

2/8-3 Uppr. Jurassic. *unlabeled*

27/11 78 OD

725.3 2/8-3.

72

AMOCO PRODUCTION COMPANY
RESEARCH CENTER

OIL CORRELATION ANALYSIS

1 Upper Jurassic oil from the Amoco Norway 2/8-3
North Sea

Geochemistry Group

R. L. Ames
L. M. Ross

Distribution: K. D. Soule, Amoco Norway
J. V. Sexton, Amoco Europe ✓
K. A. Shepard, AIOC
W. R. Walton
J. A. Momper

Technical Service 8554CC
Job 9405
Requested by K. D. Soule
AMOCO NORWAY OIL COMPANY

Robert R. Thompson (Nov 3, 1972)

JAM

DISCUSSION

The oil from the Amoco Norway 2/8-3 wildcat, produced from the Upper Jurassic sand, is a chemically and bacterially altered J_(b) + J type oil. The alteration was judged from the higher optical activity, lower API gravity, isomer distribution, and heavy paraffin chromatogram. The use of our analytical data in Table 1, along with the hydrocarbon type mass spectral analysis, has correlated the subject oil with Torfelt, 2/5-2 (N9-5), oil (T.S. 8543CC).

Prior to the analysis of this oil the only other evidence of alteration was found in an oil from the Upper Cretaceous pay in the Amoco Norway 2/11-1, N9-3 (T.S. 7965CC). The close proximity of the subject well and 2/11-1, along with the presence of chemical and bacterial alteration in both wells, might suggest some common communication with fresh water at sometime in the past. Temperature data, sent in 1970, indicates a lower geothermal gradient in the vicinity of the 2/11-1 and 2/8-3 wells (Fig. 5). The lower temperature may be a result of communication with fresher waters, and may relate to the alteration. If bacteria were involved in the degradation of the oil, the alteration had to occur at lower temperature, or shallower depth. Bacteria can consume petroleum at temperatures up to 190°F, but the maximum consumption probably takes place below 140°F. The current reservoir temperature of approximately 220°F indicates that the alteration took place at a shallower depth.

Previous correlation analyses on oil and rock samples in the North Sea Tertiary Basin showed that the Jurassic shales are the sources of the oils (T.S. 8355CC, 3-21-72; T.S. 8207C Addendum, 4-5-72; T.S. 8361CC, 4-7-72; T.S. 8428C, 5-31-72).

