

NF-1

0 1.83  
6

CASING

6 7.62  
25

NM

BASALT

Fairly uniform dk green to grey-green fg  
chlor-act-play-ep rock, v poorly to moderately  
foliated, non-fissile. Rare m.g. sg/t + pepper green +  
white basalt  
~18-20 fragmental or pseudo-fragmental texture  
21 on, rare minor bio, more schistose  
23.5 garnets  
Throughout ep-Q, swirls + stringers common, esp.  
@ 13-20'.

7.62  
25 37.5

NM

METASEDIMENT

Homogeneous, wkly banded grey mg  
bi-Q-fs ±ep±g±schist, non to weakly fissile.  
Occasional chlorite, but v. minor, some fg  
granular 'chert' + Q-fs bands (37.1-37.3)  
Epidote is as large cfts w. qtz ±chlor, some  
appears to pseudomorph garnet  
carb vlt (bed?) @ 36.6, 3cm wide

11.43  
37.5 46.5

CHERT

White to buff to pink, some lt. grey Q-fs 'chert',  
Mostly mg granular, v. mssv, unfoliated. Bedding shown  
by color banding in chert and by thin  
ser/bi/Q schist (argill chert) interbeds.  
Interbeds + mica partings increase down-hole

37.5 - 38.3 - 1<sup>st</sup> part of unit looks like  
qtz vein, 'sweat-out'? (minor po+cp)

39 - thin mt layer

39-40 - chlor-qtz vein

40.8 1/2 cm mt band in feldspathic 'chert'

57-62.5 Abundant beds (up to ~1.8') of  
sericite (± bi) qtz schist (similar to sericitic  
unit in NF-2) interbedded with  
chert (w. mica partings)

62.5-66.5 feldspathic 'chert' with ser/bi  
partings, trace py

26.27  
66.5

764

NM

### 'TRANSITION' CHERT-METASEDS

Greenish, granular massive 'chert' (probably  
Q-ep-fs rock) interbedded with normal  
grey biotite-rich metaseds (bi-Q-fs ± ep ± gt  
schists). Well to mod banded, medium  
to thick (?) bedded. Becomes more  
biotitic + less 'cherty' down-hole. Garnets  
near top contact

21.46

77

764

~~77~~

### METASEDIMENTS (~~W. BASIC GALT?~~)

Gradational contact with above unit.  
Rocks are biotite-quartz-fs rich, epidote (?)  
giving a yellow-green tint. Generally  
more chloritic going down the hole  
From 77 down, dist. more chlorite-rich,  
start seeing bands (or frags?) that

volcanic (porph?)

look v. distinctly ~~fragmental~~  
76 - cse ep (after garnet?)

23.48  
77 81.3

NM BASIC TUFF

77-79 transitional from above, chloritic bands, fragmental possibly, alternate with bi-Q metaseds, the sed decreasing down-hole

The basic tuff is a mg., somewhat schistose green, or green-white mottled chlor-amphib-plag-ep rock. It is compositionally banded (bedding or fragments?) with darker green + ~~white speckled~~ mottled green-white bands. Epidote 'swirls' are fairly common

Biotitic bands are present thru-out, though minor below 80'

Lower contact w. chert is marked by bi-chlor-gt-mt band, very sharp

25.10  
84.3 91.4

NM CHERT

Mostly lt grey (to white) fg granular, feldspathic. Bio partings common in lower half of unit. Garnet bands occur thru-out Both contacts v. sharp

27.87  
91.4 104.2

METASEDIMENTS

Grey to dark grey mg br-Q-fs schist, sl-mod fissile. Garnets occur mostly in chlor-albite-gt bands

31.77  
104.2

144

NM

### MIXED METASEDIMENTS + BASIC TUFFS

Interbanded Bi-Q-fs schists as above, and chlor-fs-amphib ±gt. Medium to thick bedded, contacts often quite sharp. Basic rocks mostly mg (-cg) green + white speckled and are often ep-rich. They are mod foliated + non-fissile.

Tuff band 105 - 106.8 has dis + blebby py ~ 1/2-1%

116.2 - 116.5 chert

NB 115 - 124 only 3.2' of core

- numbering error or ground core

(chert?)

