

ICELAND RESEARCH DRILLING PROJECT
REYDARFJORDUR 1978

DETAILED CORE LOG
VOLUME II

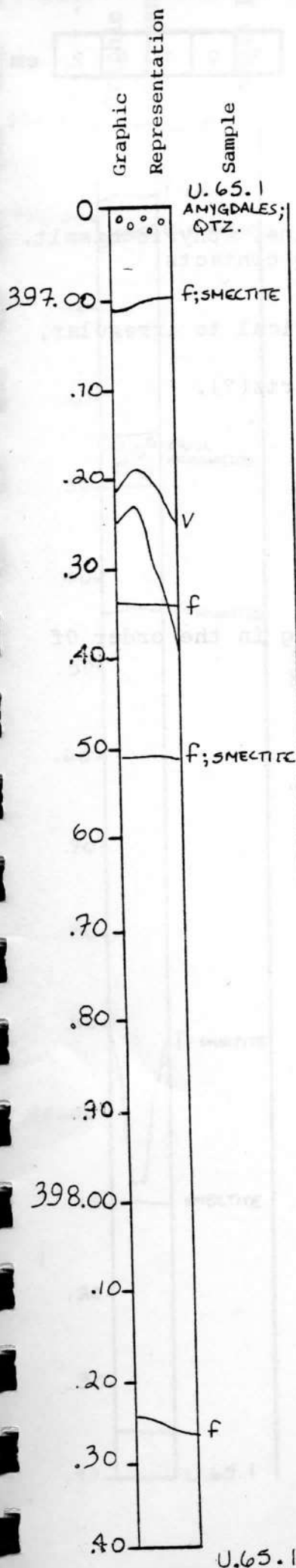
Compiled and Edited by
the scientific staff at the Reydarfjordur Drill Site
and by the technical and secretarial staff of the
Department of Geology, Dalhousie University

Visual Core Description

Observer .CP...+...PTR.....

Depth Interval 39689 cm to 39846 cm

B0x 67, Section 1



LITHOLOGY PETROGRAPHY

Grey-green aphyric, fine-grained, equigranular basalt. Grain size uniform throughout. No contacts.

VESICLES/AMYGDALES

396.89 Partially filled amygdales- quartz in upper 5cm. Elsewhere vesicles less than 1%, 1mm. or less, irregular, filled with smectite.

FRACTURES - VEINS - BRECCIA

397.20 Veinlets of white zeolite[?] with smectite alteration less than 1mm. wide.

397.55 Very fine veinlets.

ROCK ALTERATION

None observed.

STRUCTURE

Aphyric, fine grained, equigranular, massive basalt. with flow banding dipping at approximately 30°.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer CP & PTR

Depth Interval

3 9 8 4 6

cm to

3 9 9 9 2

cm

Box67, Section 2

LITHOLOGY PETROGRAPHY

Continues unit 65.1

Grey-green, fine-grained, holocrystalline, aphyric basalt, Grain size uniform through section. No contacts.

VESICLES/AMYGDALES

398.46 About 1%, 2mm or less, subspherical to irregular, filled with quartz and smectite.

399.00 Sparse vesicles filled with quartz(?).

FRACTURES - VEINS - BRECCIA

398.46 Fractures

399.45 Smectite veinlets.

ROCK ALTERATION

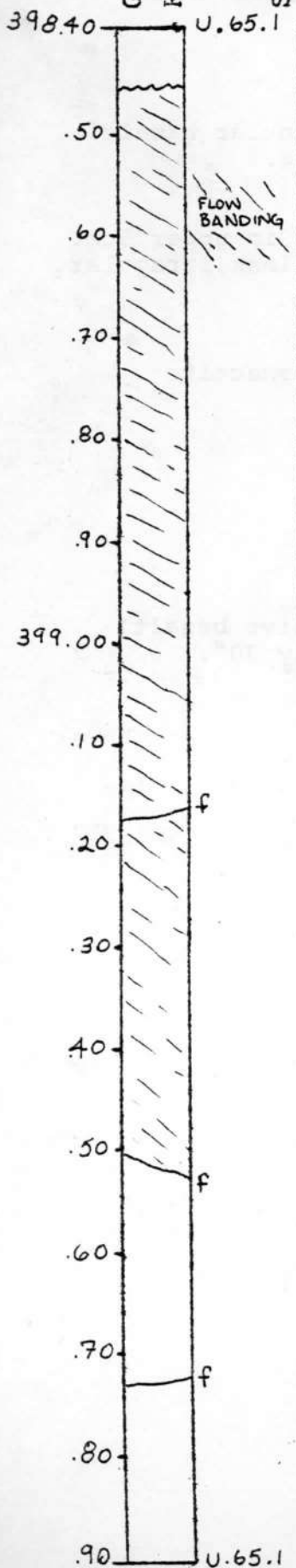
None observed.

STRUCTURE

Flow banding to a depth of 399.55, dipping in the order of 30°.

Graphic Representation

Sample Location



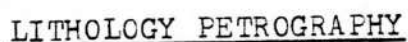
Observer CP & PTR

3	9	9	9	2
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cm to

4	0	1	3	5
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Box 67, Section 3



Continues unit 65.1

Greenish-grey, fine-grained, holocrystalline, aphyric basalt. Grain size uniform through section.

VESICLES / AMYGDALES

VESICLES/AMIGDALES
399.92 Less than 1%, 1-2mm, irregular, filled with
smectite.

FRACTURES - VEINS - BRECCIA

FRACTURES - VEINS - BRECCIA
399.92 Fractures sparse, mostly less than 10° , one at 30° and one at $60-70^\circ$. Lined with smectite.

400.00 Smectite veins.

400.30 White veinlet almost vertical.

401.00 White veinlet.

ROCK ALTERATION

None observed.

STRUCTURE

Massive.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer PTR

Depth Interval
Box 67, Section 4

4 0 1 3 5

cm to

4 0 2 6 0

cm

LITHOLOGY PETROGRAPHY Continues unit 65.1

Grey to greenish-grey, fine-grained, holocrystalline, aphyric basalt. Grain size decreases downward to about 402.15m, upper part of section is greenish becoming greyer downward in section.

402.18 Reddish-grey, scoriaceous breccia fragments 1-10cm, subrounded to subangular; vesicles filled with calcite and calcite replaces some matrix material. Some matrix consists of red, fine-grained sediment.

402.52 Red, non layered, fine-grained siltstone. Top of major sedimentary ? layer in core 69.

402.60 Core barrel lost.

VESICLES/AMYGDALES

401.35 About 1%, 1-2mm, irregular, filled with smectite, a few quartz-filled amygdales at about 401.70.

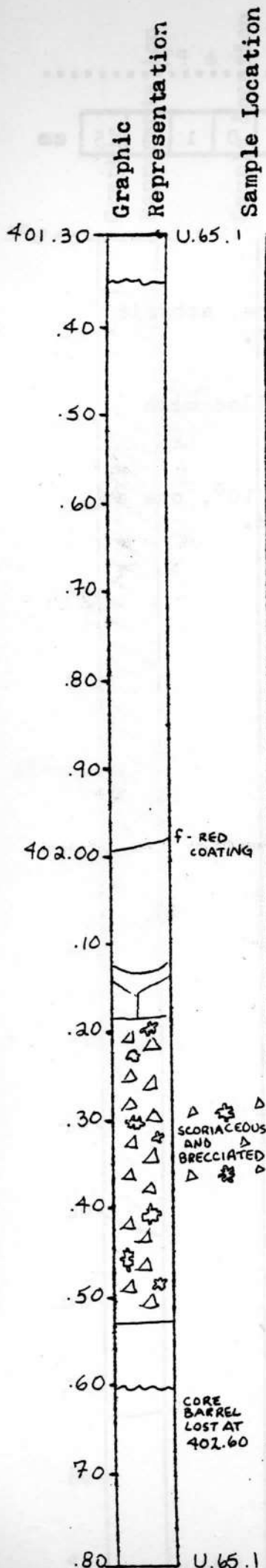
402.18 Vesicles in clasts and groundmass of breccia has calcite.

FRACTURES - VEINS - BRECCIA.

401.50 Quartz filled veins, iron staining.

ROCK ALTERATION None observed.

STRUCTURE Massive.



ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer PTR

Depth Interval

3 9 6 8 1

cm to

3 9 8 2 7

cm

Box 68, Section 1

LITHOLOGY PETROGRAPHY

NOTE: after core barrel was lost at 402.60m, a wedge was placed in the hole and the same interval represented by Box 67 was redrilled. Hence, Box 68 is a repetition of Box 67. Continues unit 65.]

Grain size uniform through section. No contacts. Fine-grained, grey-green to grey, holocrystalline, aphyric basalt.

VESICLES/AMYGDALES

396.81 About 1%, 1-2mm, irregular to spherical, filled with smectite.

FRACTURES - VEINS - BRECCIA

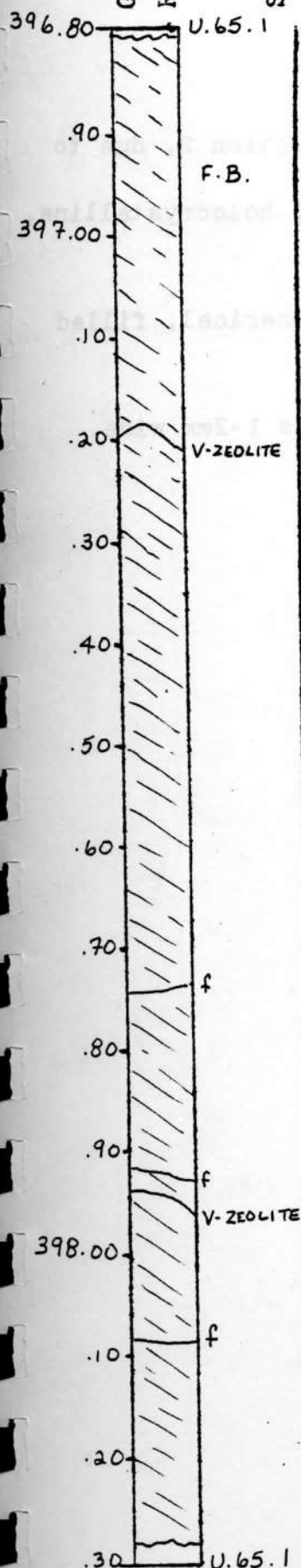
396.81 Fractures are all artificial breaks. Hairline veinlets of zeolite dip 40-70°.

ROCK ALTERATION

None observed.

STRUCTURE

Flow banding ,dip 30°.



Observer PTR

Depth Interval

3	9	8	2	7
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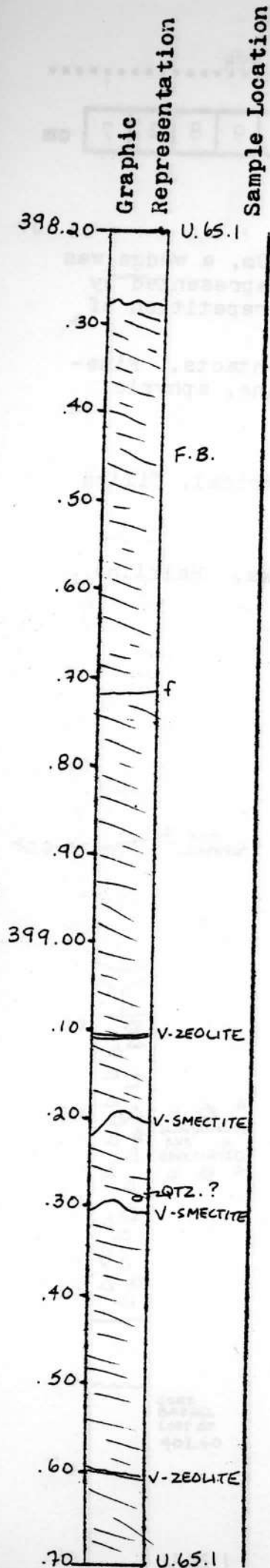
 cm to

3	9	9	7	2
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 cm

398.20 — U. 65.1

Weak flow banding, dip 20° .



ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer ... PTR

Depth Interval

3 9 9 7 2

cm to

4 0 1 1 6

cm

Box 68, Section 3

LITHOLOGY PETROGRAPHY

Continues unit 65.1

This section is a duplicate of Box 67, section 3, due to wedging and re-drilling.

Greenish-grey to grey, fine-grained, holocrystalline, aphyric basalt. Rock is greenish-grey in upper.

VESICLES/AMYGDALES

About 1%, 1-2mm, spherical to irregular, filled with smectite.

FRACTURES - VEINS - BRECCIA

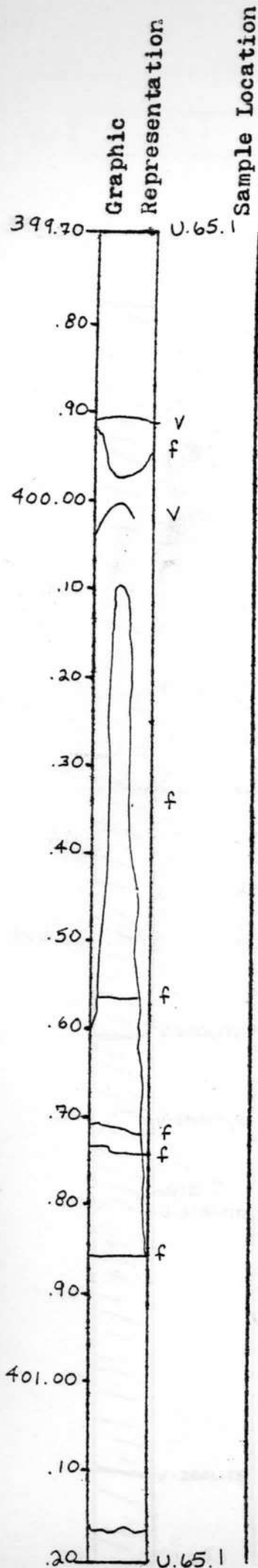
Fractures are mostly breaks along smectite coated surfaces. They range from about 20° to 85° dip.

ROCK ALTERATION

None observed.

STRUCTURE

Massive.



ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer ... PTR

Depth Interval

4 0 1 1 6

cm to

4 0 2 6 0

cm

Box 68, Section 4

LITHOLOGY PETROGRAPHY

Continues unit 65.1

Light grey, fine-grained, holocrystalline, aphyric basalt. Slightly greenish in upper 5cm, grey to 402.00 and reddish grey in brecciated zone.

401.40 This section is a repetition of Box 67, section 4, due to wedging and re-drilling.

402.00 Slightly scoriaceous breccia. Fragments of basalt 2-10cm, somewhat rounded, in matrix of red, fine-grained sediment. Calcite also occurs in irregular patches in groundmass. Interpreted as basal flow breccia. Reddish-grey in colour.

402.23 Unit 68.1

Red sandstone and siltstone, moderately well-bedded, well indurated. In lower part layers of sandstone and grit alternate with minor siltstone. This is unit 67.1 because it first appears in Box 67. This section is a repetition of section 4, Box 67 due to wedging and re-drilling.

VESICLES/AMYGDALAE

401.16 2-3%, 1-2mm, irregular filled with smectite.

402.00 Fragments in breccia, fairly vesicular, about 10%, about 1mm, spherical, open or filled with calcite.

FRACTURES - VEINS - BRECCIA

401.16 Fractures common, most less than 20°, without secondary mineral coatings. Veinlets and veins, hairline to 4mm filled with calcite, dip about 70°.

ROCK ALTERATION

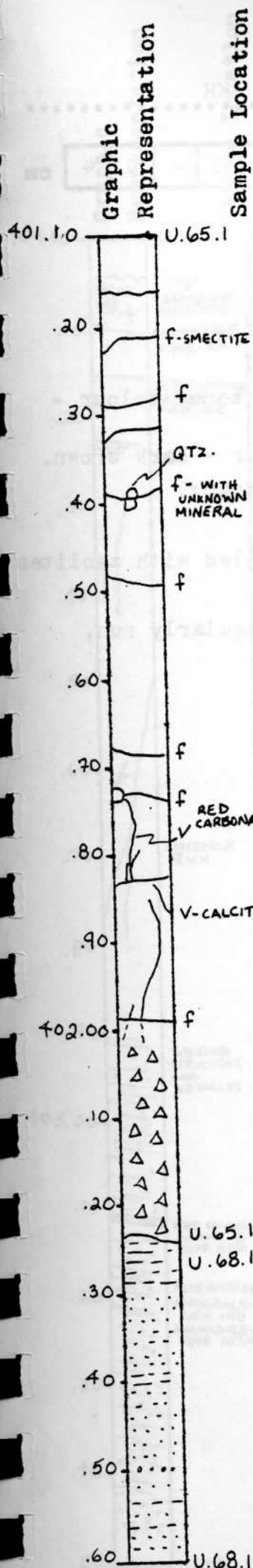
None observed.

STRUCTURE

402.00 Massive.

402.24 Slightly brecciated.

Unit 68.1 bedded.



ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer KH

Depth Interval

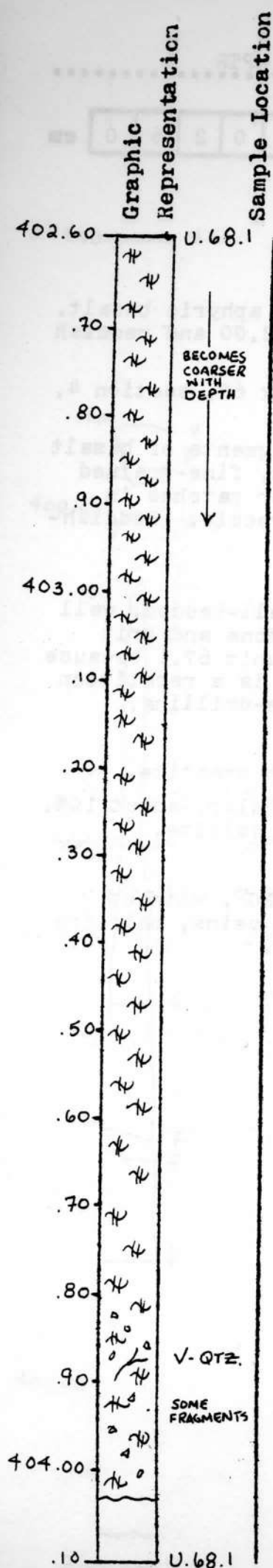
4 0 2 6 0

cm to

4 0 4 0 4

cm

Box 69, Section 1



LITHOLOGY PETROGRAPHY- continues unit 68.1

Basic, fine-grained, basic tuffaceous sediments the colour and grain size change is distinct.

402.75 Fairly coarse (approximately 2-3mm)

403.03 Weathered portion porous, oxidized zone, colour - light yellow-brown, loose.

403.40 Becoming coarser (about 3mm), colour - dark brown.

403.85 Some fragments up to 1cm. Very compact.

VESICLES/AMYGDALES

403.60 Very tiny amygdales (up to 1mm) filled with zeolites

FRACTURES - VEINS - BRECCIA

403.83 Veins (less than 1mm), quartz, irregularly run, no orientation.

ROCK ALTERATION

Zeolite, montmorillonite, Fe oxide.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer ^{KH}

Depth Interval

4 0 4 0 4

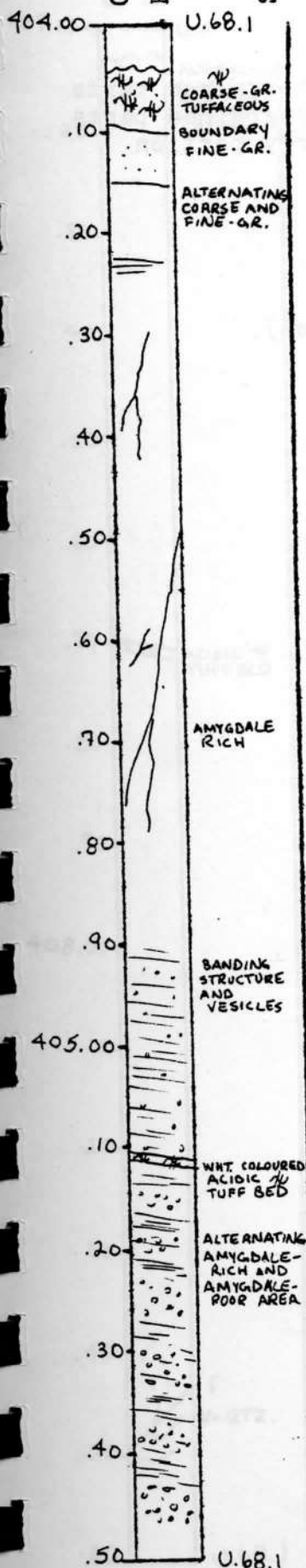
cm to

4 0 5 5 7

cm

Box 69, Section 2

Graphic Representation
Sample Location



LITHOLOGY PETROGRAPHY

Sedimentary, coarse grained tuffaceous (about 5mm) blue-green, boundary is irregular.

404.09 Fine-grained part. Dark reddish-brown, weathered.

404.15 Alternation of coarse part (blue, green), and fine weathered part (dark brown), boundary (angle 12-15°), usually is smooth continuous concordant. Sometimes black coloured clay bands are associated along the boundaries.

404.90 Banding structure by size, the amount of vesicles, and chemical composition is characteristic.

405.10 White coloured-acidic tuff bed, 1cm thick.

VESICLES/AMYGDALES

404.66 Amygdales are filled with zeolites (fine-grained).

405.20 Amygdales; rounded shapes, iron oxides, or zeolites. Alternation of the parts rich in amygdales and the parts poor in amygdales.

FRACTURES - VEINS - BRECCIA

404.30 Quartz veinlets run irregularly (less than 1mm), such quartz veins are found only in coarse grained parts. Rarely it cuts the boundary between the coarse and the fine grained parts.

ROCK ALTERATION

Zeolites, iron oxide, smectite.

STRUCTURE

404.04 Coarse grained tuff

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer KH

Depth Interval

4 0 5 5 7

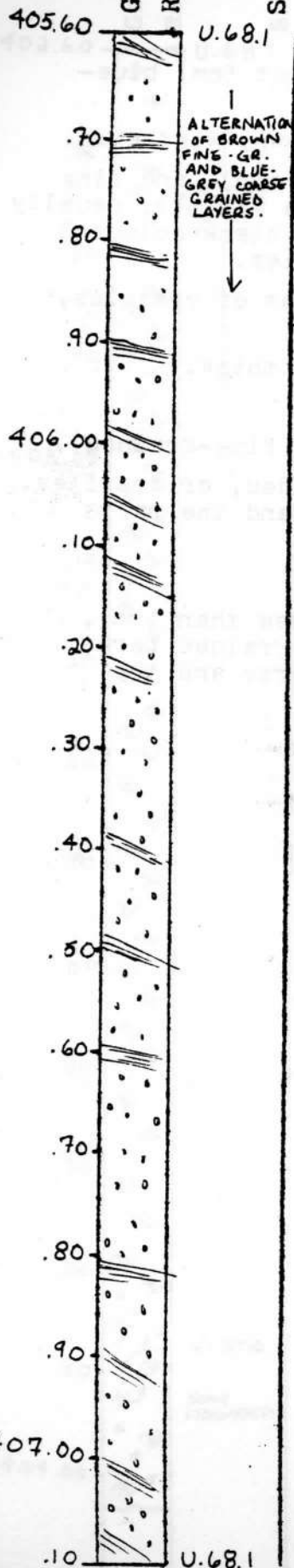
cm to

4 0 7 1 3

cm

Box 69, Section 3

Graphic Representation
Sample Location



LITHOLOGY PETROGRAPHY

Alternation of the dark brown coloured fine-grained parts and of the grey-bluish-grey coloured coarse-grained parts (3mm-5mm). The proportion of the bluish grey portion becomes large.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

405.75 Very few veinlets run (less than 1mm).

407.00 Iron oxide veinlets.

ROCK ALTERATION

406.03 Iron oxides, zeolites.

STRUCTURE

Alternating coarse and fine grained layers.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer KH

Depth Interval

4 0 7 1 3

cm to

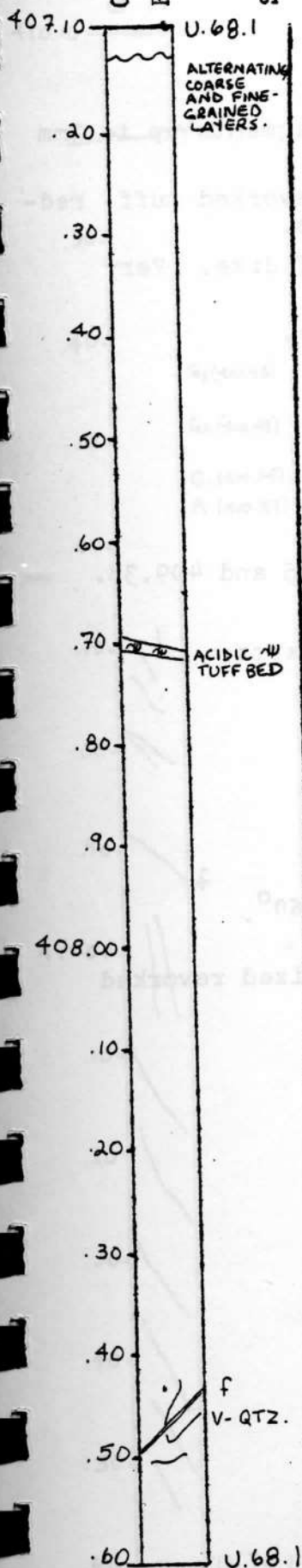
4 0 8 7 0

cm

Box 69, Section 4

Graphic
Representation

Sample Location



LITHOLOGY PETROGRAPHY

Alternation of the coarse grained blue-grey parts (about 3mm) and dark brown coloured fine grained parts.

407.60 Gradually dark coloured fine-grained parts decreases.

407.70 Again acidic tuff bed (thickness 1cm).

407.75 Again the proportion of brown coloured fine-grained portion increases.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

407.25 No veins.

408.40 Fracture with angle of 56°. Quartz veinlets appeared (thickness 1mm).

ROCK ALTERATION

407.32 Iron oxides.

408.40 Fault plane is covered with calcite.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer ... ILG

Depth Interval

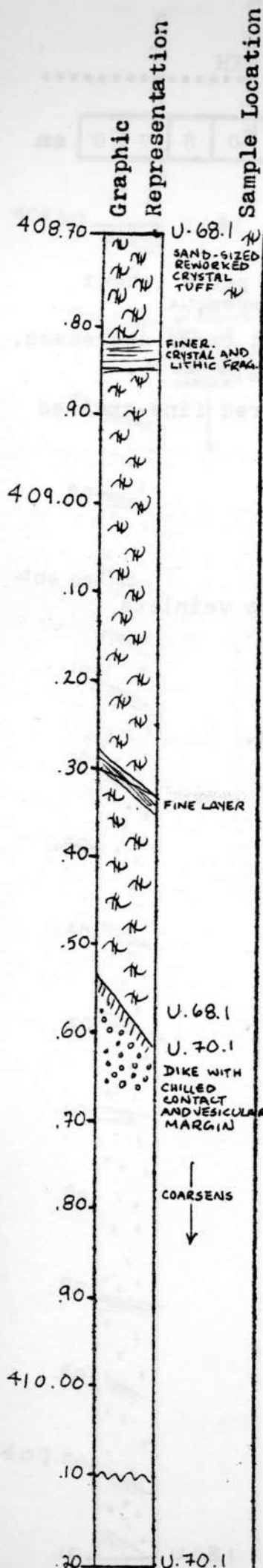
4	0	8	7	0
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 cm to

4	1	0	1	0
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 cm

Box 70, Section 1



LITHOLOGY PETROGRAPHY

Sand-size reworked crystal tuff.

408.83 Finer beds. Crystal and lithic fragments up to 3mm in diameter.

409.26 Finer layer with relatively fine reworked tuff, red-brown in colour with some feldspar crystals.

409.54 Chilled dark grey zone at margin of dike. Very limited mineralisation along dike.

409.60 Vesicular zone along margin of dike.

409.90 Fine grained aphyric dike.

410.05 Coarser downwards.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

No fractures except in finer bands at 408.85 and 409.38.

ROCK ALTERATION

Some smectite alteration, no zeolite and quartz.

OTHER

Dike.

STRUCTURE

408.83 Fine bed with 12° dip.[tuff]

409.26 Fine bed with 25° dip.

409.54 Chilled contact between units dips 60°. Associated with it is a vesicular zone.

U.68.1 Majority of unit composed of sand-sized reworked crystal tuff.

