

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer IIG

Depth Interval

3	4	1	2	2
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 cm to

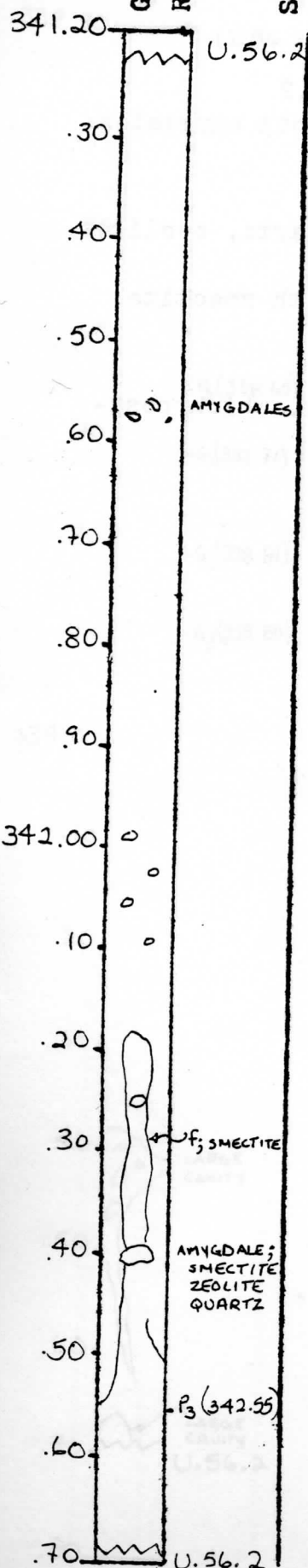
3	4	2	6	9
---	---	---	---	---

 cm

Box 57 , Section 3

Graphic
Representation

Sample Location



LITHOLOGY PETROGRAPHY - continues unit 56.2

Fine-grained, green-grey aphyric basalt.

341.55 Small auto-brecciated zone.

VESICLES/AMYGDALES

341.22 Smectite filled amygdalae.

341.55 Small quartz/zeolite filled cavities.

342.40 Smectite and zeolite/quartz filled amygdalae.

FRACTURES - VEINS - BRECCIA

342.20 Smectite filled fractures.

ROCK ALTERATION

None observed.

STRUCTURE

Fine-grained, aphyric basalt (unit 56.2).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer IIG

Depth Interval

3	4	2	6	9
---	---	---	---	---

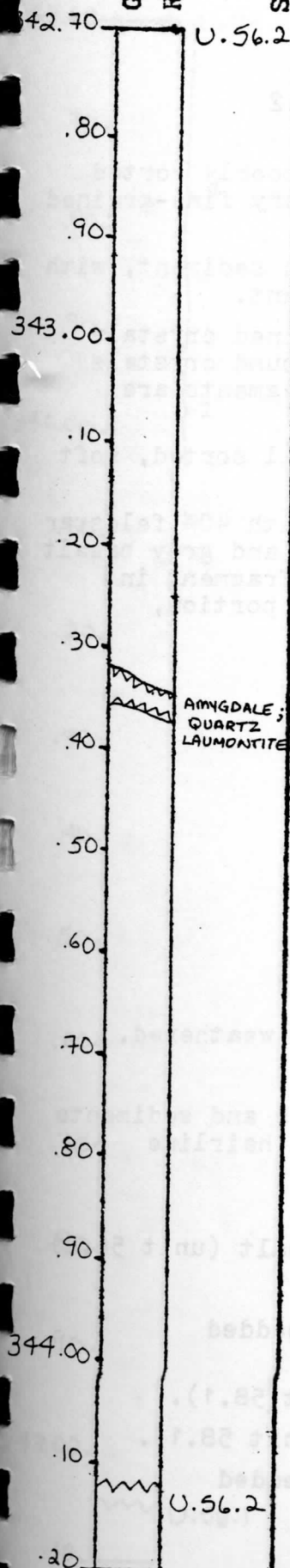
 cm to

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

 cm

Box 57 , Section 4

Graphic
Representation
Sample Location



LITHOLOGY PETROGRAPHY - continues unit 56.2

Fine-grained, green-grey, aphyric basalt with flattened ovoid amygdales streaked by flow structure.

343.33 Large amygdale.

343.60 Amygdales becoming less common and basalt finer grained.

VESICLES/AMYGDALES

343.33 Amygdale lined with chalcedony, quartz, and prismatic laumontite showing single oblique termination.

FRACTURES - VEINS - BRECCIA

343.20 Incipient smectite fractures.

ROCK ALTERATION

None observed.

STRUCTURE

Fine-grained, aphyric basalt (unit 56.2).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer JN

Depth Interval

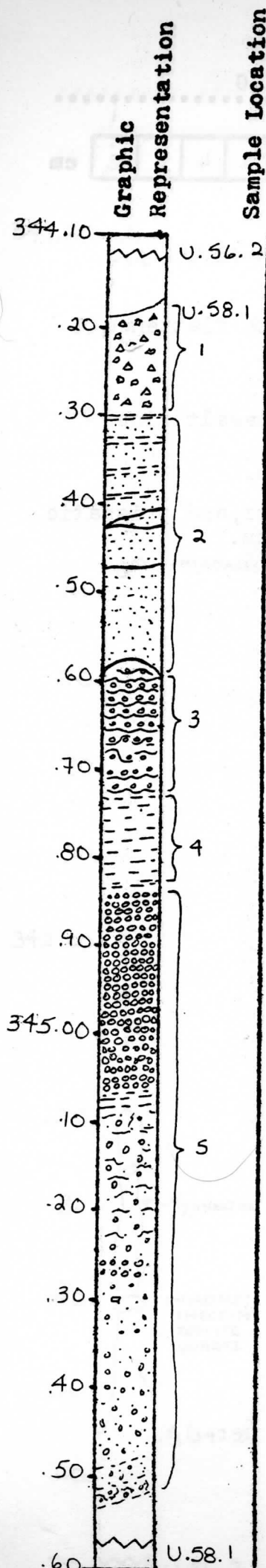
3 4 4 1 2

cm to

3 4 5 5 7

cm

Box 58 , Section 1



LITHOLOGY PETROGRAPHY - continues unit 56.2

Continuing from 343.60.

- 1 344.15 Unit 58.1. Fine to coarse grained poorly sorted breccia, rounded to subangular fragments, very fine-grained brown coloured matrix.
- 2 344.30 Fine- to medium-grained, well sorted sediment, with 4-7mm thick beds of very fine-grained sediment.
- 3 344.58 Tuffaceous sediment with medium-grained crystals in a glassy banded matrix. Flow banding around crystals and fragments. Some larger (7mm) lithic fragments are present.
- 4 344.72 Very fine-grained reddish-brown, well sorted, soft earthy sediment.
- 5 344.83 Interbedded graded bedding layers with 40% feldspar crystals (?)olivine, (?)pyroxene, 30% black and grey basalt fragments, with 30% matrix, some (?)glassy fragment in groundmass. Sediments red stained in upper portion, decreasing in oxidation downward.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

None observed.

ROCK ALTERATION

- 344.15 Reddish-brown weathering.
- 344.30 Reddish-brown weathering.
- 344.58 Reddish-brown weathering.
- 344.72 Reddish-brown weathering.
- 344.83 Plagioclase phenocrysts altered and weathered.

OTHER

344.15 Contact between basalts of unit 56.2 and sediments of unit 58.1 is irregular with 2cm wide and hairline fractures filled with coarse calcite.

STRUCTURE

- 344.13 - 344.15 Fine-grained, aphyric basalt (unit 56.2)
- 344.15 - 344.30 Unit 58.1 ; Breccia.
- 344.30 - 344.58 Fine- to medium-grained bedded sediment.
- 344.58 - 344.72 Tuffaceous sediment (unit 58.1).
- 344.72 - 344.83 Fine-grained sediment (unit 58.1).
- 344.83 - 345.57 Medium-grained, graded bedded layers (unit 58.1).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer NG

Depth Interval

3 4 5 5 7

cm to

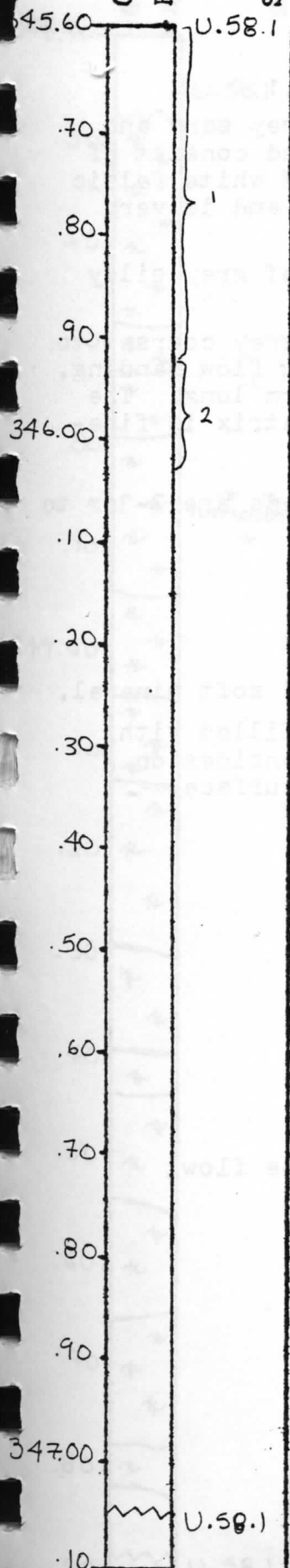
3 4 7 0 6

cm

Box 57 , Section 2

Graphic
Representation

Sample Location



LITHOLOGY PETROGRAPHY - continues unit 58.1

Grey sand and gravel unit, clasts are subrounded to angular, poorly sorted ranging in size from 1-5mm. Fragments consist of clasts of basalt, silt?, and feldspar crystals. Matrix about 10% of rock, very fine-grained, dark grey to black.

345.92 Band of finely laminated black silt with one band, 3mm wide of poorly sorted sand and gravel. Fragments similar to above.

346.03 Graded sand and gravel sequences. Clast size coarsens downward. Size ranges from less than 1mm to 10mm. Fragments are subrounded to angular and consist of grey basalt (about 40%), brown silt? (about 5%) and white feldspar crystals (about 55%). Colour is grey. Matrix less than 10% of rock. Consists of very fine-grained, grey to black material.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

Unit is not highly fractured. Silt unit breaks along bedding planes.

ROCK ALTERATION

346.00 - 346.20 Fine grained portion of sandstone has pervasive green alteration.

