIRCULATION
726 - 738m

²⁵⁰⁰
2420-~~2490~~ QTZITE - REPEAT 2340-2380 (713-726m) EXCEPT:
762m
738m-~~756m~~
- PYRITE BECOMING MORE ABUND
- SPHALERITE TRACE

2500-2520 LOSS CIRCULATION
762 - 768

2520-2540 QTZITE - REPEAT 2420-2500 (738-762m) EXCEPT:
768 - 774m
- TRACE CHALCOPYRITIC

2540-2600 LOSS CIRCULATION
774 - 793m

2600-2680 QTZITE - REPEAT 2520-2540 (768-774m) EXCEPT:
793 - 817m
- TRACE OF TALC(?)
- INCREASE IN AMT. 2ND CALCITE

KIABAS

- 2680-2720 DOLOMITIC LIMST - MOTTLED GREEN, LIGHT GRAY, WHITE; V. FINE GRAINED;
- 817-829M APHANITIC. MOD. AMT. 2ND $CaCO_3$ FILLED FRACTURES ASSOC. W
MINOR DISSEM. PYR, GALENA, CHALCO. V. MINOR HERBITIZATION
- 2720-2740 DOLOMITIC LIMST - REPEAT 2680-2720 (817-829M) EXCEPT:
- 829-835M PALE GREENISH GRAY - WHITE
- 2740-2760 DOLOMITIC LIMST - REPEAT 2680-2720 (817-829M) EXCEPT:
- 835-841M MOTTLED GREEN, RED, + GRAY
- 2760-2820 LOSS CIRCULATION
- 841-860M
- 2820-2860 DOLOMITIC LIMST - REPEAT 2680-2720 (817-829M) EXCEPT:
- 860-872M ABUND. OPEN FRACTURES W LG GYPSUM KSTALS.

- EXCEPT
- IES
- 2860-2940 DOLOMITIC LIMST - WHITE GOING TO ^{DARK} GRAY W DEPTH; V. FINE GRAINED;
- 872-896M: APHANITIC; SUGARY TEXTURE; ABUND. FRACTURES - OPEN W GYPSUM
KSTALS, 2ND CALCITE, FILLED W TRACE DISSEM. SULFUR AND
COARSELY KSTALLINE CALCITE ALSO TRACE OF METALLIC SULFIDES
INCREASING W DEPTH

- 3100
3120
2940-2980 DOLOMITIC LIMST - REPEAT 2860-2940 (872-896M) EXCEPT:
- 896-951 - DARK GRAY TO GRAY + NO METALLIC SULFIDES
- 3100-3120
3120-3140
- 951M
951-957M DOLOMITIC LIMST - REPEAT 2940-3120 (896-951M) EXCEPT:
- TRACE OF GALENA? + PYRITE

3120 - 3140
951 - 957M
DOLOMITIC LMST WHITE TO LIGHT GRAY; U FINE FINE GRAINED; APHANTIC;
SULFARY TEXTURE; ABUND. RND COARSE XTALLINE CALSITE VEINS; TRACS OF
MET. SULFIDES

3140 - 3160
957 - 963M
LOSS CIRCULATION

3160 - 3220
963 - 982M
DOLOMITIC LMST - REPEAT 3120-3140 (951-957M) EXCEPT:
- POSSIBLE FOSSIL CONTENT

3220 - 3240
982 - 988M
LOSS CIRCULATION

3240 - 3260
988 - 994M
DOLOMITIC LMST - REPEAT 3120-3140 (951-957M)

3260 - 3280
994 - 1000M
LOSS CIRCULATION

3280 - 3300
1000M - 1006M
DOLOMITIC LMST - REPEAT 3120-3140 (951-957M)

3300 - 3320
1006 - 1012M
LOSS CIRCULATION

3320 - 3340
1012 - 1018M
DOLOMITIC LMST - REPEAT 3120-3140 (951-957M)

3340 - 3380
1018 - 1030M
DOLOMITIC LMST - REPEAT 3120-3140 (951-957) EXCEPT
* MINOR CRYPT. CHERT ~~(COPPER)~~
* MAY BE INTERBEDDED W A FINE TO MED GRAINED, ANGULAR SS CONSISTING
PRESO OF QTL * LMST

