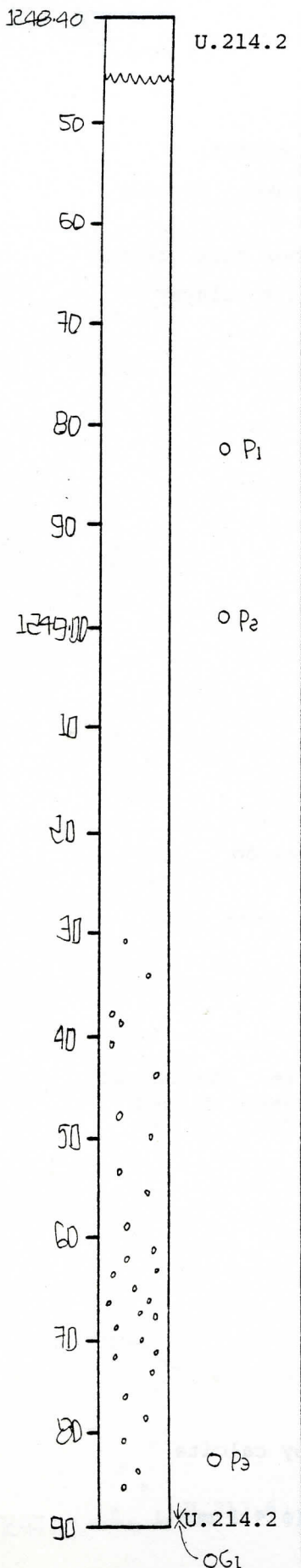


Graphic Representation

Sample

Depth Interval 1 2 4 8 4 6 cm to 1 2 4 9 9 4 cm

Box 214, Section 2



LITHOLOGY-PETROGRAPHY

Continues U.214.2 (the same as U.213.6)

Dark greenish coloured, plagioclase-megacryst bearing basalt.

Plagioclase megacryst (~ 8 mm) rarely found.

NOTE: Lithology of U.214.2 and U.213.6 is entirely the same. However, this cooling unit might include several lava flows, judging from the distribution of vesicles and crystallinity of rock.

Becomes very vesicular.

STRUCTURE

Massive

VESICLES/AMYGDALES

Amygdale - (~ 2 cm). Sometimes found (filled with calcite, zeolite and green clay). Vesicles are rare. Very compact.

1249.60 onwards.  $\phi \sim 2$  mm, 4%vol. , irregular, no orientation, filled with calcite or green clay.

$\phi \sim 3$  mm. 6 vol. %, irregular, no orientation.

FRACTURES - VEINS - BRECCIA

Not present

ROCK ALTERATION

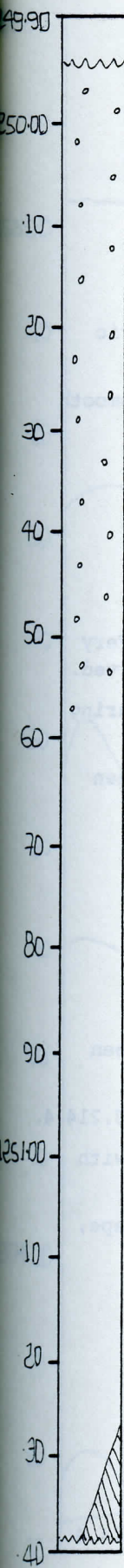
Green clay disseminated throughout the core. Megacryst is partly replaced by calcite, epidote.

Graphic Representation

Sample

Depth Interval 1 2 4 9 9 4 cm to 1 2 5 1 3 9 cm

Box 214, Section 3



LITHOLOGY-PETROGRAPHY

Continues U.214.2

Light greenish coloured vesicular plagioclase megacryst-bearing basalt.

Plagioclase phenocrysts (~ 10 mm) sparsely occur.

STRUCTURE

Massive

VESICLES/AMYGDALES

Vesicles - usually 1 ~ 3 mm. Irregular shape. No orientation. Filled with calcite. 5 vol.%.  
Amygdale - 5 mm ~ 12 mm. Fe-hydroxide, calcite and zeolite filled. Irregular shape.

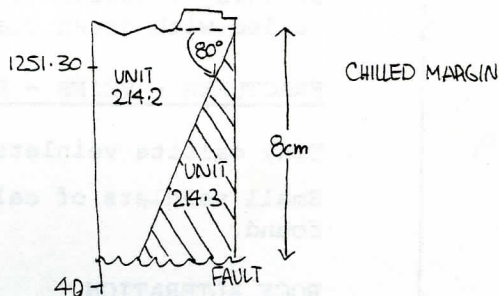
FRACTURES - VEINS - BRECCIA

Small veinlets of calcite occur.

ROCK ALTERATION

Calcite disseminated.

IGNORE! THIS IS NOT A NEW UNIT.



