

David A. Morris 447

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North Sea, Norwegian Sector,  
Albuskjell 2/4-9X Well. Crude  
Oil Characterization  
DAM-28-75

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Attention: C. S. Saunders

Geochemical characterization has been completed on crude oil and natural gas recovered from Danian Limestone during production tests of the Albuskjell 2/4-9X Well, Norwegian Sector, North Sea. These samples include three companion sets taken in DST Nos. 1, 2, and 3, which tested intervals between 3226 and 3368 meters (10,584-11,050 feet); and one gas sample collected from the manifold at the rig floor before reversing out DST 5, which tested an interval between 3222 and 3225 meters (10,570-10,580 feet). The samples were transmitted from the Stavanger office under B. M. Thompson cover letter ASL/eb-69-75.

Conclusions and interpretations resulting from this study are as follows:

1. The crude oil samples are paraffinic with a density ranging between 0.7955 and 0.8050 (API gravity 46.3 - 44.2), a sulfur content of only 0.05 weight per cent, and nitrogen present in a range from 0.05 to 0.11 weight per cent. The asphaltic fraction is generally less than 5.0 weight per cent.
2. The crude oils originated from a common source rock facies which accumulated in a marine environment that sometimes approached brackish conditions. On the basis of previous studies, Paleocene shales are indicated to be the source of Danian-Cretaceous oils in this area.
3. The lone gas sample is wet, that is, contained ethane and higher molecular weight hydrocarbons. The gas is 68 per cent methane, 11 per cent carbon dioxide, about 7 per cent ethane, and 3 per cent propane. The remainder is made up of small amounts of heavier hydrocarbons, none of which constitute over one mol per cent.

These conclusions and interpretations are based on data presented in Tables I through V and Figures 1 through 4.

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DAM:JEF:lf

Attachments: Tables I - V  
Figures 1 - 4

TABLE I

Crude Oil Characterization  
Chemical and Isotopic Properties

Albuskjell 2/4-9X, Norwegian Sector, North Sea

Geochem. Branch Code	API Gravity	Pour Point DEG-F	VISCOSITY		Sulfur, wt %	Nitrogen, wt %	Trace Metals		Total Crude 13 OC PDB	Petroleum Fractions						Odd-Even Predom- inance, OEF	
			70DEG CS	100DEG CS			Vanadium, ppm	Nickel, ppm		Saturates wt %	13 OC PDB	Aromatics wt %	13 OC PDB	Asphaltics wt %	13 OC PDB		
MPU (1)	46.3	0.7935	10.0	2.2	1.7	.05	.05	<.17	.45	-28.5	53.8	-28.5	44.4	-28.0	1.9	-28.2	1.04
MPW (2)	44.2	0.8050	10.0	2.4	1.8	.05	.11	<.11	.75	-28.5	45.4	-28.2	48.1	-28.8	6.5	-29.5	1.02
MPY (3)	44.9	0.8018	0.0	2.9	2.1	.05	.05	<.23	1.38	-28.1	59.5	-28.6	39.0	-28.2	1.5	-27.4	1.00

## DEPTH INTERVAL

- (1) From 3360 - 3368 meters 11,024 - 11,050 feet  
(2) From 3308 - 3368 meters 10,854 - 11,050 feet  
(3) From 3308 - 3368 meters 10,854 - 11,050 feet

Sample MPU = Oil  
Sample MPT = Gas

TABLE II

DST 1, Flow 2

## COMPOSITIONAL ANALYSIS OF OIL, GAS AND COMBINED STREAM

3360-3368 meters  
(11,024-11,050 feet)

From Albuskjell 2/4-9X Well, Norwegian Sector, North Sea

COMPONENT	GAS SAMPLE		LIQUID SAMPLE		COMBINED STREAM	
	WT PCT.	MOL PCT	WT PCT.	MOL PCT	WT PCT.	MOL PCT
HELIUM	0.000	0.000	0.000	0.000	0.000	0.000
HYDROGEN SULFIDE	0.000	0.000	0.000	0.000	0.000	0.0
OXYGEN + ARGON	0.000	0.000	0.003	0.014	0.001	0.001
NITROGEN	0.513	0.370	0.000	0.000	0.272	0.319
CARBON DIOXIDE	4.646	2.131	0.126	0.413	2.540	1.897
METHANE	65.499	82.452	0.980	8.798	35.335	72.411
ETHANE	13.295	8.929	0.748	3.581	7.500	8.200
PROPANE	7.882	3.610	1.283	4.190	4.948	3.689
ISOBUTANE	1.586	0.551	0.627	1.555	1.216	0.687
N-BUTANE	2.990	1.039	1.769	4.382	2.642	1.494
ISOPENTANE	1.034	0.289	1.361	2.715	1.361	0.620
N-PENTANE	1.046	0.293	1.834	3.659	1.650	0.752
NEOHXANE	0.035	0.008	0.085	0.142	0.069	0.026
CYCLOPENTANE	0.034	0.010	0.127	0.261	0.094	0.044
2,3-DIMETHYLBUTANE	0.036	0.008	0.147	0.246	0.107	0.041
2-METHYLPENTANE	0.247	0.057	0.942	1.574	0.693	0.264
3-METHYLPENTANE	0.127	0.029	0.579	0.968	0.413	0.157
N-HEXANE	0.322	0.075	1.848	3.087	1.274	0.4
METHYLCYCLOPENTANE + 2,2-DIMETHYLPENTANE	0.082	0.019	0.612	1.047	0.409	0.159
2,4-DIMETHYLPENTANE	0.014	0.002	0.105	0.151	0.070	0.023
BENZENE + 2,2,3-TRIMETHYLBUTANE	0.042	0.011	0.398	0.734	0.260	0.109
CYCLOHEXANE + 3,3-DIMETHYLPENTANE	0.072	0.017	0.761	1.302	0.492	0.192
2-METHYLHEXANE	0.048	0.009	0.643	0.924	0.410	0.134
2,3-DIMETHYLPENTANE + 1,1-DIHECYCLOPENT.	0.019	0.003	0.241	0.347	0.154	0.050
3-METHYLHEXANE	0.045	0.009	0.654	0.939	0.414	0.135
1-CIS-3-DIMETHYLCYCLOPENTANE	0.008	0.001	0.117	0.172	0.074	0.025
1-TRANS-3-DIMECPENTANE + 5-ETHYLPENTANE	0.009	0.001	0.152	0.223	0.095	0.032
1-TRANS-2-DIMETHYLCYCLOPENTANE	0.012	0.002	0.190	0.278	0.119	0.040
N-HEPTANE	0.089	0.017	1.818	2.612	1.132	0.371
1-CIS-2-DIMETHYLCYCLOPENTANE	0.002	0.000	0.103	0.152	0.063	0.021
MECYHEX + 2,2-DIMETHYL + 1,1,5-TRIMECPENT	0.063	0.013	1.479	2.168	0.916	0.306
2,5-DIMETHYLHEXANE	0.003	0.000	0.092	0.116	0.057	0.016
2,4-DIMETHYLHEXANE + ETHYLCYCLOPENTANE	0.006	0.001	0.177	0.223	0.109	0.031

