Mud Properties, daily record

Well: 25/10 -7S

Operator: Esso

Anchor Drilling Fluids

FSR no.	Date 1996	Depth	M.W.	F.Vis	VG-meter readings @ 600 rpm	300 rpm	200 rpm	100 rpm	6 rpm	3 rpm	A.V.	P.V.	Y.P.	Gel 10s	Gel 10 m	pH	API	HTHP 100°C	Cl- 1000	Pf	Mf	Ca++	Solids	Oil	Sand	MBT	KCL	Glycol	PHPA	LGS
•	•	m	sg	s/qt.								mPas	Pa				cc	cc	mg/l	ml	ml	mg/l	vol%	vol%	vol%	kg/m3	kg/m3	%	kg/m3	kg/m3
36" Hole Section: Seawater - Bentonite Sweeps																														
1	20-5	203	1,03	100							0	0	0	-	-	9,5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Property			1,03	100	0	0	0	0	0	0	0	0	0	0	0	9,5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Average Property			0,17	17	0	0	0	0	0	0	0	0	0	0	0	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maximum Property			1,03	100	0	0	0	0	0	0	0	0	0	0	0	9,5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9 7/8 Pilot Hole/ 12 1/4" Hole Section: Prehydrated Bentonite / Seawater - Bentonite Sweeps																														
2	21-05	810	1,03	100							0	0	0	-	-	9,5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	22-05	719	1,03	100							0	0	0	-	-	9,5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	23-05	1102	1,14	90							0	0	0	-	-	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	24-05	1102	1,14	90							0	0	0	-	-	9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Property			1,03	90	0	0	0	0	0	0	0	0	0	0	0	9,0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Average Property			1,45	127	0	0	0	0	0	0	0	0	0	0	0	12,3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Maximum Property			1,14	100	0	0	0	0	0	0	0	0	0	0	0	9,5	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Mud Properties, daily record