43.90

4704

144

154.3

### BASIC TUFF (~~V. MINOR SEDS~~)

Same as BT portion of above, mg(-fg) green (mostly lt green) mod schistose, non-fissile chlor-fs ± actin ± ep rock. Called tuff due to ~~set~~ compositional banding (chlor + fs layers) and because of minor interbeds of biotitic metaseds

(144.5 - 144.8, 147.8 - 148.3)

Cse epidote patches rel. common

154.3 176.4

## BASALT

Dark green to salt + pepper (wht + green), mostly wtkly foliated. Ranges from vfs-fg mod schistose chl-act-fs to mg act-chlor-fs 'salt + pepper', some of the fg. patches are possibly pillow selvage. Rock is non-porphyrific. Occasional patchy development of black hb needles (perphyroblasts). Towards bottom of unit start getting thin schistose chlorite-rich zones - possibly v. minor biotite.

± MINERALIZED

## ALTERED BASALT

177.4 183.3

203

Separated from above unit by a large, and quite sharp, increase in chlorite, and to a lesser extent, biotite. <sup>And by abundant sulfides locally</sup> The rock is dk green to almost black, mg, strongly foliated, often fissile. Less altered zones are rel. massive with numerous chlorite schist zone cutting them. Sulfides occur either as smeared blebs/patches or as granular stringers. Py and cp dominate over Po and mma sp

177.4-183.3 - dominantly chlor, bi minor, virtually nil sulfide (low % @ 181 px+cp)

183.3-184.2 - stringers to 2cm of deformed py cubes in qtz

184.2-189 - rel. massive, little chloritized, no biotite, epidote is dominant (w. Q ± carb in vltls)  
- sulfide v. sparse (py cubes)

189-193 - very schistose, very chlorite-rich, tr - 5%  
Py-cp - sp

193-196.3 - Mod to strongly schistose, fairly biotite-rich. Sulfide as blebs + commonly stringers (up to 3-4 cm) incl py-cp-sp (Stringers seem to come in clusters, w. thicker sections of 'barren' rock between)

196.3-203 - apparently less altered, quite massive, non-chloritic, no biotite, very little sulfide however, Ep-Q ± gt patches + ults are quite abundant, maybe 10% of unit.

203  
61.89  
209.7  
WM-  
Nm

### MASSIVE SULFIDE

Mostly fg-mg granular subhedral py, with cp interstitial or as replacement, cross-cutting ults, and sp as thin layers or interstitial. Po is very minor. Several thin beds of chloritic schist (tuff?) occur near the upper (up-hole) contact.

203-205 - highest grade, esp Zn which occurs (as sp) in bands and interstitial

205-207 Zn-poor, mostly py w. x-cutting cp ults to ~1 cm

207.9-208.6 - Biotite-py-cp schist zone, altered tuff interbed?

208.6-209.7 - MS (py-cp-(po)) w. blocks of bi-schist (fragments of wall rock-shearings?)

209.7  
212.3

### ALTERED BASALT (?) W. SULFIDE BANDS

dk green-black chlorite-biotite schist w several MS (py/po/cp) bands, and one (212.1-212.3) of

Qtz - py - sp - cp (cherty exhalite?)

212.3 280

## BASALT, BASIC TUFF

Thick heterogeneous sequence of green chloritic rocks, varying from pale/medium green to dark green (nearly black). Mostly m.g., minor c.g. sections. Porphyroblastic biotite is common above 230. Biotitic bands (mixed tuff/seds?) are abundant til 238.

212.3 - 241.7 - Mostly dark green, fairly schistose, chloritic, often biotitic (bands or p-blasts) Patchy ep bands to 3cm thru-out

Cse poppy/cp blebs 217.3 - 220.7

241.7 - 259.4 - Fairly light green - grey/green, mostly m.g., getting amphibolitic, but amphib still light/medium green. Very little biotite, less banding than above

259.4 - 263 Biotitic, siliceous, sed. component

263 - 280.7 Dark green, f.g., possibly fragmental or pillowed. Abundant very fine Q-carb filled fractures. Minor hairline epidote, occasional bi ult selvages

~~270-280~~

FOH

280



25.06

822

## CHERT

White to lt. grey, fg-mg non foliated  
qtz ( $\pm$  fs) rock, with interbeds of fg Q-ser-bi  
 $\pm$  chlor schist, (impure chert) ~~into~~. Color banding  
in chert, and argillaceous interbeds define  
bedding, which parallels foliation

The occurrence of thin bio/ser partings  
and of argillaceous interbeds in creases  
down-hole

Trace fg py, usually cubes, is common  
in the 'argillaceous' interbeds

In places the bio partings have a  
stylolitic appearance, and they can  
be seen to merge (due to Q pressure-solution?)

