ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 72.4 INTERVAL(m) 421.70 - 421.80 THICKNESS(m) 0.10

INTERPRETATION Basalt dike (complete)

MACROSCOPIC DESCRIPTION

Dark gray, very fine-grained, aphyric basalt. Chilled margins top and bottom. Fractures and veins filled with laumontite, calcite, and minor pyrite. Unit lies between units 72.3 and 72.5.

UNIT NO. 72.6 INTERVAL(m) 422.05 - 425.90 THICKNESS(m) 3.85

INTERPRETATION Basalt dike (complete)

MACROSCOPIC DESCRIPTION

Light gray, fine- to medium-grained, aphyric basalt. Grain size increases slightly from margins to center. Unit interpreted as dike based on chilled margins. Intruded into unit 72.5 at upper contact and intruded into unit 73.1 at base.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 73.1 INTERVAL(m) 425.90 - 434.70 THICKNESS(m) 8.80

INTERPRETATION Basalt flow (incomplete)

MACROSCOPIC DESCRIPTION

Light grayish-green, fine-grained, holocrystalline, massive, aphyric basalt with upper scoriaceous breccia and minor basal breccia. Flow banding in lower massive portion. Fractures in upper brecciated zone lined with epidote(?), zeolite, calcite, and minor garnet(?). Unit interpreted as flow based on brecciation and lower depositional contact. Upper part of flow truncated by chilled margin of unit 72.6; lower contact drawn at top of red, scoriaceous zone at top of unit 74.1

UNIT NO. 74.1 INTERVAL(m) 434.70 - 444.53 THICKNESS(m) 9.83

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Purplish-gray basalt breccia with minor greenish-gray, aphyric, massive basalt near center. Breccia clasts vary from fine-grained, aphyric to scoriaceous. Vesicles filled with zeolite, green smectite/chlorite, and minor calcite. Unit interpreted as flow based on depositional contacts; overlain by unit 73.1 and rests on altered breccia of unit 76.1; contacts drawn at changes in brecciation or alteration.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 76.1 INTERVAL(m) 444.53 - 447.90 THICKNESS(m) 3.37

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Gray, fine-grained, massive, aphyric basalt with about 1 m of highly altered reddish-gray, scoriaceous breccia at top and about 50 cm of breccia at base. Scoriaceous breccia has large amygdules lined with smectite/chlorite and filled with laumontite. Some calcite and zeolite patches also in groundmass. Unit interpreted as flow based on depositional contacts and brecciation. Unit lies between units 74.1 and 76.2 with contacts drawn at changes in degree of brecciation and alteration.

UNIT NO. 76.2 INTERVAL(m) 447.90 - 453.53 THICKNESS(m) 5.63

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Reddish-gray, scoriaceous flow top breccia from 447.90 to 448.70, grading downward into massive, grayish-green, fine-grained, aphyric basalt with irregular patches of smectite/chlorite. Sparse, large amygdules filled with zeolite in basal part of unit. Unit interpreted as flow from depositional contacts and brecciation. Lies between units 76.1 and 77.1 with contacts drawn at changes in degree of brecciation and discoloration. Separated from unit 77.1 by 3-cm-thick sedimentary layer.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 77.1 INTERVAL(m) 453.53 - 457.31 THICKNESS(m) 3.78

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Chiefly grayish-green, fine-grained, massive, aphyric basalt with reddish-brown, scoriaceous breccia in upper 60 cm. Sparse vesicles and veins filled with zeolite, carbonate, and smectite/chlorite. Some sedimentary matrix in upper breccia. Unit interpreted as flow based on depositional contacts; boundary with overlying unit 76.2 marked by thin sedimentary interbed, lower boundary drawn at top of scoriaceous breccia at top of unit 78.1.

UNIT NO. 78.1 INTERVAL(m) 457.30 - 461.50 THICKNESS(m) 4.20

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Gray to greenish-gray, fine-grained, aphyric to sparsely phyric basalt with reddish-gray, scoriaceous breccia in upper 70 cm. Phenocrysts 1-3%, mostly plagioclase with some clinopyroxene. Highly amygdaloidal zone between 458.60 and 458.90, amygdules to 8 mm, filled with zeolite and calcite. Zeolite and calcite amygdules also abundant in scoriaceous breccia. Highly altered zone between 458.40 and 458.65; elsewhere only minor growth of smectite/chlorite in groundmass. Unit interpreted as flow based on depositional contacts and brecciation. Lies between flows of units 77.1 and 79.1. Contacts drawn at changes in brecciation and discoloration.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 79.1 INTERVAL(m) 461.50 - 462.70 THICKNESS(m) 1.20

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Fine-grained, purplish-brown, aphyric, vesicular basalt. Top 50 cm brecciated with clasts ranging from 2 mm to 7 cm. Much zeolite and carbonate in vesicles. Unit interpreted as flow from depositional contacts and brecciation. Lies between flows of unit 78.1 and 79.2; boundaries drawn at changes in brecciation and discoloration.

UNIT NO. 79.2 INTERVAL(m) 462.70 - 466.90 THICKNESS(m) 4.20

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Purplish-brown, scoriaceous, flow top breccia grading downward into massive, greenish-gray, fine-grained, aphyric basalt at 464.10 m. Abundant subround to irregular vesicles (10 - 30%), filled with zeolite and smectite/chlorite. Some scoriaceous breccia also between 465.55 and 465.80 m. Pervasive alteration to green smectite/chlorite with local bands of rusty-red smectite. Unit interpreted as flow based on depositional contacts and brecciation. Lies between units 79.1 and 80.1; contacts drawn at changes in brecciation.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 80.1 INTERVAL(m) 466.90 - 472.50 THICKNESS(m) 5.60

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Upper portion is grayish-green, scoriaceous breccia grading downward into massive, fine-grained, sparsely phyric basalt. Phenocrysts 1-2%, mostly plagioclase. Large vesicles filled with zeolite, smectite/chlorite and some calcite. Local breccia intercalations with clasts up to 2 cm across. Unit interpreted as flow based on depositional contacts. Lies between units 79.2 and 81.1; contacts drawn at changes in brecciation.

UNIT NO. 81.1 INTERVAL(m) 472.50 - 479.05 THICKNESS(m) 6.55

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Very compact, massive, greenish-gray, fine-grained, microporphyritic basalt with minor vesicles. Phenocrysts 1-2%, plagioclase and clinopyroxene. Upper 2 m highly brecciated with clasts to 5 cm; lower few cm highly vesicular. Vesicles filled with smectite/chlorite and zeolite. Unit interpreted as flow from depositional contacts. Lies between flows of units 80.1 and 82.1. Upper contact drawn at top of breccia zone; lower contact at top of sedimentary interbed.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 82.1 INTERVAL(m) 479.05 - 480.00 THICKNESS(m) 0.95

INTERPRETATION Clastic unit (complete)

MACROSCOPIC DESCRIPTION

Dark brown to dark brownish-green, moderately bedded, partly brecciated, fine-grained, basaltic(?) tuffaceous sediment. Strongly altered and soft. Unit lies between flows of units 81.1 and 82.2.

UNIT NO. 82.2 INTERVAL(m) 480.00 - 489.05 THICKNESS(m) 9.05

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Grayish-green to grayish-brown, dense flow top breccia with clasts up to 3 cm grading downward into grayish-green, massive, aphyric, slightly vesicular basalt. Local minor flow banding dipping about 5 to 10°. Below 486.60 unit brecciated with fragments to 4 cm and large vugs filled with white secondary minerals. Unit interpreted as flow from depositional contacts. Upper contact at base of clastic unit 82.1; lower contact at top of clastic unit 83.1.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 83.1 INTERVAL(m) 489.05 - 489.20 THICKNESS(m) 0.15

INTERPRETATION Clastic unit (complete)

MACROSCOPIC DESCRIPTION

Black, very fine-grained, soft sediment containing one medium-grained, horizontal bed 1.5 cm thick. Lies between flows of units 82.2 and 83.2.