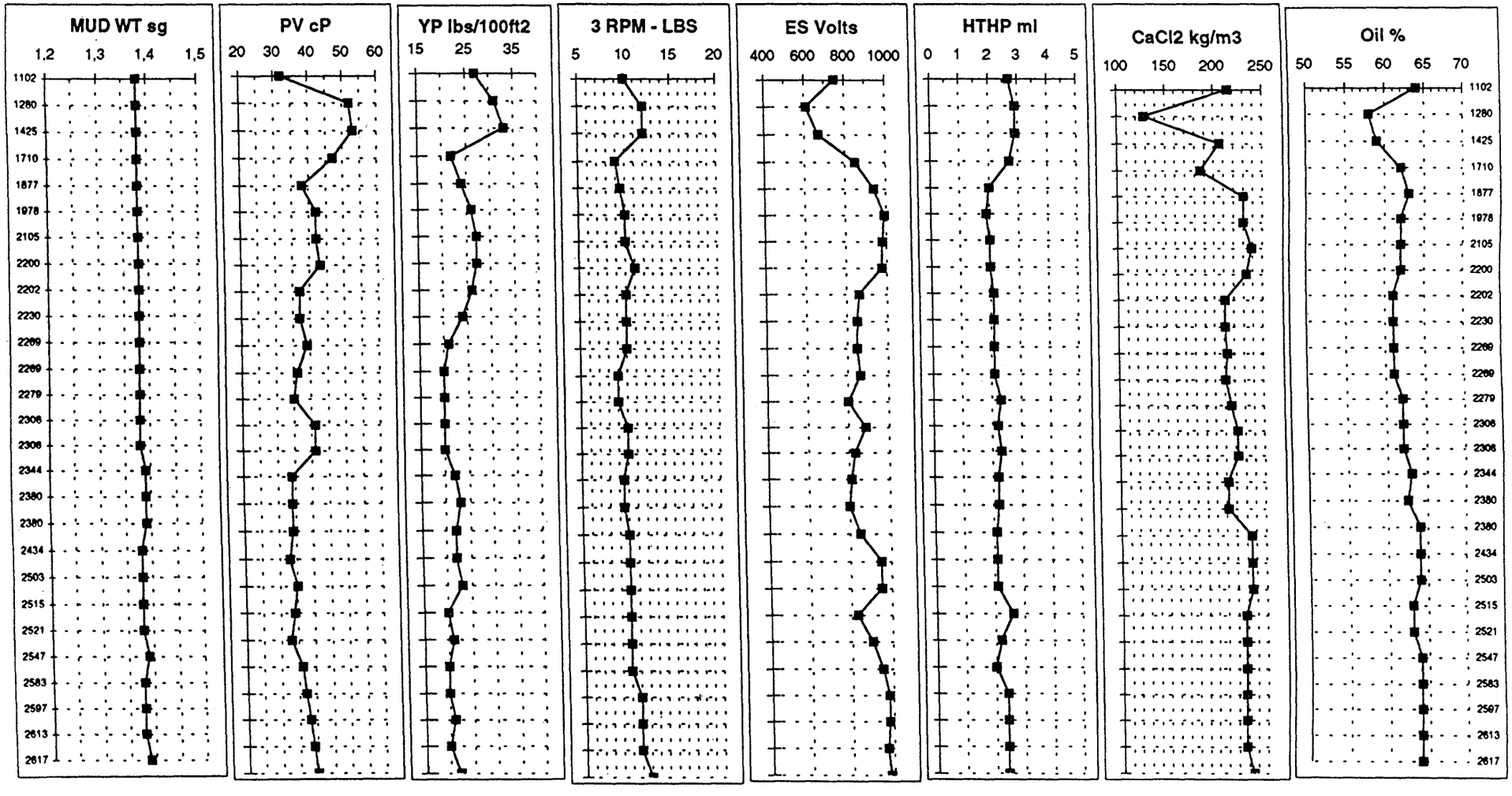
Well: 25/10-7S

Operator: Esso

Anchor Drilling Fluids

FSR	Date	Depth	M.W.	F.Vis	VG-meter readings @						A.V.	P.V.	Y.P.	Gel	Gel	ES	HTHP	Mp	Excess	CaCl2	CaCl2	Water	Solids	Oil	Sand	OWR	HGS	LGS
no.	1996				600	300	200	100	6	3				10s	10 m		75°C		Lime									
•	•	m	sg	s/qt.	rpm	rpm	rpm	rpm	rpm	rpm		mPas		< lbs / 100 ft2 >		Volts	cc	ml	kg/m3	wt %	kg/m3	vol%	vol%	vol%	vol%		kg/m3	kg/m3
8 1/2" Hole Section: AncoVert																												
6	25-05	1102	1,38		91	59	46	32	12	10	46	32	27	14,0	28,0	750	2,7	2,9	10,7	18,5	215,0	18,0	18,0	64,0	tr	78:22	513,0	129,0
7	26-05	1280	1,38	156	135	83	63	43	14	12	68	52	31	14,0	29,0	610	2,9	3,8	14,0	12,0	128,0	25,0	17,0	58,0	tr	70:30	503,0	114,0
7	26-05	1425	1,38	156	139	86	66	44	14	12	70	53	33	14,0	27,0	670	2,9	3,9	14,4	18,0	206,0	24,0	17,0	59,0	tr	71:29	489,0	111,0
7	26-05	1710	1,38	105	116	69	53	34	10	9	58	47	22	11,0	17,0	849	2,7	2,9	10,7	16,5	186,0	21,0	17,0	62,0	tr	75:25	543,0	85,0
8	27-05	1877	1,38	85	100	62	47	32	11	9,5	50	38	24	10,0	18,0	940	2,0	4,3	15,9	19,5	230,0	21,0	16,0	63,0	tr	75:25	585,0	29,0
8	27-05	1978	1,38	88	110	68	52	35	12	10	55	42	26	10,0	18,0	990	1,9	4,3	15,9	19,5	230,0	21,0	17,0	62,0	tr	75:25	538,0	84,0
8	27-05	2105	1,38	91	111	69	53	35	12	10	56	42	27	10,0	20,0	980	2,0	4,2	15,5	20,0	239,0	20,0	18,0	62,0	tr	76:24	498,0	136,0
8	27-05	2200	1,38	95	113	70	55	36	14	11	57	43	27	11,0	21,0	975	2,0	4,2	15,5	19,5	233,0	20,0	18,0	62,0	tr	76:24	498,0	136,0
9	28-05	2202	1,38	98	100	63	49	33	12	10	50	37	26	11,0	22,0	860	2,1	4,1	15,1	18,0	211,0	20,5	18,5	61,0	tr	75:25	471,0	165,0
9	28-05	2230	1,38	97	98	61	47	31	12	10	49	37	24	10,0	20,0	850	2,1	4,0	14,8	18,0	211,0	20,5	18,5	61,0	tr	75:25	471,0	165,0
10	29-05	2269	1,38	103	99	60	48	32	12	10	50	39	21	12,0	22,0	848	2,1	3,4	12,5	18,0	213,0	21,0	18,0	61,0	tr	74:26	491,0	139,0
10	29-05	2269	1,38	99	92	56	44	29	11	9	46	36	20	11,0	19,0	860	2,1	3,4	12,5	18,0	211,0	20,5	18,5	61,0	tr	75:25	471,0	165,0
10	29-05	2279	1,38	99	90	55	43	29	11	9	45	35	20	10,0	17,0	800	2,3	2,6	9,6	18,5	216,0	20,0	18,0	62,0	tr	76:24	498,0	136,0
10	29-05	2306	1,38	105	102	61	48	32	12	10	51	41	20	11,0	19,0	884	2,2	3,2	11,8	19,0	222,0	20,0	18,0	62,0	tr	76:24	498,0	136,0
11	30-05	2306	1,38	105	102	61	48	32	12	10	51	41	20	11,0	19,0	830	2,3	3,0	11,1	19,0	222,0	20,0	18,0	62,0	tr	76:24	498,0	136,0
11	30-05	2344	1,39	113	90	56	43	29	11	9,5	45	34	22	11,0	20,0	810	2,2	2,9	10,7	18,0	212,0	19,0	18,0	63,0	tr	77:23	532,0	116,0
11	30-05	2380	1,39	114	91	57	44	30	11	9,5	46	34	23	11,0	19,0	800	2,2	2,9	10,7	18,0	212,0	19,0	18,5	62,5	tr	77:23	509,0	143,0
12	31-05	2380	1,39	110	90	56	43	29	11	10	45	34	22	12,0	19,0	850	2,1	3,8	14,1	19,5	235,0	18,0	18,0	64,0	tr	78:22	540,0	112,0
12	31-05	2434	1,38	82	88	55	43	30	12	10	44	33	22	13,0	27,0	950	2,1	3,8	14,1	19,5	235,0	18,0	18,0	64,0	tr	78:22	513,0	129,0
12	31-05	2503	1,38	97	93	58	45	31	12	10	47	35	23	15,0	28,0	950	2,1	3,8	14,1	19,5	235,0	18,0	18,0	64,0	tr	78:22	513,0	129,0
13	01-06	2515	1,38	97	88	54	42	29	12	10	44	34	20	13,0	27,0	830	2,6	3,8	14,0	19,5	228,0	18,0	19,0	63,0	tr	78:22	466,0	184,0
13	01-06	2521	1,38	95	87	54	41	28	12	10	44	33	21	12,0	24,0	900	2,2	3,8	14,0	19,5	228,0	18,0	19,0	63,0	tr	78:22	466,0	184,0
13	01-06	2547	1,39	92	92	56	42	28	12	10	46	36	20	12,0	23,0	950	2,0	3,8	14,0	19,5	228,0	18,0	18,0	64,0	tr	78:22	540,0	112,0
14	02-06	2583	1,38	112	94	57	44	29	13	11	47	37	20	16,0	30,0	980	2,4	2,9	10,7	19,5	228,0	18,0	18,0	64,0	tr	78:22	513,0	129,0
14	02-06	2597	1,38	117	97	59	45	31	13	11	49	38	21	16,0	34,0	980	2,4	2,9	10,7	19,5	228,0	18,0	18,0	64,0	tr	78:22	513,0	129,0
14	02-06	2613	1,38	107	98	59	45	31	13	11	49	39	20	11,0	36,0	970	2,4	2,8	10,4	19,5	228,0	18,0	18,0	64,0	tr	78:22	513,0	129,0
14	02-06	2617	1,39	106	102	62	51	33	13	12	51	40	22	17,0	34,0	985	2,4	3,0	11,1	20,0	235,0	18,0	18,0	64,0	tr	78:22	540,0	112,0
15	03-06	2617	1,4	105	99	59	44	29	12	11	50	40	19	15,0	32,0	980	2,4	2,9	10,7	19,5	225,0	19,0	18,0	63,0	tr	77:23	558,0	100,0
16	04-06	2265	1,4	116	104	63	49	32	12	11	52	41	22	16,0	33,0	975	2,4	2,8	10,4	19,5	225,0	19,0	18,0	63,0	tr	77:23	558,0	100,0
17	05-06	985	1,4	120	107	64	52	36	13	11	54	43	21	17,0	36,0	970	2,6	2,8	10,4	19,5	225,0	19,0	18,0	63,0	tr	77:23	558,0	100,0
18	06-06	0	1,4	120	107	64	52	36	13	11	54	43	21	17,0	36,0	970	2,6	2,8	10,4	19,5	225,0	19,0	18,0	63,0	tr	77:23	558,0	100,0
											0	0	0															
											0	0	0															
Minimum Property			1,38	82	87	54	41	28	10	9	44	32	19	10	17	610	2	3	10	12	128	18	16	58	0	0	466	29
Average Property			1,38	103	101	62	48	32	12	10	50	39	23	13	25	889	2	3	13	19	220	20	18	63	0	0	515	125
Maximum Property			1,40	156	139	86	66	44	14	12	70	53	33	17	36	990	2,9	4,3	15,9	20	239	25	19	64	0	0	585	184

ESSO BJØRN 25/10-7S
8 1/2" MUD PROPERTIES



ESSO NORGE AS EXPLORATION AND PRODUCTION
BJØRN (25/10-7S) FINAL WELL REPORT
ENGINEERING REPORT No. 4
CORING OPERATION: OBM FILTRATE VS. HYDROCARBON SHOWS

In the drilling program for Well 25/10-7S, one 36 meter core in the Heimdal formation was planned. When the first core was recovered, only 2 meters of sand had been cut, at the bottom of the core (remainder of core was shale). A second core was cut, in which oil based mud filtrate/residue was mistakenly believed to be hydrocarbon shows, based on fluoresence. The coring program was expanded, cutting a total of 178 m cores in 5 runs.