<sup>21.34</sup>  
70' - 2-4mm band of py

<sup>14.3</sup>  
46.9 - garnet band

<sup>14.5</sup> <sup>14.73</sup>  
47.6 - 48.3 Q.V., chlorite streaks + selvedge

<sup>22.54</sup>  
71 py band

<sup>23.81</sup>  
78.1 py band

<sup>25.0</sup>  
82 - garnet assoc'd w. biotite interbed

## BASIC TUFF, FRAGMENTAL (?)

Mostly light (epidote) green, rock consists  
of fg ep-chlor-play rock, poorly foliated,  
with partings and bands of bi-chlor  
schist. Appears as if bi-rich bands  
form matrix to ep-rich mafic frag-  
ments. Alternatively bi layers are alt'd  
pillow selvedges, etc.

25.06

822

29.30

96.1

96.1 29.30  
2988  
98

METASEDIMENT  
Bio-Q ± sericite schist, fissile, grey to grey-green, with no patchy epidote, and deformed red garnets

98 29.88  
3056  
100.3

BASIC TUFF / METASEDIMENTS  
Light green to grey chlor-bi-fs ± Q ± ep schist, wkly banded, occasional garnet in biotitic layers. Gets more mafic down-hole

100.3 3056  
32.3  
105.4

BASIC BRECCIA (OR PILLOW BRECCIA)  
dark green fragmental rock, with v. dk green to black selvages on flattened fragments. Matrix to fragments is schistose, sometimes biotitic.  
Fragments possibly contain px or hb plene crystals (or hb p-blasts)  
Epidote + Q forms a few 'swirly' clots.  
Bottom few cm is extremely biotite + chlorite rich

105.4 32.13  
33.99  
111.5

CHERT  
F.g. granular massive lt grey to white Q (+ fs?) rock, with biotitic partings, and near bottom, bio-ser-Q schist interbeds. Biotitic parts usually garnetiferous  
110.8-111.1 - mt-gnt-ep bands  
33.78 - 33.84

113.8 34.70

111.5

33.99

140.3

rare

m

METASEDIMENTS + ~~BASIC TUFF~~

Biotite - Q ± chlo schist, wkly banded, v. well foliated - fissile

Mostly mg, grey w. black biotite speckles,  
@ 112.5-113 <sup>34.30</sup> <sup>34.45</sup> greenish, epidote-rich  
113.7 - magnetite disseminations

113.8

35.70

117.1

M

CHERT

White, massive, granular, mostly lack biotite, except for minor bi-Q-ser-garnet zone @ 114 34.8

Thin wisps or bands of mf, usually with associated deep red garnet, are found throughout, but especially @ 115-116  
35.1 - 35.4

44.66

117.1

35.70

146.5

METASEDIMENTS (+BASIC TUFF?)

Homogenous sequence of wkly banded biotitic schists, usually quite fissile. They are mostly bi-Q-fs schists, frequently w. accessory garnet or epidote. Epidote occurs w. Q as irregular clots

Rocks are mostly grey, grading to dk grey/blk where especially biotitic, or to green-grey where epidote-rich

- Abundant Qtz ± Ep somewhat mutually exclusive

45.24

146.5

44.66

148.1

CHERT

white mg, massive, granular, rare bio-ser ptgs, no color banding

No mt or garnet bands

46.28  
148.4 151.8 NM  
45.24

METASEDIMENTS (SERICITIC)  
Light colored mod schistose Q-ser-bi schist, unusually muscovite-rich compared to other sediments seen to date. Mod-well bedded, thin to medium bedded. Biotitic near upper + lower contacts, garnet band at down-hole contact

53.2  
151.8 173.9  
46.28

METASEDIMENTS (BIOTITIC, WITH BASIC TUFF?)  
Heterogenous grey, black and green m-g. schists. Characteristically bi-rich, with varying proportions of Q, fs, ep, garnet and chlorite. Crudely banded, medium to thick-bedded. Banding most obvious as variation in biotite. Epidote 'knots' and irregular Q-ep vlt's, garnets are sparsely distrib'd

58.51  
173.9 191.9 NM  
53.02

BASALT  
Medium grey-green, mg fairly massive rock. Chlor-act-ep-play are dominant minerals. Lesser biotite occurs in streaks. Rock looks weakly biotite-epidote altered, w. ep in deformed vlt's w. qtz, and possibly replacing rare play phenos.