U.214.2

Graphic Representation

Sample

Depth Interval 

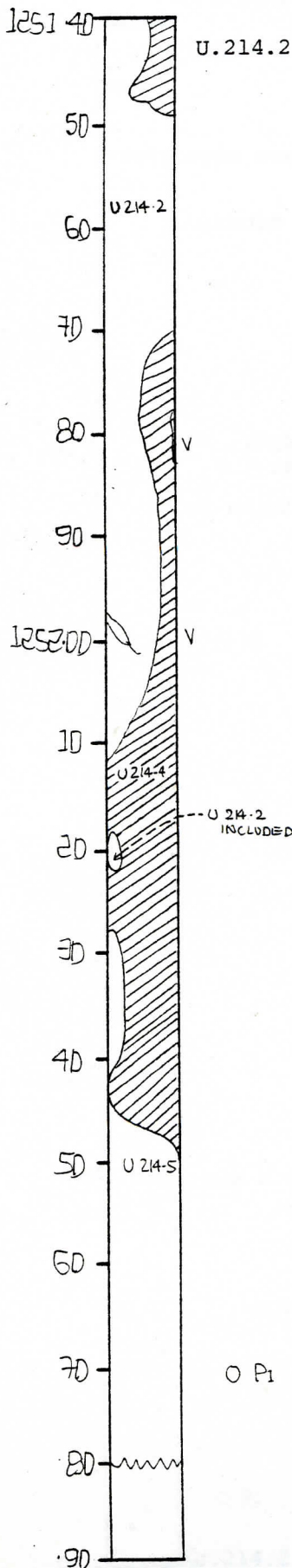
1	2	5	1	3	9
---	---	---	---	---	---

 cm to 

1	2	5	2	8	0
---	---	---	---	---	---

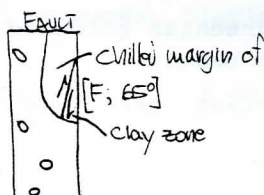
 cm

Box 214, Section 4



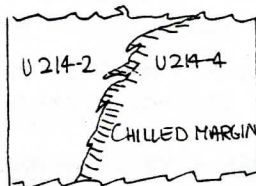
LITHOLOGY-PETROGRAPHY

U.214.2 & U.214.3 continuous



U.214.2 Dark greenish coloured fine-grained, aphyric basalt.

U.214.3 Boundary between U.214.3 and U.214.2 not smooth contact



U.214.3 Very fine grain, black coloured basalt. Very tiny plagioclase phenocryst (< 0.5 mm) can be observed.

U.214.2 Greenish colour, plagioclase megacryst bearing basalt.

U.214.4 Essentially the same as U.214.2. Dark green coloured aphyric basalt. Plagioclase phenocryst. ( $\phi \sim 5$  mm).

STRUCTURE

Massive

VESICLES/AMYGDALES

U.214.2 Vesicles in U.214.2 < 3 mm filled with green clay.

U.214.4 Actually no vesicles and no amygdales in U.214.4. Vesicles ( $\phi \sim 1$  mm) are common in U.214.2, filled with green clay.

U.214.5 Vesicles ( $\phi 1 \sim 2$  mm) are common, round shape, filled with green clay.

FRACTURES - VEINS - BRECCIA

Tiny calcite veinlets are common in boundary zone. Small veinlets of calcite and green clay can be found.

ROCK ALTERATION

Very minute particle of pyrite can be found in U.214.4 intrusive. Calcite veinlets.

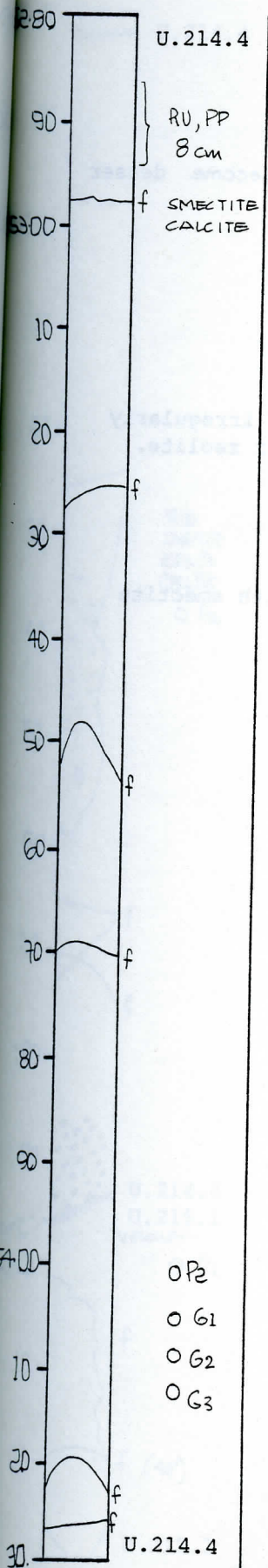


Depth Interval 1 2 5 2 8 0 cm to 1 2 5 4 3 2 cm

Box 215, Section 1

Graphic Representation

Sample



LITHOLOGY-PETROGRAPHY

Continuation of Unit 214.4. The same as 213.6 and 214.2.

Massive, uniform, green ophitic basalt flow.

STRUCTURE

Ophitic

VESICLES/AMYGDALES

Few round vesicles filled with green smectite ± zeolite (?) are irregularly distributed, up to 8 mm across.

FRACTURES - VEINS - BRECCIA

All fractures are subparallel from a nearly horizontal to 55° dip. Coating is black smectite ± calcite.

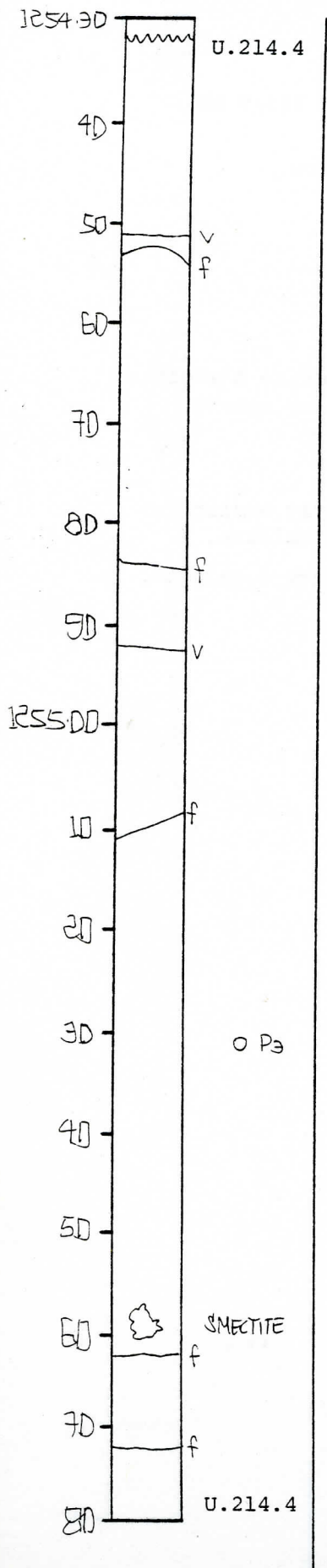
Few hairlike veins are coated with smectite ± calcite.

