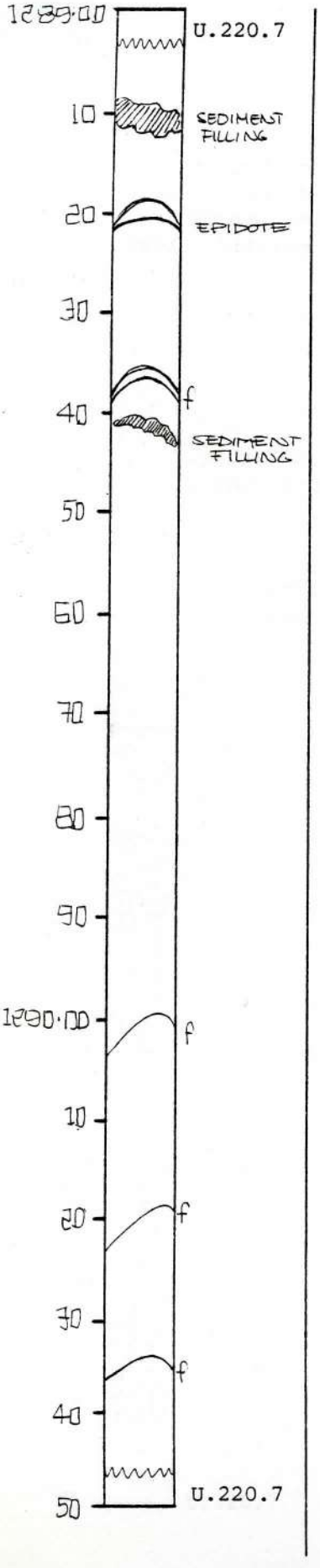
Visual Core Description Observer ..Viereck.....

Depth Interval 1289.03 cm to 1290.47 cm

Box 221, Section 2



LITHOLOGY-PETROGRAPHY

Same unit as in the Section before. (220.7)

In this section: downward change from the upper scoriacious to the contorted flow banded part in the basaltic flow.

Variable pattern of greenish-gray vesicular parts with elongated gray, finer-grained areas up to several cm in length distributed in them.

From 1289.90 - 1290.20 the fine-grained material makes more than 50% of the whole core and is coloured slightly purplish gray.

At 1289.40 and .50 there are sediment fillings, reddish.

STRUCTURE

Scoriacious to vesicular to contorted (aphyric)

VESICLES/AMYGDALES

Larger vesicles are irregular in shape, filled with zeolite, calcite, epidote. They are common around 1289.20 and 1290.45. Small vesicles are usually filled with green smectite and white zeolite.

FRACTURES - VEINS - BRECCIA

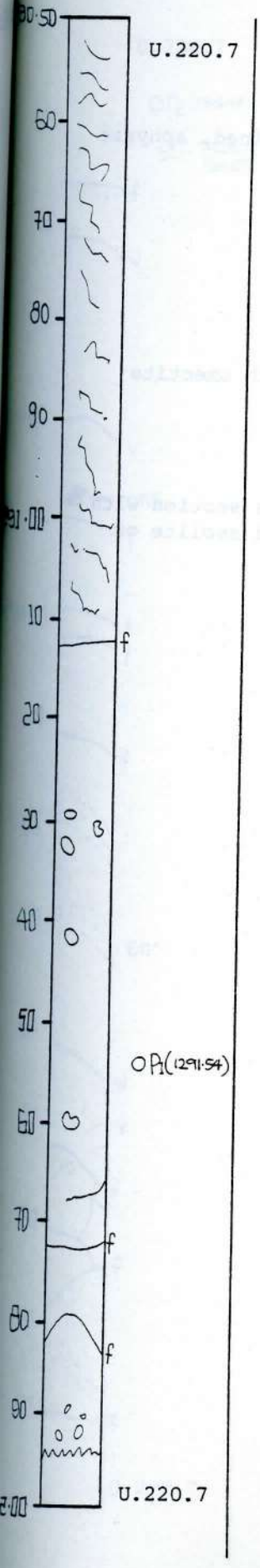
Veinlets up to 1 mm in width are filled with zeolite + smectite ± calcite.

Visual Core Description Observer Viereck

Depth Interval 1290448 cm to 1291944 cm

Box 221, Section 3

Graphic Representation | Sample



LITHOLOGY-PETROGRAPHY

Continuation of Section 1 and 2.

Massive, greenish gray, aphyric slightly vesicular, fine-grained, basalt flow. Down to 1291.00 contortion is still visible. Denser fine-grained parts with some irregularly shaped vesicles up to 3 mm across, flow in a little coarser, lighter coloured material.

Except for a few irregularly and widely distributed vesicles (< 20 mm) at 1291.30 and 1291.60 and 1291.90 the core is uniform.

STRUCTURE

Contorted flow structures.

Massive

VESICLES/AMYGDALES

Large vesicles > 10 mm are filled with stratified quartz ± calcite (1291.30) backside occasionally - calcite, quartz + zeolite are common as filling.

Small vesicles are mainly filled with smectite + zeolite.

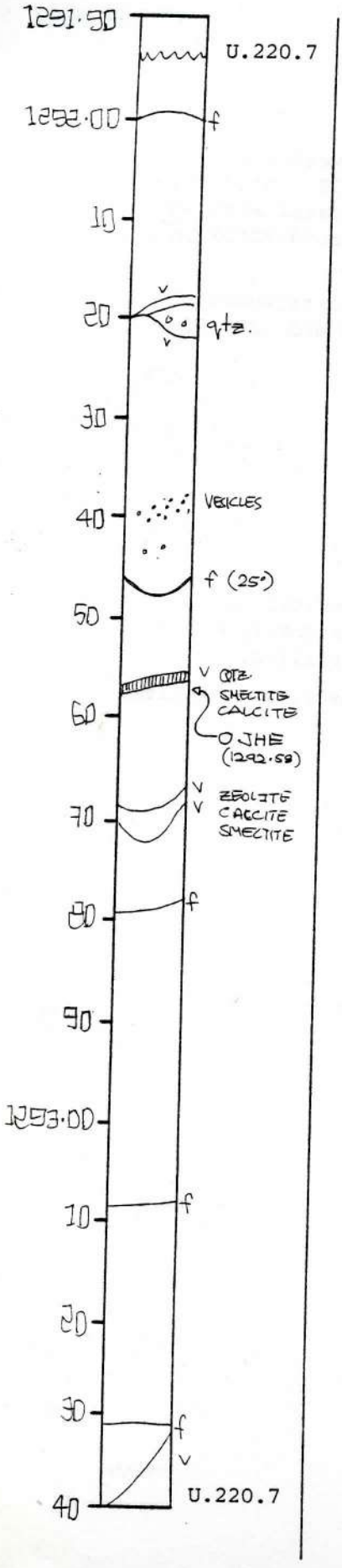
FRACTURES

Veins and fractures are sparse

Visual Core Description Observer .Viereck...

Depth Interval 1 2 9 1 9 4 cm to 1 2 9 3 4 0 cm

Box 221, Section 4



LITHOLOGY-PETROGRAPHY

Continuation of Section 1, 2 & 3.

Massive, greenish-gray, uniform, fine-grained, aphyric basalt.

STRUCTURE

Massive

VESICLES/AMYGDALES

Vesicles are rare, up to 3 mm, filled with smectite and/or quartz, and/or zeolite.

FRACTURES - VEINS - BRECCIA

Veins from < 1 mm to 10 mm appear in this section with different fillings (smectite, calcite and zeolite or quartz, or quartz alone).

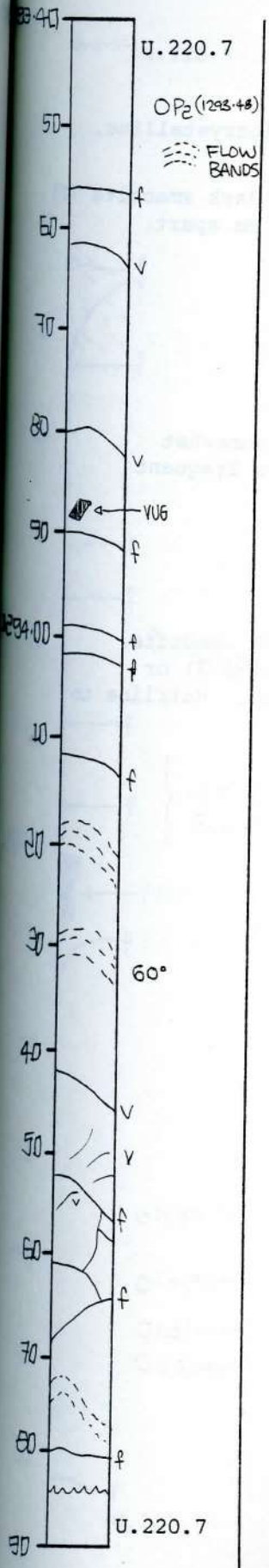
Visual Core Description Observer RHW

Depth Interval 1 2 9 3 3 8 cm to 1 2 9 4 8 4 cm

Box 222, Section 1

Graphic Representation

Sample



LITHOLOGY-PETROGRAPHY

Continuing U.220.7

Grayish-green, fine-grained, aphyric, holocrystalline, equigranular basalt.

Flow banding dipping ∿ 60°, consisting of dark smectite (?) bands, .1 mm to .5 mm thick, generally 2-3 cm apart.

STRUCTURE

Massive (with sporadic flow bands)

VESICLES/AMYGDALES

Essentially absent. One vug, probably filled with zeolite (apophyllite).

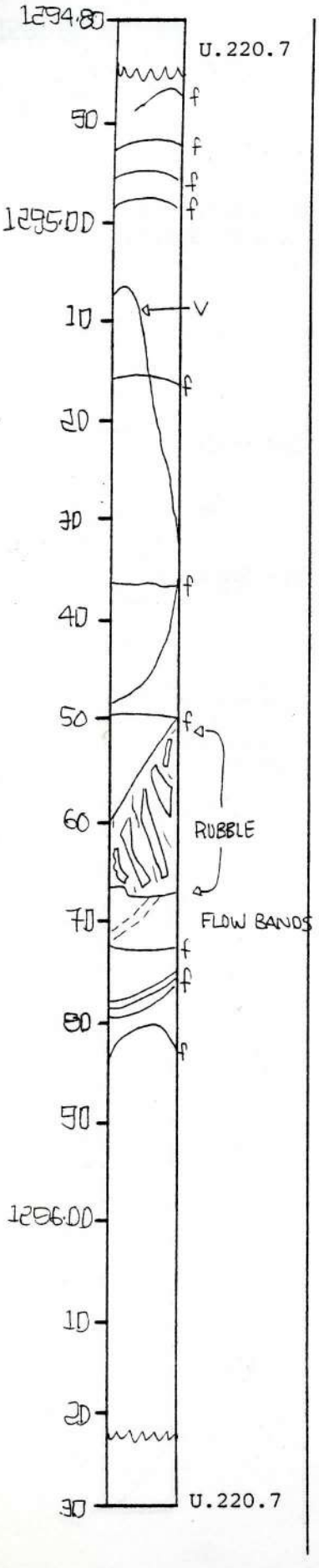
FRACTURES - VEINS - BRECCIA

Most veins and fractures concordant with flow banding (60°), zeolite or smectite filled.

Visual Core Description Observer RHW

Depth Interval 1294.84 cm to 1296.22 cm

Box 222, Section 2



LITHOLOGY-PETROGRAPHY

Continuing U.220.7

Grayish-green, fine-grained, aphyric, holocrystalline, equigranular basalt.

Flow banding dipping ∿ 60°, consisting of dark smectite (?) bands .1 mm to .5 mm thick, generally 2-3 cm apart.

STRUCTURE

Massive (sporadic flow bands)

VESICLES/AMYGDALES

Texture of upper 75 cm. of section seems somewhat mottled, with small, < 1 mm smectite blebs frequent (2-3%).

1295.65 - downwards - blebs absent.

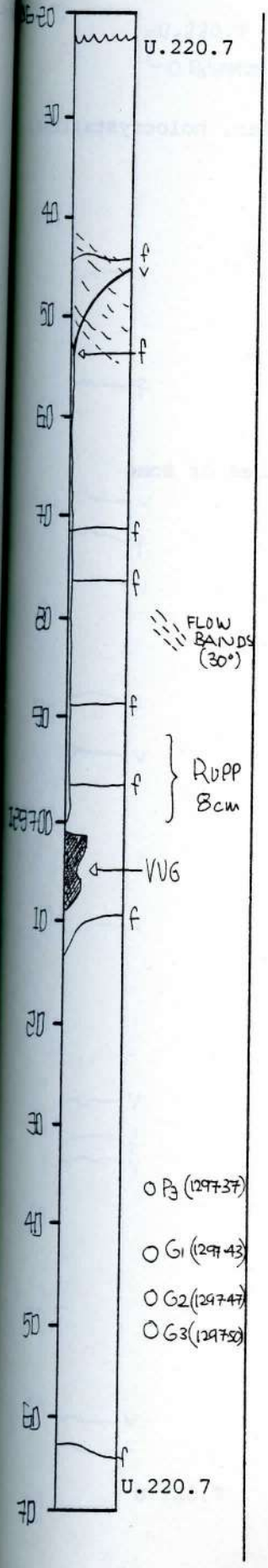
FRACTURES - VEINS - BRECCIA

Fractures @ low angles (0-15°), lined with smectite. Veins - zeolite + calcite lined (apophyllite ?) or smectite lined, concordant with flow bands. Hairline to 1 mm (zeolite).