UNIT NO. 83.2 INTERVAL(m) 489.20 - 491.50 THICKNESS(m) 2.30

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Dark gray, sparsely phyric, flow top breccia grading downward into fine- to medium grained, aphyric, sparsely vesicular, massive basalt. Grain size increases slightly with depth. Highly altered with some disseminated pyrite. Some fractures dip 60-80°, filled with pyrite and zeolite.
Unit interpreted as flow from depositional contacts. Upper contact at base of clastic unit 83.1; lower contact at top of breccia zone in unit 84.1.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 84.1 INTERVAL(m) 491.50 - 503.32 THICKNESS(m) 11.82

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Reddish-brown, scoriaceous basalt breccia in upper 5.5 m, grading downward into grayish-green, fine-grained, flow banded, aphyric basalt in center of flow. 50 cm of grayish-green breccia at base. Breccia relative dense except for highly vesicular zone between 491.40 and 493.00 m. A few cognate xenoliths of plagioclase and clinopyroxene. Unit interpreted as flow from depositional contacts. Lies between units 83.2 and 86.1. Upper contact drawn at change in brecciation; lower contact at top of clastic unit.

UNIT NO. 86.1 INTERVAL(m) 503.32 - 504.00 THICKNESS(m) 0.68

INTERPRETATION Clastic unit (complete)

MACROSCOPIC DESCRIPTION

Fine-grained, dark reddish-brown, bedded to massive sediment grading into sandy, porous material. Vague bedding preserved, dips about 10°. At 504.00 sediment grades into breccia with scoriaceous clasts so that contact with unit 86.2 is indistinct.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 86.2 INTERVAL(m) 504.00 - 507.36 THICKNESS(m) 3.36

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Upper 1.8 m is reddish-brown to grayish-brown, scoriaceous breccia with some sedimentary groundmass. This grades downward into grayish-green, fine-grained, aphyric amygdaloidal basalt. Amygdules have some planar orientation, filled with zeolite and quartz. Unit interpreted as flow from depositional contacts. Upper contact at top of breccia zone below unit 86.1 and lower contact at top of clastic unit 87.1.

	87.1		507.36 - 508.80		1.44
UNIT NO.	87.3	INTERVAL(m)	509.65 - 511.25	THICKNESS(m)	1.60

INTERPRETATION Clastic unit (incomplete)

MACROSCOPIC DESCRIPTION

Indurated, black and brown, interlayered silt, sand and breccia; lower part mostly breccia with subrounded to angular lithic clasts ranging from 0.5 to 4 cm in diameter. Quartz and feldspar grains visible, suggesting altered silicic tuffaceous material. Units 87.1 and 87.3 are interpreted as parts of a single clastic unit cut by a thin dike (unit 87.2). Unit lies between units 86.2 and 87.4.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 87.2 INTERVAL(m) 508.80 - 509.65 THICKNESS(m) 0.85

INTERPRETATION Basalt dike (complete)

MACROSCOPIC DESCRIPTION

Gray, medium-grained, moderately phyric, slightly vesicular basalt. Plagioclase phenocrysts 10-15%, 1-8 mm, altered; sparse olivine microphenocrysts, altered. Plagioclase crystals aligned parallel to contacts. Unit moderately broken up by drilling. Widespread alteration to green smectite/chlorite. Unit interpreted as dike from chilled margins; intrudes clastic unit composed of 87.1 and 87.3.

UNIT NO. 87.4 INTERVAL(m) 511.25 - 527.50 THICKNESS(m) 16.25

INTERPRETATION Basalt dike (incomplete)

MACROSCOPIC DESCRIPTION

Uniform, grayish-green, medium-grained, highly altered basalt. Moderately phyric; plagioclase phenocrysts 3%, some aligned parallel to contacts, olivine 2%, altered to smectite/chlorite, clinopyroxene 1%. Most of unit highly fractured and broken up during drilling. Many veins filled with calcite, zeolite and smectite/chlorite; strongly altered zones at 515.00, 518.20, 519.30, and 520.00 m. Upper contact with flow of unit 87.3 dips 80° but shows no obvious chilling; lower boundary truncated by intrusive of unit 90.1. Because both upper and lower contacts unchilled unit could be either a dike or flow. Non-vesicularity and abundant fractures make dike origin more likely; probably part of larger multiple dike.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 90.1 INTERVAL(m) 527.50 - 528.50 THICKNESS(m) 1.0

INTERPRETATION Basalt dike (incomplete)

MACROSCOPIC DESCRIPTION

Fine-grained, relatively massive, sparsely phyric basalt. Plagioclase phenocrysts 2-3% in upper part, 7-8% in lower part, 1-2 mm, fresh. 8 mm wide vein at 527.90 m filled with smectite/chlorite. Upper contact chilled against unit 87.4; lower boundary truncated by dike of unit 90.2. Probably part of larger multiple dike.

UNIT NO. 90.2 INTERVAL(m) 528.50 - 529.08 THICKNESS(m) 0.58

INTERPRETATION Basalt dike (complete)

MACROSCOPIC DESCRIPTION

Very fine-grained, aphyric, massive basalt. Chilled contacts against units 90.3 and 90.1. Probably part of thick multiple dike.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 90.3 INTERVAL(m) 529.08 - 529.45 THICKNESS(m) 0.37

INTERPRETATION Basalt dike(?) (incomplete)

MACROSCOPIC DESCRIPTION

Grayish-green, medium-grained, massive, moderately phyric basalt. Plagioclase phenocrysts, 10%, clinopyroxene 5%, opaques 3%. Unit lies between units 90.2 and 90.4 and is truncated by dikes at both margins. Interpreted as dike because of absence of vesicles and similarity to overlying parts of multiple dike.

UNIT NO. 90.4 INTERVAL(m) 529.45 - 532.55 THICKNESS(m) 3.10

INTERPRETATION Basalt dike (complete)

MACROSCOPIC DESCRIPTION

Gray, fine- to medium-grained, aphyric, massive basalt. Chilled margins at both contacts against unit 90.3 and 91.1. Moderately broken up by high and low angle fractures.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 91.1 INTERVAL(m) 532.55 - 533.58 THICKNESS(m) 1.03

INTERPRETATION Basalt flow(?) (incomplete)

MACROSCOPIC DESCRIPTION

Greenish-gray, vesicular, highly altered and broken, fine-grained, olivine basalt. Fractures abundant, lined with smectite/chlorite; veins filled with zeolite. Unit cut by dike of unit 90.4 above and 91.2 below. Interpreted as flow from vesicularity but possibly a dike because of high degree of fracturing.

UNIT NO. 91.2 INTERVAL(m) 533.58 - 541.40 THICKNESS(m) 7.82

INTERPRETATION Basalt dike(?) (incomplete)

MACROSCOPIC DESCRIPTION

Gray, medium-grained, aphyric, massive basalt. Upper and lower 1 m broken up along subvertical fractures. Rare small smectite/chlorite blebs. Unit interpreted as dike from medium grain size, lack of vesicles, and absence of scoriaceous breccia. Upper contact against unit 91.1 is fine-grained but not chilled; lower contact against unit 92.1 also fine-grained but not chilled.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 92.1 INTERVAL(m) 541.40 - 548.00 THICKNESS(m) 8.60

INTERPRETATION Basalt dike (incomplete)

MACROSCOPIC DESCRIPTION

Grayish-green, fine- to medium-grained, massive, aphyric basalt. Intense smectite/chlorite alteration. Many fractures in interval 546.95 to 547.05 dipping about 75°. Upper boundary truncated by intrusive contact of unit 91.2; lower contact chilled against unit 94.1. Probably part of thick multiple dike.

