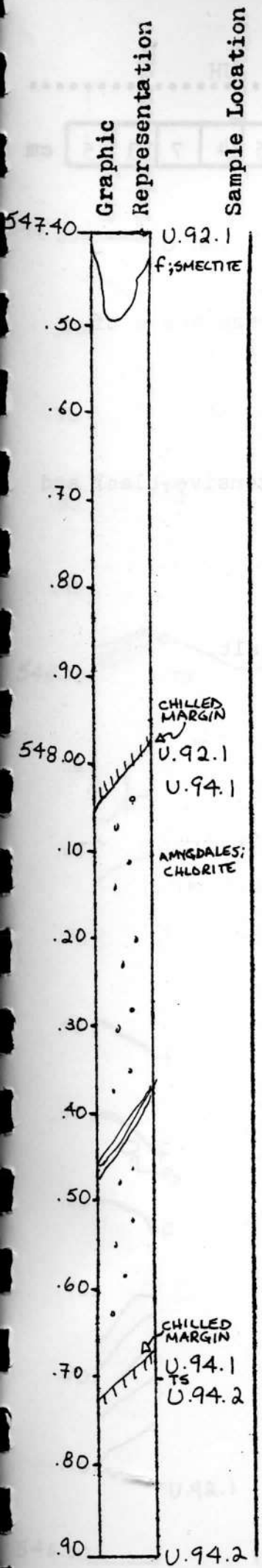
ICELAND RESEARCH DRILLING PROJECT

Visual Core Description **Observer** ILG .....

Depth Interval 5 4 7 4 0 **cm to** 5 4 8 9 2 **cm**

Box 94, Section 1



LITHOLOGY PETROGRAPHY
Fine-grained, aphyric, light grey, non-vesicular basalt. This is the fine-grained section of ophitic olivine basalt.

547.96 Fine-grained, black chilled margin.

548.00 Medium- to fine-grained sparingly feldspar phyric (less than 1%).

548.66 Fine-grained chilled contact of dike. Very fine-grained - almost glassy near margin with small (1mm) feldspar laths.

VESICLES/AMYGDALES
547.40 None observed.

548.00 A few chlorite filled amygdales.

FRACTURES - VEINS - BRECCIA
547.40 Large smectite coated fracture.

547.60 Many smectite coated fractures - more than 100/metre. Most less than 1mm wide.

548.00 Chlorite filled fractures. Not as abundant as in unit above.

548.40 Major smectite and zeolite filled fracture.

548.66 Zeolite, smectite and some breccia in places along contact.

ROCK ALTERATION
547.40 Pervasive smectite.

548.00 Pervasive smectite and more intense alteration along veins.

OTHER
548.00 It is uncertain whether this unit is a flow or dike.

STRUCTURE
547.40 - 547.96 Aphyric, nonvesicular basalt.

547.96 - 548.66 Medium to fine grained basalt bounded on both margins by chilled contacts[U.94.1]

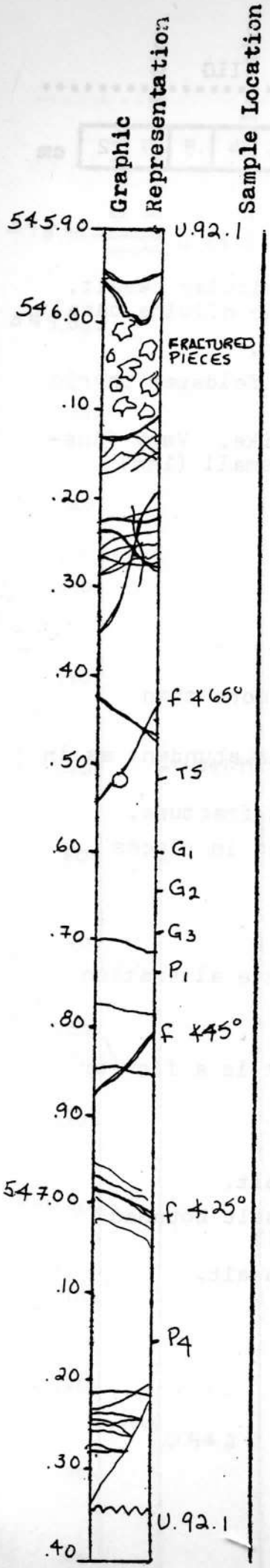
548.66 - 548.92 Aphyric, medium grained basalt.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description **Observer** JH

Depth Interval 54590 **cm to** 54735 **cm**

Box 93, Section 4



LITHOLOGY PETROGRAPHY
Unit 92.1 continued as in 544.50 to 545.90.

546.95 - 547.05 has 11 fractures with average angle of 75°.

VESICLES/AMYGDALES
None observed.

FRACTURES - VEINS - BRECCIA
546.00 - 546.40 Fractural pieces have intensive black and green smectite alteration.

ROCK ALTERATION
None observed.

STRUCTURE
Aphyric, coarse grained, nonvesicular basalt.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description **Observer** JH .....

Depth Interval 5 4 4 5 0 **cm to** 5 4 5 9 0 **cm**

Box 93, Section 3

Graphic Representation | Sample Location

544.50 U.92.1

.60

.70

.80 P_3

.90

545.00 TS

.10

.20

.30

.40 f

.50 O_R f P_2

.60 f

.70

.80

.90 U.92.1

546.00

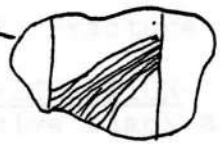
LITHOLOGY PETROGRAPHY
Unit 92.1 is the same as from 543.00 to 544.50.

VESICLES/AMYGDALES
None observed.

FRACTURES - VEINS - BRECCIA
544.95 Several fractures over a 40mm interval containing irregular fillings quartz.

545.60 - 545.95 Has 18 fractures with average angle of about 70°. Size is hairline to 1mm. Alteration is dominantly green and black smectite.

ROCK ALTERATION
None observed.



SERIES OF FRACTURES.

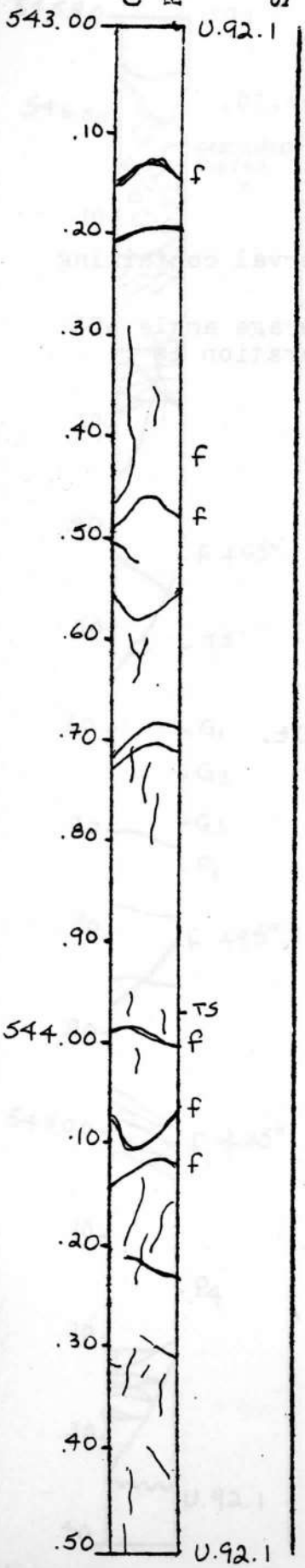
STRUCTURE
Aphyric, coarse grained, nonvesicular basalt.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description **Observer** JH

Depth Interval 54300 **cm to** 54450 **cm**

Box 93, Section 2



LITHOLOGY PETROGRAPHY

Unit 92.1 continues as in section from 541.62 to 543.00.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

543.30 - 544.20 There are 35 fractures all of which contain black and green smectite alteration products.

ROCK ALTERATION

Intense pervasive smectite alteration.

STRUCTURE

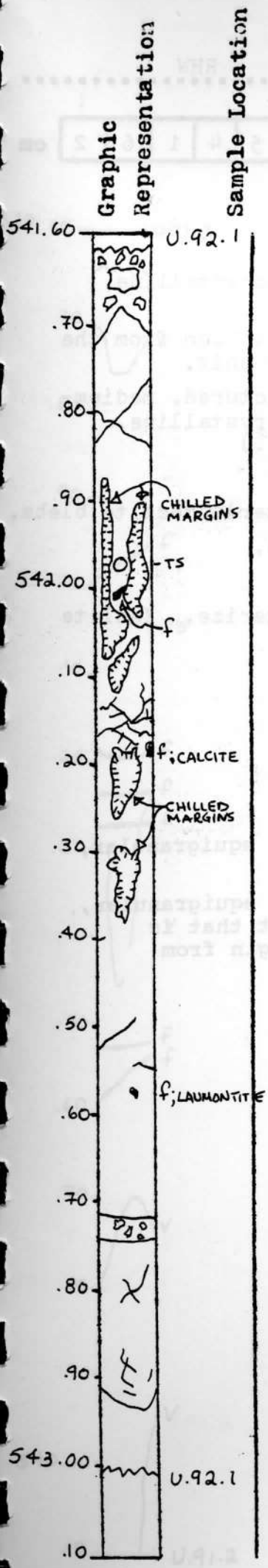
Aphyric, coarse grained, nonvesicular basalt.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description **Observer** JH

Depth Interval 54162 **cm to** 54300 **cm**

Box 93, Section 1



LITHOLOGY PETROGRAPHY

Unit 92.1 is coarsely grained, aphyric, without vesicles but has intrusive smectite alteration.

541.80 Erratically distributed blebs of irregular, fine-grained, aphyric material which is chilled against Unit 92.1. These blebs are similar to 91.2.

(Unit 92.1 - Thin section from 541.96 shows 92.1 to have substantial amount of olivine.)

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

542.10 Fracture has 10-20mm calcite amygdales.

542.20 Fracture has about 10mm filling of laumontite.

542.58 Fracture has 20 x 3mm white.

ROCK ALTERATION

Pervasive black and green smectite alteration.

STRUCTURE

U.92.1 Aphyric, coarse grained, nonvesicular basalt.

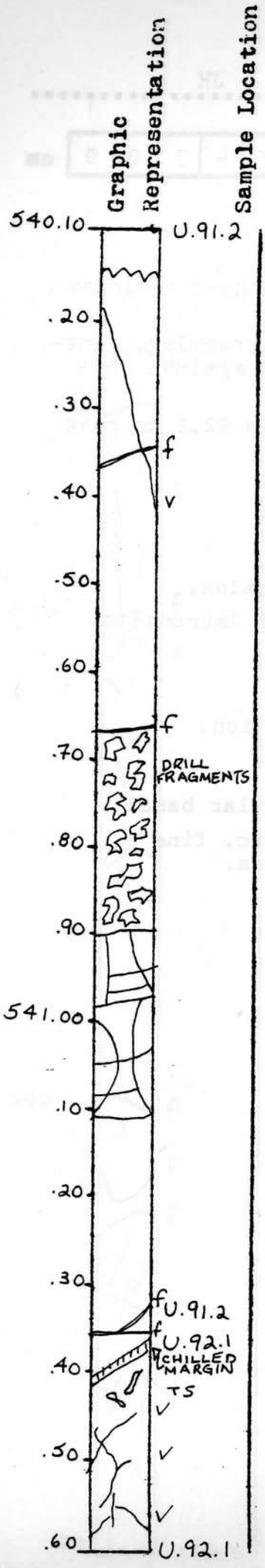
541.80 - 542.40 Blebs of irregular, aphyric, fine grained material bounded by chilled margins.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description **Observer** RHW

Depth Interval 5401.4 **cm to** 5416.2 **cm**

Box 92, Section 4



LITHOLOGY/PETROGRAPHY

Medium grained, grey-green, aphyric, holocrystalline, granular, equigranular basalt.

541.30 Grain size decreases rapidly about 10cm from the chilled margin. Unit 91.2 is the younger unit.

541.40 Intruded unit is olive green, fractured, medium-grained (olivine?) basalt, aphyric, holocrystalline, granular, equigranular. (Looks like 91.1.)

VESICLES/AMYGDALES

540.14 Rare, small (less than 1mm diameter) smectite blebs.

541.40 Zeolite filling in fractured zone.

FRACTURES - VEINS - BRECCIA

540.14 Fractures too numerous to characterize. Zeolite (laumontite) and smectite filled.

541.40 Numerous fractures.

ROCK ALTERATION

None observed.

STRUCTURE

540.14 - 541.40 Aphyric, medium grained, equigranular, holocrystalline, massive basalt.

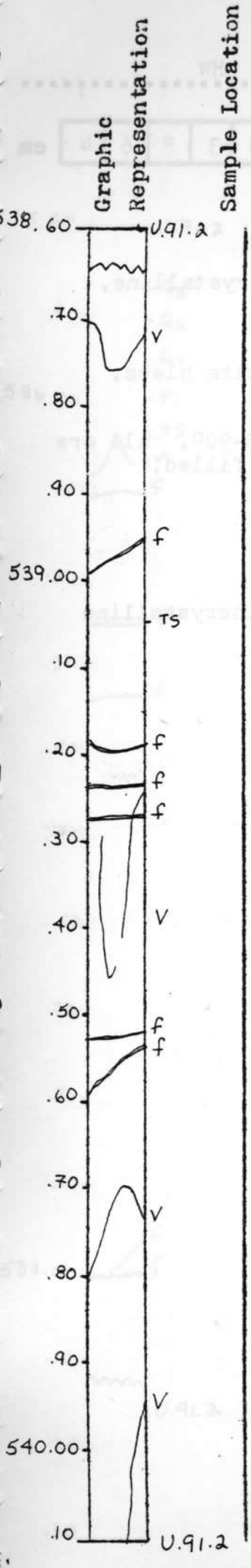
541.40 - 541.62 Aphyric, medium grained, equigranular, holocrystalline, intruded, massive basalt that is highly fractured. Bounded by chilled margin from overlying unit.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description **Observer** RHW

Depth Interval 5 3 8 6 4 **cm to** 5 4 0 1 4 **cm**

Box 92, Section 3



LITHOLOGY PETROGRAPHY
Medium grained, grey-green, aphyric, holocrystalline, granular, equigranular basalt.

VESICLES/AMYGDALES
Rare, small (less than 1mm diameter) smectite blebs.

FRACTURES - VEINS - BRECCIA
Fractures at: 0-10°; 45°; 80-90°. Smectite lined, zeolite (laumontite) filled.

Veinlets hairline, zeolite filled, smectite lined.

ROCK ALTERATION
None observed.

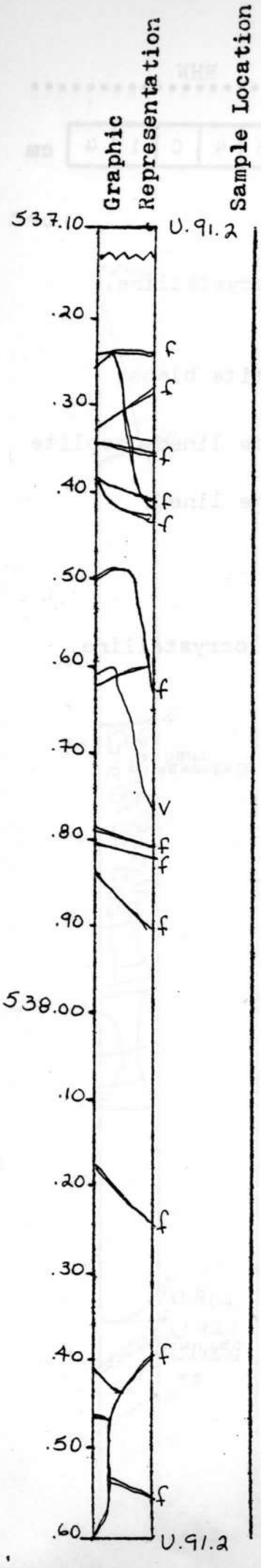
STRUCTURE
Aphyric, medium grained, equigranular, holocrystalline, massive basalt.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description **Observer** RHW

Depth Interval 5 3 7 1 3 **cm to** 5 3 8 6 4 **cm**

Box 92, Section 2



LITHOLOGY PETROGRAPHY
Medium-grained, grey-green, aphyric, holocrystalline, granular, equigranular basalt.

VESICLES/AMYGDALES
Rare, small (less than 1mm diameter) smectite blebs.

FRACTURES - VEINS - BRECCIA
Fractures at 0-10° and 45° (mostly) and 75-90°. All are lined with smectite, zeolite (laumontite) filled.

ROCK ALTERATION
None observed.

STRUCTURE
Aphyric, medium grained, equigranular, holocrystalline massive basalt.

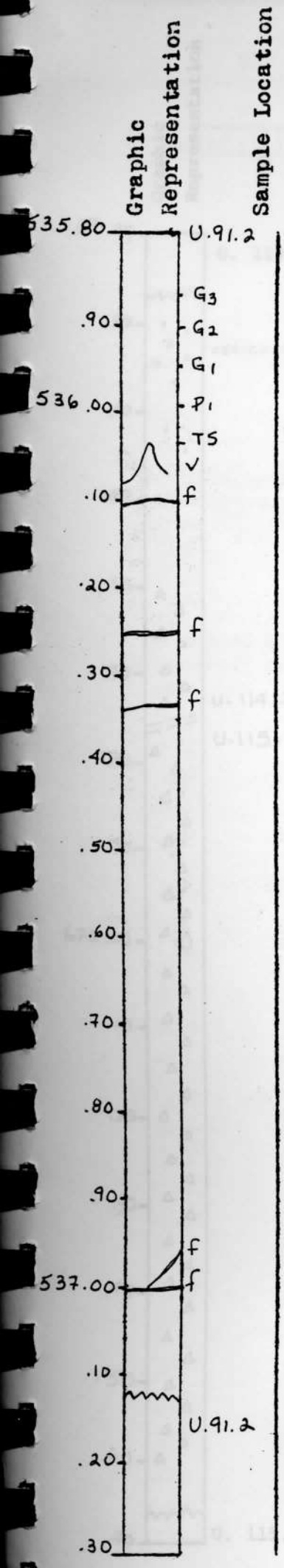
ICELAND RESEARCH DRILLING PROJECT

Visual Core Description **Observer** RHW

Depth Interval 5 3 5 7 9 **cm to** 5 3 7 1 3 **cm**

Adjustment 536.30 to .40 is greater than 10cm.

Box 92, Section 1



LITHOLOGY PETROGRAPHY
Medium grained, grey-green, aphyric, holocrystalline, granular, equigranular basalt.

VESICLES/AMYGDALES
Rare, small (less than 1mm diameter) smectite blebs.

FRACTURES - VEINS - BRECCIA
Fractures at 0-10° and at 45°, one at 80°. All are smectite and zeolite (laumontite) lined. One vein, hairline, zeolite filled smectite lined.

ROCK ALTERATION
None observed.

STRUCTURE
Aphyric, medium grained, holocrystalline, equigranular massive basalt.

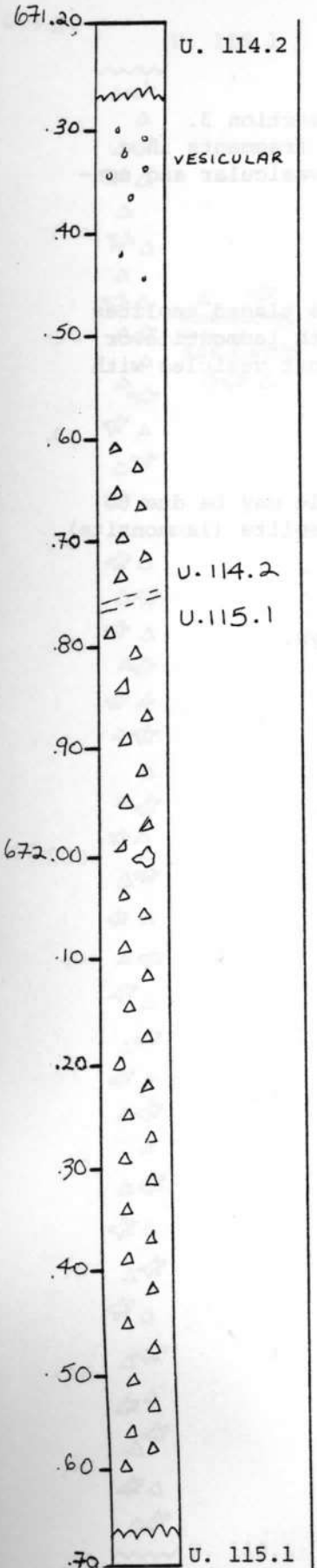
ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

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

Depth Interval 6712 6 cm to 6726 7 cm

Box 115 , Section 3

Graphic Representation | Sample



LITHOLOGY-PETROGRAPHY

671.30 Fine-grained, light gray basalt 5% vesicles.

671.60 Transition to coarse-grained breccia with white zeolites and fragments of basalt within zeolite masses. Coarse fragments both fine-grained and vesiculed.