MWD and wireline logging subsequent to the coring proved the reservoir to be waterwet. In order to reconfirm this, a local laboratory "West-Lab" performed two independent analyses, of (1) a core plug from core no. 3, and (2) fluid filtrate from the core.

The results from the analyses of (1) and (2) were compared with an analysis of oil based mud (OBM) from well 25/10-7S. The analysis of (1) shows that there is baseoil present in the core plug, equal to the one in the OBM, and that there are "no significant amounts of raw oil" in the core plug (Attachment 1). The analysis of (2) confirms that the hydrocarbons present in the core fluid is similar to the baseoil in the OBM, and that there are "no significant amounts of raw oil" in the fluid sample (Attachment 2).

The lab report for the core fluid sample (attachment 2) mentions a deflection in the gas chromatogram in the area of n-C10 which does not occur in the baseoil from the OBM. The deflection is also seen on the gas chromatogram for the core plug. It is suggested that there may be other "additives" to the core plug and the core fluid sample than just OBM. The lab report does not expand further on this.

WEST·LAB A/S
ANALYTICAL SERVICES

Oljeveien 2,
Postboks 139,
4056 Tananger
Tlf.: 51 69 79 99
Telefax: 51 69 76 00
Telex: 73 741 wlab
Foretaksnr. 94225228

ESSO Norge AS
P.O. BOX 60
N-4033 Forus

Attn.: Håkan Ledje

Tananger 04.06.96
Rapport: 1996-1347

ANALYSE AV EKSTRAHERT KJERNEPLUGG

Vedlagt følger en forløpig rapport på analyse av ekstrakt fra en kjerneplugg fra brønn 25/10-7S, Core #3. Det er også utført analyse på ekstrakt fra oljebasert mud fra samme brønn.

Prøven er tatt av kunden.

Prøven ble mottatt: 31.05.96.
Mudprøven ble mottatt: 03.06.96

Prøven ble analysert: 01.06.96
Mudprøven ble analysert: 03.06.96

Ved eventuelle spørsmål til rapporten, vennligst ta kontakt.

Med hilsen
West Lab AS

Edle Norheim

Edle Norheim
Kjemiker

WEST-LAB

Dato: 04.06.96
Rapport: 1996-1347

LABORATORIERAPPORT

Prøvemerking:

Prøve	Prøvemerking
96-1347-1	PL..1 2278.6
96-1347-2	PL .2 2295.9

Analysemetode:

Kjernepluggen ble knust og ekstrahert med heksan for å trekke ut eventuelle hydrokarboner. Den oljebasert mudden ble ekstrahert på samme måte. Ekstraktene ble dampet inn og analysert ved hjelp av gasskromatografi (GC-FID).
Kolonne: CP Sil 5 CB, 25m.

Kjerneplugg PL.1 2278.6 ble analysert. Den andre pluggen er foreløpig ikke analysert i henhold til avtale (fax 31.05.96)

Resultater:

Analysen viser mest baseolje og (vedlegg 1, kromatogram). Prøve PL. 1 2278.6 gir et stort utslag rundt n-C18. Baseoljen har også denne karakteristiske toppen (vedlegg 2, kromatogram), og vi kan dermed si at kjernepluggen inneholder denne type baseolje.

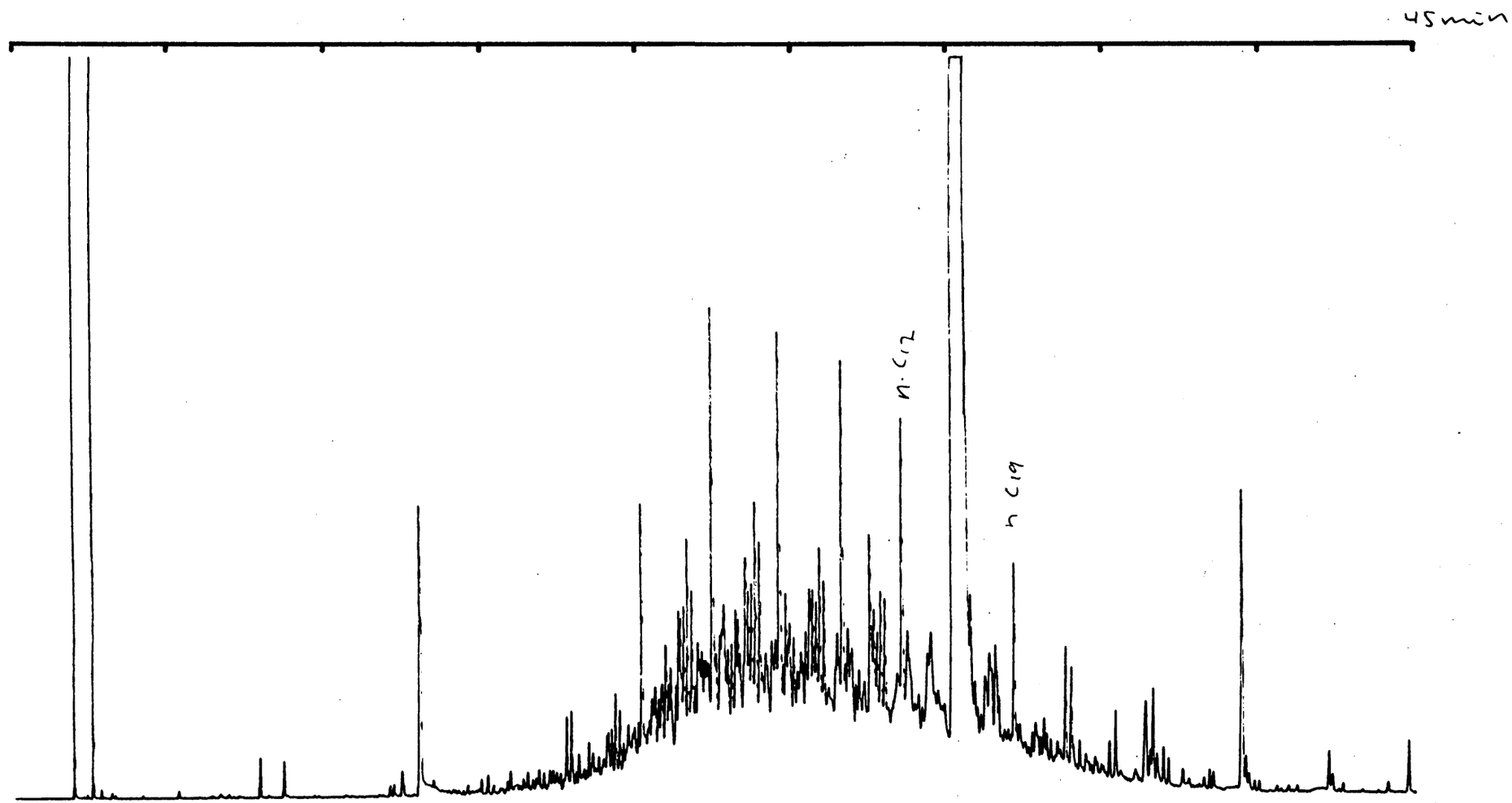
Det er ikke signifikante mengder råolje i kjernepluggen.