2,2,3-TRIMETHYLPENTANE	0.000	0.000	0.006	0.008	0.003	0.001
1-TRANS-2-CIS-4-TRIMETHYLCYCLOPENTANE	0.001	0.000	0.062	0.080	0.038	0.011
3,3-DIMETHYLHEXANE	0.000	0.000	0.035	0.044	0.021	0.006
TOLUENE	0.026	0.005	1.213	1.895	0.738	0.263
1-TRANS-2-CIS-3-TRIMETHYLCYCLOPENTANE	0.001	0.000	0.040	0.051	0.024	0.007
2,3,4-TRIMETHYLPENTANE	0.000	0.000	0.005	0.007	0.003	0.001
2,3-DIMEHEX+2,3,3-TRIMEPENT+2-ME3-ETPENT	0.001	0.000	0.103	0.130	0.062	0.018
2-METHYLHEPTANE + 4-METHYLHEPTANE	0.012	0.002	0.635	0.800	0.386	0.111
3,4-DIMEHEX + 1-CIS-2-TRAN-4-TRIMECYPENT	0.004	0.000	0.205	0.258	0.124	0.035
3-ETHYLHEXANE	0.000	0.000	0.030	0.039	0.018	0.005
3-METHYLHEPTANE + 3-ME-3-ETHYLPENTANE	0.010	0.001	0.569	0.717	0.345	0.099
2,2,5-TRIMEHEX+1,1,3-TR-4-TETRAMECYPENT.	0.000	0.000	0.022	0.025	0.013	0.003
1-CIS-2-CIS-4-TRIMETHYLCYCLOPENTANE	0.000	0.000	0.014	0.018	0.008	0.002
1-TRANS-4 + 1-CIS-3 + 1,1-DIMECYHEXANE	0.008	0.001	0.445	0.572	0.270	0.079
1-ME-3-ETHCYPENT + 2,2,4-TRIMETHYLHEXANE	0.001	0.000	0.078	0.101	0.047	0.01
1-ME-TRANS-2 + 1-ME-CIS-3-ETHYLCYPENTANE	0.000	0.000	0.053	0.068	0.031	0.007
CYCLOHEPTANE	0.000	0.000	0.013	0.020	0.008	0.002
N-OCTANE + 1-TRANS-2-DIMETHYLCYCLOHEXANE	0.020	0.003	1.589	2.003	0.959	0.276
1-CIS-4-DIMETHYLCYCLOHEXANE	0.003	0.000	0.171	0.219	0.103	0.030
1-TRANS-3-DIMETHYLCYCLOHEXANE	0.001	0.000	0.085	0.109	0.051	0.015
2,2,4-TRIMEHEXANE + ISOPROPYLCYCLOPENT.	0.000	0.000	0.022	0.025	0.013	0.003
2,3,5-TRIMEHEXANE + 2,2-DIMETHYLHEPTANE	0.000	0.000	0.049	0.055	0.029	0.007
1-METHYL-CIS-2-ETHYLCYCLOPENTANE	0.000	0.000	0.103	0.132	0.061	0.018
2,4-DIMEHEPTANE + 2,2,3-TRIMETHYLHEXANE	0.001	0.000	0.175	0.196	0.105	0.027
2,6-DIMEHEPTANE + 1-CIS-2-DIMECYHEXANE	0.000	0.000	0.043	0.049	0.026	0.006
N-PROPYLCYPENT + 2,5- + 3,5-DIMEHEPTANE	0.001	0.000	0.197	0.253	0.118	0.034
ETHYLCYCLOHEXANE	0.003	0.000	0.379	0.486	0.228	0.066
ETHYLBENZENE	0.000	0.000	0.138	0.187	0.082	0.025
3,3-DIMETHYLHEPTANE + 1,1,3-TRIMECYHEXANE	0.000	0.000	0.156	0.175	0.093	0.023
2,3,3-TRIMETHYLHEXANE	0.000	0.000	0.029	0.033	0.017	0.004
2-METHYL-3-ETHYLHEXANE	0.000	0.000	0.013	0.015	0.008	0.002
P-XYLENE	0.001	0.000	0.408	0.554	0.245	0.0
M-XYLENE + 2,3,4-TRIMETHYLHEXANE	0.004	0.000	0.926	1.256	0.555	0.172
2,3- + 3,4-DIMETHYLHEPTANE	0.000	0.000	0.072	0.081	0.043	0.011
4-METHYLOCTANE	0.001	0.000	0.359	0.403	0.215	0.055
2-METHYLOCTANE	0.001	0.000	0.314	0.352	0.188	0.048
3-ETHYLHEPTANE	0.000	0.000	0.053	0.060	0.032	0.008
3-METHYLOCTANE	0.001	0.000	0.334	0.375	0.200	0.051
O-XYLENE ( + A C-10 ALKANE)	0.001	0.000	0.381	0.517	0.228	0.070
2,2,4-TRIMETHYLHEPTANE	0.000	0.000	0.031	0.031	0.018	0.004
2,2,5-TRIMETHYLHEPTANE	0.000	0.000	0.046	0.047	0.028	0.006
2,2,6-TRIMETHYLHEPTANE	0.000	0.000	0.007	0.007	0.004	0.001
*** UNKNOWN ***	0.000	0.000	0.038	0.038	0.022	0.005

2,5,5-TRIMETHYLHEPTANE	0.000	0.000	0.026	0.026	0.015	0.003
2,4,4-TRIMETHYLHEPTANE	0.000	0.000	0.016	0.017	0.010	0.002
*** A C-9 NAPHTHENE ***	0.000	0.000	0.144	0.165	0.086	0.022
ISOPROPYLBENZENE	0.000	0.000	0.079	0.095	0.047	0.013
N-NONANE	0.003	0.000	1.494	1.677	0.894	0.229
C-9 NAPHTHENES + C-10 ALKANES	0.005	0.000	2.254	2.571	1.348	0.351
N-PROPYLBENZENE	0.000	0.000	0.039	0.046	0.023	0.006
1-METHYL-3-ETHYLBENZENE	0.000	0.000	0.228	0.273	0.136	0.037
1-METHYL-4-ETHYLBENZENE	0.000	0.000	0.097	0.116	0.058	0.015
1-METHYL-2-ETHYLBENZENE	0.000	0.000	0.278	0.333	0.166	0.045
1,3,5-TRIMETHYLBENZENE	0.000	0.000	0.470	0.563	0.281	0.076
1,2,4-TRIMETHYLBENZENE	0.000	0.000	0.428	0.512	0.256	0.0
1,2,3-TRIMETHYLBENZENE	0.000	0.000	0.134	0.161	0.080	0.0
N-DECANE	0.000	0.000	1.389	1.405	0.829	0.191
UNDECANES AND HEAVIER	0.056	0.006	63.232	32.534	25.027	4.441