Graphic Representation

Sample

Depth Interval 1 2 5 4 3 2 cm to 1 2 5 5 8 2 cm

Box 215, Section 2



LITHOLOGY-PETROGRAPHY

Same as Unit 214.2 and U.213.6.

Massive, green ophitic basalt flow.

Decrease in ophitic texturing. The rocks become denser into section 3.

STRUCTURE

Ophitic

VESICLES/AMYGDALES

Few round vesicles up to 3 mm across are irregularly distributed, filled with green smectite ± zeolite.

Irregular large patch of smectite.

FRACTURES - VEINS - BRECCIA

All fractures are subparallel, coated with smectite ± calcite. Average dip 10°-15°.

Depth Interval 

1	2	5	5	8	2
---	---	---	---	---	---

 cm to 

1	2	5	7	3	2
---	---	---	---	---	---

 cm

Box 215, Section 3

Graphic Representation

Sample

U.214.4

LITHOLOGY-PETROGRAPHY

Same as U.214.2 and U.213.6

Massive, fine grained, less ophitic basaltic flow, green to greenish gray. Downward increase in vesicularity and grain size and colour.

U.215.1 Dense, fine grained, dark gray along the contact. Massive, grayish green, aphyric fine grained rock.

It's probably an olivine basalt dyke because of the huge amount of smectite in section 4 (Box 216).

STRUCTURE

Ophitic to vesicular towards the contact.

1256.85 Vesicular

1256.93 Brecciated, chilled contact, massive.

VESICLES/AMYGDALES

U.214.4 Vesicles are usually irregular in size up to < 15 mm across. Filling normally is smectite + zeolite and a mineral, very similar in colour to the light greenish coloured chilled margin.

1256.40 Smectite filled elongate vesicles < 8 mm are lying horizontally.

Smectite zeolite calcite.

U.215.1 Tiny << 1 mm vesicles aligned parallel to the contact.

FRACTURES - VEINS - BRECCIA

Smectite coating of fractures is no longer that common, as before (U.214.4).

U.215.1 Fractures are coated with black smectite.

VEIN  
SMECTITE  
ZEOLITE  
CALCITE

○ P<sub>4</sub>

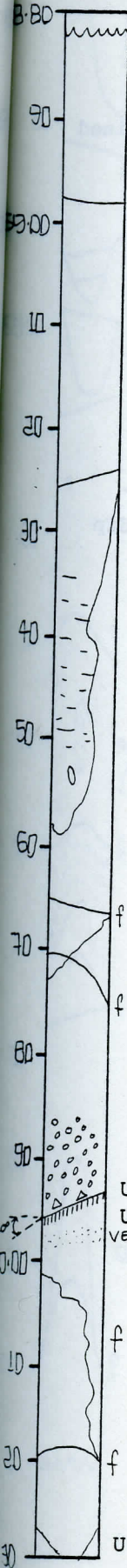
U.214.4

U.215.1

VESELLES

○ P<sub>1</sub>

U.215.1





Graphic Representation

Sample

Depth Interval 

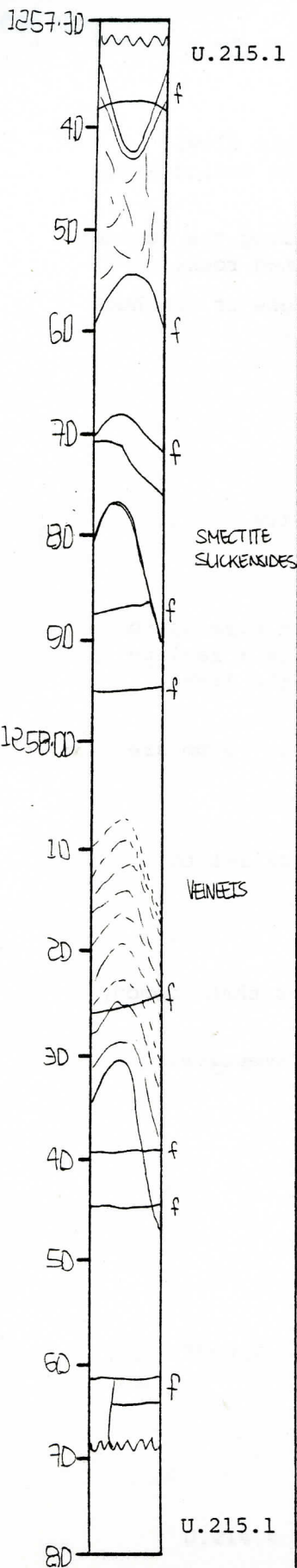
1	2	5	7	3	2
---	---	---	---	---	---

 cm to 

1	2	5	8	6	8
---	---	---	---	---	---

 cm

Box 215, Section 4



LITHOLOGY-PETROGRAPHY

Continues U.215.1

Uniform, massive, grayish green, aphyric, fine-grained dyke.

STRUCTURE

Massive

VESICLES/AMYGDALES

None

FRACTURES/VEINS/BRECCIA

Fractures are strongly coated with black smectite.

On a black smectite-coated fracture slickensides dip ~ 68° relative to the core length.

Smectite coated veinlets dip ~ 75°.

