

Fljotsdalur hydro project : petrographic
description of thin sections from drill core
samples

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FLJOTSDALUR HYDRO PROJECT

**Petrographic description of thin
sections from drill core samples**

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DESCRIPTION OF THIN SECTIONS

INTRODUCTION

These thin section studies of three drill cores samples are done in similar way as in the report (Jens Tómasson et al. 1990). The classifications of the rocks are the same.

FV-1: 462.5 m, thin section no. 15276

Description

Tholeiitic basalt rather fine grained with intergranular texture rather high in magnitite, with some olivine and vesicles.

Alteration: The vesicles are mostly empty, only with rim of brown smectite. Considerable amount of pyroxen is altered to brown smectite.

Photos no. 6.1, 6.2 and 6.7.

Point counting of 200 points

Mineral name	%
Plagioclase in groundmass	49
" as phenocrysts	1
Pyroxene	27
Olivine	1
Opagues	11
Clay	10
Pores	<1
Total	99

FV-8: 136.2 m, thin section no. 15277

Description

Plagioclase porphyritic basalt with rather fine grained ground mass of tholeiitic texture. There are to types of pyroxen, phenocrysts and micro phenocrysts of pyroxen, often having ourglass extinction,

which could point to titan augite, and the usual ground mass pyroxen, olivine and vesicles are sporidically found.

Alteration: Vesicles are empty, only with some brown smectite. The pyroxen is beginning to alterate to brown smectite. In the plagioclase phenocrysts is small alteration found, mostly alteration of glassy inclusions.

Photos no. 6.3, 6.4 and 6.8.

Point counting of 200 points

Mineral name	%
Plagioclase in groundmass	49
" as phenocrysts	2
Pyroxene	37
Olivine	<1
Opagues	8
Clay	4
Total	100

FV-10: 34.7 m, thin section no. 15278

Description

Vesicular olivine basalt coarse grained with glassy ground mass of sideromelan and tachylitic glass, the opaque is mostly tachylitic glass. The basalt is truly olivine basalt of texture even though the amount of olivine is small in the point counting. Reason for the small amount of olivine in the point counting could be that the olivine is in phenocryst clusters, photos 6.6 and 6.7, there uneven distributed, and that part of the olivine has altered.

Alteration: The vesicles are filled with zeolites mostly analcime. The sideromelan glass is partly alterated to brown smectite and this smectite is also beginning to

replace the ground mass pyroxen. There are several forms of alteration of olivine. The alteration seems to begin with reddish like alteration in the crack of the olivine (iddingsite), but black opaque alteration is also found in the cracks and on the edge of the olivine. Some olivine grains have mostly been replaced by darkgreen clay. Photos 6.5, 6.6 and 6.9.

Point counting of 200 points

Mineral name	%
Plagioclase in groundmass	48
Pyroxene	26
Olivine	2
Opagues	7
Glass	8
Analcime	2
Clay	7
Total	100

THE SCALE AND THE MAGNIFICATION

The magnification is in two steps, that is the magnification in the microscope to the film and the magnification from the film to the print. This magnification can be calculated, but that has not been done here. We have taken the photos of the scales with same magnification as the photos.