MOL PERCENT C6'S = 1.482

MOL PERCENT C7+ = 8.442

Sample MPW = Oil  
Sample MPV = Gas

TABLE III

COMPOSITIONAL ANALYSIS OF OIL, GAS AND COMBINED STREAM  
From Albuskjell 2/4-9X Well, Norwegian Sector, North Sea  
DST 2, Flow 2, 3308 - 3368 meters (10,854 - 11,050 feet)

COMPONENT	GAS SAMPLE		LIQUID SAMPLE		COMBINED STREAM	
	WT PCT.	MOL PCT	WT PCT.	MOL PCT	WT PCT.	MOL PCT
HELIUM	0.000	0.000	0.000	0.000	0.000	0.000
HYDROGEN SULFIDE	0.000	0.000	0.000	0.000	0.000	0.000
OXYGEN + ARGON	0.000	0.000	0.004	0.014	0.002	0.000
NITROGEN	0.530	0.379	0.000	0.000	0.285	0.319
CARBON DIOXIDE	4.449	2.024	0.344	0.887	2.584	1.845
METHANE	67.040	83.697	3.519	24.895	37.995	74.427
ETHANE	12.176	8.110	1.473	5.562	7.376	7.708
PROPANE	7.073	3.212	1.831	4.713	4.840	3.449
ISOBUTANE	1.515	0.522	0.735	1.435	1.232	0.666
N-BUTANE	2.827	0.974	1.896	3.703	2.597	1.404
ISOPENTANE	1.091	0.302	1.250	1.966	1.297	0.565
N-PENTANE	1.180	0.327	1.606	2.527	1.548	0.674
NEOHXANE	0.042	0.009	0.078	0.102	0.067	0.024
CYCLOPENTANE	0.043	0.012	0.113	0.184	0.088	0.039
2,3-DIMETHYLBUTANE	0.046	0.010	0.132	0.174	0.100	0.036
2-METHYLPENTANE	0.315	0.073	0.847	1.115	0.651	0.237
3-METHYLPENTANE	0.166	0.038	0.530	0.698	0.391	0.142
N-HEXANE	0.431	0.100	1.635	2.153	1.162	0.423
METHYLCYCLOPENTANE + 2,2-DIMETHYLPENTANE	0.106	0.025	0.564	0.761	0.378	0.1
2,4-DIMETHYLPENTANE	0.019	0.003	0.098	0.111	0.066	0.020
BENZENE + 2,2,3-TRIMETHYLBUTANE	0.060	0.015	0.394	0.572	0.256	0.103
CYCLOHEXANE + 3,3-DIMETHYLPENTANE	0.092	0.021	0.716	0.966	0.457	0.170
2-METHYLHEXANE	0.066	0.013	0.611	0.692	0.383	0.120
2,3-DIMETHYLPENTANE + 1,1-DIMECYCLOPENT.	0.025	0.005	0.230	0.260	0.144	0.045
3-METHYLHEXANE	0.060	0.012	0.624	0.706	0.387	0.121
1-CIS-3-DIMETHYLCYCLOPENTANE	0.010	0.002	0.110	0.128	0.069	0.022
1-TRANS-3-DIMECPENTANE + 3-ETHYLPENTANE	0.012	0.002	0.144	0.167	0.089	0.028
1-TRANS-2-DIMETHYLCYCLOPENTANE	0.015	0.003	0.180	0.208	0.111	0.035
N-HEPTANE	0.120	0.024	1.696	1.921	1.030	0.323
1-CIS-2-DIMETHYLCYCLOPENTANE	0.003	0.000	0.096	0.111	0.057	0.018
MECYHEX + 2,2-DIMEHEX + 1,1,3-TRIMECPENT	0.077	0.015	1.405	1.624	0.841	0.269
2,5-DIMETHYLHEXANE	0.004	0.000	0.090	0.089	0.053	0.014
2,4-DIMETHYLHEXANE + ETHYLCYCLOPENTANE	0.008	0.001	0.174	0.173	0.103	0.028

## (2) TABLE III (Continued)

Attachment to DAM-28-75

2,2,3-TRIMETHYLPENTANE	0.000	0.000	0.007	0.007	0.004	0.001
1-TRANS-2-CIS-4-TRIMETHYLCYCLOPENTANE	0.002	0.000	0.060	0.060	0.035	0.009
3,3-DIMETHYLHEXANE	0.001	0.000	0.033	0.033	0.019	0.005
TOLUENE	0.038	0.008	1.176	1.448	0.690	0.235
1-TRANS-2-CIS-3-TRIMETHYLCYCLOPENTANE	0.002	0.000	0.032	0.032	0.019	0.005
2,3,4-TRIMETHYLPENTANE	0.000	0.000	0.006	0.006	0.003	0.001
2,3-DIMEHEX+2,3,3-TRIMEPENT+2-ME3-ETPENT	0.002	0.000	0.103	0.103	0.060	0.016
2-METHYLHEPTANE + 4-METHYLHEPTANE	0.015	0.002	0.624	0.620	0.363	0.100
3,4-DIMEHEX + 1-CIS-2-TRAN-4-TRIMECYPENT	0.005	0.000	0.201	0.200	0.117	0.032
3-ETHYLHEXANE	0.000	0.000	0.030	0.030	0.017	0.004
3-METHYLHEPTANE + 3-ME-3-ETHYLPENTANE	0.012	0.002	0.560	0.557	0.325	0.089
2,2,5-TRIMEHEX+1,1,3-TR-4-TETRAMECYPENT.	0.000	0.000	0.021	0.018	0.012	0.002
1-CIS-2-CIS-4-TRIMETHYLCYCLOPENTANE	0.000	0.000	0.013	0.013	0.007	0.002
1-TRANS-4 + 1-CIS-3 + 1,1-DIMECYHEXANE	0.008	0.001	0.434	0.439	0.251	0.070
1-ME-3-ETHCYPENT + 2,2,4-TRIMETHYLHEXANE	0.001	0.000	0.074	0.074	0.042	0.017
1-ME-TRANS-2 + 1-ME-CIS-3-ETHYLCYPENTANE	0.000	0.000	0.050	0.051	0.028	0.001
CYCLOHEPTANE	0.000	0.000	0.013	0.015	0.007	0.002
N-OCTANE + 1-TRANS-2-DIMETHYLCYCLOHEXANE	0.021	0.003	1.564	1.553	0.901	0.248
1-CIS-4-DIMETHYLCYCLOHEXANE	0.003	0.000	0.150	0.152	0.087	0.024
1-TRANS-3-DIMETHYLCYCLOHEXANE	0.001	0.000	0.085	0.086	0.049	0.013
2,2,4-TRIMEHEXANE + ISOPROPYLCYCLOPENT.	0.000	0.000	0.081	0.071	0.046	0.011
2,3,5-TRIMEHEXANE + 2,2-DIMETHYLHEPTANE	0.000	0.000	0.057	0.051	0.032	0.008
1-METHYL-CIS-2-ETHYLCYCLOPENTANE	0.000	0.000	0.105	0.106	0.059	0.016
2,4-DIMEHEPTANE + 2,2,3-TRIMETHYLHEXANE	0.001	0.000	0.172	0.152	0.098	0.024
2,6-DIMEHEPTANE + 1-CIS-2-DIMECYHEXANE	0.000	0.000	0.042	0.037	0.024	0.005
N-PROPYLCYPENT + 2,5- + 3,5-DIMEHEPTANE	0.001	0.000	0.196	0.198	0.112	0.031
ETHYLCYCLOHEXANE	0.003	0.000	0.373	0.377	0.214	0.060
ETHYLBENZENE	0.000	0.000	0.135	0.145	0.077	0.022
3,3-DIMETHYLHEPTANE + 1,1,3-TRIMECYHEXANE	0.000	0.000	0.153	0.136	0.087	0.021
2,3,3-TRIMETHYLHEXANE	0.000	0.000	0.031	0.027	0.017	0.004
2-METHYL-3-ETHYLHEXANE	0.000	0.000	0.016	0.014	0.009	0.002
P-XYLENE	0.001	0.000	0.399	0.426	0.228	0.06
M-XYLENE + 2,3,4-TRIMETHYLHEXANE	0.004	0.000	0.920	0.984	0.526	0.155
2,3- + 3,4-DIMETHYLHEPTANE	0.000	0.000	0.063	0.056	0.036	0.008
4-METHYLOCTANE	0.001	0.000	0.369	0.326	0.210	0.051
2-METHYLOCTANE	0.001	0.000	0.312	0.276	0.178	0.043
3-ETHYLHEPTANE	0.000	0.000	0.052	0.046	0.030	0.007
3-METHYLOCTANE	0.001	0.000	0.331	0.293	0.189	0.046
O-XYLENE ( + A C-10 ALKANE)	0.001	0.000	0.371	0.396	0.211	0.062
2,2,4-TRIMETHYLHEPTANE	0.000	0.000	0.025	0.020	0.014	0.003
2,2,5-TRIMETHYLHEPTANE	0.000	0.000	0.043	0.034	0.024	0.005
2,2,6-TRIMETHYLHEPTANE	0.000	0.000	0.006	0.005	0.003	0.000
*** UNKNOWN ***	0.000	0.000	0.034	0.027	0.019	0.004