U.70.1 Fine grained aphyric dike.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer ILG

Depth Interval

4 1 0 1 0

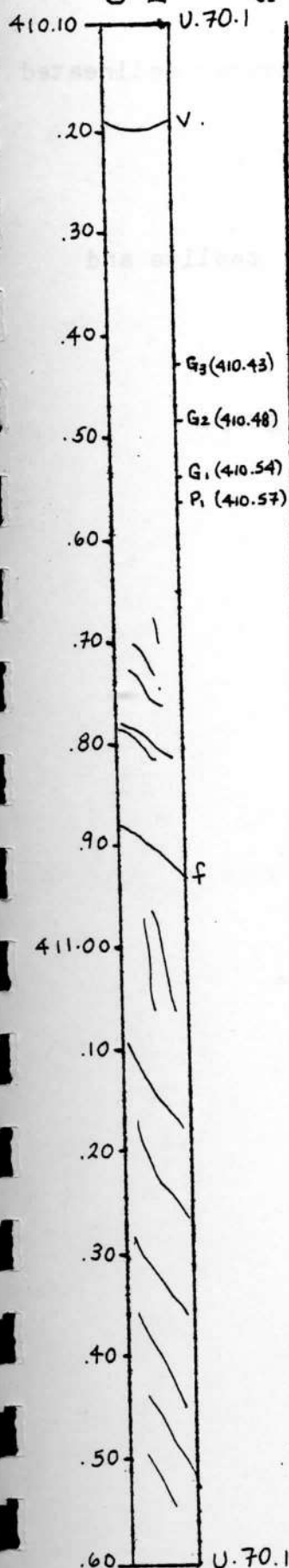
cm to

4 1 1 6 9

cm

Box 70, Section 2

Graphic
Representation
Sample Location



LITHOLOGY PETROGRAPHY

Dark grey-green aphyric basalt, fine grained.

410.60 Becoming progressively coarser with depth.

VESICLES/AMYGDALES

No amygdales.

FRACTURES - VEINS - BRECCIA

410.18 Incipient veins of calcite growing in large crystals up to 1cm across but parallel to vein.

410.40 Increasing number of smectite-filled fractures.

410.90 Smectite-filled fractures.

ROCK ALTERATION

410.40 Colour of rock becoming progressively darker (? increased smectite alteration with increasing grain size).

OTHER

Dike.

STRUCTURE

U.70.1 Isotropic aphyric basalt.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer ILG

Depth Interval

4 1 1 6 9

cm to

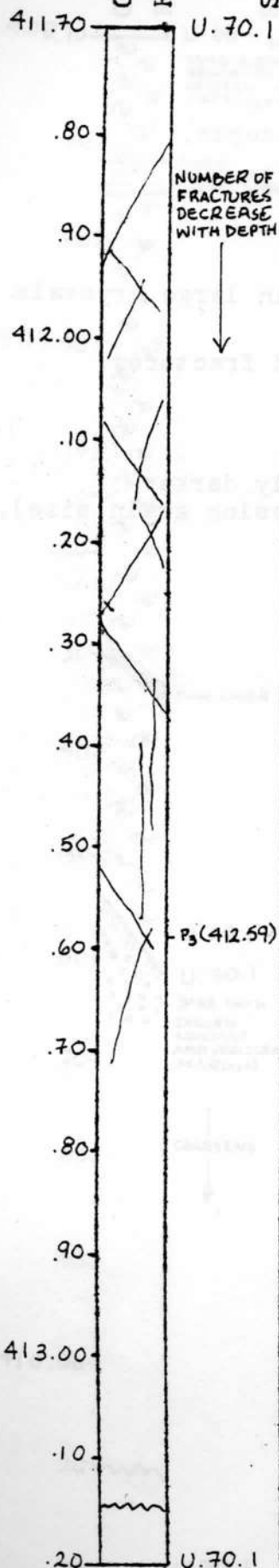
4 1 3 1 5

cm

Box 70, Section 3

Graphic Representation

Sample Location



LITHOLOGY PETROGRAPHY

Medium grained aphyric basalt with many fractures delineated by smectite.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

411.74 Large numbers of smectite fractures, zeolite and calcite very subordinate.

412.60 Fractures become less common.

ROCK ALTERATION

411.84 Smectite alteration to dark green - grey.

STRUCTURE

U.70.1 Isotropic aphyric basalt.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer ...^{ILG}.....

Depth Interval

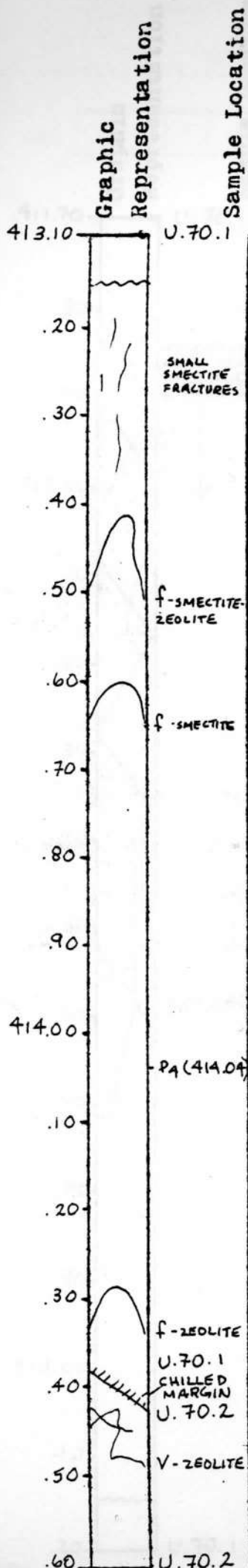
4 1 3 1 5

cm to

4 1 4 5 9

cm

Box 70, Section 4



LITHOLOGY PETROGRAPHY

Medium to fine grained aphyric green-grey basalt becoming progressively finer grained towards chilled margin.

414.40 Flow breccia of fine grained aphyric grey-green basalt.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

413.20 Smaller smectite fractures.

413.40 Smectite - zeolite fracture.

413.75 Isolated smectite fractures.

414.27 Zeolite filled fracture.

414.40 Cut by zeolite-filled veins.

ROCK ALTERATION

413.45 Smectite alteration.

OTHER

413.15 Dike

414.40 Flow

STRUCTURE

U.70.1 Aphyric basalt.

414.40 Chilled contact dips 60°.

U.70.2 Flow breccia of fine grained aphyric basalt.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer RHW

Depth Interval

4 1 4 5 9

cm to

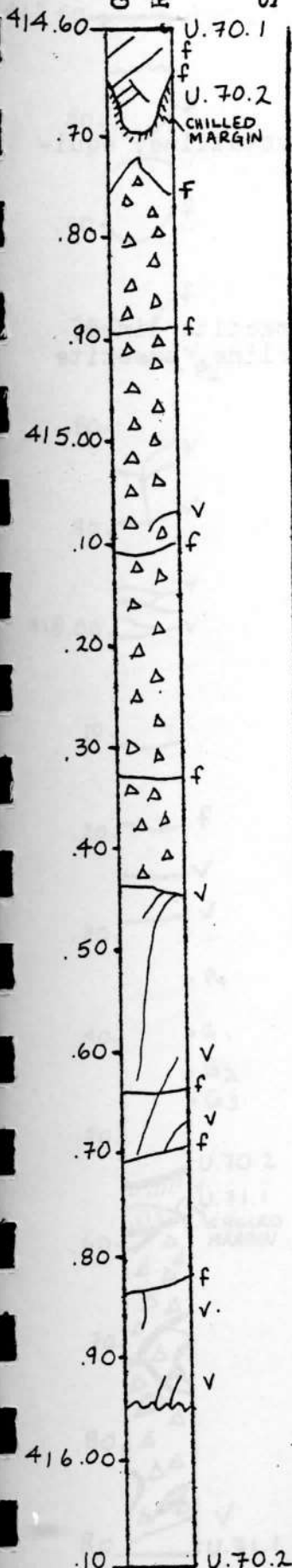
4 1 5 9 5

cm

Box 71, Section 1

Graphic Representation

Sample Location



LITHOLOGY PETROGRAPHY

Continues unit 70.1 and unit 70.2

70.1 Fine-grained, grey, aphyric, holocrystalline, equigranular basalt-intrusive starting in box 70.

70.2 Breccia - basaltic breccia, altered, clasts generally rounded, size up to 15cm or so. Occasional small vesicular clasts, 1cm or less in diameter.

415.44 Contact at 30° with fine-grained, aphyric, holocrystalline, medium grey basalt.

VESICLES/AMYGDALES

Filling in breccia zone generally zeolite, smectite. Small vesicular clasts have smectite filling, surface is eroded (washed by drilling?).

FRACTURES - VEINS - BRECCIA

Fractures sub-horizontal (0-10°) and high angled (45-50°). Lined of smectite in breccia. Laumontite and greenish clay (smectite) in basalt.

ROCK ALTERATION

None observed.

STRUCTURE

U.70.1 Massive basalt

414.65 Chilled contact.

414.65 - 415.44 Basaltic breccia.

415.44 - 415.95 Massive aphyric basalt.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer RHW

Depth Interval

4 1 5 9 5

cm to

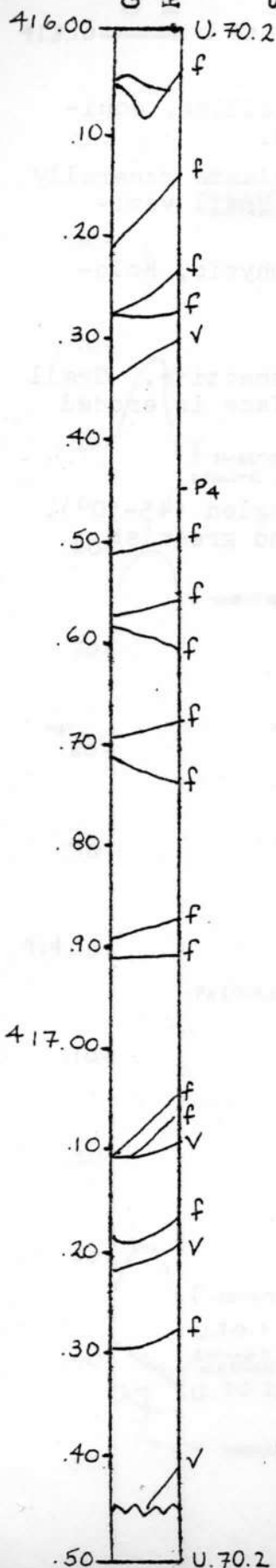
4 1 7 4 5

cm

Box 71, Section 2.

Graphic Representation

Sample Location



LITHOLOGY PETROGRAPHY

Continuing unit 70.2

Fine grained, aphyric, medium grey, holocrystalline, equigranular basalt.

VESICLES/AMYGDALES

Absent.

FRACTURES - VEINS - BRECCIA

Fractures mainly high angled, about 65°, smectite lined. Several at shallower angles. Veinlets hairline, smectite filled, minor zeolite.

ROCK ALTERATION

None observed.

STRUCTURE

U. 70.2 Massive aphyric basalt.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer ...^{RHW}.....

Depth Interval

4 1 7 4 5

cm to

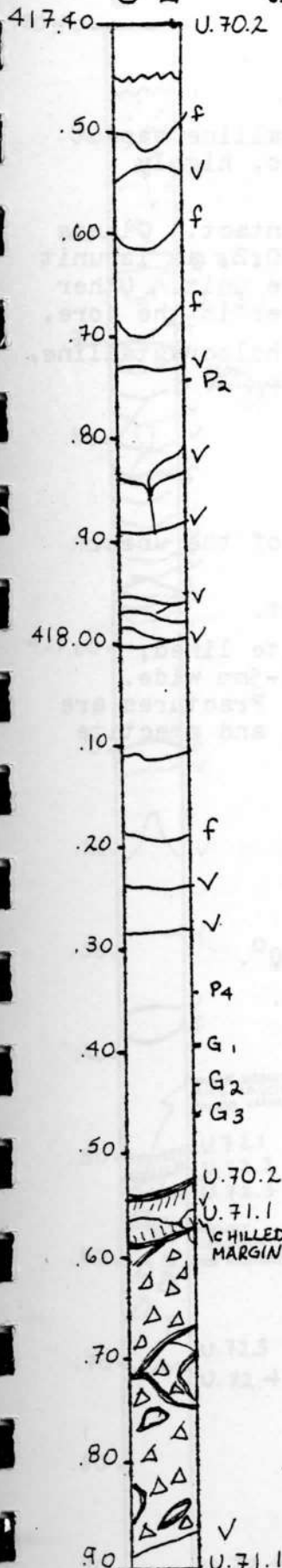
4 1 8 9 0

cm

Box 71, Section 3

Graphic
Representation

Sample Location



LITHOLOGY PETROGRAPHY

Continuing unit 70.2

Fine grained, green-grey, aphyric, holocrystalline basalt.

418.42 Contact angle 50°, abrupt contact with intrusive unit. The nature of the contact is such that the hot lava intrudes, or formed, a breccia, probably of unit 70.2. For the next 5mm or so of core, there are several intrusions which may all be related.

418.53 Intrusive fine grained basalt in basaltic breccia. Chilled margins on aphyric, holocrystalline intrusive parts. Breccia is very altered, angular clasts.

VESICLES/AMYGDALES

Absent.

FRACTURES - VEINS - BRECCIA

417.45 Fractures at high angles, smectite lined, veinlets generally subhorizontal (0-100) and filled with smectite, zeolite, and appreciable calcite.

418.53 Single fracture subhorizontal. Veinlets mainly in intrusive rock, hairline, calcite rich.

ROCK ALTERATION

None observed.

STRUCTURE

U.70.2 Massive aphyric basalt.

418.54 Chilled contact between U.70.2 and U.71.1 dips 50°.

U.71.1 Basaltic breccia.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer RHW

Depth Interval

4	1	8	9	0
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 cm to

4	2	0	4	6
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 cm
Box 71, Section 4

LITHOLOGY PETROGRAPHY Continuing unit 71.1

Intrusive, fine-grained, aphyric, holocrystalline basalt in basaltic breccia. Angular breccia clasts, highly altered.

419.23 Contact angle about 50° . Abrupt contact. Clasts in the breccia are probably parts of unit 70.2, as is unit 71.2. Hot lava intruded the zone within the unit. Other intrusions of similar type are a little lower in the core.

419.30 Grey green, aphyric, fine-grained, holocrystalline, equigranular basalt.

VESICLES/AMYGDALES Absent.

FRACTURES - VEINS - BRECCIA

418.90 Veinlets are in the intrusive part of the unit, calcite rich, hairline.

419.10 Fracture of about 50° , along contact.

419.30 Veinlets are zeolite filled, smectite lined, usually hairline, except 419.80, which is 3-5mm wide. Calcite is also present, but not abundant. Fractures are subhorizontal ($0-10^\circ$) or about 50° ; zeolite and smectite lined.

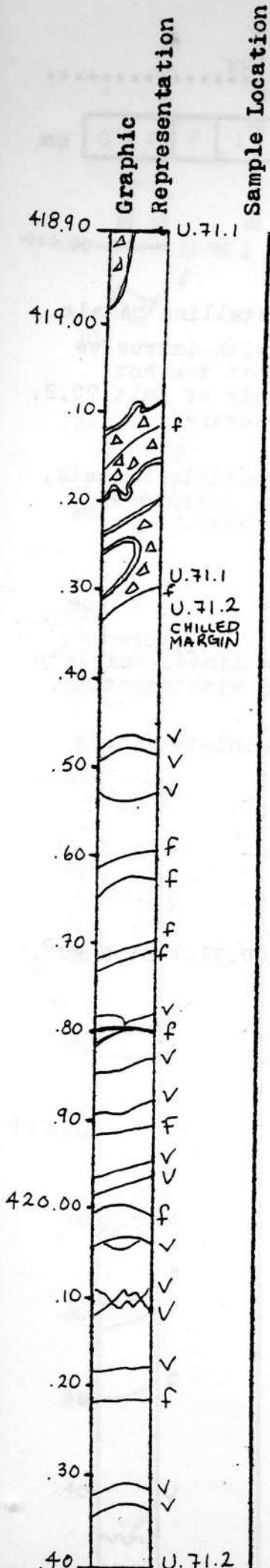
ROCK ALTERATION None observed.

STRUCTURE

U.71.1 Aphyric basaltic breccia.

419.30 Chilled contact between units dips 50° .

U.71.2 Massive, aphyric, equigranular basalt.



ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer ^{JM}

Depth Interval

4 2 0 4 6

cm to

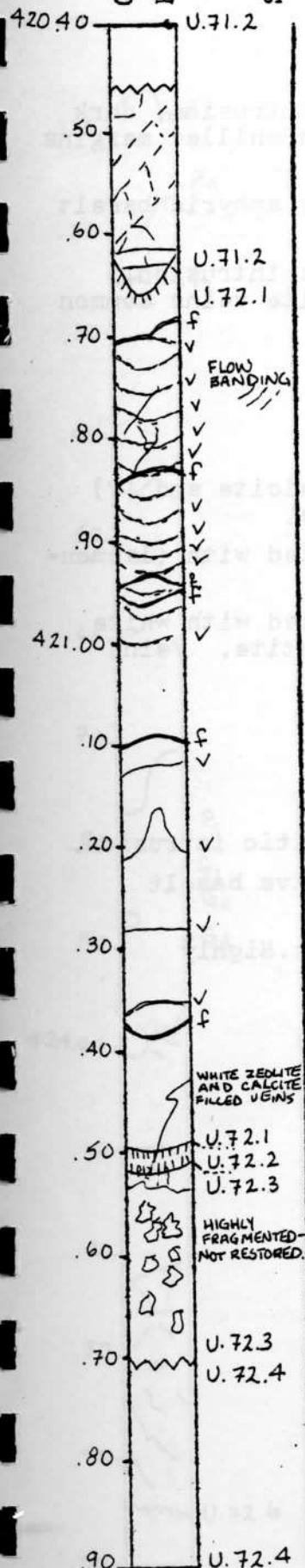
4 2 1 7 0

cm

Box 72, Section 1

Graphic Representation

Sample Location



LITHOLOGY PETROGRAPHY

Medium-grained, sparsely porphyritic with less than 1mm plagioclase phenocryst, dark grey colour.

420.65 Intruded into unit 71.2, evidence is the planar contact dipping 50° from horizontal and the chilled contact is unit 72.2.

420.67 Fine to medium grained, sparsely porphyritic basalt. Light grey colour, 1mm plagioclase phenocryst. With faint banding dipping 50° , unit 72.1 is intrusive unit but earlier than 71.2 and 72.2, this unit may be related to unit 72.3 in age and occurrence.

421.50 Very fine-grained aphyric dike with chilled contacts on both margins implying that unit 72.2 intruded 72.1 and 72.3, contacts planar and dipping 30° from horizontal.

421.53 Fine- to medium-grained, aphyric, grey-coloured basalt that has been intruded by unit 72.2 and unit 72.4, 72.1 and 72.3 may be equivalent, due to contact relationships and textural relationships.

VESSICLES/AMYGDALES

420.46 None observed.

420.67 Rounded, 2mm to less than 1mm vesicles, filled with white (?) zeolite and calcite. Related to veins and fractures.

421.53 Sparsely vesicular, 1mm and less rounded vesicles filled with green smectite, white laumontite and calcite.

FRACTURES - VEINS - BRECCIA

420.46 Highly fractured, fractures 20° and 130° from horizontal, no minor alteration.

420.67 Planar fractures dipping 50° with white zeolites, laumontite, and calcite occurring as second minerals on the fractures. Irregular veins and fractures are also common, and filled with white zeolites.

421.53 Highly fractured, no continuous fragments. Calcite and white zeolites on fragment surfaces.

ROCK ALTERATION

None observed.

STRUCTURE

U.71.2 Massive basalt.

420.65 Chilled contact between units.

U.72.1 Fine to medium grained basalt containing plagioclase phenocrysts.

U.72.2 - 421.49 - 429.53 Aphyric dike marked by chilled contacts on both margins. U.72.3

U.72.3 - 421.53 - 421.70 Fine to medium grained, massive aphyric basalt.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer JM

Depth Interval

4 2 1 7 0

cm to

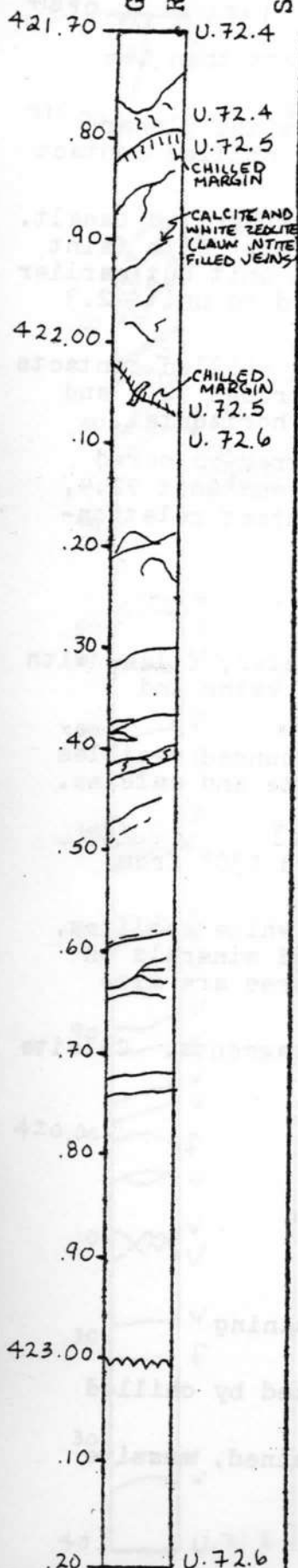
4 2 3 0 0

cm

Box 72, Section 2

Graphic Representation

Sample Location



LITHOLOGY PETROGRAPHY

Unit 72.4 is a very fine-grained aphyric intrusion, dark grey, 72.4 has intruded 72.3 and 72.5 with chilled margins at both its top and bottom.

421.78 Medium- to fine-grained light-grey aphyric basalt intruded by unit 72.4 and 72.6.

422.07 Fine-grained aphyric grey basaltic intrusion, extremely fractured with calcite, laumontite veins common throughout.

VESICLES/AMYGDALES

422.07 Rare.

FRACTURES - VEINS - BRECCIA

421.70 Fractures and veins filled with calcite and (?) white zeolite, and minor amounts of pyrite.

421.79 Irregular veins and fractures filled with (laumontite) and minor calcite.

422.07 Irregular fractures and veins filled with white zeolite (laumontite), calcite, minor smectite. Veins up to 4mm wide with majority only.

ROCK ALTERATION

None observed.

STRUCTURE

U.72.4 Massive, fine grained, aphyric basaltic intrusion.

U.72.5 - 421.78 - 422.07 Fine aphyric massive basalt bounded by chilled contacts.

U72.6 Fine grained, massive, aphyric basalt. Highly fractured.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer JM

Depth Interval

4	2	3	0	0
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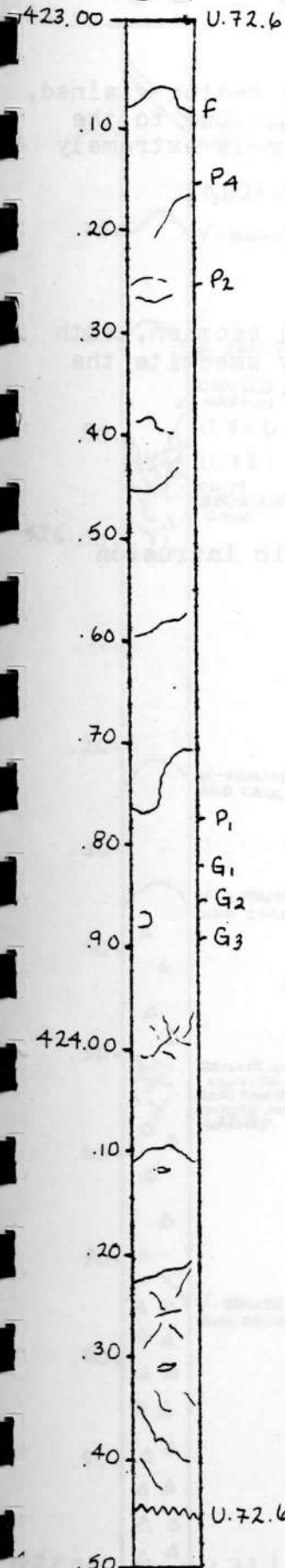
 cm to

4	2	4	4	4
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 cm

Box 72, Section 3

Graphic Representation
Sample Location



LITHOLOGY PETROGRAPHY

Dark grey sparsely porphyritic fine- to medium-grained basaltic intrusion, massive and moderately fractured.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

423.04 Irregular fractures less than 1mm in width. Filled with white calcite and (?) zeolites.

423.88 Increased fracturing with feather fractures radiating off planar fractures, fracture surfaces covered with black smectite and minor amounts of calcite occurring in fractures.

ROCK ALTERATION

None observed.

STRUCTURE

U.72.6 Fine to medium grained massive basaltic intrusion.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer JM

Depth Interval

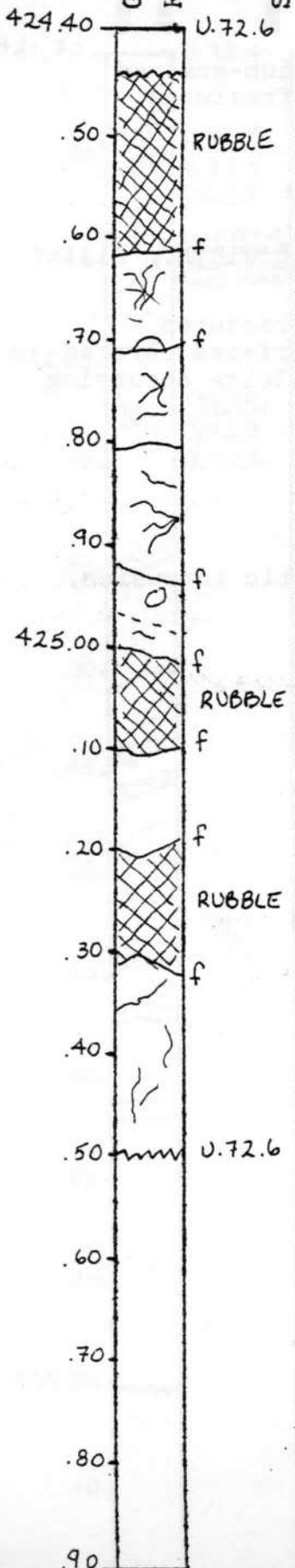
4 2 4 4 4

cm to

4 2 5 5 0

cm

Box 72, Section 4



LITHOLOGY PETROGRAPHY

Dark grey fine-grained - grading downward to medium-grained, massive, highly fractured basaltic intrusion. Due to the pervasive fracturing of the rock, the section is extremely fragmented.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

424.44 Fracturing is strong throughout this section, with irregular fractures predominating, and black smectite the only secondary mineral apparently occurring.

ROCK ALTERATION

None observed.

STRUCTURE

U.72.6 fine to medium grained massive basaltic intrusion Includes areas of high fragmentation.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer ...ILG.....

Depth Interval

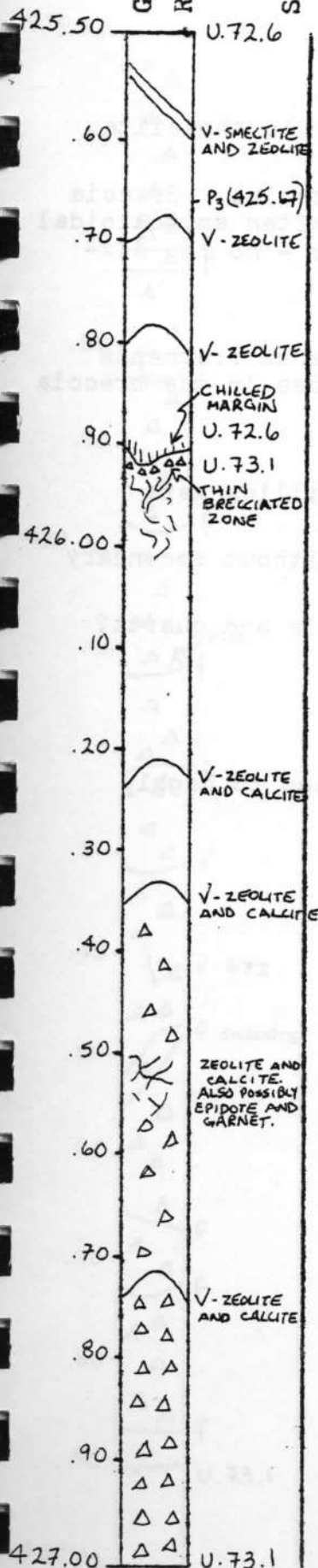
4	2	5	5	0
---	---	---	---	---

 cm to

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

 cm

Box 73, Section 1



LITHOLOGY PETROGRAPHY

Dark grey-green aphyric basalt becoming progressively finer grained and paler colour.

425.91 Uneven chilled margin. Dark colour.

425.93 Thin brecciated zone (flow breccia).

426.15 More massive pale grey-green aphyric tholeiite.

426.38 Slightly brecciated.

426.50 Brecciated zone with zeolite infilling, becoming only weakly brecciated.

VESICLES/AMYGDALES

425.85 Minor amygdaloidal horizon along margin of dike.

FRACTURES - VEINS - BRECCIA

425.50 Vein with zeolite and smectite.

425.68 Zeolite filled fractures.

425.90 No mineralisation.

425.92 Natural fractures and veinlets steep 60-70°.

426.21 "Zeolite" and calcite vein.

426.33 "Zeolite" and calcite vein.

426.50 Zeolite and calcite and ?epidote and ? garnet.

426.72 "Zeolite" and calcite vein.

ROCK ALTERATION

425.76 Perhaps becoming fresher as one approaches margin (less smectite?).

426.25 Smectite?

STRUCTURE

U.72.6 Massive, aphyric basalt.