Analysert av
Edle Norheim
Kjemiker

Kontrollert av
Anton Henneman
Koordinator

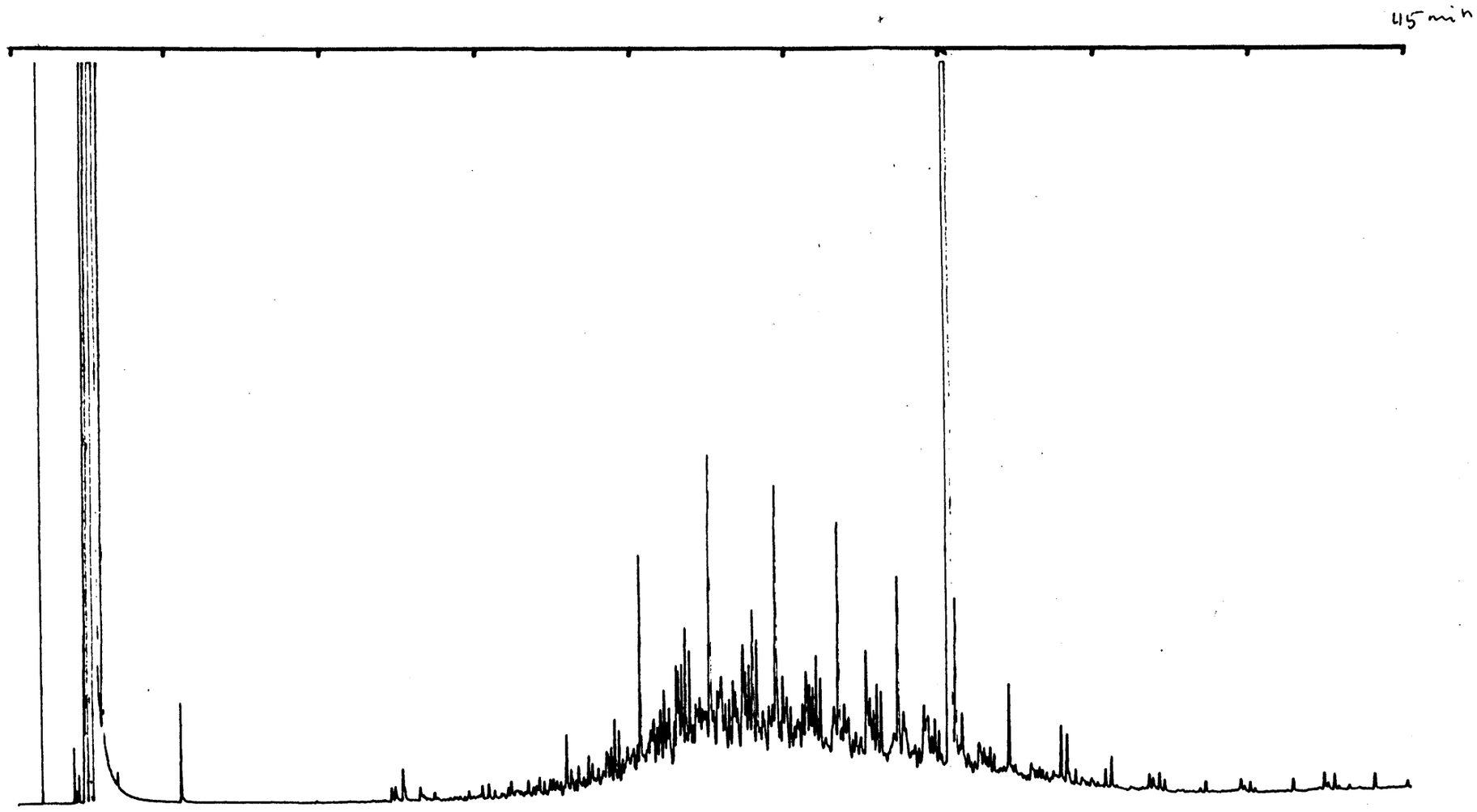
Vedlegg 1

96-1347-1 Heksan ekstrakt, inndampet. GC-analyse



vedlegg 2

96-1347-3. OLJEMUD ESSO. 20MV



L-840

.3

PETROLEUM GEOCHEMICAL EVALUATION OF THE SECTION 1700m-2617m(TD) OF WELL 25/10-7S, NORWEGIAN SECTOR

BA-96-1314-1

04 OKT. 1996
REGISTRERT
OLJEDIREKTORATET

Report No. 7841/Ic

Project No. Ic/GN154

Prepared by:
I Cutler

Of:
Robertson Research International Limited
Llandudno, North Wales LL30 1SA, United Kingdom

For:
Esso Norge AS
Postboks 60, N-4033 Forus, Grenseveien 6, Norway

SEPTEMBER 1996

Robertson

CONTENTS

Chapters

		Page
1	**SUMMARY**	1
2	**INTRODUCTION AND WELL DATA**	2
3	**RESULTS**	5
	3.1 SAMPLE PREPARATION	5
	3.2 MATURITY ANALYSES	5
	3.3 SOURCE POTENTIAL	6
	3.4 OIL STAINING	7
4	**CONCLUSIONS**	8
5	**REFERENCES**	9

Tables

1 Maturity and kerogen composition data
2(A-E) Summary of chemical analysis data
3(A-D) Organic carbon and Rock-Eval pyrolysis data
4 Pyrolysis gas chromatography data

Figures

1 Well location map
2 Spore colour indices against depth
3 Vitrinite reflectivity against depth
4 Rock-Eval pyrolysis Tmax against depth
5 Total organic carbon (TOC) content against depth
6(1-2) Pyrolysis gas chromatograms
7(1-5) Whole extract gas chromatograms

Appendices

1	List of abbreviations
2	Analytical procedures and techniques
3(1-4)	Histograms, data and statistics for vitrinite reflectivity
4	Esso Norge work programme

Enclosures

1	Geochemical maturity summary log (1:5000)
2	Geochemical source potential summary log (1:5000)

CHAPTER 1

Summary

A petroleum geochemical evaluation has been carried out on the section 1700m-2617m(TD) of the Esso Norge 25/10-7S well, drilled offshore Norway. The results of the study are presented in this final report.

Extensive contamination of all analysed samples by oil based drilling fluids has prevented the recognition of possible migrant hydrocarbons.

CHAPTER 2

Introduction and Well Data

Petroleum geochemical analyses have been undertaken on cuttings and core samples from the interval 1700m to 2617m(TD) of the 25/10-7S well, drilled offshore Norway. This work has been undertaken on behalf of the operator Esso Norge AS. The final results of the study are presented in this report.

Samples have been analysed to determine their thermal maturity and source rock potential. In addition, an attempt has been made to determine the presence of any migrant oil. More detailed analyses have not been attempted due to the nature of the analysed interval and the use of oil based mud during the drilling of the well.