STRUCTURE

Various layers of graded bedding (unit 58.1).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer NG

Depth Interval

3 4 7 0 6

cm to

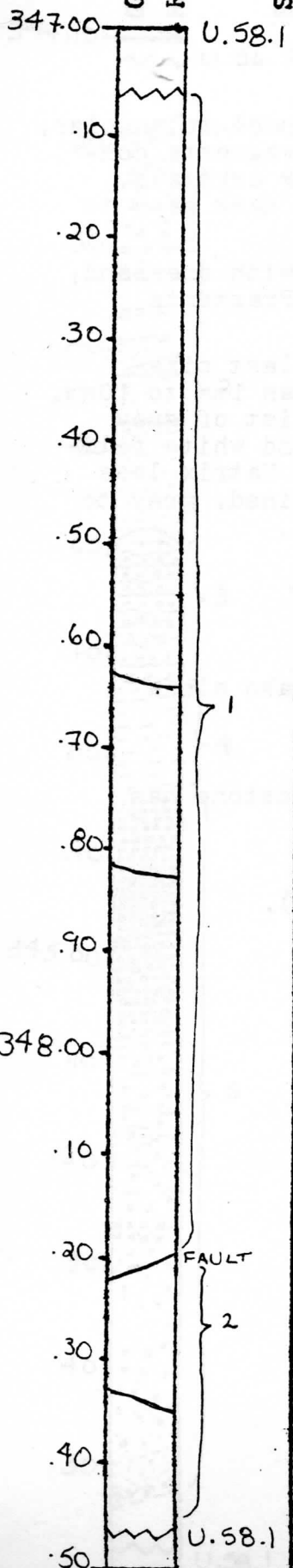
3 4 8 4 7

cm

Box 58 , Section 3

Graphic Representation

Sample Location



LITHOLOGY PETROGRAPHY - continues unit 58.1

Medium- to coarse-grained, poorly sorted, grey sand and gravel. Clasts are subrounded to angular and consist of about 40% grey basalt, 5% red silt?, and 55% white felsic fragments. Matrix is less than 10% of rock and is very fine-grained, grey material.

348.02 There are irregular 3cm wide bands of grey silty material.

Lower portion of unit has 5cm band of dark grey coarse- to fine-grained sediment. Fining downward with flow banding. Clast are subrounded about 10% feldspar 2-3mm long. The remainder of the fragments are basaltic? Matrix is fine-grained, black.

348.20 Laminated silt, sand and gravel. Beds are 2-3cm to 10cm thick. Grain size coarsens downward.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

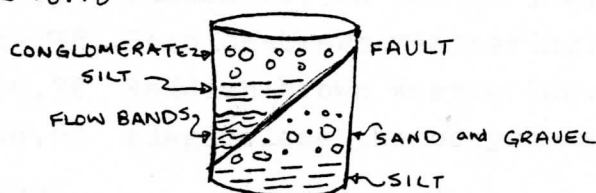
Most breaks in core lined with green and red soft mineral.

348.20 Vein is approximately 2mm wide and filled with calcite, and green and red smectite? Slickensides on smectite surface. Interpreted to be fault surface.

ROCK ALTERATION

None observed.

348.18 - 348.24



STRUCTURE

Various layers of graded sediment, with some flow banding (unit 58.1).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer NG

Depth Interval

3 4 8 4 7

cm to

3 4 9 8 8

cm

Box 58 , Section 4

Graphic Representation

Sample Location

348.40

U.58.1

.50

.60

.70

.80

.90

349.00

.10

.20

.30

.40

.50

.60

.70

.80

.90

U.58.1

TUFFACEOUS

LITHOLOGY PETROGRAPHY - continues unit 58.1

Continued from above. Waterlain crystalline tuff - interpretation of unit. Consists of interlayered coarse and fine grained material. Bands are $\frac{1}{2}$ -1cm thick - similar to above.

348.64 Dark green, medium- to fine-grained, poorly sorted tuffaceous unit with flow banding. Feldspar crystals are absent. Fragments are subrounded to angular 1-3mm in size, and consist of basaltic material? Matrix is very fine-grained, dark green material.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

Most breaks are along bedding planes. Surface of break is coated with a thin layer of soft, green smectite?

349.75 Break is irregular. Shiny green smectite? with slickensides is on surface of break.

ROCK ALTERATION

Pervasive alteration to green smectite?

STRUCTURE

Tuffaceous segment with some flow banding (unit 58.1).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer NG

Depth Interval

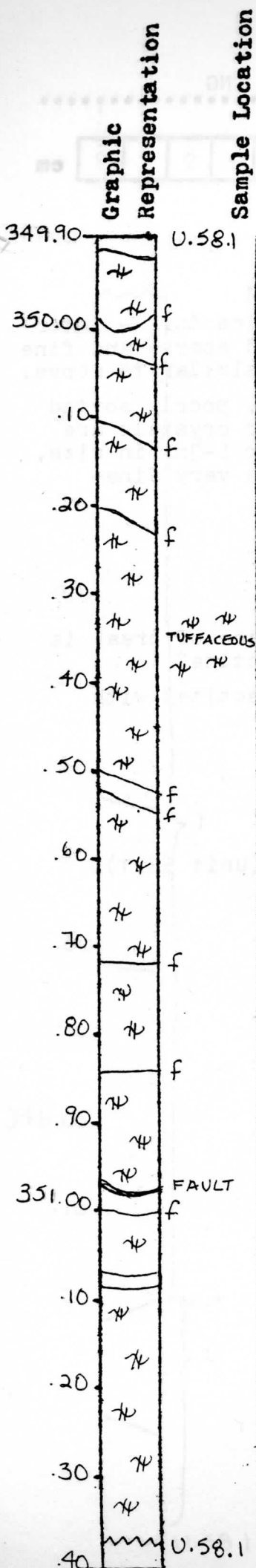
3 4 9 8 8

cm to

3 5 1 3 7

cm

Box 59 , Section 1



LITHOLOGY PETROGRAPHY - continues unit 58.1

Fine to coarse grained bedded sequence of tuffaceous material. Dark green to purplish-green colour. Layers vary from well sorted sand or silt sized material to more massive beds of angular to subrounded 1mm clasts (about 40-50%) in fine-grained matrix (about 50%). Some layers are graded, 4-5cm thick, and grade downward to coarse grained layer with 3-5mm subrounded fragments with some flow banding.

350.99 Fault. Lithology is the same above and below the fault. Fault recognized by truncation of beds and change in local lithology across fault plane. Also slickenside on surface.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

Most fractures shown are breaks along bedding planes. They are lined with a thin layer of green smectite.

349.99 Fracture has shiny green smectite with slickensides. It has angle of 40° to assumed horizontal.

350.99 Fault contains green and red smectite and minor amounts of calcite.

ROCK ALTERATION

Pervasive alteration to green and red smectite?

STRUCTURE

Tuffaceous segment with some graded bedding, flow banding (unit 58.1).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer NG

Depth Interval

3 5 1 3 7

cm to

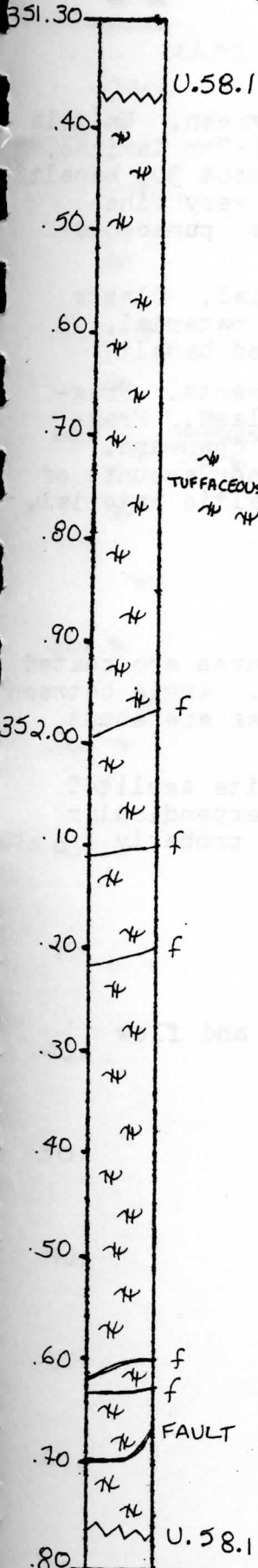
3 5 2 7 6

cm

Box 59 , Section 2

Graphic Representation

Sample Location



LITHOLOGY PETROGRAPHY - continues unit 58.1

Tuffaceous unit. Continued from above. Unit is mottled purple-green grey. Fragments are about 3mm long, black, angular, basaltic?, matrix is very fine-grained, green material. Has flattened pumaceous fragments.

351.40 Consists of poorly, fine- to coarse-grained, more massive material without flattened pumice. Clasts are as above with rare crystals of feldspar, 2-3mm long.

351.49 As above but with flattened pumaceous fragments and rare laminae 1-2mm thick of fine-grained material.

352.40 Fine to coarse grained, bedded, with some thin (about 1mm) fine-grained laminae, some flattened pumaceous fragments, and angular basaltic clasts.

352.60 Calcite along bedding plane is 14mm red fragment.

352.69 Fault identified by truncation of fine-grained dark green layer about 4mm thick and slickensides on fault surface. Core angle fault about 70°.

VESICLES/ALYCGDALES

None observed.

FRACTURES - VEINS - BRECCIA

Unit breaks easily along bedding planes.

352.60 - 352.70 Fractures are lined with shiny green smectite with slickensides on surface.

352.69 Fracture also contains calcite and red clay?

352.70 Minor, irregular hairline fractures filled with clacite.

ROCK ALTERATION

Pervasive alteration to green smectite?

STRUCTURE

Tuffaceous segment , some bedding (unit 58.1).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer NG

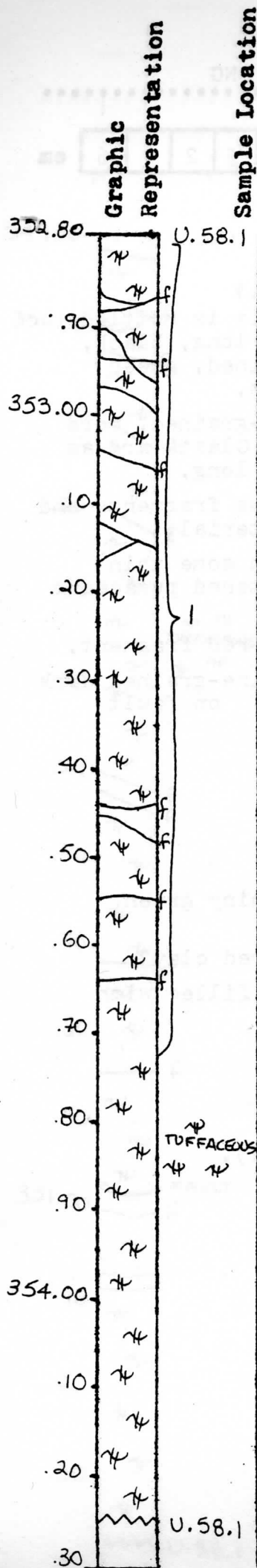
Depth Interval

3 5 2 7 6

cm to

3 5 4 2 5 cm

Box 59 , Section 3



LITHOLOGY PETROGRAPHY - continues unit 58.1

Tuffaceous unit from above. Colour is dark green. Unit is bedded. Beds range in thickness from thin, 1-2mm laminae, to 20cm thick. Unit consists primarily of about 30% basalt? Sand and gravel size fragments surrounded by very fine-grained green matrix containing some flattened pumaceous fragments. Continues to 353.75.