Depth Interval 

1	2	5	8	6	8
---	---	---	---	---	---

 cm to 

1	2	6	0	1	0
---	---	---	---	---	---

 cm

Box 216, Section 1

Graphic Representation

Sample

U.215.1

LITHOLOGY-PETROGRAPHY

Continuation of U.215.1

Massive, uniform, grayish green aphyric, fine-grained basaltic dyke.

STRUCTURE

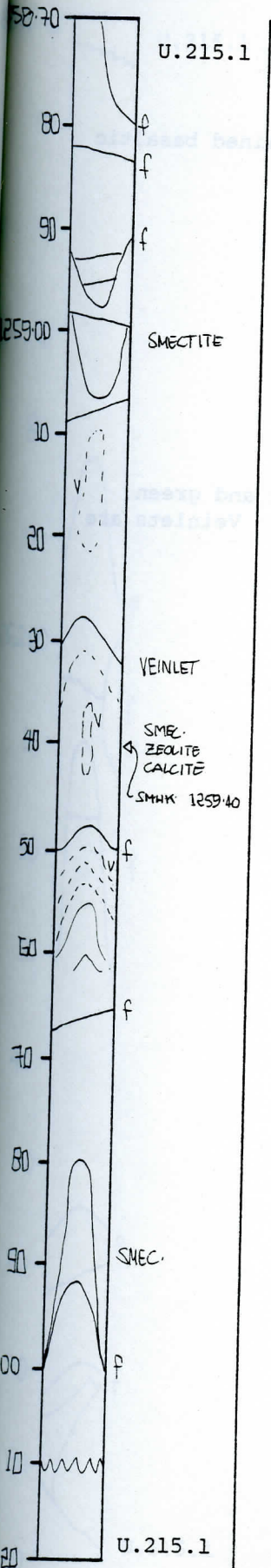
Massive

VESICLES/AMYGDALES

Absent

FRACTURES - VEINS - BRECCIA

Fractures are strongly coated with black smectite. Veinlets are coated with black smectite, the larger ones also filled with white zeolite ± calcite.





Graphic Representation

Sample

Depth Interval 

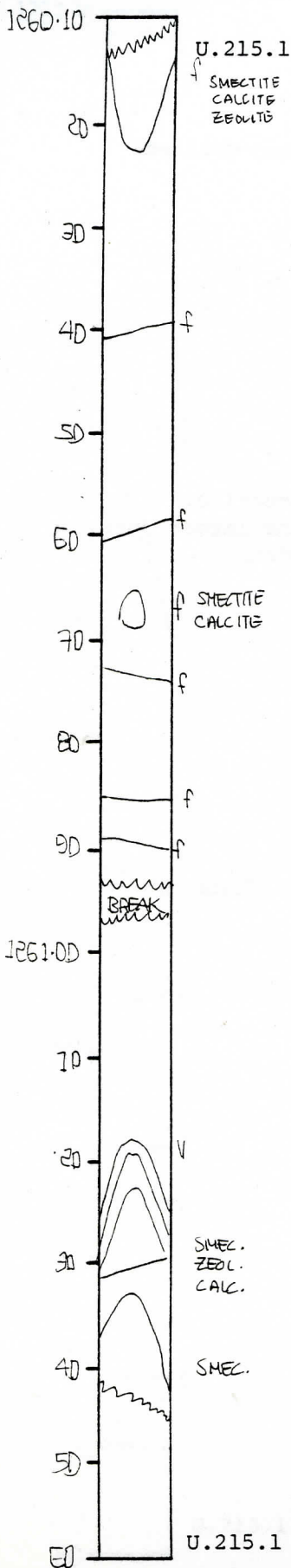
1	2	6	0	1	0
---	---	---	---	---	---

 cm to 

1	2	6	1	4	2
---	---	---	---	---	---

 cm

Box 216, Section 2



LITHOLOGY-PETROGRAPHY

Continuing from Section 216.

Uniform, grayish green, aphyric, fine-grained basaltic dyke.

STRUCTURE

Massive

VESICLES/AMYGDALES

Absent

FRACTURES - VEINS - BRECCIA

Fractures are strongly coated with black and green smectite, ± calcite. Dip ~ 70° and 40°. Veinlets are coated with black smectite ± calcite.

Graphic Representation

Sample

Depth Interval 

1	2	6	1	4	2
---	---	---	---	---	---

 cm to 

1	2	6	2	9	4
---	---	---	---	---	---

 cm

Box 216, Section 3

U.215.1

LITHOLOGY-PETROGRAPHY

Continuation of U.215.1

Uniform, grayish green, aphyric, fine-grained, basaltic dyke.

STRUCTURE

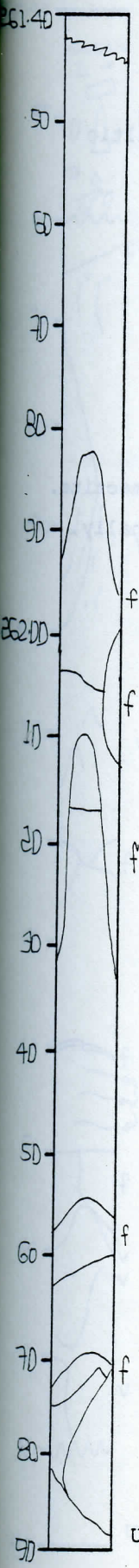
Massive

VESICLES/AMYGDALES

Absent

FRACTURES - VEINS - BRECCIA

Fractures and veins are coated with black ( $\pm$  green) smectite  $\pm$  calcite. Average dip is  $\sim 70^\circ$ .