64.94  
91.9 213  
58.51

ALTERED BASALT  
Contact with basalt is gradational over ~15 feet. Altered basalt is characterized by: strong schistosity and fissility

55.2-56.1  
181-184 } broken core  
188-191 } 57.3-58.2

high chlorite content, and occasional streaks and p-blasts of biotite, which increase down-hole. The altered zone appears depleted in epidote and plagioclase relative to unaltered, and actinolite also appears unusually minor. Possibly some talc and/or sericite occurs in the most schistose sections (@ ~200, 203, 210)  
 61      61.9      64

66.62  
 213 218.5 NM-  
 64.94 VWM

### ALTERED AND MINERALIZED BASALT

Differs from above only in being sulfide bearing, and generally richer in biotite (usually closely associated with sulfide)

Sulfides consist almost entirely of pyrite, usually as p-blastic cubes, but occasionally smeared out along biotite slicks, Cp is only present as smears in trace amounts

218.5 71.1 NM  
 66.62

### BASALT (BASIC TUFF?)

Relatively less altered mg(-fy) chlor-hb-plagioclase rock, mod foliated, non-fissile. Fairly sharp upper & lower contacts

Some more siliceous zone, with biotite, possibly thin metasediment bands.

71.1 76.65m

### ALTERED AND MINERALIZED BASALT

Similar to above unit, chlorite ± biotite - sulfide schist, very fissile, but so much more common, as is cp, and here sulfides sometimes occur w. Q-rich 'stringers'.

Some fragmental textures are seen, with  
bi in interstices (with zo/cp), possible brx  
(or pillows)

<sup>76.25</sup> 250.1 - <sup>76.37</sup> 250.5 - 2 bands of SMS, zo/py/sp  
and zo/py/cp in highly biotitic zone.

Lower contact of alteration (visually)  
very sharp, some quartz veining at  
contact

### BASALT

Dark grey-green, quite massive mg. (-fs.)  
chlorite - actin - plag ± ep rock, rather  
featureless, except for locally abundant  
late carb - Q vltz. Ep - Q stringers,  
deformed, are also common

255.1 1cm zo/py/cp vlt

77.77

76.65 266'  
81.1

From To Mag

0 6  
1.83 1.83  
6 13.5  
1.83 4.11

CASING  
BASIC TUFF / METASEDIMENT

Dark green to dark grey-green mostly  
Mg schistose rock. Dominantly Bio-Q-Fs  
schist, some chloritic zones, Foliation very  
pronounced.  
8' abundant flattened pink garnets  
9-12+' bands of epidote/Q-rich, rel. mssv  
rock in chloritic interval.

4.11 15.98  
13.5 52.4

'CHERT' white,  
mostly lt grey to med grey, fs-mg massive  
to wtkly schistose rock. Very siliceous, often  
nearly pure qtz, but mostly contains minor to  
>20% fs, and frequently biotite along  
parting, sericitic partings comparatively rare

4.12 - 4.82  
13.5 - 15.8 grey, prob fs-rich, mg granular  
wtk color banding, occ chloritic streaks // foliation  
15.8 - 15.9 green chlorite-fs schist with  
4.82 - 4.85 p-blastic hb, thin wtk tuff bed

5.95  
19.5 - 2 bands of pink, mssv gnt, about  
5mm thick

6.16  
20.2 - black spots (graphite?) in white  
feldspathic 'chert'.

