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SOURCE ROCK EVALUATION

WELL 1/6 - 4, NORWAY

by

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Sponsor: A/S Norske Shell

Investigation

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Throughout the report the words 'Shell' and 'Group' are used collectively in relation to companies associated together under the name of the Royal Dutch/Shell Group of Companies.

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CONTENTS

	Page
I Introduction	1
II Results	1
III Discussion and conclusions	2

Figures 1 to 3
BHT-correction calculation sheet
Enclosure 1

I INTRODUCTION

A source rock evaluation has been carried out on a suite of samples from the well as mentioned on the title page. The location of the well is shown in figure 1.

The purpose of the investigation was: 1. To establish the presence (or absence) of source rocks in the penetrated series of sediments. 2. To determine the quality of any source rock present, that is whether it is a source rock for oil (and gas) or gas only. 3. To establish the zone of possible oil and/or gas generation at the location of the well.

II RESULTS

The results of the source rock evaluation are shown in the geochemical log (enclosure 1). Blank intervals shown on this log have not been investigated for source rock properties.

The dashed line in figure 2 indicates the compatible DOM/FCC trend based on the present subsurface temperature gradient(s) as indicated in the last figure. The temperature gradients are based on BHTs measured during logging after applying a correction. If only a solid line is given in figure 2, then the compatible trend coincides with the true-layer trend.

III Discussion and conclusions

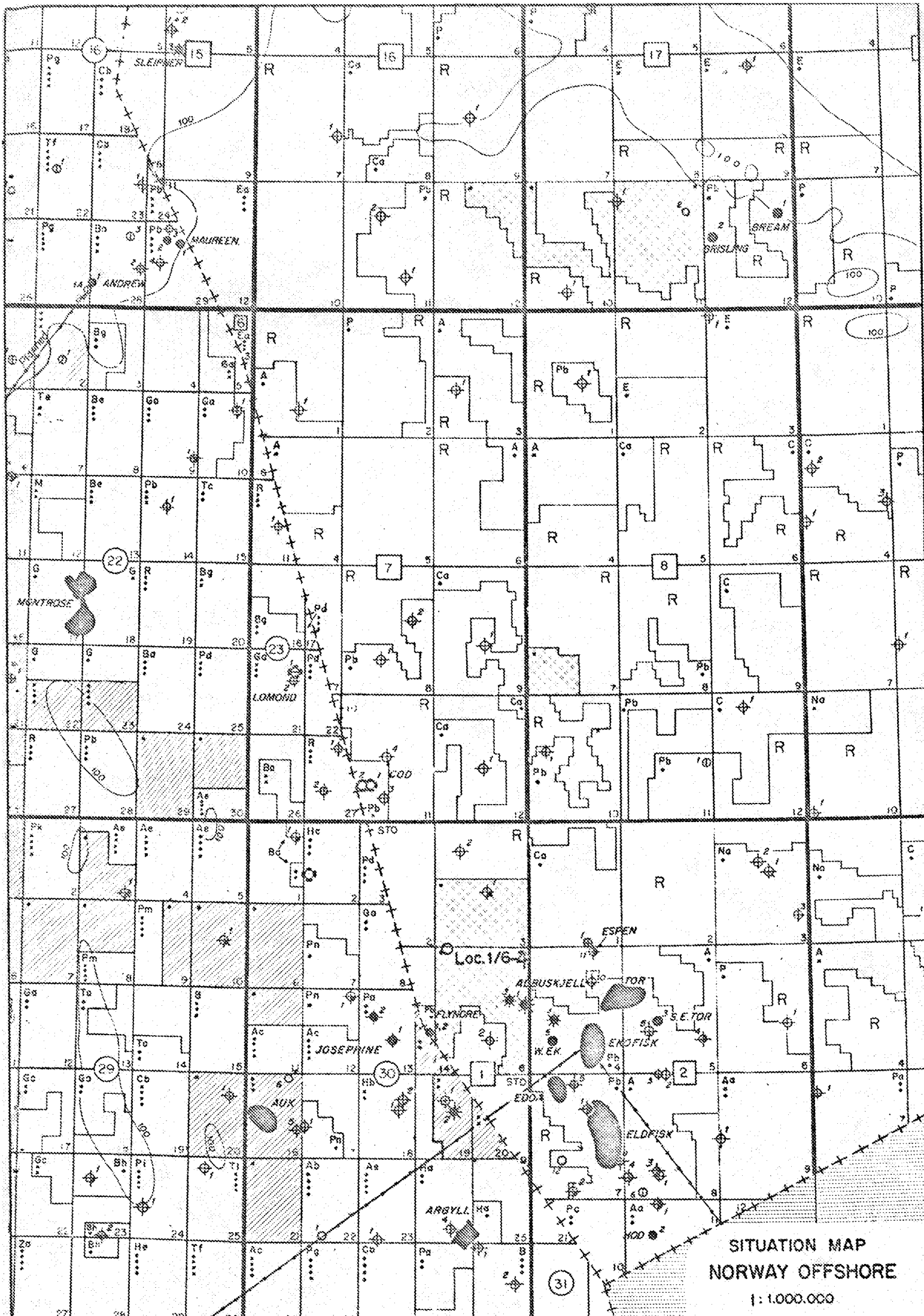
A suite of side-wall samples from interval 7820 - 10750 ft (Oligocene/Paleocene) as penetrated by well 1/6 - 4 has been investigated for source rock properties.