UNIT NO. 94.1 INTERVAL(m) 548.00 - 548.70 THICKNESS(m) 0.70

INTERPRETATION Basalt dike (incomplete)

MACROSCOPIC DESCRIPTION

Greenish-gray, medium- to fine-grained, sparsely phyric basalt with a few amygdules filled with smectite/chlorite. Phenocrysts 1-2%, plagioclase. Some large smectite/chlorite fractures with minor zeolite. Unit truncated top and bottom by intrusive contacts of units 92.1 and 94.2. Interpreted as dike from general absence of vesicles and massive character. Probably part of multiple dike.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 94.2 INTERVAL(m) 548.70 - 585.80 THICKNESS(m) 37.10

INTERPRETATION Basalt dike (complete?)

MACROSCOPIC DESCRIPTION

Greenish-gray, very homogeneous, massive, medium- to coarse-grained, aphyric basalt with rare blebs of smectite/chlorite. Scattered subhorizontal to low angle fractures. Lower contact chilled subhorizontally against clastic unit 100.1; upper contact chilled(?) against unit 94.1.

UNIT NO. 100.1 INTERVAL(m) 585.82 - 589.82 THICKNESS(m) 4.00

INTERPRETATION Clastic unit (incomplete)

MACROSCOPIC DESCRIPTION

Fine-grained, dark brown to black, bedded siltstone and mudstone underlain by conglomerate of basaltic clasts 1-2 cm across. Grain size increases downward and sorting is generally poor. Intrusive contacts at top and base. Lies between units 94.2 and 101.1.

N.B. In core photograph of this interval boxes 101 through 104 have wrong depth labels taped on end.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 101.1 INTERVAL(m) 589.82 - 602.96 THICKNESS(m) 13.14

INTERPRETATION Basalt dike (complete)

MACROSCOPIC DESCRIPTION

Grayish-green, medium-grained, porphyritic basalt. Plagioclase phenocrysts 5 - 10%, 1-2 cm long, oriented parallel to core axis. Phenocryst percent highly variable through unit. Upper part of unit veined and broken up by subhorizontal to subvertical fractures; lower part more massive. Intrusive contacts top and bottom with units 100.1 and 103.1.

UNIT NO. 103.1 INTERVAL(m) 602.96 - 603.23 THICKNESS(m) 0.27

INTERPRETATION Clastic unit (incomplete)

MACROSCOPIC DESCRIPTION

Greenish-gray, poorly defined, basalt breccia. Clast size increases somewhat downward. Unit truncated by intrusive contacts top and bottom; lies between units 101.1 and 103.2. May be continuation of clastic unit 100.1.

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UNIT NO. 103.2 INTERVAL(m) 603.23 - 628.80 THICKNESS(m) 25.6

INTERPRETATION Basalt dike (complete)

MACROSCOPIC DESCRIPTION

Light grayish-green, holocrystalline, medium- to coarse-grained, generally aphyric basalt. Grain size increases from contacts toward center of unit. Rare plagioclase phenocrysts in upper several meters, absent elsewhere. Lithologically similar to unit 94.2. Subhorizontal to low angle fractures spaced 20-100 cm apart. Unit has chilled contacts against units 103.1 above and 108.1 below. Lower contact sheared and mineralized with zeolite(?) or carbonate(?).

N.B. Unit labelled 103.1 in core boxes 105 and 106. In core photographs the outer box labelled 107 should be relabelled 106, the box labelled 106 should be relabelled 108 and the meters of box 108 belong to box 106.

UNIT NO. 108.1 INTERVAL(m) 628.80 - 632.67 THICKNESS(m) 3.87

INTERPRETATION Basalt flow (incomplete)

MACROSCOPIC DESCRIPTION

Medium- to dark-gray, porphyritic basalt; phenocrysts about 20%, mostly plagioclase to 3 mm long, minor clinopyroxene and olivine. Highly vesicular, vesicles filled with carbonate or zeolite. Bottom 10 cm scoriaceous. Unit lies between units 103.2 and 108.2; truncated by intrusive contacts top and bottom; interpreted as flow because of high vesicularity.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 108.2 INTERVAL(m) 632.67 - 633.24 THICKNESS(m) 0.57

INTERPRETATION Basalt dike (incomplete)

MACROSCOPIC DESCRIPTION

Gray, fine-grained, very sparsely phyric, microvesicular basalt. Rare phenocrysts are plagioclase. Some high angle fractures. Upper contact chilled against unit 108.1; lower boundary truncated by intrusive of unit 108.3. Unit is probably part of large composite dike including units 108.2 through 110.2.

UNIT NO. 108.3 INTERVAL(m) 633.24 - 636.10 THICKNESS(m) 2.86

INTERPRETATION Basalt dike (incomplete)

MACROSCOPIC DESCRIPTION

Light gray, fine-grained, aphyric basalt. Grain size increases somewhat from contacts toward center of unit. Basalt extremely fractured and broken up. Upper contact is intrusive into unit 108.2; lower contact with unit 109.1 is indistinct; lower contact strongly sheared and mineralized. Unit is probably part of large composite dike including units 108.2 through 110.2.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 109.1 INTERVAL(m) 636.10 - 636.60 THICKNESS(m) 0.50

INTERPRETATION Basalt dike (complete?)

MACROSCOPIC DESCRIPTION

Medium-gray, fine- to medium-grained, aphyric basalt. Basalt is highly fractured. Lies between units 108.3 and 109.2; both contacts poorly defined. Unit probably part of large composite dike including units 108.2 through 110.2.

UNIT NO. 109.2 INTERVAL(m) 636.60 - 638.98 THICKNESS(m) 2.38

INTERPRETATION Basalt dike (incomplete)

MACROSCOPIC DESCRIPTION

Medium gray, fine- to medium-grained, aphyric basalt. Highly fractured and broken up. Contact at top with unit 109.1 probably intrusive; lower contact truncated by upper chilled zone of unit 110.1. Unit probably part of large composite dike including units 108.2 through 110.2.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 110.1 INTERVAL(m) 638.98 - 642.56 THICKNESS(m) 3.58

INTERPRETATION Basalt dike (incomplete)

MACROSCOPIC DESCRIPTION

Light gray, fine- to medium-grained, aphyric basalt. Highly fractured and broken up. Upper contact intrusive into unit 109.2; lower contact with unit 110.2 indistinct. Unit probably part of large composite dike including units 108.2 through 110.2.

UNIT NO. 110.2 INTERVAL(m) 642.56 - 650.38 THICKNESS(m) 7.82

INTERPRETATION Basalt dike (incomplete)

MACROSCOPIC DESCRIPTION

Medium to dark gray, fine- to medium-grained, massive, aphyric basalt. Many high angle fractures, mostly closed. Upper contact with unit 110.1 indistinct; lower contact intrusive into unit 111.1. Unit probably part of large composite dike including units 108.2 through 110.2.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 111.1 INTERVAL(m) 650.38 - 652.70 THICKNESS(m) 2.32

INTERPRETATION Basalt dike(?) (incomplete?)

MACROSCOPIC DESCRIPTION

Dark gray, medium grained, sparsely phyric basalt. Phenocrysts 1-2%, mostly plagioclase and minor olivine to 1 mm, olivine altered to smectite/chlorite. Rare hairline fractures, filled with smectite/chlorite; some veins of zeolite, calcite and smectite/chlorite. Lower contact chilled against unit 112.1; upper contact truncated by unit 110.2. Both contacts broken up. Unit probably part of larger dike sequence.