4.37  
20.9 - Gnt - Mt - Ep band in feldspathic 'chert'

NM

7.53 7.62

24.7-25 - brown weathered brx zone, unhealed to sl. healed, minor br'n down to 28 8.5

8.5 from 28  
9.5

28-31, very mssu, sl. color-banded white chert

w. minor grey

31-34 It green sericite on ptgs

10.4 14.6  
34-48 biotitic partings

14.6-15.98  
48-52.4 feldspathic chert, bio ptgs, occ sericitic

- occasional brotite-qtz - fs ± chlor interbeds (argill metaseds)

15.98 17.16

52.4 56.3

NM

meta-  
'Ribbon Chert' (minor pelites)

- Qtz + biotite-rich rocks, ranging from:

15.98 16.22  
52.4-53.2 bro-fs-Q-chl schist, Q < 20%, mg-fg

highly schistose, to:

16.22 17.16  
53.2-56.3 chert with abundant biotite

partings, and interbeds of bro-Q-fs schist.

Average ~1cm 'bed' thickness, chert layers are wht, fg, sugary

17.16 17.74

56.3 58.2

NM

METASEDIMENT

- bro-Q-fs schist, well foliated, mg, dk to med grey, occ cherty bands to 1cm thick

- cherty fragments @ lower (58.2') contact (17.74)

17.74 19.05

58.2 62.5

CHERT

- mg-fs white siliceous rock, v. spse bio ± chlor partings

5 71.5 WM  
5 21.80

# BASALT

dk green, rd massv chlor-fs-act in rock, w. "distinct ep-rich zones, parallel to foliation

- poss some px(?) phenos @ ~68', but maybe hb p-blasty

- upper half (to v(66')) looks vaguely fragmental, some banding

66-71.5 IS more massive, some possible selvedges

20.12 - 21.80  
65.5-68 broken core

67.5-68 broken core  
19.1 - 19.8

80 24.76  
71.5 81.2 NM

# CHERT

mostly white, very siliceous with few bi partings, minor bio-rich Metaseds zones, increase down hole

@ 72-78 broken core

81-24.7 p-blastic hb needles

24.75 - 24.76  
81.1-81.2 massive pink garnet

24.76 35.18  
81.2 115.4

# METASEDIMENTS, ~~BASIC TUFF~~ BASIC TUFF

Moderately heterogeneous unit of mg, well foliated biotite-fs + Q schist and chlor-bi-fs schist, both w. occasional ep and/or gnt  
- compositional banding, parallel to foliation, is strong and ubiquitous. This layering is frequently lensey, and gives the rock a fragmental appearance. In general (at least) this seems to be a deformational/metamorphic feature

Biotite-rich and chlorite-rich horizons (metaseds and basic tuffs?) are finely interlayered with the proportion of basic rocks increasing down the hole. The transition from this (mixed) unit to the lower (down-hole) basic tuffs is gradational, with the contact being put below the last biotite-Q-fs zone.

<sup>24.76</sup> 81.2 - <sup>25.76</sup> 84.5 chlor-rich, but w. signif biotite.

<sup>84.8</sup> <sup>25.85</sup> ep knots  
<sup>25.95</sup> 85.1 - <sup>26.22</sup> 86 abund gts, squashed, in bi-Q fms schist

<sup>26.22</sup> 86 - ep knots

<sup>25.76</sup> 84.5 - <sup>28.35</sup> 93 - gen'ly bi-rich, chlor v. minor  
- ep + gt-rich zone (alt<sup>n</sup>?) abundant  
- pseudo (?) fragmental texture common

<sup>28.35</sup> Below 93 - mixed chlor + bi-rich, gts common w/ biotitic zones, ep with chlor or bi., some ep appears to be retrograde alt<sup>n</sup> of garnet  
- same gt-rich intervals @ 105 - 111 in chloritic zones, alt<sup>n</sup>? 32.0

- ep as bands // foli<sup>n</sup> or as patchy pervasve replacements w. gts

24 121  
18 36.89

### BASIC TUFF

dk green + white banded mostly mg chlor/act/fs schist, w. patchy ep zones + v. rare garnet.

This unit separated from basalt (below) because of alternating fs and chlor/actin-rich bands // foliation. This banding is most pronounced at the top of the unit, and decreases down-hole, however, the contact w. underlying unbanding basalt is ~~still~~ distinct.