3380 - 3400
1030 - 1037M
DOLOMITIC LMST - REPEAT 3340-3380 (1018-1030M) EXCEPT:
* LIGHT GRAY - GREENISH PALE GREEN - BUFF
* MINOR DISSEM. GALENA * PYRITE

3400-3480⁹⁰ DOLOMITIC LMST - DARK GRAY-GRAY; V. FINE-FINE GRAINED; APHAANITIC;
1037-1061M SUGARY TEXTURE; ~~HA~~ ABUND. SMALL CORAL XSTALLINE CALCITE VEINS;
TRACE GALENA + CHALCO. + PYRITE

3480-3620
1061-1104M LOSS CIRCULATION

3620-3700 DOLOMITIC LMST - REPEAT 3400-3480 (1037-1061M) EXCEPT:
1104-1128M - OPEN FRACTURES W GYPSUM

3700-3740 DOLOMITIC LMST - REPEAT 3400-3480 (1037-1061M) EXCEPT:
1128-1140M - MOTTLED GRAY + WHITE
- NO MET. SULFIDES

3740-3780 DOLOMITIC LMST - REPEAT 3620-3700 (1104-1128M)
1140-1154M

3780-3820 DOLOMITIC LMST - REPEAT 3700-3740 (~~1128-1140M~~) EXCEPT:
1154-1165M - LIGHTER IN COLOR W DEPTH - LIGHT GRAY

3820-3980 LOSS CIRCULATION
1165-1213M

3980-4000 DOLOMITIC LMST - REPEAT 3780-3820 (1154-1165M) EXCEPT:
1213-1220M - CHALKY LUSTER - SUGARY TEXTURE - V. FINE-FINE GRAINED
- MINOR GALENA + PYRITE

4000-4060 DOLOMITIC LMST - MOTTLED DARK GRAY-GRAY; FINE-MED. GRAINED; APHAANITIC;
1220-1238M SUGARY TEXTURE;
V ABUNDANT SMALL RND CALCITE ~~HA~~ VEINS + OPEN FRACTURES W
GYPSUM XSTALS; TRACE HEMITIZATION

4060-4120
1238-1256M
DOLOMITIC LMST - LIGHT GRAY TO WHITE; V. FINE GRAINED; APHANITIC;
SUGARY TEXTURE; CHALKY LUSTER; ABUND. OPEN FRACTURES ACCOMP.
BY GYPSUM XSTALS AND TRACES OF PYRITE W MINOR HEMITIZATION.

4120-4320
1256-1317M
~~NO SAMPLES~~ LOSS CIRCULATION

4320-4380
1317-1335M
MARBLE
DOLOMITIC LMST - REPEAT 4000-4060 (1220-1238M) EXCEPT:
- FINE GRAINED
- OPEN FRACTURES ACCOMP BY GYPSUM XSTALS
- TRACE OF TALC

4380-4420
1335-1348M
NO LOSS CIRCULATION

4420-4480
1348-1366M
DOLOMITIC LMST/MARBLE - LIGHT GRAY TO GRAY; FINE GRAINED BECOMING
COARSER GRAINED W DEPTH; XSTALLINE; ABUND. SMALL 2ND CALSITE
VEINS EXHIBITING MELDING OF BOUNDARIES; SOME OPEN FRACTURES
ACCOMP. BY GYPSUM XSTAL.; TRACE OF METALLIC SULFIDES, + TALC.

4480-4500
1366-1372M
DOLOMITIC LMST/MARBLE - REPEAT 4420-4480 (1348-1366M) EXCEPT:
- MED. GRAINED
- MAYBE INTERBEDDED W A V. FINE, ANGULAR, GRAY SS CONSISTING
PRED. OF QTZ + CALCITE

4500-4540
1372-1384M
DOLOMITIC LMST/MARBLE - ~~REPEAT~~ DARK GRAY-GRAY; FINE GRAINED;
APHANITIC; ABUND. SM. 2ND CALSITE VEINS; TRACE OF PYRITE + GALENA?