425.91 Chilled contact between units. Thin brecciated zone.

U.73.1 Massive, aphyric tholeiite grading into a brecciated zone.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer ILG & PTR

Depth Interval

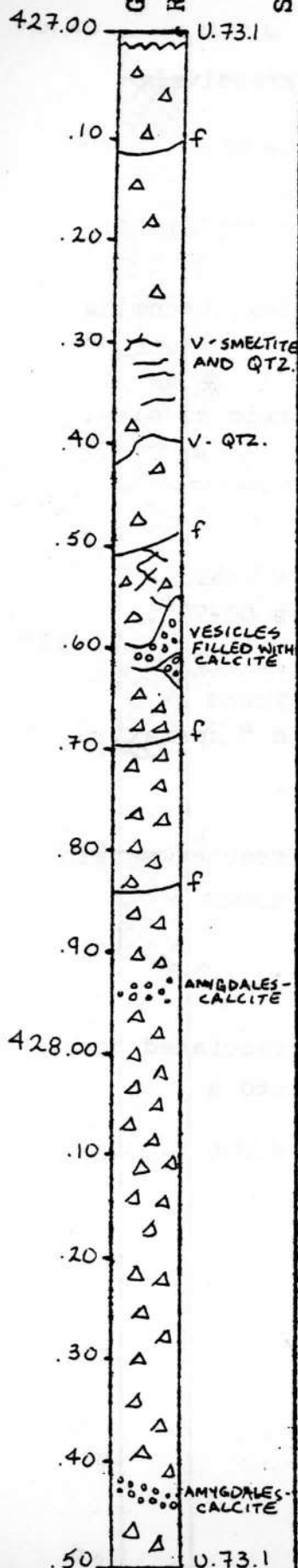
4 2 7 0 2

cm to

4 2 8 5 0

cm

Box 73, Section 2



LITHOLOGY PETROGRAPHY

Incipient brecciation of fine-grained aphyric tholeiite. Light grey.

427.52 Breccia with some amygdaloidal material. Breccia fragments 5 to greater than 20cm across, often amygdaloidal with abundant calcite. Rock is light grey - no red discolouration.

VESICLES/AMYGDALES

427.60 Calcite fills vesicles in scoriaceous fragments and occurs in irregular patches 1-2cm across in the breccia matrix.

FRACTURES - VEINS - BRECCIA

427.02 Smectite and calcite alteration filling gaps between angular fragments.

Fractures mostly less than 20°, usually without secondary minerals.

427.30 Minor vesicles filled with smectite and quartz?

ROCK ALTERATION

None observed.

STRUCTURE

U.73.1 Slightly brecciated tholeiite grading to highly brecciated zone.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer PTR

Depth Interval

4 2 8 5 0

cm to

4 2 9 9 0

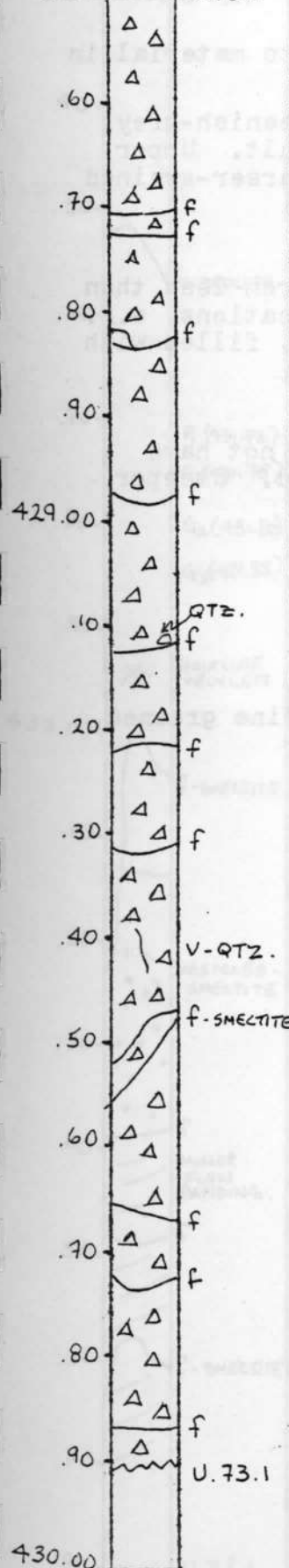
cm

Box 73, Section 3

Graphic
Representation

Sample Location

428.50 U.73.1



LITHOLOGY PETROGRAPHY

Brecciated throughout. Fragments from a few run to 20cm or more across. Some solid basalt, some vesicular or scoriaceous. Rock is grey, generally uniform through section.

VESICLES/AMYGDALES

428.50 Amygdales mostly in scoriaceous fragments; these are filled with mostly zeolite and minor calcite.

428.60 - 428.85 Some calcite and zeolite in breccia matrix.

429.12 Scattered, irregular patches of quartz up to 1cm across are present in lower part of section.

FRACTURES - VEINS - BRECCIA

428.50 Most fractures are subhorizontal, probably induced. A few steeper ones, about 60°, have smectite coatings and probably represent veinlets.

ROCK ALTERATION

None observed.

STRUCTURE

U.73.1 Basaltic breccia.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer PTR

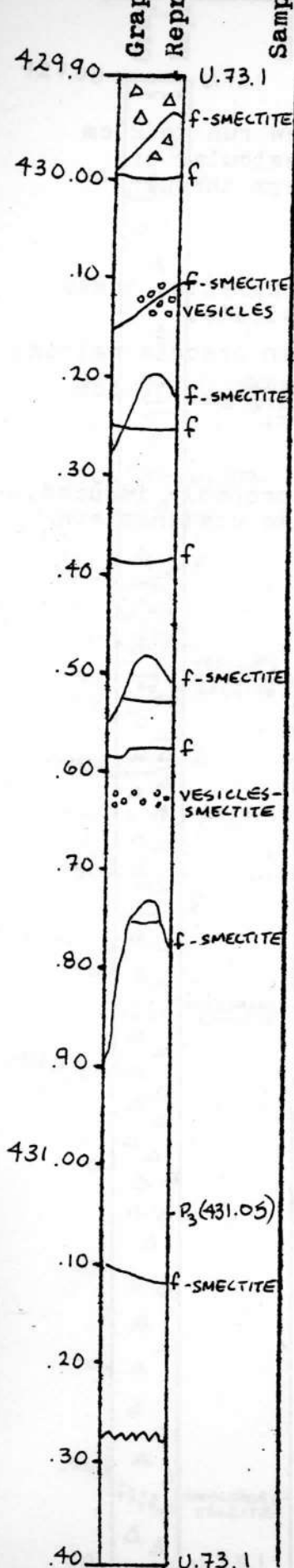
Depth Interval

4	2	9	9	0
---	---	---	---	---

 cm to

4	3	1	2	7
---	---	---	---	---

 cm
Box 73, Section 4



LITHOLOGY PETROGRAPHY

Upper 5-10cm is partly brecciated similar to material in previous section.

430.00 Remainder of section is grey to greenish-grey. Fine-grained, holocrystalline, aphyric basalt. Upper 30-40cm are grey; rock becomes somewhat coarser-grained and green in lower part.

VESICLES/AMYGDALES

429.90 Vesicles irregularly distributed from less than 1% in most of section to 10% in certain locations, e.g. 430.63. Most are less than 1mm, irregular, filled with smectite.

FRACTURES - VEINS - BRECCIA

429.90 Shallow fractures less than 20° do not have secondary minerals and are probably induced. Steeper fractures 50-70° coated with smectite.

ROCK ALTERATION

None observed.

STRUCTURE

429.90 - 430.00 Basaltic breccia.

430.00 - 431.27 Aphyric, holocrystalline, fine grained, massive basalt.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer ...PTR.....

Depth Interval

4 3 1 2 7

cm to

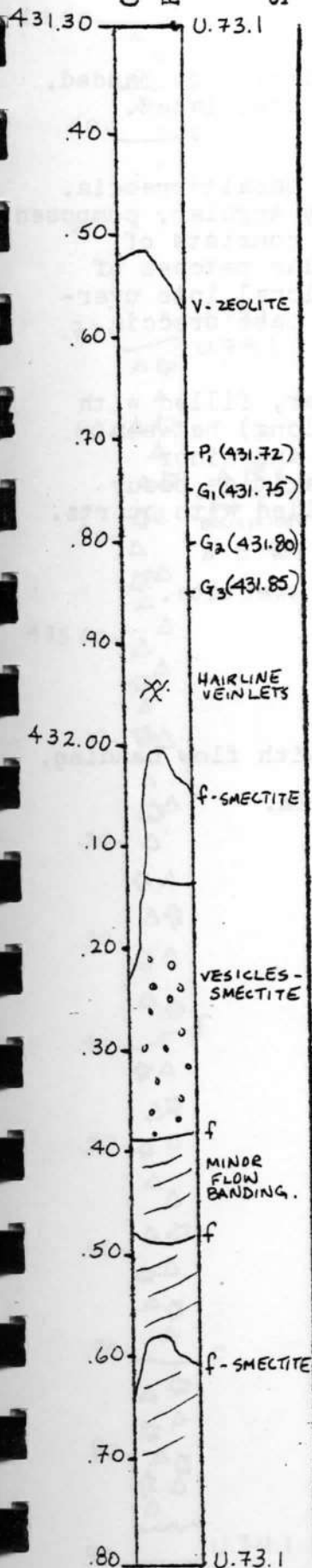
4 3 2 8 2

cm

Box 74, Section 1

Graphic
Representation

Sample Location



LITHOLOGY PETROGRAPHY

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

VESICLES/AMYGDALES

Mostly less than 1%, 2-3% in interval from about 432.19 and 432.42m. Vesicles about 1mm or less, irregular, filled with smectite.

FRACTURES - VEINS - BRECCIA

Two major fractures dip 70-80°. Coated with smectite, hairline veinlet of zeolite has same inclination.

ROCK ALTERATION

None observed.

STRUCTURE

U.73.1 Massive basalt.

432.40 - 432.70 Minor flow banding.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer PTR

Depth Interval

4 3 2 8 2

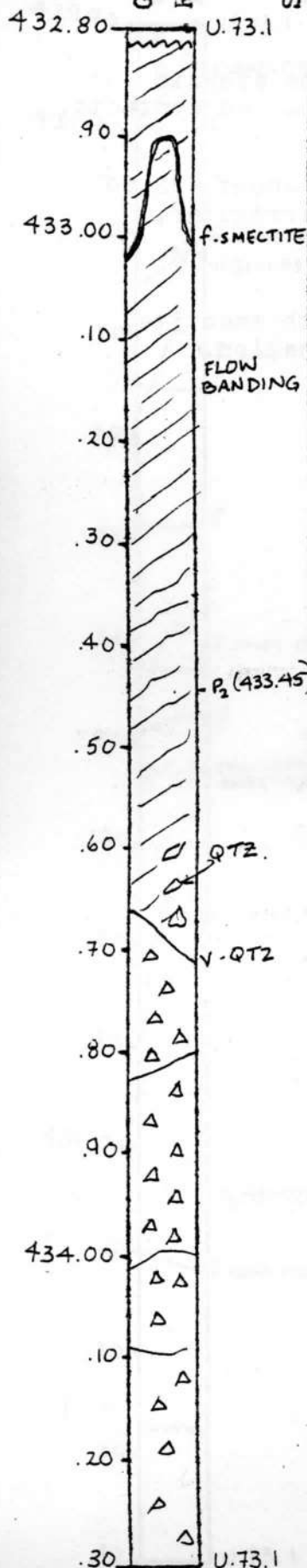
cm to

4 3 4 3 7

cm

Box 74, Section 2

Graphic Representation
Sample Location



LITHOLOGY PETROGRAPHY

Greenish-grey, fine-grained, holocrystalline, flow banded, aphyric basalt, to 433.80. Below rock is brecciated.

433.60 Light grey to reddish-grey.

433.80 Grey to reddish-grey, scoriaceous basalt breccia. Fragments from a few mm to many cm, mostly angular, composed of grey, rather vesicular basalt. Matrix consists of fine-grained reddish material with irregular patches of quartz and minor calcite. This is gradational into overlying basalt and is interpreted as a flow base breccia.

VESICLES/AMYGDALES

Mostly less than 1%, 1mm or less, irregular, filled with smectite. Several large cavities (2-3cm long) between 433.68 and 433.70m are filled with quartz and minor smectite. A few other irregular, small cavities occur along some flow bands. These are also filled with quartz.

FRACTURES - VEINS - BRECCIA

One fracture, dips about 60°, coated with smectite.

ROCK ALTERATION

None observed.

STRUCTURE

432.82 - 433.80 Massive, aphyric basalt with flow banding.

433.80 - 434.37 Scoriaceous basaltic breccia.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer ... PTR

Depth Interval

4 3 4 3 7

cm to

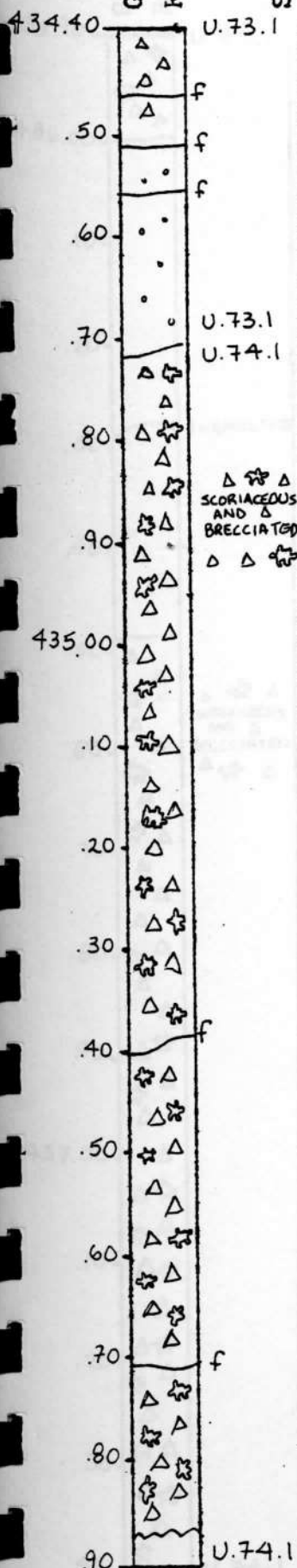
4 3 5 8 7

cm

Box 74, Section 3

Graphic Representation

Sample Location



LITHOLOGY PETROGRAPHY

Light grey basalt breccia in upper 10cm, then light grey, fine-grained, aphyric, somewhat vesicular basalt. Contact with unit 74.1 is rather arbitrary being drawn at top of reddish basalt breccia interpreted as a flow top breccia of unit 74.1.

434.72 Reddish-grey, scoriaceous basalt breccia. Fragments from less than 1cm to 20cm or more, are subangular and usually highly vesicular.

VESICLES/AMYGDALES

434.72 Fragments often highly vesicular, vesicles filled with zeolite and minor calcite. Breccia matrix contains quite abundant calcite.

FRACTURES - VEINS - BRECCIA

434.72 Fractures sparse, about 20° or less, no secondary minerals.

ROCK ALTERATION

434.72 Highly scoriaceous fragments, often deeply weathered or altered and somewhat plucked from core.

STRUCTURE

434.40 - 434.50 Basaltic breccia.

434.50-- 434.72 Vesicular massive basalt.

U.74.1 Scoriaceous basaltic breccia.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer PTR

Depth Interval

4 3 5 8 7

cm to

4 3 7 4 1

cm

Box 74, Section 4

Graphic Representation

Sample Location

U. 74.1

LITHOLOGY PETROGRAPHY

Pale reddish-grey, scoriaceous basalt breccia. Most fragments are 1-5cm across, angular to subangular. Between 436.00 and about 436.50m rock is non brecciated. This is probably a large clast or fragment. Breccia matrix is light grey, often slightly reddish, fine-grained material. Matrix also contains many irregular patches of calcite and zeolite.

VESICLES/AMYGDALES

Breccia fragments are massive to slightly vesicular. Most vesicular fragments have less than 10% vesicles, 1-3mm across, filled with smectite, calcite and zeolite.

FRACTURES - VEINS - BRECCIA

436.27 Only one fracture. Dips 60°, coated with minor smectite, no veins.

ROCK ALTERATION

None observed.

STRUCTURE

435.87 - 436.00 Scoriaceous basaltic breccia.

436.00 - 436.50 Massive, non brecciated area. Possibly large clast or fragment.

436.50 - 437.47 Basaltic breccia.

SCORIACEOUS
AND
BRECCIATED

f-SMECTITE

U. 74.1

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer RHW

Depth Interval

4 3 7 4 1

cm to

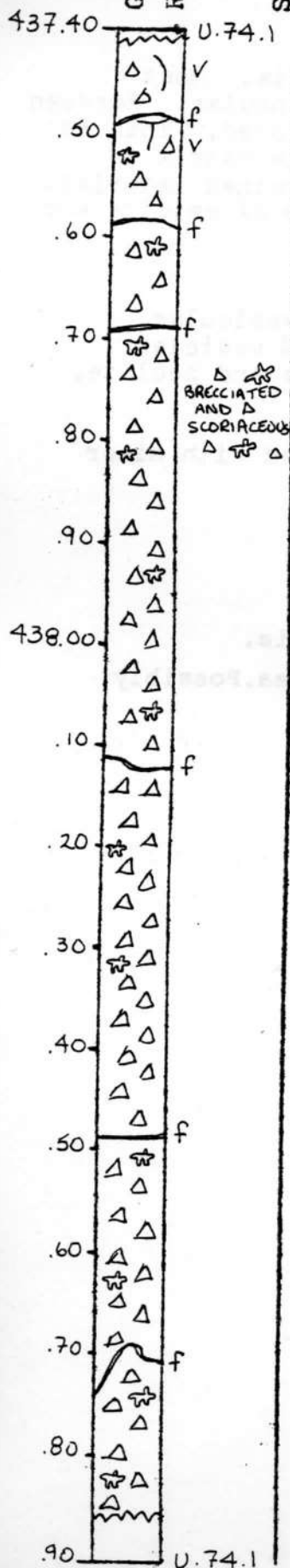
4 3 8 8 6

cm

Box 75, Section 1

Graphic Representation

Sample Location



LITHOLOGY PETROGRAPHY

Brecciated basalt (flow top?) purple-grey, highly altered. Clasts both of massive basalt and scoria. Scoria is zeolite filled in some places, smectite filled in others, where smectite at the surface is eroded. Top of section (25cm) is probably one large, massive clast, and then at 438.60-75m. Clasts generally rounded, size variable.

VESICLES/AMYGDALES

Some clasts (scoria) are zeolite filled, smectite lined, others smectite. Calcite very minor, quartz not seen. Groundmass of breccia also has some zeolite/smectite replacement.

FRACTURES - VEINS - BRECCIA

Fractures are subhorizontal, dark smectite lined. Veinlets are small, zeolite filled in places where they widen to 2-3mm, otherwise only smectite is present.

ROCK ALTERATION

None observed.

STRUCTURE

U.74.1 Basaltic breccia.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer RHW

Depth Interval

4 3 8 8 6

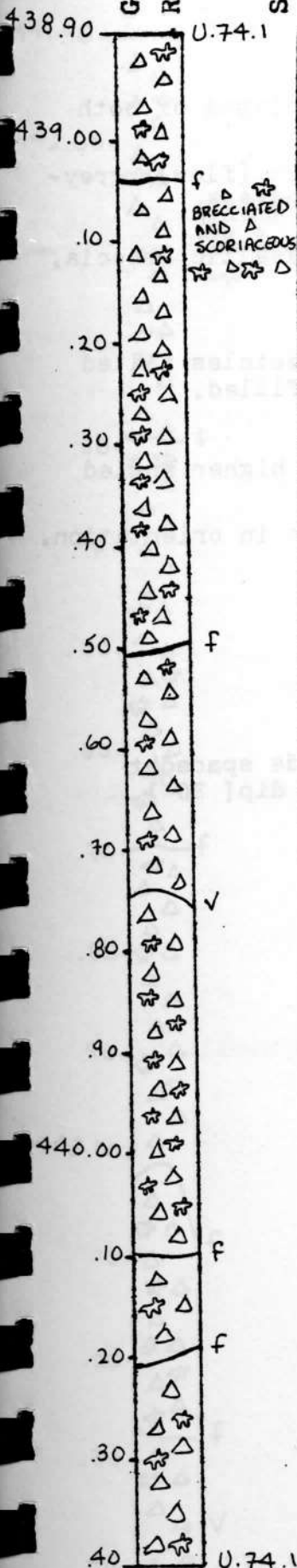
cm to

4 4 0 4 0

cm

Box 75, Section 2

Graphic
Representation
Sample Location



LITHOLOGY PETROGRAPHY

Purple grey brecciated basalt (flow top) with some scoria clasts. Alteration extensive, clasts often rounded, size range large.

VESICLES/AMYGDALES

Vesicles in the scoriaceous clasts are filled with zeolites (smectite lined), or are smectite filled, the surface smectite having been eroded (washed by drill water).

FRACTURES - VEINS - BRECCIA

Fractures are all subhorizontal, minor lining of smectite. The only vein is 3mm thick, smectite lined, zeolite filled, and at a high angle (60-70°).

ROCK ALTERATION

None observed.

STRUCTURE

U.74.1 Basaltic breccia.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer RHW

Depth Interval

4 4 0 4 0

cm to

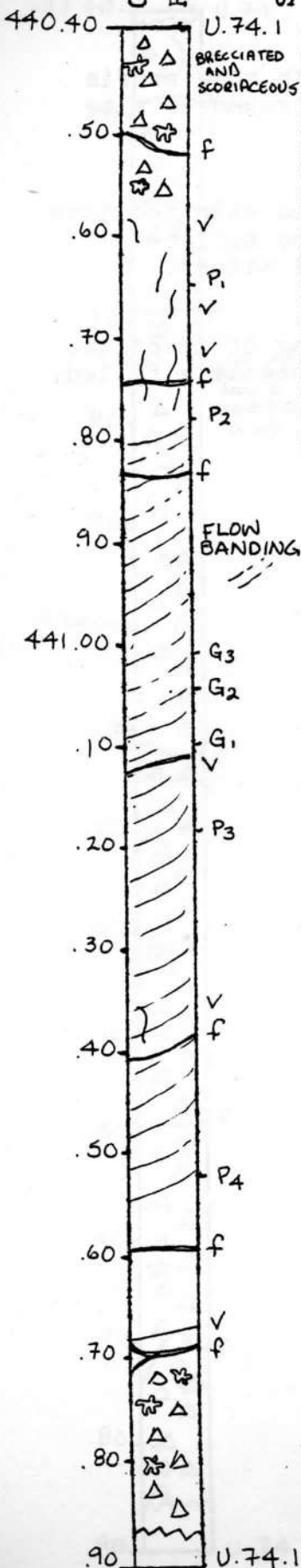
4 4 1 8 7

cm

Box 75, Section 3

Graphic Representation

Sample Location



LITHOLOGY PETROGRAPHY

Basaltic breccia of rounded, variable size clasts of both basalt and scoria. Purple grey.

Grades into veined, then banded basaltic unit (flow); grey-green, aphyric, holocrystalline, and fine grained.

441.70 Base of section again grades into basaltic breccia, as above.

VESICLES/AMYGDALES

Brecciated zones have scoriaceous clasts, vesicles filled of smectite, or smectite lined and zeolite filled.

FRACTURES - VEINS - BRECCIA

Fractures either subhorizontal, or slightly higher angled (30-40°), smectite lined.

Veins generally smectite lined and irregular in orientation. Bands (veins) of banding described.

ROCK ALTERATION

None observed.

STRUCTURE

440.40 - 440.70 Basaltic breccia.

440.70 - 441.57 Flow banding - 7mm. thick bands spaced at approximate 5mm. intervals with an irregular dip [30°].

441.57 - 441.87 Basaltic breccia.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer RHW

Depth Interval

4 4 1 8 7

cm to

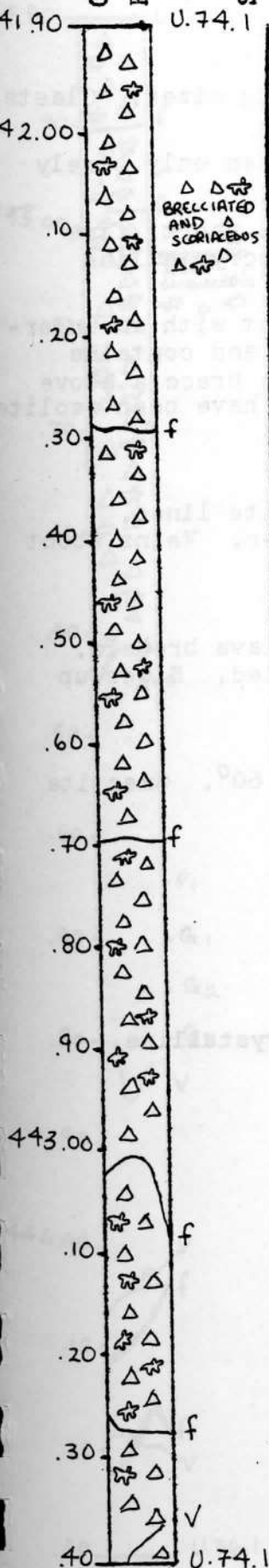
4 4 3 4 7

cm

Box 75, Section 4

Graphic Representation

Sample Location



LITHOLOGY PETROGRAPHY

Brecciated basaltic rock with scoria clasts and basaltic clasts. Clasts rounded, size variable. Purple-grey. Basaltic clasts aphyric, holocrystalline, fine grained, greenish-grey.

VESICLES/AMYGDALES

Amygdales filled with zeolite and calcite, smectite lined, in voids in breccia groundmass and scoriaceous clasts. Some clasts have been smectite filled, surface has been eroded (washed) out.

FRACTURES - VEINS - BRECCIA

Fractures subhorizontal to about 30°, and one high angled, about 80°. Smectite lined.

ROCK ALTERATION

None observed.

STRUCTURE

U.74.1 Basaltic breccia.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer RHW

Depth Interval

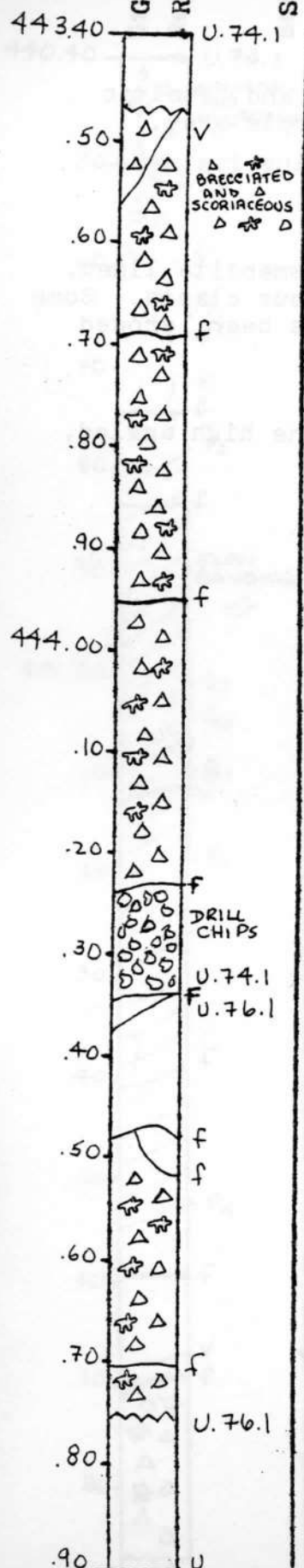
4	4	3	4	7
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 cm to

4	4	4	7	6
---	---	---	---	---

 cm

Box 76, Section 1



LITHOLOGY PETROGRAPHY

Basalt breccia with rounded clasts of varying sizes. Clasts are both basaltic and scoriaceous.

Alteration extensive, so that clasts are often only barely resolvable.

444.33 Fractural area is the beginning of a short, fine grained, massive, aphyric, medium grey, holocrystalline basalt zone.

444.48 The basalt zone has an abrupt contact with an underlying breccia zone which has been weathered and contains a much greater proportion of scoria than the breccia above the massive unit. Several very large voids have been zeolite filled.

VESICLES/AMYGDALES

Amygdales in the scoria are generally smectite lined, zeolite filled, size range up to 5mm diameter. Veins about 1mm wide, zeolite filled.

444.34 Absent in massive section.

444.48 Large amygdales are present in the lava breccia. Smectite lined and zeolite (laumontite) filled. Sizes up to 3cm x 1cm are present.

FRACTURES - VEINS - BRECCIA

Fractures either subhorizontal, or at about 60°. Smectite lined.

ROCK ALTERATION

None observed.

STRUCTURE

U74.1 Basaltic breccia.

444.24 - 444.30 Drill chips.

444.30 - 444.48 Aphyric, fine grained, holocrystalline, massive basalt.