The banding is possibly a metamorphic segregation (localized by shearing on sed/basalt contact?)

fs bands are v. lt green due to mm or ep, some are also calcareous, late

mm late carb ± Q vlt cut this unit, randomly oriented, non-planar

121 189.5  
36.89 57.77

NM-  
WM

### BASALT

Ranges from fs-vfg dk green, to mg salt + pepper med green + white, sl. to mod foliated, but non-fissile, rock. Rock consists of chlorite, fg needly dk green act, white, plag (± epidote) and more rarely biotite. Late, cross-cutting Q ± carb (+ some early poddy Q/carb vlt) are common throughout the unit

36.9 41.5  
121-136 - dominantly fg, dk green, fairly schistose, rare salt + pepper from 132 on

41.5  
136-50.5 alternating mg salt + pepper and massive fg dk green chlor/act schist, poss pillow

selvedges, some hyaloclastite interstitial?

165.5-167.8 Cg salt+pepper chlor/amphib/plag

rock, possibly variolitic zone

168-177 - similar to above, mg salt+pepper, + finer-grained selvedges(?), some starts looking amphibolitic

177-179 - p-blastic biotite looks ± lmm, assoc'd w. minor po/py + trace cp, dominantly fg chlorite (etc.) schist

183.2-189.5, as 168-177, but with zones of biotite, p-blasts, and on foliation planes, plus trace po/py/cp

189.5 213 mostly NM  
57.71 64.94

### ALTERED BASALT

Same as above unit (BASALT), but has numerous small zones of chlorite/biotite-rich schists, becoming increasingly biotite-rich down-hole, chlorite predominant up-hole. Schistose zones are discrete near top of unit, separating zones of normal basalt (fg-mg), but alteration is quite pervasive below ~~210~~ ~~209~~ 210

Sulfide is very minor, occurring as streaks + flattened blebs of po w. v. occasional cp

Carb-Q + Q-carb vlt cross-cut + post-date alteration and metamorphism

189.5-209.5 chlor/bi alteration in 'shears'  
209.5-213 bi-chlor-amphib ± po schist

215.7  
213 214.5 SM  
64.94 65.75

### MASSIVE SULPHIDE

Mg-cg granular pyrrhotite with cross-cutting stringers of cp, rhombs of brown-weathering ankerite (?) common, as are minor chlorite streaks + wisps.

Cp decreases down-hole, and sphalerite, as  $\pm 1$  mm grains in po matrix, increases down-hole

Generally Po = 85-95%

Cp = tr - 10, ave 1-2

Sp = 2-3%

214.5 215.2 SM ~~Chlorite~~ CHLORITE

Quartz increases down-hole, and past 215, is up to 10% in MS

<sup>65.40</sup> <sup>65.61</sup>  
214.5-215.2 Chlorite/Biotite/Po/Garnet schist  
15-25% po + 1% cp in schist

215.7 235  
65.75 71.63

### BASIC TUFF (MINOR METASEDIMENTS?)

Moderately heterogeneous unit, dominantly mg-cg dk green / lt green to white speckled chl - hb/actm - ep - plag rock, well foliated. Biotitic bands are rel. common. Epidote is ubiquitous as patches + layers and as replacement of plag phenos (?). Some ep. may represent retrograded garnet

<sup>65.75</sup> <sup>66.77</sup>  
215.7 - 219 (mg-cg amphibolitic (ep. rel. minor)  
<sup>66.77</sup> 219 thin Q-bi-ankerite/siderite band  
<sup>66.77</sup> <sup>70.88</sup>  
219 - 237.5 - occ. bi/chlor schist layers, epidote very common, patchy, 'swirly' replacements

70.88      71.0  
232.5 - 233      epidotized plag pheno's.  
71.0      71.63  
233 - 235      as above, biotitic bands in  
                 chlor/hbl/ep/plag meta-tuff

235  
71.63

End of Hole

NF-4

0 5.49  
 0 18  
 13.72  
 5.49 45  
 18 42.01

CASING

BASALT (GABBRO?)

Mostly mg, to occ e.g. med green + white salt + pepper rock, poorly foliated, numerous white to pink Q ± carb vlt up to 1-2cm cut unit.

Thoroughly rextlzd, consists mainly of albite (?) and needle actinolite, chlorite minor. More massive than mg-cg basalts elsewhere, also higher (>60-70) color index.

Contact w. underlying unit is sheared, last ~~10~~<sup>0.37</sup> m is mostly chlor/bi ± ep schist

45 47.4  
 13.72 14.45

~~Fault Zone~~ FAULT ZONE (?)