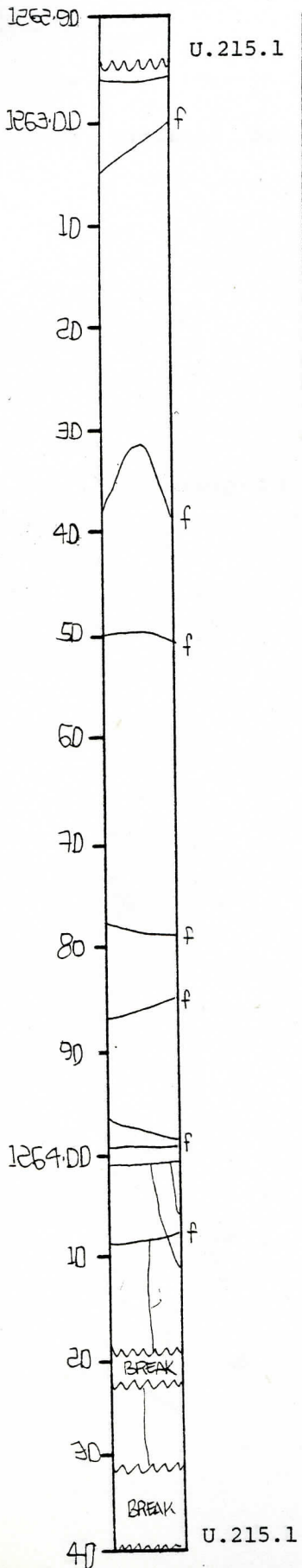


Graphic Representation

Sample

Depth Interval 126294 cm to 126440 cm

Box 216, Section 4



LITHOLOGY-PETROGRAPHY

Continuation of U.215.1

Uniform, grayish-green, aphyric, fine-grained basaltic dyke.

STRUCTURE

Massive

VESICLES/AMYGDALES

Absent

FRACTURES - VEINS - BRECCIA

Fractures and veinlets are normally coated with smectite. Around 1264.20 zeolite and calcite appear additionally. Fractures & veinlets dip steeply ~ 70°.

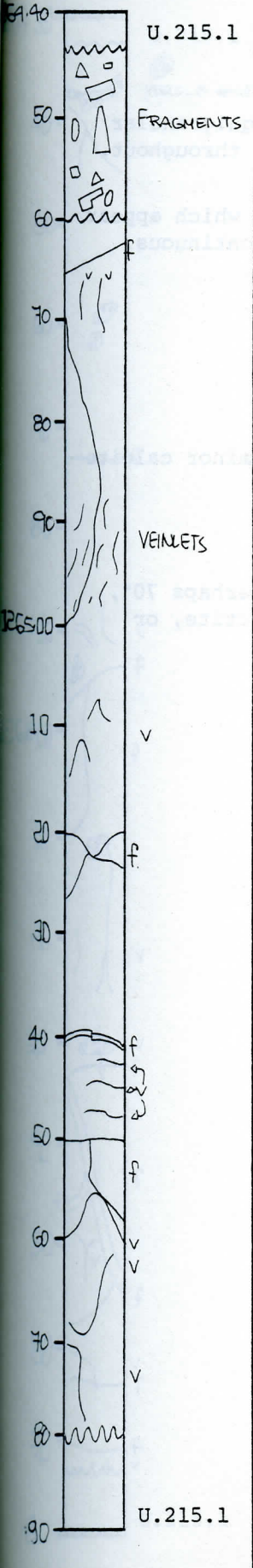


Graphic Representation

Sample

Depth Interval 126440 cm to 126580 cm

Box 217, Section 1



LITHOLOGY-PETROGRAPHY

Continuing U.215.1

Fine-grained, aphyric, holocrystalline, equigranular basalt. Gray-green section has very extensive fracturing and veining. Disseminated pyrite (< 1%) throughout. Patches up to 1 mm diameter.

STRUCTURE

Massive

VESICLES/AMYGDALES

Absent

FRACTURES - VEINS - BRECCIA

Fractures and veins generally at high angles (> 60°), but in all orientations. Several 1-2 mm thick veins filled with smectite + zeolite + minor calcite. Others are hairline, smectite filled.

Graphic  
Representation

Sample

Depth Interval 

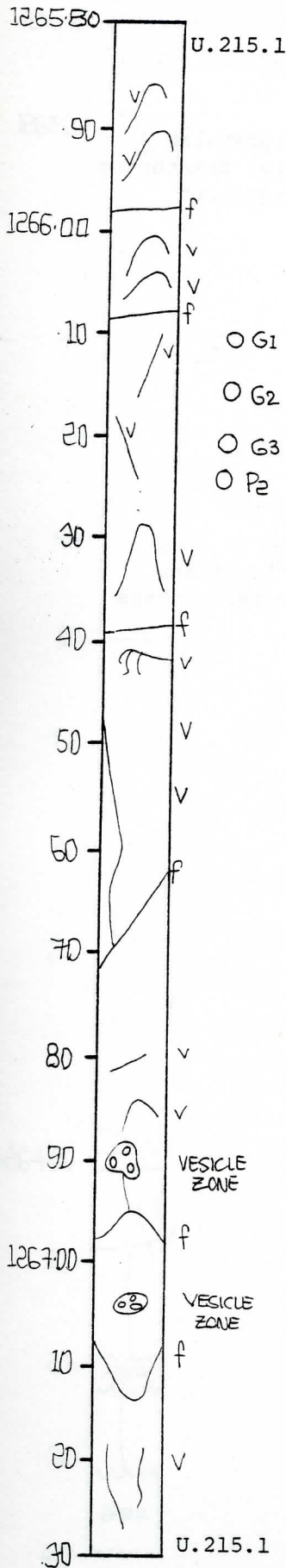
1	2	6	5	8	0
---	---	---	---	---	---

 cm to 

1	2	6	7	3	3
---	---	---	---	---	---

 cm

Box 217, Section 2



LITHOLOGY-PETROGRAPHY

Continuing U.215.1

Fine-grained, aphyric, holocrystalline, equigranular basalt. Gray-green. Disseminated pyrite throughout. Patches up to 1 mm diameter (< 1%).