UNIT NO. 112.1 INTERVAL(m) 652.70 - 656.70 THICKNESS(m) 4.0

INTERPRETATION Basalt flow (incomplete)

MACROSCOPIC DESCRIPTION

Purplish-gray, flow top scoriaceous breccia to 654.17 m, grading downward into highly amygdaloidal, aphyric basalt with a brecciated zone between 654.70 and 654.90 m. Irregular cavities in upper part of flow mostly filled with laumontite and some smectite/chlorite. Hairline fractures filled with green smectite/chlorite and zeolite. Lower part of unit massive and micro-vesicular. Depositional lower contact on unit 112.1; upper contact truncated by unit 111.1. Upper flow of a series of thin, highly scoriaceous flows from 652.70 to 684.80 m.

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UNIT NO. 112.2 INTERVAL(m) 656.70 - 657.70 THICKNESS(m) 1.00

INTERPRETATION Basalt flow (complete?)

MACROSCOPIC DESCRIPTION

Purplish-brown, highly altered, scoriaceous flow top breccia with 21 cm of grayish-green massive basalt at base. Basalt is fine-grained, porphyritic with plagioclase phenocrysts. Groundmass altered to smectite/chlorite. Vesicles and voids between fragments filled with zeolite. Part of sequence of thin scoriaceous flows from 652.70 to 684.8 m. Lies between units 112.1 and 113.1; contacts drawn at tops of breccia zones.

UNIT NO. 113.1 INTERVAL(m) 657.70 - 659.07 THICKNESS(m) 1.37

INTERPRETATION Basalt flow (complete?)

MACROSCOPIC DESCRIPTION

Dark, grayish-green, pervasively altered, scoriaceous, flow top breccia in upper 60 cm, grading downward into light gray, altered, vesicular basalt. Scattered patches of brown and green smectite/chlorite. Unit lies between units 112.2 and 113.2; contacts drawn at tops of breccia zones. Unit part of sequence of thin, scoriaceous flows from 652.70 to 684.80 m.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 113.2 INTERVAL(m) 659.07 - 664.41 THICKNESS(m) 4.34

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Flow divided into uppermost section of highly altered reddish-brown, scoriaceous flow top breccia to 661.40 m; below is dark gray, vesicular flow banded, moderately phyric basalt. Phenocrysts are plagioclase 7%, clinopyroxene 2%, altered olivine 1%, opaques 1%. Fractures common, spaced 20-50 cm apart, lined with smectite/chlorite and some zeolite. Vesicles filled with laumontite, quartz, and calcite. Unit part of scoriaceous flow sequence between 652.70 to 684.80 m. Lies between units 113.1 and 114.1; contacts drawn at tops of breccia zones.

UNIT NO. 114.1 INTERVAL(m) 664.41 - 667.48 THICKNESS(m) 3.07

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Uppermost reddish-gray to reddish-brown, scoriaceous, flow top breccia grading downward between 665.70 and 666.30 m into light greenish-gray, porphyritic massive basalt with some internal brecciated zones. Phenocrysts 10-15%, most plagioclase with minor clinopyroxene and traces of olivine and opaques. Veinlets filled with green smectite/chlorite and white massive mineral. Unit relatively well defined; part of sequence of thin scoriaceous flows from 652.70 to 684.80 m. Lies between units 113.2 and 114.2; contacts drawn at tops of breccia zones.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 114.2 INTERVAL(m) 667.48 - 671.73 THICKNESS(m) 4.25

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Reddish-gray, scoriaceous, flow top breccia in upper 80 cm, underlain by light gray, fine-grained basalt with sparse plagioclase microphenocrysts. Brecciated zones between 669.10 and 669.26, 669.78 and 670.38, and 670.85 and 671.00. Irregular, hairline fractures throughout, filled with zeolite and green smectite/chlorite. Unit highly scoriaceous and inhomogeneous, possibly consisting of several flow units. Part of a series of thin, scoriaceous flows between 652.70 and 684.80 m. Unit lies between units 114.1 and 115.1; contacts drawn at tops of breccia zones.

UNIT NO. 115.1 INTERVAL(m) 671.73 - 682.97 THICKNESS(m) 11.24

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Reddish-gray, highly scoriaceous, flow top breccia to 681.20 m. This underlain by greenish-gray, sparsely phyric, fine-grained, massive basalt. Phenocrysts 2-3%, plagioclase, olivine, clinopyroxene. Breccia pervasively altered with zeolite, smectite/chlorite and some pyrite. Part of series of scoriaceous flows from 652.70 to 684.80 m. Unit lies between units 114.2 and 117.1; contacts drawn at tops of breccia zones.

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UNIT NO. 114.2 INTERVAL(m) 667.48 - 671.73 THICKNESS(m) 4.25

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Reddish-gray, scoriaceous, flow top breccia in upper 80 cm, underlain by light gray, fine-grained basalt with sparse plagioclase microphenocrysts. Brecciated zones between 669.10 and 669.26, 669.78 and 670.38, and 670.85 and 671.00. Irregular, hairline fractures throughout, filled with zeolite and green smectite/chlorite. Unit highly scoriaceous and inhomogeneous, possibly consisting of several flow units. Part of a series of thin, scoriaceous flows between 652.70 and 684.80 m. Unit lies between units 114.1 and 115.1; contacts drawn at tops of breccia zones.

UNIT NO. 115.1 INTERVAL(m) 671.73 - 682.97 THICKNESS(m) 11.24

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Reddish-gray, highly scoriaceous, flow top breccia to 681.20 m. This underlain by greenish-gray, sparsely phyric, fine-grained, massive basalt. Phenocrysts 2-3%, plagioclase, olivine, clinopyroxene. Breccia pervasively altered with zeolite, smectite/chlorite and some pyrite. Part of series of scoriaceous flows from 652.70 to 684.80 m. Unit lies between units 114.2 and 117.1; contacts drawn at tops of breccia zones.

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UNIT NO. 117.1 / 117.3 INTERVAL(m) 682.97 - 684.56 / 685.25 - 685.50 THICKNESS(m) 1.59 / 0.25

INTERPRETATION Basalt flow (complete) cut by dike of unit 117.2

MACROSCOPIC DESCRIPTION

Reddish-gray, scoriaceous flow top breccia to 683.95, grading downward into plagioclase-phyric, highly vesicular basalt. Unit 117.3 is greenish-gray, plagioclase-phyric, amygdaloidal basalt. In brecciated part spaces between clasts filled with green smectite/chlorite, quartz, and calcite. Rare hairline fractures filled with smectite/chlorite, quartz, and calcite. Units 117.1 and 117.3 are interpreted as parts of single flow cut by thin dike of unit 117.2. Flow lies between units 114.2 and 117.4; contacts drawn at top of breccia zones. Unit is part of series of thin, scoriaceous flows from 652.70 to 684.80 m.

UNIT NO. 117.2 / 117.4 INTERVAL(m) 684.56 - 685.25 / 685.50 - 694.12 THICKNESS(m) 0.69 / 8.62

INTERPRETATION Basalt dike (complete) separated by segment of flow in unit 117.

MACROSCOPIC DESCRIPTION

Gray, fine-grained, aphyric, massive basalt with rare hairline fractures and veinlets filled with calcite. Some patches of smectite/chlorite alteration. Chilled top and bottom contacts on both units 117.2 and 117.4. The two units have steep contacts and are interpreted as parts of the same dike. Intrudes units 117.1 above and 119.1 below, and separated by unit 117.3.

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UNIT NO. 119.1 INTERVAL(m) 694.12 - 694.50 THICKNESS(m) 0.38

INTERPRETATION Basalt flow (incomplete)

MACROSCOPIC DESCRIPTION

Greenish-gray, highly altered, porphyritic basalt breccia. Lies between units 117.4 and 119.2 and truncated top and bottom by intrusive contacts. Possibly same unit as 117.1 and 117.3.