Visual Core Description Observer ..RHW.....

Depth Interval 1 2 9 6 2 2 cm to 1 2 9 7 7 1 cm

Box 222, Section 3



LITHOLOGY-PETROGRAPHY

Continuing U.220.7

Grayish-green, fine-grained, aphyric, holocrystalline, equigranular basalt.

Flow banding dipping ∿ 30°. Banding is not as distinct as in previous 2 sections, i.e. the bands are broken up into segments, they are generally .5 mm thick, 1 mm apart.

Very epidote rich zone in area of the vug.

STRUCTURE

Massive (some banding)

VESICLES/AMYGDALES

Essentially absent. One large vug, 6 cm x 4 cm, filled with minor calcite and mainly apophyllite.

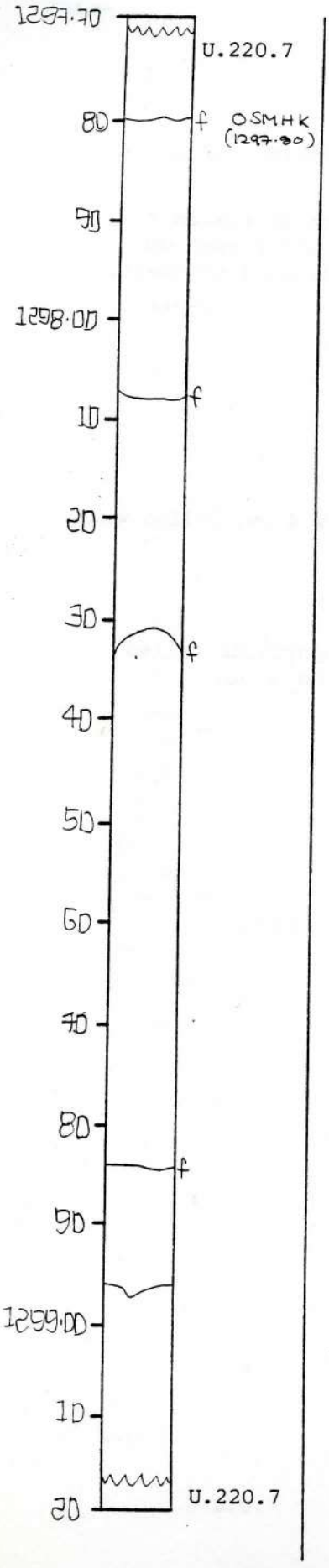
FRACTURES - VEINS - BRECCIA

Fractures generally 0-10°, one large, apophyllite filled vein is nearly vertical. 50 cm long, .5 cm. wide.

Visual Core Description Observer ..RHW.....

Depth Interval 1 2 9 7 7 1 cm to 1 2 9 9 1 7 cm

Box 222, Section 4



LITHOLOGY-PETROGRAPHY

Continuing U.220.7

Massive, fine-grained, aphyric, equigranular, holocrystall greenish-gray basalt.

STRUCTURE

Massive

VESICLES/AMYGDALES

Absent

FRACTURES - VEINS - BRECCIA

Fractures 0-10°, one at 60°. Fresh surfaces or some epidote + calcite lining.

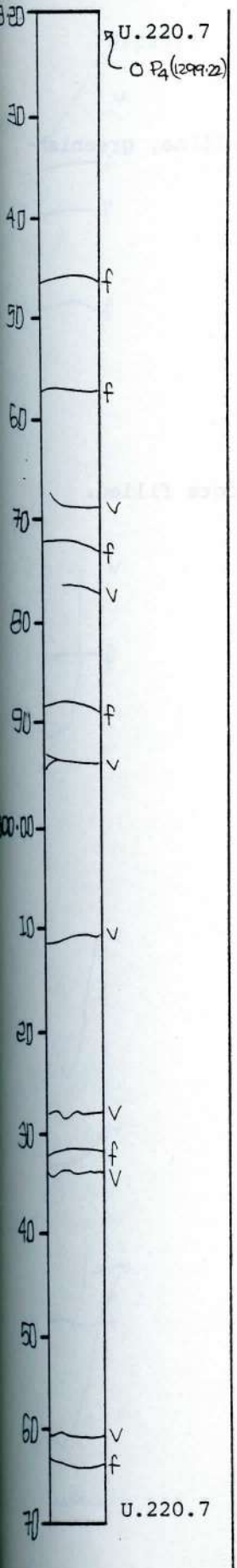
Visual Core Description Observer RHW

Depth Interval 129917 cm to 130071 cm

Box 223, Section 1

Graphic Representation

Sample



LITHOLOGY-PETROGRAPHY

Continuing U.220.7

Massive, fine-grained, aphyric, holocrystalline, greenish-gray, equigranular basalt.

STRUCTURE

Massive

VESICLES/AMYGDALES

Absent

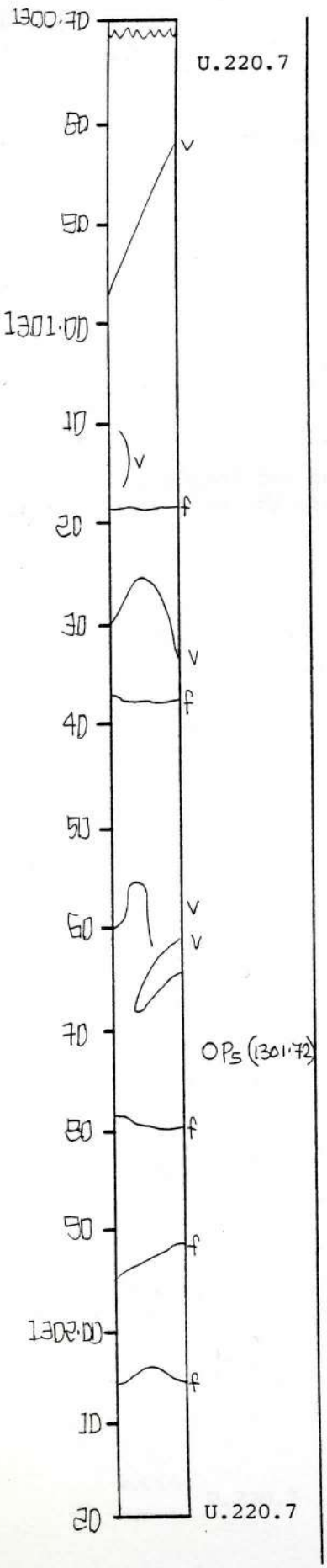
FRACTURES - VEINS - BRECCIA

Fractures @ 0-15°, smectite lined and some red (oxide?) mineral. Rather indistinct red "veins" are the only veins in the section.

Visual Core Description Observer ..RHW.....

Depth Interval 1 3 0 0 7 1 cm to 1 3 0 2 2 0 cm

Box 223, Section 2



LITHOLOGY-PETROGRAPHY

Continuing U.220.7

Massive, fine-grained, aphyric, holocrystalline, greenish-gray, equigranular basalt.

STRUCTURE

Massive

VESICLES/AMYGDALES

Absent

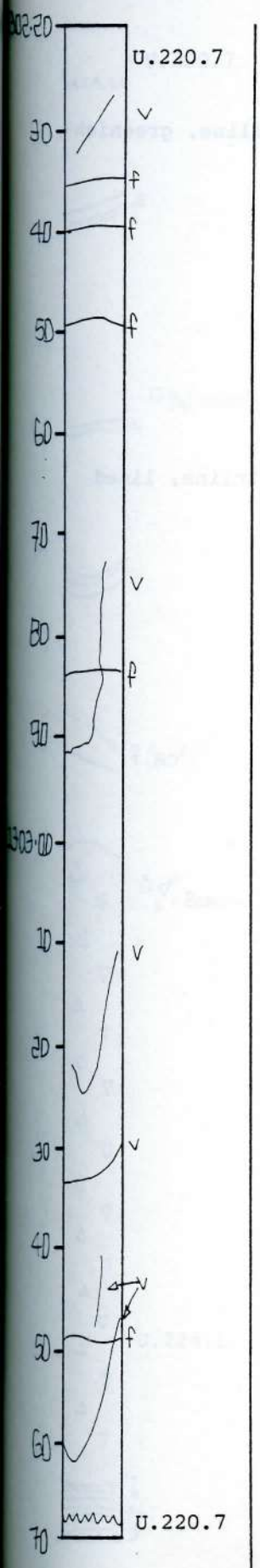
FRACTURES - VEINS - BRECCIA

Veins up to 1 mm wide, calcite and/or epidote filled. Fractures 0-10°.

Visual Core Description Observer ..RHW.....

Depth Interval 130220 cm to 130368 cm

Box 223, Section 3



LITHOLOGY-PETROGRAPHY

Continuing U.220.7

Massive, fine-grained, aphyric, holocrystalline, greenish-gray, equigranular basalt.

STRUCTURE

Massive

VESICLES/AMYGDALES

Absent

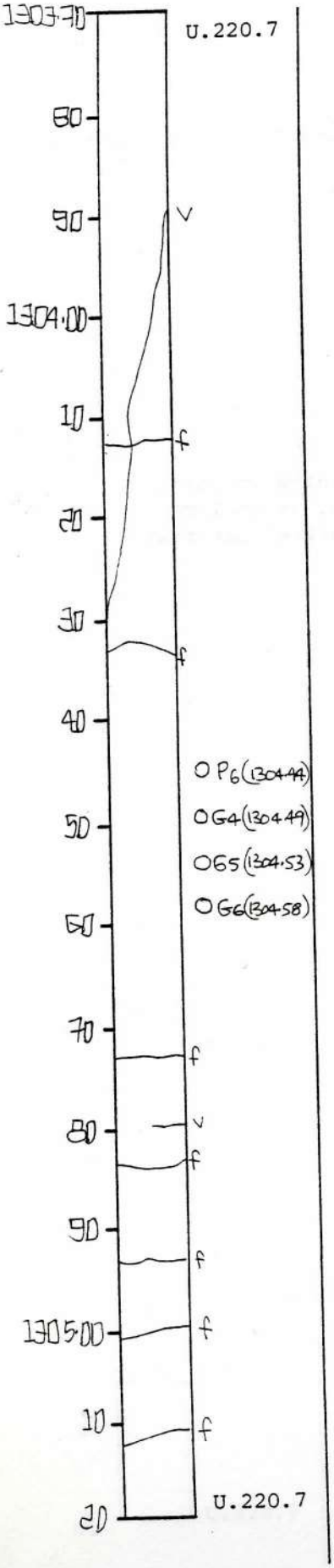
FRACTURES - VEINS - BRECCIA

Fractures @ 0-10°, some with hematite lining in part. Veins filled with epidote and/or calcite, up to 1 mm wide. Other, diffuse veins of red (hematite) material.

Visual Core Description Observer ...RHW.....

Depth Interval 1 3 0 3 6 8 cm to 1 3 0 5 2 5 cm

BOX 223, SECTION 4



LITHOLOGY-PETROGRAPHY

Continuing Unit 220.7

Massive, fine-grained, aphyric, holocrystalline, greenish-gray, equigranular basalt.

STRUCTURE

Massive

VESICLES/AMYGDALES

Absent

FRACTURES - VEINS - BRECCIA

Fractures generally fresh, 0-10°, veins hairline, lined with epidote and/or calcite.

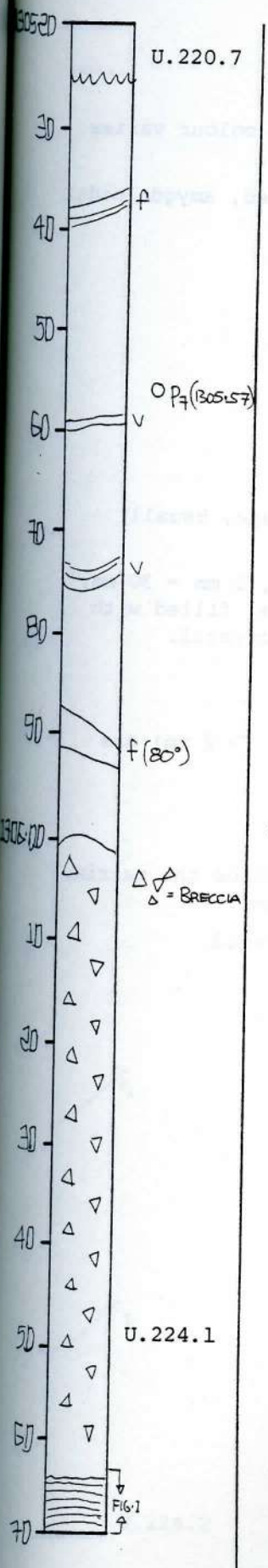
Visual Core Description Observer .K..Hattori.....