671.70 Medium grained glassy tuff, with (?) flattened glass shards at the top of basaltic breccia.

671.90 Unit 115.1, scoriaceous flow top breccia.

672.60 Transition to fine grain massive basalt.

VESICLES/AMYGDALES

671.30 Irregular vein like vesicles filled with white zeolites, regular elongated vesicles are filled with green smectite.

671.80 Vesicles filled with black and green smectite and white laumontite. Larger cavities have laumontite with more green smectite in smaller cavities.

672.00 Vesicles 3 cm laumontite filled cavities.

672.10 Vesicles range in size from 4 cm - > 1 mm.

FRACTURES - VEINS - BRECCIA

671.30 Fresh irregular fractures.

672.10 Irregular fractures and veins throughout the rock, filled with both zeolites and smectite.

ROCK ALTERATION

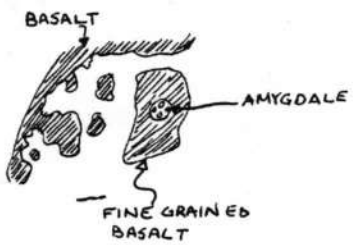
671.30 Swelling clays based on the abundance of irregular hair like fresh fractures throughout the rock.

671.80 Glass altering to reddish brown clay. ? pyrite.

672.10 Swelling clay and green and black smectite in groundmass.

OTHER

671.40 Sketch of contact between massive basalt and brecciated basalt.



STRUCTURE

671.26 - 671.60 Massive , vesiculated basalt.

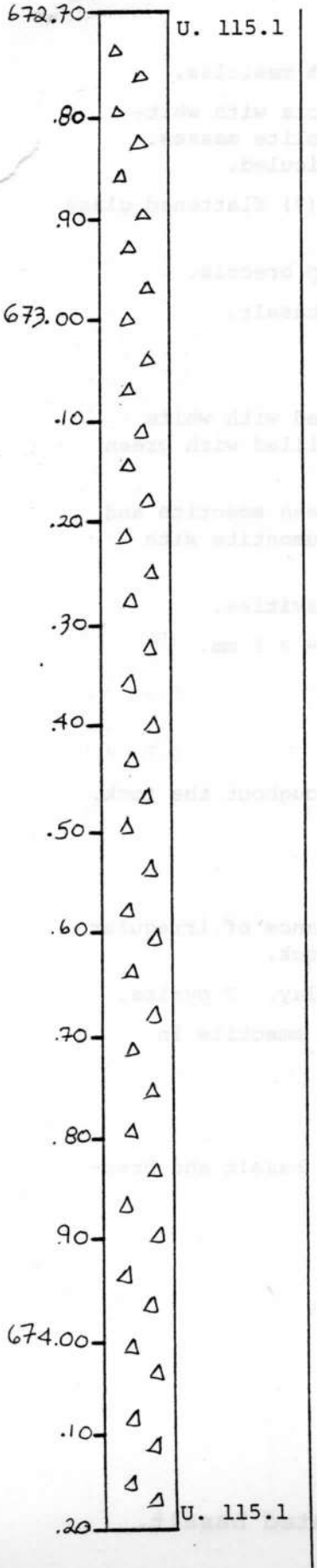
ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer JM .....

Depth Interval 6726 7 cm to 6742 4 cm

Box 115, Section 4.

Graphic Representation Sample



LITHOLOGY-PETROGRAPHY

Continuation of unit 115.1 from box 115, section 3. Gray - coarse breccia, with 5 cm - > 1 mm fragments in a fine-grained to glassy groundmass. Both vesicular and non-vesicular basalt fragments present.

VESICLES/AMYGDALES

Large irregular cavities filled with white bladed zeolites (laumontite). Smaller vesicles filled with laumontite or chlorite, chlorite forms on the rims of most vesicles with laumontite filling cavities.

FRACTURES - VEINS - BRECCIA

Irregular fresh fractures throughout sample may be due to swelling clays, fractures filling white zeolite (laumontite).

ROCK ALTERATION

Groundmass altered to brown and green clays.

STRUCTURE

Unit 155.1 brecciated.

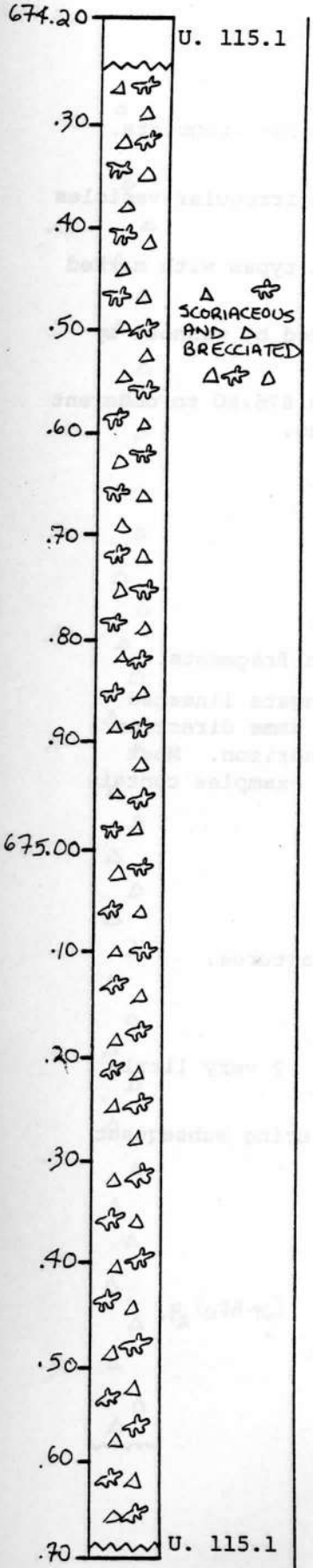
ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer I.L. Gibson

Depth Interval 6742.4 cm to 6756.9 cm

Box 116, Section 1.

Graphic Representation Sample



LITHOLOGY-PETROGRAPHY

Coarse heterogeneous flow breccia composed of angular fragments of scoriaceous basalt of varying types. Many fragments exceed 2 cm in maximum diameter and a few exceed the diameter of core. Large amounts white 'zeolite' filling angular spaces between fragments.

674.80 Many very fine grained amygdaloidal fragments.

675.63 ? Some pyroclastitic material incorporated into flow breccia.

VESICLES/AMYGDALES

Green smectite amygdales are restricted to the smaller isolated cavities.

FRACTURES - VEINS - BRECCIA

Planar fractures which have been mineralized are almost absent.

675.4 Cavity along break in core filled with zeolite.

ROCK ALTERATION

Pervasive zeolite + green smectite. ? little pyrite.

COMMENT

674.40 ? Flow top breccia

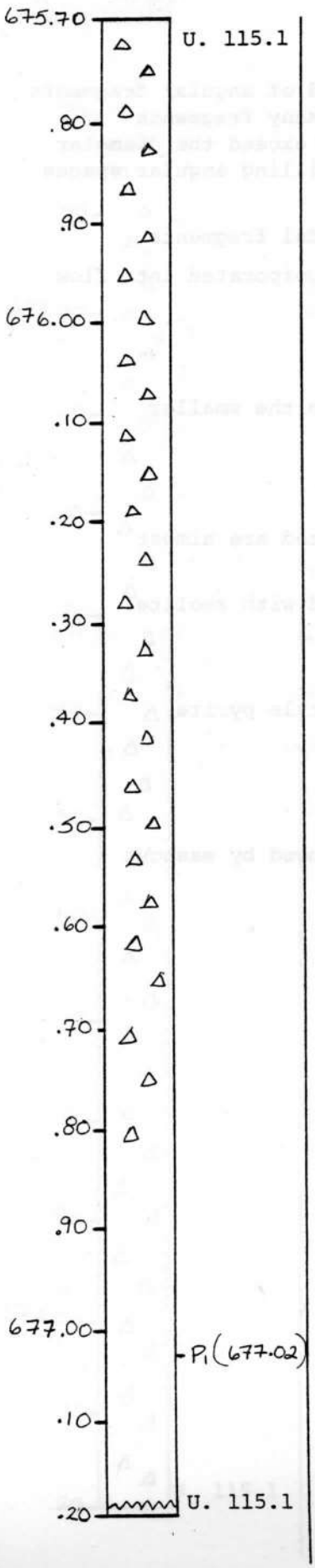
674.70 Open spaces on core surface produced by washout during drilling?

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer ..I..L..Gibson.....

Depth Interval 6756 9 cm to 6771 9 cm

Box 116, Section 2.



LITHOLOGY-PETROGRAPHY

Coarse heterogeneous flow breccia. Many large fragments. > 2 cm diameter.

675.70 → 675.81 Large vesicular mass with irregular vesicles 2-3 mm in diameter.

675.90 Fragments are of a variety of rock types with marked differences between fragments.

676.40 Open spaces on core surface produced by washout by during drilling.

676.70 Here is a transition over 10 cm to 676.80 to coherent fine grained tholeiite containing amygdales.

677.00 Fine tholeiite

VESICLES/AMYGDALES

675.70 Small green smectite amygdales.

675.90 Some open zeolite filled cavities.

676.20 Much zeolite filling space between fragments.

676.70 This section contains about 6 elongate lineated amygdales. These are all lineated in the same direction and have an inclination of 10→30° to the horizon. Most large ones are zeolite filled but smaller examples contain smectite.

FRACTURES - VEINS - BRECCIA

675.80 No mineralized planar fractures.

676.90 A few hair-like zeolite filled fractures.

ROCK ALTERATION

675.80 Pervasive zeolites and smectites. ? very little pyrite.

676.90 Swelling clays causing rock fracturing subsequent to drilling

COMMENT

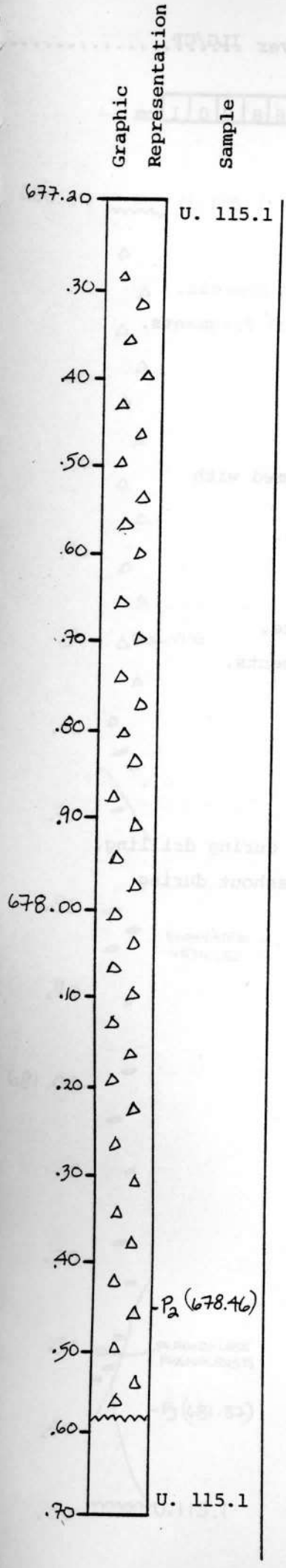
675.90 ? Flow top breccia.

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer I. L. Gibson

Depth Interval 6719 cm to 6858 cm

Box 116, Section 3.



LITHOLOGY PETROGRAPHY

Transition over about 10 cms from fine tholeiite into flow breccia.

677.70 Heterogeneous breccia. Fragments > 2 cm. diameter.

678.20 More uniform section with only weakly developed heterogeneiities.

VESICLES/AMYGDALES

677.49 Large patch of zeolite filling gaps between fragments in breccia.

FRACTURES - VEINS - BRECCIA

Mineralized planar structures are absent.

678.50 Some large zeolite filled spherical vesicles.

ROCK ALTERATION

677.70 Swelling clays producing fracturing of the rocks after drilling

OTHER

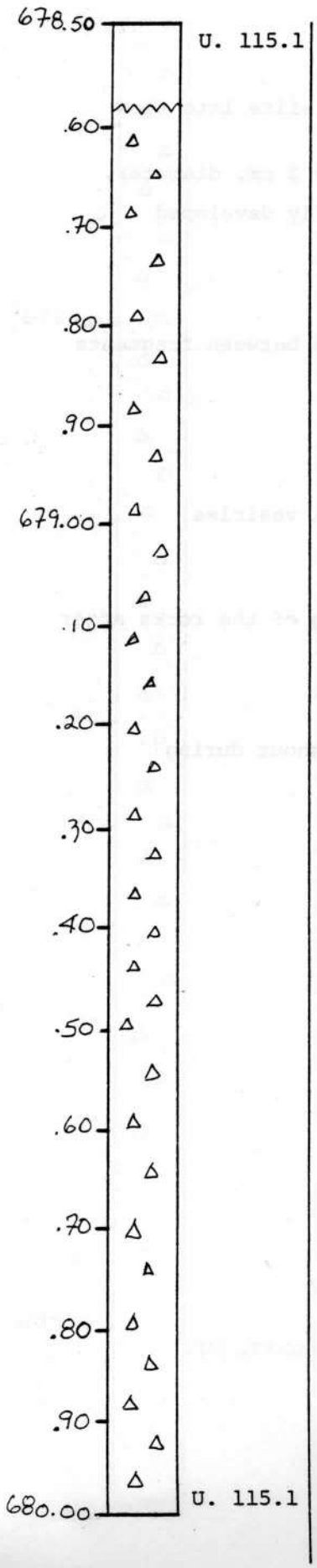
678.30 Open spaces on core produced by washout during drilling.

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer ILG/CP

Depth Interval 6785 8 cm to 6801 cm

Box 116, Section 4.



LITHOLOGY PETROGRAPHY

678.60 Amygdale tholeiite (Block ?) set in breccia.

678.76 Coarse breccia. Heterogeneous-mixed fragments. Fragments > 2 cm diameter.

679.60 One fragment type.

VESICLES/AMYGDALES

Quartz and laumontite filled vesicles, rimmed with chlorite/smectite

678.68 Elongated vesicles ∿ 80° from core.

FRACTURES - VEINS - BRECCIA

Small amygdales have only chlorite/smectite.

678.80 Zeolite filling gaps between fragments.

ROCK ALTERATION

None observed.

OTHER

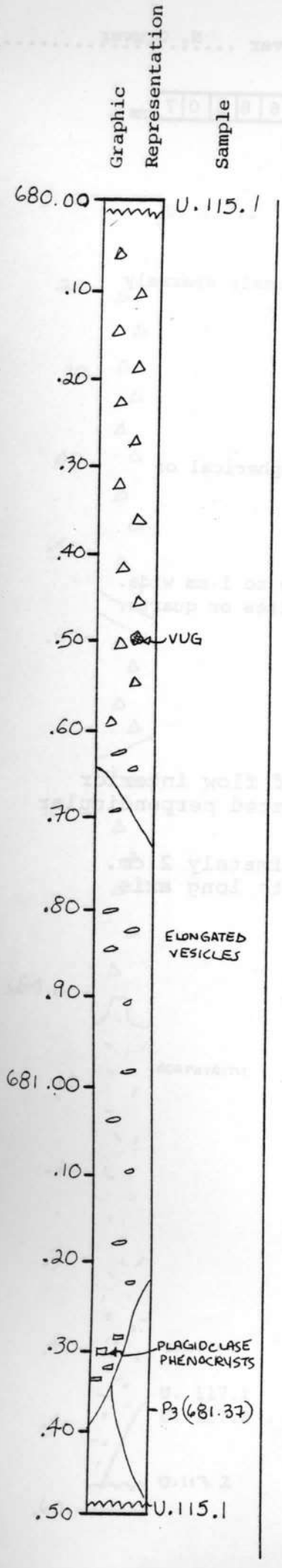
678.60 Swelling clays produced fractures during drilling.

679.00 Open spaces on core produced by washout during drilling.

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer ..N..Gruyer.....

Depth Interval 6801 cm to 6814 9 cm
Box 117 , Section 1



LITHOLOGY PETROGRAPHY

Gray-green fine grained aphyric tholeiitic flow unit.

To 680.60 brecciated.

680.60 to 681.20, large (to 2 cm) elongated amydales in flow)

681.20 Begins massive portion of flow

681.30 Plagioclase phenocrysts, 3-4 mm long.

VESICLES/AMYGDALES

680.60-681.20 Large (2 cm elongated amydales filled with white zeolite (laum.) ± green smectite.

680.51 1/2 cm diameter spherical vug filled with euhedral laumontite.

Angle of elongated vesicles between 680.60-681.20 changes from near perpendicular to core axis, upward to ∿ 20-30° to core axis.

680.82 3 cm vug is filled with fine grained white material. It is hard and massive. Assumed to be quartz. Vesicles and amydales are primarily 2-3 mm, much less abundant than above section (1-2% of rock).

FRACTURES - VEINS - BRECCIA

Rock is not highly fractured. Fractures are hairlike to 1 mm wide. Filled with green smectite and white material.

ROCK ALTERATION

None observed.

STRUCTURE

680.01 - 680.60 Brecciated.

680.60 - 681.49 Elongated amygdales and vesicles of up to 2 cm. in length.

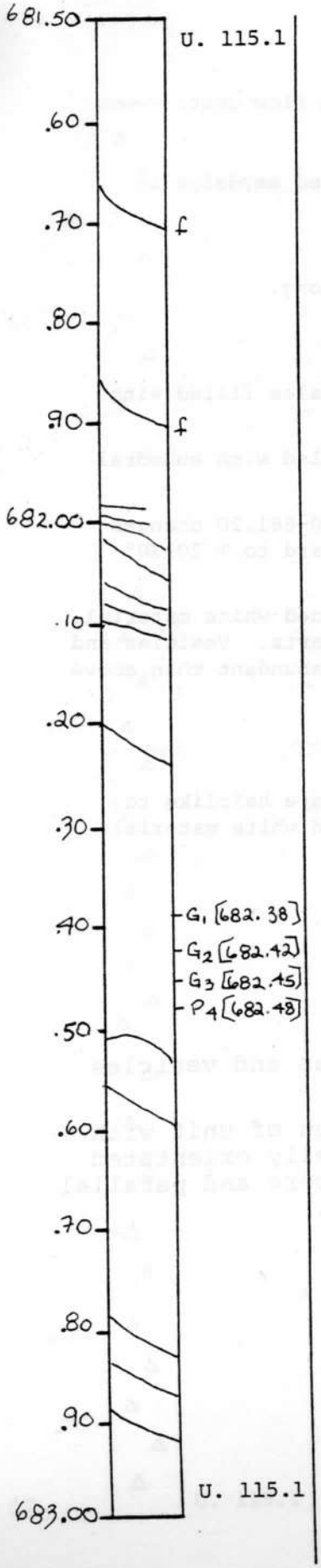
681.20 - 681.49 More massive section of unit with plagioclase phenocrysts preferentially orientated perpendicular to the long axis of core and parallel to long axis of elongated vesicles.

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer ...N. Gruver.....

Depth Interval 6814 9 cm to 6830 7 cm

Box 117, Section 2.



LITHOLOGY PETROGRAPHY

Unit 115.1. Gray-green fine-grained, extremely sparsely phyric flow unit.

Phenocrysts = plagioclase. 1-2 mm long.

683.00 See description next page.

VESICLES/AMYGDALES

To 688.90 vesicles are tiny (< 1 mm) and spherical or slightly irregular.

FRACTURES - VEINS - BRECCIA

Not highly fractured - fractures hair like to 1 mm wide. Filled with green smectite and white zeolites or quartz.

ROCK ALTERATION

None observed.

STRUCTURE

681.49 - 683.00 Massive portion of flow interior with plagioclase phenocrysts elongated perpendicular to long axis of core.

682.30 Vesicular inclusion approximately 2 cm. long and .5 cm. wide, flattened with long axis perpendicular to core axis.

683.00 - 683.07 Brecciated.