Roger L. Ames

Roger L. Ames

Larry M. Ross

Larry M. Ross

RLA/LMR:glj

NOV 3 1972

co Norway DISTRICT North Sea

K. D. Soule DATE 8-17-72

ICE 8554CC GEOLOGICAL PROVINCE

RESEARCH CENTER
CORRELATION ANALYSES

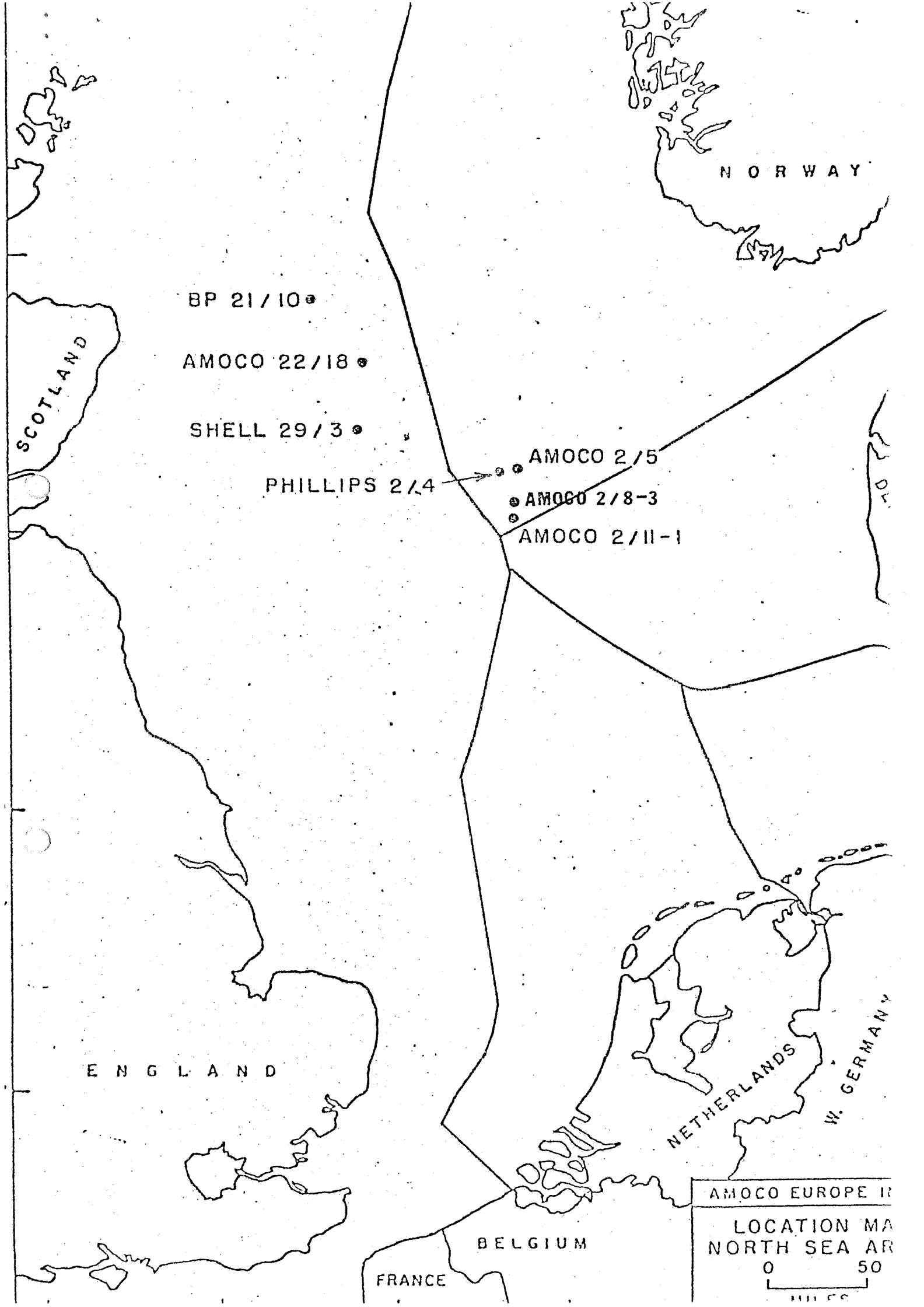
OIL ROCK

(E)

WELL ID	COUNTY	WELL AND LOCATION	CARBON ISOTOPE δC ¹³ ‰		*OPTICAL ROTATION DEGREES	INFRARED SPECTRUM	ISOMER DISTRIB	HEAVY HC DISTRIB	°API AT 60°F		CITY	
			PAY SAMPLE INTERVAL	ALIPHATIC EXTRACT								WHOLE OIL TOTAL ORG
006	North Sea	Amoco Norway 2/8-3 56°18'31"N 03°26'54"E	Upper Jurassic 11715'-11770'	-27.5	-27.6	2.16	B	Fig. 2	Fig. 3	31.6		J(b)
			Temp. at 12,137' 225°F									
			<i>assume to ambient</i>									
			<i>good cut is</i>									
			<i>175/1000 100-1000</i>									