Samples for this study were received in two batches, the details of which are tabulated below:

Consignment no.	Sample type	Number of samples	Depth range	Despatched by	Date of receipt	Comments
1	Cores	12	2205m - 2378m	Reservoir Laboratories, Norway	25 June 1996	
2	Canned cuttings	43	1700m - 2617m	GeoQuest, Norway	11 July 1996	Long delay in sample receipt; samples held at customs in Jarrow, UK.
	Canned muds	5	1700m - 2200m			

The work programme undertaken on these samples followed that requested by Esso, as outlined in 'Exhibit A' attached to the Esso Norge AS service order, Order No. 3-1-6-8062-00. A copy of the work programme is attached as Appendix 4.

The numbers of analyses carried out for the study are as follows:

Analysis	Number
Sample Washing	43
Lithological description	43
Solvent clean-up	43
Kerogen preparation	15
Spore colour index	8
Vitrinite reflectance	13
Total organic carbon (TOC) content	46
Rock-Eval pyrolysis	46
Solvent extraction	9
Whole extract gas chromatography	5
Pyrolysis gas chromatography	2

Data were communicated to the client via our contact Torunn Valheim at Esso Norge.

Robertson personnel involved in this study were as follows:

Project co-ordination and report preparation	:	I Cutler
Microscopy studies	:	S Martin
Chemical analyses	:	Supervised by M Wadsworth

No stratigraphic data were provided by the client for this report. Results are consequently reported independent of stratigraphy.

Other well data have been provided by the client and these are listed below:

CHAPTER 3

Results

3.1 SAMPLE PREPARATION

Well 25/10-7S was drilled using oil based mud; consequently, all the samples received from this well were contaminated with this oil based product. Due to the contamination, all cuttings samples were washed in dichloromethane (DCM) prior to visual lithological description. They were then solvent washed prior to organic carbon (TOC) and pyrolysis analyses. Consequently, all chemical data reported in this study for the cuttings are for extracted (cleaned) samples.

Examination of pyrolysis production indices for the cuttings indicates generally low values, suggesting that the solvent clean up of these samples has largely been successful. A few samples have slightly higher values than desirable (e.g. 0.29 at 2500m-2520m) suggesting that not all of the oil based contamination has been removed. It is not, however, considered that this is a significant problem.

The core samples in this study were generally examined for the presence of migrant oil; consequently, these samples were not solvent cleaned prior to analysis as this would remove any evidence.

CHAPTER 5

References

ROBERTSON RESEARCH INTERNATIONAL (RRI), 1979. Southern Offshore Norway: The stratigraphy and petroleum geochemistry of the Jurassic to Tertiary sediments.

COMPANY: ESSO NORGE WELL: 25/10-7S LOCATION: NORWAY

GENERAL DATA			MATURITY DATA		KEROGEN COMPOSITION DATA						
SAMPLE DEPTH (Metres)	SAMPLE TYPE	ANALYSED LITHOLOGY	SPORE COLOUR INDEX	VITR. REFL. R oil av %	% (Visual, from microscopy)			% (Calculated)			
					INERTINITE	VITRINITE	SAPROPEL	INERT	VIT	ALG SAP	WXY SAP
1700-750	Ctgs	MDST, med-dk gy+ 10% LST, pal yel-brn+ tr LST, wht	3.0-3.5 5.0-8.0 R	.31(47) .61(2)R 1.73(1)R	10	80	10				
1800-850	Ctgs	MDST, med-dk gy+ tr LST, v lt gy		.28(50)							
1900-920	Ctgs	MDST, med-dk gy+ tr LST, v lt gy	3.0-3.5 7.5 R	.30(47)	Mnr	90	10				
1960-970	Ctgs	MDST, med-dk gy+ 10% SH, med-dk gy+ tr LST, v lt gy		.33(48)							
2020-030	Ctgs	MDST, med gy+ 20% LST, v lt gy, OS+ 10% MDST, v dsk red + 10% MDST, pal red	3.0	*	Mnr	90	10				
2080-090	Ctgs	MDST, med-dk gy+ 10% MDST, brn-gy+ 10% LST, v lt gy, OS+ tr MDST, v dsk red		.32(27) .54(5)R .92(2)R							
2110-120	Ctgs	MDST, med-dk gy+ 20% MDST, med gy+ 10% LST, v lt gy	3.5	.37(35) .68(9)R	20	70	10				
2160-170	Ctgs	MDST, med-dk gy+ tr LST, v lt gy	3.5 8.0 R	.30(51) .68(2)R	10	80	10				
2190-200	Ctgs	MDST, med gy+ 20% MDST, med-dk gy+ tr LST, v lt gy		.35(51)							
2205.0	Core	SH, dk gy		.33(13) 1.01(4)R							
2378.0	Core	SH, med gy		.43(17) .69(23)R 1.21(5)R							
2380-400	Ctgs	MDST, med gy+ 20% LST, v lt gy+ tr MDST, med-dk gy	4.0 6.5-7.0 R	.39(20) .69(15)R	70	20	10				
2460-480	Ctgs	MDST, med gy+ 20% LST, wht	3.5-4.0	.42(15) .71(19)R	80	10	10				
2540-560	Ctgs	MDST, med-dk gy+ 20% LST, v lt gy	3.5-4.0 7.5 R	.45(23) .67(29)R	30	60	10				
2600-617	Ctgs	LST, wht+ tr LST, med-dk gy		*							

MATURITY AND KEROGEN COMPOSITION DATA

TABLE : 1

COMPANY: ESSO NORGE WELL: 25/10-7S LOCATION: NORWAY

GENERAL DATA			CHEMICAL ANALYSIS DATA											
SAMPLE DEPTH (Metres)	SAMPLE TYPE	ANALYSED LITHOLOGY	TOC % OF ROCK	PYROLYSIS					SOLVENT EXTRACTION/FRACTIONATION					
				Tmax °C	HI	OI	PI	POT.YLD. (ppm)	EXTR. (ppm)	HC (ppm)	EXTR. % OC	HC %oOC	HC %EX	ALK. %HC
1700-750	Ctgs	MDST, med-dk gy+ 10% LST pal yel-brn+ tr LST, wht	-											
	Ctgs	After extraction	.57	406	61	121	.22	350						
1750-800	Ctgs	MDST, med-dk gy+ tr LST, v lt gy	-											
	Ctgs	After extraction	.52	*	54	92	.13	280						
1800-850	Ctgs	MDST, med-dk gy+ tr LST, v lt gy	-											
	Ctgs	After extraction	.50	408	58	62	.12	290						
1850-900	Ctgs	MDST, med-dk gy+ tr LST, v lt gy	-											
	Ctgs	After extraction	.76	418	88	75	.12	670						
1900-920	Ctgs	MDST, med-dk gy+ tr LST, v lt gy	-											
	Ctgs	After extraction	.88	420	155	82	.10	1360						
1920-940	Ctgs	MDST, med-dk gy+ tr LST, v lt gy	-											
	Ctgs	After extraction	.92	420	151	92	.08	1390						
1940-960	Ctgs	MDST, med-dk gy+ tr LST, v lt gy	-											
	Ctgs	After extraction	.93	429	168	87	.06	1560						
1960-970	Ctgs	MDST, med-dk gy+ 10% SH, med-dk gy+ tr LST, v lt gy	-											
	Ctgs	After extraction	.88	428	151	80	.04	1330						
1970-980	Ctgs	MDST, med-dk gy+ 10% SH, med-dk gy+ 10% LST, v lt gy	-											
	Ctgs	After extraction	.81	425	140	83	.08	1130						
1980-990	Ctgs	LST, v lt gy, OS+ 20% MDST, med-dk gy+ 10% SH, med-dk gy	-											
	Ctgs	After extraction	.79	424	137	101	.08	1080						
1990-2000	Ctgs	LST, v lt gy, OS+ 20% MDST, med-dk gy+ 10% SH, med-dk gy	-											
	Ctgs	After extraction	.70	429	309	127	.04	2160						
2000-010	Ctgs	MDST, med-dk gy+ 20% LST v lt gy, OS+ 10% SH, med-dk gy	-											
	Ctgs	After extraction	.51	427	276	204	.08	1410						