444.48 - 444.76 Basaltic breccia.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer ^{RHW}

Depth Interval

4 4 4 7 6

cm to

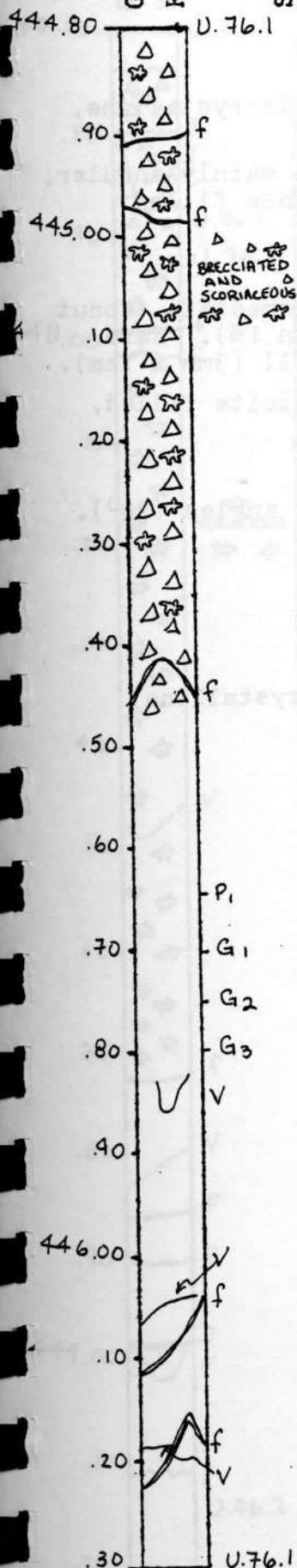
4 4 6 3 0

cm

Box 76, Section 2

Graphic
Representation

Sample Location



LITHOLOGY PETROGRAPHY

Maroon grey basaltic breccia, clasts of various sizes, predominantly scoriaceous.

445.50 Scoriaceous breccia grades into massive, grey-green, holocrystalline, aphyric, equigranular basalt.

VESICLES/AMYGDALES

Vesicles in scoriaceous clasts, smectite lined and sometimes zeolite filled, minor calcite present. Clasts may have been smectite filled, later eroded (washed out by drill water).

445.50 Massive zone has small (5mm or so) clots of smectite deseminated throughout. Not abundant (less than 1%). Occasionally (three occurrences) small clots, probably quartz rich.

FRACTURES - VEINS - BRECCIA

Fractures are subhorizontal and high angled (70°), lined of black and green smectite.

Some veinlets in massive unit appear to contain quartz.

ROCK ALTERATION

None observed.

STRUCTURE

444.76 - 445.50 Scoriaceous basaltic breccia.

445.50 - 446.30 Aphyric, holocrystalline, equigranular, massive basalt.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer RHW

Depth Interval

4 4 6 3 0

cm to

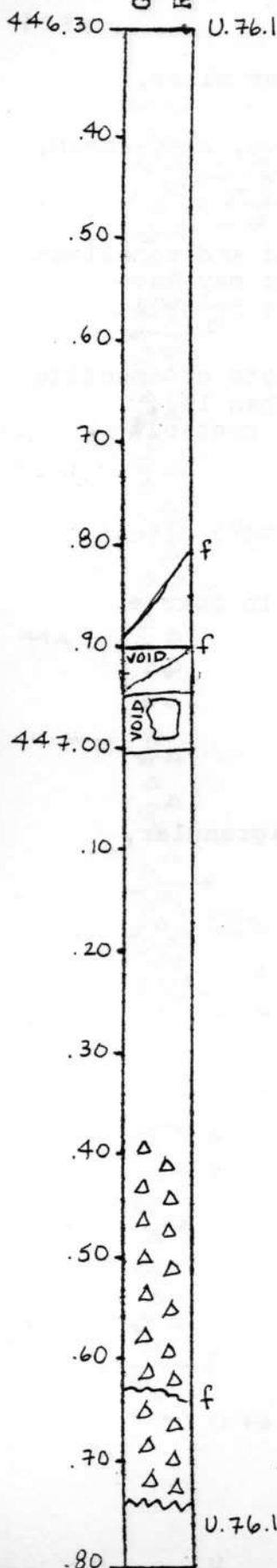
4 4 7 7 4

cm

Box 76, Section 3

Graphic
Representation

Sample Location



LITHOLOGY PETROGRAPHY

Green-grey basalt, fine grained, aphyric, holocrystalline, equigranular.

447.38 Grades into basaltic breccia, clasts mainly angular, basaltic (rather than scoriaceous). Groundmass filled largely by calcite.

VESICLES/AMYGDALES

In massive section. Disseminated clots of smectite (about 1mm diameter) scattered throughout (less than 1%). Rare quartz or zeolite filled amygdalae, also small (3mm x 1mm).

447.38 Large areas of groundmass largely calcite filled, smectite lined.

FRACTURES - VEINS - BRECCIA

Fractures subhorizontal (0-10°), two at high angles (70°). Lined of smectite.

ROCK ALTERATION

None observed.

STRUCTURE

446.30 - 447.38 Aphyric, fine grained, holocrystalline, equigranular, massive basalt.

447.38 - 447.74 Basaltic breccia.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer RHW

Depth Interval

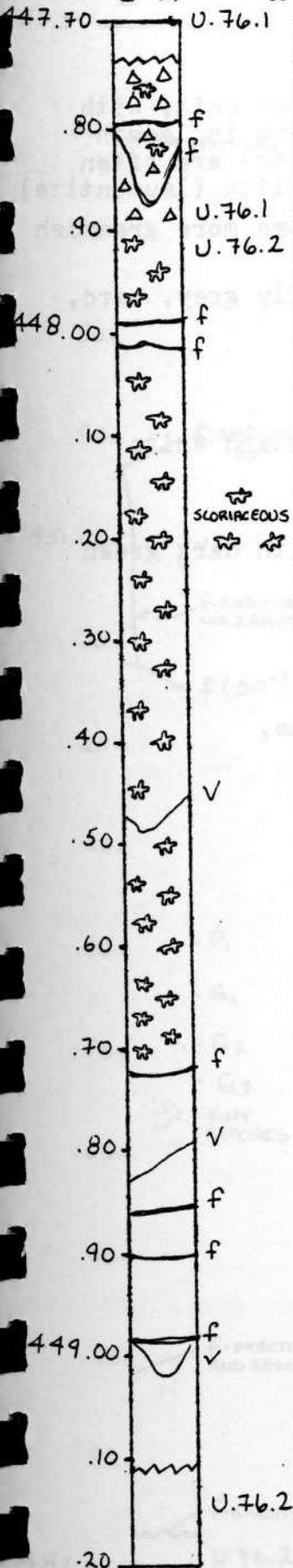
4	4	7	7	4
---	---	---	---	---

 cm to

4	4	9	1	1
---	---	---	---	---

 cm
Box 76, Section 4

Graphic Representation
Sample Location



LITHOLOGY PETROGRAPHY

Brecciated, grey basalt. Angular clasts, large size variations. Irregular contact with reddish scoriaceous material (weathered flow top horizon). Scoriaceous material may be brecciated. Degree of alteration is too great to really determine.

448.70 More massive, maroon coloured basalt, aphyric, fine-grained, holocrystalline.

VESICLES/AMYGDALES

High percent calcite filling in breccia and scoria. Also present are smectite and zeolite (laumontite).

448.70 Massive zone has irregular zeolite filled, smectite lined amygdales, up to 5mm x 2mm. Also, small smectite patches are scattered throughout.

FRACTURES - VEINS - BRECCIA

Fractures almost all subhorizontal (0-15°), one at 60°. Smectite lined, minor zeolite.

Veinlets are hairline, high angled (60°), smectite lined, zeolite filled.

ROCK ALTERATION

None observed.

STRUCTURE

U.76.1 Basaltic breccia.

447.90 - 448.70 Scoriaceous material, may be brecciated.

448.70 - 449.11 Aphyric, fine grained, holocrystalline, massive basalt.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer LV

Depth Interval

4 4 9 1 1

cm to

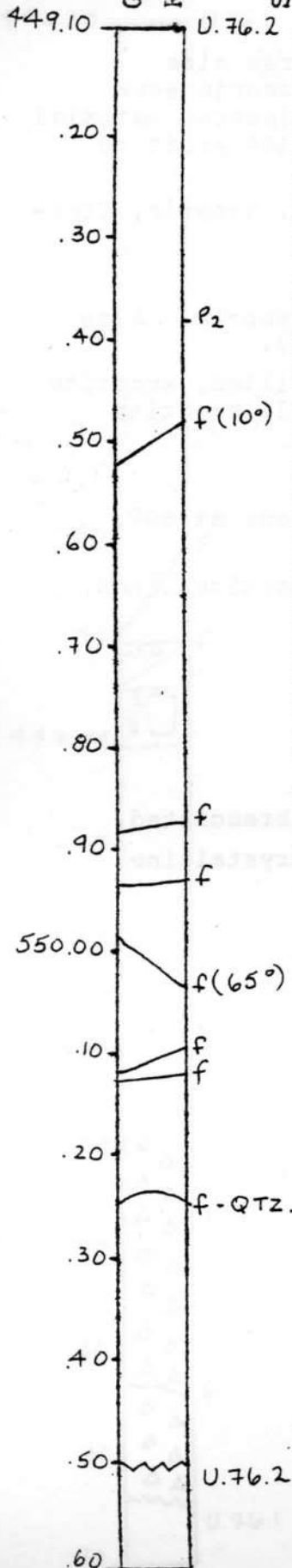
4 5 0 5 0

cm

Box 77, Section 1

Graphic
Representation

Sample Location



LITHOLOGY PETROGRAPHY

Aphanitic massive, greenish-grey, aphyric flow unit, with irregular green patches of smectite up to 10mm in length and 2mm width, the wider ones (greater than 1mm) are often filled with a soft, white, platy, shiney zeolith (laumontite)

449.60 The colour of the rock seems to become more greenish downward.

450.30 Patch-filling is translucent, slightly grey, hard, 10mm x 2mm.

450.40 Patch-filling is white and soft.

VESICLES/AMYGDALES

450.48 Fracture covered slightly with green and white minerals (smectite? and zeolite?).

FRACTURES - VEINS - BRECCIA

449.52 Fracture surface lined or covered with dark green (greyish) smectite.

ROCK ALTERATION

None observed.

STRUCTURE

U.76.2 Aphyric, fine grained, holocrystalline, massive basalt.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer LV

Depth Interval

4 5 0 5 0

cm to

4 5 1 9 7

cm

Box 77, Section 2

Graphic
Representation

Sample Location

LITHOLOGY PETROGRAPHY

More or less homogenous, aphanitic, aphyric, greenish-grey, flow unit, with very few irregular patches of smectite and/or quartz.

VESICLES/AMYGDALES

450.61 Vesicles filled with idiomorphic quartz, with very few zeolites on it.

451.07 Vesicle: smectite/quartz filled.

451.81 Vesicles filled with quartz, 12 x 2mm.

FRACTURES - VEINS - BRECCIA

450.93 Fracture: planar open fracture covered with greenish-black smectite.

451.03 Fracture: only a little smectite and zeolite.

451.13 Closed planar fracture, angle 50°.

451.81 Fracture with very little smectite and zeolite.

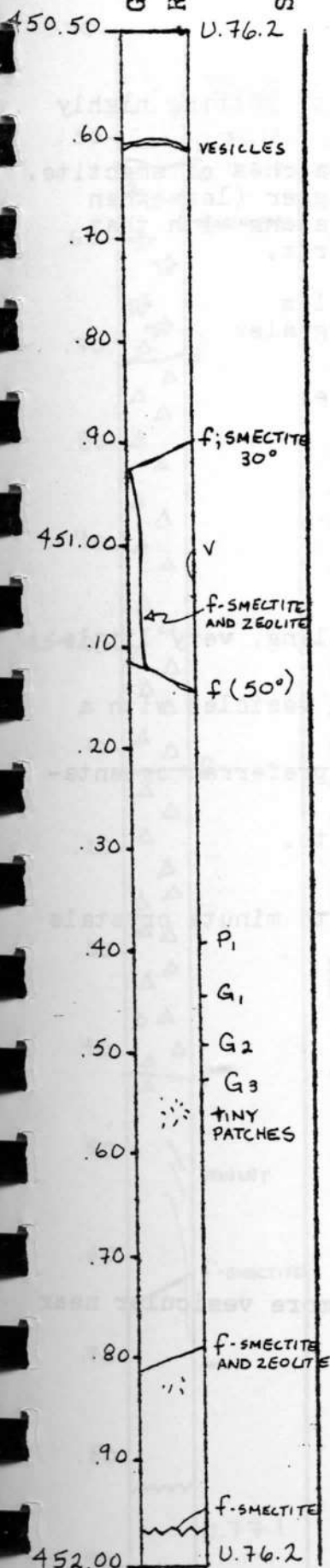
451.96 Fracture: planar to bent surface with smectite.

ROCK ALTERATION

None observed.

STRUCTURE

U.76.2 Homogeneous, aphyric, aphanitic basalt.



ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer LV

Depth Interval

4	5	1	9	7
---	---	---	---	---

 cm to

4	5	3	3	6
---	---	---	---	---

 cm

Box 77, Section 3

LITHOLOGY PETROGRAPHY

Aphanitic, aphyric, greenish-grey flow unit, getting highly vesicular downwards.

452.22 - 452.42 Contains a lot of small patches of smectite. Downward there is a change to fewer but bigger (less than 10mm x 2mm) smectite (patches) amygdales, along with that goes an increase of number and size of quartz.

Quartz - smectite)	
Celadonite)	Filled vesicles
Celadonite - quartz)	and amygdales
Quartz - laumontite)	

The rock becomes vesicular towards the base.

VESICLES/AMYGDALES

452.39 Quartz vesicle.

452.60 Quartz-laumontite vesicle.

452.72 Quartz vesicle.

452.75 Zeolite vesicle.

452.90 Vesicle: smectite, rim zeolite-filling, very little calcite.

453.10 Elongated zeolite-calcite-smectite vesicles with a dip of the long axis of about 25-30°.

453.22 First celadonite amygdaloides with a preferred orientation of about 50°.

453.35 Clusters of calcite - smectite spots.

FRACTURES - VEINS - BRECCIA

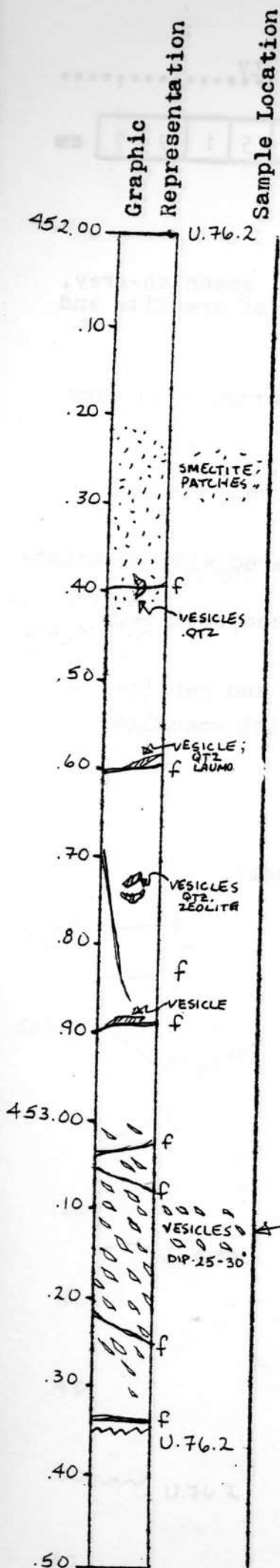
452.70 Fracture: angle 80-70° covered with minute crystals of a zeolith (laumontite?).

ROCK ALTERATION

None observed.

STRUCTURE

U.76.2 Aphyric, aphanitic basalt. Becomes more vesicular near the base.



ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer LV

Depth Interval

4 5 3 3 6

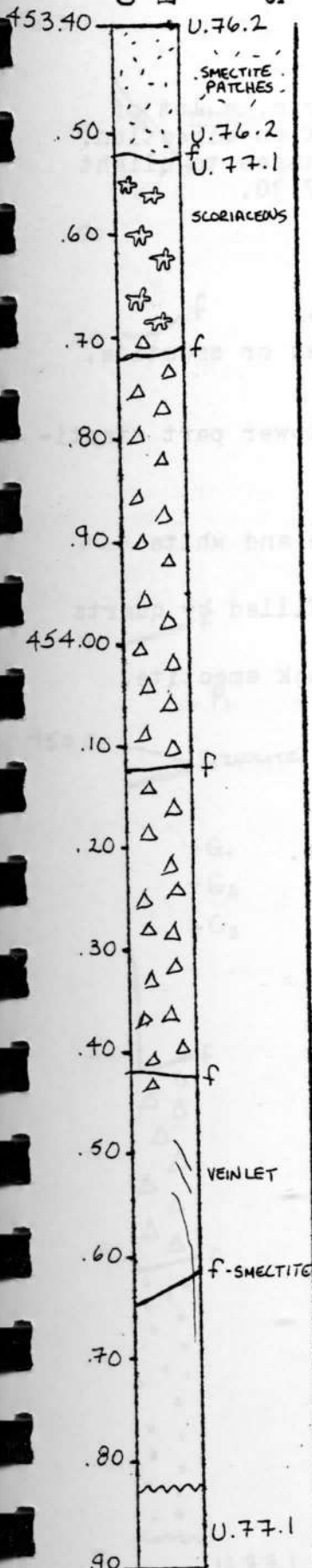
cm to

4 5 4 8 3

cm

Box 77, Section 4

Graphic Representation
Sample Location



LITHOLOGY PETROGRAPHY

Vesicles, greenish-grey, with masses of patches of celadonite - amygdolites.

453.52 Reddish-brown, fine grained, soft sedimentary interlayer of 2-3cm thickness with patches of smectite.

453.55 Uppermost scoriaceous part of flow unit partly filled by brown fine-grained sedimentary material.

453.67 Brecciated brownish-grey to dark grey material down to 453.98, below that, the colour changes to grey.

454.45 Massive grey flow unit with very few patches of smectite. From 454.60 downwards the amount of smectite patches becomes higher and becomes preferred oriented with a dip of about 60°.

VESICLES/AMYGDALES

453.36 Amygdales filled with calcite and celadonite.

454.45 Bigger patches. Vesicles are filled with laumontite - celadonite beside smectite. Size: 5mm or 2 x 8mm.

FRACTURES - VEINS - BRECCIA

453.72 Breccia filled with smectite and zeolite.

453.82 Breccia filled with smectite, zeolite and minute amounts of calcite.

454.50 Veinlets: filled with zeolite (laumontite).

454.66 Fracture lined with smectite.

ROCK ALTERATION

None observed.

STRUCTURE

U.76.2 Aphyric, aphanitic basalt.

453.53 - 453.54 Soft, fine grained sedimentary interlayer.

453.54 - 453.67 Scoriaceous flow.

453.67 - 454.45 Basaltic breccia.

454.45 - 454.83 Massive basalt.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer LV

Depth Interval

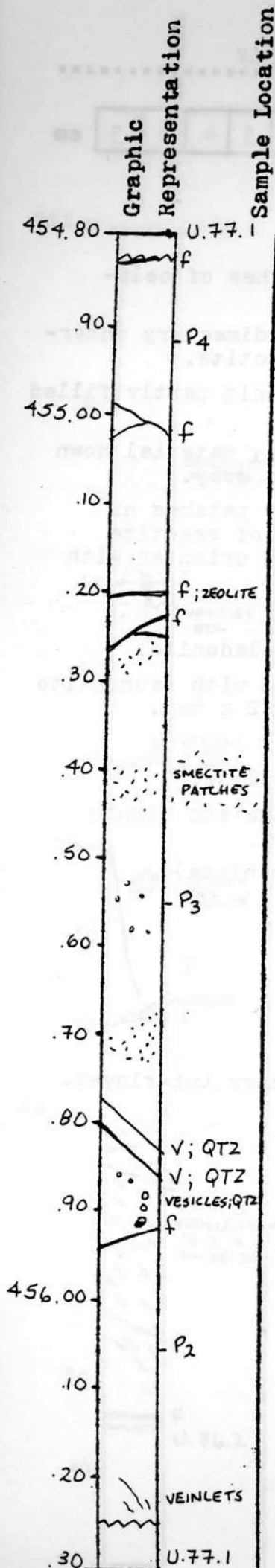
4 5 4 8 3

cm to

4 5 6 2 6

cm

Box 78, Section 1.



LITHOLOGY PETROGRAPHY

Grey flow unit, vesicular, aphanitic, aphyric, a lot of patches of smectite with no obvious elongation direction. No obvious change in grain size, colour changes to slight greenish-grey around 455.90 downward to 457.30.

456.20 Very few vesicles only, massive.

VESICLES/AMYGDALES

Average diameter of all vesicles about 2mm.

Vesicles mainly filled by quartz or zeolites or smectite.

455.80 Vesicles diameter about 10mm.

Vesicles mainly filled with quartz in the lower part stratified with minor amounts of calcite.

FRACTURES - VEINS - BRECCIA

454.98 Fractures lined with green smectite and white zeolite.

455.77 Veinlets (one to two mm wide) are filled by quartz and/or smectite.

455.96 Fracture lined by dark green to black smectite.

ROCK ALTERATION

None observed.

STRUCTURE

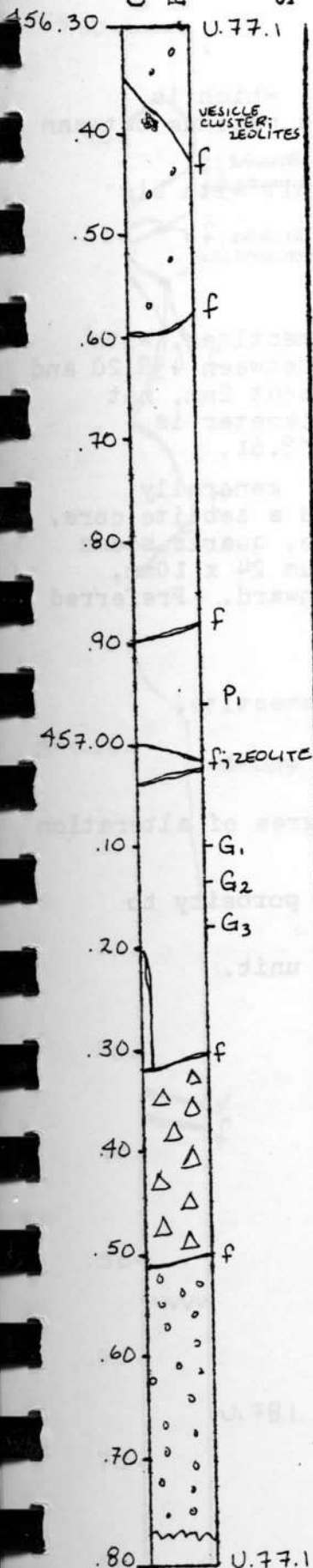
U.77.1 Aphyric, aphanitic, vesicular basalt.

Observer LV

cm to

CM

Sample Location



LITHOLOGY PETROGRAPHY
Aphanitic, aphyric, greenish-grey, slightly vesicular flow unit.

457.51 Highly vesicular grey flow unit.

456.36 Cluster.

457.52 Vesicles mostly filled with smectite (green) or zeolites (white) no preferred orientation, not elongated. 1-2mm diameter.

456.75 Veinlet is filled with white less than 1mm wide (zeolite) and dark greenish-grey minerals (smectite). Angle 70° dip.

457.20 Fracture is covered with light and dark green smectite (?), dip angle 90° .

457.33 Breccia is filled with calcite, smectite, zeolite (quartz?).

457.51 Subhorizontal broken fracture (by drilling).

None observed.

OTHER
456.36 The cluster consists of vesicles filled with white and yellow zeolites and quartz with a diameter of 26mm.

457.20 Flow banding.

457.35 Basal breccia

457.51 Vesicular basal part.

STRUCTURE
456.26 - 457.33 Aphyric, aphanitic, slightly vesicular
flow unit.

456.90 - 457.30 Elongated patches of smectite appear to be lined on type of flow banding with dip of 40° .

457.33 - 457.52 Breccia-highly vesicular.

457.52 - 457.77 Highly vesicular flow unit.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer LV

Depth Interval

4 5 7 7 7

cm to

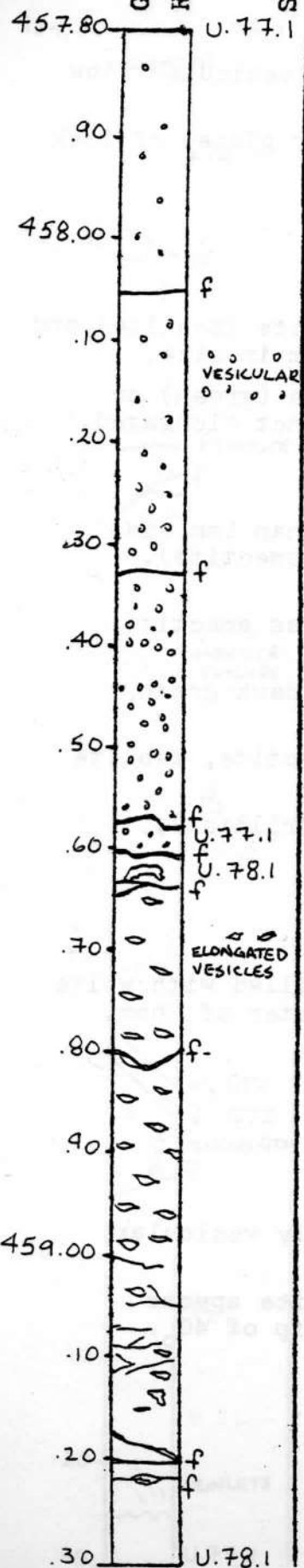
4 5 9 3 0

cm

Box 78, Section 3

Graphic
Representation

Sample Location



LITHOLOGY PETROGRAPHY

Vesicular (amygdaloidal) grey rock sequence, which is becoming increasingly porous downward with a maximum between 458.40 and 458.58.

458.61 Very fine-grained light grey flow unit with big amygdaloids.

459.20 Becomes grey downward.

VESICLES/AMYGDALES

457.77 Amygdaloids: generally filled with smectites, with major amounts of zeolites above 458.00 and between 458.20 and 458.30. Diameter less than 3mm, majority about 2mm, not elongated, no preferred orientation. The diameter is decreasing to 1mm close to the contact at 458.61.

458.61 Mostly rounded elongated amygdaloids: generally filled with a smectite or celadonite rim and a zeolite core. Often there is intergrowth - calcite is rare, quartz seems to be absent. Size: about 15 x 4mm, maximum 24 x 10mm. Celadonite appears at least from 459.00 downward. Preferred orientation seems to be a dip of 20°.

FRACTURES - VEINS - BRECCIA

458.61 The contact fracture is filled with smectite.

458.81 Fracture filled with smectite.

ROCK ALTERATION

Porosity increase might be due to higher degree of alteration

STRUCTURE

U.77.1 Vesicular gray flow unit. Increase in porosity to base of unit.

U.78.1 Very fine grained, amygdaloidal flow unit.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer ^{LV}

Depth Interval

4 5 9 3 0

cm to

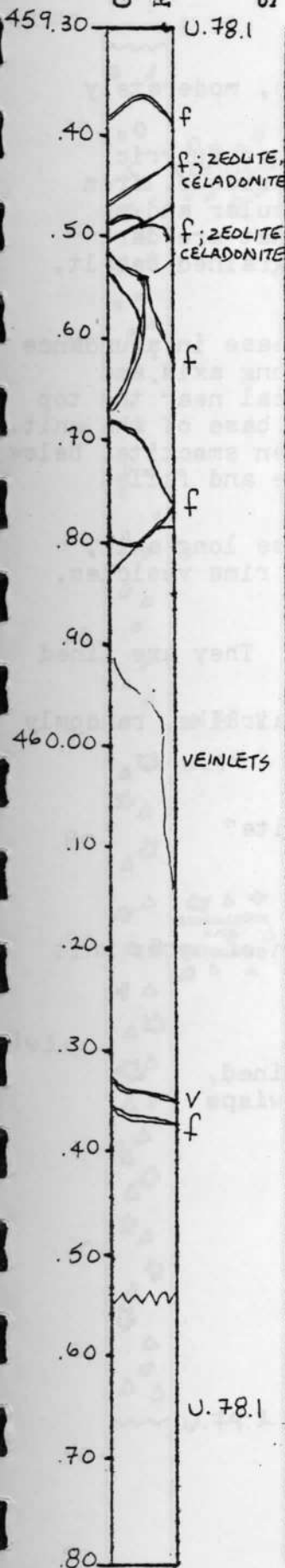
4 6 0 5 5

cm

Box 78, Section 4

Graphic
Representation

Sample Location



LITHOLOGY PETROGRAPHY

Grey, aphanitic, aphyric, flow unit, amygdaloidal, with amygdales up to diameter of 8mm, above 459.50.

459.50 Rock gets coarser grained, but is still fine grained amygdaloidal; downward increasing amount of patches of smectite. Colour becomes increasingly greenish-grey with depth.

VESICLES/AMYGDALES

459.30 Amygdales: above 459.50 they are greater than 2mm in diameter and filled either with celadonite or zeolite (laumontite) crystals are visible with unaided eyes in a vesicle at 459.47. Smectite rims are normal. Down to 459.90 there are only very few zeolite filled vesicles up to 1mm diameter (maximum 3mm). Most amygdales are filled with celadonite in the whole core calcite appears near the fracture at 459.37. Quartz seems to be lacking. Amygdales not elongated, not preferred oriented.

FRACTURES - VEINS - BRECCIA

459.37 Fracture dips with 60°, lined by celadonite.

459.42 Fracture dips 45-50°, lined by celadonite and a little zeolite.

459.80 Fracture dips about 70°.

459.93 Veinlets less than 0.1mm with a white filling, soft, zeolite?

460.34 Vein is quartz-filled with a smectite rim, width less than 1mm, dip angle 20-30°.

ROCK ALTERATION

None observed.