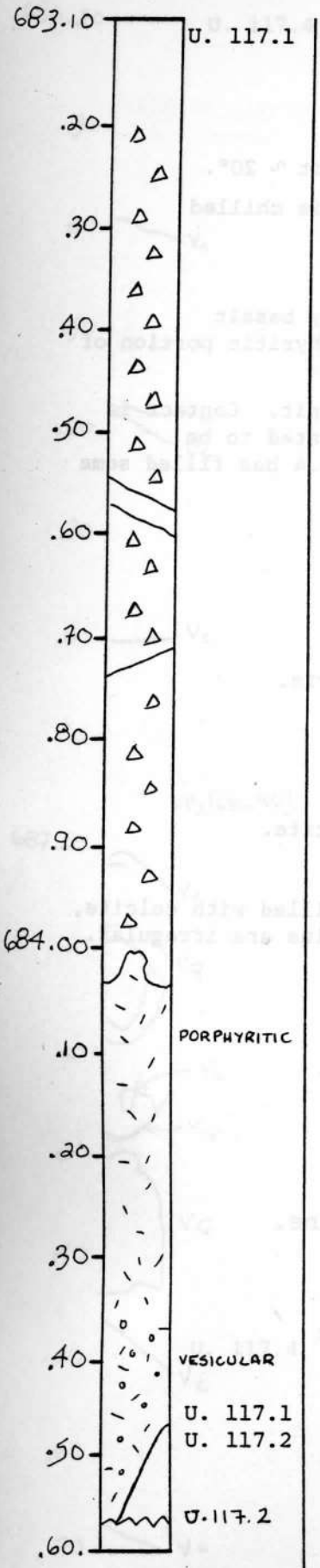
ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer N. Gruver .....

Depth Interval 6830 7 cm to 6845 7 cm

Box 117, Section 3.

Graphic Representation Sample



LITHOLOGY PETROGRAPHY

682.95 is defined as the contact between the upper flow unit (115.1). Contact occurs over ∿ 4 cm interval and is marked by a transition from a zone of elongated amydaloidal basalt to basalt breccia which is taken as the flow top of 116.1.

683.60 Upper portion of unit is basaltic breccia.

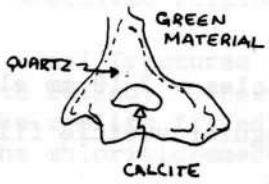
684.25 Plagioclase porphyritic basalt. Phenocrysts are 2-5 cm long and abundant. ∿ 5% of rock green-gray.

684.48 U.117.2 Contact described on next page. Aphyric fine-grained.

VESICLES/AMYGDALES

In brecciated portion vesicles are 3-7 mm diameter, irregular, filled with zoned layers of green smectite? Quartz, and calcite.

683.80



684.25 In plagioclase porphyry vesicles and 2-4 mm long, elongated, filled with green smectite and white zeolite. Vesicles ∿ 5%.

FRACTURES - VEINS - BRECCIA

Spaces between brecciated clasts are filled with green smectite, quartz and calcite, zoned as per vesicles.

683.40 - 684.10 Few fractures hair like, filled calcite.

684.10 Rare, hair like fractures, filled with white minerals.

ROCK ALTERATION

Green Smectite, quartz, calcite.

684.40 White zeolite, green smectite

OTHER

Note this units top was labled 116.1 in log, but changed to 117.1 by J.M. Check core for correct numbering.

STRUCTURE

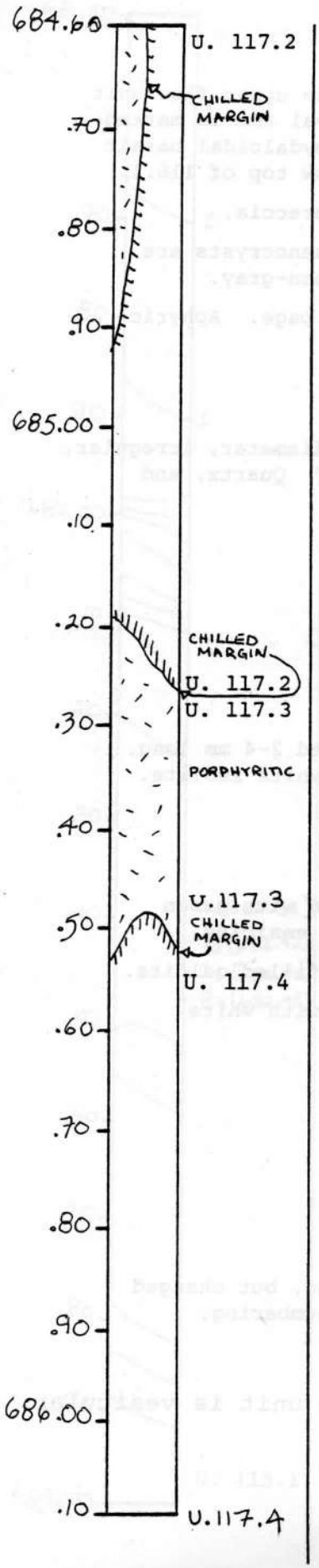
683.07 - 684.45 Brecciated.Base of unit is vesicular.

684.45 - 684.57 Massive basalt.

Visual Core Description Observer N. Gruver

Depth Interval 6845 7 cm to 6861 9 cm

Box 117, Section 4.



LITHOLOGY PETROGRAPHY

Coarse grained section described above.

684.75 Contact-sharp, planar core. Contact ∿ 20°.

684.80 Aphyric fine grained unit (117.2) is chilled against 117.1

685.10 Contact is same as described below

685.35 Porphyritic, amydaloidal green gray basalt ∿ 5-10% phenocrysts. Unit is similar to porphyritic portion of 117.1

685.60 Aphyric, fine grained green-gray unit. Contact is planar, core angle contact = 20-30° interpreted to be intrusive contact. Material from unit 117.4 has filled some of the vesicles of 117.3 near the contact.

VESICLES/AMYGDALES

685.10 None

685.25 Vesicles = 3-10 mm elongated.

685.40 Irregular vesicle filled with quartz.

685.00 None

FRACTURES - VEINS - BRECCIA

Rare, hair like veinlets, filled with calcite.

684.80 Fractures rare, < 1% of rock.

685.60 Hairlike to 2 mm wide fractures filled with calcite, reolite and green smectite. 2 mm wide veins are irregular. Fractures = rare < 1% of rocks.

ROCK ALTERATION

Rocks altering to green smectite.

685.60 Rocks altered to green smectite.

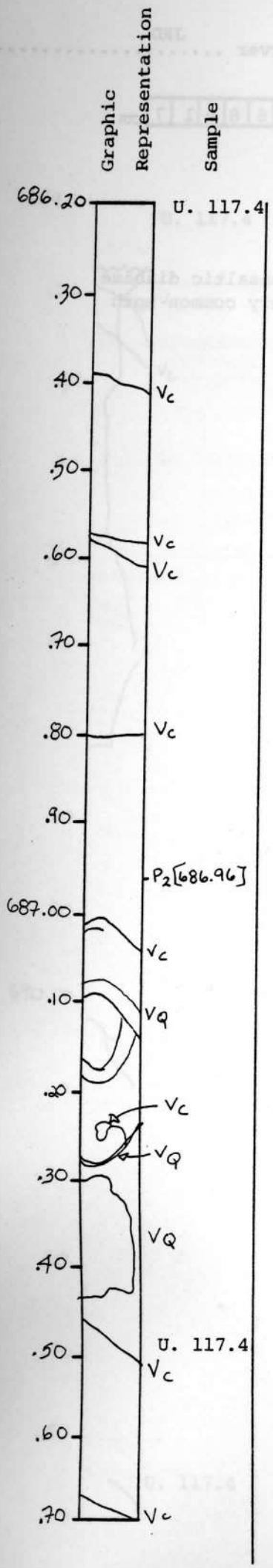
STRUCTURE

Unit 117.3 bounded by chilled margins.

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer .....JRD.....

Depth Interval 6861 9 cm to 6877 0 cm
Box 118 , Section 1



LITHOLOGY-PETROGRAPHY

Fine grained, light gray, aphyric basaltic diabase. ∿ .5% pyrite disseminated throughout rock. Upper contact in Box 117, Section 4 is clearly intrusive. Therefore this unit is unquestionably a dike as the contact appears very steep (core < ∿ 5° but variable). This unit has a massive character with very little fracturing or internal structure.

686.70 - 687.30. Gradual increase in grain size.

VESICLES/AMYGDALES

None from 686.20 to 686.80.

FRACTURES - VEINS - BRECCIA

686.30 V_C = fractures with chloritic/smectitic coating on surface

686.50 V = veinlets with quartz plus minor calcite plus chloritic/smectitic filling.

Note: 42 total fractures in the entire box of which 13 are zeolite filled. Others are chloritic/smectitic coated. Most of the zeolite filled fractures are irregular while many of the chloritic/smectitic coated fractures are more planar.

ROCK ALTERATION

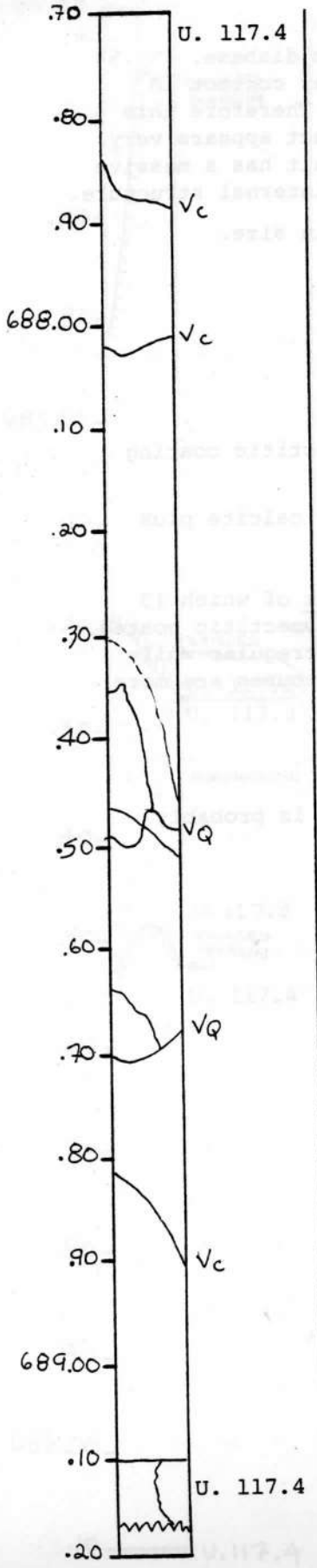
Fresh surface has faint greenish hue which is probably result of chloritic/smectitic alteration.

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer JRD

Depth Interval 6870 cm to 68917 cm

Box 118 , Section 2



LITHOLOGY-PETROGRAPHY

Medium-fine grained, light gray aphyric, basaltic diabase. Massive, very few fractures. Pyrite is very common both in rock and in some fractures.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

V_Q - filled with quartz

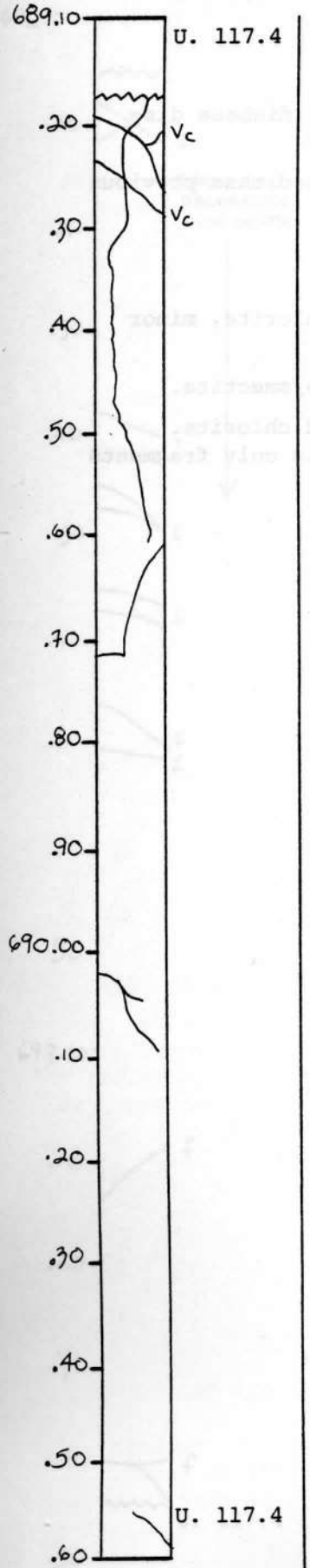
V_c - chloritic/smectite.

Visual Core Description Observer ...JRD.....

Depth Interval 6 8 9 1 7 cm to 6 9 0 6 3 cm

Box 118 , Section 3

Graphic Representation Sample



LITHOLOGY-PETROGRAPHY

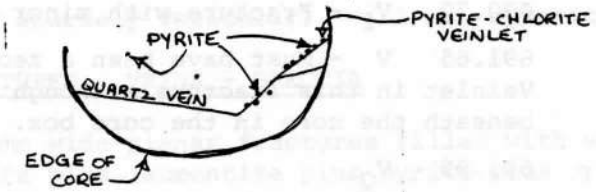
Medium-fine grained, light gray, aphyric, basaltic-diabase. Very similar to previous and succeeding sections. Pyrite is distributed throughout rock ∿ .5 to 1% by vol.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

End view of core at 689.20



Age relationship between sulfide and quartz vein. Pyrite-chlorite veinlet intersected by quartz veinlet. Pyrite and chlorite line the margin of the fracture and quartz fills the center. Quartz is probably later than pyrite-chlorite.

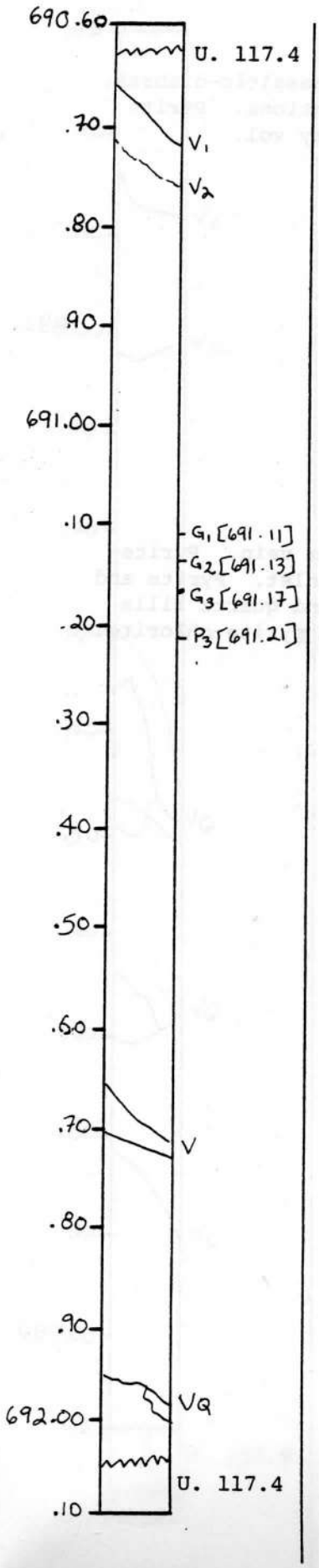
V_c = chlorite, pyrite

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer ....JRD.....

Depth Interval 69063 cm to 69205 cm

Box 118, Section 4.



LITHOLOGY-PETROGRAPHY

Medium grained light gray aphyric basaltic diabase disseminated pyrite which is probably primary.

This section is somewhat more coarse-grained than previous sections of the same unit.

FRACTURES - VEINS - BRECCIA

690.65 V_1 - Veinlet with zeolites and chlorite, minor calcite, no pyrite. ∿ 2 mm apart.

690.70 V_2 - Fracture with minor chlorite/smectite.

691.65 V - Must have been a zeolite and chlorite. Veinlet in this fracture although now it is only fragments beneath the core in the core box.

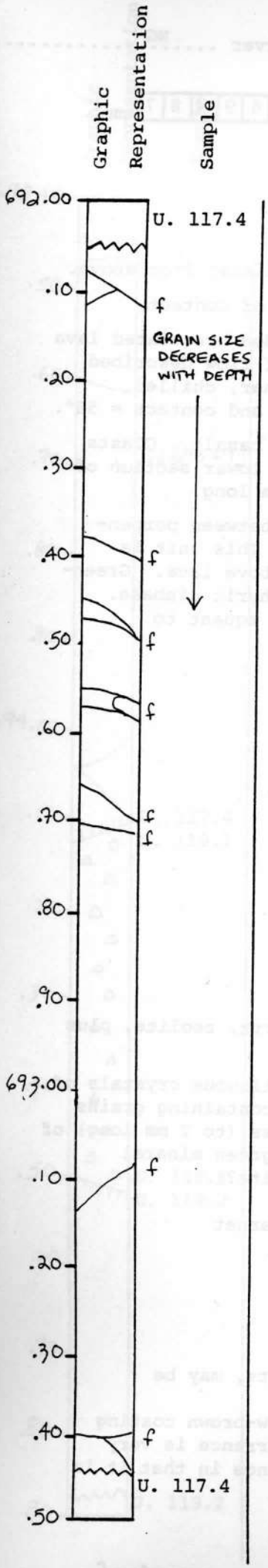
691.95 V_Q

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer JRD/NG

Depth Interval 69205 cm to 69344 cm

Box 119, Section 1



LITHOLOGY-PETROGRAPHY

Medium fine grained greenish gray basaltic diabase.

Pyrite disseminated throughout this unit.

Grain size decreased downward throughout this section.

STRUCTURE

Grain size fines downward.

VESICLES/AMYGDALES

Very sparsely vesicular. < 1 mm, spherical.

FRACTURES - VEINS - BRECCIA

2-3 mm wide planar fractures filled with white zeolite plus quartz plus laumontite plus pyrite plus green smectite.

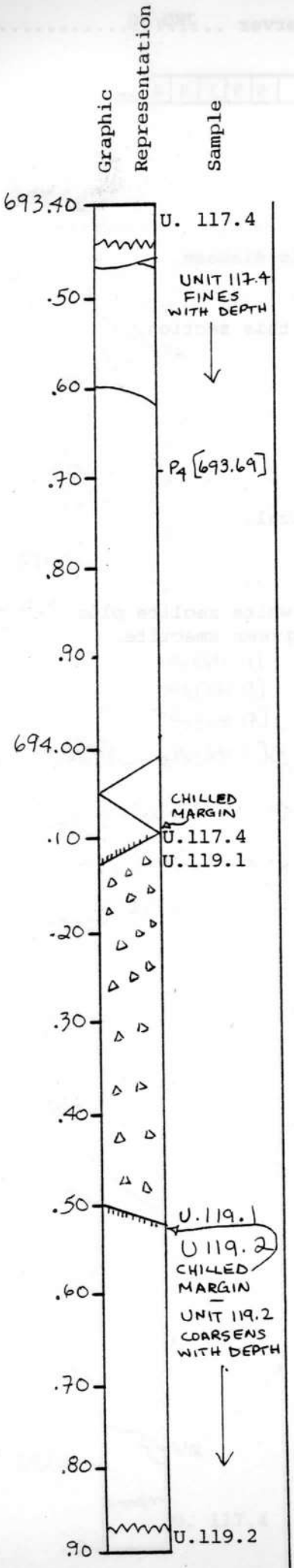
ROCK ALTERATION

As in fractures.

Visual Core Description Observer NG

Depth Interval 6934 cm to 6948 7 cm

Box 119, Section 2



LITHOLOGY-PETROGRAPHY

Fine grained gray-green aphyric unit continued from above.

Interpreted to be a dike based on nature of contact.

U. 117.4 Dike interpreted to have intruded brecciated lava below, which is interpreted to be part of flow described in 117.3. Contact is sharp, roughly planar, chilled. Angle between perpendicular to core axis and contact = 56°.

U. 119.1 Brecciated, green-gray, phyric basalt. Clasts are similar to 117.3 which is similar to lower section of 117.1. Phenocrysts = plagioclase, 2-3 mm long.

U. 119.2 Contact = planar, sharp angle between perpendicular to core axis and contact = 20°. This unit is interpreted to be dike chilled against above lava. Green-gray, fine to medium-grained, sparsely phyric diabase. Phenocrysts = plagioclase. Crystals are equant to elongate, 2-3 mm.

STRUCTURE

U. 117.4 Grain size fines downward

U. 119.1 Brecciated

U. 119.2 Unit coarsens downwards

VESICLES/AMYGDALES

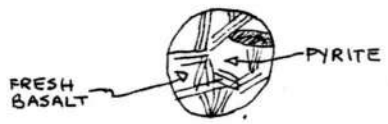
U. 119.1 Sparse, deformed.

U. 119.2 None

FRACTURES - VEINS - BRECCIA

Vein, planar, 3 mm wide filled with quartz, zeolite, plus green smectite.

693.90 In hairlike fracture. = continuous crystals of calcite containing grains and blades (to 2 mm long) of unknown green mineral (actinolite?)



694.04 2-3 cm veins contain granular garnet

1. Calcite
2. Unknown radiating zeolite
3. Pyrite
4. Elongate green mineral
5. Pumpelleyite ?
6. Pink mineral - may be zeolite, may be secondary feldspar
7. Garnet - grossularite yellow-brown coating fracture surface, this occurrence is very similar to previous occurrence in that it is very close to contact.