2,5,5-TRIMETHYLHEPTANE	0.000	0.000	0.024	0.019	0.013	0.003
2,4,4-TRIMETHYLHEPTANE	0.000	0.000	0.015	0.012	0.008	0.001
*** A C-9 NAPHTHENE ***	0.000	0.000	0.141	0.127	0.080	0.020
ISOPROPYLBENZENE	0.000	0.000	0.075	0.071	0.042	0.011
N-NONANE	0.003	0.000	1.468	1.299	0.837	0.205
C-9 NAPHTHENES + C-10 ALKANES	0.003	0.000	2.296	2.063	1.308	0.325
N-PROPYLBENZENE	0.000	0.000	0.039	0.037	0.022	0.005
1-METHYL-3-ETHYLBENZENE	0.000	0.000	0.226	0.213	0.128	0.033
1-METHYL-4-ETHYLBENZENE	0.000	0.000	0.095	0.089	0.054	0.014
1-METHYL-2-ETHYLBENZENE	0.000	0.000	0.269	0.253	0.153	0.040
1,3,5-TRIMETHYLBENZENE	0.000	0.000	0.462	0.436	0.263	0.068
1,2,4-TRIMETHYLBENZENE	0.000	0.000	0.426	0.403	0.242	0.067
1,2,3-TRIMETHYLBENZENE	0.000	0.000	0.127	0.120	0.072	0.011
N-DECANE	0.000	0.000	1.402	1.118	0.798	0.176
UNDECANES AND HEAVIER	0.244	0.028	60.242	25.375	23.813	4.024

MOL PERCENT C6'S = 1.320

MOL PERCENT C7+ = 7.615



Sample MPY = Oil  
Sample MPX = Gas

TABLE IV

COMPOSITIONAL ANALYSIS OF OIL, GAS AND COMBINED STREAM  
From Albuskjell 2/4-9X Well, Norwegian Sector, North Sea  
DST 3, Flow 2, 3326 - 3368 meters (10,584 - 11,050 feet)

COMPONENT	GAS SAMPLE		LIQUID SAMPLE		COMBINED STREAM	
	WT PCT.	MOL PCT	WT PCT.	MOL PCT	WT PCT.	MOL PCT
HELIUM	0.000	0.000	0.000	0.000	0.000	0.000
HYDROGEN SULFIDE	0.000	0.000	0.000	0.000	0.000	0.000
OXYGEN + ARGON	0.000	0.000	0.001	0.005	0.000	0.000
NITROGEN	0.458	0.335	0.000	0.000	0.269	0.296
CARBON DIOXIDE	5.990	2.790	0.211	0.680	3.629	2.546
METHANE	64.477	82.381	0.986	8.691	38.379	73.859
ETHANE	12.090	8.241	0.963	4.526	7.608	7.812
PROPANE	7.143	3.320	1.566	5.020	5.023	3.517
ISOBUTANE	1.601	0.564	0.722	1.756	1.322	0.702
N-BUTANE	2.856	1.007	1.933	4.700	2.700	1.434
ISOPENTANE	1.194	0.339	1.354	2.653	1.418	0.606
N-PENTANE	1.268	0.360	1.710	3.349	1.650	0.706
NEOHXANE	0.052	0.012	0.082	0.135	0.074	0.026
CYCLOPENTANE	0.053	0.015	0.120	0.243	0.095	0.041
2,3-DIMETHYLBUTANE	0.061	0.014	0.141	0.231	0.110	0.039
2-METHYLPENTANE	0.412	0.098	0.892	1.464	0.714	0.255
3-METHYLPENTANE	0.224	0.053	0.561	0.919	0.428	0.153
N-HEXANE	0.603	0.143	1.676	2.748	1.241	0.444
METHYLCYCLOPENTANE + 2,2-DIMETHYLPENTANE	0.157	0.038	0.591	0.993	0.405	0.14
2,4-DIMETHYLPENTANE	0.029	0.005	0.103	0.145	0.071	0.022
BENZENE + 2,2,3-TRIMETHYLBUTANE	0.093	0.024	0.409	0.740	0.271	0.107
CYCLOHEXANE + 3,3-DIMETHYLPENTANE	0.149	0.036	0.743	1.247	0.480	0.176
2-METHYLHEXANE	0.114	0.023	0.633	0.893	0.402	0.124
2,3-DIMETHYLPENTANE + 1,1-DIMECYCLOPENT.	0.043	0.008	0.238	0.336	0.152	0.046
3-METHYLHEXANE	0.107	0.022	0.646	0.911	0.405	0.124
1-CIS-3-DIMETHYLCYCLOPENTANE	0.020	0.004	0.116	0.167	0.073	0.023
1-TRANS-3-DIMECYPENTANE + 3-ETHYLPENTANE	0.023	0.004	0.150	0.216	0.093	0.029
1-TRANS-2-DIMETHYLCYCLOPENTANE	0.028	0.006	0.187	0.269	0.116	0.036
N-HEPTANE	0.228	0.046	1.718	2.423	1.043	0.321
1-CIS-2-DIMETHYLCYCLOPENTANE	0.007	0.001	0.102	0.147	0.058	0.018
MECYHEX + 2,2-DIMEHEX + 1,1,3-TRIMECYPENT	0.151	0.031	1.429	2.057	0.845	0.266
2,5-DIMETHYLHEXANE	0.010	0.001	0.092	0.114	0.055	0.014
2,4-DIMETHYLHEXANE + METHYLCYCLOPENTANE	0.016	0.002	0.180	0.222	0.104	0.028