UNIT NO. 119.2 INTERVAL(m) 694.50 - 726.88 THICKNESS(m) 32.38

INTERPRETATION Basalt dike (incomplete)

MACROSCOPIC DESCRIPTION

Greenish-gray, medium- to coarse-grained, very sparsely phyric, massive, fairly homogeneous basalt. Phenocrysts 1-2%, plagioclase. Veins scattered throughout, filled with smectite/chlorite and mixtures of laumontite, quartz, calcite and minor pyrite. Pyrite and smectite disseminated throughout. Yellow garnet(?) observed in vein at 725.30 m. Top contact chilled against unit 119.1; basal contact truncated by top of unit 124.1.

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REYDARFJORDUR 1978

UNIT NO. 124.1 INTERVAL(m) 726.88 - 733.50 THICKNESS(m) 6.62

INTERPRETATION Basalt dike (complete)

MACROSCOPIC DESCRIPTION

Grayish-green, medium-grained, slightly phyric basalt. Grain size decreases toward chilled margins at top and bottom. Phenocrysts 1-2%, mostly plagioclase, 3-4 mm long, oriented subparallel to core axis; minor mafic phenocrysts. Fractures spaced about 20-100 cm. Unit lies between units 119.2 and 126.1; very similar to overlying dike of unit 119.2.

UNIT NO. 126.1 INTERVAL(m) 733.70 - 743.08 THICKNESS(m) 9.38

INTERPRETATION Basalt flow (incomplete)

MACROSCOPIC DESCRIPTION

Light gray to bluish-gray, scoriaceous flow top breccia grading downward at 736.90 into more massive, grayish-green, slightly plagioclase phyric basalt. Phenocrysts 2-3%, 1-2 mm. Irregular flow banding in central part of flow. Basal flow breccia below 742.40 m; some disseminated pyrite below 738.50 m. Lower contact shows minor chilling against clastic unit 127.1; upper contact truncated by dike of unit 124.1.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 127.1 INTERVAL(m) 743.09 - 743.45 THICKNESS(m) 0.36

INTERPRETATION Clastic unit (complete)

MACROSCOPIC DESCRIPTION

Heterogeneous breccia with rounded clasts up to 5 cm in diameter. Thin layer of green siltstone at base with excellent irregular depositional contact with underlying rubbly flow top of unit 127.2. Overlain by unit 126.1.

UNIT NO. 127.2 INTERVAL(m) 743.45 - 750.73 THICKNESS(m) 7.28

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Reddish-gray, scoriaceous flow top breccia with reddish, vesicular clasts from 2 to 5 cm across grading downward into light gray, fine- to medium-grained aphyric basalt. Breccia highly altered and crumbly. Vugs at 749.95 and 750.15 m rimmed with smectite/chlorite and filled with zeolite and chalcedony. Some disseminated pyrite. Lies between clastic units 127.1 and 129.1; lower contact sharp.

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UNIT NO. 129.1 INTERVAL(m) 750.73 - 750.90 THICKNESS(m) 0.23

INTERPRETATION Clastic unit (complete)

MACROSCOPIC DESCRIPTION

Bluish-gray to reddish-brown,bedded, medium- to coarse-grained, tuffaceous sediment with plagioclase crystals abundant in upper 10 cm. Lies between units 127.2 and 129.2

UNIT NO. 129.2 INTERVAL(m) 750.90 - 765.05 THICKNESS(m) 14.15

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Gray to reddish-gray, heterogeneous, scoriaceous, flow top breccia grading into gray, moderately brecciated basalt. Rock sparsely phyric, 1-2% phenocrysts, plagioclase. Zeolite and carbonate fill abundant vesicles and fractures, also present in breccia matrix. Unit lies between clastic unit 129.1 and basalt flow of unit 131.1; heterogeneous cooling unit, probably consisting of several flow units. Lower contact drawn at top of breccia zone.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 131.1 INTERVAL(m) 765.05 - 769.20 THICKNESS(m) 4.15

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Interlayered plagioclase-phyric, scoriaceous breccia, brecciated lava and thin massive layers to 766.33. Below this level mostly purplish-gray to grayish-green, mottled, sparsely phyric, flow banded basalt. Phenocrysts are plagioclase, 1 mm long. Flow banding dips about 30°. Thick breccia at base of flow, below 768.40. Sharp depositional basal contact with clastic unit 132.1; upper contact with unit 129.2 drawn at top of breccia zone.

UNIT NO. 132.1 INTERVAL(m) 769.20 - 769.80 THICKNESS(m) 0.60

INTERPRETATION Clastic unit (complete)

MACROSCOPIC DESCRIPTION

Green to dark brown, fine- to coarse-grained, bedded tuff. Dark soil(?) zone below 769.52. Top contact sharp, basal contact irregular. Unit lies between units 131.1 and 132.2.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 132.2 INTERVAL(m) 769.80 - 779.56 THICKNESS(m) 9.76

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Reddish-gray, scoriaceous breccia with clasts to 5 cm at top, grading downward into more homogeneous brecciated lava below 773.20. Below 774.20 is light greenish-gray, fine-grained, non-vesicular, massive basalt with 1-2% plagioclase phenocrysts, 1% clinopyroxene phenocrysts, both 1-2 mm. Flow bottom breccia occurs below 778.90 with very vesicular fragments. Vesicles and hairline fractures filled with smectite/chlorite and zeolite. Basal and top contact subhorizontal, depositional against clastic units 132.1 and 133.1.

N.B. In core photographs box numbers should be labelled in reverse order.

UNIT NO. 133.1 INTERVAL(m) 779.56 - 779.80 THICKNESS(m) 0.24

INTERPRETATION Clastic unit (complete)

MACROSCOPIC DESCRIPTION

Light brown, bedded to graded, medium-grained sandstone becoming coarser-grained toward bottom of unit. Grades into scoriaceous top of underlying flow. Top and bottom contacts with units 132.2 and 133.2, respectively, dip about 10°.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 133.2 INTERVAL(m) 779.80 - 784.28 THICKNESS(m) 4.48

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Light gray to black, scoriaceous, flow top breccia with fragments of porphyritic basalt grading into more massive basalt at 782.30. Phenocrysts 3-5%, plagioclase, clinopyroxene, opaque. Unit has flow base breccia starting at 783.78 m Rock highly altered; vesicles and hairline fractures filled with zeolite. Lies between clastic units 133.1 and 134.1; upper contact dips about 10°, lower contact subhorizontal.

UNIT NO. 134.1 INTERVAL(m) 784.28 - 784.80 THICKNESS(m) 0.52

INTERPRETATION Clastic unit (complete)

MACROSCOPIC DESCRIPTION

Brown, bedded, crystal-vitric-lithic tuff and lapillistone with visible plagioclase(?) laths, pumice lapilli and basalt fragments. Subhorizontal top and bottom depositional contacts with units 133.2 and 134.2.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 134.2 INTERVAL(m) 784.80 - 786.30 THICKNESS(m) 1.50

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Light gray, fine-grained, slightly plagioclase-phyric basalt with mottled texture. Vesicles about 30%, round, 1-5 mm, filled with smectite/chlorite and zeolite. Mudstone(?) lens at 785.35. Subhorizontal depositional contacts; lies between clastic units 134.1 and 135.1.

UNIT NO. 135.1 INTERVAL(m) 786.30 - 786.60 THICKNESS(m) 0.30

INTERPRETATION Clastic unit (complete)

MACROSCOPIC DESCRIPTION

Dark brown, fine-grained, bedded sediment with green crystal-rich layer in center and reddish-brown layer at base. Top baked. Unit has sharp upper contact with unit 134.2 and irregular basal contact with unit 135.2; both contacts depositional, subhorizontal.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 135.2 INTERVAL(m) 786.60 - 797.10 THICKNESS(m) 10.50

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Reddish-gray, scoriaceous, flow top breccia to 791.50 m, followed by brecciated basalt to about 794.00 m. Lower 1-2 m is massive, greenish-gray, nonvesicular, aphyric, medium-grained basalt with flow banding inclined at 15-20°. Some incipient brecciation? Unit lies between clastic unit 135.1 and flow of unit 136.1; lower contact drawn at top of breccia zone.