OTHER

459.30 Upper, amygdaloidal part of a flow unit.

460.00 Getting deeper into the central part of a flow unit.

STRUCTURE

U.78.1 Fine grained, amygdaloidal flow unit.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer NG

Depth Interval

4 6 0 5 5

cm to

4 6 2 0 2

cm

Box 79, Section 1.

LITHOLOGY PETROGRAPHY

Green-grey, medium- to fine-grained, aphyric, moderately vesicular basalt.

461.50 Scoriaceous and brecciated fine grained aphyric basalt. Size of breccia clasts extremely variable, from 2-3mm to greater than 5cm. Clasts are vesicular and/or fractured fine-grained basaltic fragments that are dark purplish-brown. Groundmass is brown, fine-grained basalt.

VESICLES/AMYGDALES

460.55 Vesicles are 5-20% of rock and increase in abundance downward. Size range from 1mm-5mm across long axis and increase in size downward. They are spherical near the top of the section but become elongated near the base of the unit. To 461.00 vesicles are filled only with green smectite, below this vesicles are rimmed with green smectite and filled with quartz.

461.50 Subrounded to irregular, 1-5mm across long axis, filled with smectite and zeolite. Smectite rims vesicles.

FRACTURES - VEINS - BRECCIA

460.55 Fractures are less than 1% of rock. They are lined with green smectite.

461.60 Veinlets in breccia fragments are hairlike, randomly oriented, and filled with white zeolite.

ROCK ALTERATION

460.55 Pervasive alteration to green smectite?

461.60 Pervasive alteration to smectite?

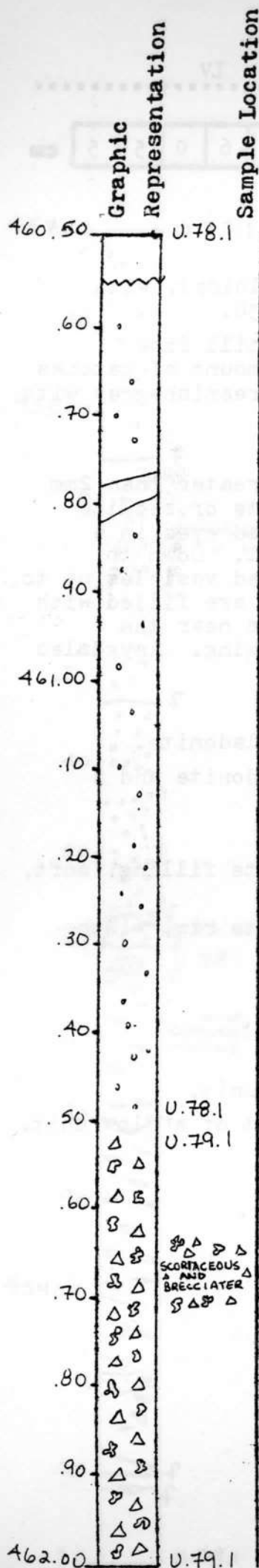
OTHER

Contact defined as base of vesicular portion of upper unit and top of brecciated portion of 79.1.

STRUCTURE

460.55 - 461.50 Aphyric, fine to medium grained, vesicular basalt. Flow banding suggested by wisps of smectite alteration.

U.79.1 Scoriaceous basaltic breccia.



ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer NG

Depth Interval

4 6 2 0 2

cm to

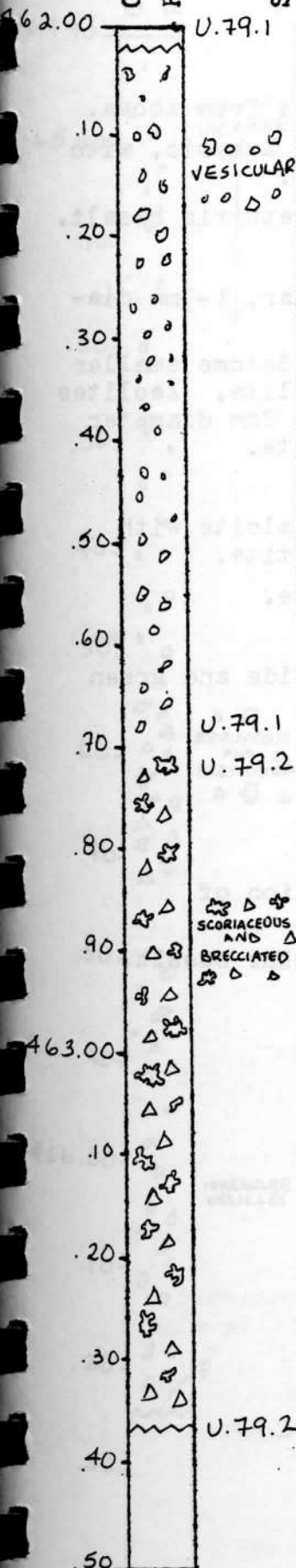
4 6 3 3 7

cm

Box 79, Section 2

Graphic Representation

Sample Location



LITHOLOGY PETROGRAPHY

Fine-grained, purplish-green grained, aphyric, vesicular basalt.

462.70 Contact placed between vesicular portion of 79.1 and upper brecciated portion of 79.2.

Dark blackish and green scoriaceous and brecciated fine-grained, permeable, aphyric basalt.

Breccia clasts are basalt and range in size from a few mm to a few cms.

VESICLES/AMYGDALES

462.02 Vesicles are 10-15% of rock. They are primarily lined with green smectite and filled with zeolite, or have intergrowths of both. Some are filled with rusty red smectite? Calcite is associated with zeolite.

462.70 Abundant vesicles 2-3mm diameter. Subrounded to irregular, filled with smectite and zeolite.

FRACTURES - VEINS - BRECCIA

462.02 Very rare hairlike fractures filled with white zeolite.

462.70 Hairlike, irregular and randomly oriented veinlets filled with zeolite in breccia clasts.

463.05 Break in rock, lined with patches of green and purple clay?, smectite?

ROCK ALTERATION

462.02 Pervasive smectite? alteration.

462.70 Clays - purple, green and black. Zeolites in vesicles and spaces between breccia clasts.

OTHER

462.70 - 462.80 Spaces between breccia clasts to 1cm wide filled with euhedral crystals of zeolite (laumontite?)

STRUCTURE

462.02 - 462.70 Aphyric, fine grained vesicular basalt.

U.79.2 Scoriaceous basaltic breccia.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer NG

Depth Interval

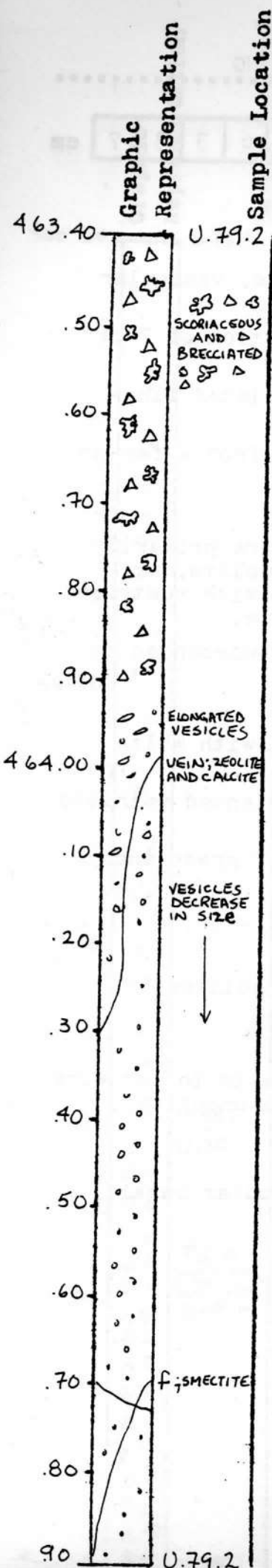
4	6	3	3	7
---	---	---	---	---

 cm to

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

 cm

Box 79, Section 3



LITHOLOGY PETROGRAPHY

Brecciated and scoriaceous material continued from above.

463.90 Grey vesicular basalt, fine-grained, aphyric, with 6-7mm, elongate vesicles filled with zeolite.

464.30 Green-grey vesicular, fine-grained, aphyric basalt.

VESICLES/AMYGDALES

463.37 10-30% of rock subrounded to irregular, 1-3mm diameter filled with zeolite and smectite.

463.90 Elongate vesicles to 8mm diameter. Become smaller and more rounded downwards. Filled with zeolite. Zeolites are in radiating aggregates, less than 1mm to 2mm diameter spherical vesicles, filled with green smectite.

FRACTURES - VEINS - BRECCIA

464.00 Fracture is lined with zeolite and calcite with patches of green smectite and rusty red smectite.

464.70 Fracture is lined with green smectite.

ROCK ALTERATION

463.37 Pervasive alteration to rusty red oxide and green smectite?

464.00 - 464.55 Bands of rusty red oxide.

STRUCTURE

463.37 - 463.90 Scoriaceous basaltic breccia.

463.90 - 464.10 Lineation defined by elongation of vesicles.

463.90 - 464.91 Aphyric, fine grained vesicular basalt. vesicles become smaller with depth.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer NG

Depth Interval

4 6 4 9 1

cm to

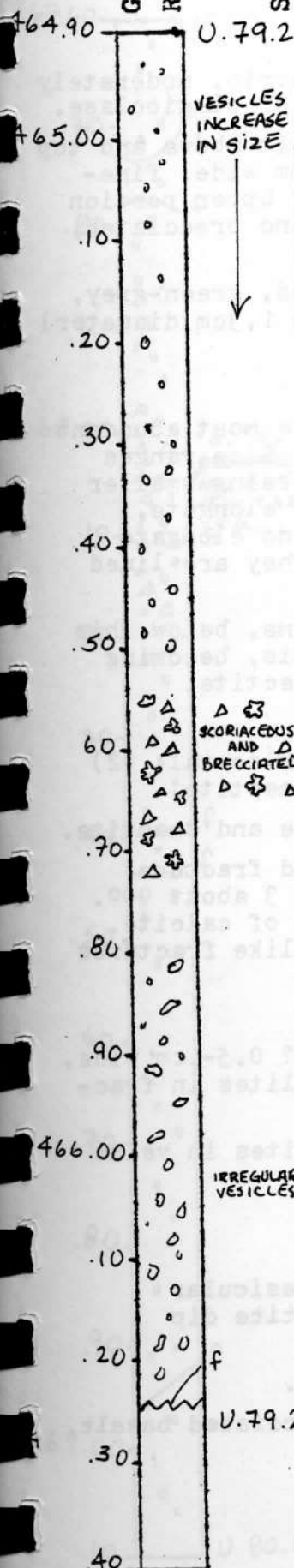
4 6 6 2 4

cm

Box 79, Section 4

Graphic Representation

Sample Location



LITHOLOGY PETROGRAPHY

Green-grey, fine-grained, aphyric, vesicular basalt.

465.56 Scoriaceous and brecciated mottled purplish-grey and black fine-grained, basaltic xenolith.

465.85 Green-grey, fine-grained, aphyric basalt as above, but with irregularly shaped vesicles and zeolite alteration of groundmass.

VESICLES/AMYGDALES

464.91 Vesicles about 20% of rock. Spherical, range in size from 1-3mm. Size-increases downward, to 465.38 vesicles filled with green smectite only. 465.30 - 465.58 vesicles filled with green smectite, zeolite and calcite.

465.85 Vesicles are about 10% of rock, irregular shape, 2-20mm across long axis. Filled with zeolite and green smectite.

FRACTURES - VEINS - BRECCIA

464.91 Minor hairlike fractures filled with smectite and zeolite.

465.20 Minor fractures at base of section lined with rusty red smectite, zeolite, minor amounts of calcite.

ROCK ALTERATION

464.91 Pervasive green smectite alteration. Minor bands of rusty-red smectite.

465.85 Pervasive alteration to green smectite, local bands of rusty-red smectite, zeolites in vesicles and replacing groundmass.

STRUCTURE

464.90 - 465.56 Aphyric, fine grained vesicular basalt.

465.56 - 465.77 Scoriaceous basaltic breccia.

465.77 - 466.24 Aphyric, fine grained basalt with irregular vesicles.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer NG

Depth Interval

4 6 6 2 4

cm to

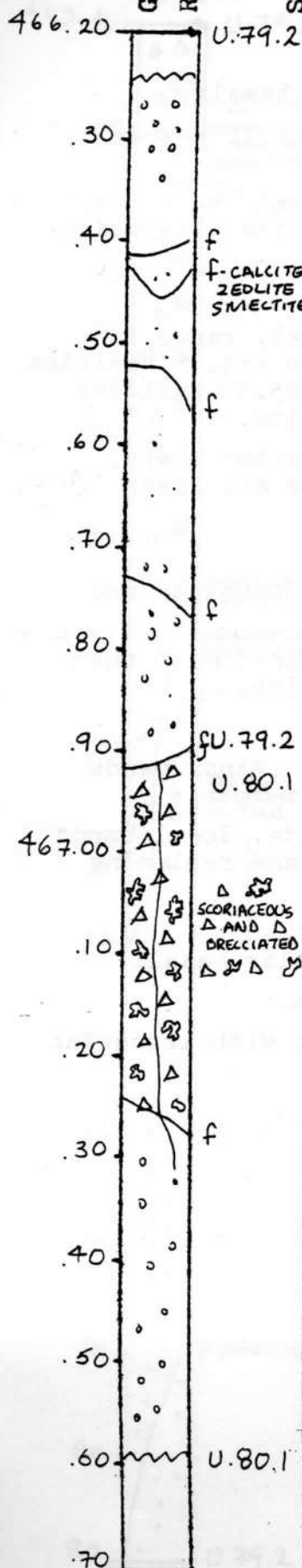
4 6 7 5 9

cm

Box 80, Section 1

Graphic Representation

Sample Location



LITHOLOGY PETROGRAPHY

Grey-green, medium-grained, very sparsely phyrlic, moderately vesicular, basalt phenocrysts = a few laths of plagioclase.

466.92 Contact marred at base of massive unit above and top of this scoriaceous and brecciated unit. 4mm wide, fine-grained, darkened, chilled margin at contact. Upper portion of section is dark grey-green, scoriaceous and brecciated, fine-grained, aphyric basalt.

467.26 This grades downward to un-brecciated, green-grey, fine-grained, aphyric basalt, with large (to 1.3cm diameter) vesicles.

VESICLES/AMYGDALES

466.24 Vesicles are 5 to 15% of rock and are most abundant near the top of section and bottom of unit. Size ranges from less than 1mm to 1cm across long axis, being smaller in centre of section. They are spherical to elongate, being spherical in central part of section and elongate toward top of section and bottom of unit. They are lined with smectite and filled with zeolite.

466.92 Irregular near contact in breccia zone, below this are spherical to oval. 2-3mm across long axis, becoming larger downward. Filled with zeolite and smectite.

FRACTURES - VEINS - BRECCIA

466.24 Core fracture - 2 sets: (1) about horizontal; (2) about 50°. Lined primarily with rusty-red smectite.

466.45 Fracture filled with calcite, zeolite and smectite.

466.92 Three sets of fractures. Core angled fracture: Set 1 about horizontal; set 2 about 60°; set 3 about 90°. Filled with smectite, zeolite, minor amounts of calcite. Also few randomly oriented, irregular, hair-like fractures filled with zeolite or smectite.

ROCK ALTERATION

466.24 Oxidized bands of rusty-red smectite? 0.5-1cm wide. Pervasive alteration to green smectite? Zeolites in fractures and vesicles.

466.92 Pervasive smectite alteration. Zeolites in veins and vesicles, and between clasts in breccia.

STRUCTURE

466.24 - 466.92 Medium grained, moderately vesicular basalt. Flow banding defined by wisps of smectite dip at 65°.

466.92 - 467.26 Scoriaceous basaltic breccia.

467.26 - 467.59 Aphyric, fine grained, unbrecciated basalt.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer NG

Depth Interval

4 6 7 5 9

cm to

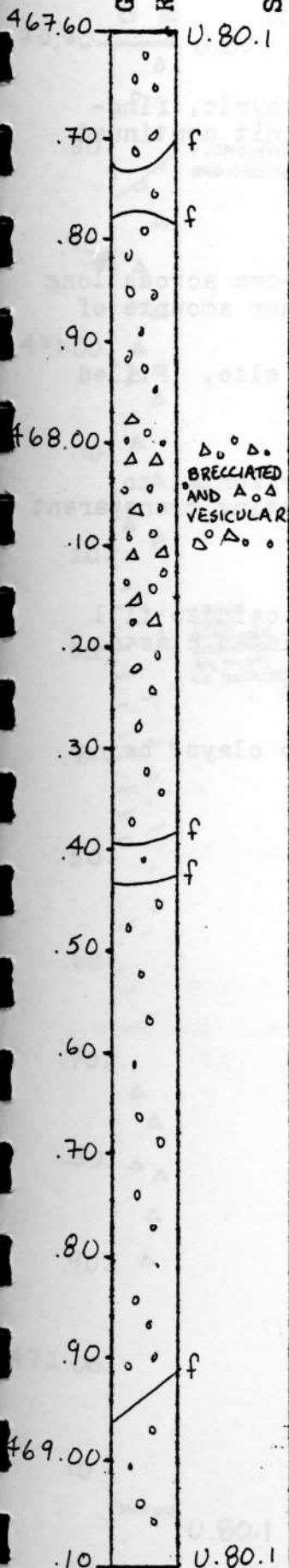
4 6 9 1 0

cm

Box 80, Section 2

Graphic Representation

Sample Location



LITHOLOGY PETROGRAPHY

Mottled green-grey to reddish-green-grey, medium-grained, vesicular, aphyric basalt.

VESICLES/AMYGDALES

467.59 1-3mm subrounded to spherical vesicles filled with smectite, zeolite and calcite.

467.90 In breccia zone vesicles are subrounded to irregular, 1-5mm in size, same filling as above.

468.20 Below breccia zone vesicles are subrounded to spherical, 3-10mm diameter, primarily filled with green or rusty-red smectite, zeolite and minor amounts of calcite. Some have stratified silicate deposits and euhedral crystals of quartz and zeolite? (laumontite?).

FRACTURES - VEINS - BRECCIA

467.59 Section not highly fractured. Core angled fracture (for major fractures) is 60-80: fractures slight irregular and lined with smectite.

468.00 Also tiny, irregular, hairlike fractures filled with smectite or zeolite?

ROCK ALTERATION

467.59 Pervasive alteration to green smectite. Rusty-red smectite in patches.

468.00 Zeolites primarily filling vesicles.

STRUCTURE

467.59 - 467.90 Aphyric, medium grained vesicular basalt.

467.90 - 468.20 Vesicular basaltic breccia.

468.20 - 469.10 Vesicular basalt.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer NG

Depth Interval

4	6	9	1	0
---	---	---	---	---

 cm to

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

 cm

Box 80, Section 3

LITHOLOGY PETROGRAPHY

Dark green-grey, and purplish-green-grey, aphyric, fine-grained, vesicular and brecciated basalt - unit continued from above.

Clasts are vesicular basalt.

VESICLES/AMYGDALES

469.10 Vesicles are spherical to oblong, 2-6mm across long axis. Filled with smectite, zeolite and minor amounts of calcite.

469.20 Vesicles are irregular in shape and size. Filled with zeolites.

FRACTURES - VEINS - BRECCIA

469.20 Core angled fracture varies from horizontal to vertical. Fracture filled with platy, radiating transparent zeolite, smectite and calcite.

ROCK ALTERATION

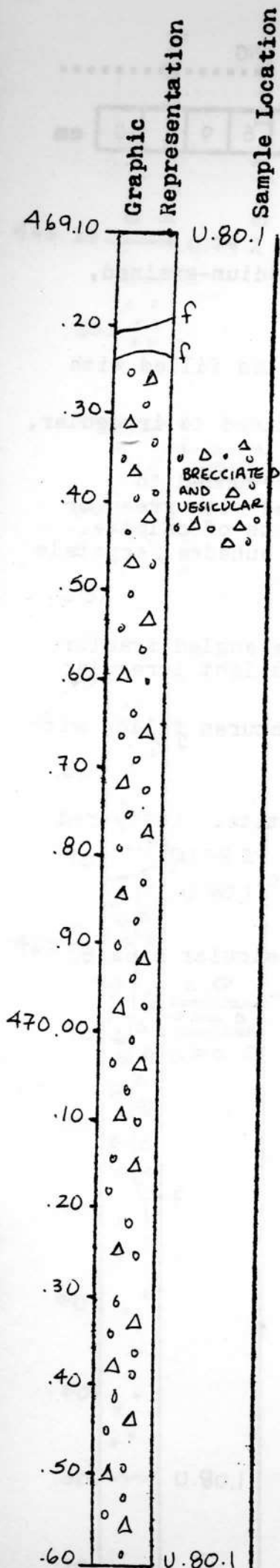
Pervasive alteration to clay? zeolites? and calcite fill vesicles, fracture and spaces between brecciated clasts. Zeolites are massive to euhedral.

OTHER

469.50-470.00 has weathered surfaces due to clays? being washed away during drilling.

STRUCTURE

U.80.1 Vesicular basaltic breccia.



ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer ^{NG}

Depth Interval

4 7 0 7 2

cm to

4 7 2 1 3

cm

Box 80, Section 4

LITHOLOGY PETROGRAPHY

Gray, fine-grained, aphyric, basalt. Unit continued from above. Local brecciated zones. Clasts are, angular 1-2cm, grey, aphyric basalt, similar to more massive part of flow.

VESICLES/AMYGDALES

Rare.

FRACTURES - VEINS - BRECCIA

470.80 Fracture is filled with green smectite and calcite. Spaces between brecciated clasts are filled with calcite and zeolite.

ROCK ALTERATION

Pervasive smectite? alteration. Calcite and zeolite in fractures, veinlets, and spaces between brecciated clasts.

STRUCTURE

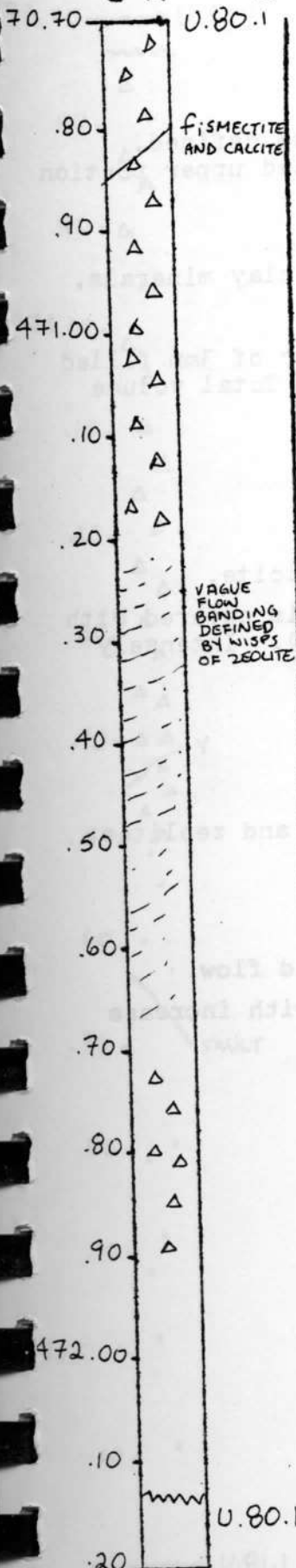
470.72 - 471.20 Basaltic breccia.

471.20 - 471.74 Aphyric, fine grained basalt.

471.74 - 471.88 Brecciated zone.

471.88 - 472.13 Aphyric, fine grained basalt.

Graphic Representation
Sample Location



ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer KH

Depth Interval

4	7	2	1	3
---	---	---	---	---

 cm to

4	7	3	7	3
---	---	---	---	---

 cm

Box 81, Section 1

Graphic Representation

Sample Location

LITHOLOGY PETROGRAPHY

Massive compact purple-grey basalt.

472.43 The Boundary is very difficult to be defined. Green coloured aphyric basalt flow. Oxidized upper portion of the flow unit.

472.90 Brecciation becomes prominent.

473.43 Very brittle, matrix is altered to clay minerals.

VESICLES/AMYGDALES

472.13 Vesicles up to 2cm; usually diameter of 3mm filled with calcite, green smectite and zeolites. Total volume about 2%.

472.43 None.

FRACTURES - VEINS - BRECCIA

472.43 Fracture angled 10°.

472.94 Veins less than 1mm, filled with calcite.

473.50 Fault; nearly vertical fault plane is covered with green smectite, calcite, zeolite (stilbite?). Intensely altered.

ROCK ALTERATION

472.13 Oxidized green smectite.

472.43 Oxidized.

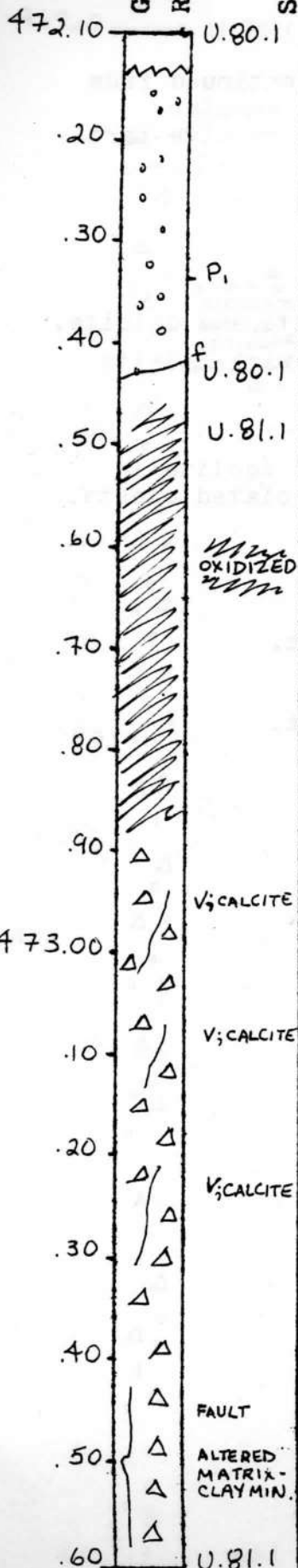
473.50 Intensely altered by green smectite and zeolites.

STRUCTURE

472.13 - 472.43 Compact massive basalt.

472.43 - 472.88 Oxidized portion of basaltic flow.

472.88 - 473.73 Brecciation more prominent with increase of clay minerals in matrix with depth.



ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer^{KH}.....

Depth Interval

4 7 3 7 3

cm to

4 7 5 2 2

cm

Box 81, Section 2

LITHOLOGY PETROGRAPHY

Green coloured aphyric, microcrystalline basalt flow.

473.95 Upper brecciated zone of the flow unit. The size of the breccia reaches up to 5cm, most of them are 2cm.

474.45 The size of breccia becomes small.

474.55 Massive compact portion of the flow.

VESICLES/AMYGDALES

473.73 Flattened amygdaloids in breccia are filled with green smectite, rarely filled with zeolites.

474.55 Vesicles: round shape, diameter about 2mm, filled with green smectite, less than 1% of rock.

FRACTURES - VEINS - BRECCIA

474.42 Vein: iron oxides about 2mm, irregularly runs.

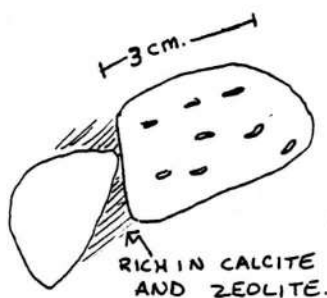
474.63 Fault, 58°.

ROCK ALTERATION

473.73 Green smectite, zeolite, especially matrix filling among breccia are intensely altered and calcite occurs in them.

474.40 Brittle, highly altered.

474.55 Green smectite.



FLATTENED AMYGDALES
IN BRECCIAS FILLED
WITH GREEN SMECTITES.
(RARELY FILLED WITH ZEOLITES.)

STRUCTURE

473.73 - 473.95 Aphyric, microcrystalline basalt.

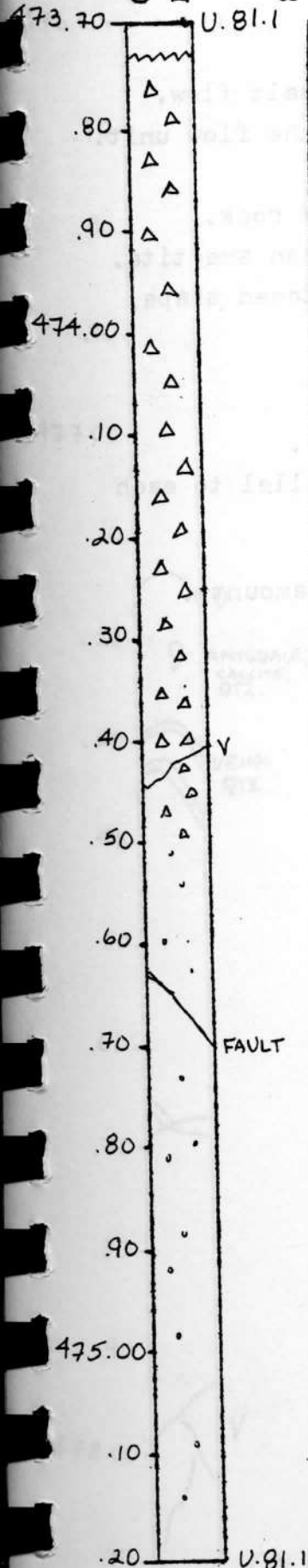
473.95 - 474.40 Brecciated zone. Size of breccias decrease with depth.