* POSITIVE UNLESS OTHERWISE INDICATED;
RUN ON ROCK EXTRACTS

ANALYST J. A. Williams DATE NOV 2 1972
TABLE 1



N O R W A Y

BP 21/10 ●

AMOCO 22/18 ●

SHELL 29/3 ●

PHILLIPS 2/4 ●

AMOCO 2/5 ●

AMOCO 2/8-3 ●

AMOCO 2/11-1 ●

SCOTLAND

E N G L A N D

FRANCE

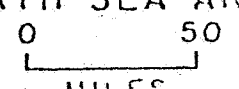
BELGIUM

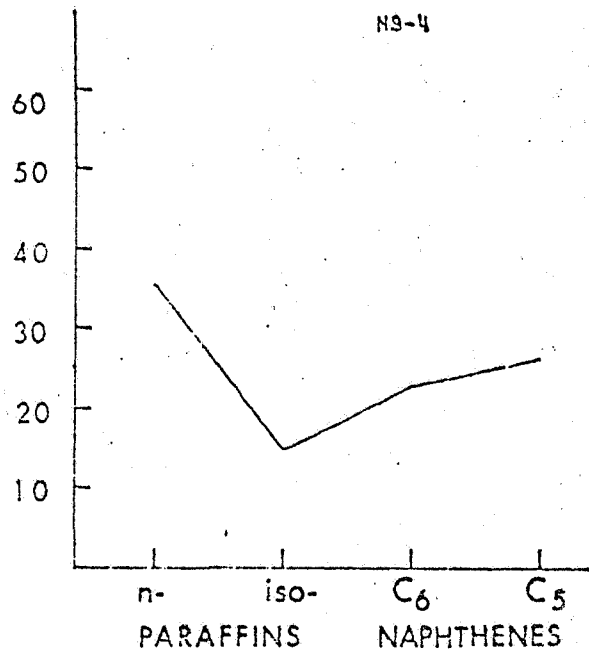
NETHERLANDS

W. GERMANY