353.40 There is a 7cm band of coarser material. Clasts are $\frac{1}{2}$ -1cm in size, primarily black basaltic? material, about 5% of fragments are red. May be altered basalt?

353.75 Unit consists of about 90% rock fragments. Fragments are basalt with phenocrysts of plagioclase. Fragment size ranges from 2mm to 1cm, coarsening downward. Matrix is very fine-grained. Consists of minor amounts of calcite, white zeolite?, green and black basaltic material.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

Rock has broken along fractures. Most fractures are coated with shiny green smectite with slickensides. Angle between perpendicular to core axis and these fractures are about 40°.

352.90 and 353.50 Fractures also contain white zeolite? Those fractures that are about parallel to perpendicular to core axis are breaks along bedding planes probably caused by drilling.

ROCK ALTERATION

Pervasive alteration to green smectite.

STRUCTURE

Tuffaceous segment with some graded bedding and flow banding (unit 58.1).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer NG

Depth Interval

3 5 4 2 5

cm to

3 5 5 7 0

cm

Box 59 → Section 4

Graphic
Representation
Sample Location

354.20

U.58.1

.30

.40

.50

.60

.70

.80

.90

355.00

.10

.20

.30

.40

.50

.60

.70

U.58.1

LITHOLOGY PETROGRAPHY - continues unit 58.1

Tuffaceous unit continued from above. Colour - mottled and banded green and purplish-green. Grain size and sedimentary and volcanic structures are highly variable. Fragments range in size from 1mm to 1.5cm and are welded together with flattened pumice shards? Fragments are primarily subrounded. Many fragments are green and rimmed with purple alteration product.

354.93 Unwelded, lithified, poorly sorted sedimentary unit consisting of angular to subrounded clasts of basaltic material ranging in size from 1-4mm. Matrix is about 10% of rock and consists of very fine-grained, green, sandy silt. Unit has graded to massive beds 5-15cm thick.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

Rare, hairline fractures filled with white material (zeolite?).

ROCK ALTERATION

Pervasive alteration to green and purple smectite, and minor amounts of calcite.

STRUCTURE

354.25 - 354.93 Tuffaceous segment with some welding (unit 58.1).

354.93 - 355.70 Bedded sediment (unit 58.1).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer JH & RHW

Depth Interval

3	5	5	7	0
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 cm to

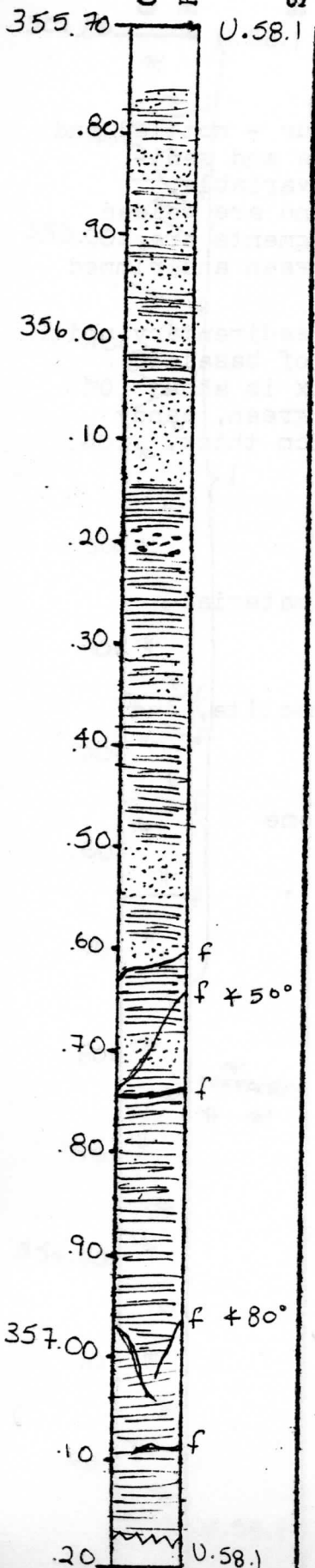
3	5	7	1	7
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 cm

Box 60 , Section 1

Graphic Representation

Sample Location



LITHOLOGY PETROGRAPHY - continues unit 58.1

Laminated sedimentary unit, claystone and siltstone, with some units of larger clasts (basaltic). Colours vary from grey-green to red-brown. Layering is indistinct, appears to be shallow dipping (0-10°) but is obscured by drill marks

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

356.60 - 357.10 Fractures 1-3mm wide filled with zeolites.

ROCK ALTERATION

None observed.

STRUCTURE

Laminated sedimentary unit (unit 58.1).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer JH & RHW

Depth Interval

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

 cm to

3	5	8	6	7
---	---	---	---	---

 cm

Box 60 , Section 2

LITHOLOGY PETROGRAPHY - continues unit 58.1

Laminated sedimentary unit, claystone and siltstone, with some units of larger clasts (basaltic). Colour varies from grey-green to red-brown. Layering is indistinct, appears to be shallow dipping (0-10°) but is obscured by drill marks.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

Several small veins (1-2mm wide). Zeolite and smectite lined.

ROCK ALTERATION

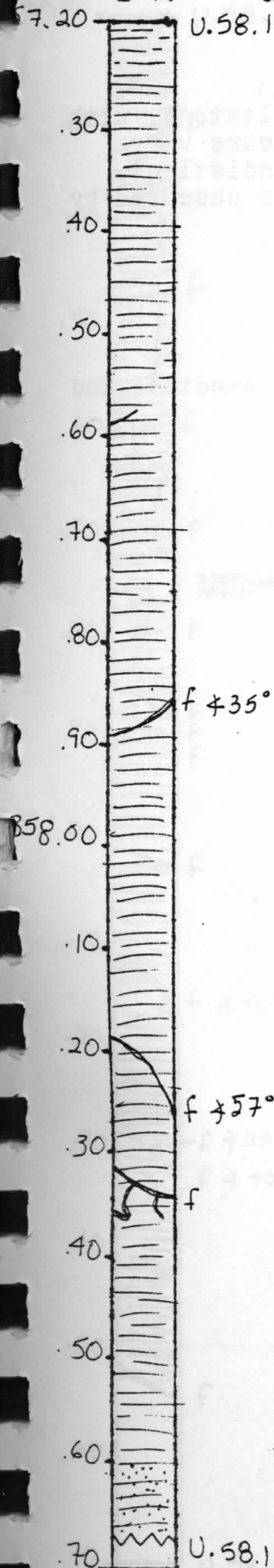
None observed.

STRUCTURE

Laminated sedimentary unit (unit 58.1).

Graphic Representation

Sample Location



ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer JH & RHW

Depth Interval

3 5 8 6 7

cm to

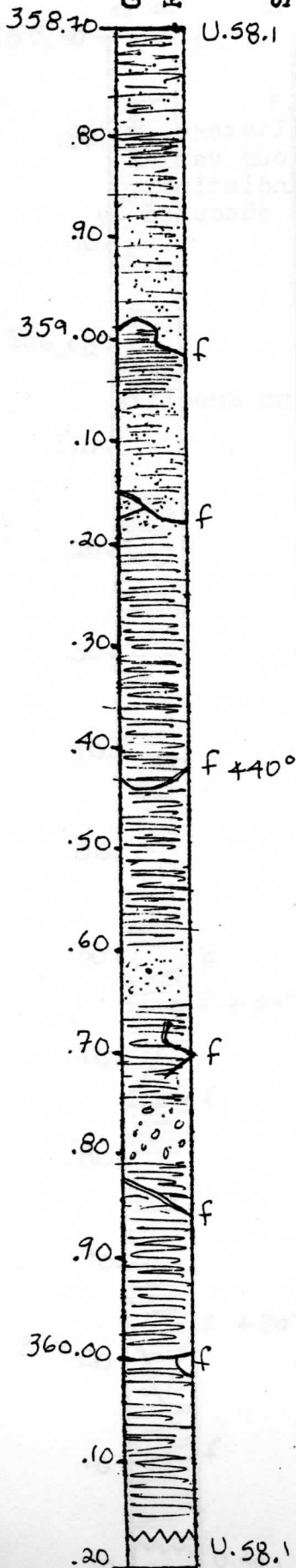
3 6 0 1 7

cm

Box 60 , Section 3

Graphic
Representation

Sample Location



LITHOLOGY PETROGRAPHY - continues unit 58.1

Laminated sedimentary unit, claystone and siltstone, with some units of larger clasts (basaltic). Colours vary from grey-green to red-brown. Layering is indistinct, appears to be shallow dipping (0-10°), but is obscured by drill marks.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

Several small (1-3mm wide) veins filled with smectite and zeolite.

ROCK ALTERATION

None observed.

STRUCTURE

Laminated sedimentary unit (unit 58.1).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer JH & RHW

Depth Interval

3 6 0 1 7

cm to

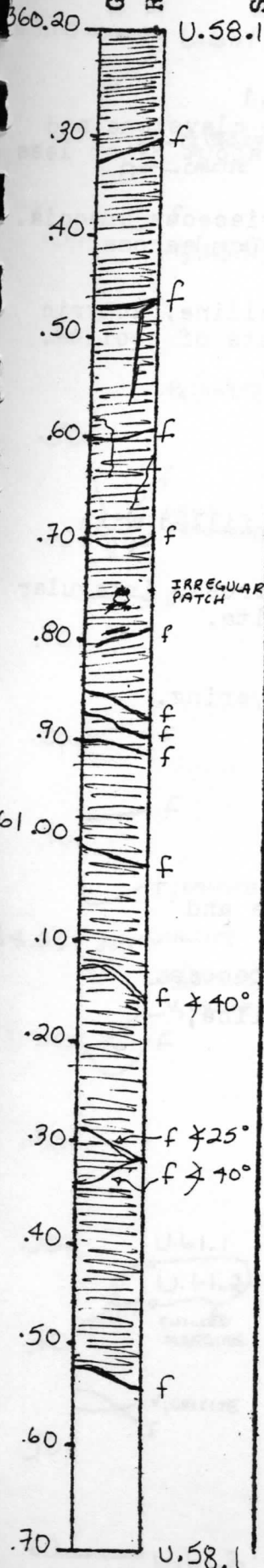
3 6 1 7 3

cm

Box 60 , Section 4

Graphic
Representation

Sample Location



LITHOLOGY PETROGRAPHY - continues unit 58.1

Laminated sedimentary unit, claystone and siltstone, with some units of larger clasts (basaltic). Colours vary from grey-green to red-brown. Layering is indistinct, appears to be shallow dipping (0-10°), but is obscured by drill marks.

VESSICLES/AMYGDALES

360.72 An irregular patch filled with a zeolite.

FRACTURES - VEINS - BRECCIA

360.60 - 361.00 About 15 fractures with angles between 0-15° and width of 0.5-2mm.

ROCK ALTERATION

None observed.