Depth Interval 1305.25 cm to 1306.73 cm

Box 224, Section 1

Graphic Representation

Sample



LITHOLOGY-PETROGRAPHY

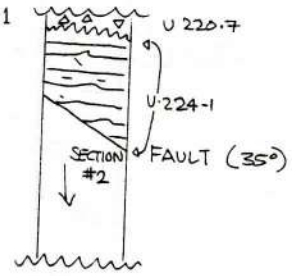
Continues Unit 220.7

Gray coloured, fine-grained, holocrystalline, aphyritic basalt flow.

1306.00 Brecciated bottom flow part

Unit 224.1 Brick-red coloured, tuffaceous sediments, plagioclase ($\phi \sim 3$ mm)

FIGURE 1



STRUCTURE

1305.25 - 1306.00 Massive

1306.00 Brecciated

VESICLES/AMYGDALES

1305.25 - 1306.00 Actually no vesicles, no amygdales.

1306.00 - U.224.1 Amygdale ($\phi \sim 3$ cm) Calcite (well crystallized) + laumontite + green clay. Vesicles in fragments ($\phi \sim 2$ mm) are usually flattened and filled with green clay.

U.224.1 Not present

FRACTURES - VEINS - BRECCIA

1305.25 - 1306.00 Very thin veinlets of Fe-hydroxide. Fracture surfaces are covered with Fe-hydroxide.

1306.00 - U.224.1 Veinlets of Fe-hydroxide.

Fracture is filled with calcite, laumontite.

U.224.1 Not present.

ROCK ALTERATION

1305.25 - 1306.00 Fairly fresh

1306.00 - U.224.1 Fe-hydroxide is disseminated in matrix.

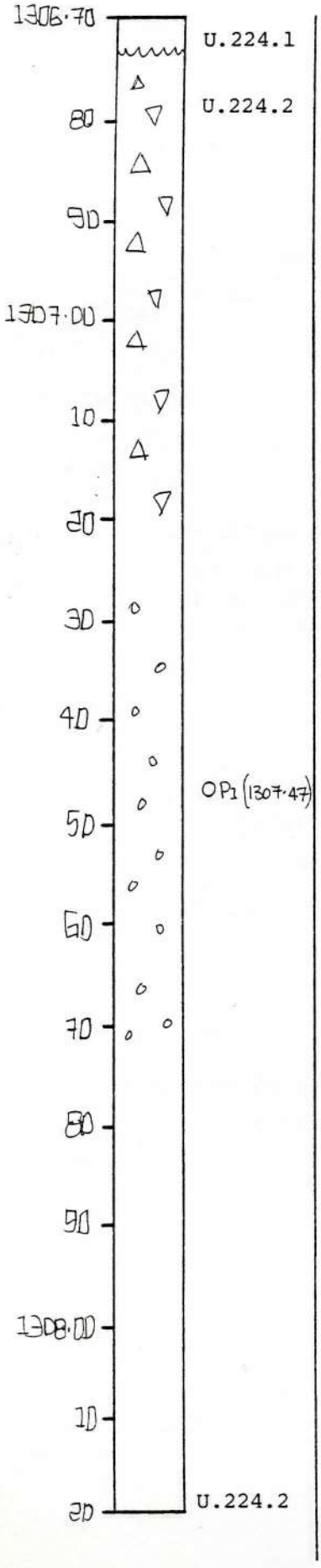
U.224.1 Oxidized strongly, calcite disseminated.

Visual Core Description

Observer K. Hattori

Depth Interval 1306.73 cm to 1308.26 cm

Box 224, Section 2



LITHOLOGY-PETROGRAPHY

Fault contact between 224.1 and 224.2

U.224.2 Upper flow part, brecciated. The colour varies from yellowish green to dark greenish gray.

1307.20 - downwards. Greenish gray coloured, amygdaloidal basalt flow.

STRUCTURE

Fault - 35°, green clay cover.

U.224.2 Brecciated

1307.20 - downwards. Massive

VESICLES/AMYGDALES

U.224.2 Vesicles in fragments: round shape, usually filled with green clay minerals.

1307.20 - downwards. Vesicles, amygdules, 2 mm - 30 mm, irregular shape, no orientation. 10 vol.%, filled with calcite, zeolite, minute euhedral quartz crystal.

FRACTURES - VEINS - BRECCIA

1307.20 - downwards. Veinlets of calcite (∿ 2 mm) are fairly common.

ROCK ALTERATION

U.224.2 Green clay, epidote, calcite replace the matrix. Alteration intense, upper 10 cm is oxidized.

1307.20 - downwards. Green-gray disseminated.

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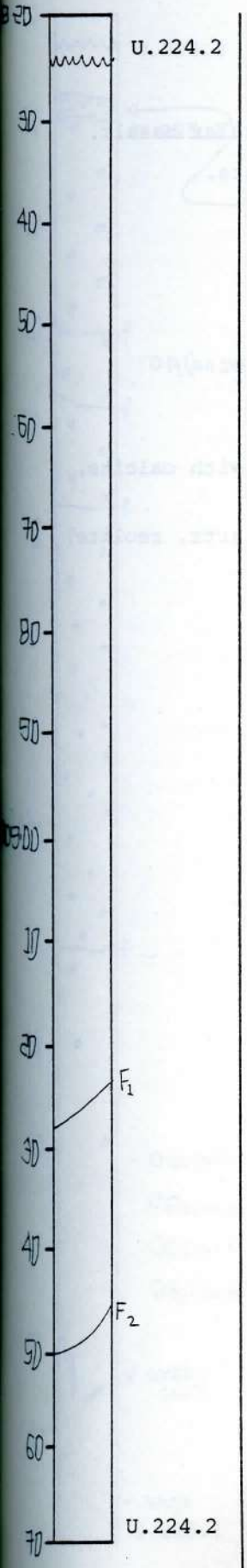
Visual Core Description Observer K. Hattori

Depth Interval 1308.24 cm to 1309.71 cm

Box 224, Section 3

Graphic Representation Sample



LITHOLOGY-PETROGRAPHY

Continues U.224.2

Green-gray coloured vesicular basalt.

1309.20 Becomes crystalline, probably olivine crystals (0.5 mm).

STRUCTURE

Massive

VESICLES/AMYGDALES

Vesicles: $\phi \sim 1$ mm
Amygdales: ~ 10 mm
(small ones (< 3 mm); round shape)
(large ones; irregular)
Filled with quartz, calcite, zeolite, green clay. The amount ~ 10 vol.%.

FRACTURES - VEINS - BRECCIA

Veinlets of green clay, calcite.

F_1 - Fracture, angle 40°

F_2 - Fracture, angle 40°

ROCK ALTERATION

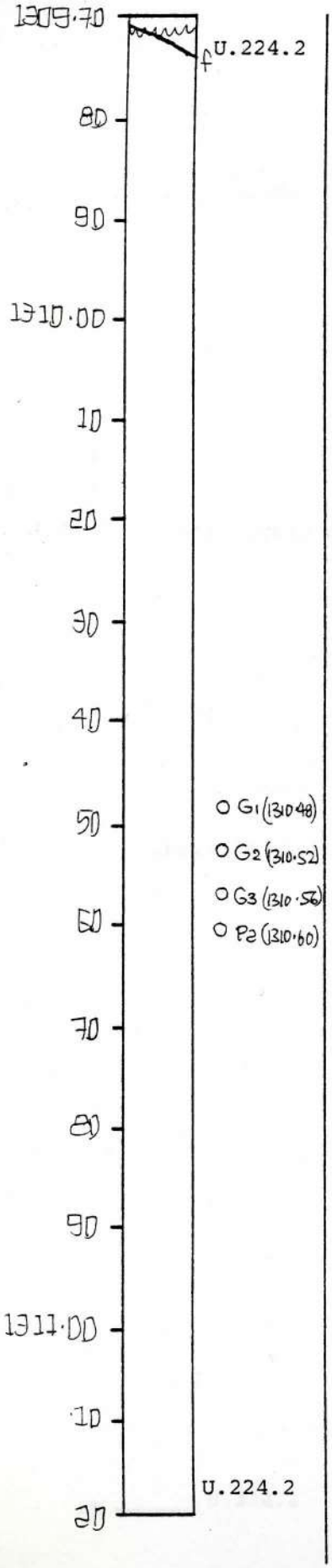
1308.40 - 1308.68 Clay disseminated, intensely altered, brittle.

Visual Core Description Observer .K..Hattori..

Depth Interval 1 3 0 9 7 1 cm to 1 3 1 1 2 3 cm

Box 224, Section 4

Graphic Representation Sample



LITHOLOGY-PETROGRAPHY

Continues Unit 224.2

Greenish-gray coloured, fine-grained, vesicular basalt.

Crystallinity poor, no change throughout core.

1310.50 Less vesicular

1310.55 Becomes amygdaloidal

STRUCTURE

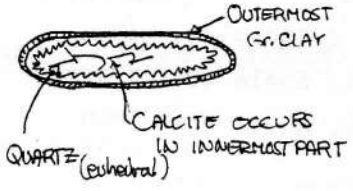
Massive

VESICLES/AMYGDALES

Vesicles (∿ 3 mm), irregular shape, filled with calcite, zeolite, 8 vol. %.

1310.55 Amygdules (∿ 3 cm), filled with quartz, zeolite, calcite. Rarely Fe-hydroxide.

MOST COMMON:



ROCK ALTERATION

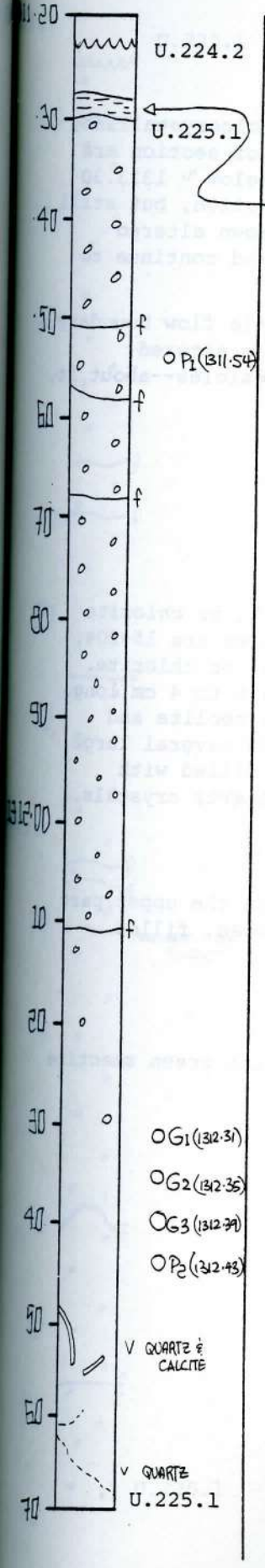
1309.83 Green clay

1311.07 Green clay disseminated.

Visual Core Description Observer PTR .....

Depth Interval 1 3 1 1 2 3 cm to 1 3 1 2 7 2 cm

Box 225, Section 1



LITHOLOGY-PETROGRAPHY

Continues Unit 224.2

Gray, fine-grained, vesicular basalt, in contact with tuff layer. Contact is depositional, dipping 5°.

1311.28-1311.30 Tuff interbed ∿ 3-4 cm thick.

Unit 225.1 Greenish-gray, to grayish-green, finer to medium-grained, holocrystalline, aphyric basalt. Grain size increases from fine- to very fine-grained at upper contact to medium-grained, subaphyric in lower part.

STRUCTURE

U.224.2 Massive

1311.28-1311.30 Bedded

VESICLES/AMYGDALES

U.224.2 5-8%, 1-2 mm, round, filled with chlorite?

1311.28-1311.30 None

U.225.1 Highly vesicular (∿ 20%) to 1312.20 m, then sparsely vesicular to base of section. Most vesicles 1-5 mm, some to 2-3 cm. Smaller ones are round, filled with smectite or chlorite. Larger ones are irregular, filled with calcite and quartz.

FRACTURES - VEINS - BRECCIA

U.224.2 None

1311.28-1311.30 None

U.225.1 Sparse fractures are subhorizontal due to drilling. Veins in lower part of section 1-10 mm wide, filled with quartz and calcite--perhaps also some zeolite.

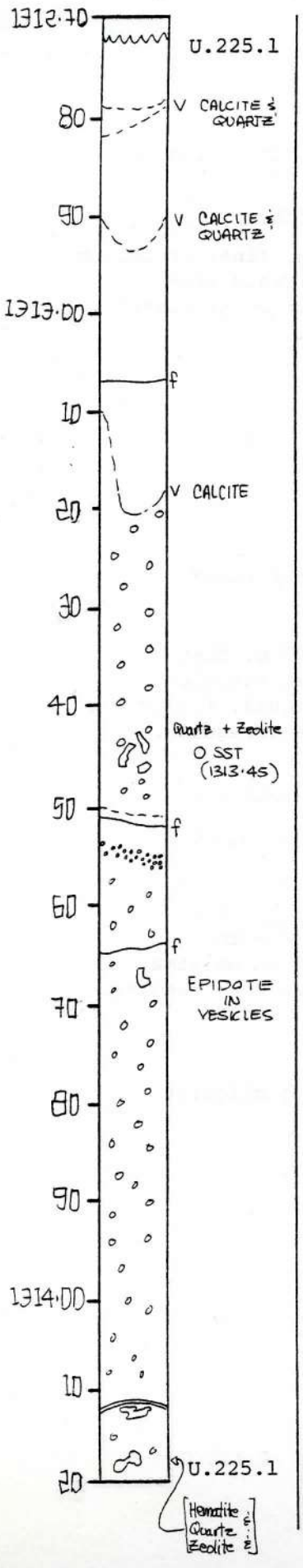
ROCK ALTERATION

U.225.1 Some interstitial green smectite or chlorite.