Consists of hetero. breccia w. chloritic + calcareous matrix, and (mostly) broken core in ±cm pieces

14.45 33.90  
 47.4 111.2

METASEDIMENTS / MINOR BASIC (TUFF?)

VERY heterogeneous unit consisting of variable sediments, mostly Q-fs-bi ± ~~ep~~ ± ep schists (some hb p-blasts) and bands to ~~10~~<sup>1.2</sup> m of fg-mg basic rock, wtkly-mod schistose

The meta sediments are varying shades of grey, usually with black bi or hb spots, and green or green/yellow epidote zones. Rather biotite-poor on average, compared to other MTS's seen to date, 'til past 85'. The lt grey (upper) seds have greywacke 'look',

possibly redict clastic texture

14.45 16.77

47.4-55 - lt grey, bi spots, mod fol'd

14.77 18.14

55-59.5 - broken core, several qv's (to 10 cm)

plus some highly chloritic zones (to 20 cm)

Shear zone/fault?

18.14

19.54

59.5-64.1 - lt grey, mod fol'd, mod amt bi

19.54

20.43

64.1-67 - mg, med green basic band

20.43

24.24

67-79.5 - lt grey, bi+hb

24.24

25.24

79.5-82.8 - mg basic band

25.24

26.62

82.8-87.3 - lt-med grey, bi+hb, getting higher % bi

26.62

26.83

87.3-88 - broken core

26.83

32.77

88-107.5 - mostly more bi-rich, med grey, some

32.77

32.93

chlorite locally

107.5-108 - broken core

32.93

33.90

108-111.2 - chloritic, meta-basite

33.90

37.01

N1.7

121.4

NM

### CHERT

White, fg, massive, bi partings rare, but several bi-Q schist bands to 15cm. Some stylolite-like features, plus pseudo-breccias

37.01

39.85

121.4

130.7

### METASEDIMENTS

Mostly dk grey, fairly bi-fs rich, Q-poor, mod to well foliated, mg.

38.11

39.85

125-130.7 - very intense ep alteration(?)

splotchy cg ep (splotches 4cm)

and in layers

39.48-39.63

129.5-130

v. cg pink garnets

39.85  
139.7

43.14  
141.5

### CHERT

lt grey to white, mg, very massive, only very rare sericite partings, some color-banding, pseudo breccias (towards bottom)

43.14  
141.5

50.55  
165.8

### METASEDIMENTS

Dark grey, mg, well foliated (often fissile) biotite-fs-Q rich rocks.

Rocks get darker and less schistose down-hole, and near bottom get occasional chlorite-bearing bands, and minor red garnet

50.55  
165.8

62.65  
205.5

### BASIC TUFF (~~SEDS?~~ BRECCIA)

Unit consists of alternating grey-green, f.g. basic 'bands', and dk green to blk mg schistose bi-chlor rock. <sup>massive</sup> <sup>1</sup>

Appears either fragmented with muddy matrix, or pillows (unlikely) or rhythmically interbedded sed and basic tuff. Some 'clasts' are hb or px-phyric, most are aphyric. Clasts range up to >20cm thick, to less than 1cm, all appear highly flattened. Pervasive epidotization of fragments is common (especially up-hole). Near lower contact looks like several Q-bi schist mts layers.

205.5  
62.65

228

### METASEDIMENTS

Medium grey (to dk grey) often w. yellow/green epidote tint, mg metasediment. Well foliated (to fissile) bi-Q-fs rich, with abundant ep as layers + patches, and frequent near monomineralic garnet layers. Thin to med-bedded, poorly to well banded. Possibly coarsely fragmental (conglomerate?) around <sup>65.5</sup>215. Occasional thin chloritic basic tuff (?) beds.

<sup>69.2</sup> <sup>69.5</sup>  
227-228 broken core

69.51  
228 256.4

### BASALT

Medium to dark green, mg (mostly) to fg. Amphibolite zones, some pillow (bx?) zones as well. Poorly to well foliated, non-fissile.