Core angle fracture = 20=50°.

Continued on overleaf.

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer NG .....

Depth Interval 6934 cm to 6948 7 cm

Box 119, Section 2

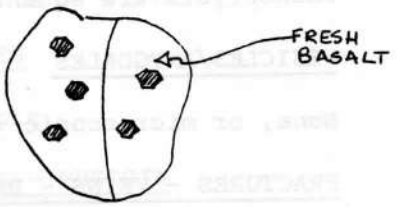
Graphic Representation | Sample

693.40 — U. 117.4
.50
.60
.70 — P4 [693.69]
.80
.90
694.00
.10 — U. 117.4, U. 119.1
.20
.30
.40
.50 — U. 119.1, U. 119.2
.60
.70
.80
.90 — U. 119.2

FRACTURES - VEINS - BRECCIA (continued)

U.119.2 Rare, hairlike fracture.

ROCK ALTERATION



U. 117.4
Minute crystals of pyrite in dodeccihedral form. Possible interpretation = pyrite replacing garnet.

Layering in vein is somewhat alterating. Garnet is along edge of vein as well as in center. Along edge of vein it appears to be invading host rock. Pyrite is disseminated throughout as well in host rock. White zeolite in center, green smectite along edges.

U. 119.1
White zeolites fill spaces between breccia clasts.

Section is highly altered. Fine grained yellow material occurs around the rims of some plagioclase phenocrysts.

OTHER

Incinorator disaster. Box carbon contaminated.

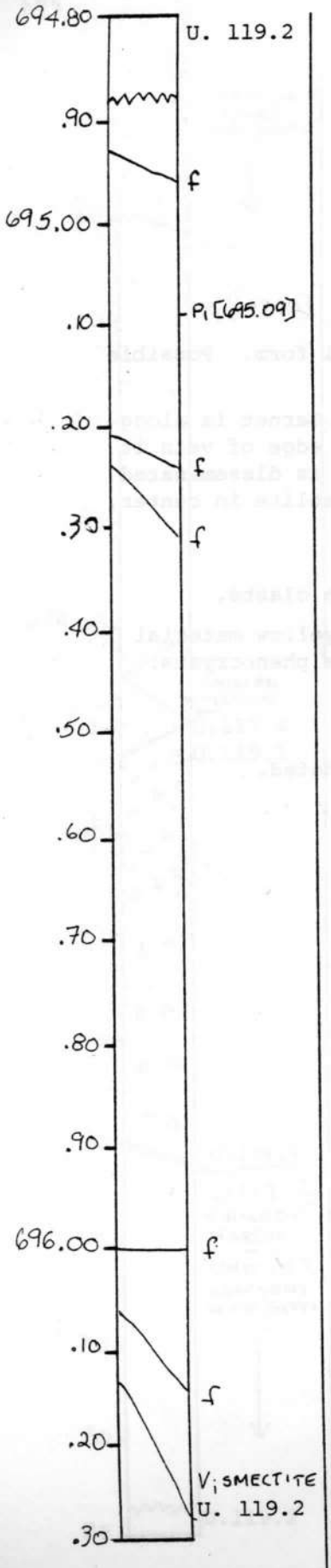
ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer NG

Depth Interval 6948 7 cm to 6963 3 cm

Box 119, Section 3.

Graphic Representation Sample



LITHOLOGY-PETROGRAPHY

Continuation of above unit. Slightly coarser, plagioclase laths in green mass to 1 mm long. Sparsely phyric. Phenocrysts are equant to elongate, 4 mm long.

VESICLES/AMYGDALES

None, or microscopic

FRACTURES - VEINS - BRECCIA

Rare fractures filled with green smectite? Unknown platy radiating glassy zeolite. Minor pyrite, other unidentified green mineral.

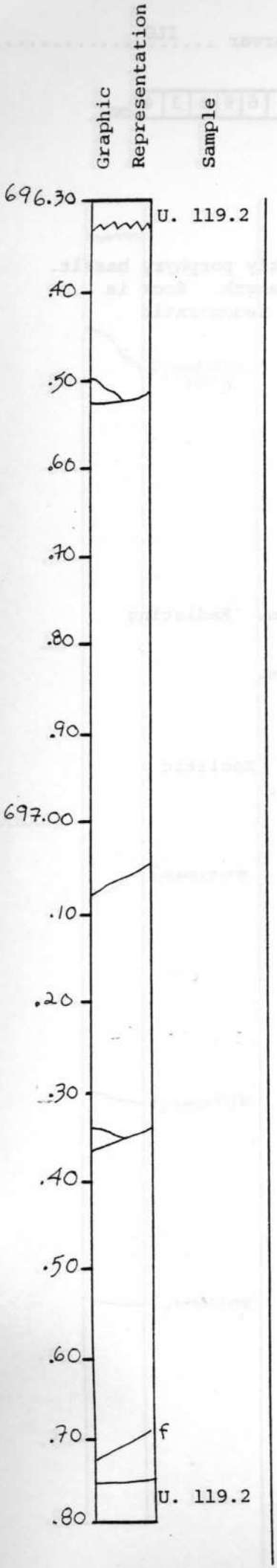
696.20 Vein filled with green and black smectite and fine grained disseminated crystals of white minerals. Quartz plus zeolite?

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer ..NG.....

Depth Interval 6 9 6 3 3 cm to 6 9 7 8 1 cm

Box 119, Section 4



LITHOLOGY-PETROGRAPHY

Same as above. Medium-grained, gray-green, sparsely phyric (with plagioclase phenocrysts) diabasic basalt, with widely disseminated crystals of pyrite.

VESICLES/AMYGDALES

None or Microscopic

FRACTURES - VEINS - BRECCIA

Not abundant. Texture of filling is grainy. Edges of veins are lined with green and black smectite? In part of veins certain abundant, closely to widely disseminated white crystals - probably white zeolite plus quartz?

Fracture at 697.71 is filled with platy, radiating, glassy unknown mineral, on top of minerals mentioned above.

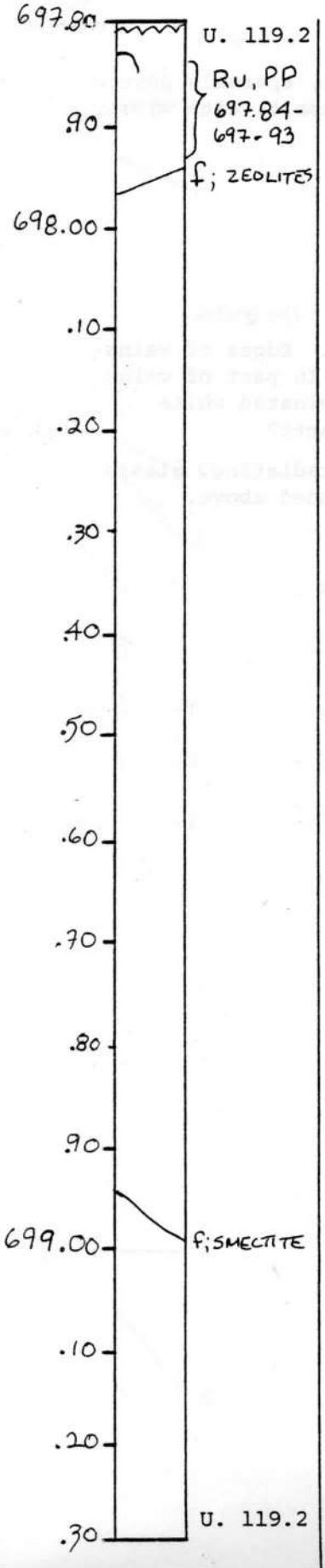
ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer ILG

Depth Interval 6978 1 cm to 6993 4 cm

Box 120, Section 1.

Graphic Representation Sample



LITHOLOGY-PETROGRAPHY

Medium grained holocrystalline. Very weakly porphyry basalt. Rare large feldspar plen. up to 1 cm in length. Rock is distinctly patchy with variations in % of leucocratic mesostesis.

STRUCTURE

Isotropic

VESICLES/AMYGDALES

Rare spherical amygdales ∿ 3 mm diameter.

FRACTURES - VEINS - BRECCIA

697.5 Mineralized fracture with zeolites. Radiating bladed crystals.

698.96 Fracture with mainly dark smectite.

ROCK ALTERATION

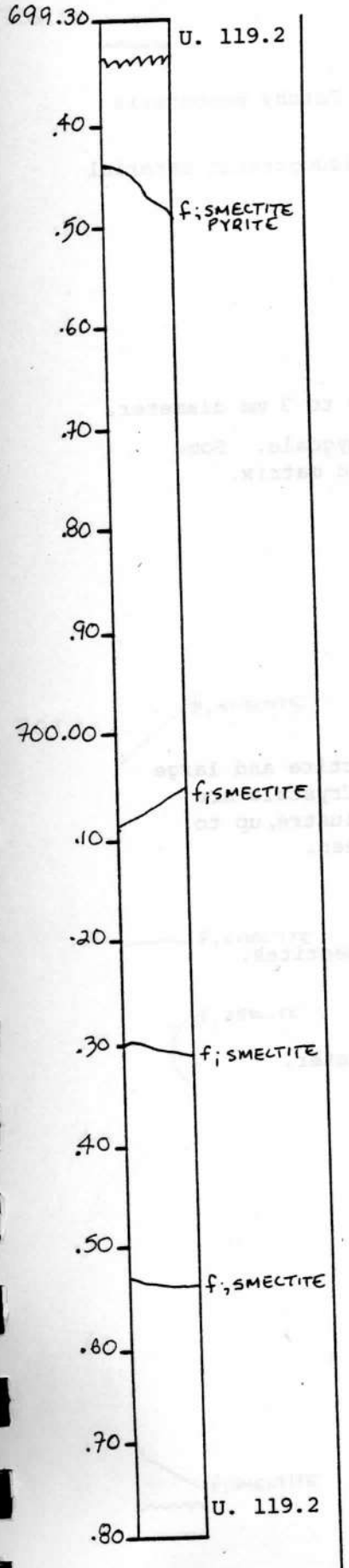
0.5% disseminated pyrite .03 mm diameter? Zeolitic pervasive alteration, much green smectite.

Visual Core Description Observer ..ILG.....

Depth Interval 6934 cm to 7087 cm

Box 120, Section 2.

Graphic Representation Sample



LITHOLOGY-PETROGRAPHY

Medium grained holocrystalline. Very sparse phenocrysts of feldspar. Patchy with some variation in % of interstitial leucocratic material.

STRUCTURE

Isotropic

VESICLES/AMYGDALES

Rare spheroidal amygdales up to 3 mm diameter.

FRACTURES - VEINS - BRECCIA

699.50 Fracture coated with dark green smectite and scattered cubes of pyrite 2 mm diameter.

700.15 Smectite (dark coated surfaces).

700.31 Smectite (dark) zeolite.

700.55 Pale grey "smectite" coating fracture surface.

ROCK ALTERATION

699.50 Area contains 0.5% disseminated pyrite , approximately 0.3 mm. in diameter.

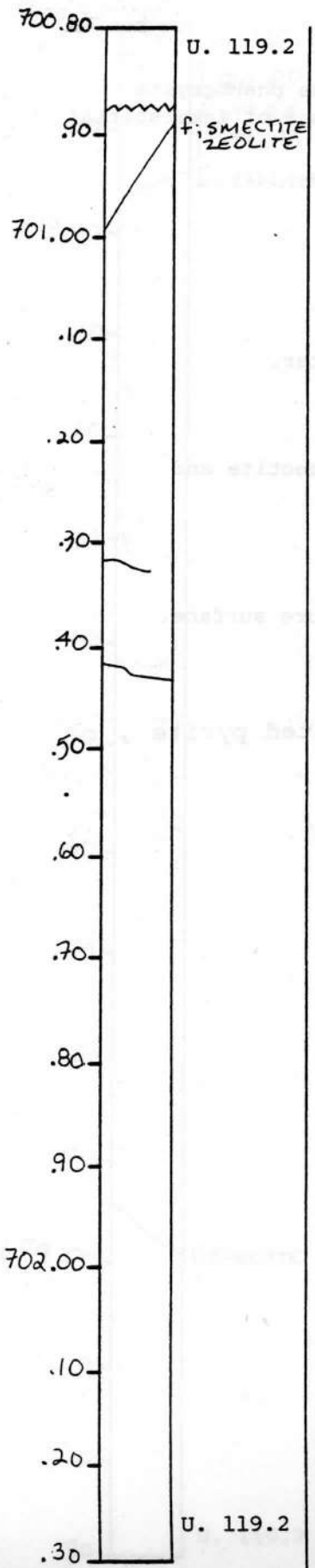
ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer ILG

Depth Interval 70087 cm to 70233 cm

Box 120, Section 3.

Graphic Representation Sample



LITHOLOGY - PETROGRAPHY

Medium grained holocrystalline basalt. Patchy mesostasis distribution.

Irregular poorly defined patch of more leucocratic material with "zeolite?" mesostasis.

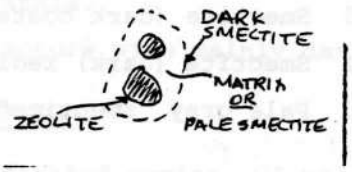
STRUCTURE

Isotropic

VESICLES/AMYGDALES

700.80 - 702.03 Very rare amygdales up to 3 mm diameter.

702.03 3 mm diameter zeolite filled amygdale. Some calcite surrounded by area of leucocratic matrix.



FRACTURES - VEINS - BRECCIA

700.95 Planar fracture filled with smectite and large radiating crystals of unknown zeolite. Crystals are bladed and in radiating clusters. High lustre, up to 1 cm long blades. Smectites are dark green.

ROCK ALTERATION

Disseminated pyrite plus zeolites plus smectites.

OTHER

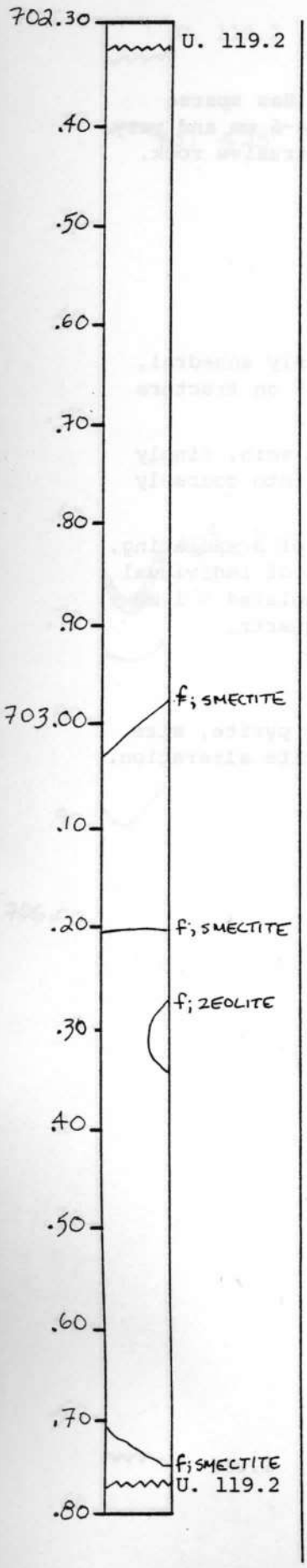
Pyrite 1%? Some cubes up to 1 mm in diameter.

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer ILG .....

Depth Interval 7023 3 cm to 7037 7 cm

Box 120, Section 4.



LITHOLOGY-PETROGRAPHY

Medium grained holocrystalline. Very weakly porphyry basalt. Rare feldspars up to 0.5 mm long.

VESICLES/AMYGDALES

Rare spheroidal amygdales.

FRACTURES - VEINS - BRECCIA

703.00 Smectite covered fracture.

703.22 Smectite fracture.

703.30 Smectite plus zeolite vein.

703.72 Dark green smectites on fracture surface.

ROCK ALTERATION

Pervasive pyrite 0.3% disseminated. High conc. of pyrite on veins.

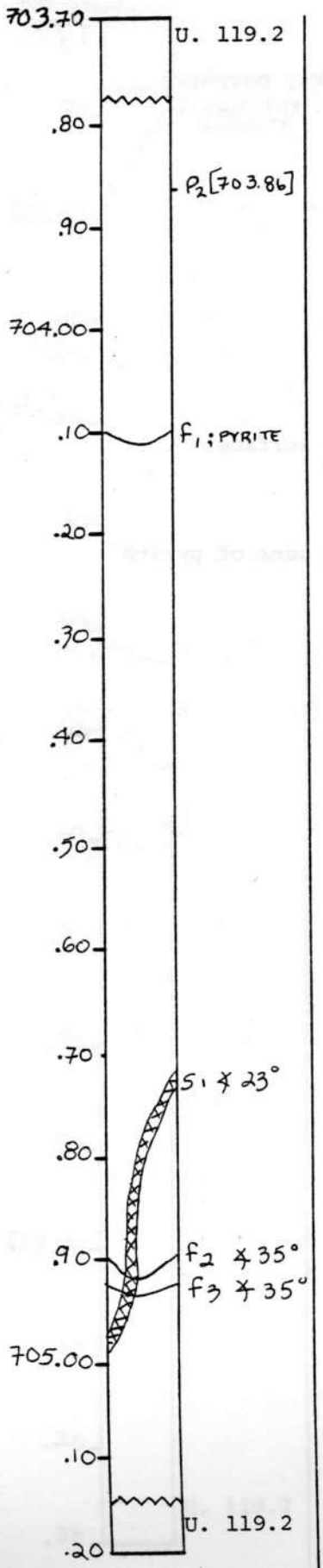
ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

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

Depth Interval 7037.7 cm to 7051.4 cm

Box 121, Section 1.

Graphic Representation Sample



LITHOLOGY-PETROGRAPHY

Medium grained material without vesicles. Has sparse phenocrysts of euhedral plagioclase, size 4-6 mm and very sparse pyroxene phenocrysts of 2-3 mm = Intrusive rock.

VESICLES-AMGDALES

None observed.

FRACTURES - VEINS - BRECCIA

704.10 f_1 10-12 crystals of pyrite, mainly anhedral, size 2.5 x 2.5 mm. Dark alteration of clay on fracture surface.

704.74-704.95 s_1 20 mm wide segregation vein, finely grained. Contact with parent rock grades into coarsely grained material.

704.90 f_2 2-3 mm wide fracture filling of a radiating, highly reflecting mineral. Maximum length of individual crystals = 20 mm. This mineral cements isolated < 1 mm crystals, hexagonal and glassy, probably quartz.

ROCK ALTERATION

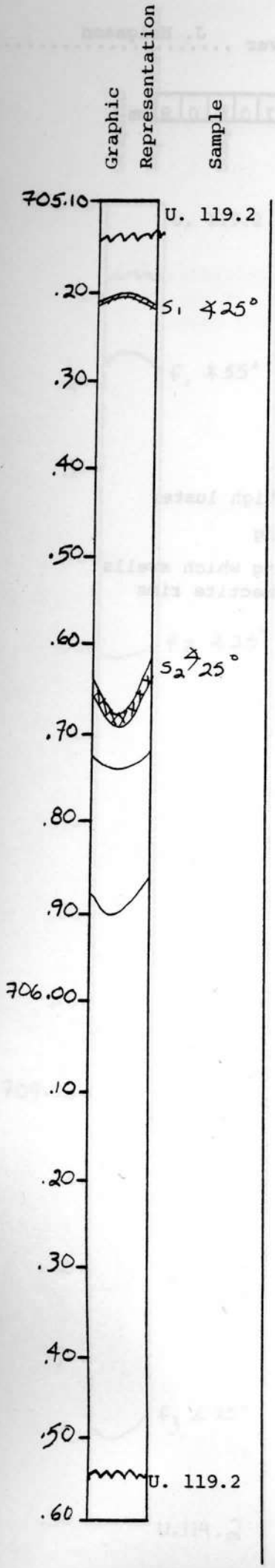
Widely disseminated alteration minerals of pyrite, size 1-2 mm and pervasive greenish gray. Smectite alteration.

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

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

Depth Interval 7054 cm to 7065 cm

Box 121, Section 2.



LITHOLOGY-PETROGRAPHY

The same as in Section 1.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

705.25 S_1 Small segregation veinlet 3-4 mm wide.

705.60-68. S_2 6 mm wide segregation vein of finely grained material.

ROCK ALTERATION

Disseminated pyrite alteration minerals, 2-4 mm in size.