Visual Core Description Observer ..PTR.....

Depth Interval 1312720 cm to 1313424 cm

Box 225, Section 2



LITHOLOGY-PETROGRAPHY

Continues Unit 225.1

Grayish-green, coarse- to medium-grained, holocrystalline, equigranular, aphyric basalt. Upper 50 cm of section are coarse-grained with sub-aphitic texture. Below ∿ 1313.30 grain size decreases slightly to base of section, but still medium-grained. At about 1313.70 m, red brown altered crystals (probably olivine) become common and continue to base of section.

1313.50 Slightly fine-grained zone--possible flow boundary within larger cooling unit. Below this zone altered olivine is common and epidote fills many vesicles--about it, both are absent.

STRUCTURE

Massive

VESICLES/AMYGDALES

Vesicles, 1-3%, 1-2 mm, filled with smectite or chlorite to about 1313.20 m; below this level vesicles are 15-20%, some are 1-5 mm round, filled with smectite, or chlorite. Others are large irregular amygdules or vugs to 4 cm long. These are often zoned, filled with quartz, zeolite and minor calcite. Between 1313.65 and 1313.80 several large vesicles are rimmed with chlorite (?) and filled with epidote. A few open vesicles lined with quartz crystals.

FRACTURES - VEINS - BRECCIA

Fractures due to drilling. Sparse veins in the upper part of the section dip 60-80°; 1-3 mm wide, zoned, filled with quartz, calcite (?) and some zeolite.

ROCK ALTERATION

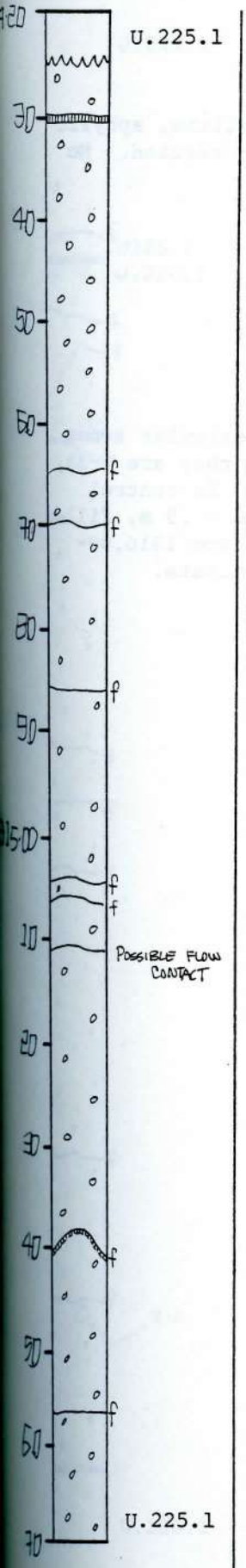
Fairly highly altered with much interstitial green smectite or chlorite.

Visual Core Description Observer PTR

Depth Interval 1 3 1 4 2 4 cm to 1 3 1 5 7 5 cm

Box 225, Section 3

Graphic Representation Sample



LITHOLOGY-PETROGRAPHY

Continues U.225.1

Grayish-green medium-grained, holocrystalline, aphyric basalt. Has subaphitic texture. Grain size quite uniform through section. Olivine (?), altered to hematite ?, is common to ∿ 1315.11 m.

1314.30 Air fall tuff seam ? (HUS)

1315.11 Possible flow contact within larger cooling unit or lava flow. Narrow finer-grained zone. Above this level, red altered olivine (?) is abundant, below it is nearly absent. Also epidote is generally lacking in the vesicles.

1315.40 Air fall tuff seam? (HUS)

STRUCTURE

Massive

VESICLES/AMYGDALES

Entire section is highly vesicular ∼15%. Vesicles range from 1 mm to 4 cm, average ∿ 5 mm. Filled with green chlorite? quartz and zeolite. Epidote is common above 1315.15 m, rare below. Several large amygdules partly open with lining of quartz crystals?

FRACTURES - VEINS - BRECCIA

Most fractures subhorizontal, due to drilling. One dips ∿ 30°, coated with chlorite (?).

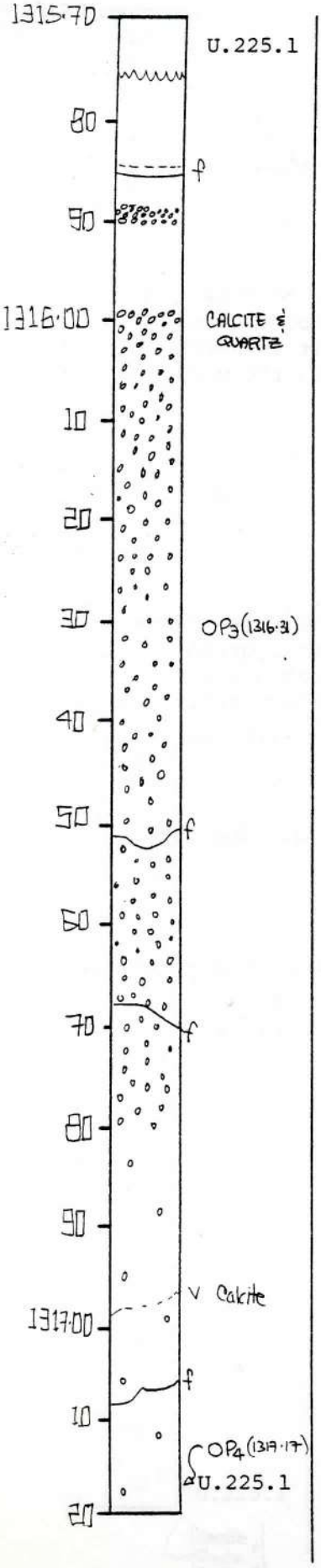
ROCK ALTERATION

Much green chlorite (?) or smectite in interstitial material.

Visual Core Description Observer PTR

Depth Interval 1315.75 cm to 1317.27 cm

Box 225, Section 4



LITHOLOGY-PETROGRAPHY

Continues Unit 225.1

Grayish-green, medium-grained, holocrystalline, aphyric basalt. Grain size quite uniform through section. No contacts.

1315.84 Air fall tuff seam? (HUS)

STRUCTURE

Massive

VESICLES/AMYGDALES

Moderately to highly vesicular. Least vesicular zones are near top and bottom of section where they are 2-3%, to 1 cm, filled with green chlorite (?). In central part of section vesicles are 10-15%, 2 mm - .5 m, filled with green chlorite except for interval from 1316.00-1316.10 m where quartz and calcite predominate.

FRACTURES - VEINS - BRECCIA

Most subhorizontal due to drilling.

ROCK ALTERATION

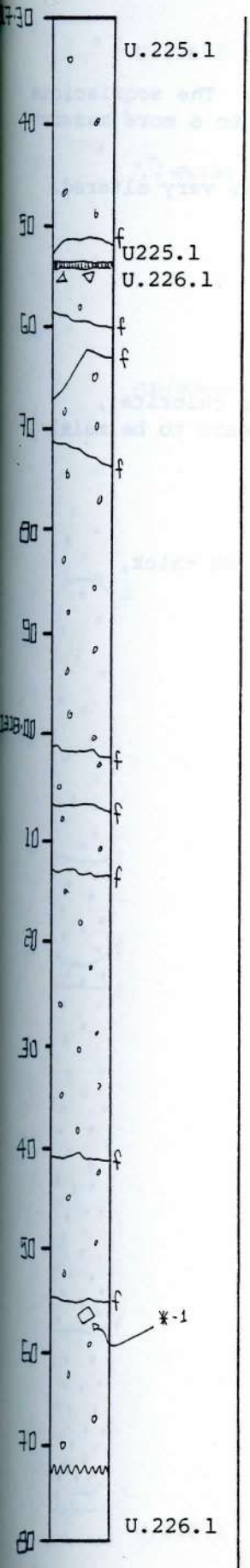
Chlorite (?) in interstitial areas.

Visual Core Description Observer Viereck

Depth Interval 131728 cm to 131872 cm

Box 226, Section 4

Graphic Representation Sample



LITHOLOGY-PETROGRAPHY

Continuation of Box 225.

Gray green, vesicular, aphyric, medium-grained basaltic flow, irregularly shaped, large vesicles are filled with calcite, zeolite, smectite. Coarser-grained area just above the arbitrary, just assumed contact.

U.226.1 Little sediment filling of vesicles.
Top of another basaltic flow unit. Scoriacious, highly porous, greenish to dark gray rock in the upper part slightly reddish.

¥-1 1318.58 Large plagioclase phenocryst

STRUCTURE

U.225.1 Vesicular

U.226.1 Scoriacious

VESICLES/AMYGDALES

U.225.1 Very common equally distributed amygdales, filled with green smectite up to 2 mm across. Larger vesicles are filled with quartz , smectite and zeolite and calcite.

U.226.1 Irregularly shaped large amygdales are filled with zeolite ± calcite ± smectite. Smectite is the most common filling of vesicles.

FRACTURES - VEINS - BRECCIA

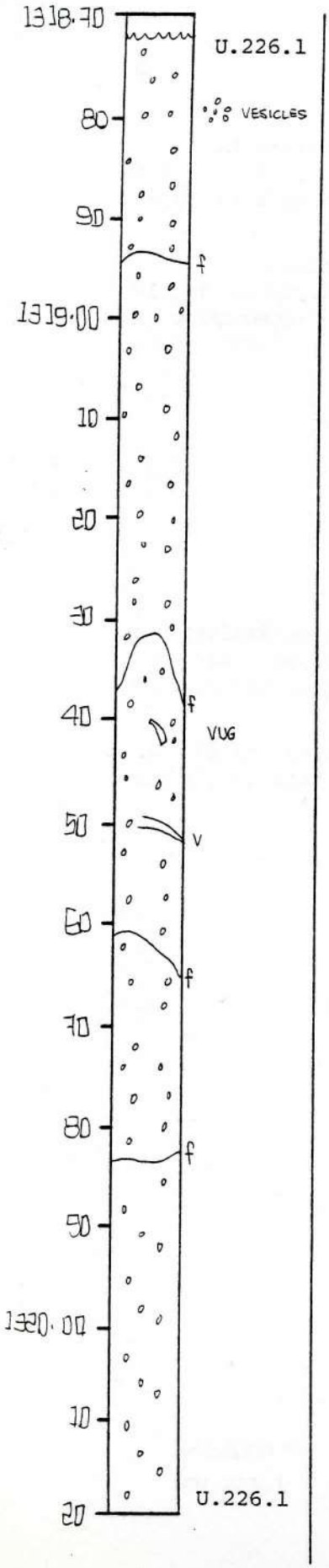
U.225.1 Fractures are unplanar.

U.226.1 Fractures are nonplanar.

Visual Core Description Observer Viereck/RE

Depth Interval 1 3 1 8 7 2 cm to 1 3 2 0 2 7 cm

Box 226, Section 2



LITHOLOGY-PETROGRAPHY

Scoriatious basalt-aphyric, fine-grained. The scoriaceou upper part of the flow grades downward into a more massiv but still vesicular section.

Color is purple-gray and the mineralogy is very altered.

STRUCTURE

Vesicular

VESILCES/AMYGDALES

Smaller vesicles filled with smectite (or chlorite), larger with zeolite or calcite. Vug appears to be mainly calcite.

FRACTURES - VEINS - BRECCIA

Fractures 0-10° and ∿ 45°, veins up to 1 mm thick, zeolite + minor calcite filling.

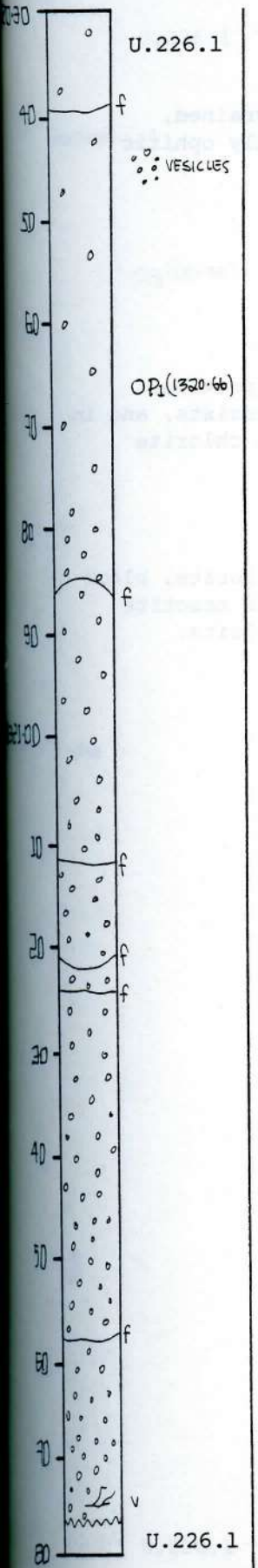
ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer Viereck/RHW

Depth Interval 132027 cm to 132177 cm

Box 226, Section 3

Graphic Representation Sample



LITHOLOGY-PETROGRAPHY

Continuing Unit 226.1

Gray-green, amygdaloidal, medium grained, holocrystalline, aphyric basalt. Texture of groundmass almost ophitic, although alteration has blurred the relationship somewhat. Texture is at least "mottled".