474.40 - 474.55 Brittle, highly altered and enriched zone.

474.55 - 475.22 Compact, massive flow.

Graphic
Representation

Sample Location



ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

ObserverKH.....

Depth Interval

4

7

5

2

2

cm to

4

7

6

6

6

cm

Box 81, Section 3

Graphic
Representation

Sample Location

LITHOLOGY PETROGRAPHY

Green coloured aphyric, microcrystalline basalt flow.

475.50 Fairly homogeneous central part of the flow unit.

VESICLES/AMYGDALES

475.40 Vesicles, amygdales, less than 1% of rock.

476.36 Vesicle: oval shaped filled with green smectite.

476.40 Amygdale: diameter about 4cm, flattened shape, euhedral quartz (2mm) and calcite.

FRACTURES - VEINS - BRECCIA

475.44 Flat fracture.

475.70 Vein (less than 1mm), green smectite.

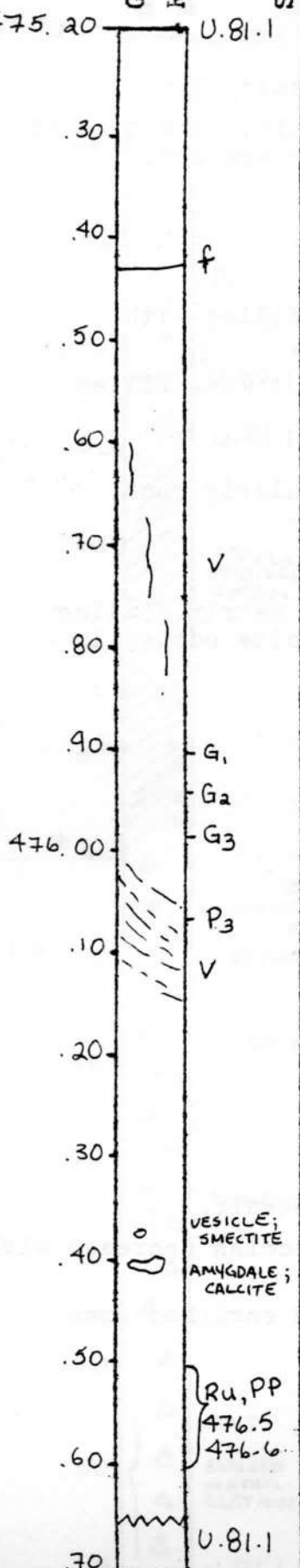
476.00 Veins (less than 1mm), calcite, parallel to each other.

ROCK ALTERATION

475.70 Green smectite (calcite: very small amount).

STRUCTURE

U.81.7 Compact, massive unit.



ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer ^{KH}

Depth Interval

4 7 6 6 6

cm to

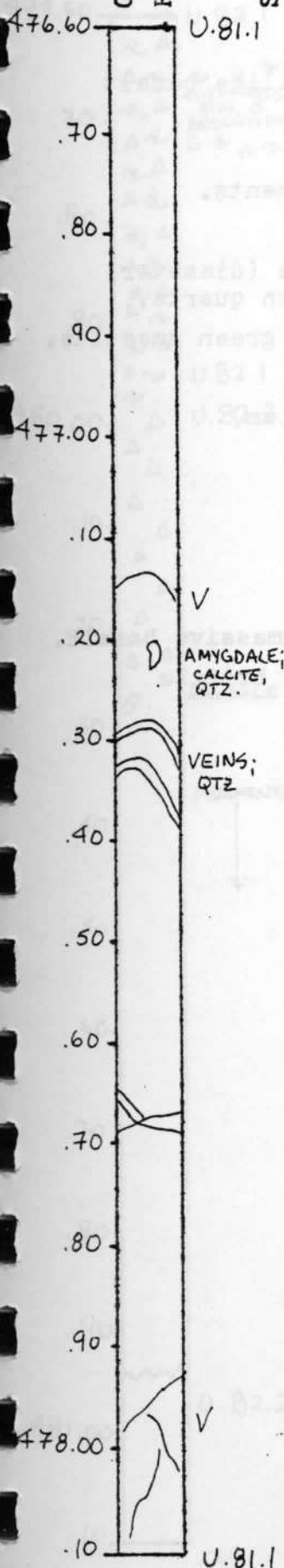
4 7 8 1 5

cm

Box 81, Section 4

Graphic
Representation

Sample Location



LITHOLOGY PETROGRAPHY

Greyish-green coloured aphyric, microcrystalline basalt flow. This core is the central massive portion.

VESICLES/AMYGDALES

Vesicles: very small, rare, less than 0.5% of rock, filled with green smectite.

477.20 Amygdale: filled with calcite and quartz.

FRACTURES - VEINS - BRECCIA

477.15 Quartz veins (about 5mm).

477.90 Quartz or zeolite veins.

ROCK ALTERATION

Green smectite.

STRUCTURE

Compact, massive unit.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer ^{KH}

Depth Interval

4 7 8 1 5

cm to

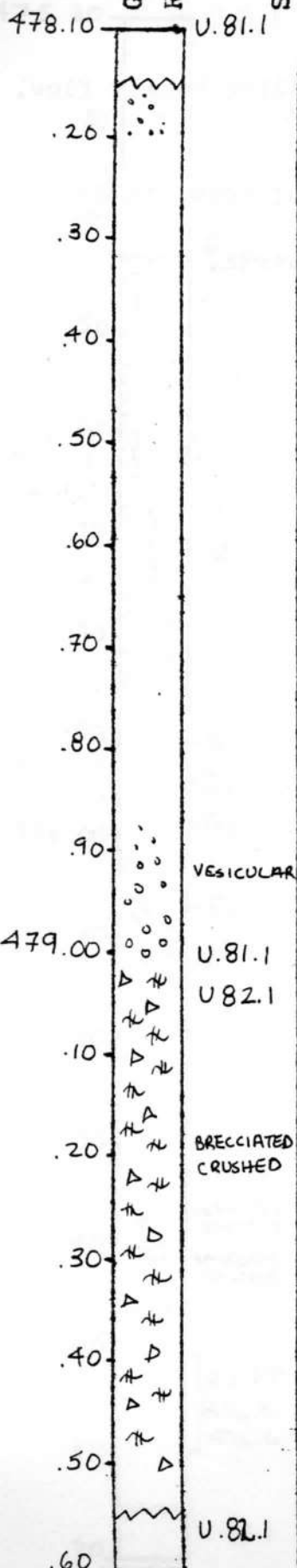
4 7 9 5 5

cm

Box 82, Section 1

Graphic
Representation

Sample Location



LITHOLOGY PETROGRAPHY

Greyish-green coloured aphyric, microcrystalline basalt (about 1mm).

478.92 Basal part of the lava unit 81.1.

479.04 Dark brown coloured tuffaceous sediments.

VESICLES/AMYGDALES

478.15 Vesicles: filled with green smectite (diameter about 2mm), some reach up to 1cm, filled with quartz.

478.92 Many vesicles, filled with calcite, green smectite.

FRACTURES - VEINS - BRECCIA

478.20 Small tiny veinlets run (less than 1mm).

ROCK ALTERATION

478.15 Green smectite.

478.90 Green smectite, clayey.

STRUCTURE

478.15 - 478.92 Aphyric, microcrystalline, massive basalt.

478.92 - 479.04 Basal part of unit U.81.1 - brittle and vesicular.

479.04 - 479.45 Tuffaceous sediments.

479.45 - 479.55 Intensely brecciated zone.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

ObserverKH.....

Depth Interval

4 7 9 5 5

cm to

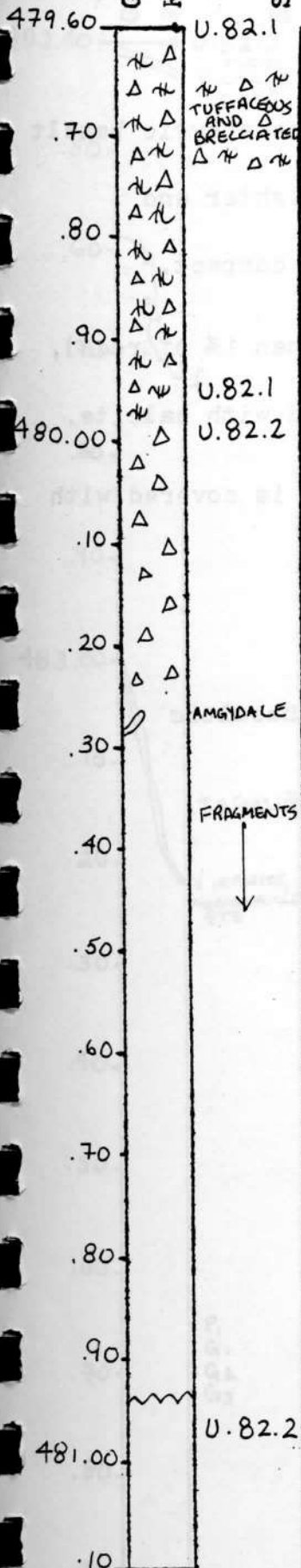
4 8 0 9 4

cm

Box 82, Section 2

Graphic Representation

Sample Location



LITHOLOGY PETROGRAPHY

Brown coloured (some parts are dark brownish-green) basic tuffaceous, fine-grained sediments.

480.00 Upper brecciated zone of the lava flow unit 82.1 (microcrystalline aphyric basalt).

480.30 Greyish-brown.

VESICLES/AMYGDALES

480.25 Amygdale: calcite filled, 4cm.

FRACTURES - VEINS - BRECCIA

None observed.

ROCK ALTERATION

479.55 Intensely altered, and brittle, soft, clayey, soapy.

480.00 Strongly oxidized matrix of the fragments is dark reddish-brown.

STRUCTURE

479.55 - 480.00 Brecciated section of fine grained tuffaceous sediments.

480.00 - 480.25 Upper section of U.82.2 composed of aphyric, microcrystalline basaltic breccia.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer KH

Depth Interval

4 8 0 9 4

cm to

4 8 2 4 0

cm

Box 82, Section 3

Graphic
Representation

Sample Location

481.00 U.82.2

LITHOLOGY PETROGRAPHY

Brecciated upper part of the microcrystalline aphyric basalt flow.

481.30 The colour gradually changes into lighter and bluish.

481.60 Grey-greenish-blue colour, becoming compact.

VESICLES/AMYGDALES

481.80 Vesicles, very small amount (less than 1% of rock), round shape, filled with green smectite.

482.23 Amygdale: diameter about 2cm, filled with calcite.

FRACTURES - VEINS - BRECCIA

482.30 Fracture, angle 85-90°, fault plane is covered with green smectite.

ROCK ALTERATION

Calcite is disseminated in matrix.

STRUCTURE

480.94 - 481.75 Aphyric, microcrystalline breccia. Brecciation weakens with depth. basaltic

481.75 - 482.40 Compact, massive basalt.

482.00

U.82.2

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer KH

Depth Interval

4	8	2	4	0
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 cm to

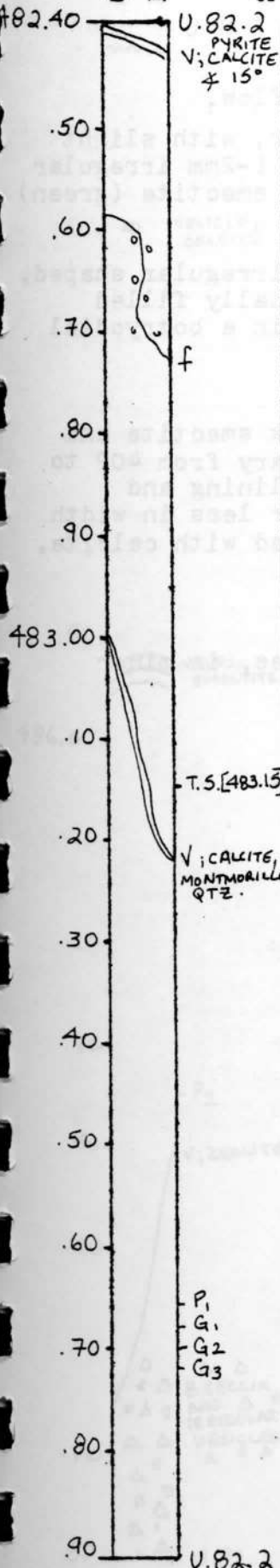
4	8	3	9	1
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 cm

Box 82, Section 4

Graphic Representation

Sample Location



LITHOLOGY PETROGRAPHY

Central massive part of the lava flow at unit 82.1. Greyish-green aphyric microcrystalline basalt flow.

483.10 Very homogeneous.

VESICLES/AMYGDALES

482.60 Vesicles: filled with green smectite and calcite. Usually diameter about 2mm - 5mm. 1% of rock.

FRACTURES - VEINS - BRECCIA

482.40 Vein, 1cm thick, clay, calcite, fragments of basalt, pyrite, disseminated, oxidized.

482.58 Fracture runs irregularly, fracture surface is covered with green smectite.

483.00 Vein, 1-2cm thick, angle 70-80°. This vein is oxidized, composed mainly of calcite, quartz, montmorillonite

ROCK ALTERATION

None observed.

STRUCTURE

U.82.2 Aphyric, microcrystalline massive basalt.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer ^{JM}

Depth Interval

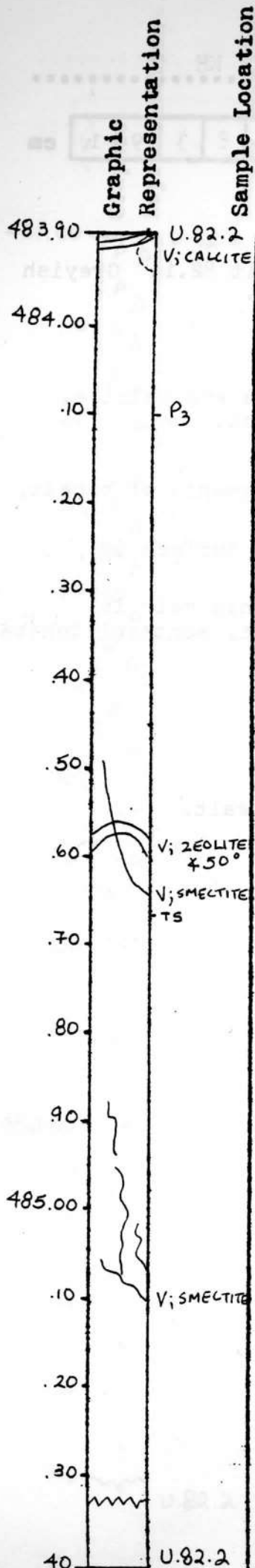
4	8	3	9	1
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 cm to

4	8	5	3	3
---	---	---	---	---

 cm

Box 83, Section 1



LITHOLOGY PETROGRAPHY

Black fine-grained, massive aphyric basalt flow.

485.00 Transition to slightly darker colour, with slight increase in colouration and grain size, and 1-2mm irregular vesicles filled with calcite and lined with smectite (green).

VESICLES/AMYGDALES

485.08 Vesicles: 2.5cm and 2cm long vugs, irregular shaped, lined with calcite and black smectite, partially filled with fine-grained euhedral quartz crystals in a botryoidal habit.

FRACTURES - VEINS - BRECCIA

Planar fractures and veins filled with black smectite and (?)white zeolite. Fracture and vein dips vary from 40° to very high angles, some veins have smectite lining and white zeolite filling, most veins are 1mm or less in width except vein at 484.91 which is 7mm and filled with calcite.

ROCK ALTERATION

Fresh.

485.10 Disseminated pyrite on fresh surfaces, in minor amounts.

STRUCTURE

U.82.2 Aphyric, fine grained massive basalt.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

ObserverJM.....

Depth Interval

4 8 5 3 3

cm to

4 8 6 8 5

cm

Box 83, Section 2

LITHOLOGY PETROGRAPHY

Black, fine-grained, faintly flow banded basalt, which is sparsely vesicular, holocrystalline.

486.63 Transition to massive breccia, with fragments and groundmass, same as overlying basalt, may be a flow bottom breccia, also increase in irregular, calcite, quartz and smectite filled vesicles.

VESICLES/AMYGDALES

485.33 Vesicles, irregular, calcite filled and smectite lined.

486.63 Vesicles increase in quantity.

FRACTURES - VEINS - BRECCIA

485.33 Irregular calcite filled and smectite lined veins and irregular vesicles which are 1cm-1mm in length.

ROCK ALTERATION

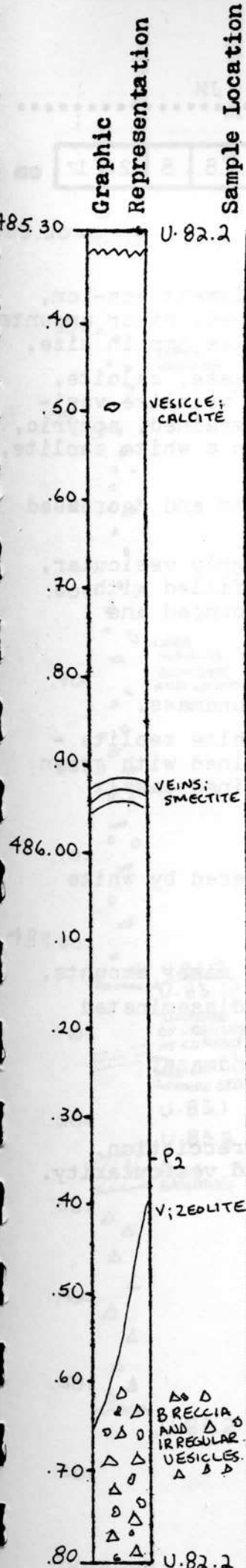
485.33 Minor amounts of disseminated pyrite.

486.63 Minor amounts of disseminated pyrite.

STRUCTURE

485.33 - 486.63 Fine grained, holocrystalline basalt with minor flow banding dipping 5 to 10°.

486.63 - 486.85 Massive basaltic breccia. Greater number of vesicles.



ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer JM

Depth Interval

4	8	6	8	5
---	---	---	---	---

 cm to

4	8	8	2	1
---	---	---	---	---

 cm

Box 83, Section 3

LITHOLOGY PETROGRAPHY

Flow bottom breccia, grey coloured, with fragment 4cm-1cm, groundmass and fragments aphyric, fine-grained, minor amounts of irregular calcite filled vesicles, vesicles 5mm in size.

487.05 Transition to more brecciated, increase, calcite, zeolite and green smectite filled irregular veinlike vesicles. Fragments average 1cm in size, fine-grained, aphyric, light grey, with the subrounded fragments in a white zeolite, calcite matrix.

487.40 Transition to larger basalt fragments and decreased vein-like vesicles.

487.90 Transition to highly brecciated, highly vesicular. Vesicles irregular, vein-like and rounded, filled with white zeolites (laumontite), fragments subrounded and 5cm-2mm in size.

VESICLES/AMYGDALES

486.85 Irregular vein-like vesicles in groundmass.

487.05 Irregular vein-like and forming a white zeolite - calcite matrix, with 1mm rounded vesicles lined with green smectite occurring in the aphyric, fine-grained basalt fragments.

FRACTURES - VEINS - BRECCIA

487.05 Fractures planar, with surfaces covered by white zeolite (laumontite), and minor calcite.

ROCK ALTERATION

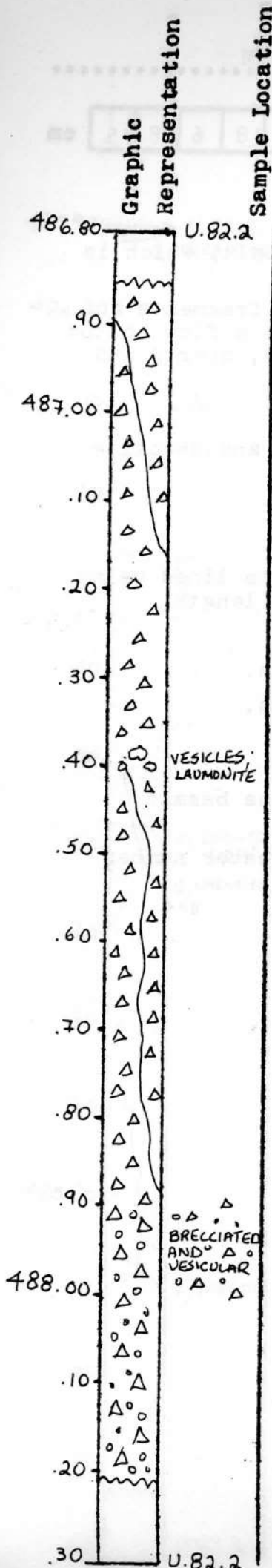
486.85 Disseminated pyrite grains occur in minor amounts.

487.05 Minor amounts of very fine-grained disseminated pyrite.

487.90 Red oxidation of fragments and groundmass.

STRUCTURE

486.85 - 488.21 Includes various stages of brecciation. Changes in amount of brecciation, content and vesicularity.



ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

ObserverJM.....

Depth Interval

4 8 8 2 1

cm to

4 8 9 5 3

cm

Box 83, Section 4

Graphic Representation

Sample Location

LITHOLOGY PETROGRAPHY

Grey, aphyric, fine-grained, basalt flow.

488.30 Transition zone, 1mm and less irregular vesicles, filled with white zeolite.

488.45 4mm-1mm elongated and rounded vesicles filled with white zeolite (laumontite) and lined with green smectite.

489.06 Increase irregular vesicles at contact.

489.07 Black very fine-grained sediment, soft, and medium grained 1.5cm thick bed, horizontal.

489.20 Dark grey, very sparsely porphyritic, breccia, with clast and matrix texturally similar, phenocrysts of black euhedral pyroxene, less than 1mm, basalt flow.

VESICLES/AMYGDALES

489.20 Vesicles rounded, 2mm to less than 1mm, filled with white zeolite and lined with green smectite.

FRACTURES - VEINS - BRECCIA

488.21 None observed.

489.20 Rare.

ROCK ALTERATION

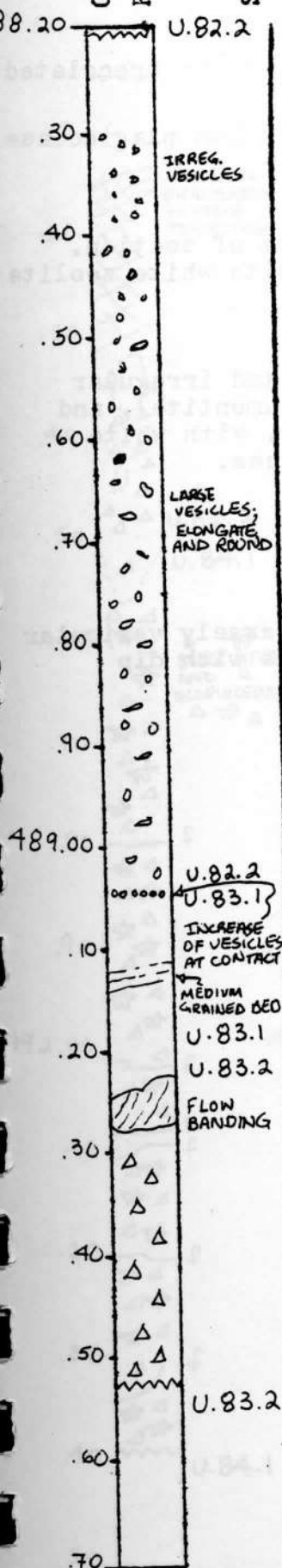
489.20 Minor amounts of disseminated pyrite.

STRUCTURE

U.82.2 Aphyric, vesiculated, fine grained basaltic breccia.

U.83.1 Fine grained sediment.

U.83.2 Basaltic breccia with faint flow banding.



ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer JM

Depth Interval

4 8 9 5 3

cm to

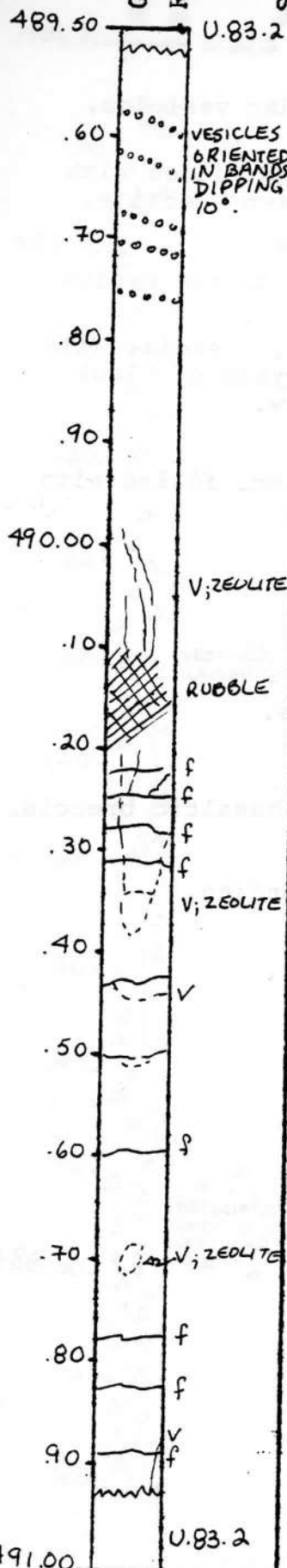
4 9 0 9 3

cm

Box 84, Section 1

Graphic Representation

Sample Location



LITHOLOGY PETROGRAPHY

Grey, medium-grained, aphyric, sparsely vesicular brecciated basalt flow.

490.20 Increasing grain size downward, with 1mm plagioclase phenocrysts.

VESICLES/AMYGDALES

Vesicles, less than 1mm, occur in upper 40cm of section. Decreasing in abundance downward. Filled with white zeolite (laumontite).

FRACTURES - VEINS - BRECCIA

490.00 - 490.50 Irregular fresh fractures and irregular mineralized fracture with white zeolite (laumontite), and high angled fractures (80-60°), semi-planar, with white zeolite (laumontite) occurring on the surfaces.

ROCK ALTERATION

490.00 Rock is highly weathered.

STRUCTURE

489.53 - 489.95 Aphyric, medium grained, sparsely vesicular brecciated basalt. Vesicles oriented in bands with dip of 10°.

489.95 - 490.93 Massive basalt.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer JM

Depth Interval

4 9 1 0 5

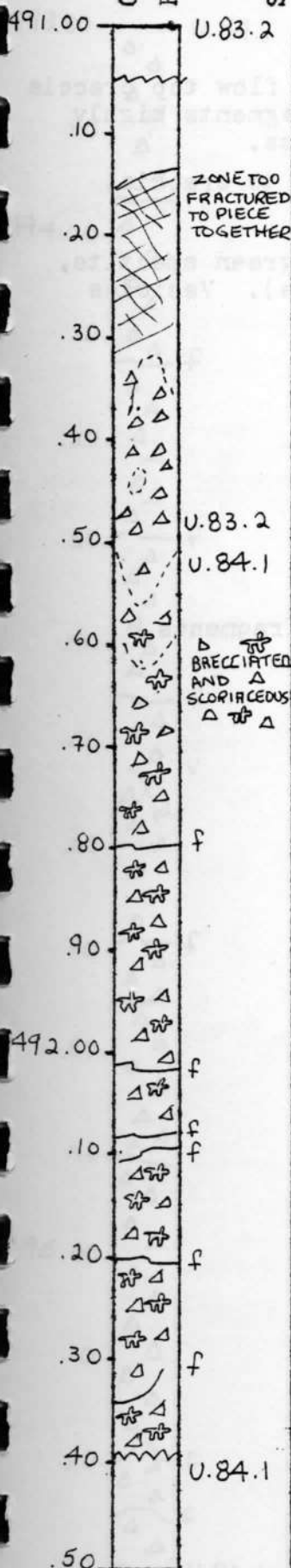
cm to

4 9 2 3 9

cm

Box 84, Section 2

Graphic
Representation
Sample Location



LITHOLOGY PETROGRAPHY

Fine- to medium-grained, aphyric, massive basalt flow.

491.50 The contact between these two units was placed ~~at~~ where an increase in brecciation occurs and scoriaceous fragments.

491.70 Reddish-brown, scoriaceous flow top breccia, with 4mm-1mm calcite filled round and equant vesicles.

VESICLES/AMYGDALES

491.05 None.

491.55 4mm-1mm rounded and irregular shaped vesicles filled with calcite.

FRACTURES - VEINS - BRECCIA

491.05 Discontinuous white (laumontite) zeolite filled fractures, and high angle laumontite filled fractures dipping 80°.

ROCK ALTERATION

491.05 Disseminated pyrite and smectite throughout rock.

491.50 Minor amount (trace) disseminated pyrite, highly oxidized groundmass.

STRUCTURE

491.05 - 491.34 Aphyric, medium grained, massive basalt flow.

491.34 - 491.50 Brecciated basalt.