## (2) TABLE IV (Continued)

Attachment to DAM-28-75

2,2,3-TRIMETHYLPENTANE	0.000	0.000	0.008	0.010	0.004	0.001
1-TRANS-2-CIS-4-TRIMETHYLCYCLOPENTANE	0.004	-0.000	0.061	0.077	0.035	0.009
3,3-DIMETHYLHEXANE	0.002	0.000	0.035	0.043	0.020	0.005
TOLUENE	0.085	0.018	1.210	1.856	0.690	0.231
1-TRANS-2-CIS-3-TRIMETHYLCYCLOPENTANE	0.004	0.000	0.029	0.037	0.018	0.005
2,3,4-TRIMETHYLPENTANE	0.000	0.000	0.006	0.008	0.003	0.000
2,3-DIMEHEX+2,3,3-TRIMEPENT+2-ME3-ETPENT	0.005	0.000	0.105	0.130	0.059	0.015
2-METHYLHEPTANE + 4-METHYLHEPTANE	0.032	0.005	0.637	0.788	0.356	0.096
3,4-DIMEHEX + 1-CIS-2-TRAN-4-TRIMECYPENT	0.011	0.002	0.205	0.254	0.115	0.031
3-ETHYLHEXANE	0.001	0.000	0.030	0.037	0.017	0.004
3-METHYLHEPTANE + 3-ME-3-ETHYLPENTANE	0.028	0.005	0.572	0.707	0.319	0.086
2,2,5-TRIMEHEX+1,1,3-TR-4-TETRAMECYPENT.	0.000	0.000	0.021	0.023	0.011	0.002
1-CIS-2-CIS-4-TRIMETHYLCYCLOPENTANE	0.000	0.000	0.014	0.018	0.008	0.002
1-TRANS-4 + 1-CIS-3 + 1,1-DIMECYHEXANE	0.019	0.003	0.443	0.557	0.245	0.067
1-ME-3-ETHCYPENT + 2,2,4-TRIMETHYLHEXANE	0.003	0.000	0.076	0.096	0.042	0.01
1-ME-TRANS-2 + 1-ME-CIS-3-ETHYLCYPENTANE	0.001	0.000	0.052	0.065	0.028	0.00
CYCLOHEPTANE	0.000	0.000	0.013	0.019	0.007	0.002
N-OCTANE + 1-TRANS-2-DIMETHYLCYCLOHEXANE	0.047	0.008	1.572	1.945	0.860	0.232
1-CIS-4-DIMETHYLCYCLOHEXANE	0.007	0.001	0.158	0.198	0.088	0.024
1-TRANS-3-DIMETHYLCYCLOHEXANE	0.003	0.000	0.088	0.111	0.048	0.013
2,2,4-TRIMEHEXANE + ISOPROPYLCYCLOPENT.	0.000	0.000	0.020	0.022	0.010	0.002
2,3,5-TRIMEHEXANE + 2,2-DIMETHYLHEPTANE	0.001	0.000	0.048	0.053	0.026	0.006
1-METHYL-CIS-2-ETHYLCYCLOPENTANE	0.001	0.000	0.107	0.134	0.057	0.015
2,4-DIMEHEPTANE + 2,2,3-TRIMETHYLHEXANE	0.003	0.000	0.175	0.193	0.094	0.022
2,6-DIMEHEPTANE + 1-CIS-2-DIMECYHEXANE	0.000	0.000	0.043	0.048	0.023	0.005
N-PROPYLCYPENT + 2,5- + 3,5-DIMEHEPTANE	0.003	0.000	0.200	0.251	0.107	0.029
ETHYLCYCLOHEXANE	0.007	0.001	0.378	0.476	0.205	0.056
ETHYLBENZENE	0.002	0.000	0.142	0.189	0.076	0.022
3,3-DIMETHYLHEPTANE + 1,1,3-TRIMECYHEXANE	0.001	0.000	0.157	0.173	0.084	0.020
2,3,3-TRIMETHYLHEXANE	0.000	0.000	0.031	0.034	0.016	0.004
2-METHYL-3-ETHYLHEXANE	0.000	0.000	0.014	0.016	0.007	0.001
P-XYLENE	0.004	0.000	0.403	0.536	0.216	0.06
M-XYLENE + 2,3,4-TRIMETHYLHEXANE	0.012	0.002	0.926	1.232	0.497	0.144
2,3- + 3,4-DIMETHYLHEPTANE	0.000	0.000	0.074	0.081	0.039	0.009
4-METHYLOCTANE	0.003	0.000	0.363	0.400	0.194	0.046
2-METHYLOCTANE	0.002	0.000	0.314	0.346	0.168	0.040
3-ETHYLHEPTANE	0.000	0.000	0.053	0.059	0.028	0.006
3-METHYLOCTANE	0.002	0.000	0.339	0.373	0.181	0.043
O-XYLENE ( + A C-10 ALKANE)	0.002	0.000	0.383	0.510	0.204	0.059
2,2,4-TRIMETHYLHEPTANE	0.000	0.000	0.032	0.032	0.017	0.003
2,2,5-TRIMETHYLHEPTANE	0.000	0.000	0.051	0.050	0.027	0.005
2,2,6-TRIMETHYLHEPTANE	0.000	0.000	0.008	0.008	0.004	0.001
*** UNKNOWN ***	0.000	0.000	0.043	0.042	0.022	0.004