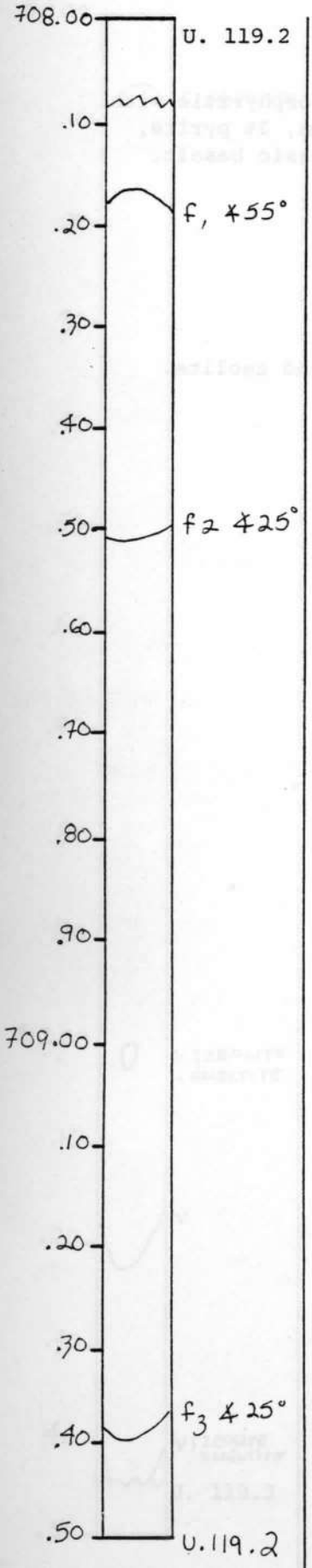
ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer J. Helgason

Depth Interval 7080.8 cm to 7095.1 cm

Box 121, Section 4

Graphic Representation Sample



LITHOLOGY-PETROGRAPHY

Same as in Section 3.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

708.10 f_1 Black and green smectite clay on fracture surface and 2-4 mm pyrite crystals of anhedral shape.

708.50 f_2 3 mm wide filling of laumontite

709.40 f_3 Minor alteration of green and black smectite.

ROCK ALTERATION

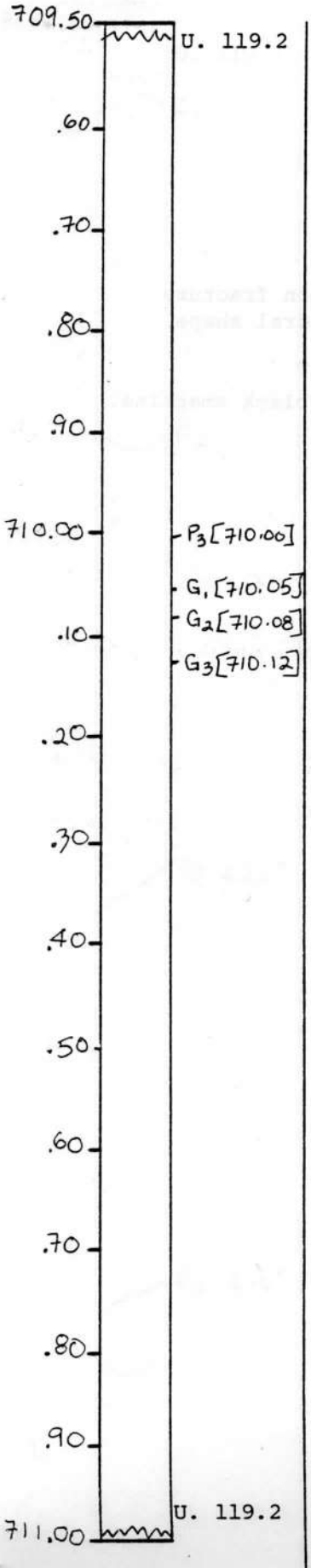
Same as in Section 3.

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer JRD

Depth Interval 7095.1 cm to 7109.9 cm

Box 122, Section 1



LITHOLOGY-PETROGRAPHY

Medium-grain, holocrystalline, sparsely porphyritic with plagioclase phenocrysts, maximum size 3 mm, 2% pyrite, some white patchy mineral clusters. Diabasic basalt.

STRUCTURE

Isotropic

VESICLES/AMYGDALES

Rare, less than 1% filled with chlorite and zeolite.

FRACTURES - VEINS - BRECCIA

Extremely rare

ROCK ALTERATION

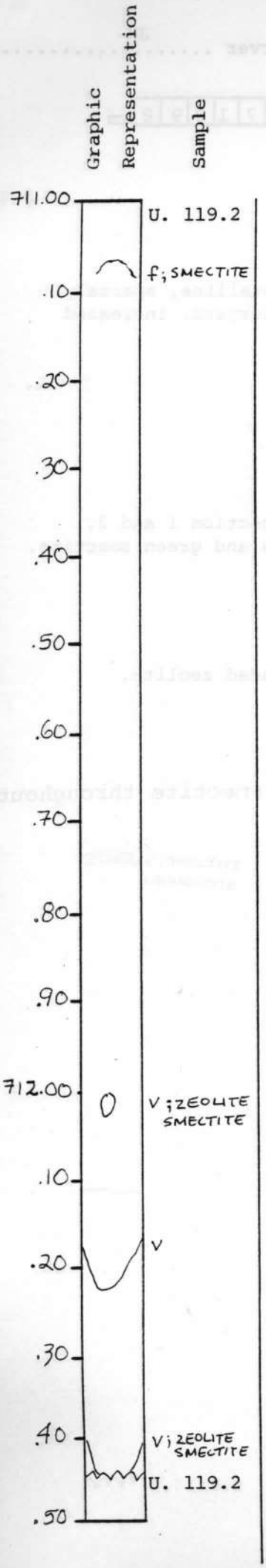
Disseminated pyrite, minor green smectite.

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer .....

Depth Interval 7 1 0 9 9 cm to 7 1 2 4 5 cm

Box 122, Section 2



LITHOLOGY-PETROGRAPHY

Medium-grained, holocrystalline, sparsely phorphyritic, plagioclase phenocrysts.

STRUCTURE

Isotropic

VESICLES/AMYGDALES

Rare, white zeolites, trace calcite

FRACTURES - VEINS - BRECCIA

711.10 Hairline fracture, with green smectite

712.10 Vein of white zeolite and minor green smectite

712.40 Vein of white zeolite (laumontite and green smectite).

ROCK ALTERATION

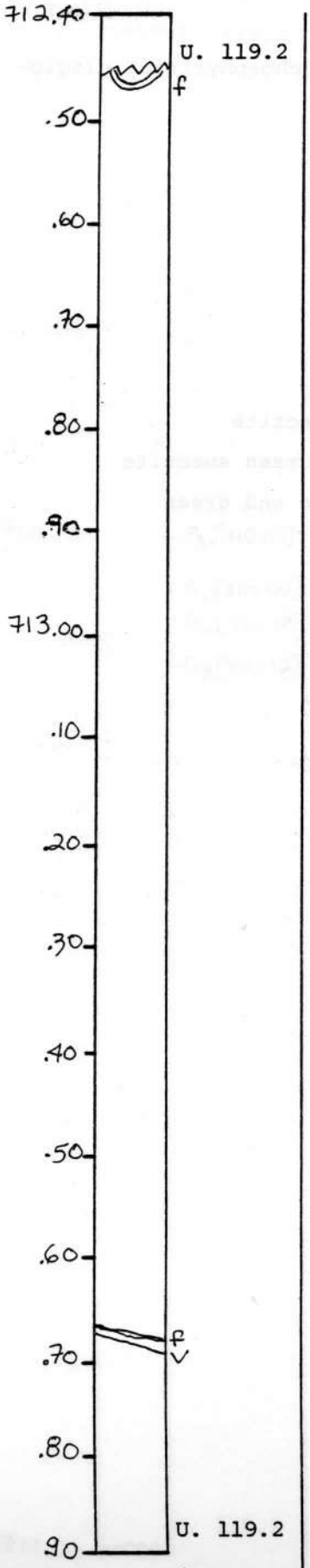
Pyrite disseminated throughout basalt

Visual Core Description Observer JM

Depth Interval 7124 5 cm to 7139 8 cm

Box 122, Section 3

Graphic Representation Sample



LITHOLOGY-PETROGRAPHY

(Continuation). Medium-grained, holocrystalline, sparsely porphyritic, with minor plagioclase phenocrysts, increased leucocratic mineral.

STRUCTURE

Isotropic

VESICLES/AMYGDALES

Slight increase in vesicles compared to section 1 and 2, vesicles contain white zeolite laumontite and green smectite.

FRACTURES - VEINS - BRECCIA

712.50 f.

713.70 v. vein and fracture, white bladed zeolite, laumontite, green smectite, vein 5 mm.

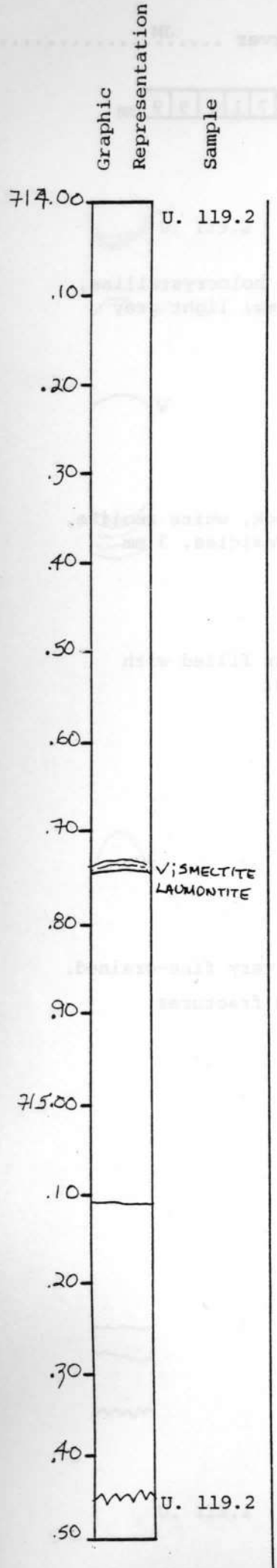
ROCK ALTERATION

Disseminated pyrite , minor green smectite throughout core.

Visual Core Description Observer JM .....

Depth Interval 7139 8 cm to 7154 5 cm

Box 122, Section 4.



LITHOLOGY-PETROGRAPHY

Medium-grain, holocrystalline, sparsely porphyritic and disseminated pyrite (1 mm). Minor pyroxene phenocrysts, (1.5-2 mm). Diabase basalt.

STRUCTURE

Isotropic

VESICLES/AMYGDALES

Vesicles as in Section 3, primarily white laumonite.

FRACTURES - VEINS - BRECCIA

714.75 v. Double fracture with white laumonite vein through core (bladed)--about 2 mm thick. Small amount of green smectite.

ROCK ALTERATION

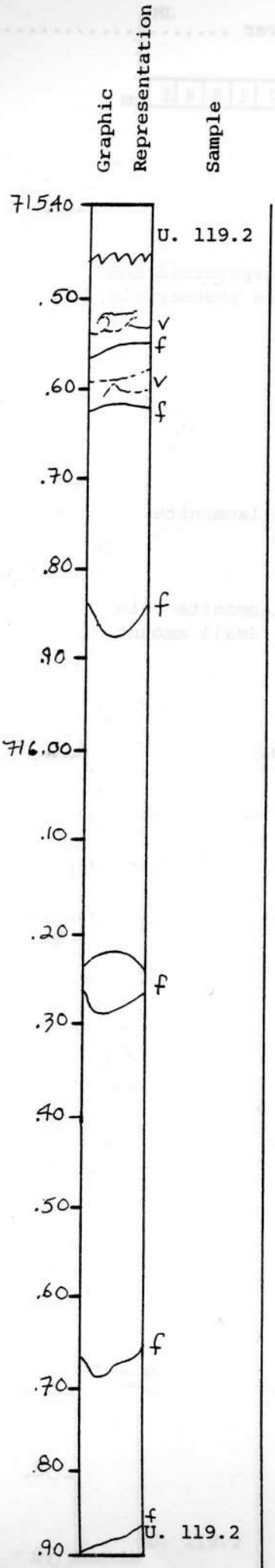
Disseminated pyrite, minor green smectite.

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer JM

Depth Interval 7154.5 cm to 7169.9 cm

Box 123, Section 1



LITHOLOGY-PETROGRAPHY

Continuation of Box 122. Medium grained, holocrystalline, sparsely porphyritic, plagioclase lath 1 mm; light grey in color.

STRUCTURE

Isotropic

VESICLES/AMYGDALES

Vesicles: irregular, less than 5% of rock, white zeolite, laumontite, yellowish brown carbonate. Vesicles, 3 mm - > 1 mm.

FRACTURES - VEINS - BRECCIA

715.60 Fractures and veinlets--irregular filled with white zeolites, minor pyrite in fractures.

715.85 f same as above

715.25 f same as above

715.65 f same as above

715.90 f same as above

ROCK ALTERATION

Pyrite disseminated throughout the rock, very fine-grained. Swelling clays due to the irregular fresh fractures.

OTHER

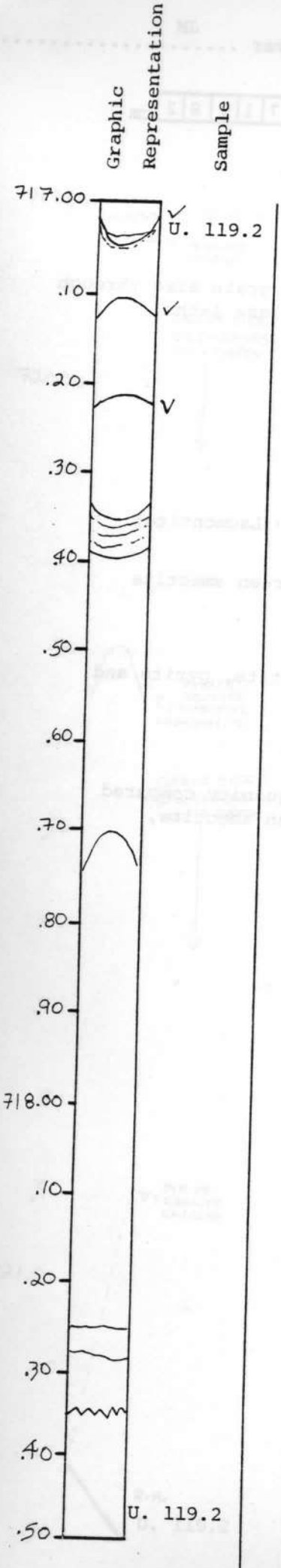
Box contaminated. STOVE EXPLODED.

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer .....KHT.....

Depth Interval 7699 cm to 7834 cm

Box 123, Section 2



LITHOLOGY-PETROGRAPHY

Holocrystalline, medium-grey diabase basalt, crystals 0.1-0.5 mm length, some plagioclase phenocrysts(2 mm diameter). Disseminated pyrite, green smectite throughout.

STRUCTURE

Isotropic

VESICLES/AMYGDALES

Laumonite and calcite vesicles--white zeolites, > 1 mm-2 mm

Veins: laumonite and whitish, semi-transparent mineral with 90° cleavage and crystals 0.1-0.5 mm long.

FRACTURES - VEINS - BRECCIA

Veins: Laumonite and whitish, semi-transparent mineral with 90° cleavage and crystals 0.1-0.5 mm long.

ROCK ALTERATION

Pyrite dissemination and green smectite.

OTHER

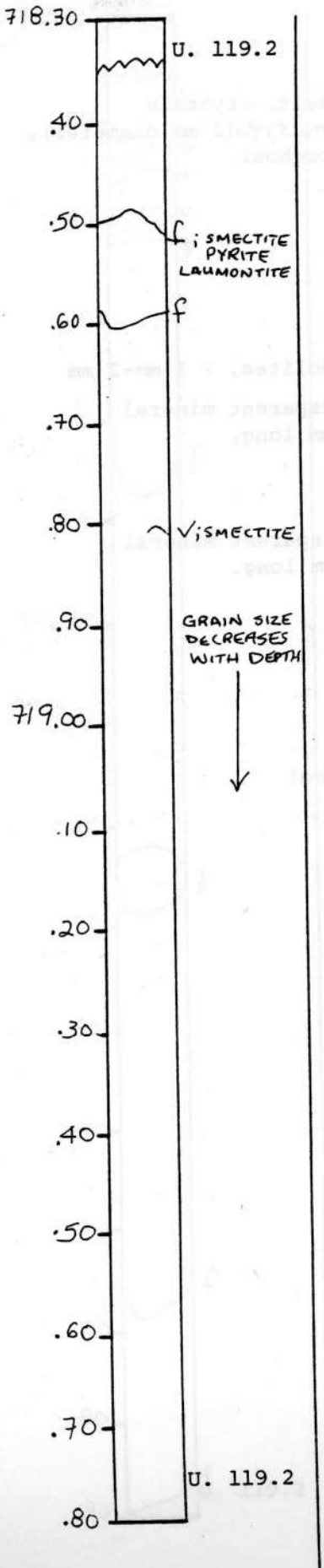
Box carbon contaminated (stove malfunction)

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer JM

Depth Interval 7183 4 cm to 7198 2 cm

Box 123, Section 3



LITHOLOGY-PETROGRAPHY

Light-gray, medium-grained, decreasing in grain size through the core. Holocrystalline, minor plagioclase laths throughout, laths ≈ 1 mm.

STRUCTURE

Isotropic

VESICLES/AMYGDALES

Vesicles, irregular, 2mm white zeolites. (Laumontite) and calcite. Calcite has a yellow hue.

718.80 v. hairline vein, filled with green smectite

FRACTURES - VEINS - BRECCIA

718.50 f. quasiplaner, with green smectite, pyrite and laumontite.

ROCK ALTERATION

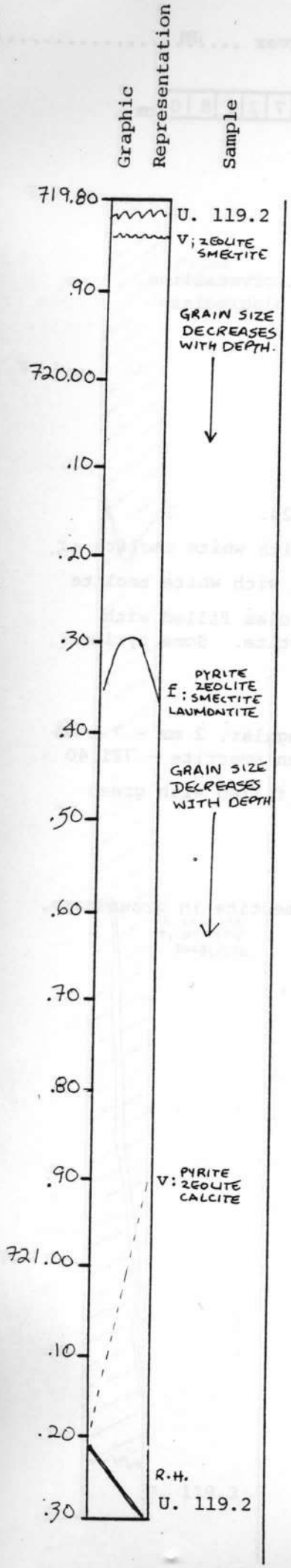
Disseminated pyrite, but decreasing in quanity compared to Section 1 and 2, Box 123. Minor green smectite, alteration throughout.

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer .....

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

Box 123, Section 4



LITHOLOGY-PETROGRAPHY

Light gray, medium to fine-grained, only minor plagioclase phenocrysts > 1 mm, and pyroxene phenocryst.

STRUCTURE

Isotropic

VESICLES/AMYGDALES

Rare, irregular 4 mm, white zeolite (laumontite) and calcite filling.

FRACTURES - VEINS - BRECCIA

719.80 v. top of core, vein with white zeolite (laumontite) and green smectite.

720.35 f. planer, simple, contains white zeolite, laumontite, and green smectite and pyrite on surface of fractured vein.

720.90 planer, simple, euhedral pyrite and white zeolite and calcite occurs in vein, vein is > 1 mm wide. Core angle vein = 120°.

ROCK ALTERATION

Pyrite disseminated throughout the core and ground mass altering to green smectite.