STRUCTURE

Laminated sedimentary unit (unit 58.1).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer PTR

Depth Interval

3 6 1 7 3

cm to

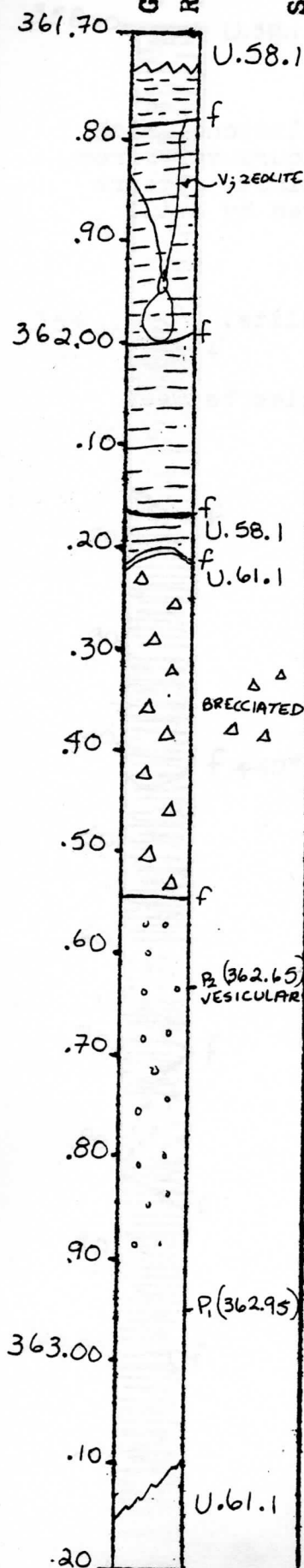
3 6 3 1 2

cm

Box 61 , Section 1

Graphic
Representation

Sample Location



LITHOLOGY PETROGRAPHY - continues unit 58.1

Reddish to purplish-brown, layered indurated claystone and siltstone. Bedding is poorly defined, dips about 5° or less. Contains a few sand-size lithic fragments.

362.25 Unit 61.1. Light reddish-grey, scoriaceous breccia. Fragments angular to subrounded at least 2-10cm across. Matrix filled with white zeolite.

362.55 Light grey, fine-grained, holocrystalline, aphyric basalt. A few irregular blotches and veinlets of zeolite. Vesicular.

362.90 Massive.

VESICLES/AMYGDALES

361.73 None observed.

362.25 Fragments quite vesicular - open or filled with zeolite.

362.55 - 362.90 About 5% vesicles, 1-3mm across, irregular open or filled with zeolite and minor smectite.

FRACTURES - VEINS - BRECCIA.

361.73 Fractures are at slight angle to layering.

362.25 None.

ROCK ALTERATION

None observed.

STRUCTURE

361.73 - 362.24 Layered, bedded claystone and siltstone (unit 58.1).

362.24 - 362.55 Unit 61.1 ; Scoriaceous breccia.

362.55 - 363.12 Fine-grained, holocrystalline, aphyric, massive basalt (unit 61.1).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer ^{PTR}

Depth Interval

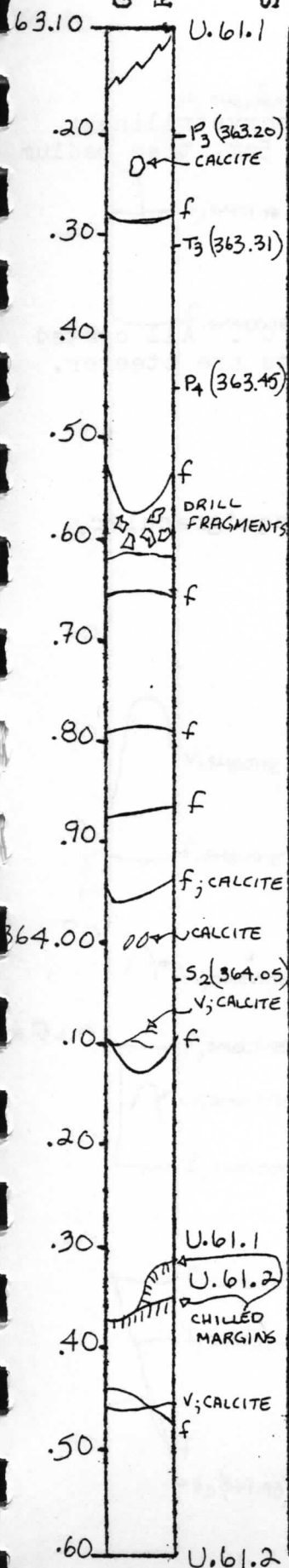
3 6 3 1 2

cm to

3 6 4 6 0

cm

Box 61 , Section 2



LITHOLOGY PETROGRAPHY

- continues unit 61.1

Light grey, fine-grained, aphyric, holocrystalline basalt. Minor plagioclase and clinopyroxene microphenocrysts. Grain size uniform to base of unit.

364.30 Unit 61.2. Dike. Chilled contact against upper unit. Grey to greenish-grey, fine-grained, holocrystalline, aphyric basalt. Grain size increases slightly toward base of section.

VESICLES/AMYGDALES

363.12 Vesicles 1-3%; 1-3mm, spherical to irregular, filled with smectite and some calcite. Calcite also forms irregular patches 2-3cm across at 363.25 and 364.23.

364.30 Trace, less than 1mm, spherical, filled with calcite and smectite.

FRACTURES - VEINS - BRECCIA

363.12 Fractures dip less than 20° and a few about 50-60°. Some have smectite and calcite coatings.

364.30 One fracture, dips about 50°, a few hairline veinlets filled with calcite.

ROCK ALTERATION

None observed.

STRUCTURE

363.12 - 364.30 Fine-grained, holocrystalline, aphyric basalt (unit 61.1).

364.30 - 364.60 Fine-grained, holocrystalline, aphyric, massive basalt of unit 61.2,

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer PTR

Depth Interval

3	6	4	6	0
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 cm to

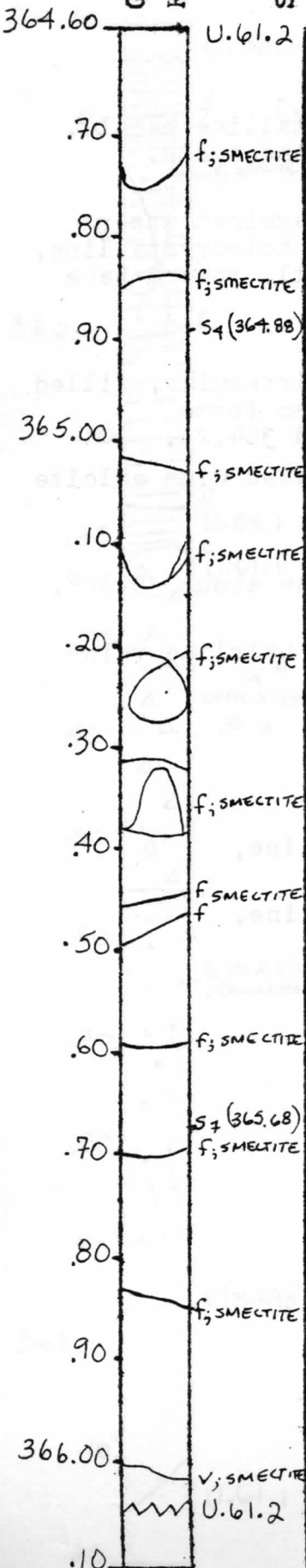
3	6	6	0	5
---	---	---	---	---

 cm

Box 61 , Section 3

Graphic
Representation

Sample Location



LITHOLOGY PETROGRAPHY - continues unit 61.2

Greenish-grey, fine- to medium-grained, holocrystalline, equigranular basalt. Fine-grained in upper 5cm, then medium-grained to base of section.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

Fractures are mostly about 30°, some about 60°. All coated with smectite. Veinlets filled with smectite are steeper.

ROCK ALTERATION

None. observed.

STRUCTURE

Fine- to medium-grained, holocrystalline, equigranular, massive basalt (unit 61.2).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer ^{PTR}

Depth Interval

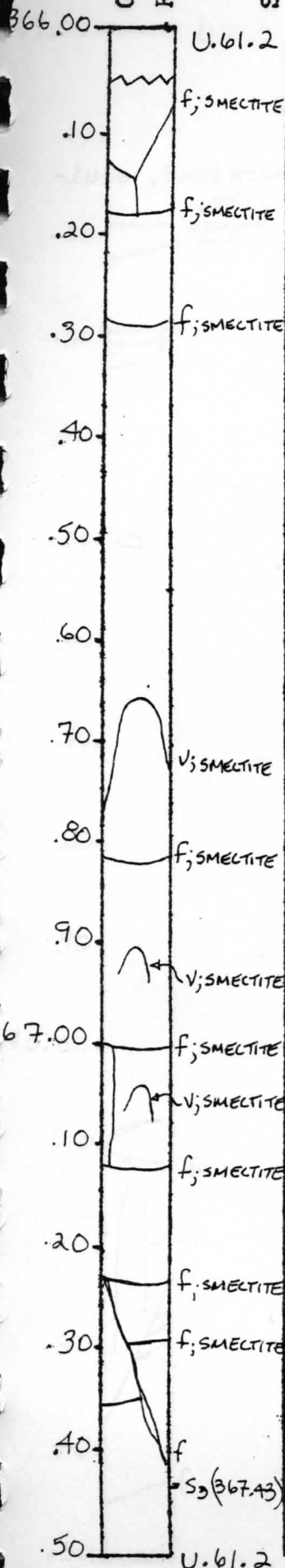
3 6 6 0 5

cm to

3 6 7 5 3

cm

Box 61 , Section 4



LITHOLOGY · PETROGRAPHY - continues unit 61.2

Greenish-grey, medium-grained, equigranular, holocrystalline basalt. Very uniform through section. No contacts.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

Fractures and veinlets smectite coated. Fracture dip about 30° and about 60°. Veinlets 60-80°.

ROCK ALTERATION

None observed.

STRUCTURE

Medium-grained, massive basalt (unit 61.2).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer CP

Depth Interval

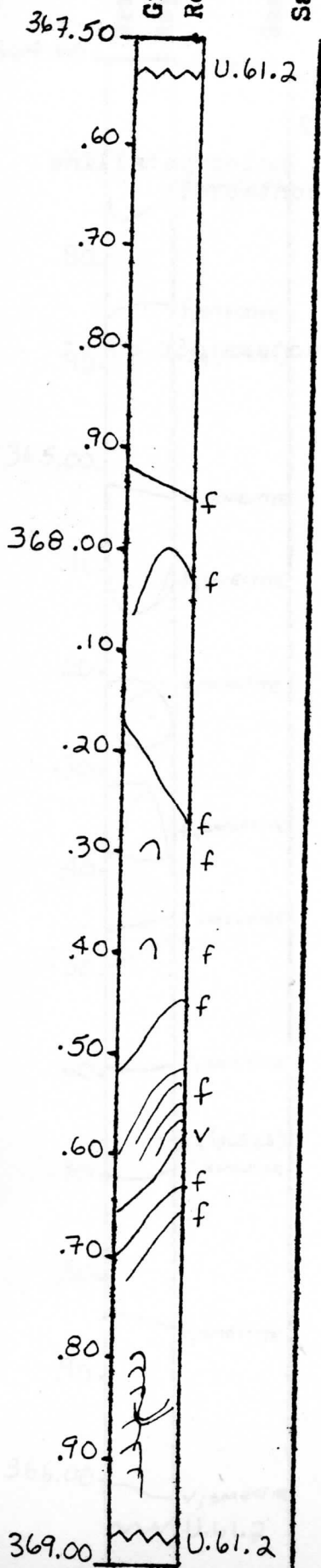
3 6 7 5 3

cm to

3 6 8 9 7

cm

Box 62 , Section 1



LITHOLOGY. PETROGRAPHY - continues unit 61.2
Patches of zeolite.