,5,5-TRIMETHYLHEPTANE	0.000	0.000	0.030	0.030	0.016	0.003
,4,4-TRIMETHYLHEPTANE	0.000	0.000	0.020	0.020	0.011	0.002
** A C-9 NAPHTHENE ***	0.000	0.000	0.152	0.170	0.081	0.019
SOPROPYLBENZENE	0.000	0.000	0.086	0.102	0.045	0.011
I-NONANE	0.007	0.001	1.493	1.645	0.794	0.191
-9 NAPHTHENES + C-10 ALKANES	0.002	0.000	2.929	3.279	1.551	0.379
I-PROPYLBENZENE	0.000	0.000	0.062	0.072	0.032	0.008
-METHYL-3-ETHYLBENZENE	0.000	0.000	0.256	0.302	0.136	0.034
-METHYL-4-ETHYLBENZENE	0.000	0.000	0.132	0.156	0.070	0.018
-METHYL-2-ETHYLBENZENE	0.000	0.000	0.314	0.369	0.166	0.042
,3,5-TRIMETHYLBENZENE	0.000	0.000	0.512	0.602	0.271	0.069
,2,4-TRIMETHYLBENZENE	0.000	0.000	0.461	0.542	0.244	0.062
,2,3-TRIMETHYLBENZENE	0.000	0.000	0.149	0.176	0.079	0.020
I-DECANE	0.000	0.000	1.454	1.444	0.769	0.167
INDECANES AND HEAVIER	0.004	0.000	62.008	30.807	21.183	3.563

IDL PERCENT C6'S = 1.395

IDL PERCENT C7+ = 7.123

TABLE V

COMPOSITIONAL ANALYSIS OF GAS SAMPLE MPZ RECOVERED FROM DST 5, FLOW 4,  
3225 - 3322 meters (10,570 - 10,580 feet) in ALBUSKJELL 2/4-9X WELL, Norwegian Sector, North Sea  
GAS SAMPLE ANALYSIS

COMPONENT	WEIGHT PERCENT	MOL PERCENT
HELIUM	0.0000	0.0000
HYDROGEN SULFIDE	0.0000	0.0000
OXYGEN + ARGON	0.0000	0.0000
NITROGEN	1.0963	0.9769
CARBON DIOXIDE	30.1838	17.1216
METHANE	43.7039	68.0118
ETHANE	8.3356	6.9208
PROPANE	5.3373	3.0218
ISOBUTANE	1.0655	0.4576
N-BUTANE	3.1253	1.3424
ISOPENTANE	1.1691	0.4045
N-PENTANE	1.5973	0.5527
METHEXANE	0.0212	0.0061
CYCLOPENTANE	0.1284	0.0457
2,3-DIMETHYLBUTANE	0.0299	0.0086
2-METHYLPENTANE	0.5055	0.1464
3-METHYLPENTANE	0.2930	0.0849
N-HEXANE	0.7973	0.2310
METHYLCYCLOPENTANE + 2,2-DIMETHYLPENTANE	0.2778	0.0824
2,4-DIMETHYLPENTANE	0.0391	0.0097
BENZENE + 2,2,3-TRIMETHYLBUTANE	0.1147	0.0366
CYCLOHEXANE + 3,3-DIMETHYLPENTANE	0.2705	0.0802
2-METHYLHEXANE	0.1344	0.0355
2,3-DIMETHYLPENTANE + 1,1-DIMECYCLOPENT.	0.0781	0.0194
3-METHYLHEXANE	0.1452	0.0361
1-CIS-3-DIMETHYLCYCLOPENTANE	0.0437	0.0111
1-TRANS-3-DIMECPENTANE + 3-ETHYLPENTANE	0.0481	0.0122
1-TRANS-2-DIMETHYLCYCLOPENTANE	0.0786	0.0199
N-HEPTANE	0.3458	0.0861
1-CIS-2-DIMETHYLCYCLOPENTANE	0.0133	0.0033
METHYCYCLOHEXANE + 2,2-DIMEHEX + 1,1,3-TRIMECPENT	0.3274	0.0832
2,5-DIMETHYLHEXANE	0.0148	0.0032
2,4-DIMETHYLHEXANE + METHYLCYCLOPENTANE	0.0340	0.0074
2,2,3-TRIMETHYLPENTANE	0.0015	0.0003
1-TRANS-2-CIS-4-TRIMETHYLCYCLOPENTANE	0.0143	0.0031

,3-DIMETHYLHEXANE	0.0026	0.0005
OLUENE	0.0577	0.0156
-TRANS-2-CIS-3-TRIMETHYLCYCLOPENTANE	0.0069	0.0015
,3,4-TRIMETHYLHEPTANE	0.0000	0.0000
,3-DIMEHEX+2,3,3-TRIMEPENT+2-ME3-ETPENT	0.0144	0.0031
-METHYLHEPTANE + 4-METHYLHEPTANE	0.0643	0.0140
,4-DIMEHEX + 1-CIS-2-TRAN-4-TRIMECYPENT	0.0197	0.0043
-ETHYLHEXANE	0.0041	0.0009
-METHYLHEPTANE + 3-ME-3-ETHYLPENTANE	0.0436	0.0095
,2,5-TRIMEHEX+1,1,3-TR-4-TETRAMECYPENT.	0.0023	0.0004
-CIS-2-CIS-4-TRIMETHYLCYCLOPENTANE	0.0031	0.0006
-TRANS-4 + 1-CIS-3 + 1,1-DIMECYHEXANE	0.0601	0.0133
-ME-3-ETHCYPENT + 2,2,4-TRIMETHYLHEXANE	0.0111	0.0024
-ME-TRANS-2 + 1-ME-CIS-3-ETHYLCYPENTANE	0.0128	0.0028
YCLOHEPTANE	0.0031	0.0007
-OCTANE + 1-TRANS-2-DIMETHYLCYCLOHEXANE	0.0995	0.0217
-CIS-4-DIMETHYLCYCLOHEXANE	0.0282	0.0062
-TRANS-3-DIMETHYLCYCLOHEXANE	0.0107	0.0024
,2,4-TRIMEHEXANE + ISOPROPYLCYCLOPENT.	0.0019	0.0003
,3,5-TRIMEHEXANE + 2,2-DIMETHYLHEPTANE	0.0015	0.0003
-METHYL-CIS-2-ETHYLCYCLOPENTANE	0.0045	0.0010
,4-DIMEHEPTANE + 2,2,3-TRIMETHYLHEXANE	0.0094	0.0018
,6-DIMEHEPTANE + 1-CIS-2-DIMECYHEXANE	0.0112	0.0021
-PROPYLCYPENT + 2,5- + 3,5-DIMEHEPTANE	0.0007	0.0001
THYLCYCLOHEXANE	0.0276	0.0061
THYLBENZENE	0.0035	0.0008
,3-DIMETHYLHEPTANE +1,1,3-TRIMECYHEXANE	0.0126	0.0024
,3,3-TRIMETHYLHEXANE	0.0027	0.0005
-METHYL-3-ETHYLHEXANE	0.0017	0.0003
-XYLENE	0.0085	0.0020
-XYLENE + 2,3,4-TRIMETHYLHEXANE	0.0088	0.0020
,3- + 3,4-DIMETHYLHEPTANE	0.0023	0.0004
-METHYLOCTANE	0.0112	0.0021
-METHYLOCTANE	0.0067	0.0013
-ETHYLHEPTANE	0.0011	0.0002
-METHYLOCTANE	0.0062	0.0012
-XYLENE ( + A C-10 ALKANE)	0.0044	0.0010
,2,4-TRIMETHYLHEPTANE	0.0000	0.0000
,2,5-TRIMETHYLHEPTANE	0.0000	0.0000
,2,6-TRIMETHYLHEPTANE	0.0000	0.0000
** UNKNOWN **	0.0022	0.0003
,2,5,5-TRIMETHYLHEPTANE	0.0000	0.0000
,2,4,4-TRIMETHYLHEPTANE	0.0014	0.0002