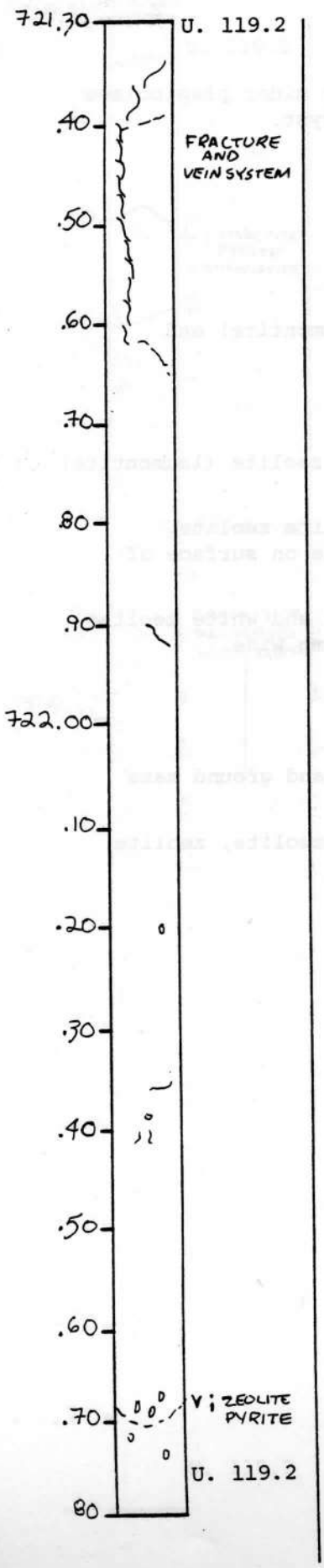
721.20 R.H. alteration zone of white zeolite, zeolite boundary diffused.

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

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

Depth Interval 7213 0 cm to 7228 0 cm

Box 124, Section 1



LITHOLOGY-PETROGRAPHY

Continuation of Box 123. Light-gray, holocrystalline, fine-to medium grained diabase, rare plagioclase phenocrysts 7 mm-5 mm.

STRUCTURE

Isotropic

VESICLES/AMYGDALES

Vesicles; rare, > 1% of Section 1, Box 124.

722.20 vein - irregular, 7 mm, filled with white zeolite

722.40 vein - irregular, 1.5 cm, filled with white zeolite

722.70 vein - irregular, 1 mm-5 mm vesicles filled with zeolite (white) and rimmed by green smectite. Some pyrite.

FRACTURES - VEINS - BRECCIA

Fracture and vein system, fractures irregular, 2 mm - > 1 mm wide, pyritized, white (?) zeolite, green smectite - 721.40

722.80 Irregular and planar fractures filled with green smectite and white zeolites.

ROCK ALTERATION

Pyrite disseminated throughout, green smectite in groundmass.

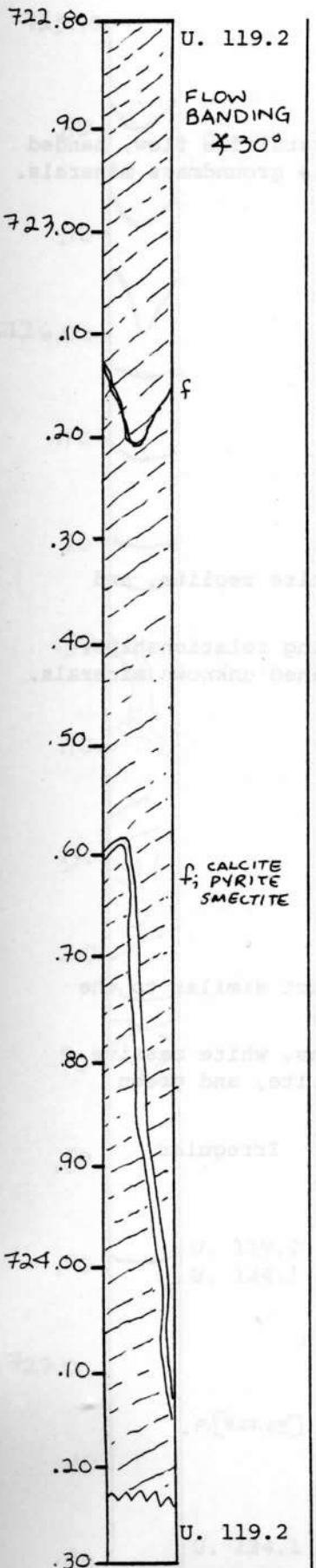
ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer JM

Depth Interval 7228.0 cm to 7242.3 cm

Box 124, Section 2

Graphic Representation | Sample



LITHOLOGY-PETROGRAPHY

Transition in structure from massive to banded. Light gray, holocrystalline, fine grained, aphyric, with banding defined by variation in coloration and grain size.

STRUCTURE

Banding. Core angle fracture = 30°.

Banding approaches horizontal with depth.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

723.65 Fractures filled with white fine-grain mineral, calcite, pyrite, and green smectite.

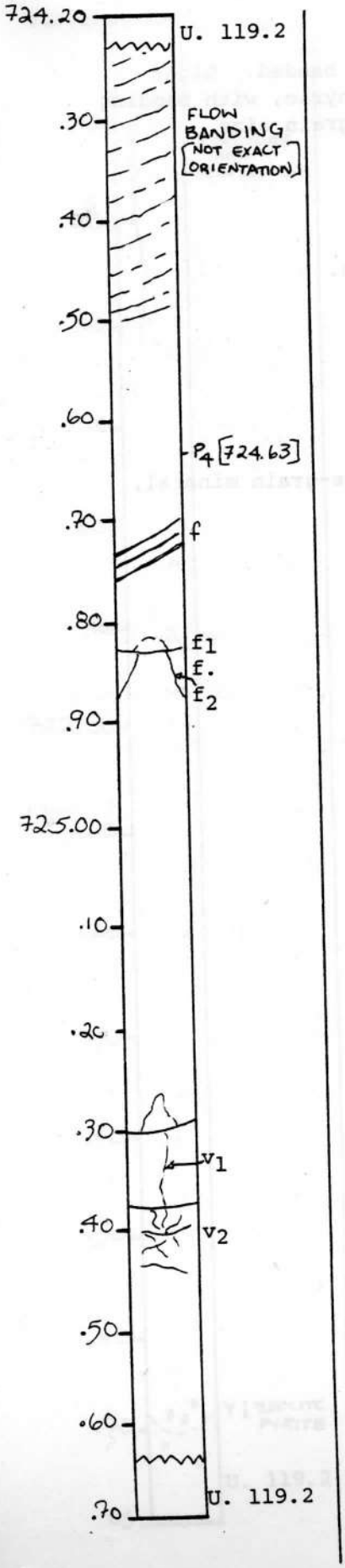
ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer ....J.M.....

Depth Interval 72423 cm to 72564 cm

Box 124, Section 3

Graphic Representation Sample



LITHOLOGY-PETROGRAPHY

Continuation of Section 2.

Light gray, fine-grained, aphyric, holocrystalline flow, banded diabase, micro phenocryst, decreasing white groundmass minerals.

Decreasing grain size.

STRUCTURES

Banding

VESICLES/AMYGDALES

None observed.

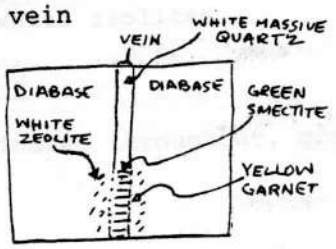
FRACTURES - VEINS - BRECCIA

724.20 Irregular

724.70 Fractures, planer, filled with white zeolite, and green smectite.

724.85 f. fracture set shows cross-cutting relationships, both fractures filled with white fine-grained unknown minerals. f_1 cross-cuts f_2.

725.30-725.38 vein



Note this garnet rich vein is near a contact similar to the other garnet rich veins.

Vein shows cross-cutting relation, contains, white massive quartz, abundant yellow garnet, white zeolite, and green smectite.

725.40 v_2 green smectite, filled veins. Irregular hairline.

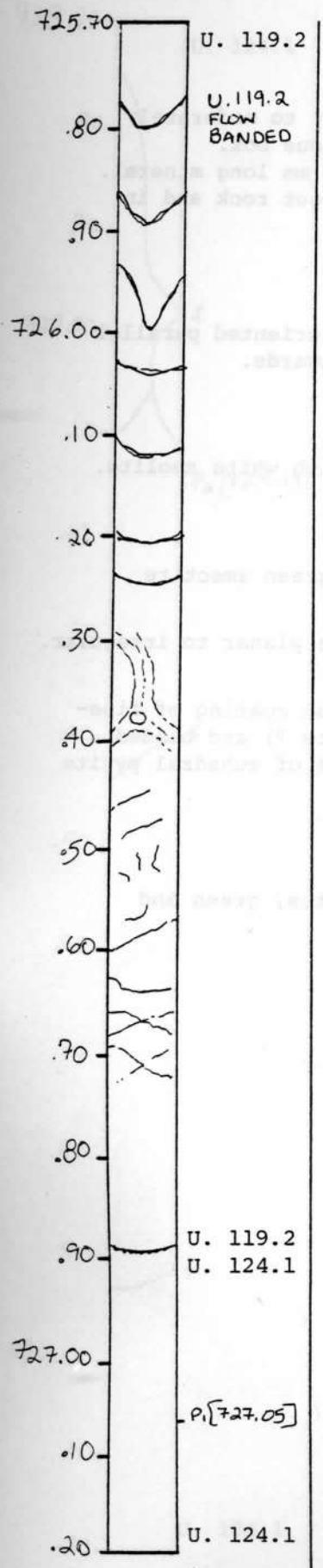
ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

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

Depth Interval 7256 4 cm to 7272 1 cm

Box 124, Section 4

Graphic Representation Sample

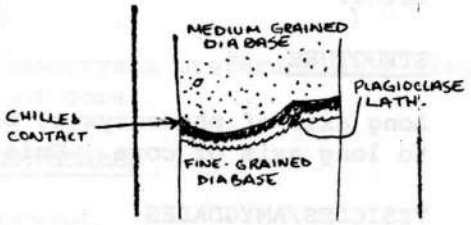


LITHOLOGY-PETROGRAPHY

Continuation.

725.72 - 726.88 Fine-medium grained aphyric, diabase, light-gray color, microphenocryst.

726.88 Contact.



Contact is planer and shows chilling in unit 124.1, with flow banding of unit 119.2 being truncated at contacts. Contact dipping 30° from horizontal.

U. 124.1 Very fine-grained diabase with 1% plagioclase phenocryst, 31 nm in size, gray colored.

STRUCTURE

725.70 - 726.88 (U.119.2) Banded

726.88 - 727.10 Massive

VESICLES/AMYGDALES

725.80 - 726.88 None

726.90 Vesicles. Irregular shaped, 4 mm-1 mm in size, 1% of rock filled with white zeolites and minor amount of green smectite.

FRACTURES - VEINS - BRECCIA

725.80 Numberous viens and fractures filled with green smectite and white zeolite (laumontite). Angle from horizontal varies from high angle to 40° from horizontal. White zeolites filled veins are planer, green smectite filled veins.

Irregular. Garnet might be present in some veins.

Minor pyrite in veins.

ROCK ALTERATION

725.90 Minor amounts of pyrite disseminated throughout rock.

726.90 Minor amounts of pyrite disseminated throughout the rock.

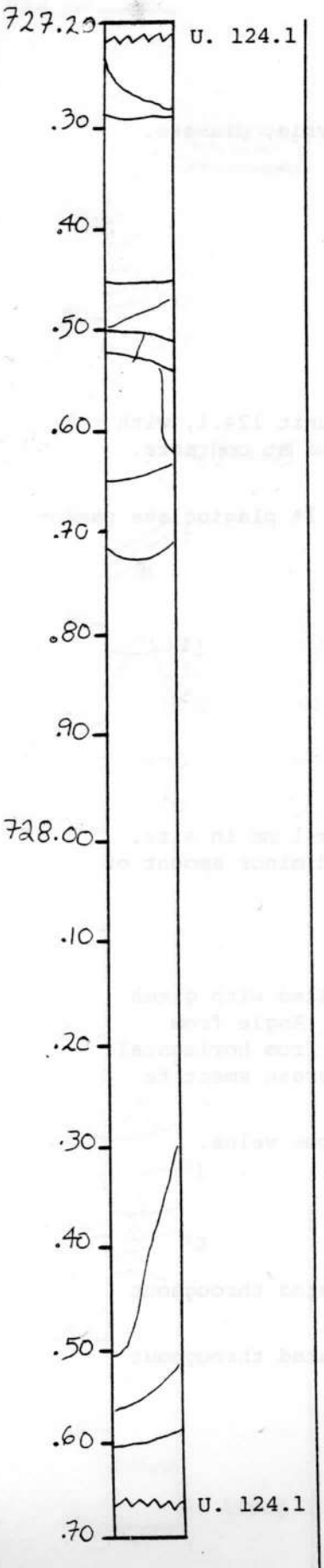
ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer NG

Depth Interval 7272 1 cm to 7286 cm

Box 125, Section 1

Graphic Representation Sample



LITHOLOGY-PETROGRAPHY

Gray-green fine to medium-grained sparsely to moderately phyric basalt. Unit continued from previous box. Phenocrysts - plagioclase plus mafic, 3-4 mm long mineral. Pyrite < 1% of rock, disseminated throughout rock and in veins.

STRUCTURE

Long axis of phenocrysts, preferentially oriented parallel to long axis of core. Unit coarsens downwards.

VESICLES/AMYGDALES

Rare to absent. < 1 mm usually filled with white zeolite.

FRACTURES - VEINS - BRECCIA

Filled primarily with white zeolite and green smectite and minor amounts of calcite.

Rock not highly fractured. Fractures are planar to irregular. Unbroken fractures are ∿ 1 mm wide.

728.20 Vein at 728.20 contains a speckled coating of fine-grained white mineral (quartz plus zeolite ?) and bladed radiating white zeolite, topped with ∿ 2% of euhedral pyrite crystals ∿ 1 mm in size.

ROCK ALTERATION

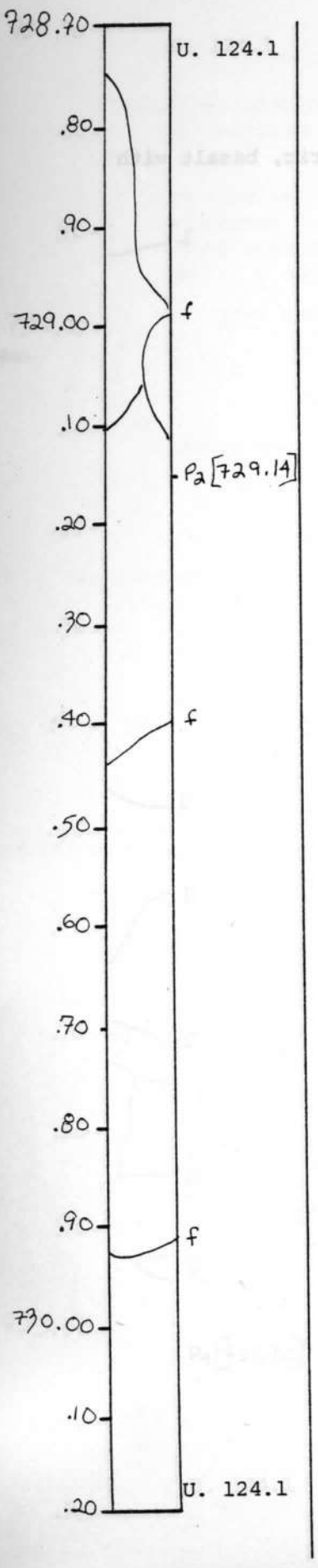
Pyrite may be alteration product. Zeolites, green and black smectite.

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer NG

Depth Interval 7286 cm to 7302 4 cm

Box 125, Section 2



LITHOLOGY-PETROGRAPHY

Continuation of above unit.

Gray-green, medium grained, slightly phyric diabasic basalt.

Phenocrysts up to 4 mm of feldspar and mafic mineral.

STRUCTURE

729.00 Phenocrysts preferentially aligned parallel to long axis of core.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

Rock not highly fractured--similar to above. Fractures zoned with green smectite on edge; above smectite is white granular, fine grained zeolite?, with minor amounts of calcite. On top of this is euhedral cubes (∿ 1 mm) of pyrite and/or platy radiating bladed of glossy zeolites.

ROCK ALTERATION

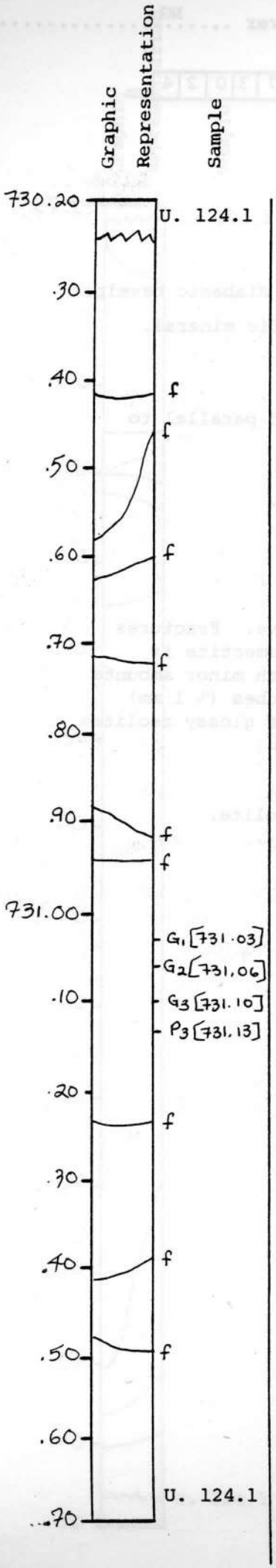
Calcite, chlorite? or green smectite? Zeolite.

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer NG

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

Box 125, Section 3.



LITHOLOGY-PETROGRAPHY

Same as above.

Gray-green, medium grained, sparsely phyric, basalt with phenocrysts of plagioclase and mafics.

VESICLES/AMYGDALES

Rare

FRACTURES - VEINS - BRECCIA

Rock not highly fractured.

Core angle fracture variable

Filling same as above.

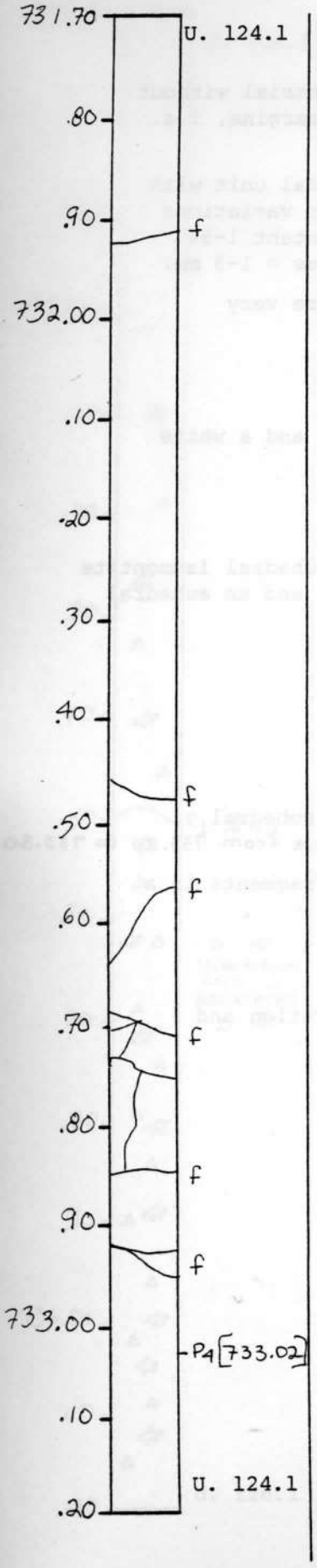
ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer ...NG.....

Depth Interval 7317 0 cm to 7332 0 cm

Box 125, Section 4

Graphic Representation Sample



LITHOLOGY-PETROGRAPHY

Medium grained, green-gray, sparsely phyric, diabasic basalt.

Green mass fines downward.

733.15 At 733.15, the rock is very fine grained and there is an inclusion of green porphyritic basalt, surrounded by chilled margin. Inclusion is slightly rounded, ∿ 2 x 2 cm.

STRUCTURE

Moderately well-developed, preferential alignment and plagioclase phenocrysts parallel to long axis of core.

FRACTURES - VEINS - BRECCIA

Fractures similar to above. Generally planar but fracture at 732.80 has steplike structure.