367.70 Becomes more massive, green, medium-grained, equi-granular, aphyric, holocrystalline basalt. Dike.

VESICLES/AMYGDALES
None observed.

FRACTURES - VEINS - BRECCIA
Smectite fractures. Core angle about 75°.
368.53 Zeolite vein with smectite around.

ROCK ALTERATION
None observed.

STRUCTURE
Medium-grained, aphyric basalt (unit 61.2).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer^{CP}.....

Depth Interval

3 6 8 9 7

cm to

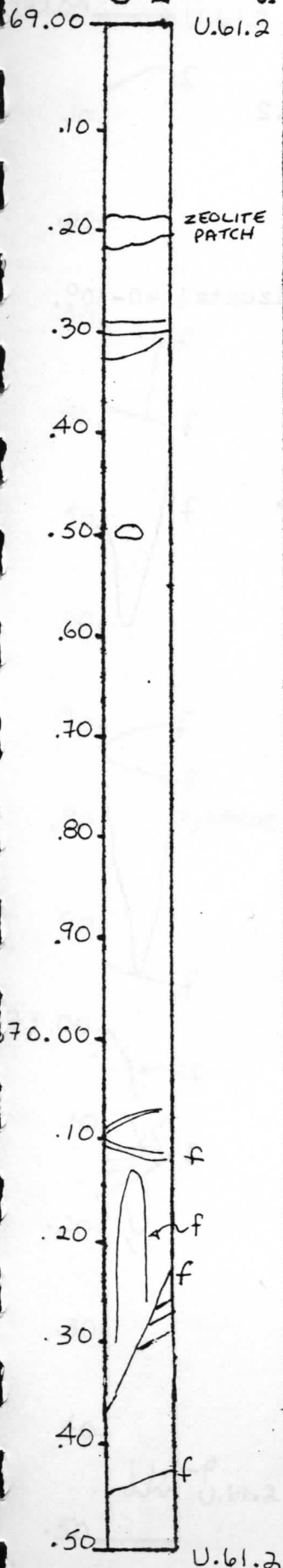
3 7 0 5 3

cm

Box 62 , Section 2

Graphic
Representation

Sample Location



LITHOLOGY PETROGRAPHY - continues unit 61.2
As above. Fewer fractures.

VESICLES/AMYGDALES
None observed.

FRACTURES - VEINS - BRECCIA

368.97 Patches of zeolite and calcite.

369.18 Large zeolite patch.

369.50 Zeolite and calcite.

370.10 Fractures at about 20° and 70°. All smectite.

ROCK ALTERATION
None observed.

STRUCTURE

Medium-grained, massive basalt (unit 61.2).

Visual Core Description

Observer CP

Depth Interval

3	7	0	5	3
---	---	---	---	---

cm to

3	7	1	9	8
---	---	---	---	---

CII

Box 62 , Section 3

LITHOLOGY · PETROGRAPHY

- continues unit 61.2

As above.

VESICLES/AMYGDALLES

None observed.

FRACTURES - VEINS - BRECCIA

370.53 Smectite fractures. Angle from horizontal 40-50°.

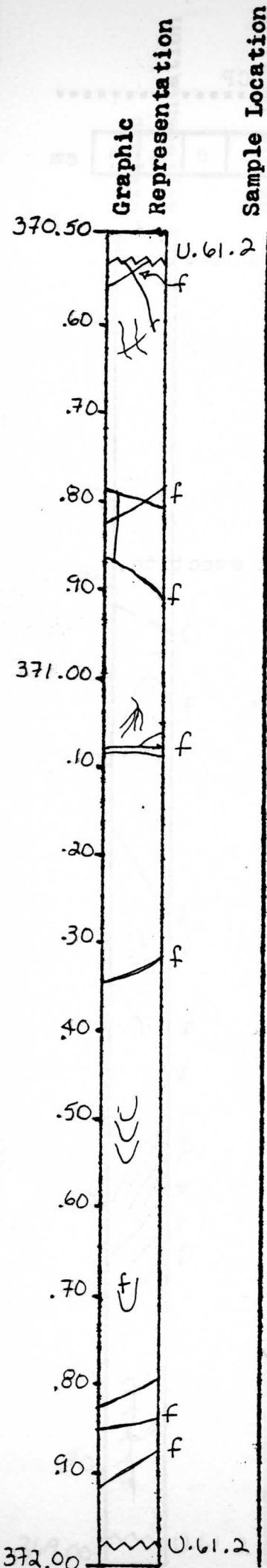
371.10 Few fractures.

ROCK ALTERATION

None observed.

STRUCTURE

Medium-grained, massive basalt (unit 61.2).



ICELAND RESEARCH DRILLING PROJECT

Visual Core Description Observer CP

Depth Interval

3	7	1	9	8
---	---	---	---	---

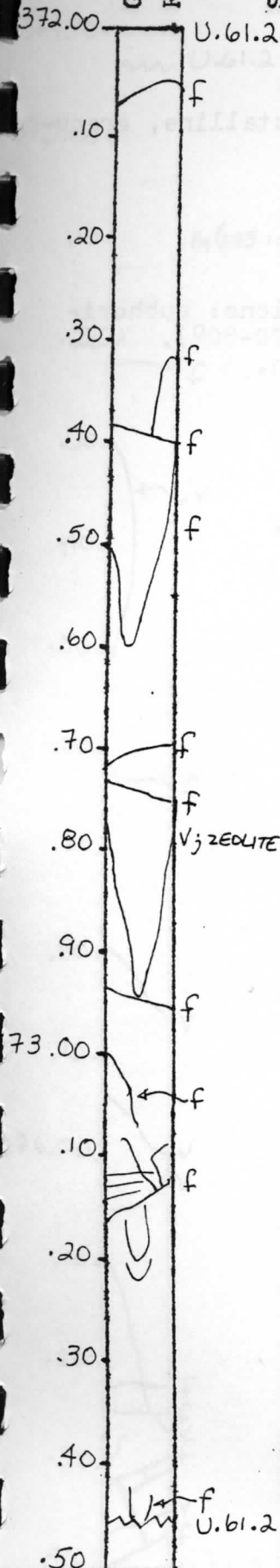
 cm to

3	7	3	4	5
---	---	---	---	---

 cm

Box 62 , Section 4

Graphic Representation Sample Location



LITHOLOGY PETROGRAPHY - continues unit 61.2

As above.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

371.98 Smectite fractures, about 800.

372.90 Vein of zeolite surrounded by smectite, 1-2mm.

ROCK ALTERATION

None observed.

STRUCTURE

Medium-grained, massive basalt (unit 61.2).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer RHW

Depth Interval

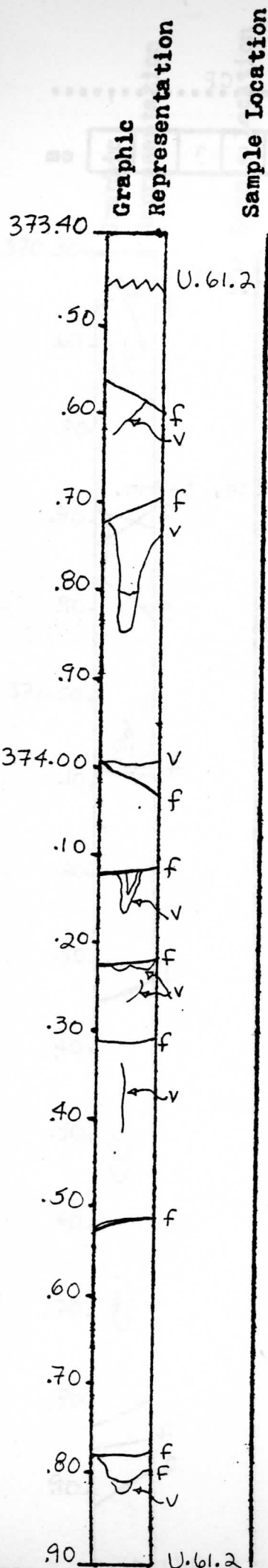
3	7	3	4	5
---	---	---	---	---

 cm to

3	7	4	9	4
---	---	---	---	---

 cm

Box 63 , Section 1



LITHOLOGY PETROGRAPHY - continues unit 61.2

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

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

Fractures and veinlets in 3 general orientations: subhorizontal (0-10°), about 45°, and high angled (70-80°). All are lined with smectite, both black and green.

ROCK ALTERATION

None observed.

STRUCTURE

Medium-grained, massive basalt (unit 61.2).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer RHW

Depth Interval

3 7 4 9 3

cm to

3 7 6 4 5

cm

Box 63 , Section 2

Graphic
Representation

Sample Location

374.90

U.61.2

375.00

.10

P1 (375.10)

.20

f

.30

v

.40

.50

.60

f

.70

.80

v

.90

376.00

v

v

.10

.20

.30

.40

U.61.2

LITHOLOGY PETROGRAPHY - continues unit 61.2

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

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

Fractures are subhorizontal or at about 45°, lined with black and green smectite. Veinlets hairline, smectite lined.

ROCK ALTERATION

None observed.

STRUCTURE

Medium-grained, massive basalt (unit 61.2).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer RHW

Depth Interval

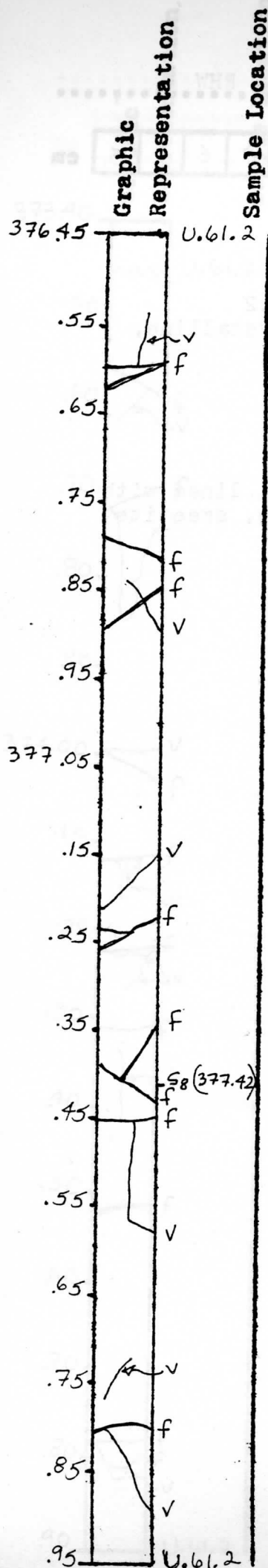
3 7 6 4 5

cm to

3 7 7 9 5

cm

Box 63 , Section 3



LITHOLOGY PETROGRAPHY - continues unit 61.2

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

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

Fractures are subhorizontal and 45-55°. Some fractures and veinlets at higher angles (65-70°), lined with smectite, black and green. Also, rare and small (less than 1mm) pyrites on some of the high angled fractures, but not, apparently, on the 45° and low angled fractures. Veinlets are generally high angled, smectite filled.