** A C-9 NAPHTHENE ***	0.0044	0.0008
SUPROPYL BENZENE	0.0021	0.0004
-TURANE	0.0206	0.0040
-9 NAPHTHENES + C-10 ALKANES	0.0217	0.0043
-PROPYLBENZENE	0.0000	0.0000
-METHYL-3-ETHYLBENZENE	0.0006	0.0001
-METHYL-4-ETHYLBENZENE	0.0000	0.0000
-METHYL-2-ETHYLBENZENE	0.0008	0.0001
,3,5-TRIMETHYLBENZENE	0.0000	0.0000
,2,4-TRIMETHYLBENZENE	0.0007	0.0001
,2,3-TRIMETHYLBENZENE	0.0000	0.0000
-DECANE	0.0000	0.0000
NDECANES AND HEAVIER	0.0011	0.0001

UL PERCENT C6'S = 0.522

UL PERCENT C7+ = 0.667

FIG. 1. COMPONENT COMPOSITION OF CRUDE OIL  
THROUGH H-DECANE, BP = 345.4F (= 174.1C)  
Albankjall 2/4-21 Well, Norwegian Sector, North Sea.

DST 1, Flow 2 DST 2, Flow 2 DST 3, Flow 2 DST 5, Flow 4  
Sample MPY-U Sample MPY-W Sample MPY-Y Sample MPZ