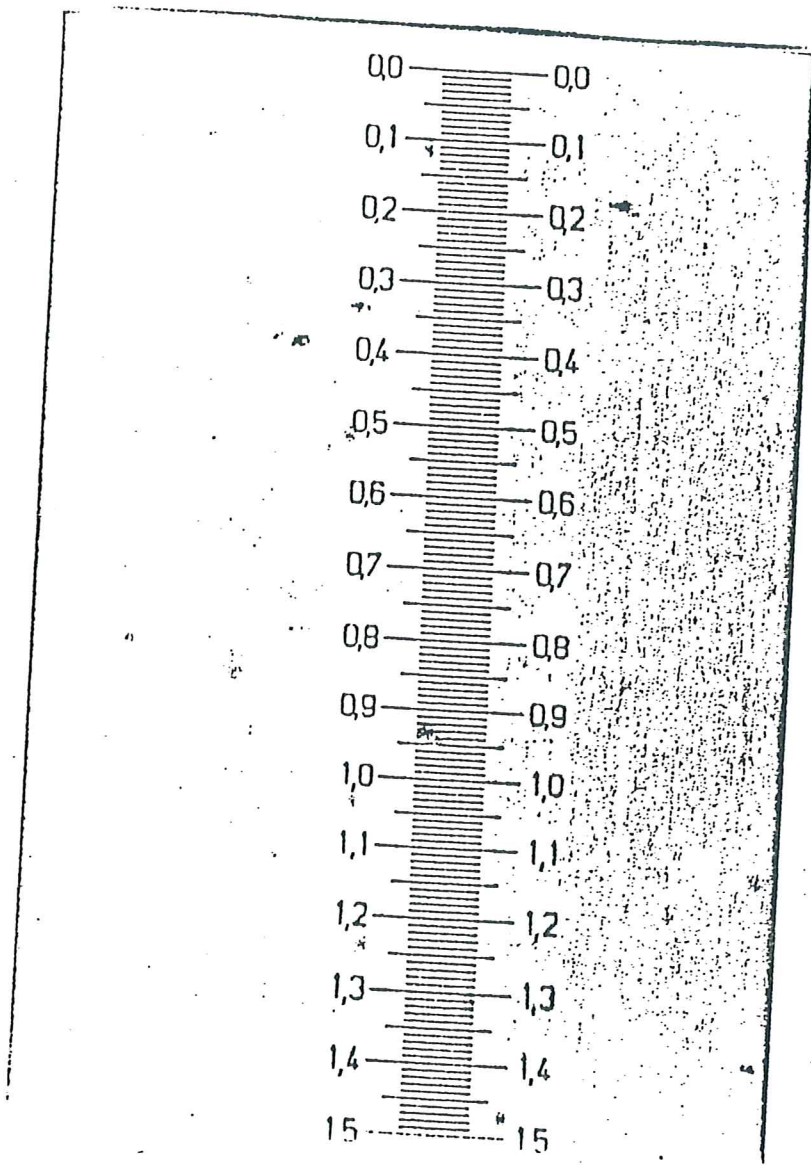
The scales are:

Scale one is with 10×4 or 40-times magnification in the microscope. The photos from 6.1 to 6.6 have this scale.

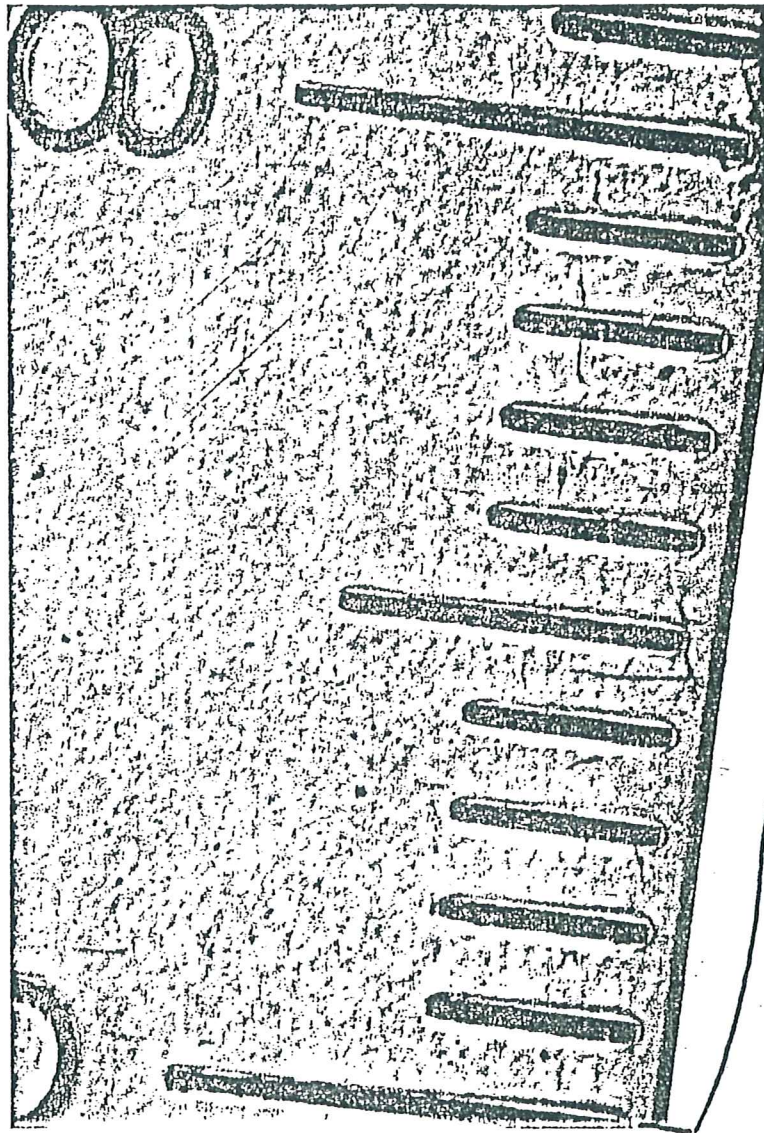
Scale two is with 10-times magnification in the microscope. Photos from 6.7 to 6.9 have this magnification.