The results indicate that marginal source rock for oil is present at 8850 ft (at the top of the Eocene) and in the Paleocene (intervals 10260 - 10305 ft, 10420 - 10510 ft and 10695 - 10750 ft).

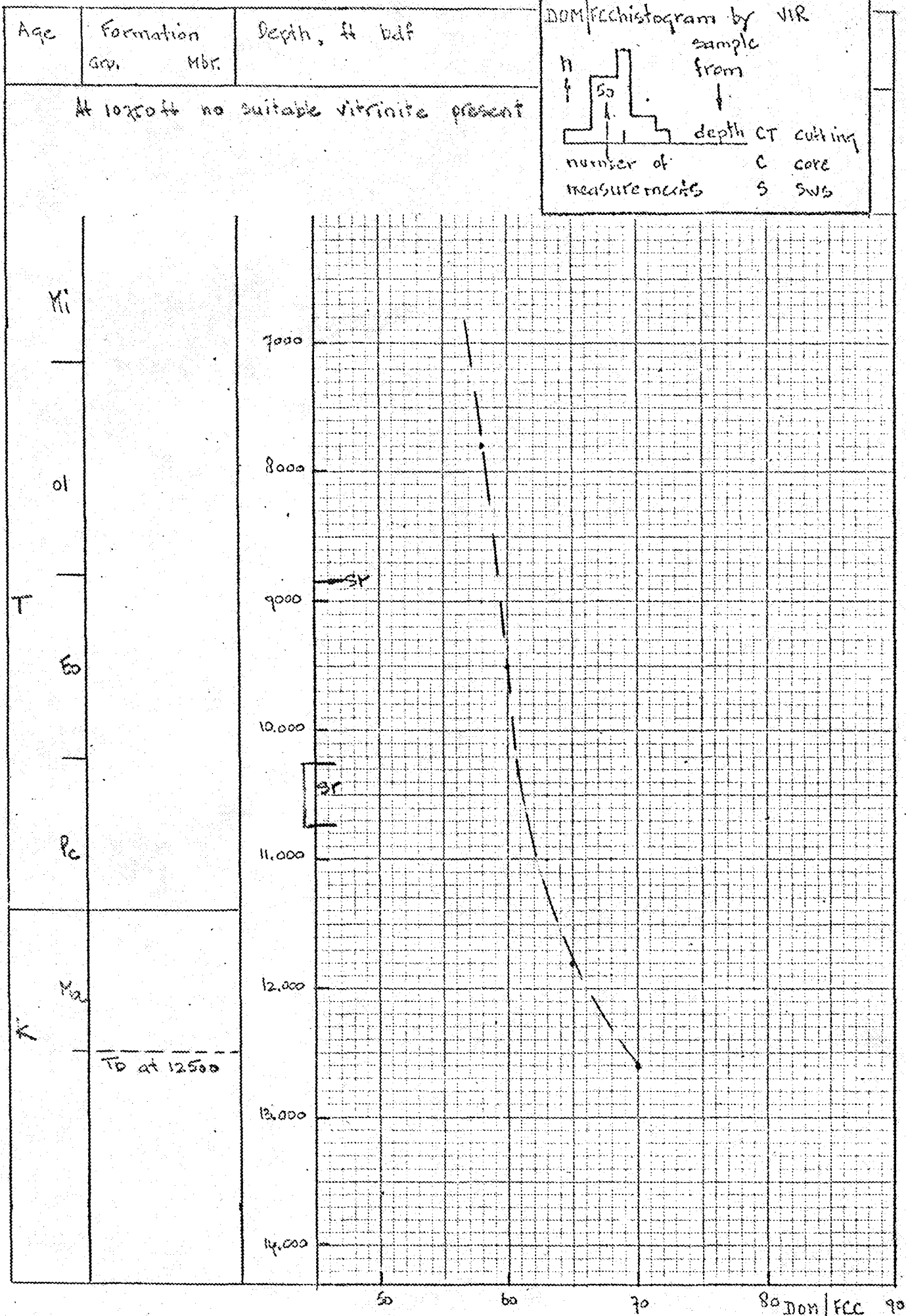
At 7820 ft source rock for gas is present.