SUMMARY OF CHEMICAL ANALYSIS DATA

TABLE : 2A

COMPANY: ESSO NORGE WELL: 25/10-7S LOCATION: NORWAY

GENERAL DATA			CHEMICAL ANALYSIS DATA										
SAMPLE DEPTH (Metres)	SAMPLE TYPE	ANALYSED LITHOLOGY	TOC % OF ROCK	PYROLYSIS					SOLVENT EXTRACTION/FRACTIONATION				
				Tmax °C	HI	OI	PI	POT.YLD. (ppm)	EXTR. (ppm)	HC (ppm)	EXTR. % OC	HC %OOC	HC %EX	ALK. %HC
2010-020	Ctgs	MDST, med-dk gy+ 20% LST v lt gy, OS	-										
	Ctgs	After extraction	.49	431	306	182	.06	1500					
2020-030	Ctgs	MDST, med gy+ 20% LST, v lt gy, OS+ 10% MDST, v dsk red+ 10% MDST, pal red	-										
	Ctgs	After extraction	.54	422	187	144	.08	1010					
2030-040	Ctgs	MDST, med gy+ 20% LST, v lt gy, OS+ 10% MDST, v dsk red+ 10% MDST, pal red	-										
	Ctgs	After extraction	.61	419	167	113	.08	1020					
2040-050	Ctgs	MDST, med-dk gy+ tr LST, pal yel-brn	-										
	Ctgs	After extraction	.53	406	115	115	.12	610					
2050-060	Ctgs	MDST, med-dk gy+ 10% LST pal yel-brn+ tr MDST, pal red	-										
	Ctgs	After extraction	.49	399	112	100	.11	550					
2060-070	Ctgs	MDST, med-dk gy+ 10% LST pal yel-brn+ tr LST, v lt gy	-										
	Ctgs	After extraction	.40	402	90	118	.14	360					
2070-080	Ctgs	MDST, med-dk gy+ 10% MDST, dk gy+ 10% LST, v lt gy+ tr MDST, v dsk red	-										
	Ctgs	After extraction	.75	429	116	77	.08	870					
2080-090	Ctgs	MDST, med-dk gy+ 10% MDST, brn-gy+ 10% LST, v lt gy, OS+ tr MDST, v dsk red	-										
	Ctgs	After extraction	.95	429	197	56	.05	1870					
2090-100	Ctgs	MDST, med-dk gy+ 10% MDST, brn-gy+ 10% LST, v lt gy+ mnr SST, v lt gy+ tr MDST, v dsk red	-										
	Ctgs	After extraction	.78	427	158	92	.05	1230					
2100-110	Ctgs	MDST, med-dk gy+ 10% MDST, brn-gy+ 10% LST, v lt gy	-										
	Ctgs	After extraction	.89	432	194	89	.06	1730					

SUMMARY OF CHEMICAL ANALYSIS DATA

TABLE : 2B

COMPANY: ESSO NORGE WELL: 25/10-7S LOCATION: NORWAY

GENERAL DATA			CHEMICAL ANALYSIS DATA											
SAMPLE DEPTH (Metres)	SAMPLE TYPE	ANALYSED LITHOLOGY	TOC % OF ROCK	PYROLYSIS					SOLVENT EXTRACTION/FRACTIONATION					
				Tmax °C	HI	OI	PI	POT.YLD. (ppm)	EXTR. (ppm)	HC (ppm)	EXTR. % OC	HC %OOC	HC %EX	ALK. %HC
2110-120	Ctgs	MDST, med-dk gy+ 20% MDST, med gy+ 10% LST, v lt gy	-											
	Ctgs	After extraction	1.11	428	143	51	.05	1590						
2120-130	Ctgs	MDST, med-dk gy+ 20% MDST, med gy+ tr LST, v lt gy	-											
	Ctgs	After extraction	1.44	426	160	27	.04	2300						
2130-140	Ctgs	MDST, med-dk gy+ 20% LST v lt gy+ 10% MDST, dk gy	-											
	Ctgs	After extraction	1.35	429	192	43	.04	2590						
2140-150	Ctgs	MDST, med-dk gy+ 20% LST v lt gy	-											
	Ctgs	After extraction	1.41	430	179	26	.04	2530						
2150-160	Ctgs	MDST, med-dk gy+ 20% LST v lt gy+ 10% MDST, med gy	-											
	Ctgs	After extraction	1.45	428	241	34	.06	3490						
2160-170	Ctgs	MDST, med-dk gy+ tr LST, v lt gy	-											
	Ctgs	After extraction	1.17	428	203	31	.04	2380						
2170-180	Ctgs	MDST, med-dk gy+ 20% MDST, med gy+ tr LST, v lt gy	-											
	Ctgs	After extraction	1.14	430	174	26	.03	1980						
2180-190	Ctgs	MDST, med-dk gy+ 20% MDST, med gy+ tr LST, v lt gy	-											
	Ctgs	After extraction	1.35	432	150	24	.04	2030						
2190-200	Ctgs	MDST, med gy+ 20% MDST, med-dk gy+ tr LST, v lt gy	-											
	Ctgs	After extraction	.97	430	120	54	.07	1160						
2205.0	Core	SH, dk gy	.47	448	23	26	.50	110						
2215.0	Core	SH, dk gy+ tr CHK	.38	*	39	42	.42	150						
2226.6	Core	SST, brn-gy, calc	-						4145					
2233.0	Core	SST, brn-gy+ 20% SH, brn-gy	-						13155					
2241.5	Core	SST, pal yel-brn, OS	-						15090					
2245.0	Core	SST, pal yel-brn, OS	-						16400					
2262.0	Core	SST, pal yel-brn, OS	-						16820					