ROCK ALTERATION

None observed.

STRUCTURE

Medium-grained, massive basalt (unit 61.2).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer RHW

Depth Interval

3 7 7 9 5

cm to

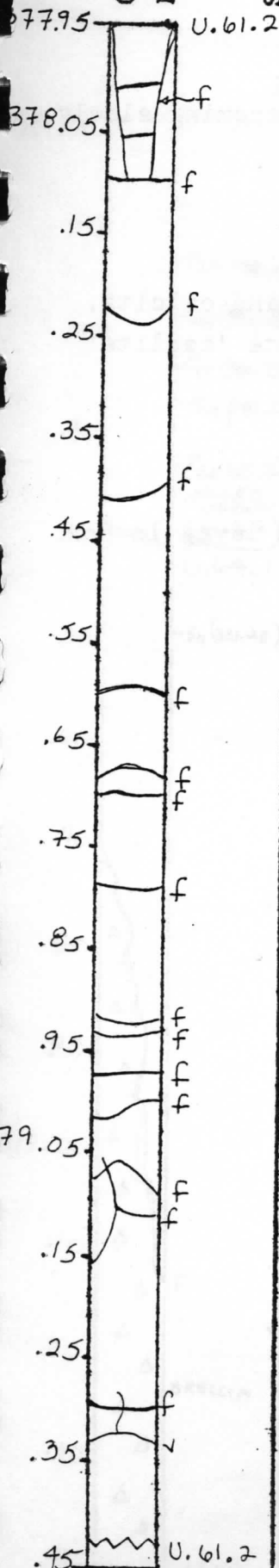
3 7 9 4 2

cm

Box 63 , Section 4

Graphic
Representation

Sample Location



LITHOLOGY PETROGRAPHY - continues unit 61.2

Medium-grained, grading into finer-grained towards base of core, grey-green, aphyric, holocrystalline, granular, equigranular basalt. Dike rock.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

Fractures generally subhorizontal (0-100°) or high angled (60-70°), lined with smectite, black and green.

390.30 Veinlet is smectite lined, zeolite filled. One is horizontal, other 80°.

ROCK ALTERATION

None observed.

STRUCTURE

Medium-grained, massive basalt (unit 61.2).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer ... ILG

Depth Interval

3 7 9 4 2

cm to

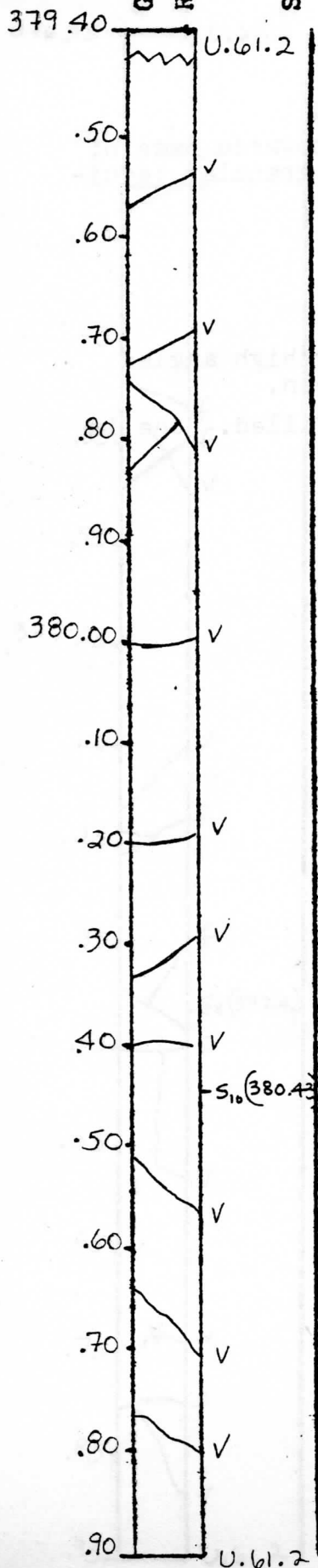
3 8 0 9 0

cm

Box 64 , Section 1

Graphic Representation

Sample Location



LITHOLOGY PETROGRAPHY - continues unit 61.2

Fine-grained, grey-green, aphyric basalt. Becoming slowly slightly finer-grained downwards.

VESICLES/AMYGDALES

Essentially no amygdalae.

FRACTURES - VEINS - BRECCIA

379.70 Thin veins of smectite and ?zeolite and calcite.

380.30 - 380.80 Many very thin veins of white 'zeolite' and calcite.

ROCK ALTERATION

Pervasive smectite alteration.

OTHER

Unit 61.2 has a chilled upper contact against lavas in Box 61 (361.73-367.53m).

STRUCTURE

Fine-grained, aphyric basalt (unit 61.2).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

ObserverILG.....

Depth Interval

3 8 0 9 0

cm to

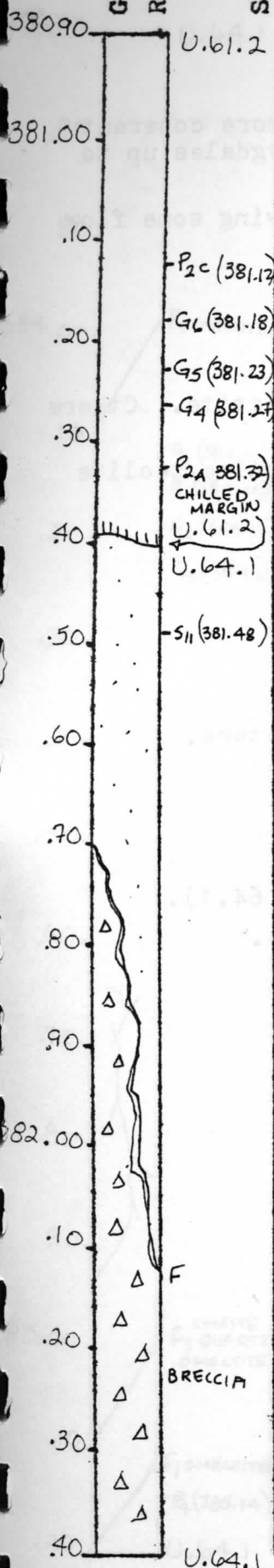
3 8 2 4 2

cm

Box 64 , Section 2

Graphic Representation

Sample Location



LITHOLOGY PETROGRAPHY - continues unit 61.2

Fine-grained basalt. Grey-green, aphyric.

Becoming rapidly finer-grained on approaching contact.

381.39 Unit 64.1. Fine-grained, grey-green amygdaloidal basalt. Gunther Schoenharting - note this is not the same unit as other samples in this group.

381.70 1cm thick vein and fracture system with extensive zeolite, calcite and smectite alteration. Much brecciation.

382.00 Section below fault is a coarse flow breccia with haematite staining.

VESICLES/AMYGDALES

380.90 None.

381.39 Small amygdales with much calcite.

FRACTURES - VEINS - BRECCIA

381.30 A few isolated amygdales near margin of dike (3mm).

381.60 Fracture filled with calcite and laumontite. Fracture has dip of 80°.

381.90 "Zeolite" filling cracks and spaces between cavities and calcite.

ROCK ALTERATION

None observed.

OTHER

381.30 Margin of dike.

381.39 NOTE: It is possible that the unit above the fault does not equal unit below the fault although they are treated as the same. It is also possible that the section between 381.40 to the fault is in fact part of a dike.

STRUCTURE

380.90 - 381.39 Fine-grained, aphyric basalt (unit 61.2)

381.39 - 382.00 Unit 64.1 ; Fine-grained, amygdaloidal basalt.

382.00 - 382.42 Flow breccia (unit 64.1).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer ILG

Depth Interval

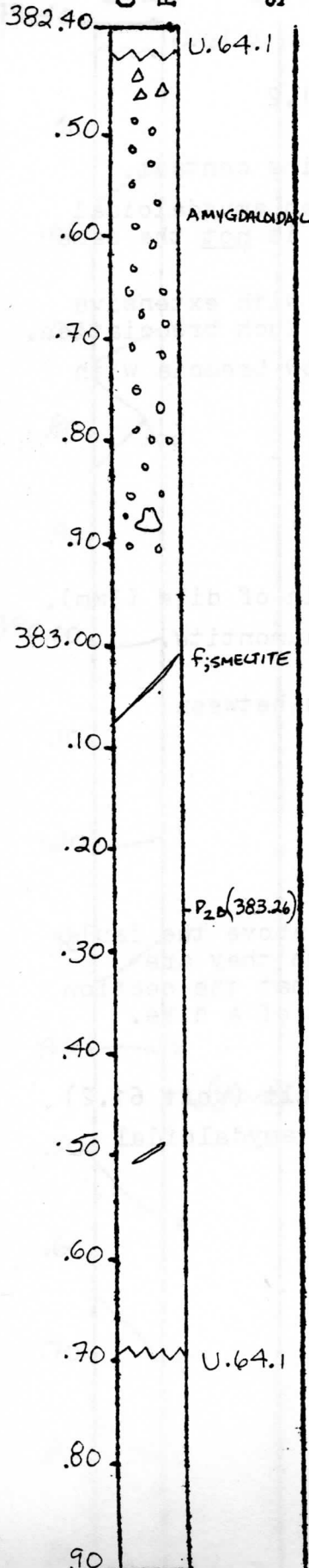
3 8 2 4 2

cm to

3 8 3 6 9

cm

Box 64 , Section 3



LITHOLOGY PETROGRAPHY - continues unit 64.1

Brecciated flow top becoming progressively more coherent and vesicular. Very amygdaloidal zone. Amygdales up to 1cm in diameter.

382.90 Transition to more massive unit showing some flow structure.

383.00 Green-grey aphyric basalt.

383.30 Becoming more massive.

VESICLES/AMYGDALES

382.45 Many amygdales filled with green smectite. Others only lined with smectite.

382.85 Large amygdale with interesting smectite/zeolite relations.

383.50 Large zeolite cavity.

FRACTURES - VEINS - BRECCIA

383.00 Dark smectite coated fracture.

ROCK ALTERATION

382.42 Smectite.

383.00 Smectite alteration along flow structure.

383.30 Smectite.

STRUCTURE

382.42 - 382.47 Flow breccia (unit 64.1).

382.47 - 382.90 Amygdaloidal basalt (unit 64.1).