4790
~~4540-4580~~ LOSS CIRCULATION
1384-1463M

~~4860-4900~~ ~~COLOMBIAN LIMST/MARBLE~~
4795F
~~4840-4840~~ WHITE-BUFF
1463-1476M MARBLE - MED-COARSE GRAINED; XSTALLINE; VITREOUS-TRANSLUCENT;
MINOR
TRACES OF PYRITE, CHALCO., GALENA?, CHALK & TALC.

4840-4880 LOSS CIRCULATION
1476-1492M

4860-4900 MARBLE - REPEAT 4800-4840 (1463-1476M) EXCEPT:
1482-1494M
- SOME SIM. 2ND. CALCITE VEINS
- LAST FEW FEET PRED. SUGARY TEXTURE & MINOR GREEN & LIGHT GRAY
PIECES

4900-4940⁶⁰ QTZITE/HORNfels - MOTTLED WHITE + GRAY TO LIGHT GRAY; V. FINE-FINE
1494-1512M
GRAINED; MODERATELY SORTED; ANGULAR; TRANSLUCENT-OPAQUE;
VITREOUS LUSTER; PRED. QTZ, (MINOR) CALCITE; V. WELL CEMENTED;
CALCAREOUS CEMENT; TRACES OF DISSEMINATED XSTALLINE GALENA?,
CHALCO., & PYRITE; MINOR AMT OF FINELY DISSEMINATED GRAPHITE?
AND/OR MAGNETITE; MOD. AMT OF 2ND CALCITE VEINS. UPPER
5M.
40'/12M INTERBEDDED IN A WHITE MARBLE.

4960-5000 LOSS CIRCULATION
1512-1524M

5000-5040⁴⁰ QTZITE/HORNfels - REPEAT 4900-4960 (1494-1512M) EXCEPT:
1524-1537M
- WHITE; FINE-MED. GRAINED, GRAIN BOUNDARIES BEGIN TO
DISAPPEAR
- TRACE OF TR? ^{LAST 20'} ~~FROM 5020-5040~~ (~~~~~) ^{MAY BE} INTERBEDDED
INTERBEDDED ^{OR INTERBEDDED} IN DR GRAY MARBLE

5040-5060 QTZITE/HORNFELS - REPEAT 4900-4960 (1494-1512M) EXCEPT:
1537-1543M - DARK GRAY

5060-5135 LOSS CIRCULATION
1543-1566M

5135-5180 QTZITE/HORNFELS - REPEAT 4900-4960 (1494-1512M)
1566-1579M

5180-5220 LOSS CIRCULATION
1579-1591M

5220-5240 QTZITE/HORNFELS - MOTILED DARK GRAY-WHITE; FINE-MED GRAINED;
1591-1598M
GRANULAR-SEMI XSTALLINE; ANGULAR; WELL CEMENTED IN A MATRIX
OF CALSITE! INTERBEDDED IN A LIGHT GRAY-WHITE, ~~WURBEL~~
APHANITIC, SUGARY MARBLE. MINOR DISSEM GRAPH/MAG,
TRACE OF DISSEM. GALENA, PYRITE & CHARCO.

5380
5240-5520 ~~NO~~ LOSS CIRCULATION
1598-1640M

5380-5400
~~5520-5600~~ QTZITE/HORNFELS - WHITE-LIGHT GRAY; FINE-MED GRAINED;
1640-1646M
GRANULAR-SEMI XSTALLINE; VITREOUS LUSTER; ANGULAR;
MINOR SMALL 2ND
WELL CEMENTED; CALCAREOUS CEMENT; ~~MINOR DISSEM~~
CALSITE VEINS.
TRACE OF DISSEM PYR & GALENA

5400-5520 LOSS CIRCULATION
1646-1683M

5520-5580 QTZITE/HORNFELS - WHITE, MED GRAINED; ~~FA~~ CLEAR/TRANSLUCENT;
1683-1701M
GRANULAR-XSTALLINE VITREOUS; ANGULAR; V. WELL CEMENTED;
CALCAREOUS CEMENT; MINOR DISSEM. GRAPH/MAG; TRACE PYR, GALENA? & CHALC.