STRUCTURE

Vesicular

VESICLES/AMYGDALES

Sparsely amygdaloidal, top 50 cm, rare amygdules up to 1 mm diameter, filled with zeolite. Last 5 cm of section essentially the same.

Central part, amygdules irregularly shaped, up to 1 cm long by 3 mm wide, filled with chlorite, zeolite, minor calcite.

Also entire section shot with small (.1 mm) vesicles (empty in general).

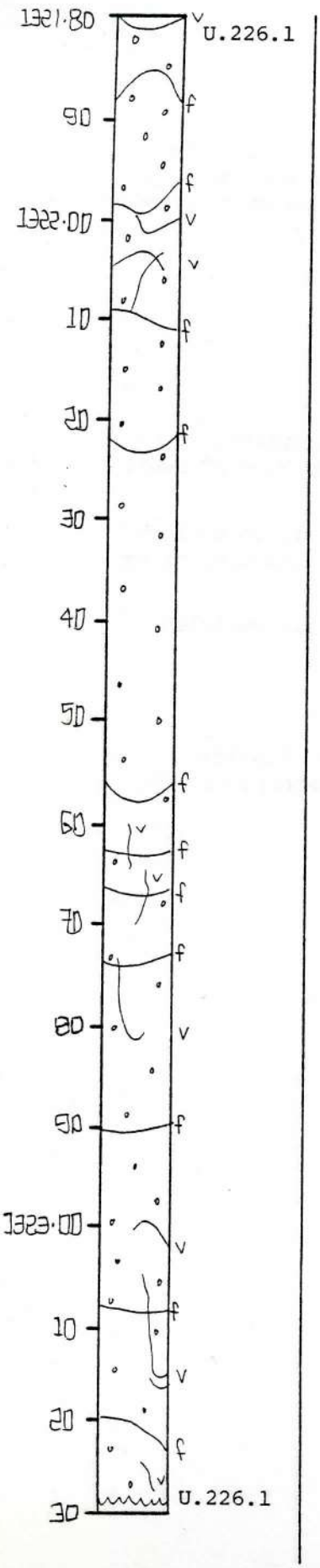
FRACTURES - VEINS - BRECCIA

Fractures 0-10° and 1 @ 60°. Lined with chlorite (smectite?) Veins rare, lower ones smectite filled. upper calcite.

Visual Core Description Observer ..Viereck/R

Depth Interval 1 3 2 1 7 7 cm to 1 3 2 3 2 9 cm

Box 226, Section 4



LITHOLOGY-PETROGRAPHY

Continuing Unit 226.1

Pinkish gray, aphyric, vesicular, fine-grained, holocrystalline basalt. Texture is mildly ophitic (mottled).

STRUCTURE

Vesicular

VESICLES/AMYGDALES

Vesicles are not as large as in bulk of previous section. Smaller vesicle set (.1 mm) persists, and in many places the vesicles are filled with chlorite (smectite?).

FRACTURES - VEINS - BRECCIA

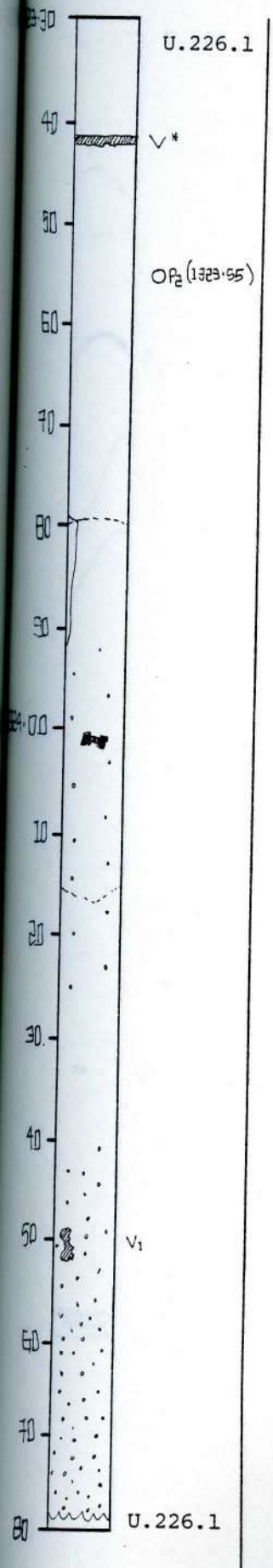
Fractures @ 0-10° or 60°. Lined with chlorite, black smectite. Veins at high angles (60°) and smectite (chlorite ?) and zeolite lined, minor calcite.

Visual Core Description Observer ...J. Helgason.....

Depth Interval 1323.30 cm to 1324.79 cm

Box 227, Section 1

Graphic Representation | Sample



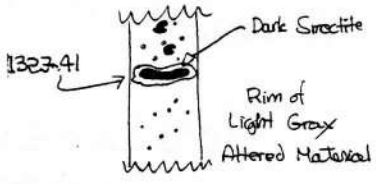
LITHOLOGY-PETROGRAPHY

U.226.1 Continuing unit from box 225. This section is coarse grained with both rounded and elongate vesicles, mostly 2-4 mm in size and absent in real alteration products.

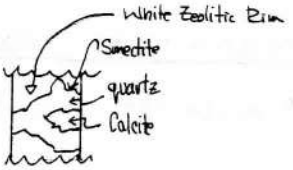
1323.80 Loose material from fracture in separate plastic bag.

VESICLES/AMYGDALES

V* 1323.41 Elongated vesicle 40-50 mm in size filled with dark smectite.



V_1 1324.50 Vesicle, 20 x 15 mm in size.



FRACTURES - VEINS - BRECCIA

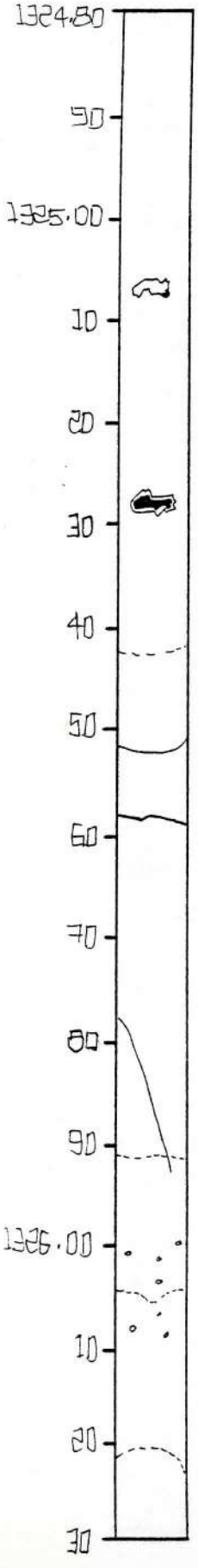
1323.80-1323.90 Fracture, 1-3 mm wide, filled with calcite and light green smectite.

Visual Core Description Observer J. Helgaso

Depth Interval 1 3 2 4 7 9 cm to 1 3 2 6 3 0 cm

Box 227, Section 2

Graphic Representation | Sample

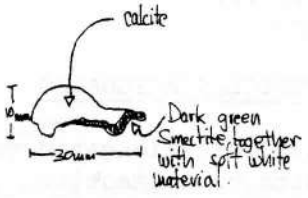


LITHOLOGY-PETROGRAPHY

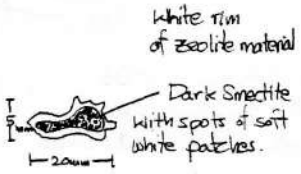
U.226.1 Continuing unit.

VESICLES/AMYGDALES

V_1 - 1325.07



V_2 - 1325.28



FRACTURES - VEINS - BRECCIA

f_1 - angle 75°, filled with calcite.

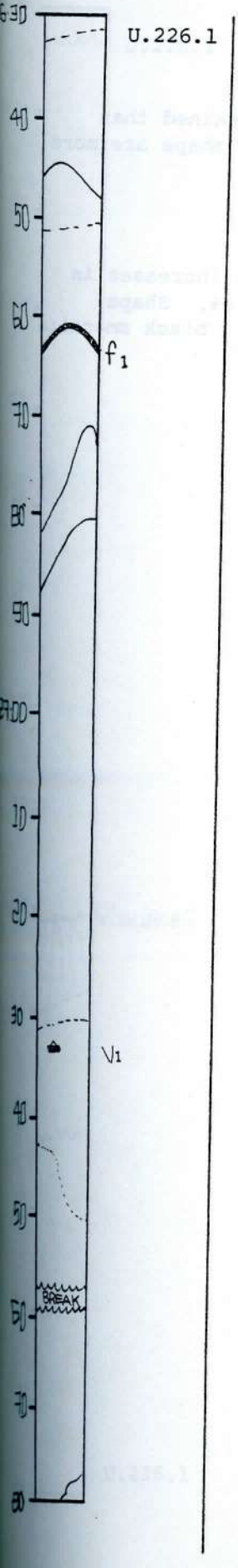
Visual Core Description Observer . J.. Helgason.....

Depth Interval 1 3 2 6 3 0 cm to 1 3 2 7 8 0 cm

Box 227, Section 3

Graphic Representation

Sample



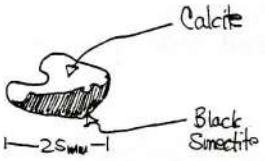
LITHOLOGY-PETROGRAPHY

Continues U.226.1

This section has angular spots of red colour, 1-3 mm in size, probably represents altered olivine phenocrysts. Shape of vesicles is rounded or elongated 5-10 mm in size and filled with black smectite material.

VESICLES/AMYGDALES

V_1 1327.34



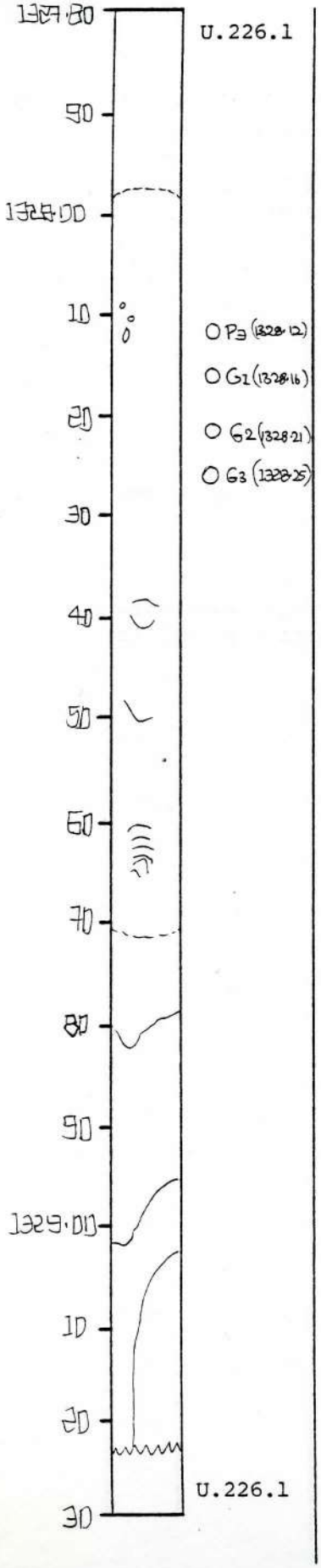
FRACTURES - VEINS - BRECCIA

1326.63 f_1 Fracture, 6 mm wide, filled with a mixture of black and light green material in addition to calcite.

Visual Core Description Observer J. Helgason

Depth Interval 1 3 2 7 8 0 cm to 1 3 2 9 2 3 cm

Box 227, Section 4



LITHOLOGY-PETROGRAPHY

Continues Unit 226.1

This unit is becoming somewhat coarser grained than before. Red alteration spots of angular shape are more abundant, size 0.1-10 mm.

VESICLES/AMYGDALES

1328.55 - downwards. Number of vesicles increases in lower part of this section. Amount ∿ 2-4%. Shape distinctly elongated. Filling material: black smectite and some calcite.

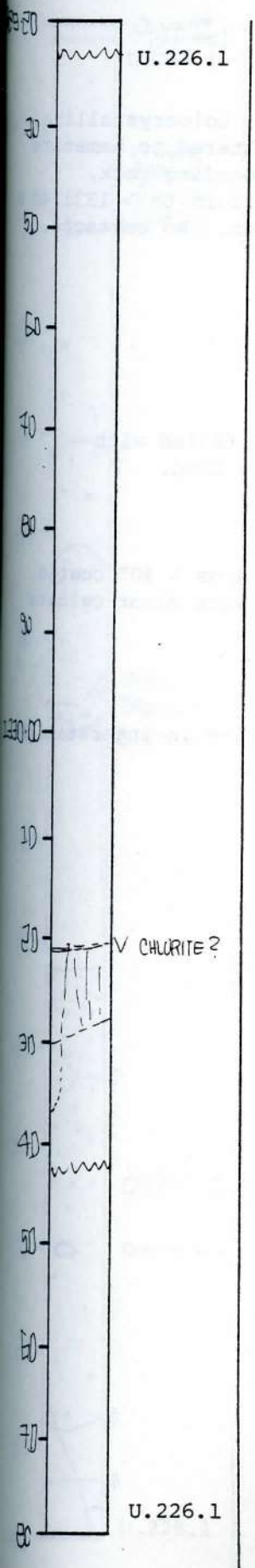
Visual Core Description Observer PTR

Depth Interval 1 3 2 9 2 3 cm to 1 3 3 0 4 2 cm

Box 228, Section 1

Graphic Representation

Sample



LITHOLOGY-PETROGRAPHY

Continues Unit 226.1

Grayish-green, coarse-grained, subophitic, holocrystalline, aphyric basalt. Probably some altered olivine but it is very fine-grained. At least some red, altered mineral is present in at least 1%. Grain size uniform through section. No contacts.