AMOCO EUROPE II

LOCATION MAP
NORTH SEA AREA

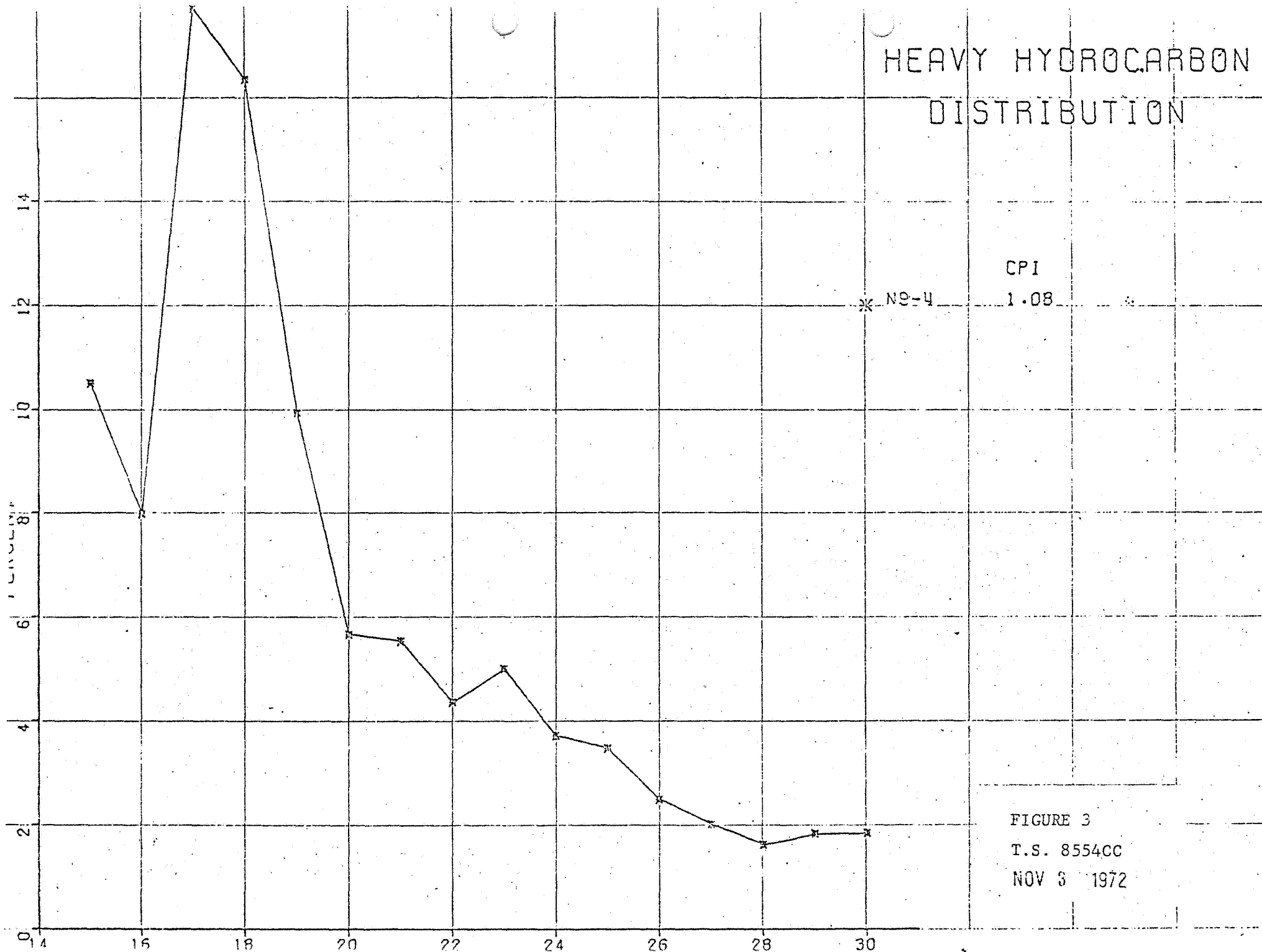




OIL ROCK EXTRACT ISOMER DISTRIBUTIONS

TECHNICAL SERVICE 8554
AREA Amoco Norway
DATE NOV 3 1972

HEAVY HYDROCARBON DISTRIBUTION



CPI

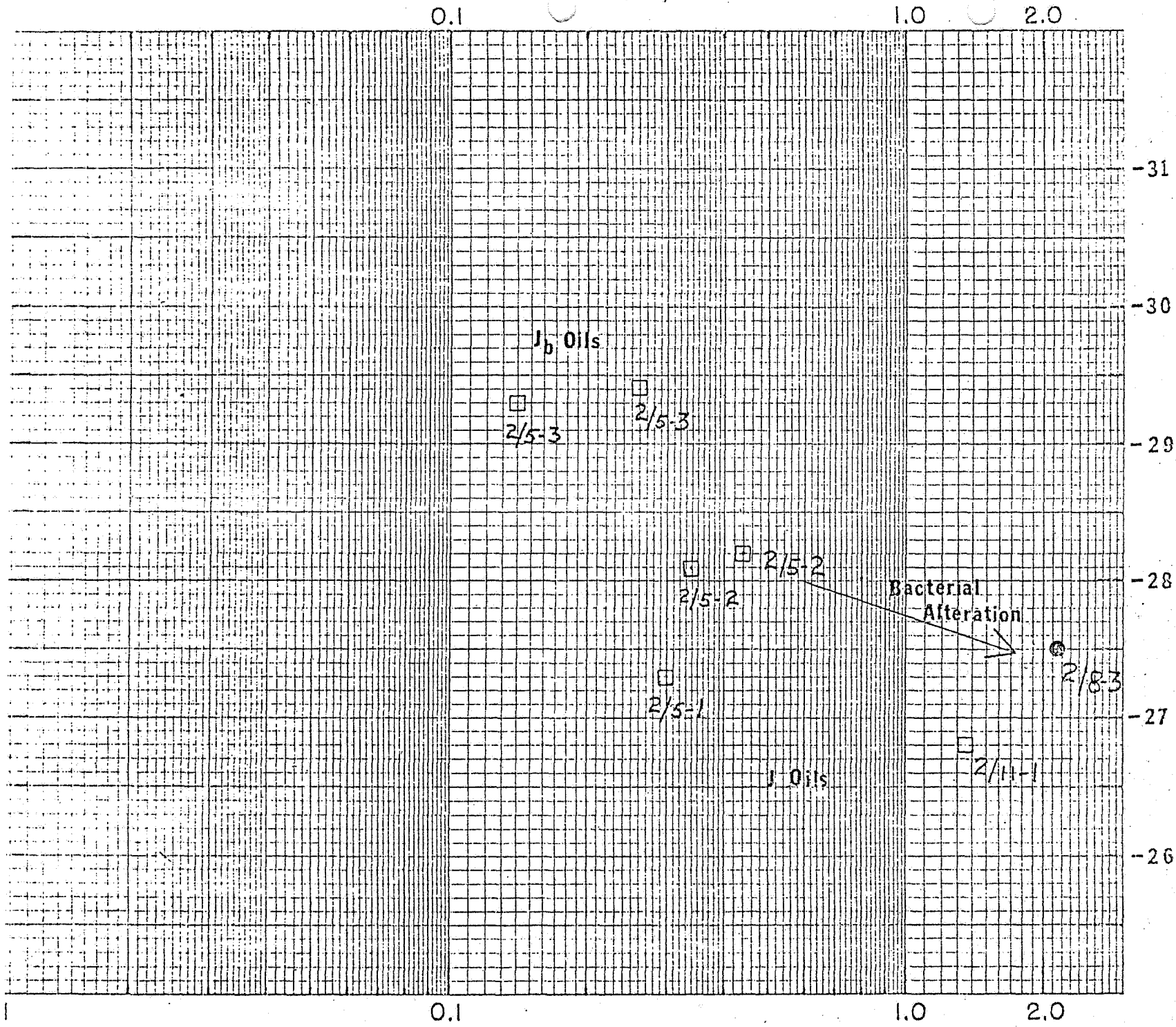
1.08

* N9-4

FIGURE 3
T.S. 8554CC
NOV 3 1972

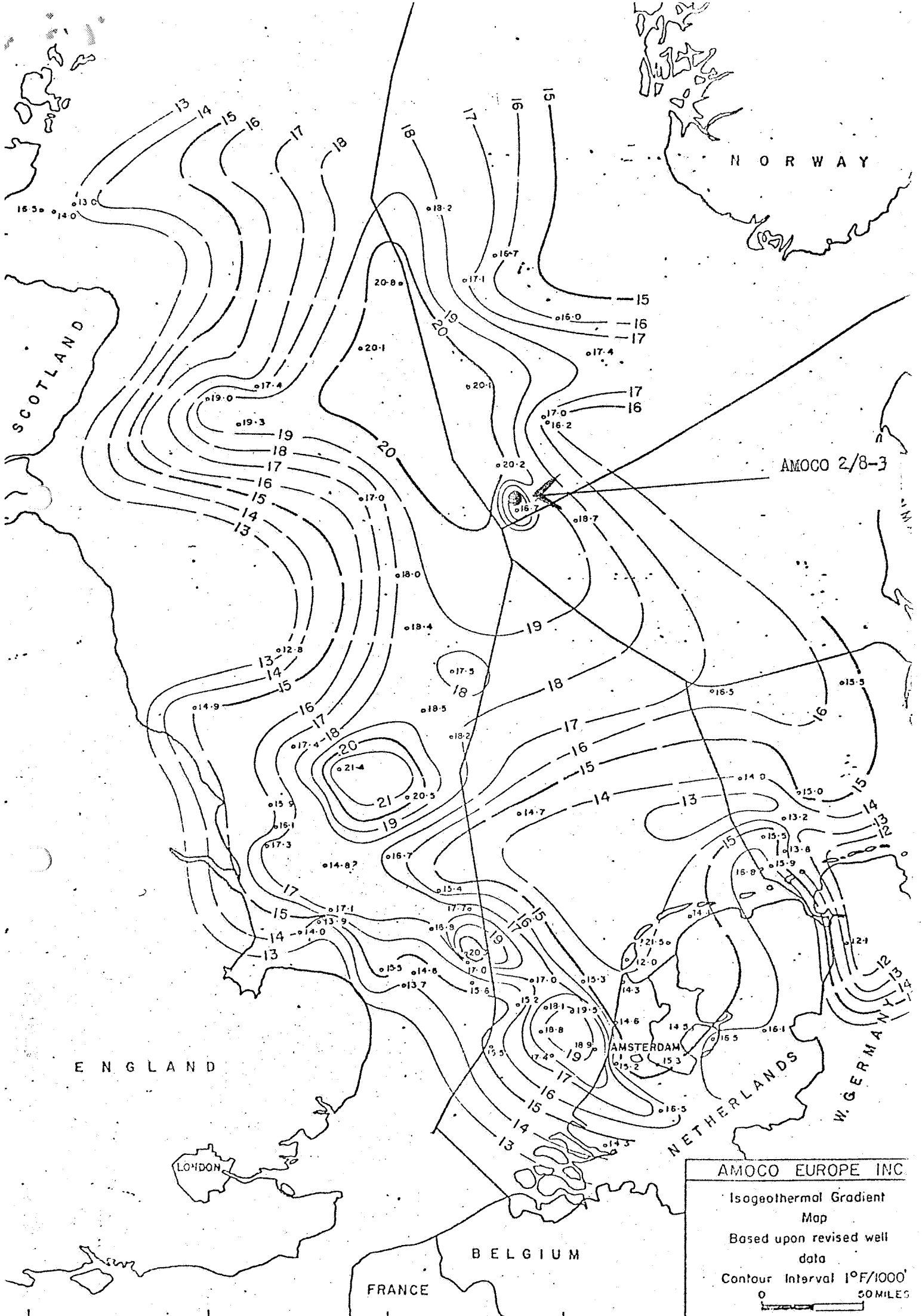
OPTICAL ROTATION (α), DEGREES

CORRELATION
SEMI-LOG PLOT
8C13 VS. α



● Subject Oil N9-4
□ Previously analysed
T.S. 7965 CC
8543 CC

TECH. SERVICE 8554CC
AREA Amoco Norway
DATE NOV 3 1972
FIGURE 4



NORWAY

SCOTLAND

AMOCO 2/8-3

ENGLAND

LONDON

BELGIUM

FRANCE

AMSTERDAM

NETHERLANDS

W. GERMANY

AMOCO EUROPE INC

Isogeothermal Gradient

Map

Based upon revised well
data

Contour Interval 1°F/1000'

0 50 MILES