SUMMARY OF CHEMICAL ANALYSIS DATA

TABLE : 2C

COMPANY: ESSO NORGE WELL: 25/10-7S LOCATION: NORWAY

GENERAL DATA			CHEMICAL ANALYSIS DATA											
SAMPLE DEPTH (Metres)	SAMPLE TYPE	ANALYSED LITHOLOGY	TOC % OF ROCK	PYROLYSIS					SOLVENT EXTRACTION/FRACTIONATION					
				Tmax °C	HI	OI	PI	POT.YLD. (ppm)	EXTR. (ppm)	HC (ppm)	EXTR. % OC	HC %OOC	HC %EX	ALK. %HC
2273.0	Core	SST, pal yel-brn, OS	-						16960					
2290.0	Core	SST, lt brn-gy, OS	-						18900					
2342.5	Core	SST, lt brn-gy, OS	-						39710					
2363.0	Core	SST, lt brn-gy, OS	-						7350					
2378.0	Core	SH, med gy	.61	*	52	39	.52	320						
2380-400	Ctgs	MDST, med gy+ 20% LST, v lt gy+ tr MDST, med-dk gy	-											
	Ctgs	After extraction	.58	420	91	64	.15	530						
2400-420	Ctgs	MDST, med gy+ 10% MDST, med-dk gy+ mnr LST, v lt gy	-											
	Ctgs	After extraction	.64	412	78	48	.17	500						
2420-440	Ctgs	MDST, med gy+ 20% LST, v lt gy+ tr MDST, dk gy	-											
	Ctgs	After extraction	.65	420	85	74	.17	550						
2440-460	Ctgs	LST, wht+ 20% MDST, med gy+ 10% SH, dk gy	-											
	Ctgs	After extraction	.47	431	136	132	.09	640						
2460-480	Ctgs	MDST, med gy+ 20% LST, wht	-											
	Ctgs	After extraction	.51	416	86	167	.19	440						
2480-500	Ctgs	LST, v lt gy+ 10% MDST, med gy	-											
	Ctgs	After extraction	.35	427	166	126	.12	580						
2500-520	Ctgs	MDST, med gy+ 20% LST, v lt gy	-											
	Ctgs	After extraction	.38	399	89	176	.29	340						
2520-540	Ctgs	MDST, med-dk gy+ 20% LST v lt gy	-											
	Ctgs	After extraction	.49	410	73	94	.23	360						
2540-560	Ctgs	MDST, med-dk gy+ 20% LST v lt gy	-											
	Ctgs	After extraction	.50	426	70	108	.24	350						
2560-580	Ctgs	MDST, med-dk gy+ 20% LST v lt gy	-											
	Ctgs	After extraction	.48	427	88	108	.13	420						
2580-600	Ctgs	LST, wht+ tr MDST, med-dk gy+ tr LST, med-dk gy	-											

SUMMARY OF CHEMICAL ANALYSIS DATA

TABLE : 2D

COMPANY: ESSO NORGE WELL: 25/10-7S LOCATION: NORWAY

GENERAL DATA			CHEMICAL ANALYSIS DATA											
SAMPLE DEPTH (Metres)	SAMPLE TYPE	ANALYSED LITHOLOGY	TOC % OF ROCK	PYROLYSIS					SOLVENT EXTRACTION/FRACTIONATION					
				Tmax °C	HI	OI	PI	POT.YLD. (ppm)	EXTR. (ppm)	HC (ppm)	EXTR. % OC	HC %OOC	HC %EX	ALK. %HC
2580-600	Ctgs	After extraction	.27	439	304	141	.04	820						
2600-617	Ctgs	LST, wht+ tr LST, med-dk gy	-											
	Ctgs	After extraction	.20	440	335	175	.01	670						

SUMMARY OF CHEMICAL ANALYSIS DATA

TABLE : 2E

COMPANY: ESSO NORGE WELL: 25/10-7S LOCATION: NORWAY

GENERAL DATA			CHEMICAL ANALYSIS DATA								
SAMPLE DEPTH (Metres)	SAMPLE TYPE	ANALYSED LITHOLOGY	TOC % OF ROCK	PYROLYSIS							
				S1 (ppm)	S2 (ppm)	S3 (ppm)	HI	OI	PI	Tmax °C	S2/S3
1700-750	Ctgs	MDST, med-dk gy+ 10% LST, pal yel-brn+ tr LST, wht									
	Ctgs	After extraction	.57	100	350	690	61	121	.22	406	.51
1750-800	Ctgs	MDST, med-dk gy+ tr LST, v lt gy									
	Ctgs	After extraction	.52	40	280	480	54	92	.13	*	.58
1800-850	Ctgs	MDST, med-dk gy+ tr LST, v lt gy									
	Ctgs	After extraction	.50	40	290	310	58	62	.12	408	.94
1850-900	Ctgs	MDST, med-dk gy+ tr LST, v lt gy									
	Ctgs	After extraction	.76	90	670	570	88	75	.12	418	1.18
1900-920	Ctgs	MDST, med-dk gy+ tr LST, v lt gy									
	Ctgs	After extraction	.88	150	1360	720	155	82	.10	420	1.89
1920-940	Ctgs	MDST, med-dk gy+ tr LST, v lt gy									
	Ctgs	After extraction	.92	120	1390	850	151	92	.08	420	1.64
1940-960	Ctgs	MDST, med-dk gy+ tr LST, v lt gy									
	Ctgs	After extraction	.93	100	1560	810	168	87	.06	429	1.93
1960-970	Ctgs	MDST, med-dk gy+ 10% SH, med-dk gy+ tr LST, v lt gy									
	Ctgs	After extraction	.88	60	1330	700	151	80	.04	428	1.90
1970-980	Ctgs	MDST, med-dk gy+ 10% SH, med-dk gy+ 10% LST, v lt gy									
	Ctgs	After extraction	.81	100	1130	670	140	83	.08	425	1.69
1980-990	Ctgs	LST, v lt gy, OS+ 20% MDST, med-dk gy+ 10% SH, med-dk gy									
	Ctgs	After extraction	.79	100	1080	800	137	101	.08	424	1.35
1990-2000	Ctgs	LST, v lt gy, OS+ 20% MDST, med-dk gy+ 10% SH, med-dk gy									
	Ctgs	After extraction	.70	80	2160	890	309	127	.04	429	2.43
2000-010	Ctgs	MDST, med-dk gy+ 20% LST, v lt gy, OS+ 10% SH, med-dk gy									
	Ctgs	After extraction	.51	120	1410	1040	276	204	.08	427	1.36
2010-020	Ctgs	MDST, med-dk gy+ 20% LST, v lt gy, OS									
	Ctgs	After extraction	.49	90	1500	890	306	182	.06	431	1.69