Several vesicular zones, 2-3 cm diameter, which appear to be small "inclusion like" areas, not continuous.

STRUCTURE

Massive

VESICLES/AMYGDALES

Amygdules in vesicle zones are zeolite + minor calcite filled. Vesicles are 2-3 mm by 1 mm.

FRACTURES - VEINS - BRECCIA

Fractures and veins mainly high angles, perhaps 70°, some at 0-10°. Lined with dark green smectite, or perhaps chlorite.

Depth Interval 

1	2	6	7	3	3
---	---	---	---	---	---

 cm to 

1	2	6	8	7	3
---	---	---	---	---	---


 cm

Box 217, Section 3

Graphic Representation

Sample

U.215.1

 VESICLE ZONE

LITHOLOGY-PETROGRAPHY

Continuing U.215.1

Fine-grained, aphyric, holocrystalline, equigranular basalt. Gray-green.

Fracturing and veining not as extensive as previous section.

Disseminated pyrite (< 1%) throughout. Patches up to 1 mm diameter.

Several vesicular zones, 2-3 cm diameter, which appear to be small "inclusion like" areas, not continuous.

STRUCTURE

Massive

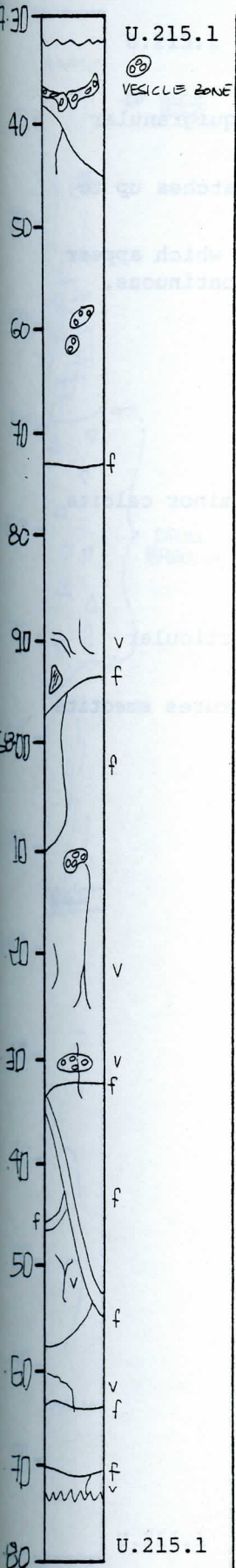
VESICLES

Amygdules in vesicle zones are zeolite + minor calcite filled. Vesicles are 2-3 mm x 1 mm.

FRACTURES - VEINS - BRECCIA

Fracture and vein dips varied, not any particular trend.

Veins are hairline, smectite filled, fractures smectite lined.



U.215.1

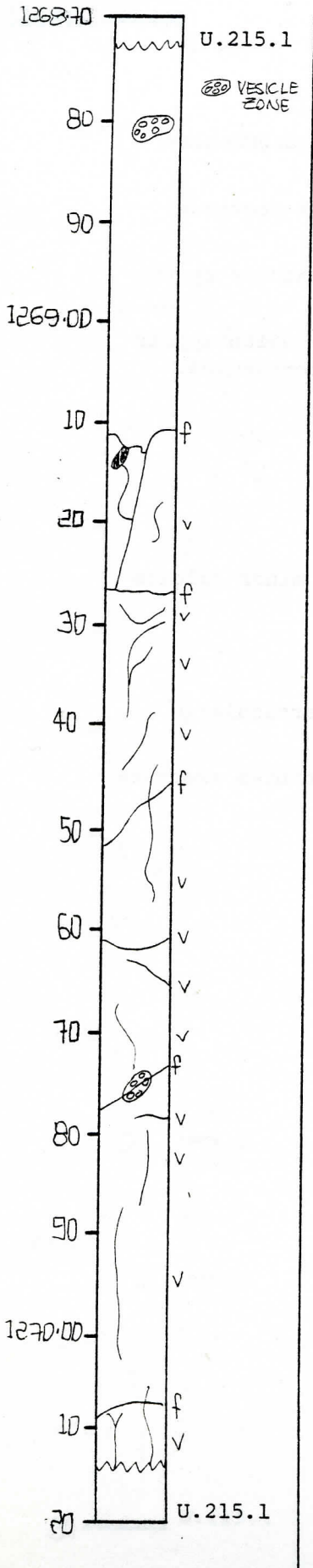


Graphic Representation

Sample

Depth Interval 126873 cm to 127014 cm

Box 217, Section 4



LITHOLOGY-PETROGRAPHY

Continuing 215.1

Fine-grained, aphyric, holocrystalline, equigranular basalt. Gray-green.

Disseminated pyrite (< 1%) throughout. Patches up to 1 mm diameter.

Several vesicular zones, 2-3 mm diameter, which appear to be small "inclusion like" areas, not continuous.

STRUCTURE

Massive

VESICLES/AMYGDALES

Amygdules in vesicle zones are zeolite + minor calcite filled. Vesicles are 2-3 mm x 1 mm.

FRACTURES - VEINS - BRECCIA

Fracture and vein dips varied, not any particular trend.

Veins are hairline, smectite filled, fractures smectite (chlorite) lined.

Graphic Representation

Sample

Depth Interval 

1	2	7	0	1	4
---	---	---	---	---	---

 cm to 

1	2	7	1	4	4
---	---	---	---	---	---

 cm

Box 218, Section 1

U.215.1

LITHOLOGY-PETROGRAPHY

Continues U.215.1

Greenish-gray, fine-grained, holocrystalline, aphyric basalt. Highly veined, most veins dipping 60-70°. Grain size uniform through section. No contacts.

STRUCTURE

Massive

VESICLES/AMYGDALES

Lacking in most all of core. One patch @ 1270.27 m has a few vesicles ~ 1 mm, filled with zeolite.