REFERENCE

Jens Tómasson, Svanur Pálsson & Ómar Bjarki Smáráson 1990: *Fljótsdalaur Hydro Project, Petrographic description of thin sections from drill core samples.* Report JT/SvP/OBS-90/06.



The scale one,
the scale in mm



1 cm

The scale two, the scale is in cm



Photo no 6.1 FV-1
Depth 465.2 m
thin section no 15276
Tholeiitic basalt

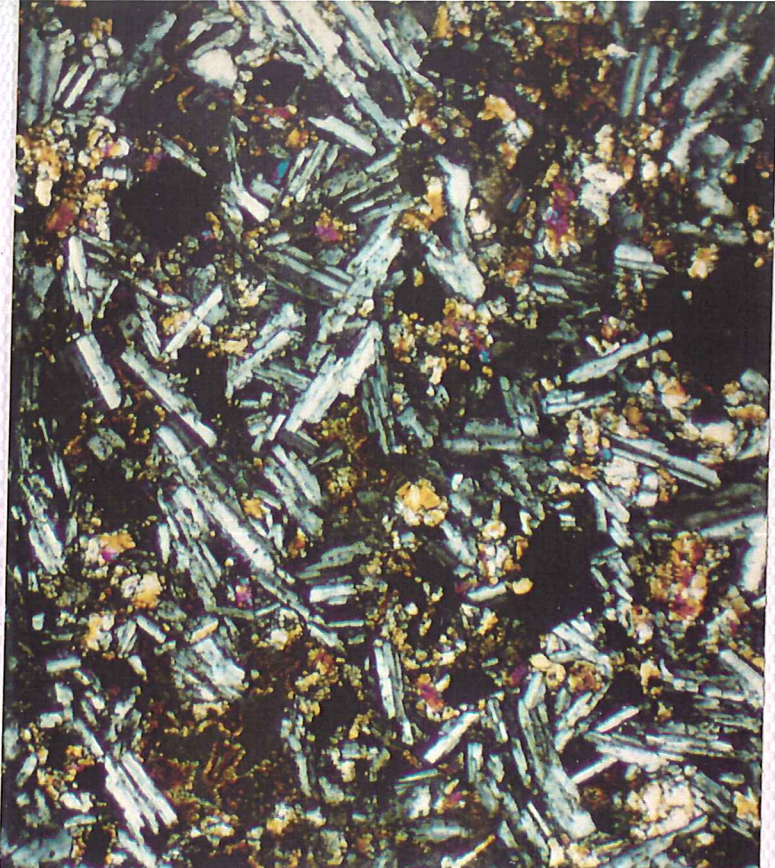


Photo no 6.2 FV-1
Depth 465.2 m
thin section no 15276
Tholeiitic basalt



Photo no 6.7 FV-1
Depth 465.2 m
thin section no 15276
Tholeiitic basalt

