The thin sections were examined but only one sample (from 2612-2621 m) was found to contain material suitable for dating. This sample was crushed and a biotite concentrate prepared for K and Ar analysis.

Petrographic Details

2612-2621 m
The rock is a medium to fine-grained gabbro, with a grain size ranging from 3 to 0.3 mm. The primary mineral components, in decreasing order of abundance, are clinopyroxene, plagioclase, hornblende, biotite, magnetite and apatite.

Plagioclase occurs as generally tabular grains and is extensively altered to sericite, zoisite/epidote, calcite and chlorite. Faint albite twinning can still be distinguished and occasional marginal zones or rims of slightly different composition can be seen.

The ferromagnesian minerals are generally fresh. The amphibole, a dark red-brown variety, appears in places to be replacing pyroxene but elsewhere, occurs as discrete grains with euhedral shape and well developed twinning.

Biotite is also a reddish-brown variety and is generally unaltered. Both biotite and hornblende could be used for K-Ar dating but the biotite may prove easier to concentrate.

Patches of a fibrous, colourless ?zeolite mineral are also present.

Apart from the alteration of the plagioclase, the rock is fresh and shows no sign of strain. A K-Ar date on biotite was used to give the age of crystallisation of this gabbro.

3034-3043 m
The drilling cutting in this sample, and in the following two samples, are much finer than those from 2612-2621 m. Many particles are monomineralic.

Carbonate particles are abundant and, as they do not stain with Alizarin Red-S, are probably dolomitic. Fine to medium grained olivine gabbro particles are common. The distinctive red-brown amphibole and biotite noted in 2612-2621 m are present but the plagioclase is remarkably fresh and olivine was not noted in the higher sample.

Fine-grained micaceous siltstone chips (some with carbonate), coal fragments and occasional quartzite are also present.

There is no material in this sample that could be used from isotopic dating.

3061-3070 m
Many fragments in this sample are monomineralic. Carbonate (mainly dolomite but also some calcite) is common, both as single particles and within fragments of basalt. Coarser-grained gabbroic material (described above) is present and quartz is much more abundant.

The major new lithology present is basalt. One slightly coarser-grained and plagioclase-rich fragment was noted but most chips contain plagioclase laths smaller than 300 x 30 microns with fine, intergranular pyroxene approximately 30 microns in size and abundant opaque granules. Chlorite