UNIT NO. 136.1 INTERVAL(m) 797.10 - 805.70 THICKNESS(m) 8.60

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Red, scoriaceous, flow top breccia with clasts of slightly plagioclase-phyric basalt grading downward at 800.70 m into fine- to medium-grained, light gray, aphyric basalt. Top part highly altered, soft, crumbly to about 798.0 m. Basal breccia 20 to 50 cm thick. Large zeolite filled vugs at 801.90 and 802.5 m. Top and bottom contacts subhorizontal, depositional, indistinct; lies between units 135.2 and 138.1; contacts drawn at tops of breccia zones.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 138.1 INTERVAL(m) 805.70 - 822.30 THICKNESS(m) 16.60

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Red to blue gray, scoriaceous, flow top breccia of sparsely plagioclase-phyric basalt grading downward at 809.40 m into greenish-gray, massive, rather homogeneous basalt. Compact breccia at base, below 821.90 m. Unit lies between flows of units 136.1 and 141.1; contacts drawn at tops of scoriaceous breccia zones.

UNIT NO. 141.1 INTERVAL(m) 822.30 - 823.78 THICKNESS(m) 1.48

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Light gray, scoriaceous, flow top breccia with fragments to 5 cm grading into massive basalt at 823.60 m. Top and basal contacts indistinct, subhorizontal, depositional. Unit lies between units 138.1 and 141.1.

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UNIT NO. 141.2 INTERVAL(m) 823.78 - 828.50 THICKNESS(m) 4.72

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Greenish-gray, scoriaceous breccia to about 825.55 m grading downward into massive basalt at 827.60 m. Basal breccia in lower 10 cm of flow. Possibly part of larger cooling unit including overlying flow of unit 141.1 but rock is more amygdaloidal. Sharp depositional basal contact with underlying clastic unit 142.1.

UNIT NO. 142.1 INTERVAL(m) 828.50 - 828.73 THICKNESS(m) 0.23

INTERPRETATION Clastic unit (complete)

MACROSCOPIC DESCRIPTION

Black, fine-grained, soft mudstone to coarse-grained, poorly sorted sediment at base. Sharp top and irregular basal depositional contacts. Lies between units 141.2 and 142.2.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 142.2 INTERVAL(m) 828.73 - 836.79 THICKNESS(m) 8.06

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Dark gray to reddish-brown, scoriaceous flow top breccia to 831.00 m, followed downward by vesicular basalt to about 832.60 m. Below this level is gray medium-grained, massive basalt with very rare plagioclase microphenocrysts up to 2 mm long. Vesicles filled with zeolite. Basal breccia below 836.40 m. Top and bottom contacts depositional with units 142.1 and 143.1; unit possibly part of larger complex cooling unit.

UNIT NO. 143.1 INTERVAL(m) 836.79 - 840.20 THICKNESS(m) 3.41

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Grayish-red, scoriaceous breccia with clasts to 4 cm, grading downward into massive, vesicular, gray, aphyric basalt at 837.50 m. Vesicles become irregular and larger downwards. Lies between units 142.2 and 144.1; top and bottom contacts depositional, indistinct. Zeolite-filled vugs in interval between 837.80 and 838.80 m.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 144.1 INTERVAL(m) 840.20 - 842.81 THICKNESS(m) 2.61

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Gray to reddish-brown, scoriaceous breccia with clasts to 7 cm, grading downward into massive basalt at about 841.40 m; about 30 cm of basal breccia. Flow banding in massive section dips about 30°. Lies between units 143.1 and 144.2; top and bottom contacts depositional, indistinct.

UNIT NO. 144.2 INTERVAL(m) 842.81 - 848.90 THICKNESS(m) 6.09

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Red brown, scoriaceous breccia with clasts to 5 cm, grading downward into massive, fine- to medium-grained, aphyric basalt at about 844.20 m. Lies between units 144.1 and 145.1; top and bottom contacts depositional, indistinct.

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REYDARFJORDUR 1978

UNIT NO. 145.1 INTERVAL(m) 848.90 - 856.68 THICKNESS(m) 7.78

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Scoriaceous breccia with clasts to 5 cm, grading downward into massive, grayish-green, medium grained, aphyric basalt at about 850.80 m. About 10 cm breccia at base. Amygdaloidal zone between 851.00 and 853.25. Unit lies between units 144.2 and 147.1; top and bottom contacts subhorizontal, depositional, indistinct; 2-cm-thick sedimentary layer at base.

UNIT NO. 147.1 INTERVAL(m) 856.68 - 860.56 THICKNESS(m) 3.92

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Grayish-green, fine-grained, massive, streaky, aphyric basalt with 40 cm of reddish-brown, scoriaceous flow top breccia. Contacts depositional, subhorizontal. 2 cm of fine-grained sediment separates unit from overlying flow of unit 145.1; lower contact rests on unit 147.2.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 147.2 INTERVAL(m) 860.56 - 867.28 THICKNESS(m) 6.72

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Greenish-gray, fine- to medium-grained, aphyric, generally massive basalt with 20-30 cm of brownish-gray, flow top breccia. Brecciated, reddish-purple interval occurs between 867.15 and 867.80 m; dark brecciated zone in lower 10 cm. Contacts depositional, vague with overlying unit 147.1 and sharp with underlying clastic unit 148.1.

UNIT NO. 148.1 INTERVAL(m) 867.28 - 867.50 THICKNESS(m) 0.22

INTERPRETATION Clastic unit (complete)

MACROSCOPIC DESCRIPTION

Fine-grained, bedded, tuffaceous sediment with amygdaloidal basalt clasts to 2 cm. Lies between units 147.2 and 148.2.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 148.2 INTERVAL(m) 867.50 - 869.73 THICKNESS(m) 2.23

INTERPRETATION Basalt flow (complete?)

MACROSCOPIC DESCRIPTION

Purplish-gray, amygdaloidal, highly fractured basalt in upper part; partly brecciated with massive non-vesicular basalt below about 869.20 m, grading into breccia at 869.55 m. Scattered, large zeolite-filled vugs throughout. Depositional top and bottom contacts; overlain by clastic unit 148.1 and underlain by unit 149.1. Unit may be part of larger complex cooling unit including underlying flows of units 149.1 and 149.2.

UNIT NO. 149.1 INTERVAL(m) 869.73 - 872.90 THICKNESS(m) 3.17

INTERPRETATION Basalt flow (complete?)

MACROSCOPIC DESCRIPTION

Amygdaloidal, brecciated, highly altered basalt. Lies between units 148.2 and 149.2 and may be part of larger complex cooling unit including underlying and overlying flows.

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UNIT NO. 149.2 INTERVAL(m) 872.90 - 881.12 THICKNESS(m) 8.22

INTERPRETATION Basalt flow (complete?)

MACROSCOPIC DESCRIPTION

Gray, brecciated, very vesicular basalt with thin sediment and soil(?) zones, grading with increasing size of clasts into dense, fine-grained, greenish-gray, aphyric basalt at about 874.90 m. Dense section has a few intervening brecciated and highly vesicular zones. Depositional top and bottom contacts; possibly part of complex cooling unit including overlying units 148.2 and 149.1. Rests on unit 151.1.

UNIT NO. 151.1 INTERVAL(m) 881.12 - 883.85 THICKNESS(m) 2.73

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Scoriaceous, flow top breccia grading at about 882.20 m into greenish-gray to purplish-gray, fine-grained aphyric basalt with about 1% plagioclase microphenocrysts up to 2 mm long. A few lensoid to round, partly open amygdules in lower 1.2 m. Top and bottom contacts depositional, subhorizontal; lies between units 149.2 and 151.2.