382.90 - 383.69 Massive basalt (unit 64.1).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer IIG

Depth Interval

3	8	3	6	9
---	---	---	---	---

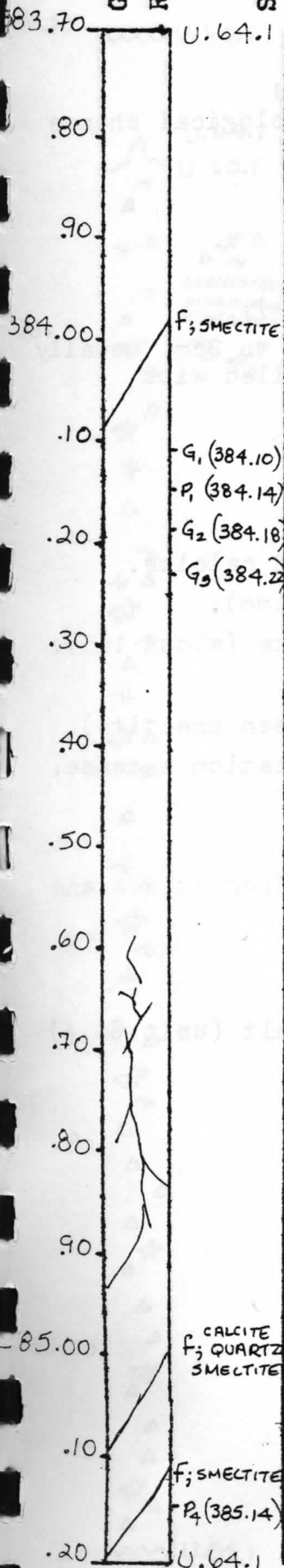
 cm to

3	8	5	2	0
---	---	---	---	---

 cm

Box 64 , Section 4

Graphic
Representation
Sample Location



LITHOLOGY PETROGRAPHY - continues unit 64.1

Grey-green, aphyric basalt.

383.80 Large amygdale.

VESICLES/AMYGDALES

Rare vesicles filled with calcite, zeolite.

384.20 Vesicles essentially absent.

FRACTURES - VEINS - BRECCIA

383.93 Smectite coated fracture.

384.60 Fractures coated with calcite, quartz, smectite.

385.00 Smectite coated fractures.

ROCK ALTERATION

Pervasive smectite alteration.

OTHER

S₁, S₂ and S₃ all have parallel orientation.

STRUCTURE

Fine-grained, aphyric basalt (unit 64.1).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer KH

Depth Interval

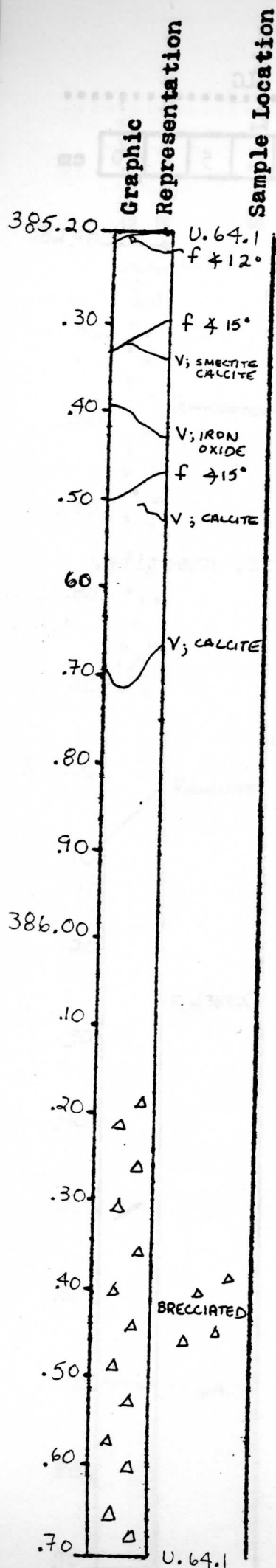
3	8	5	2	0
---	---	---	---	---

 cm to

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

 cm

Box 65 , Section 1



LITHOLOGY PETROGRAPHY - continues unit 64.1
Green-grey, fine-grained basalt flow. Lithological change is minor. Compact.

386.10 Brecciation.

386.40 Partly milonitized.

VESICLES/AMYGDALES

Vesicles are very rare (less than 1% of rock).

386.20 Irregular shape, sometimes reach up to 2cm, usually about 5mm. Outer part - green smectite, filled with calcite or laumontite.

FRACTURES - VEINS - BRECCIA

385.20 Fracture - angle 12°.

385.30 Fracture - angle 15°.

385.34 Vein - angle 60°; green smectite and calcite.

385.39 Vein - iron oxide (thickness about 1mm).

385.50 Fracture - angle 15°. Vein - calcite (about 1mm).

385.63 Vein - calcite (about 1mm).

Many small veinlets usually (calcite and green smectite).

386.10 Many fractures and veinlets. Brecciation intense.

ROCK ALTERATION

385.20 Green smectite.

386.10 Intensely altered green smectite. Iron oxides and calcite.

386.60 Iron oxides prominent.

STRUCTURE

385.20 - 386.20 Fine-grained, aphyric basalt (unit 64.1)

386.20 - 386.71 Breccia (unit 64.1).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

ObserverKH.....

Depth Interval

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

 cm to

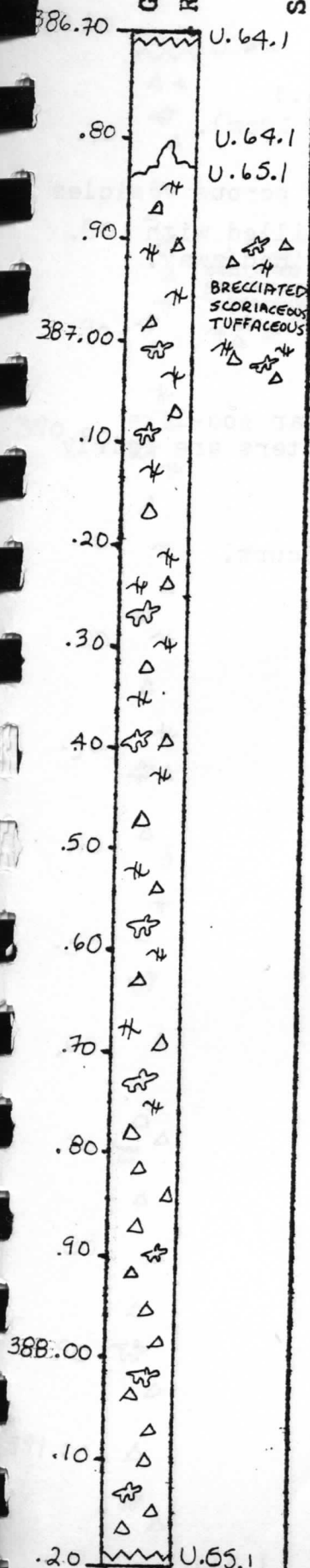
3	8	8	1	9
---	---	---	---	---

 cm

Box 65 , Section 2

Graphic
Representation

Sample Location



LITHOLOGY PETROGRAPHY - continues unit 64.1

386.85 Unit 65.1. Boundary is concordant but alteration minerals are very abundant within 10cm scoriaceous tuff breccia. The size of breccia up to more than 10cm, brownish-green colour, the shape of the breccia is irregular.

387.30 The parts rich in calcite and zeolites are light colour. The parts rich in smectite are greenish colour. Iron oxide contributes reddish colour, but the amount is minor.

387.90 Fairly brittle, loose, density of the rocks low.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

387.30 Many irregular shaped fractures. Usually composed of calcite and/or zeolites (fine-grained). Orientation of the flattened vesicles are also irregular.

ROCK ALTERATION

386.85 Iron oxides, green smectite, zeolites and calcite.

387.30 Highly altered calcite, zeolite (mostly laumontite) green smectite, especially just surrounding portion of each breccia are intensely altered.

387.90 Calcite is very abundant. Well crystalline calcite in vug (diameter about 2cm).

STRUCTURE

386.71 - 386.8 Unit 64.1

386.85 - 387.70 Unit 65.1 ; Scoriaceous tuff breccia.

387.70 - 388.19 Brecciation more prominent (unit 65.1)

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer KH

Depth Interval

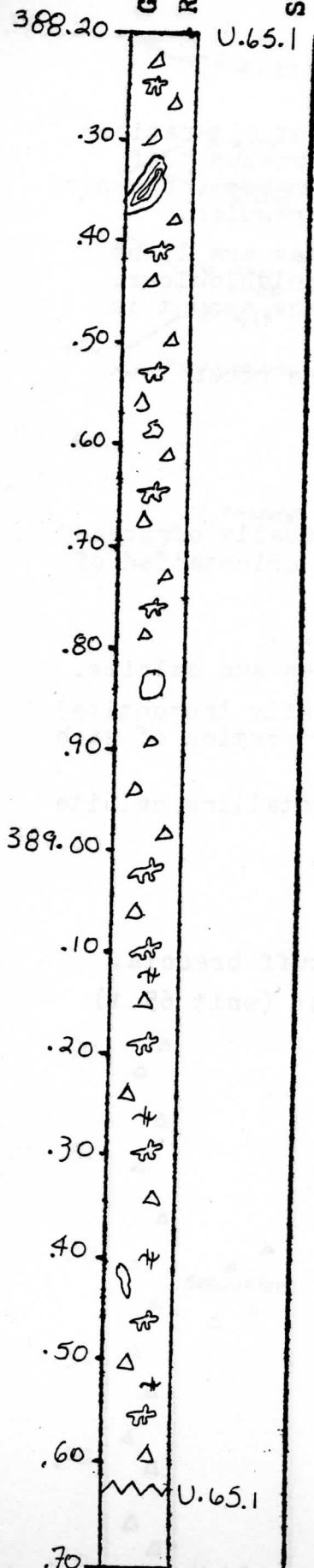
3 8 8 1 9

cm to

3 8 9 6 2

cm

Box 65 , Section 3



LITHOLOGY PETROGRAPHY

- continues unit 65.1

Greyish-bluish-green coloured breccia (up to 10cm). Scoriaceous.

388.90 Become loose, soft that is caused by porous vesicles

389.15 These porous parts might have been filled with smectite. The drilling water might have drained away.

VESTIGLES/AMYGDALLES

None observed.

FRACTURES - VEINS - BRECCIA

Veinlets are usually discontinuous. Irregular pod-like shaped calcite, clusters and/or zeolite clusters are fairly common.

ROCK ALTERATION

Calcite, zeolite, green smectite commonly occurs.