An attempt to measure the DOM/FCC for a sample from 10750 ft failed as it appeared that the sample does not contain suitable vitrinite. The compatible DOM/FCC trend, which in this case also gives the predicted true-layer DOM/FCC, is given by the dashed line in figure 2. It is based on the present subsurface temperature gradient.

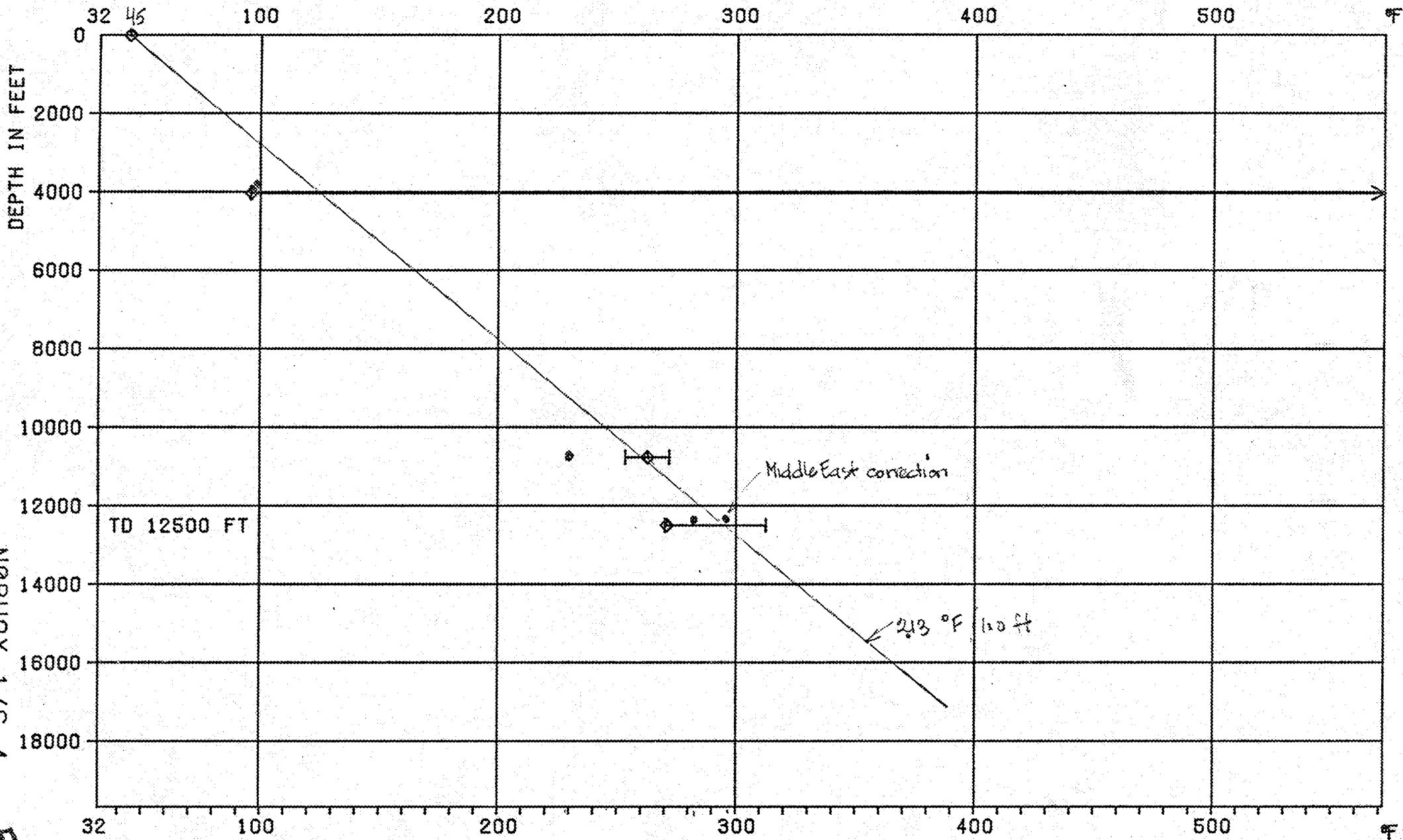
The top of the zone of possible oil generation, as given by the compatible DOM/FCC 60 level, is at 9500 ft. This indicates that the source rocks for oil in the Paleocene have just reached maturity at the locality of the well and should be in their oil generation phase.



SITUATION MAP
 NORWAY OFFSHORE
 1:1,000,000



DOM/FCC AS A FUNCTION OF DEPTH, WELL 1/b-4



NORWAY 1/6-4

Fig: 3

CTR-EXTRAPOLATED SUBSURFACE TEMPERATURES