STRUCTURE

Massive

VESICLES/AMYGDALES

2-3%, mostly 3-5 mm, round to irregular, filled with chlorite?

FRACTURES - VEINS - BRECCIA

No fractures, rare veinlets dip 80-90°, filled with chlorite.

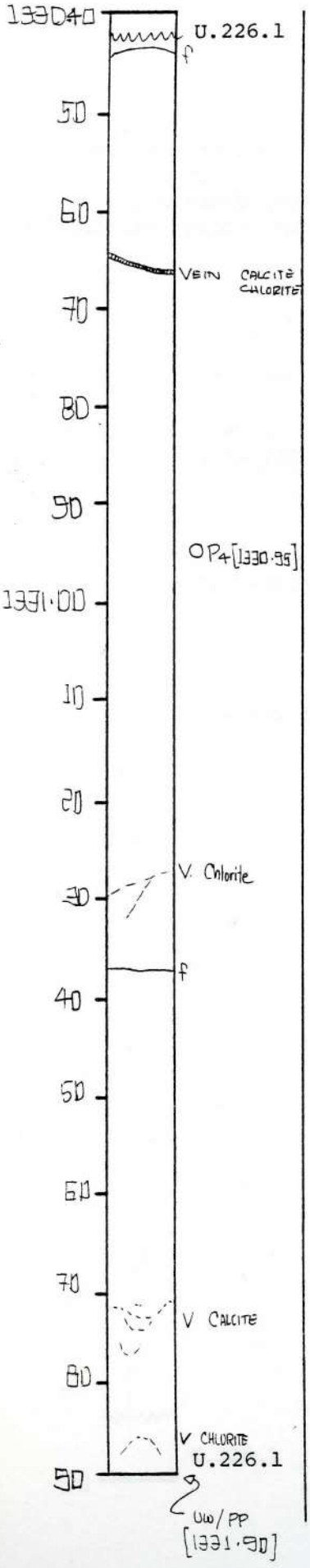
ROCK ALTERATION

Chlorite or smectite in some interstitial zones.

Visual Core Description Observer PTR

Depth Interval 1330420 cm to 1331910 cm

Box 228, Section 2



LITHOLOGY-PETROGRAPHY

Continues U.226.1

Grayish-green, medium- to coarse-grained, holocrystalline, aphyric basalt. Altered olivine 1-2%, altered to hematite (?) and red material stains some of surrounding rock. Texture is subophitic. Grain size is uniform to ∿ 1331.40 then decreases slightly to base of section. No contacts.

STRUCTURE

Massive

VESICLES/AMYGDALES

∿ 1%, mostly 1-2 mm, round to irregular, filled with chlorite. A few elongate ones are ∿ 1 cm long.

FRACTURES - VEINS - BRECCIA

Most subhorizontal due to drilling; one dips ∿ 30° coated with chlorite. 7 mm wide chlorite vein with minor calcite occurs @ 1330.64 m.

ROCK ALTERATION

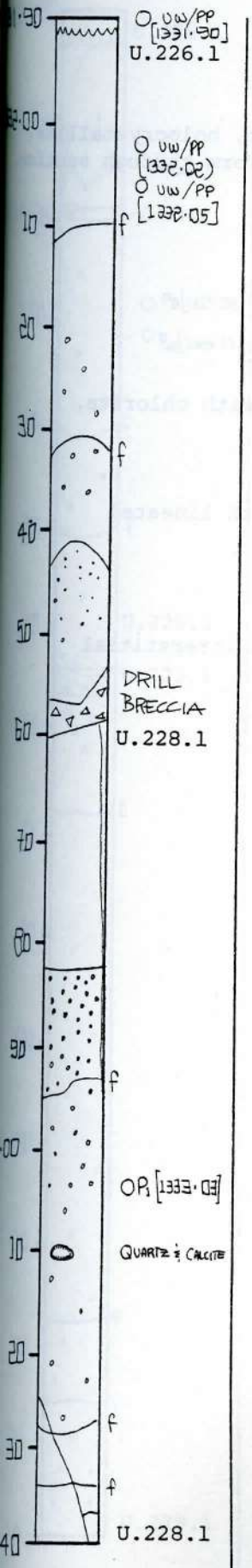
Olivine altered to hematite? Some chlorite in interstitial areas.

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer ...PTR.....

Depth Interval 1331.91 cm to 1334.24 cm

Box 228, Section 3



LITHOLOGY-PETROGRAPHY

Continues U.226.1

Gray-green, medium- to fine-grained, holocrystalline, aphyric olivine basalt. Grain size decreases from medium grained @ top of section to very fine-grained @ about 1332.50 m then increases again toward base of section. No contact is apparent @ 1332.50 and fine-grained feature is interpreted as an intraflow feature. Minor red altered olivine is present through section but is most abundant between 1332.20 and 1332.40 m where the hematite (?) stains the rock red.

U.228.1 New unit defined because change in grain size, color and vesicular. Boundary indistinct (08/5/78 HUS)

Reddish and brecciated (1332.68 - 1332.83)

1332.83 - Highly vesicular zone.

STRUCTURE

Massive

VESICLES/AMYGDALES

Vesicles sparse in upper 30 cm, then abundant to about top of fine-grained zone. These are 1-10 mm, round to oval, filled with chlorite, vesicles mostly absent in fine grained zone, then ∿ 10% starting @ 1332.85 m. These are mostly 1-5 mm, round, filled with chlorite. A few larger vesicles 1-2 cm, are filled with quartz and calcite.

FRACTURES - VEINS - BRECCIA

Fractures dip ∿ 30° and 70-80°, coated with lineated chlorite.

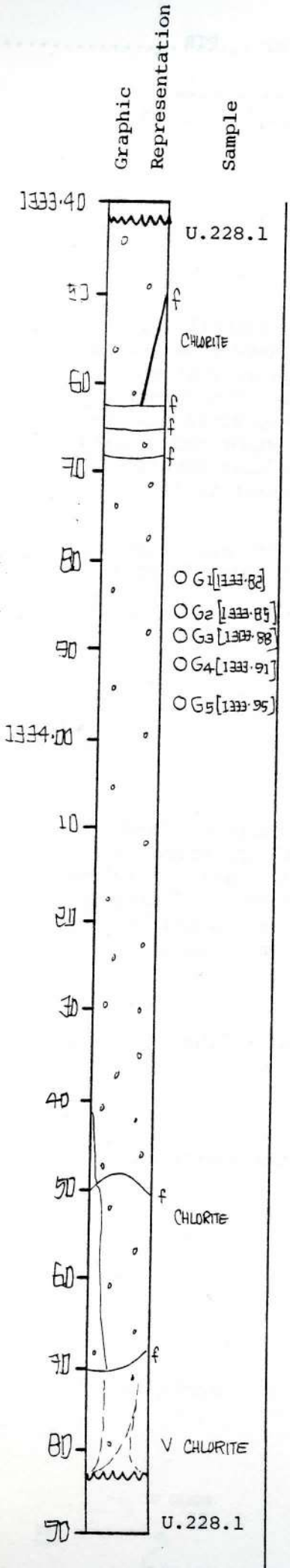
ROCK ALTERATION

Olivine altered to hematite; chlorite in interstitial areas.

Visual Core Description Observer PTR

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

Box 228, Section 4



LITHOLOGY-PETROGRAPHY

Continues Unit 228.1

Grayish-green, medium-grained, subophitic, holocrystalli aphyric, olivine basalt. Grain size uniform through sec No contacts.

STRUCTURE

Massive

VESICLES/AMYGDALES

2-3%, scattered, 2-10 mm, round, filled with chlorite.

FRACTURES - VEINS - BRECCIA

Fractures mostly steep, 70-80°, lined with lineated chlorite.

ROCK ALTERATION

Olivine altered to hematite, chlorite in interstitial patches.

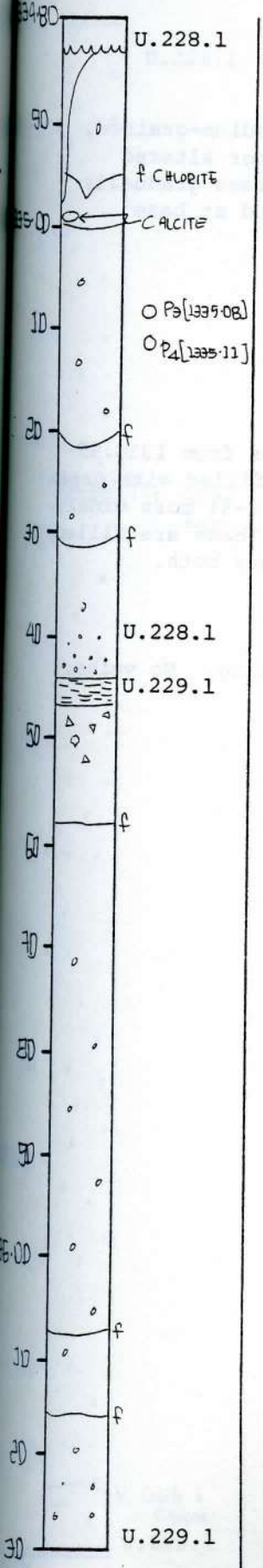
ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer PTR .....

Depth Interval 1 3 3 4 8 3 cm to 1 3 3 6 3 5 cm

Box 229, Section 1

Graphic Representation Sample



LITHOLOGY-PETROGRAPHY

Continues Unit 228.1

Greenish-gray, fine-grained, holocrystalline, aphyric basalt. Trace of olivine crystals altered to hematite.

Contact with sediment is depositional. No chilling--irregular dipping ∿ 10°.

1335.45-1335.48 Red, fine-grained, siltstone and sandstone.

Unit 229.1 Gray to faintly reddish-gray, fine-grained, holocrystalline, aphyric basalt. Possibly minor altered olivine in matrix, overlain by sediment in depositional contact. Grain size is nearly uniform through section.

STRUCTURE

U.228.1 Massive

U.229.1 Very slightly brecciated in upper 10 cm, massive below.

VESICLES/AMYGDALES

U.228.1 Few in upper part but ∿ 5% in lower 40 cm of unit. These are mostly 2-4 mm, irregular, filled with green chlorite and some calcite. A large amygdule @ 1334.98 m is filled with calcite.

U.229.1 Moderately vesicular, 5-10%, 1-20 mm, mostly irregular to oval, filled with green chlorite and calcite. Calcite is particularly abundant in the larger vesicles.

FRACTURES - VEINS - BRECCIA

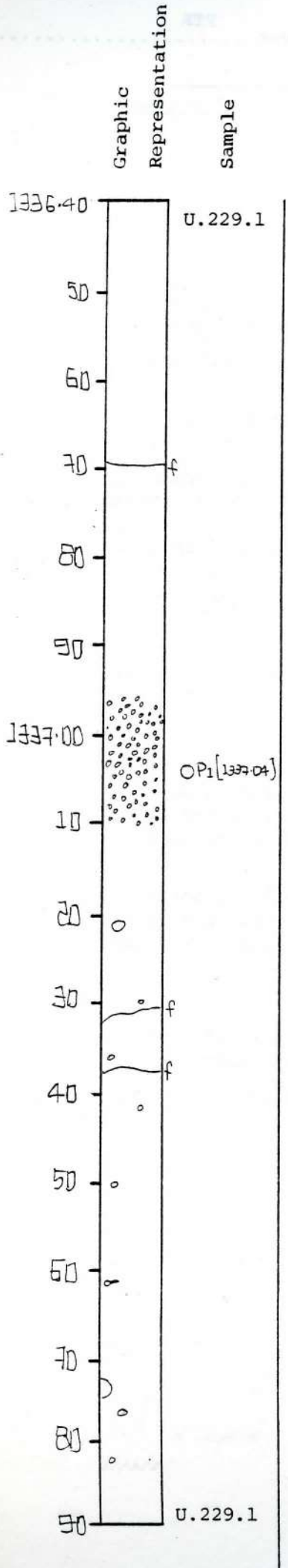
U.228.1 Most are subhorizontal, due to drilling. One fracture dips ∿ 70°, coated with striated chlorite.

U.229.1 Fractures subhorizontal, due to drilling. No veins.

Visual Core Description Observer PTR .....