5580-5600
1701-1707M

QTZITE/HORNFELS - REPEAT 5520-5580 (1683-1701M) EXCEPT:

- INTERBEDDED W A LT GRAY V FINE GRAINED MARBLE;
- MOD. SM. 2ND CAL₂ VEINS
- TRACE OF TALC + GYPSUM

5600-5660
1707-1723M

QTZITE/HORNFELS - REPEAT 5220-5240 (1591-1598M) EXCEPT

- ABUND. SM. 2ND CAL₂ VEINS
- NO MARBLE LAST 20'

5660-5740
1723-1750M

MARBLE - WHITE, LIGHT GRAY, BUFF; V. FINE - FINE GRAINED;

- APHANITIC; SUGARY-PORCELANEDUS TEXTURE; ABUND SM. 2NDARY
- 2ND. CAL₂ VEINS. TRACE GALENA? CHALC, + PYRITE HEMITIZATION?
- ~~TRACE TALC~~ LAST 20' TRACE OF TALC LAST 20'

5740-5820
1750-1774M

QTZITE/HORNFELS - MOTTLED LIGHT, GRAY; FINE-MED GRAINED; VITREOUS

- SUGARY TEXTURE; XSTALLINE; INTERBEDDED W LIGHT GRAY -
- DARK GRAY, V. FINE GRAINED, APHANITIC MARBLE. ABUND. SM.
- 2ND. CAL₂ VEINS. TRACE OF PYR, CHALC, GALENA[?] + HEMITITE?

5820-5980
1774-1823M

LOSS CIRCULATION

5980-6060
1823-1848M

QTZITE/HORNFELS - WHITE; FINE-MED GRAINED; VITREOUS, TRANS-

- LUCENT; GRANULAR-XSTALLINE; ANGULAR; MINOR GYPSUM
- (PROB. FROM 5820-5980 (1774-1823M)) + CHERT. TRACES OF
- DISSEM. PYR, CHAL., GALENA, + HEM? LAST 40'/12M MINOR
- DISSEM. MAS/GRAPH.

6110
6060-~~6110~~ MARBLE - WHITE TO BUFF; FINE GRAINED; APHANITIC; SUGARY TEX-
1848-1863M TURE. MINOR DISSEM. PYR, CHALC., GRAPH/MAG + GYPSUM XSTALS
(FROM ~~5000-5500~~ LOSS CIRCULATION ZONE?), TRACE OF TALC.

6110-6170 LOSS CIRCULATION
1863M-1881M

6170-6220⁴⁰ MARBLE/SKARN - WHITE, LIGHT GRAY BECOMING GREENISH GRAY W DEPTH;
1881-1902M V. FINE-FINE GRAINED; SUGARY-SUBVITREOUS; APHANITIC; INTER-
BEDDED W A FINE GRAINED, GRANULAR QTZITE. ABUND. SCALENO-
HEDRAL CALCITE + XSTALS OF GYPSUM PROB. FROM LOSS CIRCULATION
ZONE. MINOR DISSEM. GRAPH/MAG, CHALC., PYR., + GALENA. TALC.
FIRST APPEARANCE OF CHL, QTZ, APATITE?, EP/BRUCITE + TR +
ARSENOPYRITE.

40 90 REPEAT 6060-6110 (1848-1863M)
6220-6240 MARBLE - ~~WHITE, FINE GRAINED;~~ EXCEPT:
1902-1919M INTERBEDDED W A WHITE, FINE GRAINED, ANGULAR, CaCO₃ CEMENTED
QTZITE

6290-6440 LOSS CIRCULATION
1918-1963M

6440-6490 MARBLE/SKARN - REPEAT 6170-6240 (1881-1902M) EXCEPT:
1963-1976M - LIGHT GRAY BECOMING DARK GRAY W DEPTH
- INTERBEDDED W A FINE GRAINED, ANGULAR, CaCO₃ CEMENTED QTZITE
- MINOR SEAL. CaCO₃, CHL, GYP, ~~EP~~ TRACES OF EP, ID ~~W~~ + WO? W
DISSAP. OF ALL BUT CHL. W DEPTH