U.84.1 Brecciated and scoriaceous fragments.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer JM

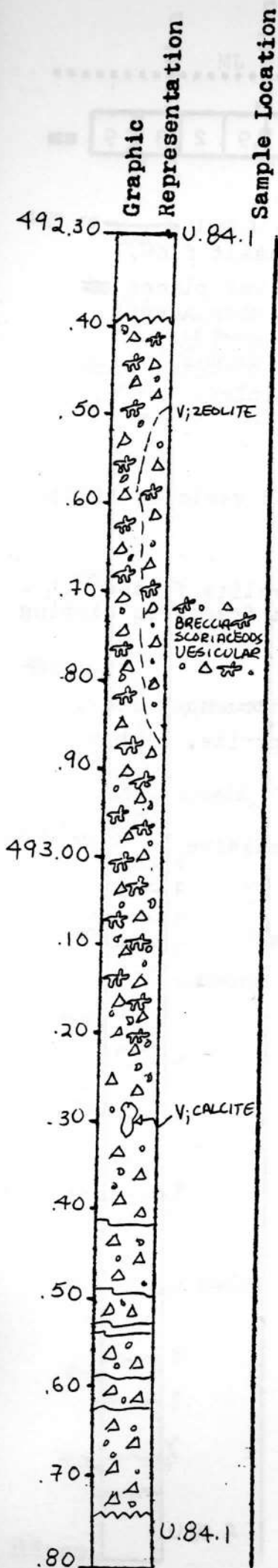
Depth Interval
Box 84, Section 3

4 9 2 3 9

cm to

4 9 3 7 5

cm



LITHOLOGY PETROGRAPHY

Reddish-brown, highly weathered scoriaceous flow top breccia with zeolite filled veins and vesicles. Fragments highly scoriaceous. Fine-grained aphyric groundmass.

493.23 Transition from scoriaceous breccia to breccia.

VESICLES/AMYGDALES

492.39 Vesicles and rounded vesicles with green smectite, minor calcite and white zeolite (?laumontite). Vesicles 2cm to less than 1mm.

FRACTURES - VEINS - BRECCIA

492.64 White zeolite filled vein.

492.83 White zeolite filled vein.

493.30 Calcite filled vein.

ROCK ALTERATION

None observed.

STRUCTURE

492.39 - 493.23 Brecciated and scoriaceous fragments.

493.23 - 493.75 Breccia

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer^{JM}.....

Depth Interval

4 9 3 7 5

cm to

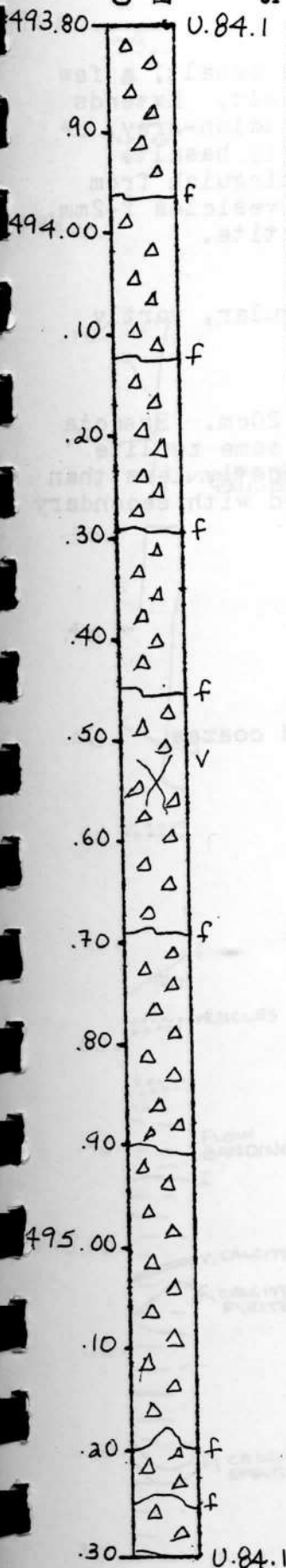
4 9 5 3 2

cm

Box 84, Section 4

Graphic
Representation

Sample Location



LITHOLOGY PETROGRAPHY

Greyish-green, brecciated basalt flow with rounded clast, greater than the width of core - down to 1cm, fragments are commonly vesicular, with irregular 2mm-1mm vesicles, filled with green smectite, calcite and (?)white zeolite. Groundmass sparsely porphyritic, fine-grained, with 4mm plagioclase phenocrysts. Groundmass weathered.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

493.75 Minor hairline veins filled with calcite.

ROCK ALTERATION

493.75 Weathering decreases downward. Calcite disseminated throughout.

STRUCTURE

493.75 - 495.32 Brecciated basalt.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

ObserverPTR.....

Depth Interval

4 9 5 3 2

cm to

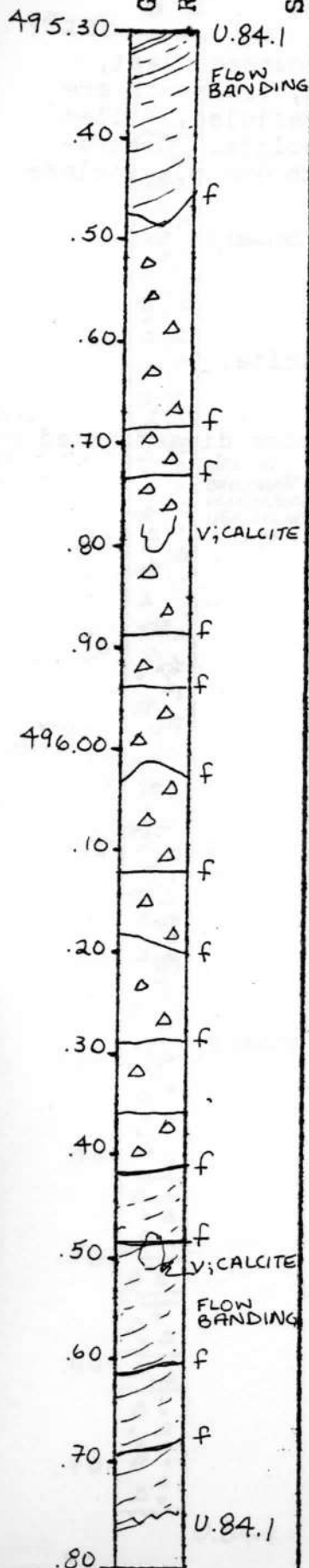
4 9 6 7 5

cm

Box 85, Section 1

Graphic Representation

Sample Location



LITHOLOGY PETROGRAPHY

Alternating bands of very fine-grained, grey basalt, a few cms thick and red-grey, somewhat coarser basalt. Extends to about 495.53 and then rock passes into reddish-grey, highly porous, incipiently brecciated, aphyric basalt. Clasts are poorly defined, difficult to distinguish from matrix. Entire rock vesicular (5-10%) with vesicles 1-2mm, mostly irregular and partly filled with smectite.

VESICLES/AMYGDALES

5-10%, some clasts more; mostly 1-2mm, irregular, partly filled with smectite.

FRACTURES - VEINS - BRECCIA

Rock incipiently brecciated except in upper 20cm. Breccia clasts and matrix difficult to distinguish, some zeolite in irregular patches in matrix. Fractures mostly less than 100 probably all due to drilling. Not coated with secondary minerals.

ROCK ALTERATION

None observed.

STRUCTURE

495.32 - 495.52 Alternating bands of fine and coarse grained basalt.

495.52 - 496.46 Brecciated, aphyric basalt.

496.46 - 496.75 Slight banding.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer PTR

Depth Interval

4 9 6 7 5

cm to

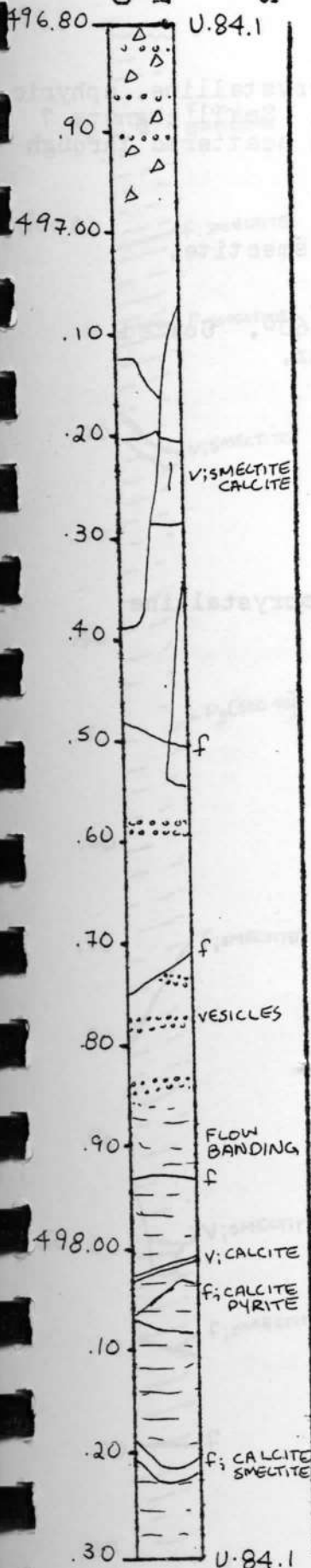
4 9 8 3 4

cm

Box 85, Section 2

Graphic Representation

Sample Location



LITHOLOGY PETROGRAPHY

Upper 20cm shows incipient brecciation and contains several vesicular layers about 1cm thick.

497.10 Rock is greyish-green, fine-grained, holocrystalline basalt. Grain size increases slightly down the section.

497.85 to end of section rock is slightly flow banded.

VESICLES/AMYGDALES

Rock generally has 1-2% vesicles, 1-2mm, spherical in shape. However, several zones are more vesicular, up to 10-15%, about 1mm, irregular. All vesicles partly filled with smectite.

FRACTURES - VEINS - BRECCIA

Natural fractures, 45-85°. Most coated with smectite. Some have calcite and pyrite.

Sparse veinlets filled with calcite.

ROCK ALTERATION

None observed.

STRUCTURE

496.75 - 496.95 Brecciated basalt. [incipient]

496.95 - 497.85 Fine grained, holocrystalline basalt - massive to slightly vesicular.

497.85 - 498.34 Slight flow banding.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer ... PTR

Depth Interval

4	9	8	3	4
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 cm to

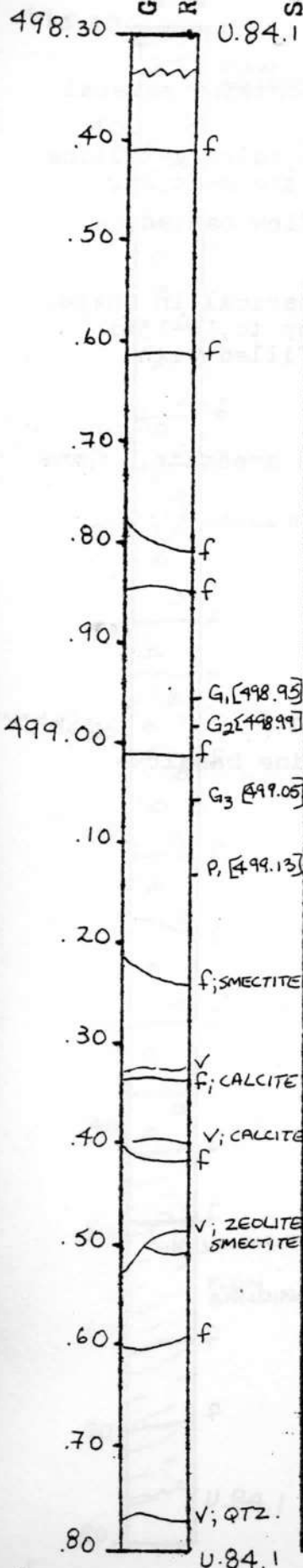
4	9	9	8	1
---	---	---	---	---

 cm

Box 85, Section 3

Graphic Representation

Sample Location



LITHOLOGY PETROGRAPHY

Uniform greenish-grey, fine-grained, holocrystalline, aphyric basalt. Very weak flow ? banding in part. Small cognate ? xenoliths or plagioclase and clinopyroxene scattered through section.

VESICLES/AMYGDALES

About 1-2%, 1-2mm, irregular, filled with smectite.

FRACTURES - VEINS - BRECCIA

Primary fractures and veins dip about 45-60°. Coated with smectite, with some calcite and quartz.

ROCK ALTERATION

None observed.

OTHER

Minor small cognate xenoliths.

STRUCTURE

498.34 - 499.81 Aphyric, fine grained, holocrystalline basalt-massive to weakly flow banded.

ICELAND RESEARCH DRILLING PROJECT

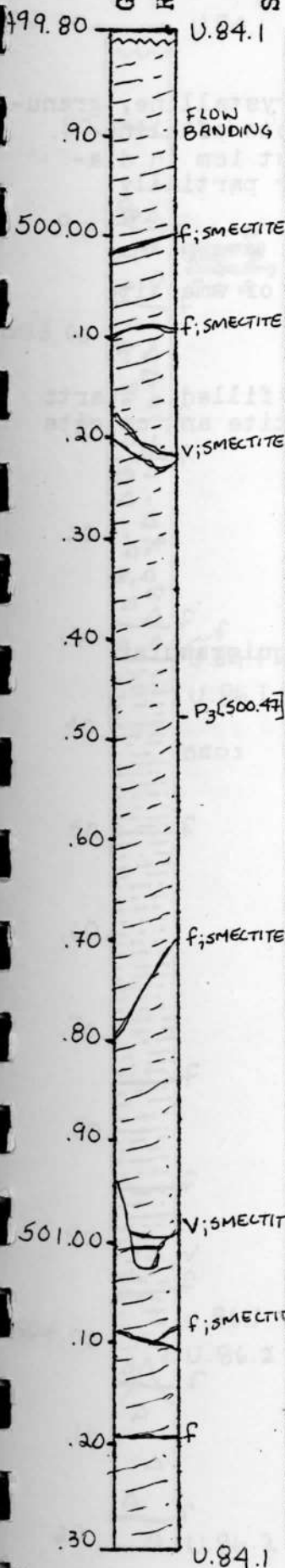
Visual Core Description

Observer PTR

Depth Interval 4 9 9 8 1 cm to 5 0 1 3 3 cm

Box 85, Section 4

Graphic Representation
Sample Location



LITHOLOGY PETROGRAPHY

Uniform greyish-green, fine-grained, holocrystalline, flow banded, aphyric basalt. Small scattered cognate xenoliths present through section.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

Fracture 50-60° coated with smectite. A few discontinuous veinlets of smectite.

ROCK ALTERATION

None observed.

OTHER

Small cognate xenoliths to 1cm common.

STRUCTURE

499.81 - 501.33 Aphyric, fine grained, holocrystalline flow banded basalt.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer ^{RHW}

Depth Interval

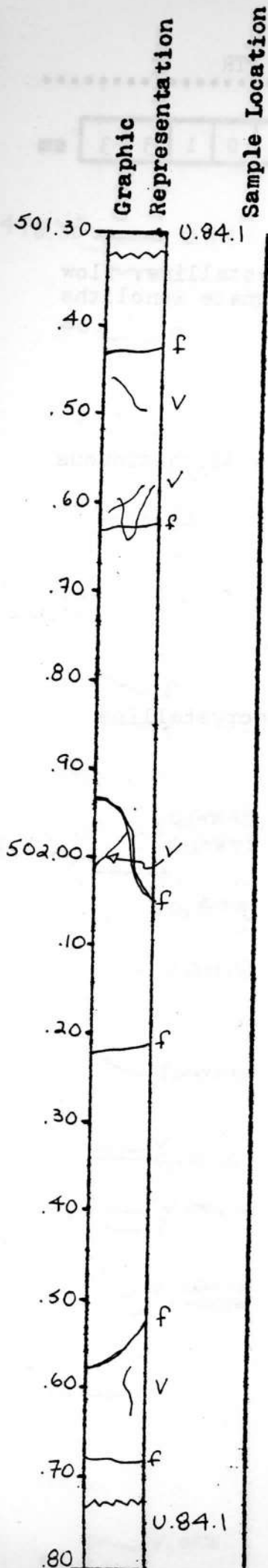
5	0	1	3	3
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 cm to

5	0	2	7	3
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 cm

Box 86, Section 7



LITHOLOGY PETROGRAPHY

Fine-grained, greenish-grey, aphyric, holocrystalline, granular, equigranular basalt. Several small clots of clinopyroxene and plagioclase laths, largest about 1cm in diameter. Laths up to 0.5mm long (autoliths or partially assimilated "xenoliths").

VESICLES/AMYGDALES

Essentially absent. Some small, rare clots of smectite (less than 1%, less than 1mm diameter).

FRACTURES - VEINS - BRECCIA

Fractures generally smectite lined, calcite filled. Quartz present in one fracture. Veinlets are smectite and calcite filled.

ROCK ALTERATION

None observed.

STRUCTURE

501.33 - 502.73 Aphyric, holocrystalline, equigranular massive basalt.

Visual Core Description

Observer RHW

Depth Interval

5 0 2 7 3 cm to 5 0 4 2 3 cm

Box 86, Section 2

LITHOLOGICAL DESCRIPTION:
Fine-grained, aphyric, holocrystalline, medium grey basalt grading into a basaltic breccia with scoriaceous clasts. Vesicles very small, 1-2mm maximum diameter.

503.32 Abrupt contact with sedimentary unit, dipping about 10° . Sediment below breccia is fine-grained, dark reddish-brown, grading into somewhat more porous sediment lower in the core. Occasional distinguishable beds maintain 10° dip. Sedimentary section contains minute (very much less than 1mm) pyrite.

503.95 Sediment grades into another altered breccia with scoriaceous clasts, medium grey in colour. Contact mixed clots of red and breccia clasts.

502.73 Amygdales smectite lined, calcite rich with zeolite also present. Groundmass void, filling also calcite, smectite, minor zeolite and calcite.

504.00 Amygdales smectite lined, filled with zeolite,
perhaps minor quartz.

502.73 Fractures 0-10° or about 65°. Lined with dull green smectite, minor zeolite and calcite.

503.34 Fractures 0-10° or about 45°, lined with greenish smectite (partially). Vein (1mm wide) smectite lined and quartz filled.

504.00 Vein about 1mm wide, dipping 60-70°, quartz rich.

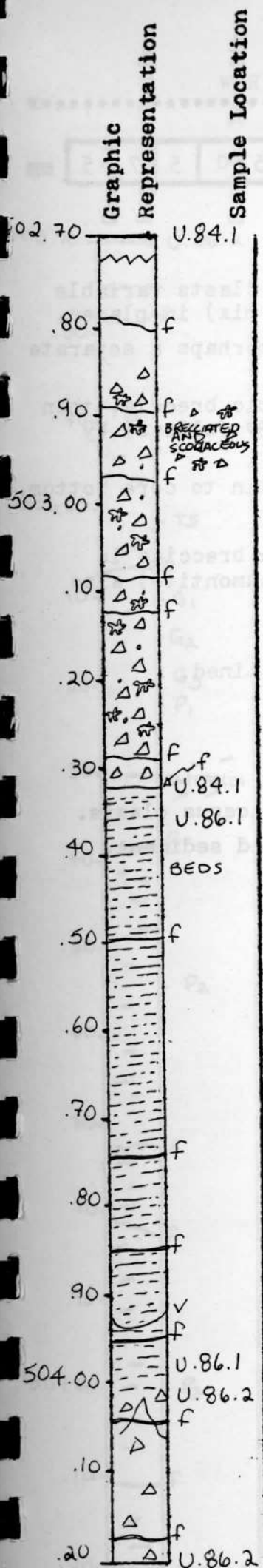
None observed.

502.73 - 502.86 Aphyric, fine grained, massive basalt.

502.86 - 503.32 Basaltic breccia with scoriaceous clasts.

503.32 - 504.00 [U.86.1] Fine grained bedded to massive sediment.

504.00 - 504.23 Massive unit with breccia clasts.



ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer RHW

Depth Interval

5	0	4	2	3
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 cm to

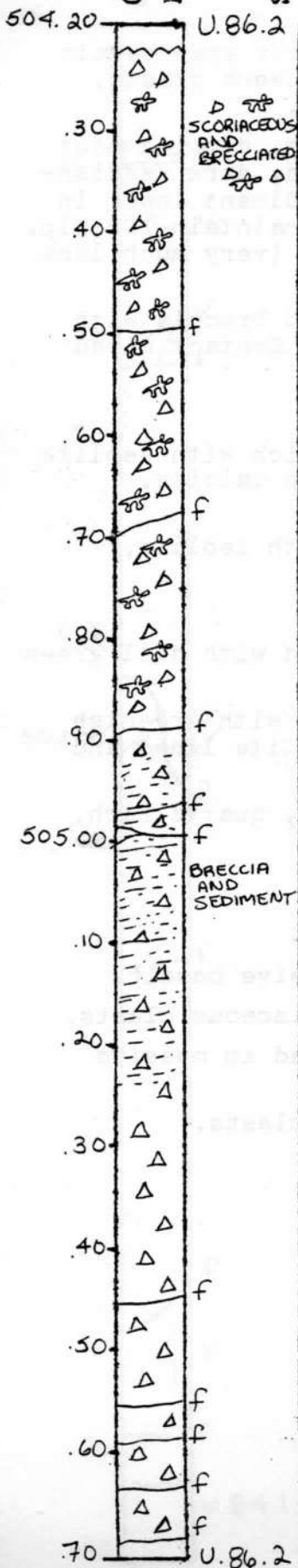
5	0	5	7	5
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 cm

Box 86, Section 3

Graphic Representation

Sample Location



LITHOLOGY PETROGRAPHY

Basaltic breccia with scoriaceous clasts. Clasts variable in size. Groundmass red stained (sediment mix) in places.

504.30 Long zone, may be large clast, or perhaps a separate unit.

504.80 Large clast (?) succeeded by basaltic breccia, then very thin (1cm) sedimentary zone dipping 45° followed by mixed breccia and red sediment.

505.20 Breccia then sometimes with red stain to core bottom.

VESICLES/AMYGDALES

Fillings in clast vesicles and voids in the breccias is mainly calcite, smectite lined, zeolite (laumontite) also present.

FRACTURES - VEINS - BRECCIA

Fractures 0-10°, some up to 30°. Smectite lined.

ROCK ALTERATION

None observed.

STRUCTURE

504.23 - 505.75 Basaltic breccia with scoriaceous clasts.

504.93 - 505.27 Mixed zone of breccia and red sediment.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer RHW

Depth Interval

5 0 5 7 5

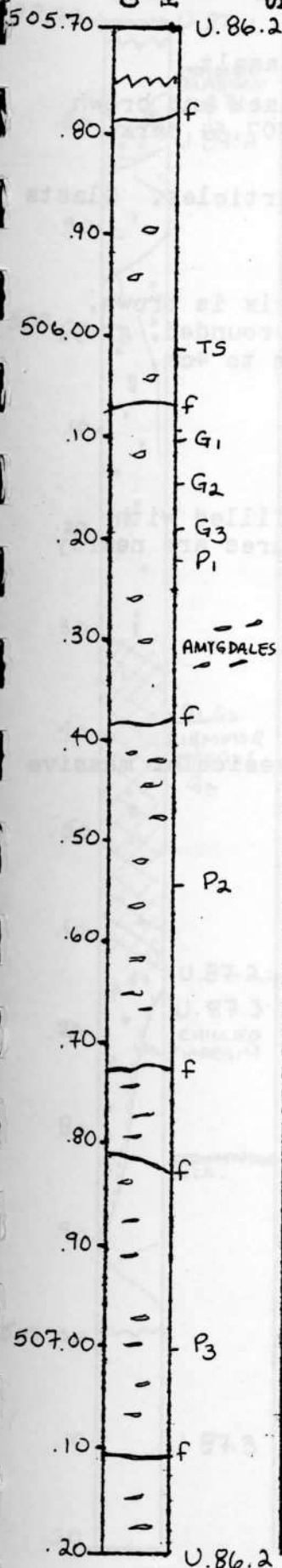
on to

5 0 7 2 2

on

Box 86, Section 4

Graphic Representation
Sample Location



LITHOLOGY PETROGRAPHY

Fine-grained, aphyric, holocrystalline, amygdaloidal, grey-green basalt.

VESICLES/AMYGDALES

Amygdales appear filled with zeolite and quartz.

FRACTURES - VEINS - BRECCIA

Fractures subhorizontal and about 60°, lined with black and green smectite, some zeolite (laumontite?).

ROCK ALTERATION

None observed.

STRUCTURE

Aphyric, fine grained, holocrystalline, amygdaloidal, massive basalt. - entire section.

506.40 - 506.70 Possibly some planar orientation of elongate amygdales.

STRUCTURE

505.75 - 506.75 (U.87.2) massive basalt.

506.75 - 506.85 Chilled contact between units.

506.75 - 506.85 Moderately porphyritic, aphyric, massive basalt. Moderately well developed phenocrysts approximately parallel to the flow line.

506.85 Chilled contact between units.

506.85 - 506.95 (U.87.3) Fragmental sedimentary rock.

DIAGRAM OF CHILLED CONTACT
BETWEEN U.87.1 AND U.87.2

U.87.1

REGIONAL OF PHENOCRYSTS
CONCENTRATED NEAR CONTACT

U.87.2

1.48.0

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

ObserverNG.....

Depth Interval

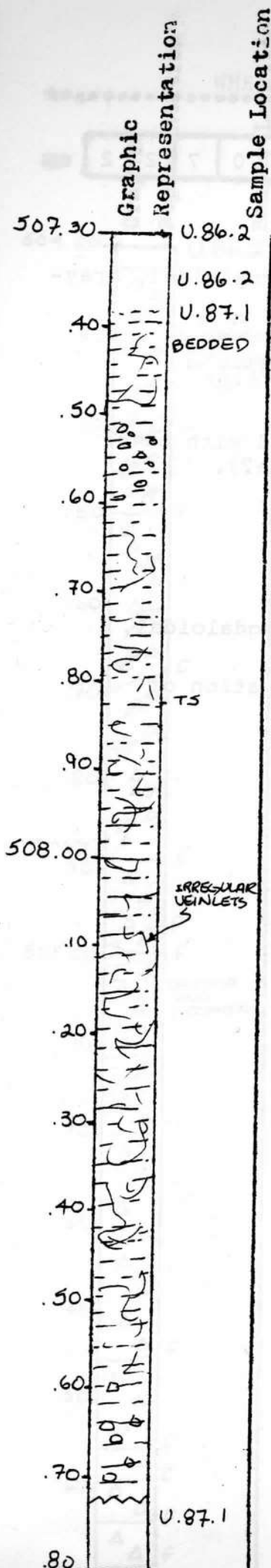
5	0	7	2	5
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 cm to

5	0	8	7	2
---	---	---	---	---

 cm

Box 87, Section 1



LITHOLOGY PETROGRAPHY

Grey, fine-grained, aphyric, non-vesicular basalt.

507.37 Sedimentary unit, well lithofied, black and brown interlayered silt, sand and gravel. Above 507.54 dark brown silt. Above 507.54 dark brown silt.

507.54 Poorly sorted silt to gravel size particles. Clasts are angular.

507.61 Dark brown, well sorted silt.

508.57 Matrix supported conglomerate. Matrix is brown, poorly sorted silt and sand. Clasts are subrounded, grey, basaltic? fragments, ranging in size from 4mm to 4cm.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

507.37 Irregular web or hairlike veinlets filled with zeolite and pyrite, and quartz? Most fractures are nearly normal to the long axis of the core.

ROCK ALTERATION

507.37 No apparent pervasive alteration.

STRUCTURE

507.25 - 507.37 Aphyric, fine grained, nonvesicular massive basalt.

U.87.1 Interbedded sand, silt, and gravel.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer NG

Depth Interval

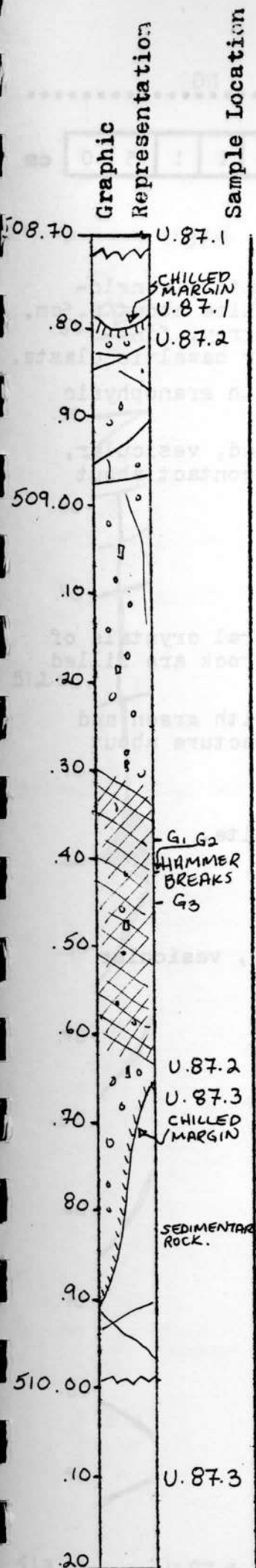
5 0 8 7 2

cm to

5 0 9 9 9

cm

Box 87, Section 2



LITHOLOGY PETROGRAPHY

Very definite chilled contact. Conglomerate of 87.1, core angle contact about 60°. Abundance of phenocrysts are concentrated near contact, grey medium-grained, moderately phyric, vesicular basalt. Chilled contact at both sides of unit, indicate this is a dike. Phenocrysts are aligned with long axis parallel to contact. Phenocrysts equal altered plagioclase ranging in size from 1-2mm to 8mm.