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UNIT NO. 151.2 INTERVAL(m) 883.85 - 892.17 THICKNESS(m) 8.32

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Gray to reddish-gray, scoriaceous, flow top breccia with clasts to 12 cm consisting of fine-grained, vesicular, sparsely phyric basalt. Passes into more massive, vesicular basalt at about 887.16 m, which in turn passes into reddish-gray, basal breccia of vesicular clasts to 5 cm at 891.50 m. Phenocrysts about 1%, plagioclase and minor clinopyroxene. Unit separated from underlying unit 153.1 by about 10 cm of fine-grained sediment included with underlying breccia; contact dips about 40°. Unit overlain by flow of unit 151.1.

UNIT NO. 153.1 INTERVAL(m) 892.17 - 901.30 THICKNESS(m) 9.13

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Reddish-gray, scoriaceous, flow top breccia with clasts to 10 cm, grading downward into brecciated basalt at about 893.25 m and to massive basalt at 893.70 m. Basalt aphyric at top, becomes sparsely plagioclase-phyric at base. Phenocrysts 3-5%, 7 mm long, mostly plagioclase with minor clinopyroxene. Lower 40 cm of flow are purplish-green, amygdaloidal. Amygdaloidal, subhorizontal fractured zones occur between 897.35 and 897.90. Lies between units 151.2 and 154.1; contacts depositional, subhorizontal, broken up.

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REYDARFJORDUR 1978

UNIT NO. 154.1 INTERVAL(m) 901.30 - 907.80 THICKNESS(m) 6.50

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Reddish-gray, scoriaceous, flow top breccia with clasts to 5 cm across, grading downward into massive, fine-grained, aphyric, somewhat vesicular basalt at about 903.90 m. Massive basalt becomes increasingly flow banded and dark colored downwards. Brecciated zone occurs between 904.60 and 905.00 m. Thin breccia at base with depositional contact against underlying sediments of unit 155.1. Overlain by flow of unit 153.1.

UNIT NO. 155.1 INTERVAL(m) 907.80 - 908.67 THICKNESS(m) 0.87

INTERPRETATION Clastic unit (complete)

MACROSCOPIC DESCRIPTION

Reddish-black, fine to medium-grained bedded to laminated tuffaceous sediment in upper 20 cm. Lower part is light gray, bedded, fine- to coarse-grained tuff(?). Lies between units 154.1 and 155.2.

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REYDARFJORDUR 1978

UNIT NO. 155.2 INTERVAL(m) 908.67 - 913.90 THICKNESS(m) 5.23

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Reddish-brown, scoriaceous, flow top breccia with highly altered clasts of fine-grained, aphyric basalt to 10 cm across. Grades downward into greenish-gray, aphyric, fine-grained, massive basalt at about 909.70 m. About 75 cm of breccia occurs at base of flow. Depositional contacts top and bottom; lies between clastic units 155.1 and 156.1.

UNIT NO. 156.1 INTERVAL(m) 913.90 - 914.88 THICKNESS(m) 0.98

INTERPRETATION Clastic unit (incomplete)

MACROSCOPIC DESCRIPTION

Dark brown, bedded pyroclastic sediments of highly variable grain size. Upper contact with unit 155.2 depositional; lower contact cut by dike of unit 157.1.

ICELAND RESEARCH DRILLING PROJECT

REYDARFJORDUR 1978

UNIT NO. 157.1 INTERVAL(m) 914.88 - 919.82 THICKNESS(m) 4.94

INTERPRETATION Basalt dike (complete)

MACROSCOPIC DESCRIPTION

Greenish-gray, medium-grained, aphyric basalt with ophitic texture; altered olivine in groundmass. Sparse vesicles; rock fractured in lower part. Contacts chilled against overlying clastic unit 156.1 and underlying ash-flow tuff of unit 157.2. Lower chilled contact highly fractured.

157.2
161.1
UNIT NO. 162.1 INTERVAL(m) 919.82 - 950.55 THICKNESS(m) 30.73

INTERPRETATION Ignimbrite cooling unit (incomplete)

MACROSCOPIC DESCRIPTION

Compound, slightly feldspar-phyric ignimbrite cooling unit with 4 major flow units (A,B,C,D), the upper one (D) being truncated by dike of unit 157.1. Clastic unit 156.1 above the dike may be part of the same cooling unit. Base of cooling unit rests with sharp, subhorizontal, depositional contact on thick pyroclastic sediments of unit 163.1. Flow units are distingushed by breaks in grain size with a fine-grained 10-20 cm-thick basal layer in most (except A) and top fine-grained layer in unit B. Flow units differ from each other in color, grain size, amount and size of rock fragments, ratio of pumice lapilli to ash, degree of welding, and degree of alteration. The lowermost flow unit (A) is poorly welded, the uppermost (D) moderately welded. The two central flow units show zones of intense welding overprinted by vapor phase zones, the lowermost of which cuts across the flow unit boundary between B and C. These vapor phase zones have large lenses of zeolite with red halo, possibly representing former vuggy pumice lapilli. These alteration zones are cut by numerous irregular fractures and the rock in these zones is very crumbly.

Units 157.2, 161.1 and 162.1 (continued)

Flow unit D: 919.82 - 927.60 m (lithologic unit 157.2)

Abrupt break at base from unit C to tan-gray, 15-cm-thick, fine-grained base of flow unit with gradual upward increase in size of pumice lapilli and rock fragments. Pumice lapilli above 925.00 m generally greater than 5 cm in size. Excellent eutaxitic texture of moderately welded tuff. Top 50 cm gray; upper contact cut off by dike of unit 157.1; probably at least several meters missing.

Flow unit C: 927.60 - 942.62 m (lithologic unit 157.2)

Dominantly light gray to light pinkish-purple in upper part, relatively fine-grained flow unit consisting of 4 subunits: 1) basal 2.5 m is gray blue with large zeolite lenses; 2) central light gray zone, very fine-grained with oxidized fractures; 3) upper zeolite-rich zone, blue-gray to reddish-white; 4) above about 929 m increasing proportion of vesicular and irregular bands and schlieren of basalt(?), possibly representing chilled basaltic magma mixed with rhyolite magma.

Flow unit B: 942.62 - 949.05 m (lithologic units 161.1)

Fine-grained (coarse ash) basal layer about 12 cm thick rests with depositional, subhorizontal contact on layer A and grades quickly upwards into main part of flow. Has slightly smaller grain size (more ash, pumice mostly less than 1 cm) and fewer rock fragments than unit A. Welding increases upwards. Upper third of lower zeolite-free zone most highly welded. Rock fragments almost absent above 946.20 m; grain size decreases upwards. Upper 20 cm light colored, very fine-grained rock.

Flow unit A: 949.05 - 950.55 (lithologic unit 162.1)

Dominantly light greenish-gray to greenish-brown rock with 5-50% of dark angular rock fragments, mostly 2-6 mm across. Some coarse-grained basalt fragments similar to rock of unit 163.2. Pumice lapilli slightly larger. Probably very little ash. Crystals of feldspar 4-6%, throughout unit. Very poorly welded but compacted. Sharp basal contact with unit 163.1.

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UNIT NO. 163.1 INTERVAL(m) 950.55 - 952.22 THICKNESS(m) 1.67

INTERPRETATION Clastic unit (complete)

MACROSCOPIC DESCRIPTION

Dark blackish-brown in lower half to greenish-black in upper half, bedded to laminated, fine- to coarse-grained ash with a few layers of fine-grained lapillistone. Depositional upper and lower contacts with units 162.1 and 163.2, respectively; possibly part of overlying ignimbrite sequence.

UNIT NO. 163.2 INTERVAL(m) 952.22 - 952.92 THICKNESS(m) 0.70

INTERPRETATION Basalt flow (incomplete)

MACROSCOPIC DESCRIPTION

Dark gray, mostly coarse-grained, porphyritic, highly vesicular basalt, probably small part of much thicker flow. Plagioclase microphenocrysts or large microlites make up 20-30 vol.%, range up to 1 mm. Abundant round vesicles to 3 mm, filled with green smectite/chlorite and some zeolite and carbonate. Top contact depositionally overlain by unit 163.1; lower contact dips 80° against chilled dike of unit 163.3.