Depth Interval 1 3 3 6 3 5 cm to 1 3 3 7 9 0 cm

Box 229, Section 2



LITHOLOGY-PETROGRAPHY

Continues Unit 229.1

Gray to faintly reddish-gray, fine- to medium-grained, holocrystalline, aphyric basalt. Has minor altered olivine in groundmass. Grain size increases gradually from fine-grained at top to medium-grained at base of section.

STRUCTURE

Massive

VESICLES/AMYGDALES

Sparse in upper 50 cm then 5-10% vesicles from 1336.95-1337.20 m. These are 1-5 mm, elongate, filled with green chlorite. Below 1337.20 m vesicles are 2-3% more widely scattered and range up to 3 cm across. These are filled with either chlorite or calcite, sometimes both.

FRACTURES - VEINS - BRECCIA

Fractures are subhorizontal due to drilling. No veins.

ROCK ALTERATION

Rock is slightly oxidized.

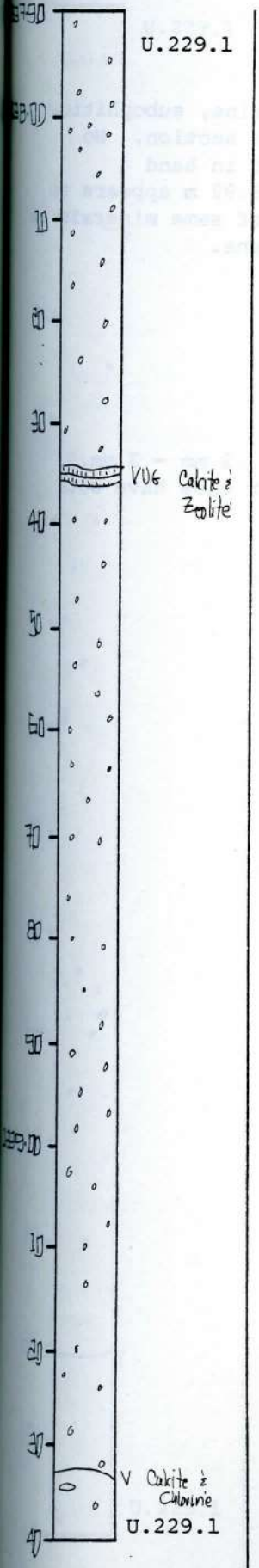
ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer ..PTR.....

Depth Interval 1337.90 cm to 1339.42 cm

Box 229, Section 3

Graphic Representation | Sample



LITHOLOGY-PETROGRAPHY

Continues Unit 229.1

Greenish-gray to grayish-green, medium-grained, holocrystalline, moderately vesicular aphyric basalt. Grain size increases slightly from top to bottom of section. Rock has subophitic texture--somewhat mottled appearance. Altered olivine not apparent and rock lacks slightly reddish cast of previous section.

STRUCTURE

Massive

VESICLES/AMYGDALES

Moderately (∿ 3-5%) through section, 1 mm-2 cm, mostly round, filled with green chlorite. A vug @ 1338.35 is filled with calcite and zeolite, probably laumontite.

FRACTURES - VEINS - BRECCIA

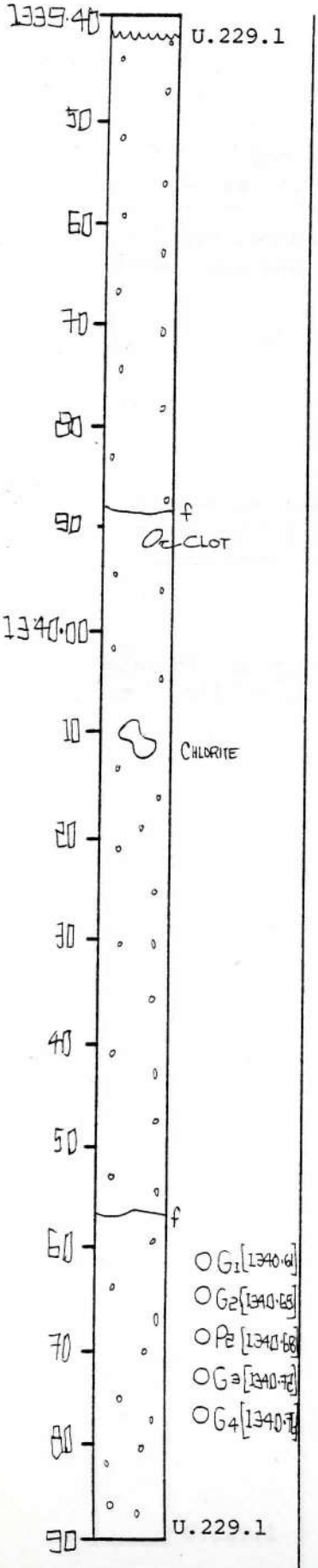
Two horizontal drilling fractures. One vein or elongate narrow vug filled with calcite and chlorite @ 1339.34 m.

Visual Core Description Observer ..PTR.....

Depth Interval 1339.42 cm to 1340.91 cm

Box 229, Section 4

Graphic Representation Sample



LITHOLOGY-PETROGRAPHY

Continues Unit 229.1

Grayish-green, medium-grained, holocrystalline, subophitic, aphyric basalt. Grain size uniform through section. No contacts. Groundmass olivine, not apparent in hand specimen. Subround to oval fragment @ 1339.92 m appears to be slightly altered, coarser-grained clot of same minerals as host rock, i.e. plagioclase and clinopyroxene.

STRUCTURE

Massive

VESICLES/AMYGDALES

Moderately vesicular ∿ 5% through section. 2 mm - 3 mm. Small vesicles filled with chlorite, larger ones have both calcite and chlorite.

FRACTURES - VEINS - BRECCIA

No primary fractures or veins.

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer JM

Depth Interval 1340.95 cm to 1342.45 cm

Box 230, Section 1

Graphic Representation | Sample

U.229.1

LITHOLOGY-PETROGRAPHY

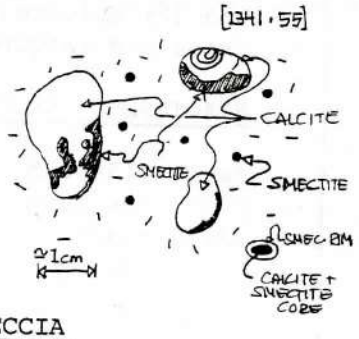
Dark-green, holocrystalline basalt, with subophitic, aphyric texture, and 2% amygdale's, and very fine-grained olivine (?) phenocrysts altered reddish brown.

STRUCTURE

Massive

VESICLES/AMYGDALES

Vesicles are sparse and range in size from 2 cm - 1 mm. Vesicles predominatly rounded and filled with green smectite and white calcite.



FRACTURES - VEINS - BRECCIA

Rare

ROCK ALTERATION

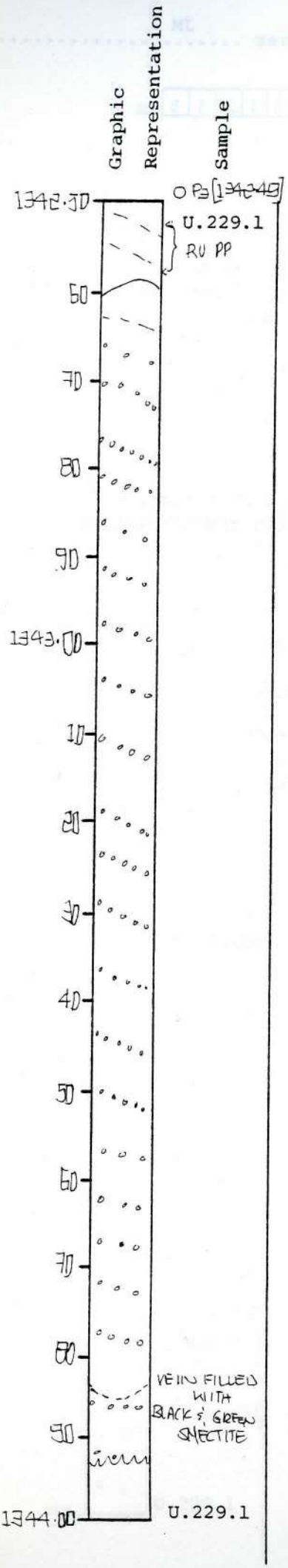
(?) Alteration of olivine to reddish brown oxide.

U.229.1

Visual Core Description Observer JM

Depth Interval 1345 cm to 1346393 cm

Box 230, Section 2



LITHOLOGY-PETROGRAPHY

Dark-green holocrystalline basalt with subophitic, aphyric texture and 2%-3% smectite filled amygdales. Minor flow banding developing, and elongation of smectite amygdales.

STRUCTURE

Massive grading into flow banding. Flow banding dipping 30°.

VESICLES/AMYGDALES

Amygdale, contain only minor amounts of calcite with most filled with black smectite and lined with green smectite and (?) epidote. Amygdales irregular and elongated in shape and ranging from 1.5 cm - .5 mm in size.

FRACTURES - VEINS - BRECCIA

Rare. 1343.85 Vein filled with black and green smectite.

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer JM

Depth Interval 1343 cm to cm

Graphic Representation | Sample

U.229.1

CALCITE, GREEN SMECTITE & (?) EPIDOTE FRACTURE VEIN SYSTEM

BLACK SMEC. LINED FRACTURE

OP$_4$[1344.64]

U.229.1
U.230.1

U.230.1

LITHOLOGY-PETROGRAPHY

Dark-green, subophitic, holocrystalline, flow banded, aphyric basalt, with smectite and calcite filled veins and fractures.

Irregular depositional contact with U.229.1 deposited on U.230.1.

U.230.1 Pistachio green-yellowish green vesicular flow top breccia, with holocrystalline greenish-gray 4 cm - 1 cm aphyric vesiculated clasts in green epidotized groundmass.

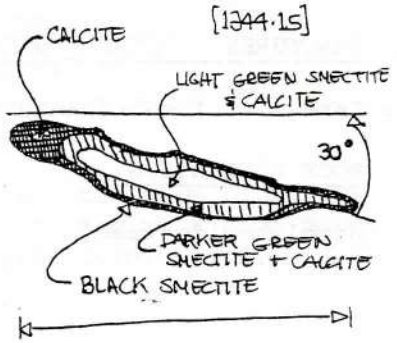
STRUCTURE

U.229.1 Flow banding and oriented vesicles dipping 30° from horizontal.

U.230.1 Brecciated

VESICLES/AMYGDALES

U.229.1 Vesicles, elongated and irregular filled with smectite predominantly and subordinate amounts of calcite and black smectite filled veins.



U.230.1 Irregular veinlike vesicles and vesicles filled with white zeolite and pistachio green epidote. White zeolite might be laumontite.

FRACTURES - VEINS - BRECCIA

1344.35 and 1344.38 Calcite, green smectite and (?) epidote fracture vein system.

1344.50 Black smectite lined fracture.

U.230.1 Irregular fresh fractures possibly due to swelling clays.

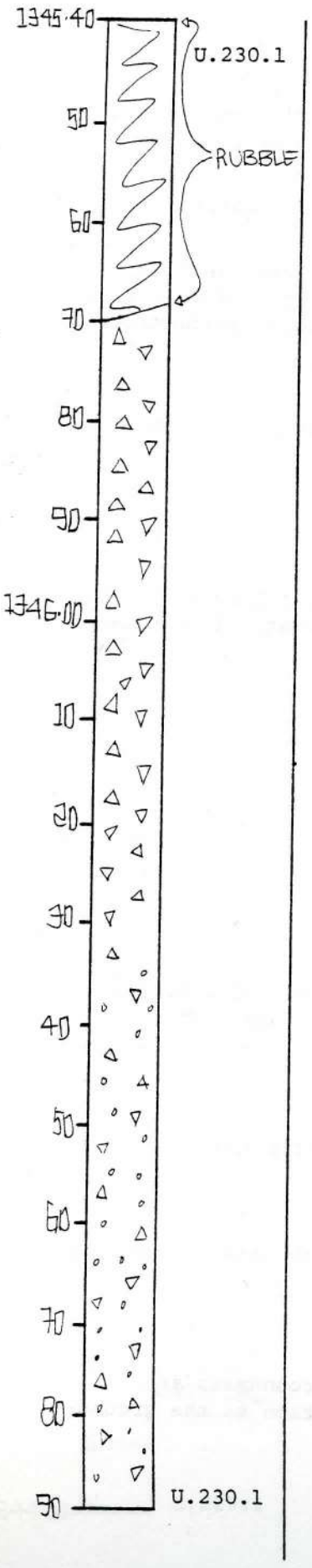
ROCK ALTERATION

U.230.1 Epidote is predominant in the groundmass and vesicles giving a pistachio green coloration to the groundmass.

Visual Core Description Observer ..JM.....

Depth Interval 1345.40 cm to 1346.91 cm

Box 230, Section 1



LITHOLOGY-PETROGRAPHY

Continuation of Unit 230.1

Yellowish-green highly weathered epidotized flow top breccia. Clasts are greenish-gray, fine-grained, holocrystalline, aphyric, vesicular clasts, with epidote-crystals lining vesicules.

1346.30 Transition from highly brecciated and weathered basalt to less weathered amygdale breccia.

STRUCTURE

1345.35 - 1346.30 Brecciated

1346.30 - 1346.91 Less Brecciated

VESICLES/AMYGDALES

1345.35 - 1346.30 Irregular vesicles and veinlike vesilces filled with pistachio green epidote and white laumontite.