509.65 Chilled contact, well indurated, fragmental, sedimentary rock, conglomerate? agglomerate?

Lithic fragments are very angular to subrounded 0.5-4cm across long axis. Matrix is partly sorted. Size ranges from silt to gravel size with some crystals of plagioclase.

VESICLES/AMYGDALES

508.78 Spherical, less than 1mm diameter, 3-10% of rock, being most abundant near upper contact. Primarily filled with green smectite.

FRACTURES - VEINS - BRECCIA

509.30 Riddled with hammer breaks. Three sets of fractures

- (1) Core angled fracture about 90°
- (2) Core angled fracture about 40°
- (3) Core angled fracture about 60°

Fractures are lined with green smectite. Tiny, irregular, hairlike fractures are filled with white zeolite.

509.65 Veinlet along contact filled with green smectite and calcite.

509.90 Other fractures filled with black smectite, quartz?, zeolite (laumontite?).

ROCK ALTERATION

508.72 Pervasive green smectite? alteration.

509.65 No pervasive alteration.

STRUCTURE

508.72 - 508.78 [U.87.1] Massive basalt.

508.78 Chilled contact between units.

508.78 - 509.65 Moderately phyric, medium grained, vesicular basalt. Moderately well developed alignment of phenocrysts approximately parallel to the long axis of core. [U.87.2]

509.65 Chilled contact between units.

509.65 - 509.99 [U.87.3] Fragmental sedimentary rock.

DIAGRAM OF CHILLED CONTACT BETWEEN U.87.1 AND U.87.2



U.87.1
ABUNDANCE OF PHENOCRYSTS
CONCENTRATED NEAR CONTACT.
U.87.2

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer NG

Depth Interval

5 0 9 9 9

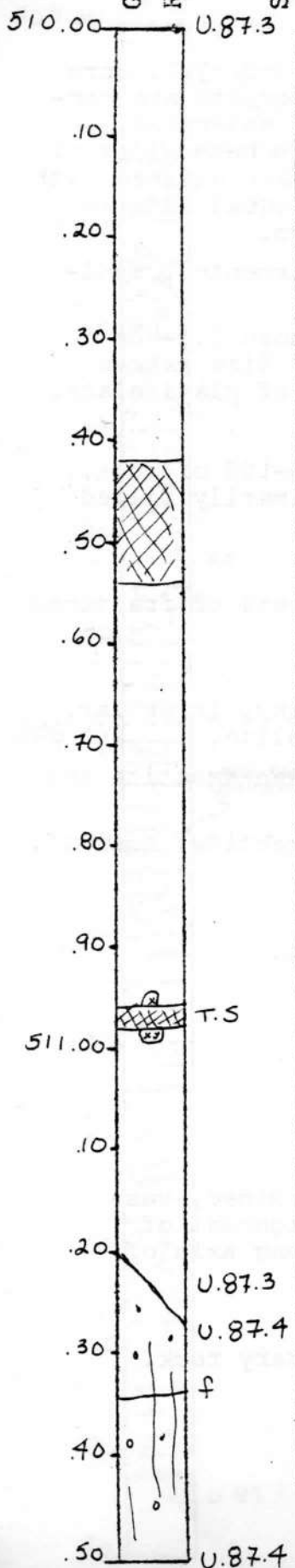
cm to

5 1 1 5 0

cm

Box 87, Section 3

Graphic Representation
Sample Location



LITHOLOGY PETROGRAPHY

Unit 87.3 - continued from above. Agglomerate?, conglomerate? Fragments poorly sorted. Average size about 0.5cm. Clasts are subrounded to angular, green to grey, fine-grained primarily aphyric and non-vesicular basaltic clasts.

510.95 Fragments of quartz and feldspar with granophyric texture.

511.25 Above unit grades into medium-grained, vesicular, equigranular diabasic basalt. Core angled contact about 80°. No apparent chilling along contact.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

510.50 Large fracture is filled with euhedral crystals of laumontite. Smaller, hairlike fracture in rock are filled with zeolites.

511.25 Many fractures 2-3mm wide, filled with green and black smectite and zeolite. Core angled fracture about 90°.

ROCK ALTERATION

511.25 Pervasive alteration to green smectite.

STRUCTURE

509.99 - 511.20 Fragmental sedimentary rock.

511.20 - 511.50 Medium grained, equigranular, vesicular basalt.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer NG

Depth Interval

5 1 1 5 0

cm to

5 1 3 0 1

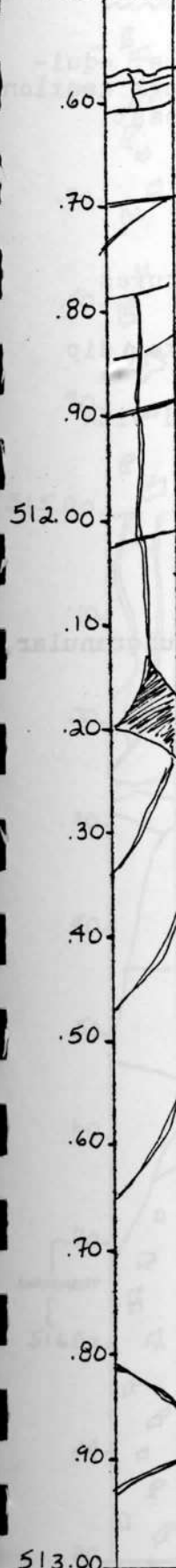
cm

Box 87, Section 4

Graphic
Representation

Sample Location

511.50 U.87.4



513.00 U.87.4

LITHOLOGY PETROGRAPHY

Green, medium-grained, equigranular diabasic, sparsely vesicular, sparsely phyrlic basalt. Continued from above phenocrysts equal plagioclase.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

511.50 Core angled fracture either 0° or 40° filled primarily with green and black smectite.

511.90 Core angled fracture is 0°, 90° or 70° filled generally with massive to euhedral zeolite (laumontite).

512.60 Core angled fracture is 20° or 60°, filled primarily with black smectite.

ROCK ALTERATION

512.10 - 512.60 Unit is highly altered, soft, zeolitized, and porous. Zeolite equals euhedral laumontite?

STRUCTURE

U.87.4 Medium grained, equigranular, sparsely phyrlic, sparsely vesicular basalt. Plagioclase phenocrysts are aligned parallel to long axis of core.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer PTR

Depth Interval

5

1

3

0

1

cm to

5

1

4

5

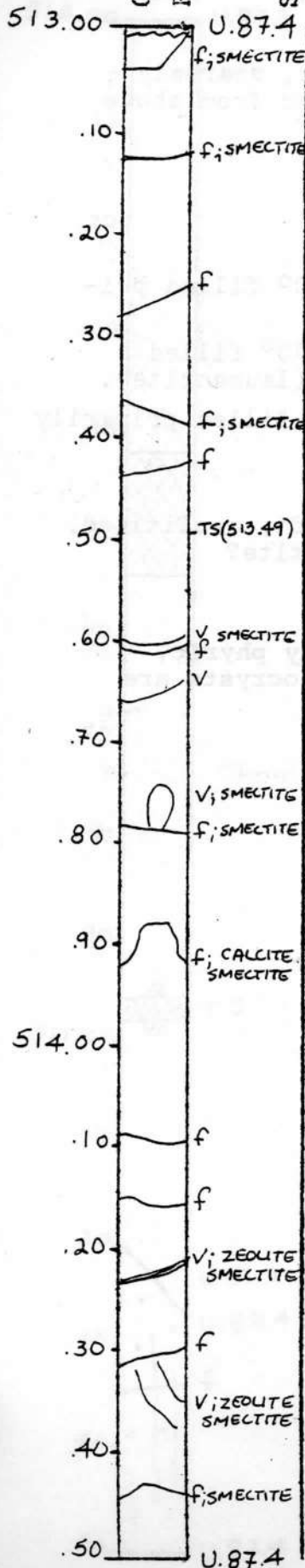
2

cm

Box 88, Section 1

Graphic Representation

Sample Location



LITHOLOGY PETROGRAPHY

Medium to dark grey, medium-grained, holocrystalline, equigranular, aphyric basalt. Grain size uniform through section. No contacts. When altered, rocks have a greenish cast.

VESICLES/AMYGDALES

1-2%, 1-2mm, spherical, filled with smectite.

FRACTURES - VEINS - BRECCIA

Most fractures dip 30° or less. One at 60°. Fractures coated with dark smectite and minor calcite.

Veins at 514.20 and 514.31 have smectite and zeolite, dip 45-60° and are 1-5mm wide.

Veins at 513.60 dips 30°, is 1-2mm wide, and filled with smectite.

ROCK ALTERATION

None observed.

STRUCTURE

U.88.1 Aphyric, medium grained, holocrystalline, equigranular, massive basalt.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

ObserverPTR.....

Depth Interval

5 1 4 5 2

cm to

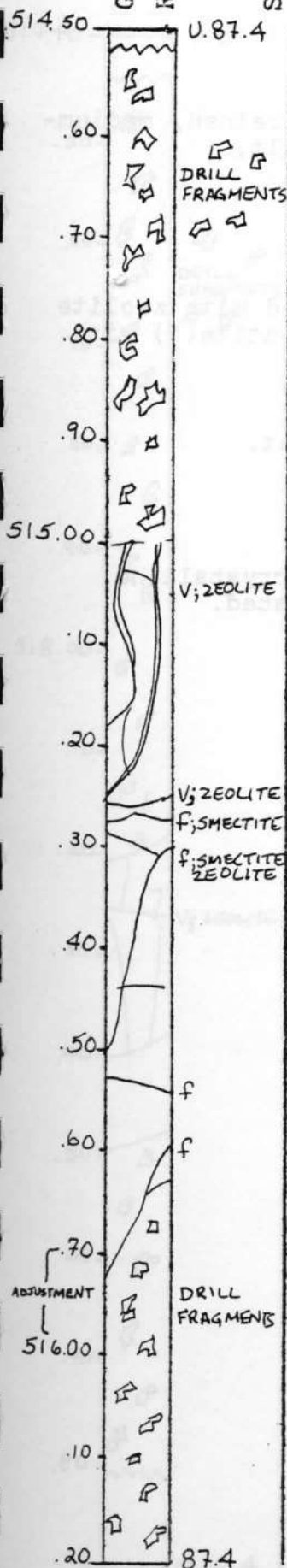
5 1 6 2 1

cm

Box 88, Section 2

Graphic
Representation

Sample Location



LITHOLOGY PETROGRAPHY

Section consists of grey to greenish grey, holocrystalline, medium-grained, equigranular, aphyric basalt. Rock is cut by many veins filled with zeolite and smectite and is quite altered. Highly altered rock is light green and very crumbly - fresher material is darker in colour and more solid.

Upper and lower parts of section are very broken and fractured.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

Veins from 1-10mm and common. These are typically steep to 90° and filled with zeolite, and minor smectite. Zeolite is laumontite(?) with minor heulandite.

ROCK ALTERATION

Rock is green, crumbly and highly altered in zones of immense veining. Rock is darker grey and less altered where veins are sparse or absent.

STRUCTURE

U.88.2 Aphyric, medium grained, holocrystalline, equigranular, massive basalt. Any brecciation is due to drilling.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer ^{PTR}

Depth Interval

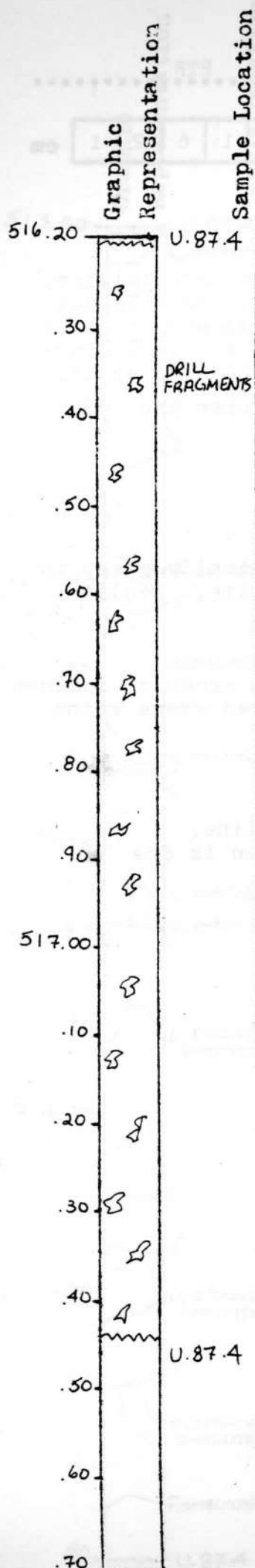
5 1 6 2 1

cm to

5 1 7 4 4

cm

Box 88, Section 3



LITHOLOGY PETROGRAPHY

Entire section is highly altered, immensely veined, medium-grained, greyish-green, holocrystalline basalt.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

Veins are very common up to 2cm wide. Filled with zeolite and minor smectite. Zeolite is mostly laumontite(?) with lesser heulandite.

ROCK ALTERATION

Rock is highly altered and crumbly throughout.

STRUCTURE

U.88.3 Highly altered, medium grained, holocrystalline basalt. Some highly veined zones are brecciated.

Observer PTR

5	1	7	4	4
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cm to

5	1	8	8	1
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LITHOLOGY PETROGRAPHY

Remainder of the section consists of greyish-green, crumbly, highly altered basalt equivalent to that in interval from 518.20 to 518.50. This part of the section is highly broken due to drilling but also has a brecciated appearance when it is not veined by zeolite.

None observed.

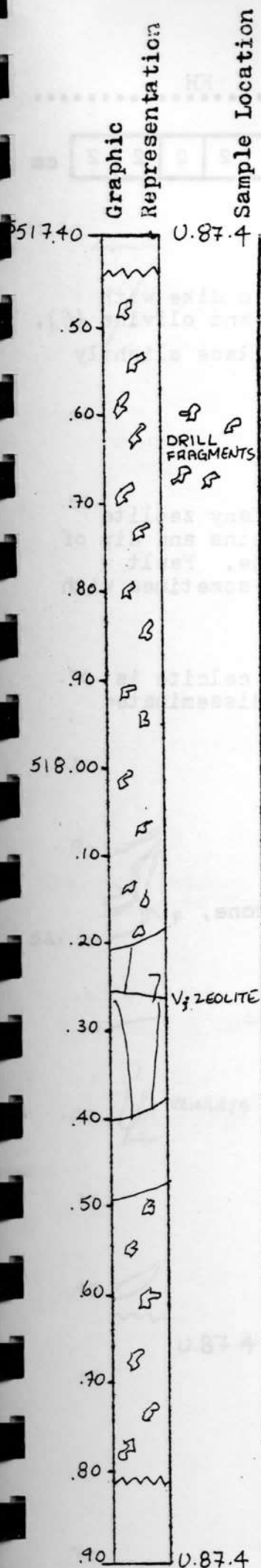
FRACTURES - VEINS - BRECCIA
Many veins from hairline to 2cm filled with zeolite and minor smectite. Zeolite is mostly laumontite(?) with some heulandite. Not veining by zeolite produces brecciated rock in some places.

ROCK ALTERATION
Except for interval from 518.20 to 518.50 rock is green, crumbly and highly altered.

STRUCTURE
517.44 - 518.20 Aphyric, medium grained, holocrystalline
basalt that is highly fractured and veined.

518,20 - 518.48 Massive zone.

518.48 - 518.81 Highly veined and fractured basalt.



ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

ObserverKH.....

Depth Interval

5 1 8 8 1

cm to

5 2 0 2 2

cm

Box 89, Section 1

LITHOLOGY PETROGRAPHY

Greyish-green coloured holocrystalline basic dike with plagioclase phenocryst (reaches up to 5mm) and olivine (?).

519.47 The amount of phenocryst of plagioclase slightly increases.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

Many faults dip, usually steep (60-90°). Many zeolite (almost all laumontite) veins. Width of veins and dip of veins are variable. Some are about 1cm wide. Fault surface is covered with green smectite and sometimes with zeolite.

ROCK ALTERATION

Green smectite prominent. Small amount of calcite is disseminated. Pyrite (about 1mm) is also disseminated rarely. Zeolite veinlets are very common.

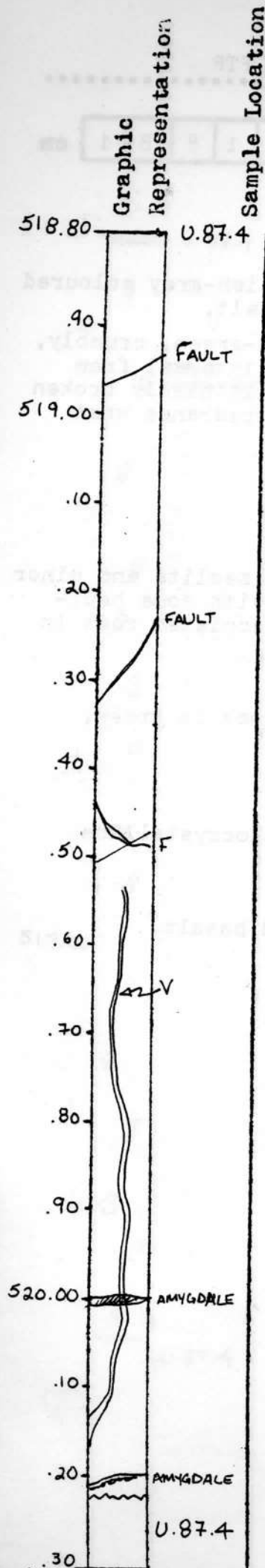
STRUCTURE

518.81 - 518.97 Strongly brecciated basalt.

518.97 - 519.30 Fairly compact zone.

519.30 - 519.48 Brittle, strongly crushed zone,

519.48 - 520.22 Fairly compact zone.



ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

ObserverKH.....

Depth Interval

5 2 0 2 2

cm to

5 2 1 4 3

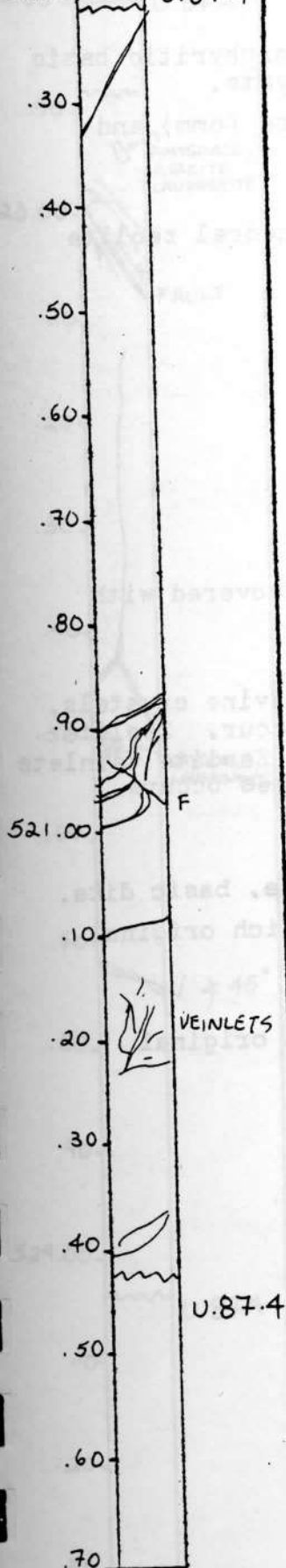
cm

Box 89, Section 2

Graphic
Representation

Sample Location

520.20 U.87.4



LITHOLOGY PETROGRAPHY

Green coloured holocrystalline basic dyke with olivine, and plagioclase phenocrysts.

520.45 Plagioclase phenocryst: well developed, the amount of phenocryst (about 8mm); fairly large.

520.85 Alteration and brecciation is so strong that it is difficult to imagine original texture.

VESICLES/AMYGDALES

None. observed.

FRACTURES - VEINS - BRECCIA

520.22 Fracture with angle of 70°.

520.85 Veinlets run irregularly (up to 5mm wide).

ROCK ALTERATION

Olivine crystal is replaced by green smectite (about 5mm). Plagioclase is also sometimes replaced by zeolites.

520.85 Strongly clayey green smectite, zeolite.

521.06 Fairly strongly altered green smectite.

STRUCTURE

520.30 - 520.84 Weak brecciation.

520.84 - 521.10 Crushed, strongly altered zone. Original structure has been destroyed.

521.10 - 521.43 Fairly strongly altered area.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

ObserverKH.....

Depth Interval

5	2	1	4	3
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 cm to

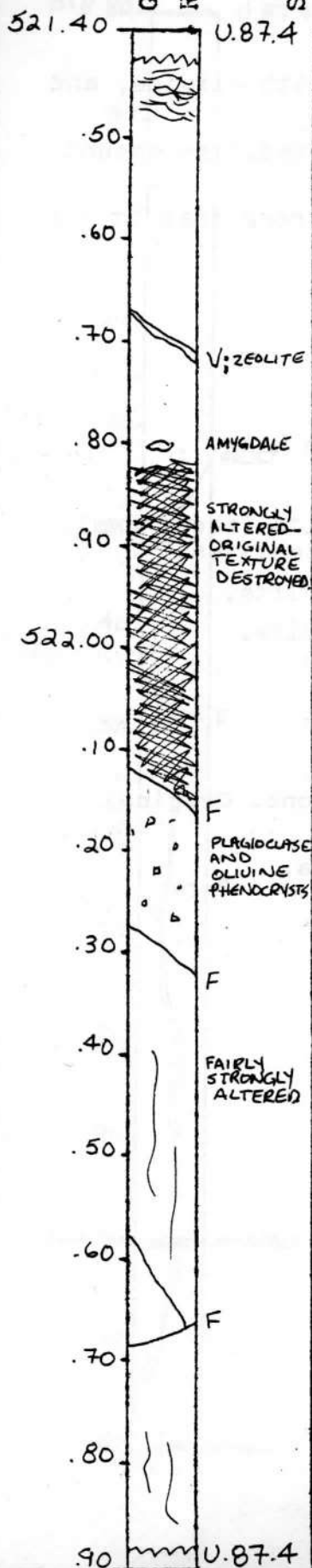
5	2	2	8	8
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 cm

Box 89, Section 3

Graphic Representation

Sample Location



LITHOLOGY PETROGRAPHY

Greyish-green coloured holocrystalline, porphyritic basic dike with plagioclase and olivine phenocrysts.

522.18 These parts are rich in plagioclase (6mm) and olivine (4mm) phenocrysts.

VESICLES/AMYGDALITES

521.80 Amygdale (diameter about 2cm), euhedral zeolite crystal (laumontite).

FRACTURES - VEINS - BRECCIA

521.65 Vein, 4800, 5mm wide zeolite.

521.80 Many veinlets of zeolites.

522.13 Fracture with angle of 55°.

522.27 Fracture with angle of 55°.

522.60 Fracture with angle of 80°.

522.63 Fracture with angle of 40°.

Many veinlets of zeolite. Fault plane is covered with zeolite and minor calcite.

ROCK ALTERATION

521.43 Green smectite occurs replacing olivine crystals. In intensely altered part green smectite occur. Zeolite occurs replacing plagioclase phenocrysts. Zeolite veinlets are common. Along fault planes, it sometimes occurs.

STRUCTURE

521.43 - 521.65 Porphyritic, holocrystalline, basic dike.

521.80 - 522.13 Strongly altered zone in which original texture is destroyed.

522.13 - 522.27 Compact zone.

522.27 - 522.60 Fairly strongly altered but original texture preserved.

522.60 - 522.88

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer KH

Depth Interval

5

2

2

8

8

cm to

5

2

4

0

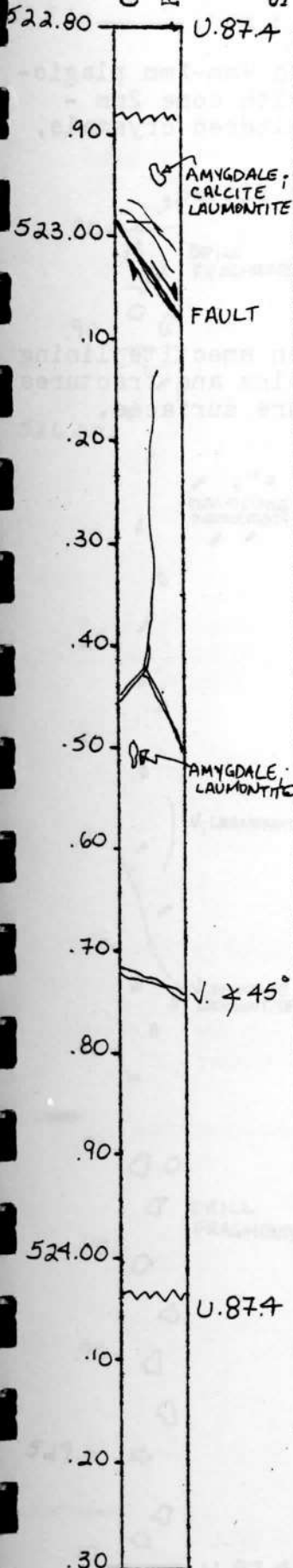
4

cm

Box 89, Section 4

Graphic
Representation

Sample Location



LITHOLOGY PETROGRAPHY

Greyish-green coloured, holocrystalline basic dike with plagioclase and olivine phenocrysts.

523.33 Intense alteration, very difficult to get original texture.

VESICLES/AMYGDALES

522.92 Amygdale: calcite and laumontite (about 5mm).

523.50 Amygdale: laumontite.

FRACTURES - VEINS - BRECCIA

523.00 Along this fault there are many calcite veinlets and zeolite veinlets occur.

ROCK ALTERATION

Green smectite is very common in replacing olivine phenocryst.

Green smectite and zeolite disseminate in rocks.

Zeolite veins are common.

Calcite occurs very rarely along fault planes and within fault.

STRUCTURE

522.88 - 522.98 Holocrystalline, basic dike, bounded by fault.

522.98 - 523.33 Fairly compact zone.

523.33 - 523.45 Intensely brecciated altered zone.

523.45 - 526.06 Crushing and brecciation is prominent.

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

ObserverJM.....

Depth Interval

5

2

4

3

0

cm to

5

2

5

6

0

cm

Box 90, Section 1

LITHOLOGY PETROGRAPHY

Medium-grained, moderately porphyritic, with 4mm-1mm plagioclase phenocrysts, grey coloured, basalt, with some 2mm - less than 1mm, green smectite vesicles on altered crystals, giving a mottled appearance to the rock.

524.80 Fragments in this region are poorly fitted.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

Rock highly fractured and veined, with green smectite lining the veins and laumontite filling veins. Veins and fractures irregular with some slicken sides on fracture surfaces. Veins 4cm. Hairline in width.

ROCK ALTERATION

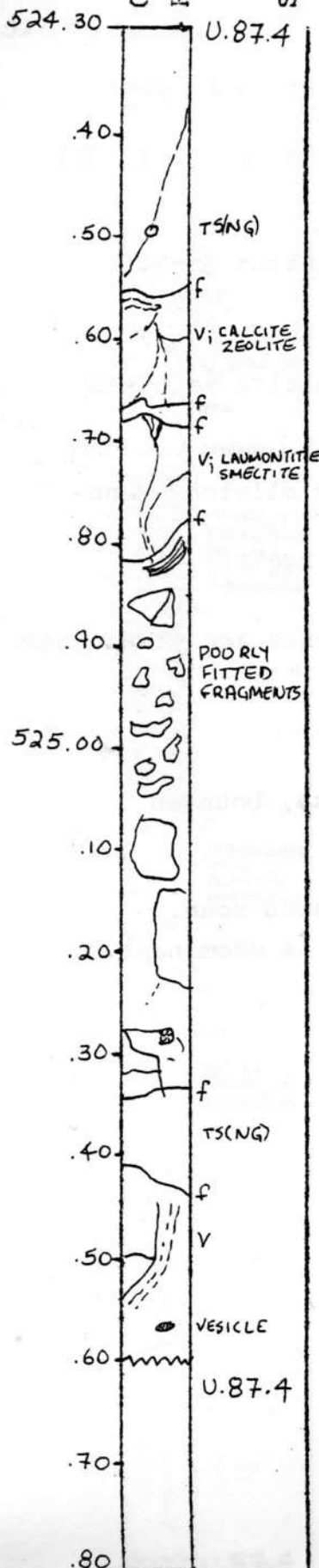
None observed.

STRUCTURE

U.90.7 Massive fragments of basalt.

Graphic Representation

Sample Location



Visual Core Description

Observer JM

Depth Interval

5 2 5 6 0

cm to

5 2 7 1 7

cm

Box 90, Section 2

LITHOLOGY PETROGRAPHY

Medium-grained, sparsely porphyritic grey basalt.

525.96 Transition to a dark grey moderately porphyritic medium-grained, holocrystalline basalt, with 4mm-1mm plagioclase phenocrysts.

526.42 1cm wide white zeolite vein (laumontite) lined with green smectite.

526.60 Transition back to finer-grained, sparsely porphyritic, light grey, dark grey colour.

526.72 Fragments poorly fitted together (drill bits).

VESICLES/AMYGDALES

Rare, when present smaller 1mm and filled with green smectite.

FRACTURES - VEINS - BRECCIA

Highly fractured and pervasive veins; veins filled with white laumontite.

ROCK ALTERATION

None observed.

STRUCTURE

U.90.2 Massive basalt.