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UNIT NO. 163.3 INTERVAL(m) 952.92 - 975.53 THICKNESS(m) 22.61

INTERPRETATION Basalt dike (complete)

MACROSCOPIC DESCRIPTION

Dark gray, fine- to medium-grained, aphyric basalt. Two segregation veins about 1 cm wide at 30 and 50 cm below top of unit, dip 75-80°. Pyrite blebs disseminated throughout. Sparse fractures subhorizontal. Very massive and homogeneous unit. Chilled contacts dip about 40°, cut units 163.2 and 167.1.

UNIT NO. 167.1 INTERVAL(m) 975.53 - 976.63 THICKNESS(m) 1.10

INTERPRETATION Clastic unit (incomplete)

MACROSCOPIC DESCRIPTION

Dark gray to reddish-gray, poorly bedded mudstone, siltstone, sandstone, and grit. Moderately well indurated. Bedding variable, dips about 20°. Depositional basal contact with unit 167.2; top contact truncated by dike of unit 163.3.

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	167.2	976.63 - 981.66	5.03
	168.2	982.56 - 982.81	0.25
	168.4	983.40 - 988.14	4.74
	169.2	988.82 - 988.98	0.16
UNIT NO.	169.4	INTERVAL(m) 989.16 - 997.03	THICKNESS(m) 7.87

INTERPRETATION Basalt flow (incomplete)

MACROSCOPIC DESCRIPTION

Because of the unusual porphyritic petrography of this rock, this series of incomplete lava flows is interpreted to be a single flow, or at least a single eruptive interval, cut by several thin dikes (168.1, 168.3, 169.1 and 169.3) Rock is gray to greenish-gray, fine- to medium grained, phyric basalt with about 5-10% plagioclase phenocrysts, 2 - 10 mm, subhedral, 2-3% clinopyroxene phenocrysts, and 1% opaque phenocrysts; rare olivine microphenocrysts occur at least in lower part. Fairly large, 1- 1.5 cm, amygdules common to 977.90 m, becoming smaller and less abundant (about 5%) below 977.90 m, filled with smectite/chlorite and zeolite. Sharp basal contact against dikes for unit 167.2, dips 20-40°; contacts with lower units dip 55-65° and are against chilled margins.

UNIT NO. 168.1 INTERVAL(m) 981.66 - 982.56 THICKNESS(m) 0.90

INTERPRETATION Basalt dike (complete)

MACROSCOPIC DESCRIPTION

Light grayish-green, aphyric, fine-grained basalt with chilled top and bottom contacts against unit 167.2 and 168.2, respectively.

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UNIT NO. 168.3 INTERVAL(m) 982.81 - 983.40 THICKNESS(m) 0.59

INTERPRETATION Basalt dike (complete)

MACROSCOPIC DESCRIPTION

Light grayish-green, fine-grained, aphyric basalt with chilled contacts above and below with units 168.2 and 168.4, respectively.

UNIT NO. 169.1 INTERVAL(m) 988.14 - 988.82 THICKNESS(m) 0.68

INTERPRETATION Basalt dike (complete)

MACROSCOPIC DESCRIPTION

Dark gray, fine- to medium-grained, aphyric basalt; slightly vesicular bands in central part. Upper and lower contacts chilled against units 168.4 and 169.2, respectively.

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UNIT NO. 169.3 INTERVAL(m) 988.98 - 989.16 THICKNESS(m) 0.18

INTERPRETATION Basalt dike (complete)

MACROSCOPIC DESCRIPTION

Dark gray, fine-grained, aphyric basalt with central vesicular zone. Top and bottom contacts chilled against units 169.2 and 169.4, respectively.

UNIT NO. 170.1 INTERVAL(m) 992.03 - 1005.35 THICKNESS(m) 13.32

INTERPRETATION Basalt dike (complete)

MACROSCOPIC DESCRIPTION

Grayish-green, fine- to medium-grained, aphyric basalt with some vesicle zones. Plagioclase phenocrysts 1%, 2-3 mm, subhedral, mostly below 994.00 m. Upper contact subhorizontal, chilled against unit 169.4; lower contact inclined, chilled against unit 172.1.

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UNIT NO. 172.1 INTERVAL(m) 1005.35 - 1022.60 THICKNESS(m) 17.25

INTERPRETATION Basalt flow (incomplete)

MACROSCOPIC DESCRIPTION

Reddish-gray, phyric, slightly vesicular basalt; plagioclase phenocrysts 15-20%, 2-4 mm, clinopyroxene phenocryts 2%, 0.5 - 0.8 mm, olivine phenocrysts 1-2%, 1-2 mm. Percent of plagioclase phenocrysts decreases at about 1012.30 m to about 5% and this amount is typical of lower part of core. Aphyric below 1015.0 m. Basal part below 1021.0 m brecciated with clasts up to 5 cm. Upper contact truncated by intrusive contact of unit 170.1; lower contact depositional, indistinct, rests on unit 175.1. This unit is petrographically similar to the overlying flow sequence represented by units 167.2, 168.2, 168.4, 169.2 and 169.4 and may be part of the same flow or flow sequence.

UNIT NO. 175.1 INTERVAL(m) 1022.60 - 1029.40 THICKNESS(m) 6.80

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Reddish-brown, altered, scoriaceous, flow top breccia with clasts to 5 cm. Grades downward into gray, fine-grained to medium-grained, aphyric basalt at about 1026.40 m. Below this level breccia occurs again and continues to base of flow. Lower breccia has clasts to 10 cm. Abundant calcite and zeolite in vesicles and veins. Upper and lower contacts with units 172.1 and 176.1, respectively are indistinct, depositional and drawn somewhat arbitrarily.

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UNIT NO. 176.1 INTERVAL(m) 1029.40 - 1036.86 THICKNESS(m) 7.46

INTERPRETATION Basalt flow (complete)

MACROSCOPIC DESCRIPTION

Gray to grayish-brown, altered, scoriaceous breccia with clasts to 2 cm, grading downward into fine-grained, red-stained sparsely phyric basalt at about 1031.70 m. Microphenocrysts 2-3%, chiefly plagioclase and minor clinopyroxene, 1- 4 mm. Basal breccia occurs below 1036.40 m. Abundant zeolite and calcite in breccia matrix and vesicles. Depositional contacts with units 175.1 and 177.1. 10-cm-thick clastic unit of red brown claystone occurs at lower contact.

UNIT NO.	INTERVAL(m)	THICKNESS(m)	
177.1	1036.86 - 1039.33		2.47
178.2	1039.50 - 1043.04		3.54
178.4	1043.80 - 1048.68		4.88

INTERPRETATION Basalt flow (incomplete)

MACROSCOPIC DESCRIPTION

Because of petrographic similarity and small interrupted interval these three units are interpreted to be part of a single, slightly phyric basalt flow cut by 2 dikes (units 178.1 and 178.3). Unit 177.1 is reddish-brown to greenish-gray, scoriaceous, flow top breccia with some fragments to 30 cm in diameter, grading into porphyritic, vesicular basalt at about 1038.70 m. Unit 178.2 is gray, slightly vesicular, fine-grained, sparsely phyric basalt similar to the lower part of 177.1. Phenocrysts are plagioclase 5%, 1-1.5 mm, clinopyroxene 1%, and olivine 1%, altered to smectite/chlorite. Massive basalt continues into unit 178.4 where it grades downward into basal breccia at 1048.00 m. Top contact of 177.1 and lower contact of 178.4 depositional, subhorizontal. Other contacts are chilled margins of dikes. The entire flow lies between units 176.1 and 179.1.