ORGANIC CARBON AND ROCK-EVAL PYROLYSIS DATA

TABLE : 3A

COMPANY: ESSO NORGE WELL: 25/10-7S LOCATION: NORWAY

GENERAL DATA			CHEMICAL ANALYSIS DATA								
SAMPLE DEPTH (Metres)	SAMPLE TYPE	ANALYSED LITHOLOGY	TOC % OF ROCK	PYROLYSIS							
				S1 (ppm)	S2 (ppm)	S3 (ppm)	HI	OI	PI	Tmax °C	S2/S3
2020-030	Ctgs	MDST, med gy+ 20% LST, v lt gy OS+ 10% MDST, v dsk red+ 10% MDST, pal red									
	Ctgs	After extraction	.54	90	1010	780	187	144	.08	422	1.29
2030-040	Ctgs	MDST, med gy+ 20% LST, v lt gy OS+ 10% MDST, v dsk red+ 10% MDST, pal red									
	Ctgs	After extraction	.61	90	1020	690	167	113	.08	419	1.48
2040-050	Ctgs	MDST, med-dk gy+ tr LST, pal yel-brn									
	Ctgs	After extraction	.53	80	610	610	115	115	.12	406	1.00
2050-060	Ctgs	MDST, med-dk gy+ 10% LST, pal yel-brn+ tr MDST, pal red									
	Ctgs	After extraction	.49	70	550	490	112	100	.11	399	1.12
2060-070	Ctgs	MDST, med-dk gy+ 10% LST, pal yel-brn+ tr LST, v lt gy									
	Ctgs	After extraction	.40	60	360	470	90	118	.14	402	.77
2070-080	Ctgs	MDST, med-dk gy+ 10% MDST, dk gy+ 10% LST, v lt gy+ tr MDST, v dsk red									
	Ctgs	After extraction	.75	80	870	580	116	77	.08	429	1.50
2080-090	Ctgs	MDST, med-dk gy+ 10% MDST, brn-gy+ 10% LST, v lt gy, OS+ tr MDST, v dsk red									
	Ctgs	After extraction	.95	100	1870	530	197	56	.05	429	3.53
2090-100	Ctgs	MDST, med-dk gy+ 10% MDST, brn-gy+ 10% LST, v lt gy+ mnr SST, v lt gy+ tr MDST, v dsk red									
	Ctgs	After extraction	.78	70	1230	720	158	92	.05	427	1.71
2100-110	Ctgs	MDST, med-dk gy+ 10% MDST, brn-gy+ 10% LST, v lt gy									
	Ctgs	After extraction	.89	110	1730	790	194	89	.06	432	2.19
2110-120	Ctgs	MDST, med-dk gy+ 20% MDST, med gy+ 10% LST, v lt gy									
	Ctgs	After extraction	1.11	90	1590	570	143	51	.05	428	2.79
2120-130	Ctgs	MDST, med-dk gy+ 20% MDST, med gy+ tr LST, v lt gy									
	Ctgs	After extraction	1.44	100	2300	390	160	27	.04	426	5.90
2130-140	Ctgs	MDST, med-dk gy+ 20% LST, v lt gy+ 10% MDST, dk gy									
	Ctgs	After extraction	1.35	110	2590	580	192	43	.04	429	4.47

ORGANIC CARBON AND ROCK-EVAL PYROLYSIS DATA

TABLE : 3B

COMPANY: ESSO NORGE WELL: 25/10-7S LOCATION: NORWAY

GENERAL DATA			CHEMICAL ANALYSIS DATA								
SAMPLE DEPTH (Metres)	SAMPLE TYPE	ANALYSED LITHOLOGY	TOC % OF ROCK	PYROLYSIS							
				S1 (ppm)	S2 (ppm)	S3 (ppm)	HI	OI	PI	Tmax °C	S2/S3
2140-150	Ctgs	MDST, med-dk gy+ 20% LST, v lt gy									
	Ctgs	After extraction	1.41	100	2530	360	179	26	.04	430	7.03
2150-160	Ctgs	MDST, med-dk gy+ 20% LST, v lt gy+ 10% MDST, med gy									
	Ctgs	After extraction	1.45	240	3490	490	241	34	.06	428	7.12
2160-170	Ctgs	MDST, med-dk gy+ tr LST, v lt gy									
	Ctgs	After extraction	1.17	110	2380	360	203	31	.04	428	6.61
2170-180	Ctgs	MDST, med-dk gy+ 20% MDST, med gy+ tr LST, v lt gy									
	Ctgs	After extraction	1.14	60	1980	300	174	26	.03	430	6.60
2180-190	Ctgs	MDST, med-dk gy+ 20% MDST, med gy+ tr LST, v lt gy									
	Ctgs	After extraction	1.35	90	2030	320	150	24	.04	432	6.34
2190-200	Ctgs	MDST, med gy+ 20% MDST, med-dk gy+ tr LST, v lt gy									
	Ctgs	After extraction	.97	90	1160	520	120	54	.07	430	2.23
2205.0	Core	SH, dk gy	.47	110	110	120	23	26	.50	448	.92
2215.0	Core	SH, dk gy+ tr CHK	.38	110	150	160	39	42	.42	*	.94
2378.0	Core	SH, med gy	.61	340	320	240	52	39	.52	*	1.33
2380-400	Ctgs	MDST, med gy+ 20% LST, v lt gy + tr MDST, med-dk gy									
	Ctgs	After extraction	.58	90	530	370	91	64	.15	420	1.43
2400-420	Ctgs	MDST, med gy+ 10% MDST, med-dk gy+ mnr LST, v lt gy									
	Ctgs	After extraction	.64	100	500	310	78	48	.17	412	1.61
2420-440	Ctgs	MDST, med gy+ 20% LST, v lt gy + tr MDST, dk gy									
	Ctgs	After extraction	.65	110	550	480	85	74	.17	420	1.15
2440-460	Ctgs	LST, wht+ 20% MDST, med gy+ 10% SH, dk gy									
	Ctgs	After extraction	.47	60	640	620	136	132	.09	431	1.03
2460-480	Ctgs	MDST, med gy+ 20% LST, wht									
	Ctgs	After extraction	.51	100	440	850	86	167	.19	416	.52
2480-500	Ctgs	LST, v lt gy+ 10% MDST, med gy									
	Ctgs	After extraction	.35	80	580	440	166	126	.12	427	1.32
2500-520	Ctgs	MDST, med gy+ 20% LST, v lt gy									

ORGANIC CARBON AND ROCK-EVAL PYROLYSIS DATA

TABLE : 3C

COMPANY: ESSO NORGE WELL: 25/10-7S LOCATION: NORWAY

GENERAL DATA			CHEMICAL ANALYSIS DATA								
SAMPLE DEPTH (Metres)	SAMPLE TYPE	ANALYSED LITHOLOGY	TOC % OF ROCK	PYROLYSIS							
				S1 (ppm)	S2 (ppm)	S3 (ppm)	HI	OI	PI	Tmax °C	S2/S3
2500-520	Ctgs	After extraction	.38	140	340	670	89	176	.29	399	.51
2520-540	Ctgs	MDST, med-dk gy+ 20% LST, v lt gy									
	Ctgs	After extraction	.49	110	360	460	73	94	.23	410	.78
2540-560	Ctgs	MDST, med-dk gy+ 20% LST, v lt gy									
	Ctgs	After extraction	.50	110	350	540	70	108	.24	426	.65
2560-580	Ctgs	MDST, med-dk gy+ 20% LST, v lt gy									
	Ctgs	After extraction	.48	60	420	520	88	108	.13	427	.81
2580-600	Ctgs	LST, wht+ tr MDST, med-dk gy+ tr LST, med-dk gy									
	Ctgs	After extraction	.27	30	820	380	304	141	.04	439	2.16
2600-617	Ctgs	LST, wht+ tr LST, med-dk gy									
	Ctgs	After extraction	.20	10	670	350	335	175	.01	440	1.91

ORGANIC CARBON AND ROCK-EVAL PYROLYSIS DATA

TABLE : 3D

COMPANY: ESSO NORGE WELL: 25/10-7S LOCATION: NORWAY

General data				Pyrolysis GC data			
Depth	Sample type	TOC, %	HI	C1, %	C2-C5, %	C6-C14, %	C15+, %
2120m-2130m	Cuttings	1.44	160	6.1	16.4	39.5	38.0
2150m-2160m	Cuttings	1.45	241	5.8	21.2	50.9	22.1

TABLE 4 Pyrolysis gas chromatography data