STRUCTURE

Scoriaceous breccia (unit 65.1).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer KH

Depth Interval

3 8 9 6 2

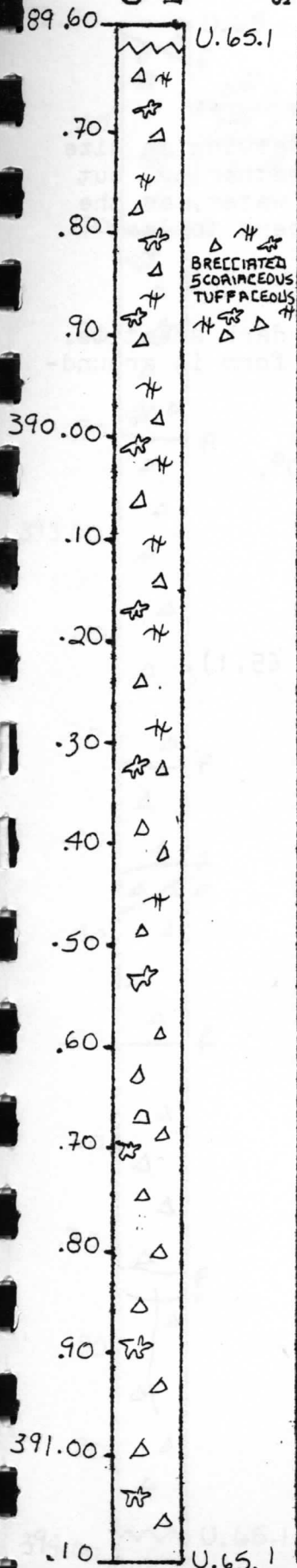
cm to

3 9 1 1 1

cm

Box 65 , Section 4

Graphic
Representation
Sample Location



LITHOLOGY PETROGRAPHY - continues unit 65.1

Bluish-greenish-grey scoriaceous tuff breccia.

389.75 Very brittle, soft, brecciated, and intensely altered, so that original structure has disappeared.

390.40 Fairly compact.

390.60 Again, very brittle, intensely brecciated, crushed.

VESICLES/AMYGDALES

None observed.

FRACTURES - VEINS - BRECCIA

Fractures are usually filled with zeolite and calcite. Green smectite surrounds the fracture.

ROCK ALTERATION

Intensely altered. Green smectite, calcite, laumontite.

STRUCTURE

Scoriaceous tuff breccia (unit 65.1).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer RHW

Depth Interval

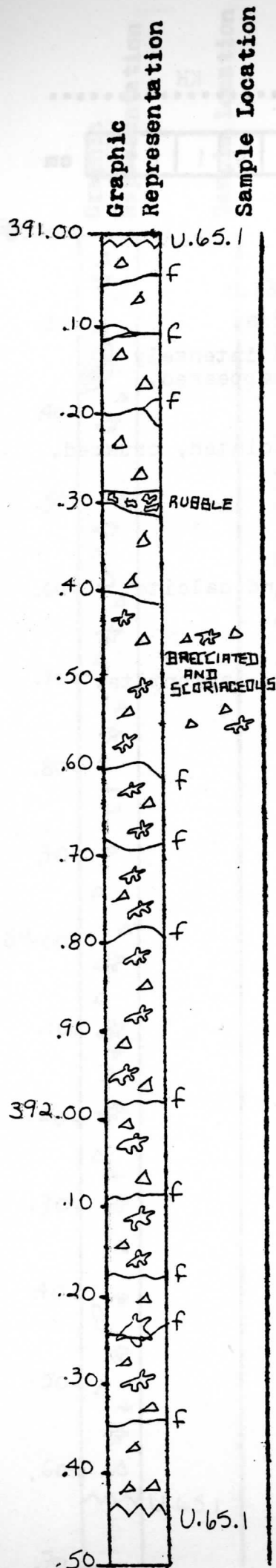
3 9 1 0 1

cm to

3 9 2 4 4

cm

Box 66 , Section 1



LITHOLOGY PETROGRAPHY - continues unit 65.1

Dark grey breccia with scoriaceous clasts, varying in size up to 10cm. Scoria vesicles empty, as in weathering, but may only be the result of circulating drill water, as the whole unit is extremely soft. Upper 30cm seems to lack large clasts.

VESICLES/AMYGDALES

Vesicles in scoria are voids or filled with dark smectite. Calcite and zeolite present in disseminated form in ground-mass.

FRACTURES - VEINS - BRECCIA

Fractures generally subhorizontal, two at 30°.

ROCK ALTERATION

None observed.

STRUCTURE

391.01 - 391.40 Breccia (unit 65.1).

391.40 - 392.44 Scoriaceous breccia (unit 65.1).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer RHW

Depth Interval

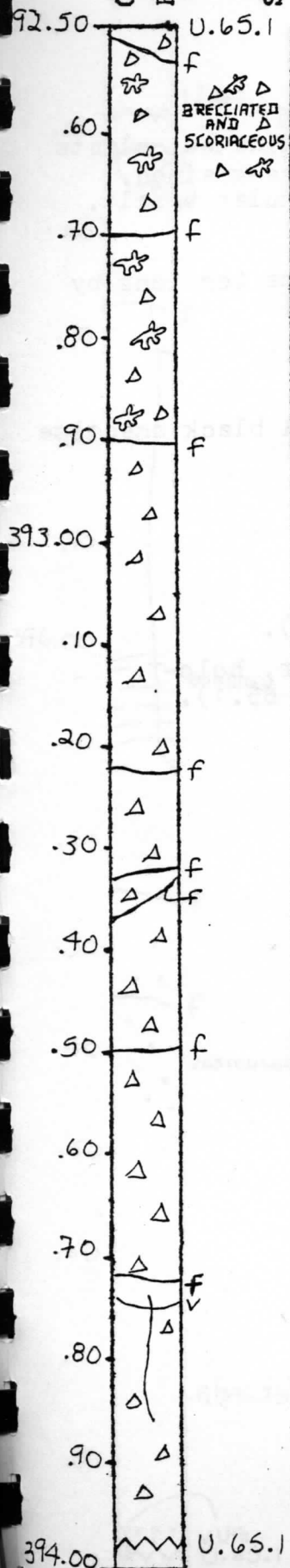
3 9 2 4 4

cm to

3 9 3 9 7

cm

Box 66 , Section 2



LITHOLOGY PETROGRAPHY - continues unit 65.1

Dark grey breccia with scoriaceous clasts, size ranging up to 5cm. Surface of clasts eroded, perhaps due to chilling water or clasts are very soft, smectite filled. Scoriaceous breccia grades into reddish-grey breccia with scoriaceous clasts that are not eroded, filled with zeolite and calcite.

VESICLES/AMYGDALES

Vesicles weathered (washed) out in clasts of upper zone, zeolite and calcite filled in lower zone. Groundmass appears to have minor calcite replacement (filling).

FRACTURES - VEINS - BRECCIA

Fractures subhorizontal, 0-10°, smectite lined, and minor zeolite (läumontite).

ROCK ALTERATION

None observed.

STRUCTURE

392.44 - 392.95 Scoriaceous breccia (unit 65.1).

392.95 - 393.97 Breccia (unit 65.1).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer RHW

Depth Interval

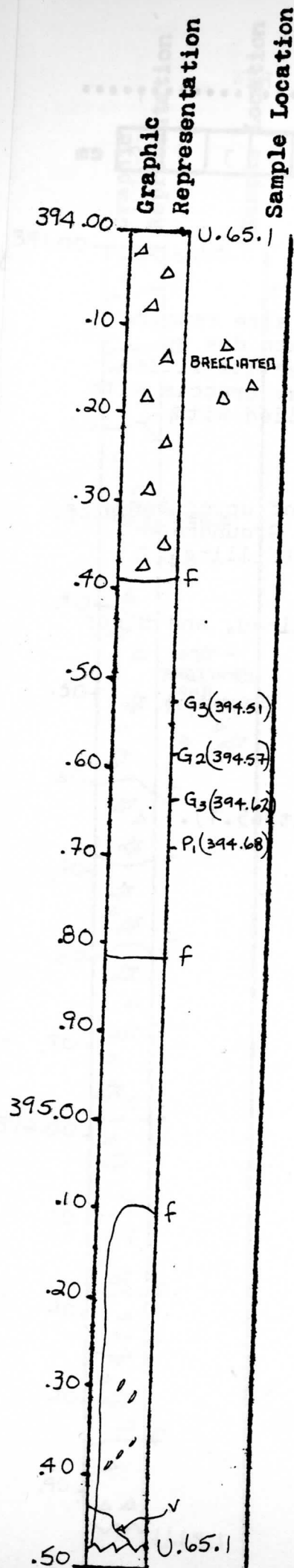
3 9 3 9 7

cm to

3 9 5 4 8

cm

Box 66 , Section 3



LITHOLOGY PETROGRAPHY - continues unit 65.1
Basaltic breccia; reddish-brown, well consolidated, clasts to 2cm. Breccia grades into green-grey, fine-grained, holocrystalline, aphyric, granular, equigranular basalt.

VESICLES/AMYGDALES
395.30 Several small, quartz filled veinlets 1cm long by 1-2mm wide.

FRACTURES - VEINS - BRECCIA
Most fractures horizontal (0-5°).
395.10 High angled fracture, 80°, green and black smectite lined.

ROCK ALTERATION
None observed.

STRUCTURE
393.97 - 394.42 Basalt breccia (unit 65.1).
394.42 - 395.48 Fine-grained, equigranular, holocrystalline, aphyric, massive basalt (unit 65.1).

ICELAND RESEARCH DRILLING PROJECT

Visual Core Description

Observer RHW

Depth Interval

3 9 5 4 8

cm to

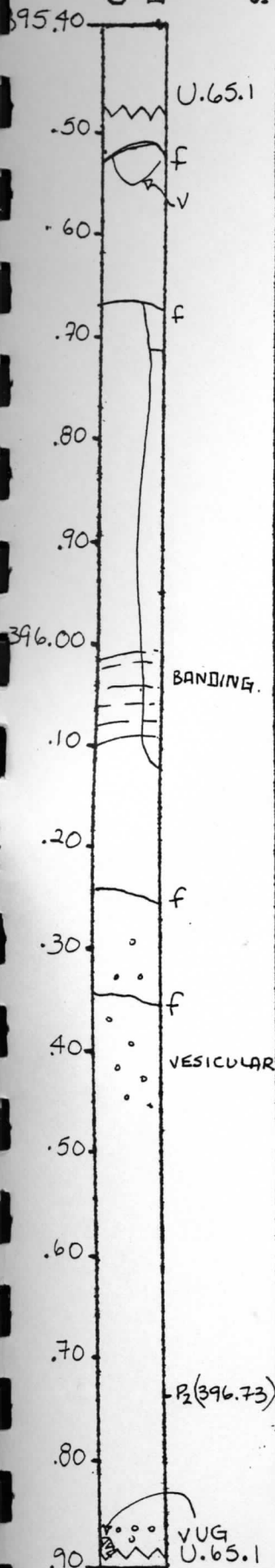
3 9 6 8 9

cm

Box 66 , Section 4

Graphic
Representation

Sample Location



LITHOLOGY PETROGRAPHY - continues unit 65.1

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

VESICLES/AMYGDALES

395.48 Absent.

396.00 Banding may be zeolite or quartz (light), smectite (dark).

396.10 Absent.

396.85 Small quartz filled veinlets, 1cm x 1mm, one vug, with quartz 1cm diameter.

FRACTURES - VEINS - BRECCIA

Subhorizontal (0-10°) and high angled (80°), lined with black and green smectite.

ROCK ALTERATION

None observed.

STRUCTURE

395.48 - 396.00 Fine-grained, massive basalt (unit 65.1)

396.00 - 396.12 Faint banding.

396.12 - 396.89 Fine-grained massive basalt (unit 65.1).