6490-6520 MARBLE/SKARN - GRAY GREEN; FINE-MED GRAINED; XSTALLINE; CON -
1976-1988M BRUCITE?
SISTS PRED. OF QTZ, EP, + BIO; MINOR AMTS CHL, TR, TALC, GRAPH/MAG
TRACE OF DISSEM CHALC, PYR, GAL, ARSENIC + HEMITIZATION. INCREASE
OF EP + DECREASE OF QTZ W DEPTH

6520-6540 SKARN/HORNFELS - GREENISH GRAY-GRAY; V. FINE-FINE GRAINED; GRANULAR -
1988-1994M
XSTALLINE (DECUSSATE); CONSISTS PRED. OF RELICT QTZ GRAINS, +
EP, MINOR AMTS OF GRAPH/MAG, ~~EP~~ TALC, PHOLOGTR; TRACES
OF DISSEM. METALLIC SULFIDES + BRUCITE?. MINOR AMTS OF GYP +
SEAL CaCO₃ PRDB. FROM L.C. ZONE.

6540-6700 SKARN/HORNFELS - MOTTLED GRAY + WHITE; V. FINE-FINE GRAINED; GRANULAR
1994-2043M
XSTALLINE (DECUSSATE); CONSISTS PRED. OF DOLOMITE + QTZ; MINOR
AMTS OF EP + GRAPH/MAG; TRACES OF TR, PHOLOG, DIOP? + MET SULFIDES

6700-6730 SKARN/HORNFELS - REPEAT 6540-6700 (1994-2043M) EXCEPT:
2043-2052M
- WHITE - LIGHT GRAY
- RELICT QTZ GRAINS

6730-6835 LOSS CIRCULATION
2052-2084M

6835-6940 SKARN/HORNFELS - WHITE TO LIGHT GRAY; FINE TO MED. GRAINED; DECUSSATE;
2084-2085
SUGARY TEX.; CONSISTS PRED. OF CALCITE + DOLOMITE; MOD. AMTS QTZ;
MINOR AMT OF GYP + QTZ XSTALS (FROM LOSS CIRCULATION ZONE); TRACES
OF GRAPH/MAG, METAL. SULFIDES. INTERBEDDED W RELICT QTZITES.

ALT - PUR - CaCO_3 ~~ALTERED~~ W SKARN LAYERS

?
6840-6860 SKARN RELICT
2085-2091M ~~SKARN~~/CALC-SILICATE - MOTTLED WHITE & GRAY; FINE GRAINED; GRANU-
LAR W A SOMEWHAT DECUSSATE TEXTURE; CALCAREOUS CEMENT (WELL CEMENTED). INTERBEDDED W A FINE GRAINED DECUSSATE WHITE TO LIGHT GRAY MARBLE. CONSISTS PRED. OF QTZ, MOD. AMT CC, MINOR AMT ~~BRAN/WIRE~~, ~~VARIOUS~~ TRACES OF GYP + CaCO_3 XSTAL (LOSS CIRC ZONE); AP/QTZ, & VARIOUS METAL SULFIDES. FAINT LINEATION OF DARK MINERALS QTZ + CC. CATH. MIN.

6860-6900 SKARN/HORNFEELS - REPEAT 6835-6840 (2084+2085M) W TRACES OF
2091-2104M AP? + BOTRYOIDAL CHALK

6900-6940 LOSS CIRCULATION
2104-2116M

6940-6960 HORNFEELS - REPEAT 6840-6860 (2085-2091M) W TRACES OF AP?
2116-2122M + BOTRYOIDAL CHALK

6960-6980 HORNFEELS/CALC-SILICATE - REPEAT 6840-6860 (2085-2091M) EXCEPT:
2122-2128M

DECUSSATE

MOD AMT OF EP, TR?, BIO/PHOLOG ~~TR~~

TRACES OF CHL, CHALK, TALC, MC?