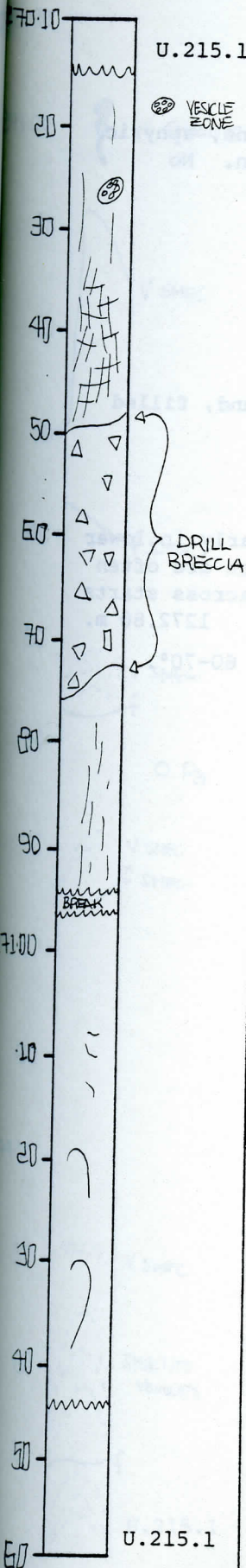
FRACTURES - VEINS - BRECCIA

Veinlets abundant through section, dip ~ 60-70° lined with smectite.

Fractures mostly follow veins, have striated surfaces.

ROCK ALTERATION

Little except along fractures and veins.

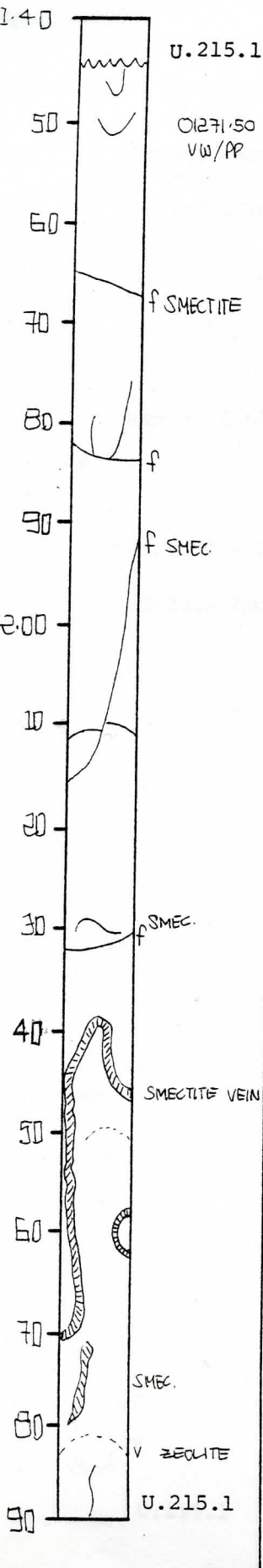


Graphic Representation

Sample

Depth Interval 127144 cm to 127293 cm

Box 218, Section 2



LITHOLOGY-PETROGRAPHY

Continues U.215.1

Greenish-gray, fine-grained, holocrystalline, aphyric basalt. Grain size uniform through section. No contacts.

STRUCTURE

Massive

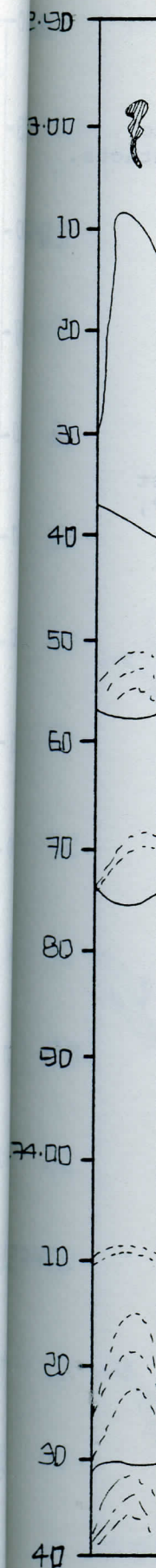
VESICLES/AMYGDALES

Rare, a few scattered vesicles 1-2 mm, round, filled with smectite.

FRACTURES - VEINS - BRECCIA

Moderately veined with smectite, particularly in lower half of section. Most veins dip 70-80° but are often irregular. A large smectite vein 1-2 cm across starts @ 1272.39 m and extends discontinuously to 1272.80 m.

Fractures sparse, most dip ~ 30°. One is 60-70°.





Depth Interval 127293 cm to 127440 cm

Box 218, Section 3

Graphic Representation

Sample

U.215.1

LITHOLOGY-PETROGRAPHY

Continues U.215.1

Greenish-gray, fine-grained, holocrystalline, aphyric basalt. Grain size uniform through section. No contacts.

STRUCTURE

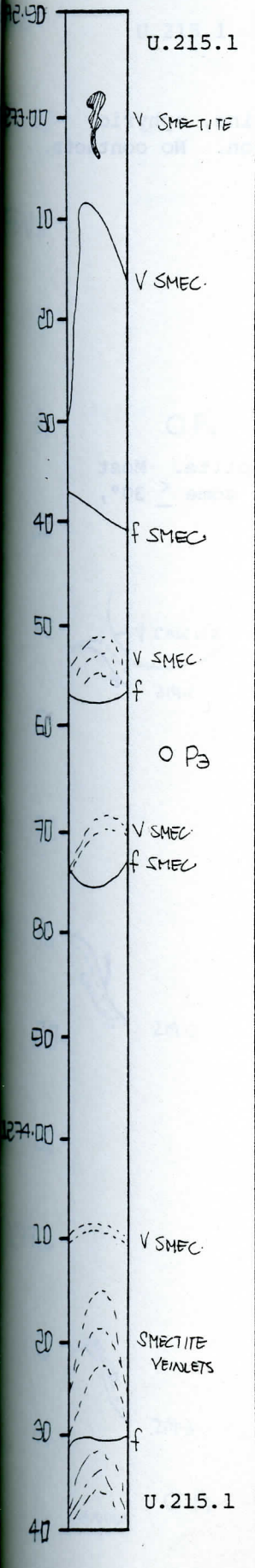
Massive

VESICLES/AMYGDALES

Very rare, a few 1-2 mm, round to irregular, filled with smectite and zeolite.