<sup>69.5</sup> <sup>72</sup>  
228-236 - med green f-g, abundant harline Q veins, some poss fragmental textures

<sup>72</sup> <sup>74.1</sup>  
236-243 - dark green fg-mg, pillows or fragments seen

<sup>74.1</sup> <sup>78.17</sup>  
243-256.4 - m.g. salt + pepper, # amphibolitic, occ ep patches. Sometimes looks fragmental/pillowed

78.17  
256.4 81.86  
268.5

### METASEDIMENTS + BASIC TUFFS

Heterogeneous, mostly mg, well foliated, in shades of grey + green. Monomineralic bands of (depp) red garnets # and of epidote occur, seds are bi-rich.

<sup>81.1</sup> <sup>81.5</sup>  
266-267 basic band  
<sup>81.71</sup>  
268 po-rich (3-5%) layer

at contact is 10cm of massive biotite

81.86 84.94  
2685 278.6

### CHERT

White, grey or pink, m-g-fg, massive. Q-rich + Q-ser bands (pink). Good color banding in cherts; + abundant sericitic (argillaceous) chert interbeds. Sharp contacts both sides (bi zone on each contact).

84.94 40.88  
278.6 298.1

### BASIC TUFF

medium to dk green, m-g, mod to good schistosity, Alternating amphib / fs / chlor + bi-chlor ± Q bands. Occasional epidote 'swirls' or bands, or squashed garnets or monocrystalline gt bands. Possible fragmental texture near bottom + top of band unit

90.88 95.43  
298.1 313 NM-  
m

### CHERT

White to grey, mg granular, massive, color banding in chert, and near bottom, abundant bi-ser-Q schist interbeds

<sup>90.9 91.5</sup>  
298-300 - thin (max 3-4mm) magnetite

(and some hematite?) beds

<sup>92.90 94.09</sup>  
304.7-308.6 - many argillaceous interbeds  
(up to 15cm)

95.43 103.69  
313 340.1

### MIXED METASEDIMENTS (W. BASIC TUFFS)

Dominantly mg, schistose grey bi-fs-Q metaseds, often w. epidote.

Lesser fg.-mg green actinolitic/chloritic  
 basic bands, w. minor bi locally  
 Garnet common in bi-rich  
 basic bands  $327.5^{99.85} - 329.6^{100.49}$   
 $333.2^{101.59} - 334.1^{101.86}$

103.69 105.1

340.1 3448

NM

CHERT

White to grey, darker material (graph?) outlines  
 bedding. Breccia (or pseudo breccia) common. Lower  
 40cm has v. abund bi-ser partings, thin  
 bedded (< 1cm)

105.1 110.45  
 3448 3639

NM

METASEDIMENTS, BASIC TUFF (FRAGMENTAL?)

Hetero., grey biotitic meta seds + green  
 mafic rocks

mafic fragmentals (q) 361-363 110.1 - 110.7

350-352 106.7 - 107.3

have mafic fragments (q) in biotitic matrix  
 Most of the rest of the unit is biotitic seds.

110.95 113.84  
 3639 3734

BASIC TUFF

Med green, fg.-mg banded actin-chlor-play  
 rock. Rare bi.

Some vague fragmental textures @ 369 <sup>112.5</sup>

123.87  
406.3  
~~387~~  
3734  
113.84

### BASALT

Same old basalt near MS horizon, fg med to dk green chloritic, somewhat schistose, plus mg med green salt + pepper actin-rich basalt. Lacks apparent fragmental textures, but fg may be selvedges

Below <sup>118.6</sup>389 get occasional chloritic 'shears' and sparse py, po or cp, mostly smeared out along foliation planes. Some Q-carb + Q-ep hairline (and up to ~3mm) fractures

123.87 125.91  
406.3 413

mm

### ALTERED AND MINERALIZED BASALT

Moderately sharp contact above, marked by appearance of significant biotite and increase in % sulfide (to max 5%). Also sulfides occurring in patches + stringers, not <sup>just</sup> small blebs. Py, cp dominant, Po rare, no visible sp.

Minor ep, and possibly some deep red/purple garnet also seen.

125.91 126.98  
413 ~~413~~  
416.5

### BASALT

same as above (113.84-123.87)

126.98 131.2  
416.5 430.4

### BASALT BRECCIA

Fg basic frags in a dk green mg + mod schistose basic (chloritic) matrix

430.4 155  
131.2 137.8

BASALT

Med green, fg - mg, some ~~plag~~ plag porph.  
- below 449<sup>137</sup> a few biotitic bands (with  
possible basic frags)

455  
137.8

E04