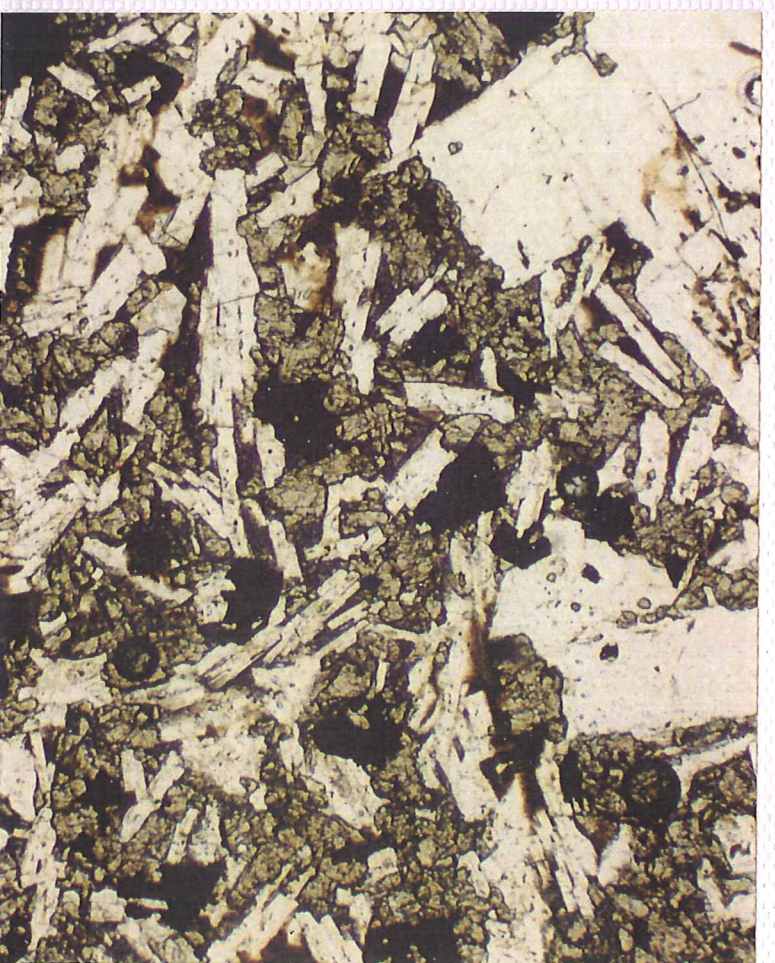


Photo no 6.3 FV-8
Depth 136.2 m
thin section no 15277
Porphyritic basalt

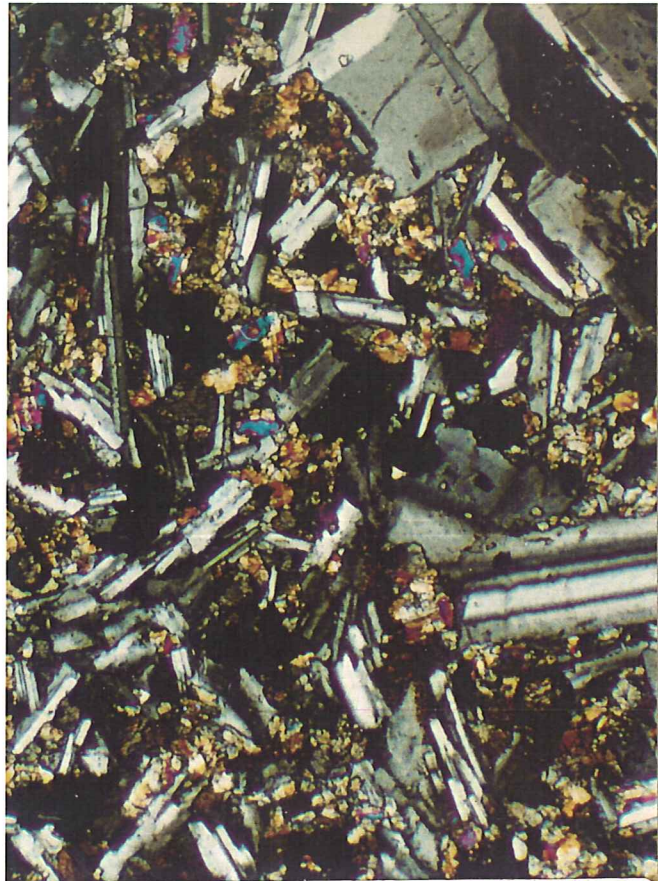


Photo no 6.4 FV-8
Depth 136.2 m
thin section no 15277
Porphyritic basalt



Photo no 6.8 FV-8
Depth 136.2 m
thin section no 15277
Porphyritic basalt



Photo no 6.5 FV-10
Depth 34.7 m
thin section no 15278
Olivine basalt



Photo no 6.6 FV-10
Depth 34.7 m
thin section no 15278
Olivine basalt



Photo no 6.9 FV-10
Depth 34.7 m
thin section no 15278
Olivine basalt