732.66 Calcite abundant in fracture.

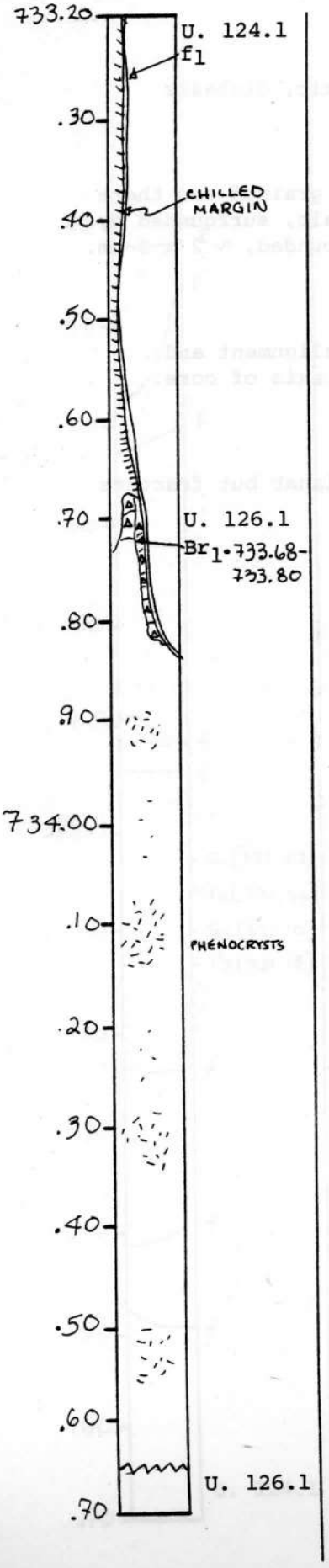
ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer ...JR, JRD.....

Depth Interval 7332 0 cm to 7346 5 cm

Box 126, Section 1

Graphic Representation Sample



LITHOLOGY-PETROGRAPHY

733.20 - 733.70 Fine grained, aphyric material without vesicles or flow structures with chilled margins, i.e. intrusive.

733.70 - 734.70 Finely grained amygdaloidal unit with irregular flow structures and great colour variations from light gray to blue gray. Vesicle content 1-5% but erratic distribution. Size of vesicles ≈ 1-3 mm.

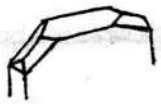
Plagioclase phenocryst of ∿ 1-2 mm size are very sparsely distributed throughout the rock.

VESICLES/AMYGDALES

733.80 Vesicles - contain green smectite and a white massy material.

FRACTURES - VEINS - BRECCIA

733.20 f_1 Fracture filling containing euhedral laumontite crystals and 10-20 mm crystals of calcite and an euhedral unknown crystal.



733.40 Chilled margin with small < 1 mm euhedral laumontite and some calcite. Follows fracture from 733.20 to 733.80.

733.68 - 733.80 Br_1 Greenish breccia fragments in a matrix of laumontite.

ROCK ALTERATION

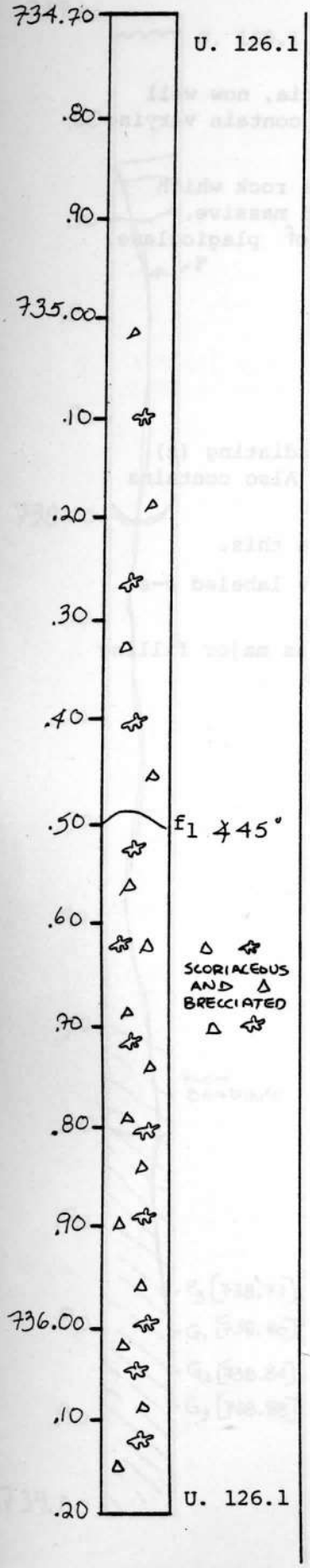
733.70 Pervasive greenish smectite-alteration and disseminated minerals of pyrite.

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer ...JH, JRD.....

Depth Interval 7346 5 cm to 7352 0 cm

Box 126, Section 2



LITHOLOGY-PETROGRAPHY

Similar to Section 1, but grades into brecciated scoracious material of the same texture.

735.70 Several larger fragments in breccia, which show a to previous rock types.

STRUCTURE

735.50 f_1 Core angle fracture = 45°.

VESICLES/AMYGDALES

Same as in previous section.

FRACTURES - VEINS - BRECCIA

735.50 f_1 Coating of glassy radiating mineral (zeolite?) and grayish green smectite alteration.

ROCK ALTERATION

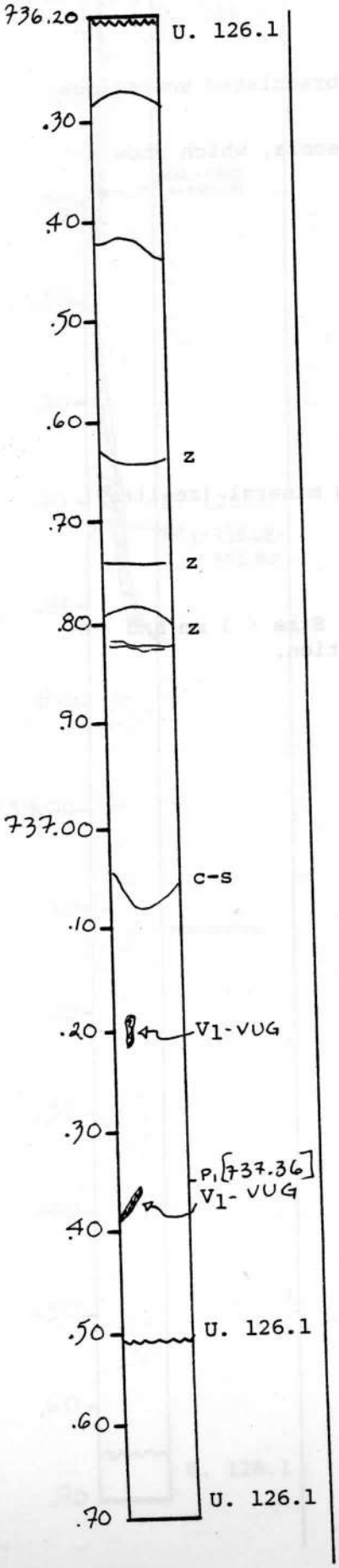
Disseminated anhedral pyrite. Size < 1 mm and pervasive grayish-green, smectite alteration.

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer .....

Depth Interval 7362 0 cm to 7375 2 cm

Box 126, Section 3



LITHOLOGY-PETROGRAPHY

Continue part of scoriaceous flow top breccia, now well indurated with variety of fragments which contain varying amounts of phenocrysts and vesicles.

736.85 Gradational change to more massive rock which is sparingly porphyritic non-vesicular and massive. Phenocrysts are mostly micro-phenocrysts of plagioclase.

VESICLES/AMYGDALES

Variable depending on fragments.

FRACTURES - VEINS - BRECCIA

Fractures vary but many contain unknown radiating (z) zeolite with abundant chlorite/smectite. Also contains sulfide which may be chalcopyrite.

Most of the fractures marked z are such as this.

Not all fractures contain zeolites--smears labeled c-s for chloritic/smectite.

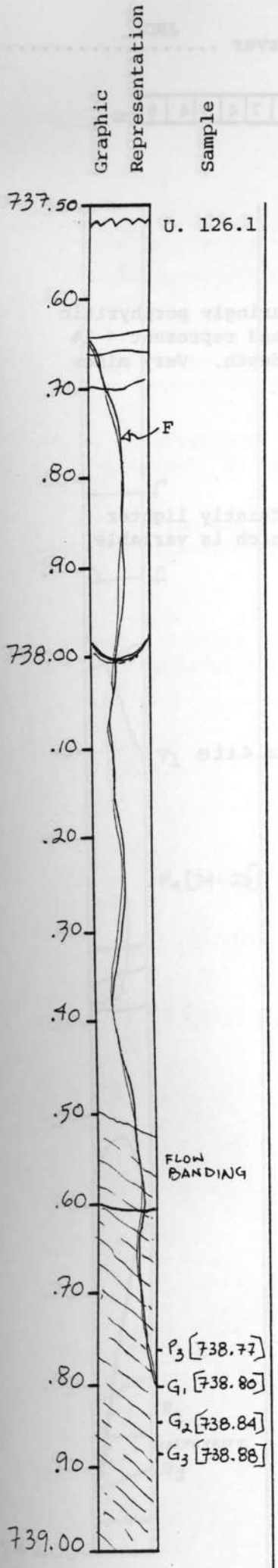
V_1 - Vug filling with quartz as major filling material.

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer .....

Depth Interval 7375 2 cm to 7390 6 cm

Box 126, Section 4.



LITHOLOGY-PETROGRAPHY

Massive fine-grained, light greenish-gray, aphyric basalt. Gradually changes to flow banded unit - see below.

738.55 Well-defined primary banding defined by discontinuous 1 mm wide light gray zones in the rock which is dominantly dark greenish-gray. Genesis unclear but very commonly found in Walker's "tholeiites".

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

737.75 F Fracture runs almost the entire length of this section coated with chlorite and pyrite.

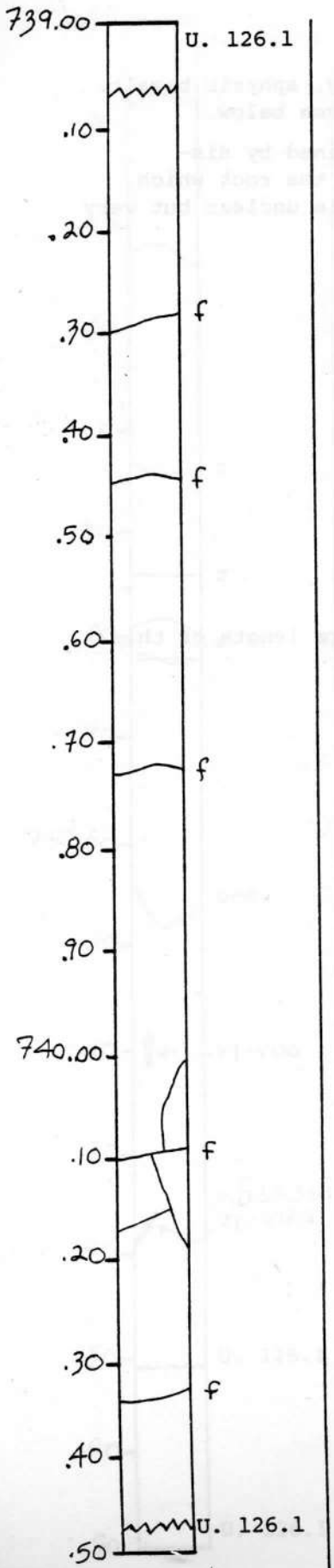
ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer JRD

Depth Interval 7 3 9 0 6 cm to 7 4 0 4 8 cm

Box 127, Section 1

Graphic Representation Sample



LITHOLOGY-PETROGRAPHY

Continued.

Light-gray, fine-grained, flow banded sparingly porphyritic basalt. Plagioclase phenocrysts $\leq$ 1 mm and represent < 1% by volume and proportion decreases with depth. Very minor disseminated pyrite.

739.50 Disseminated pyrite.

STRUCTURE

"Flow banding" defined by 1 mm bands of faintly lighter material. Flow banding has core angle which is variable from $\sim$ 40° to 25°.

FRACTURES - VEINS - BRECCIA

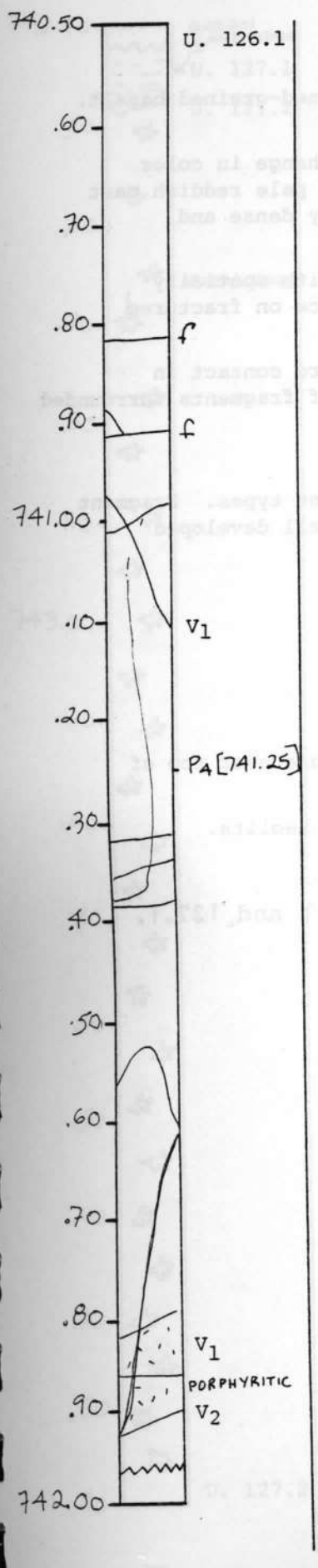
Fractures are coated with chlorite and calcite but little else.

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer ....JRD.....

Depth Interval 7404.8 cm to 7419.6 cm

Box 127, Section 2



LITHOLOGY-PETROGRAPHY

Light greenish gray, homogeneous, massive porphyritic basalt. Phenocrysts ∿ 1-2% - pyroxene with minor plagioclase. Disseminated pyrite spaced irregularly throughout rock.

741.60 Pyroxene and pyrite increase in rock and in veinlets.

741.80 Porphyritic character increases notably to ∿ 5% pyroxene phenocrysts up to .3 cm long--plagioclase crystals also increase.

FRACTURES - VEINS - BRECCIA

740.65 Pyrite fracture facies

741.00 Most fractures have very low core angle.

741.10 V_1 Chlorite bearing veinlet contains lense-like clots of chlorite in the plane of the vein.

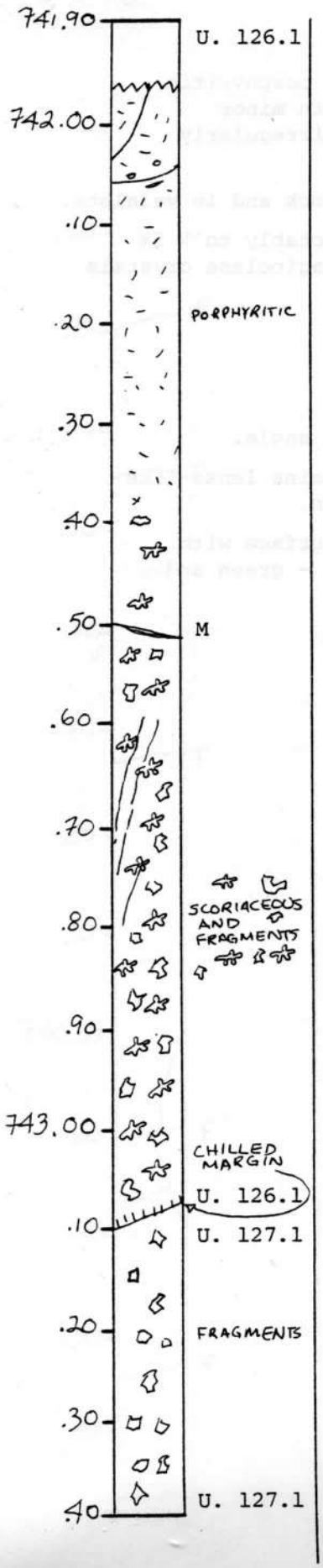
741.85 V_2 Abundant pyrite on fracture surface with unknown clear radiating zeolite, chlorite - green and black smectite.

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer ...JRD.....

Depth Interval 741961 cm to 742242 cm

Box 127, Section 3



LITHOLOGY-PETROGRAPHY

Light greenish-gray, pyroxene phyric, fined-grained basalt. Minor amygdales and filled with zeolite.

742.40 Begin scoriaceous flow bottom. Change in color from massive, light and greenish gray to pale reddish cast of scoria--this portion of scoria is very dense and fragments are well indurated.

742.50 M - Mineral--possibly olivine? with spatially associated pyrite and calcite? Occurrence on fractured surface.

Proportion of plagioclase increases toward contact in mixture of scoriaceous fragments. Some of fragments surrounded by pale pink material.

743.10 Minor chilling of flow bottom.

Sedimentary unit--wide variety of fragment types. Fragment size up to 5 cm, somewhat rounded with well developed laminae of varying grain size.

VESICLES/AMYGDALES

Amygdales with zeolite?

FRACTURES - VEINS - BRECCIA

742.40 Calcite mass filling irregular zone near top of underlying scoria.

Many discontinuous fractures filled with zeolite.

STRUCTURE

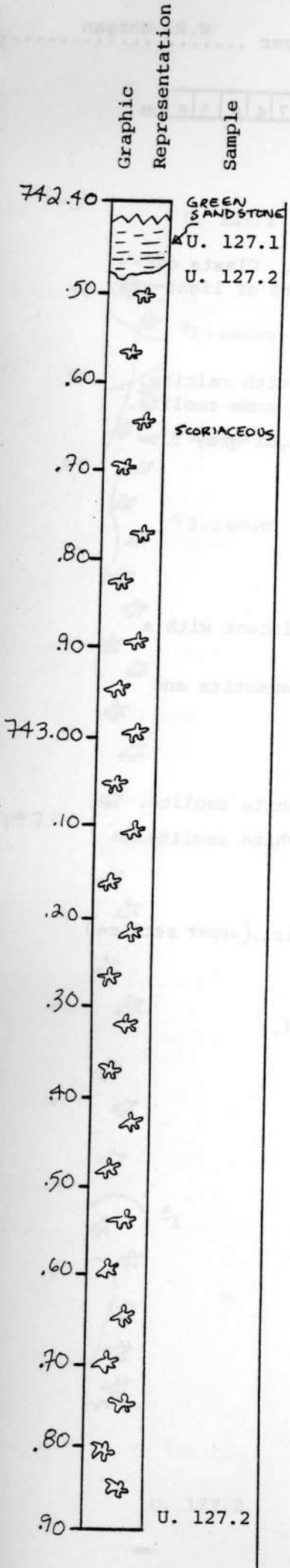
Chilled contact between units 126.1 and 127.1.

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer ...JRD.....

Depth Interval 7424.2 cm to 7439.0 cm

Box 127, Section 4



LITHOLOGY-PETROGRAPHY

U. 127.1 Thin layer of green sandstone in depositional contact with underlying unit.

U. 127.2 Flow top scoria--many mixed fragments of greenish reddish irregular form. Many are vesicular and porphyritic, interstices between fragments in upper portion of scoria top filled with green of overlying material. Rock is well indurated though porous as it absorbs water rapidly. This character continues to bottom of this box.

STRUCTURE

None observed.

VESICLES/AMYGDALES

Zeolite filling of open space with chlorite/smectite closely associated.

FRACTURES - VEINS - BRECCIA

None observed.

ROCK ALTERATION

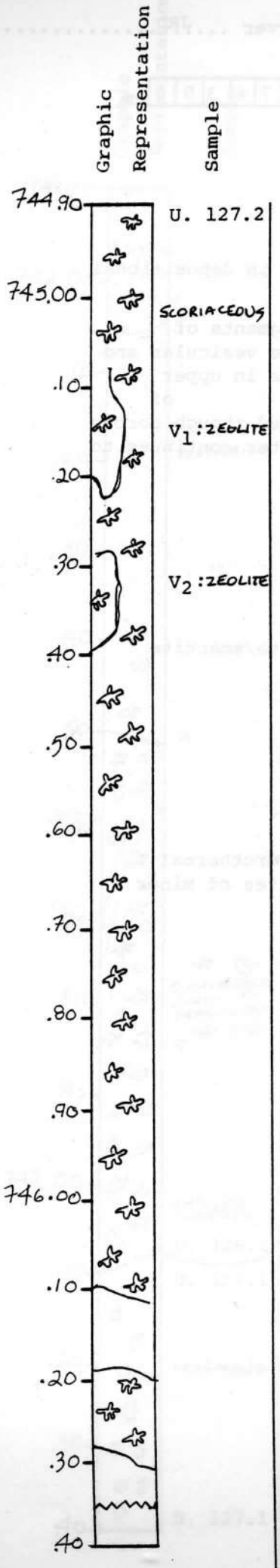
Rock alteration is oxidation and later hydrothermal deposition of chlorite/smectite and zeolites of minor calcite.