FRACTURES - VEINS - BRECCIA

Highly veined with smectite. Most veins 1-2 mm, dip 60-70°. Fractures mostly are parallel to veins, coated with striated black smectite.

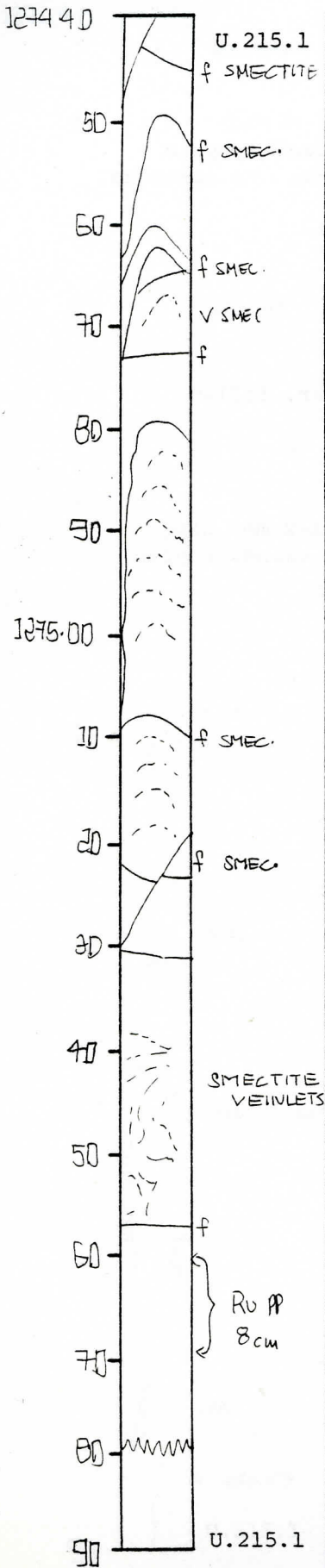


U.215.1

Graphic Representation  
Sample

Depth Interval 127440 cm to 127579 cm

Box 218, Section 4



LITHOLOGY-PETROGRAPHY

Continues U.215.1

Greenish-gray, fine-grained, holocrystalline, aphyric basalt. Grain size uniform through section. No contacts

STRUCTURE

Massive

VESICLES/AMYGDALES

None

FRACTURES - VEINS - BRECCIA

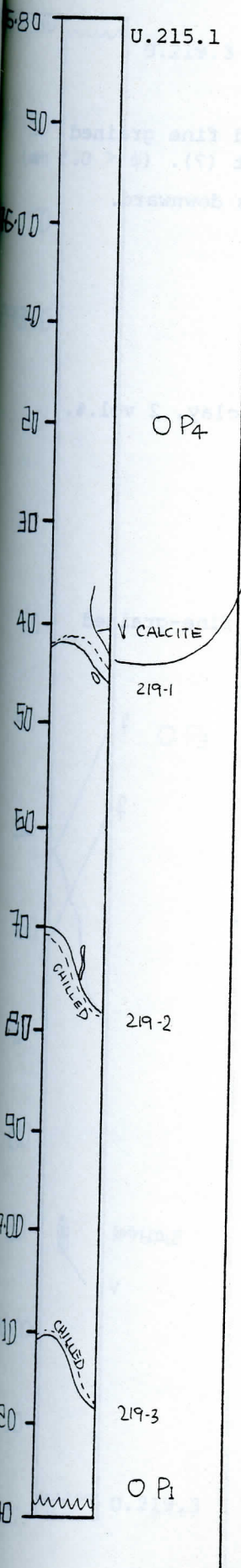
Highly veined with hairline veinlets of smectite. Most dip ~ 70°. Most fractures parallel veins, some  $\leq 30^\circ$ , coated with striated smectite.

Graphic Representation

Sample

Depth Interval 127579 cm to 127729 cm

Box 219, Section 1

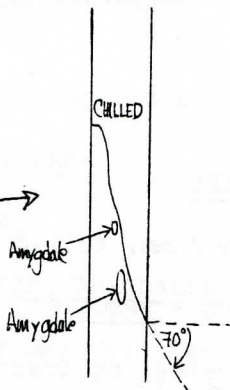


LITHOLOGY-PETROGRAPHY

U.215.1 (Continues)

Dark green coloured aphyric, glassy basalt.

U.219.1 Green coloured.



U.219.2 The boundary between 219.2 and 219.1 has the same dip-strike as the boundary between 219.1 and 215.1 and the boundary between 219.2 and 219.3.



U.219.3 - The same rock as U.219.1

STRUCTURE

U.215.1 Massive

U.219.1 Massive

U.219.2 Massive

VESICLES/AMYGDALES

U.215.1 None

U.219.1 Amygdules - ~ 1 cm (Quartz, fe-hydroxide, green clay, calcite filled).

Vesicles -  $\phi \sim 2$  mm, sometimes observed filled with green clay.

U.219.3 Amygdules; ~ 1 cm. Fe-hydroxide, green clay.

ROCK ALTERATION

U.215.1 Pyrite ( $\phi \sim 2$ mm - 4mm) disseminated throughout.

U.219.1 Pyrite