 CTR-ESTIMATE WITH 95 PERC. CONFIDENCE LIMITS

NORWAY 1/6-4

WELL: NORWAY 1/6-4

BHT-CORRECTION CALCULATION BY CTRM

DEPTH 4033. F CIRCULATION TIME 5. HRS DEFAULT VALUE

	BHT	HRS
1	96.	6.0

ESTIMATE OF FORMATION TEMPERATURE NOT POSSIBLE BECAUSE ONLY ONE OBSERVATION AVAILABLE
FMT PROBABLY LARGER THAN 96. DEGREES FAHRENHEIT

DEPTH 10774. F CIRCULATION TIME 5. HRS DEFAULT VALUE

	BHT	HRS
1	200.	10.7
2	235.	30.0
3	241.	35.0
4	245.	40.0

ESTIMATE OF FORMATION TEMPERATURE IS 263. DEGREES FAHRENHEIT
95% CONFIDENCE RANGE FROM 253. TO 272.

DEPTH 12500. F CIRCULATION TIME 5. HRS DEFAULT VALUE

	BHT	HRS
1	250.	5.0
2	265.	6.0
3	258.	14.5
4	270.	24.5

ESTIMATE OF FORMATION TEMPERATURE IS 271. DEGREES FAHRENHEIT
95% CONFIDENCE RANGE FROM 270. TO 313.

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