1346.30 - 1346.91 Amygdales lined with green smectite and fi with epidote and unknown zeolite.

FRACTURES - VEINS - BRECCIA

Irregular fresh fractures possibly due to swelling clay.

ROCK ALTERATION

Highly epidotized.

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer K. Hattori

Depth Interval 1346.91 cm to 1348.40 cm

Box 231, Section 1

Graphic Representation | Sample

U.230.1

U.230.1
U.231.1

U.231.1

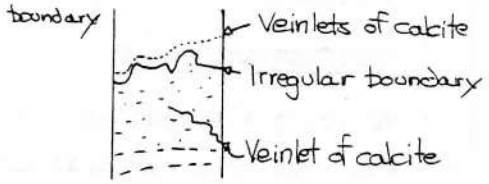
LITHOLOGY-PETROGRAPHY

Continuation of Unit 230.1

Brownish dark grey coloured aphyritic basalt flow.

This part represents brecciated bottom flow part.

1348.16 Boundary - Veinlets of calcite, irregular boundary.



U.231.1 Brick-red coloured tuffaceous sediments, plagioclase crystals (∿ 2 mm) (dip, ∿ 25°). Unit stops at bottom of this section - 1248.40.

STRUCTURE

U.230.1 Brecciated

U.231.1 Stratified

VESICLES/AMYGDALES

U.230.1 Vesicles - the size (3 mm) and the shape (usually irregular) are very variable from fragment to fragment. Usually filled with calcite and/or zeolite minerals.

U.231.1 None

FRACTURES - VEINS - BRECCIA

U.230.1 Discontinuous veinlets of calcite are abundant.

1348.16 Veinlets of calcite

U.231.1 Adjacent to the boundary calcite veinlets occur.

ROCK ALTERATION

U.230.1 Green clay, calcite disseminated throughout the core. Zeolite (mainly laumontite) occurs in matrix. Epidote (rarely) occurs in small veinlets in matrix.

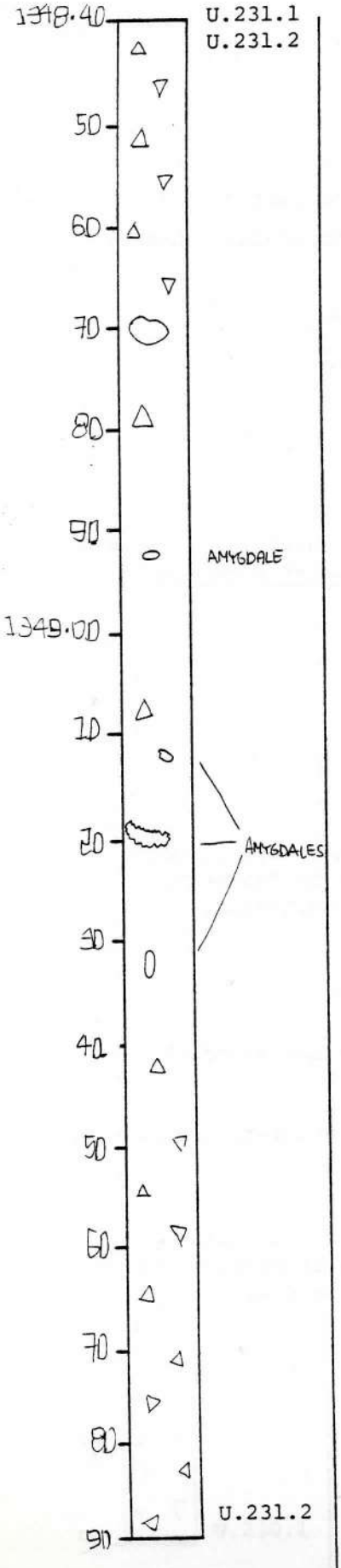
U.231.1 Highly oxidized.

Visual Core Description

Observer K. Hattori

Depth Interval 1 3 4 8 4 0 cm to 1 3 4 9 9 0 cm

Graphic Representation | Sample



LITHOLOGY-PETROGRAPHY

U.231.2 Brick-red coloured, vesicular, aphyric, fine-grained basalt lava.

Brecciated flow top part.

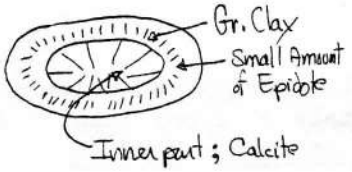
STRUCTURE

Brecciated

VESICLES/AMYGDALES

Vesicles + Amygdales - ∿ 10 vol.%.

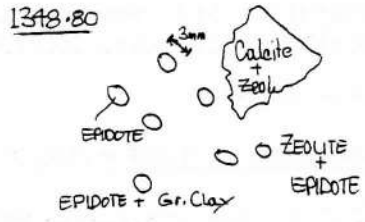
Vug - calcite euhedral crystal



Amygdales - filled with zeolites, calcite and small amount of epidote. Some amygdales are filled with quartz, calcite and epidote.

Vesicles - irregular shape (ϕ ∿ 3mm) filled with zeolites and calcite.

1348.80



FRACTURES - VEINS - BRECCIA

Discontinuous small calcite veinlets can sometimes be found.

ROCK ALTERATION

Fe-hydroxide, green clay disseminated.

Epidote sometimes occurs in matrix part and in vesicles with zeolite.

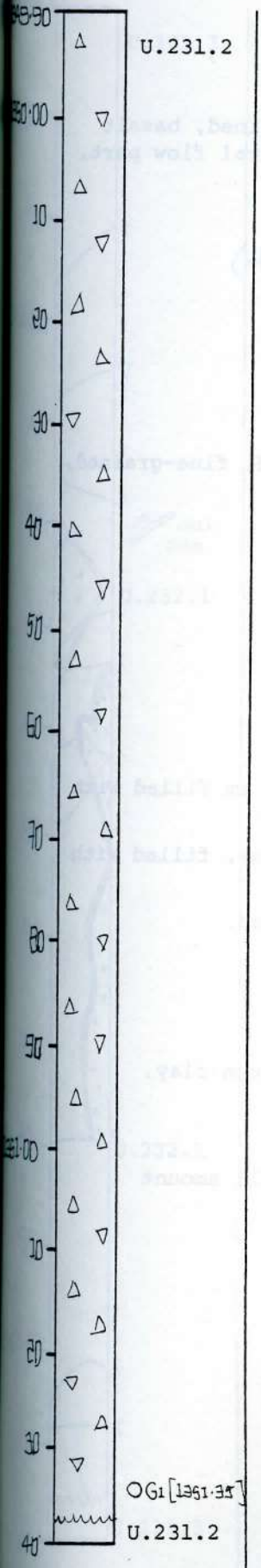
ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer K. Hattori

Depth Interval 1349.90 cm to 1351.38 cm

Box 231, Section 3

Graphic Representation | Sample



LITHOLOGY-PETROGRAPHY

Continuation of U.231.2

Brick-red coloured vesicular, aphyric, fine-grained basalt lava.

Plagioclase phenocrysts very rarely found (∿ 1 mm).

The colour gradually changes into dark green-gray.

Less vesicular.

STRUCTURE

Brecciated

VESICLES/AMYGDALES

Vesicles - irregular shape, $\phi \sim 2$ mm, usually filled with green clay, sometimes filled with zeolite. ∿ 6 vol.%.

FRACTURES - VEINS - BRECCIA

Fractures in matrix are usually filled with calcite and/or green clay.

ROCK ALTERATION

Fe-hydroxide.

Less oxidized.

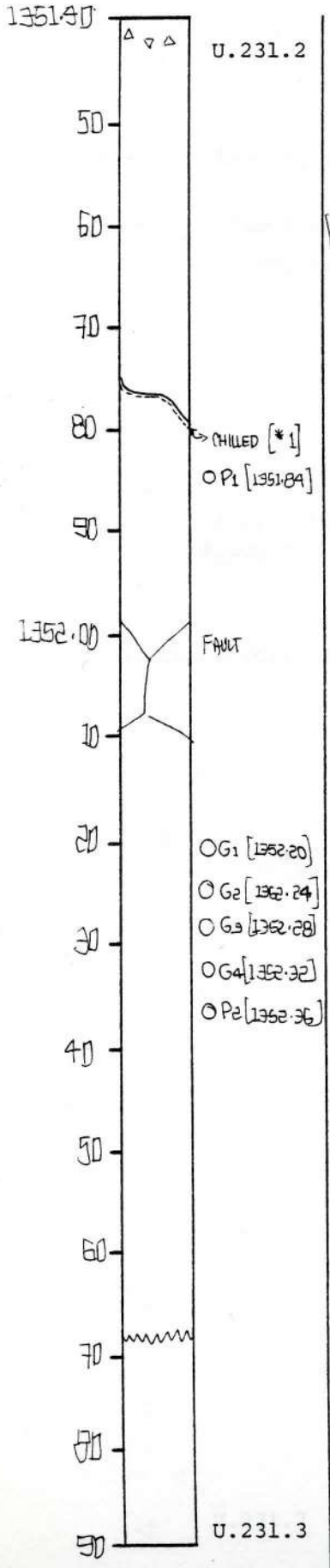
Green clay, epidote rarely occurs in vesicles.

Visual Core Description Observer . K.. Hattori..

Depth Interval 1 3 5 1 3 8 cm to 1 3 5 2 6 8 cm

Box 231, Section 4

Graphic Representation Sample

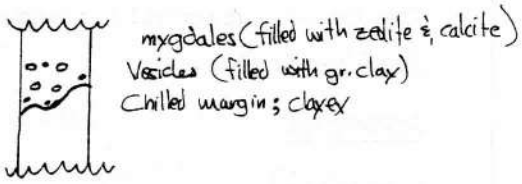


LITHOLOGY-PETROGRAPHY

Continuation of Unit 231.2

Dark green-gray coloured aphyric, fine-grained, basalt flow. This part changes into massive central flow part.

[*1] 1351.80



U.231.3 Dyke rock, grayish-green coloured, fine-grained, equigranular, aphyric basalt dyke.

Becomes coarse grained.

STRUCTURE

U.231.2 Slightly brecciated. Massive.

U.231.3 Massive

VESICLES/AMYGDALES

U.231.2 Vesicles - irregular shape, $\phi \sim 3$ mm filled with green clay.

Amygdales - irregular shape, ϕ 5 mm $\sim$ 10 mm, filled with zeolite and calcite.

U.231.3 Actually no vesicles and amygdales.

FRACTURES - VEINS - BRECCIA

U.231.2 None

U.231.3 Fractures are covered with green clay.

ROCK ALTERATION

U.231.2 Green clay is disseminated. Small amount of Fe-hydroxide occurs.

U.231.3 Green clay minerals.

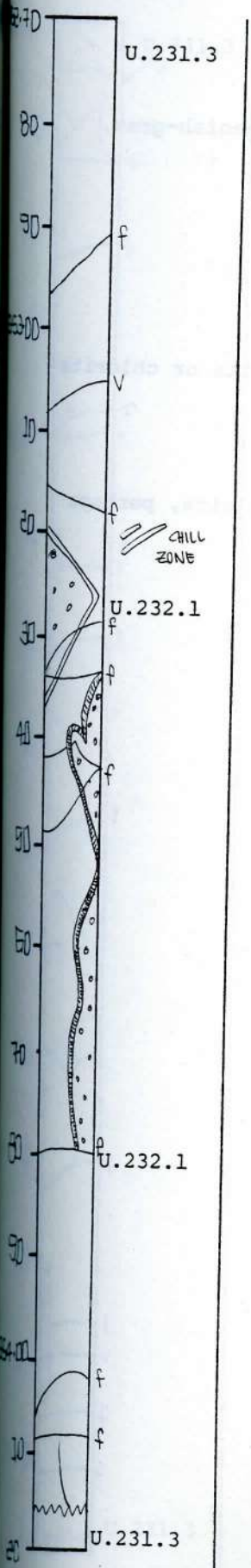
ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer RHW

Depth Interval 1 3 5 2 6 8 cm to 1 3 5 4 1 6 cm

Box 232, Section 1

Graphic Representation Sample



LITHOLOGY-PETROGRAPHY

Continuing Unit 231.3

Fine-grained, gray-green, aphyric, holocrystalline, equigranular basalt which gets very fine-grained as it approaches the contact with 232.1

U.232.1 Is a fine grained, amygdaloidal basalt, probably part of a flow, say the upper part of Unit 232.2.

1353.26 - 1353.80 U.232.1 - Omitted as separate unit since dike is continuous. 8/6 HUS.

STRUCTURE

Massive

1353.26 - 1353.80 Vesicular

VESICLES/AMYGDALES

Absent in 231.3; in 232.1, irregular amygdules, up to 1 cm x .5 cm, zeolite filled (+ calcite). Smaller vesicles, smectite (chlorite ?) filled.

FRACTURES - VEINS - BRECCIA

Fractures 0-10° or 45°. Some lined with calcite and epidote (in intrusive part, 231.3. In 232.1 calcite + zeolite (apoph llite), chlorite. Vein at 45°, calcite + zeolite lining, .5 mm thick.