6980-7000 HORNFEELS/CALC-SILICATE - REPEAT 6840-6860 (2085-2091M) EXCEPT
2128-2134M

FINE-COARSE GRAINED DECUSSATE

MOD AMTS OF EP, BIO

TRACES OF BRUCITE?, TR. CHL, GYP, MC? CHALK + MET. SULFIDES

7000-7070 LOSS CIRCULATION
2134-2155M

7100
7070 - ~~7080~~
2155 - 2165m

HORNFELS/CALC-SILICATE - GREENISH GRAY; MED-COARSE GRAINED; DECUSATE;
INCREASING IN DEPTH
CONSISTS PRED. OF QTZ + CC, MOD. AMTS OF BRUCITE, EP, BtO/PHLOG; TRACE
OF GROSS, MC?, TR, CHALK, CHL + MET. SULFIDES

7100-7120
2165-2171m

LOSS CIRCULATION

7120 - 7140
2171 - 2177m

CALC-SILICATE/HORNFELS - GREENISH YELLOW; COARSE-^VCOARSE GRAINED; DECUS-
SATE-MASSIVE. CONSISTS PRED. OF BRUCITE(?) GROSS; MOD. AMT OF BtO,
CHL, MC?, GRAPH/MAG, EP; TRACE OF MET. SULFIDES.

7140-7260
2177-2213m

LOSS CIRCULATION

7260-7300
2213-2226m

CALC-SILICATE/HORNFELS - GREENISH YELLOW, COARSE-V COARSE GRAINED; DECUSATE-
MASSIVE; CONSIST PRED. OF GROSS + DIOP; MOD. AMT OF BRUCITE, RELICT EP,
CHL; TRACES OF MC? WD? + BtO IN LAST FEW FT/M. MAG/GRAPHITE/HEDENBURGITE

7300-7320
2226-2232m

CALC-SILICATE/HORNFELS - REPEAT 7260-7300 (2213-2226m) EXCEPT:
PRED GROSS, MOD. BRUCITE, BtO, DIOP, ID(?)

7320-7380
2232-2250m

LOSS CIRCULATION

7380-7440
2250m-2268m

CALC-SILICATE/HORNFELS - REPEAT ^{7260-7300 2213-2226m} ~~7300-7320 (2226-2232m)~~ EXCEPT:
GRAY GREEN
PRED GROSS + BRUCITE, MOD AMTS - BtO + DIOP

7440-7500
2268-2287m

CALC-SILICATE/HORNFELS - REPEAT ~~73~~ 7260-7300 (2213-2226m) EXCEPT:
GRAY GREEN; PRED BRU + GROSS; MOD. BtO, DIOP + CHL; TRACE
MC?, WD? + ID (INCR. IN DEPTH).

7500-7550 CALD-SILICATE/HORNFELS - REPEAT 7260-7300 (2213-2226M) EXCEPT:
2287-2302M PRED; BRU, GROSS! DIOP; MOD. AMT. BIO, ID; TRACS MC?, +CHL, MA

7550-7585 SILICA RICH IGNEOUS ROCK - WHITE TO PALE PINK; MED-COARSE GRAINED;
2302-2312M CONSISTS PRED. OF ~~EP~~ QTL + MC(?); MOD. AMTS FSPAR; TRACES OF
~~BIO~~ BIO, EP + MET SULFIDES

7585-7610 MARBLE - WHITE; FINE GRAINED; APHAUITIC; PRED. COOP DO W.
2312-2320M MOD AMTS OF QTL

7610-7630 MARBLE - REPEAT 7587-7610 () EXCEPT:
2320-2326M INTERBEDDED W A FINE GRAINED, CALPAREDINS DEMONSTRATED QTZITE - MAG.

7630-7700 CALD-SILICATE/HORNFELS - GREENISH GRAY; MED. GRAINED; DECUSSATE;
2326-2348M " CONSISTS PRED OF EQUIGRANULAR QTL, MOD. AMTS EP, HEDENBURGITE? +
BIO; MINOR ~~GRAPH~~ GRAPH + MAG