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer W.R. Morgan

Depth Interval 7449 0 cm to 7463 6 cm

Box 128, Section 1



LITHOLOGY-PETROGRAPHY

Heterogeneous scoriaceous basalt flow top. Clasts of variable size, average 2-5 cm. Some clasts of light-gray amygdale basalt. Some with no vesicles.

Reddish oxidation stains present.

Open spaces in some areas zeolite filled with calcite. Minor amounts of pyrite found surrounding some zeolite.

746.10-746.18 Portion of more massive light-gray flow basalt.

746.20-746.34 Scoria.

746.35 Flow basalt.

VESICLES/AMYGDALES

745.10 Vesicles of white zeolite, translucent with a radiating habit.

Pyrite found surrounding some including smectite and chlorite.

FRACTURES - VEINS - BRECCIA

745.10 - 745.20 V_1 Hairline veins of white zeolite.

745.28 - 745.38 V_2 Hairline veins of white zeolite.

ROCK ALTERATION

Some clasts weathered to a clayey material.(upper section)

OTHER

745.23 Pitted due to outwash from drill.

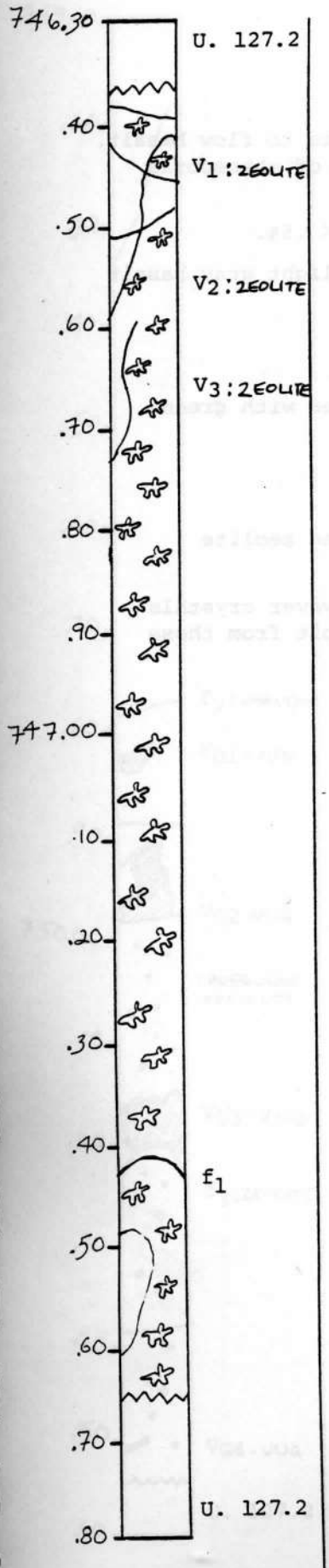
ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer WR Morgan

Depth Interval 7463 cm to 7476 5 cm

Box 128, Section 2

Graphic Representation Sample



LITHOLOGY-PETROGRAPHY

746.35 Continuation of flow material.

746.40 Scoria.

746.50 Flow material.

746.55 Continuation of scoriaceous flow from previous section. Scoria more chaotic in area around discontinuity.

747.50 Flow basalt.

VESICLES/AMYGDALES

746.40 - 746.70 Vesciles described as laumontite.

FRACTURES - VEINS - BRECCIA

746.40 - 746.70 V_1, V_2, V_3 - hairline veins terminating in open spaces now occupied by zeolites.

747.43 f_1 Fracture filled with quartz.

ROCK ALTERATION

Some clasts weathered to a clayey material.

OTHER

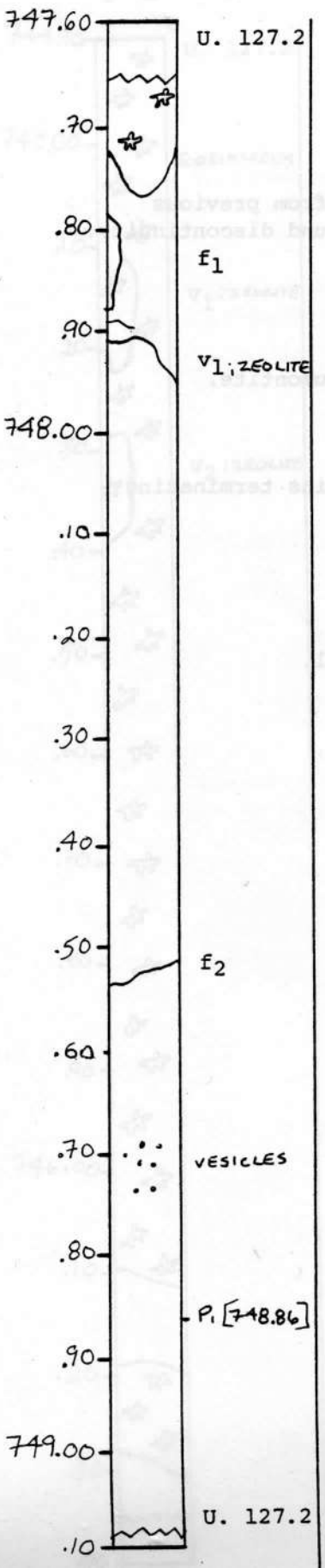
Pitted due to outwash from drill.

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer WR Morgan

Depth Interval 7476.5 cm to 7490.9 cm

Box 128, Section 3



LITHOLOGY-PETROGRAPHY

Scoria continued.

747.76 Very sharp demarkation from scoria to flow basalt. which is still brecciated but grades out of the scoria by 749.00 m.

Pyrite dispersed in very small amounts << .5%.

748.70 Flow basalt. Very fine-grained light gray basalt with few vesicles.

VESICLES/AMYGDALES

748.70 Very small vesicles < 1 mm, filled with green mineral.

FRACUTRES - VEINS - BRECCIA

f_1 Fracture contains 1. white, radiating zeolite 2. chlorite/smectite, 3. phyrite.

v_1 Vein contains radiating zeolite. However crystals are distinctly different in their habit from those previously described.

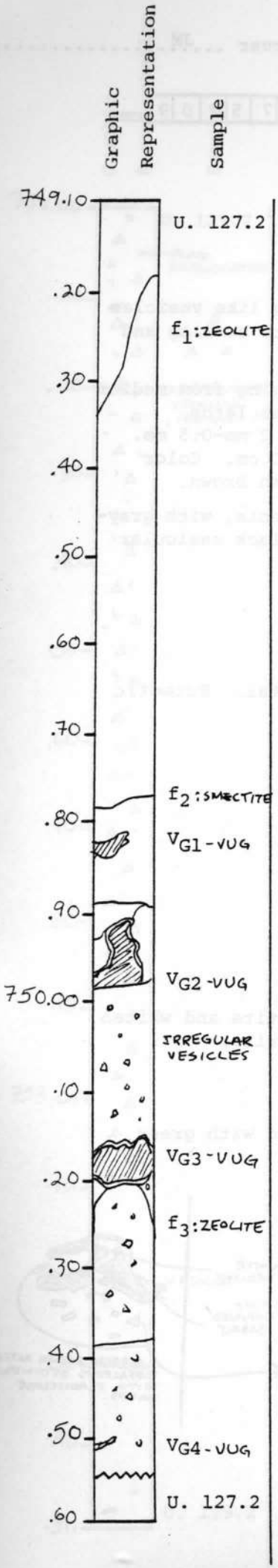
f_2 Same as f_1

ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer WR Morgan

Depth Interval 7490 cm to 7505 cm

Box 128, Section 4



LITHOLOGY-PETROGRAPHY

Flow continued from Section 3

749.90 - 750.00 Distinguishing change in grain size, fracture shows almost cherty texture.

750.00 Contains numerous hairline veins, filled with white material.

750.40 - 750.50 Red stains, possibly due to oxidation present.

VESICLES/AMYGDALES

V_{G1} - massive granular white mineral filling identical to unknown higher in hole.

vug has massive white mineral filling.

J.D. - using oil determined
1) possible laumandite - 2 good cleavages
- prismatic
2) possible quartz

V_{G2} - vug filled with white mineral. Surrounded by green smectite/chlorite, definently laumandite.

V_{G3} - very well developed laumandite crystals. Edge of vug rimmed with chlorite.

Below 750.00 Basalt contains regularly abundant, irregularly shaped vesicles, filled with dark green material (green smectite).

Vesicles grade out towards bottom (fewer).

V_{G4} - vug filled white hard zeolite - chlorite/smectite rim.

FRACTURES - VEINS - BRECCIA

f_1 - contains white zeolite showing prismatic form.

f_2 - contains smectite (black)

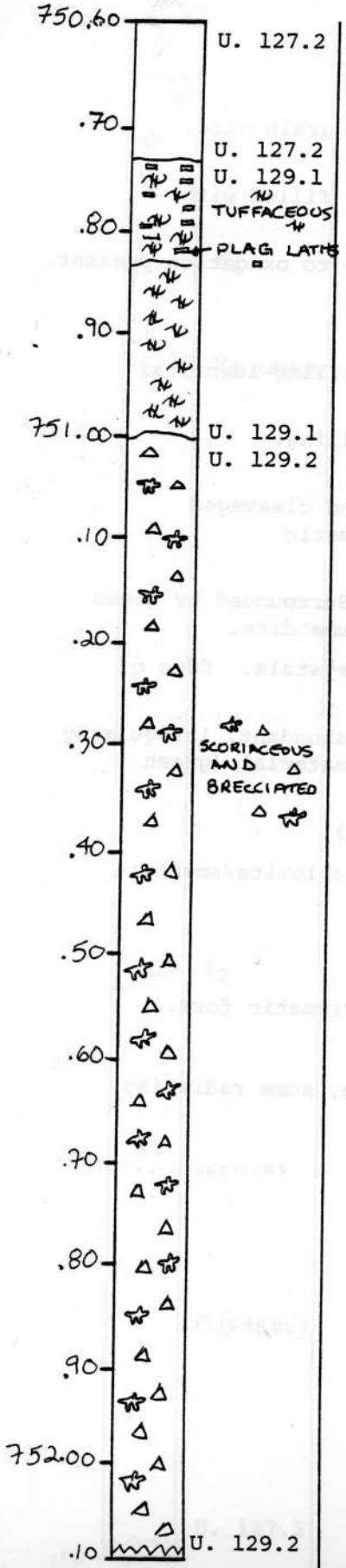
f_3 - coating of poorly defined zeolite, some radiating habits.

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

Depth Interval 7505 5 cm to 7520 9 cm

Box 129, Section 1

Graphic Representation Sample



LITHOLOGY-PETROGRAPHY

Continuation.
U.127.2
Light gray, fine-grained basalt, with vein like vesicles lined with chalcedony and filled with white zeolite and green smectite.

U. 129.1 Bedded tuffaceous sediment, ranging from medium to very coarse grained euhedral plagioclase, laths abundant in upper 10 cm, laths range from 2 mm-0.5 mm. Flattened (?) pumice fragments in upper 10 cm. Color variation range from bluish gray to reddish brown.

U. 129.2 Coarse scoriaceous flow top breccia, with gray-fine grained non-vesicular fragment and black vesicular breccias, groundmass reddish brown.

STRUCTURE

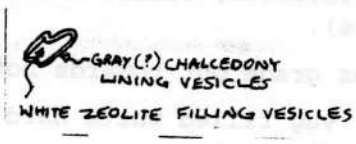
U. 127.2 Massive

U. 129.1 Bedding dips 5-10° from horizontal. Eutaxitic structure.

U. 129.2 Brecciated

VESICLES/AMYGDALES

U. 127.2



U. 129.1 None

U. 129.2 Vesicles filled with green smectite and white zeolites, white massive quartz and (?) pyrite.

FRACTURES - VEINS - BRECCIA

U. 127.2 Hairlike, fracture, rare, filled with green smectite and white zeolites.

U. 129.1 None

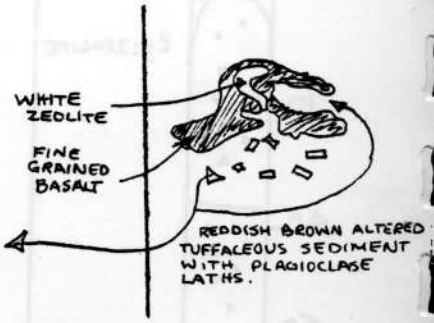
U. 129.2 Rare, hair like

ROCK ALTERATION

Contact between U. 127.2 and U. 129.1, irregular.

Groundmass altered to reddish brown clays.

Contact between U. 129.1 and 129.2, irregular.



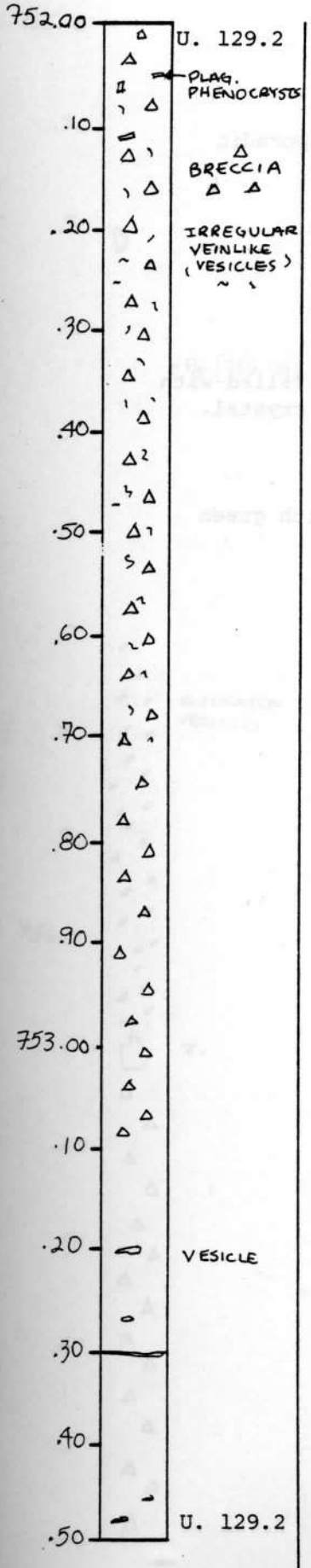
ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer JM

Depth Interval 752.00 cm to 755.54 cm

Box 129, Section 4

Graphic Representation Sample



LITHOLOGY-PETROLOGY

752.10 - 753.10 Coarse breccia, gray color, with elongated vesicles and irregular vesicles, with sporadic plagioclase phenocrysts.

753.10 - 753.60 Transition from brecciated to non-brecciated basalt.

Fine-medium-grained, sparsely phorphytic with sporadic plagioclase and pyroxene phenocrysts.

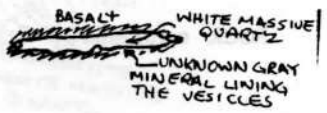
STRUCTURE

752.10 - 753.10 Breccia

VESICLES/AMYGDALES

Irregular vein-like vesicles, elongated vesicles, and rounded vesicles. Vesicles range in size from 2 cm- > 1 mm, vesicles filled with white zeolites, quartz and lined with green smectite.

753.20 v. vesicle



vesicles, range from 20 cm- > 1 mm, with vesicles filled with green smectite, white massive quartz, laumontite, and gray clear quartz.

FRACTURES - VEINS - BRECCIA

Fractures rare, hairline, not filled.

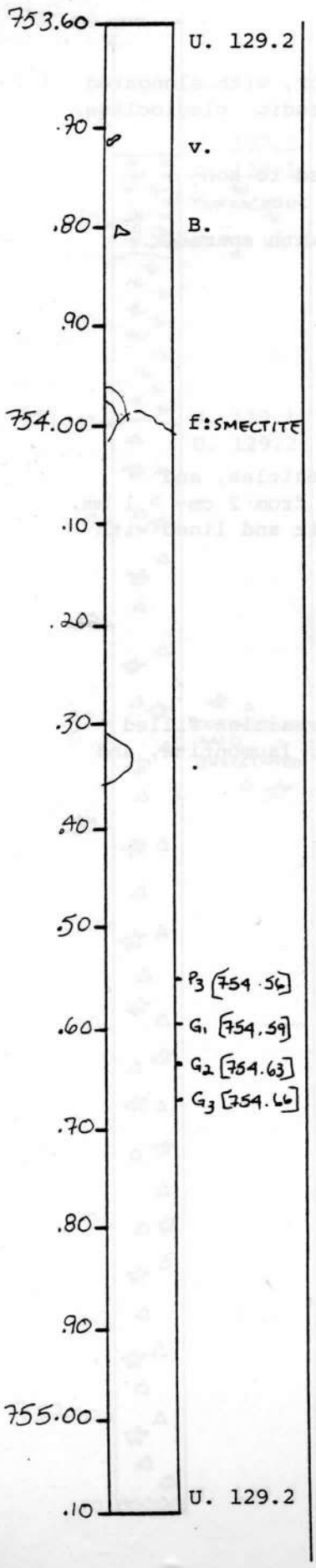
ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer JM

Depth Interval 753.54 cm to 755.10 cm

Box 129, Section 3

Graphic Representation | Sample



LITHOLOGY-PETROGRAPHY

753.80 B. Breccia fragment.
Very fine-grained light gray basalt with sporadic plagioclase phenocrysts, 5 mm long.

STRUCTURE

Massive

VESICLES/AMYGDALES

753.72 v. 25 cm long, elongated vesicle filled with white massive quartz, and euhedral quartz crystal.

FRACTURES - VEINS - BRECCIA

754.00 f. fractures, irregular filled with green smectite and white unknown mineral.

ROCK ALTERATION

Rock extremely fresh.

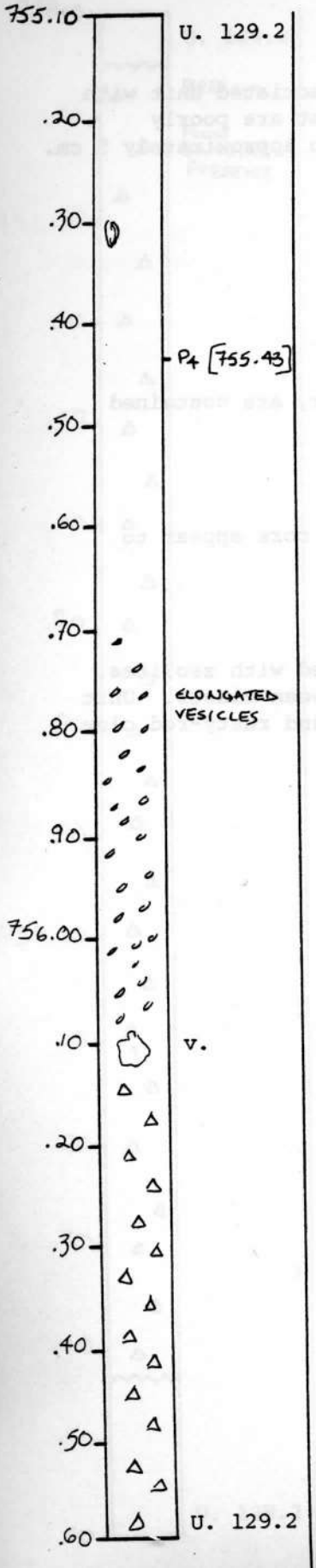
ICELAND RESEARCH DRILLING PROJECT - REYDARFJORDUR 1978

Visual Core Description Observer JM .....

Depth Interval 7551 0 cm to 7566 0 cm

Box 129, Section 4

Graphic Representation | Sample



LITHOLOGY-PETROGRAPHY

755.10 - 755.70 Very fine-grained, holocrystalline, with sporadic phenocryst of plagioclase 7 mm- 1 mm.

755.70 Transition to amygdale basalt, with very fine-grained ground mass, with vesicles increasing in quantity downward.

756.10 Transition to breccia, with angular fragments in basaltic groundmass and surrounded by secondary zeolites.

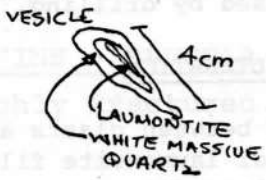
STRUCTURE

755.10 - 755.70 Faint flow banding.

755.70 Elongated vesicles and amygdales dipping 30° from horizontal.

756.10 Brecciated.

VESICLES/AMYGDALES



755.70 Vesicles and amygdales elongated, ranging in size from 7 cm--less than 1 mm, filled with quartz, white laumontite and green smectite.

756.10 7 cm wide laumontite filled cavity, irregular in shape.

FRACTURES - VEINS - BRECCIA

755.10 - 755.80 Fractures and veinlets rare, but present, hairline filled with white zeolites and green smectite.

755.80 - 756.60 Irregular fresh fractures.

ROCK ALTERATION

755.10 - 755.80 Rock fresh. Pyrite absent.

755.80 - 756.60 Swelling clays causing fracturing.

Green smectite in groundmass.