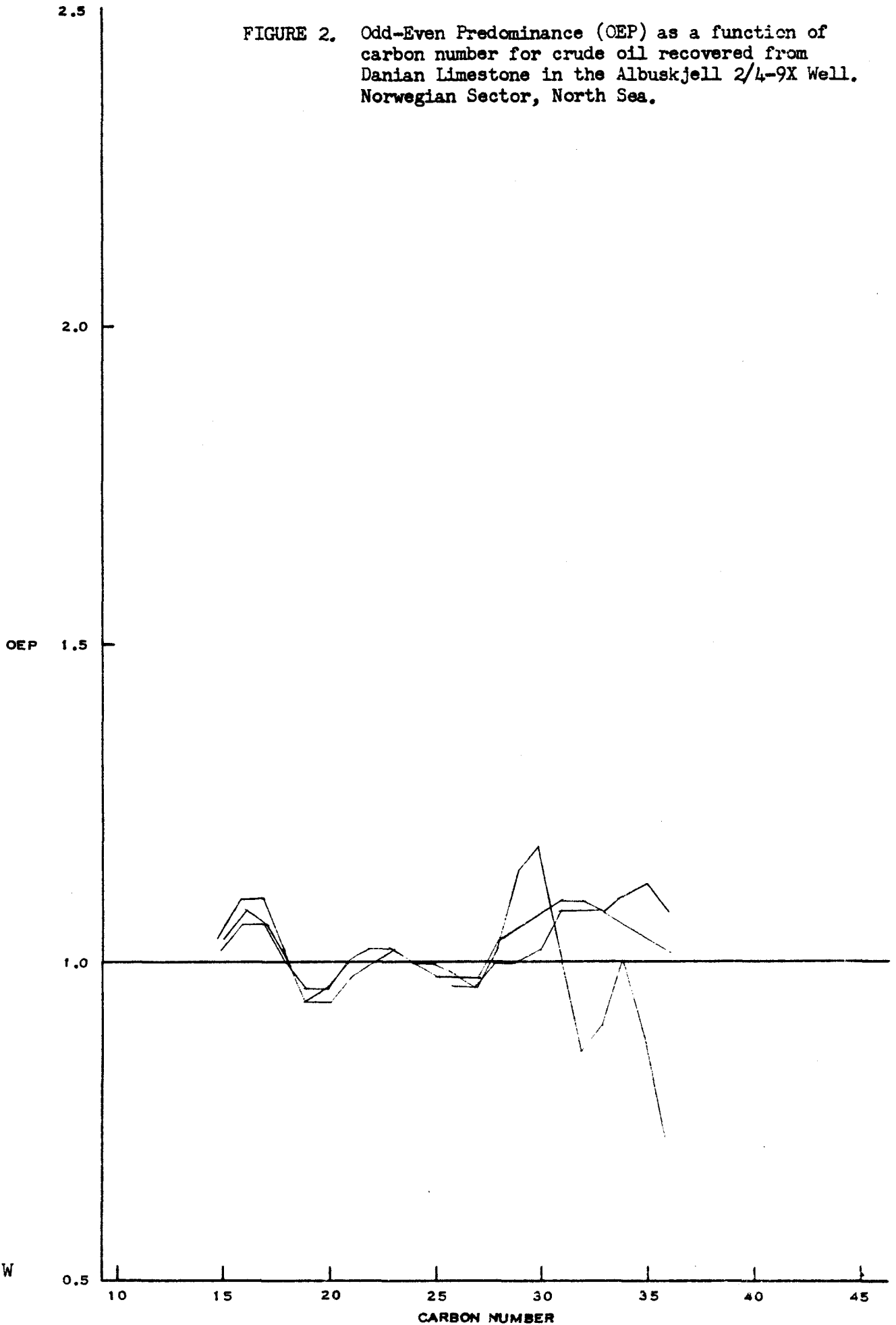
COMPONENT

WT PERCENT OF SAMPLE

0.0 0.50 1.00

COMPONENT	DST 1, Flow 2 Sample MPY-U	DST 2, Flow 2 Sample MPY-W	DST 3, Flow 2 Sample MPY-Y	DST 5, Flow 4 Sample MPZ
HELIUM	0.000	0.000	0.000	0.000
HYDROGEN SULFIDE	0.000	0.000	0.000	0.000
oxygen + ARSON	0.001	0.002	0.000	0.000
NITROGEN	0.272	0.285	0.269	1.096
CARBON DIOXIDE	2.560	2.584	3.629	30.184
METHANE	35.335	37.995	38.379	43.704
ETHANE	7.500	7.376	7.608	8.336
PROPANE	4.948	4.840	5.023	5.337
ISOBUTANE	1.216	1.232	1.322	1.066
N-BUTANE	2.642	2.597	2.700	3.125
ISOPENTANE	1.361	1.297	1.418	1.169
N-PENTANE	1.650	1.548	1.650	1.597
HEXANE	0.069	0.067	0.074	0.021
CYCLOPENTANE	0.094	0.088	0.095	0.128
2,3-DIMETHYLBUTANE	0.107	0.100	0.110	0.030
2-METHYLPENTANE	0.693	0.651	0.714	0.506
3-METHYLPENTANE	0.413	0.391	0.428	0.293
N-HEXANE	1.274	1.162	1.241	0.797
METHYLCYCLOPENTANE + 2,3-DIMETHYLPENTANE	0.409	0.378	0.405	0.278
2,4-DIMETHYLPENTANE	0.070	0.066	0.071	0.039
BENZENE + 2,2,3-TRIMETHYLBUTANE	0.260	0.256	0.271	0.115
CYCLOHEXANE + 3,3-DIMETHYLPENTANE	0.492	0.457	0.480	0.271
2-METHYLHEXANE	0.410	0.383	0.402	0.134
2,3-DIMETHYLPENTANE + 1,1-DIMETHYLCYCLOPENTANE	0.154	0.144	0.152	0.078
3-METHYLHEXANE	0.414	0.387	0.405	0.145
1-CIS-3-DIMETHYLCYCLOPENTANE	0.074	0.069	0.073	0.044
1-TRANS-3-DIMETHYLCYCLOPENTANE + 3-ETHYLPENTANE	0.095	0.089	0.093	0.048
1-TRANS-2-DIMETHYLCYCLOPENTANE	0.119	0.111	0.116	0.079
N-HEPTANE	1.132	1.030	1.043	0.346
1,2-DIMETHYLCYCLOPENTANE	0.063	0.057	0.058	0.013
METHYLHEXANE + 2,2-DIMETHYL + 1,1,3-TRIMETHYLPENTANE	0.916	0.841	0.845	0.327
2,3-DIMETHYLHEXANE	0.057	0.053	0.055	0.015
2,4-DIMETHYLHEXANE + ETHYLCYCLOPENTANE	0.109	0.103	0.104	0.034
2,2,3-TRIMETHYLPENTANE	0.003	0.004	0.004	0.002
1-TRANS-2-CIS-4-TRIMETHYLCYCLOPENTANE	0.038	0.035	0.035	0.014
3,3-DIMETHYLHEXANE	0.021	0.019	0.020	0.003
TOLUENE	0.738	0.690	0.690	0.058
1-TRANS-2-CIS-3-TRIMETHYLCYCLOPENTANE	0.024	0.019	0.018	0.007
2,3,4-TRIMETHYLPENTANE	0.003	0.003	0.003	0.000
2,3-DIMETHYLHEXANE + 2,3,3-TRIMETHYLPENTANE + 2-METHYLHEPTANE	0.062	0.060	0.059	0.014
2-METHYLHEPTANE + 4-METHYLHEPTANE	0.386	0.363	0.356	0.064
3,4-DIMETHYLHEXANE + 1-CIS-2-TRANS-4-TRIMETHYLPENTANE	0.124	0.117	0.115	0.020
3-ETHYLHEXANE	0.018	0.017	0.017	0.004
3-METHYLHEPTANE + 3-METHYL-3-ETHYLPENTANE	0.345	0.325	0.319	0.044
2,2,5-TRIMETHYLHEXANE + 1,1,3-TRIMETHYLHEPTANE	0.013	0.012	0.011	0.002
1-CIS-2-CIS-4-TRIMETHYLCYCLOPENTANE	0.008	0.007	0.008	0.003
1-TRANS-4 + 1-CIS-3 + 1,1-DIMETHYLHEXANE	0.270	0.251	0.245	0.060
1-ME-3-ETHYLPENTANE + 2,2,4-TRIMETHYLHEXANE	0.047	0.042	0.042	0.011
1-ME-TRANS-2 + 1-ME-CIS-3-ETHYLCYCLOPENTANE	0.031	0.028	0.028	0.013
CYCLOHEPTANE	0.008	0.007	0.007	0.003
N-OCTANE + 1-TRANS-2-DIMETHYLCYCLOHEXANE	0.959	0.901	0.860	0.099
1-CIS-4-DIMETHYLCYCLOHEXANE	0.103	0.087	0.088	0.028
1-TRANS-3-DIMETHYLCYCLOHEXANE	0.051	0.049	0.048	0.011
2,2,4-TRIMETHYLHEXANE + ISOPROPYLCYCLOPENTANE	0.013	0.016	0.010	0.002
2,3,3-TRIMETHYLHEXANE + 2,3-DIMETHYLHEPTANE	0.029	0.032	0.026	0.002
1-METHYL-CIS-2-ETHYLCYCLOPENTANE	0.061	0.059	0.057	0.005
2,4-DIMETHYLHEPTANE + 2,2,3-TRIMETHYLHEXANE	0.105	0.098	0.094	0.009
2,4-DIMETHYLHEPTANE + 1-CIS-2-DIMETHYLHEXANE	0.026	0.024	0.023	0.011
N-PROPYLCYCLOPENTANE + 2,5- + 3,5-DIMETHYLHEPTANE	0.118	0.112	0.107	0.001
ETHYLCYCLOHEXANE	0.228	0.214	0.205	0.028
ETHYLBENZENE	0.082	0.077	0.076	0.004
3-METHYLHEPTANE + 1,1,3-TRIMETHYLHEXANE	0.093	0.087	0.084	0.013
2,3,3-TRIMETHYLHEXANE	0.017	0.017	0.016	0.003
2-METHYL-3-ETHYLHEXANE	0.008	0.009	0.007	0.002
P-XYLENE	0.245	0.228	0.216	0.009
M-XYLENE + 2,3,4-TRIMETHYLHEXANE	0.555	0.526	0.497	0.009
2,3- + 3,4-DIMETHYLHEPTANE	0.043	0.038	0.039	0.002
4-METHYLOCTANE	0.215	0.210	0.194	0.011
2-METHYLOCTANE	0.188	0.178	0.168	0.007
3-ETHYLHEPTANE	0.032	0.030	0.028	0.001
3-METHYLOCTANE	0.200	0.189	0.181	0.006
O-XYLENE (+ A C-10 ALKANE)	0.228	0.211	0.204	0.004
2,2,4-TRIMETHYLHEPTANE	0.018	0.014	0.017	0.000
2,2,5-TRIMETHYLHEPTANE	0.028	0.024	0.027	0.000
2,2,6-TRIMETHYLHEPTANE	0.004	0.003	0.004	0.000
***UNKNOWN***	0.022	0.019	0.022	0.002
2,5,5-TRIMETHYLHEPTANE	0.015	0.013	0.016	0.000
2,4,4-TRIMETHYLHEPTANE	0.010	0.004	0.011	0.001
***A C-9 NAPHTHENE***	0.046	0.040	0.041	0.004
ISOPROPYLBENZENE	0.047	0.042	0.045	0.002
N-NONANE	0.894	0.837	0.794	0.021
C-9 NAPHTHENES + C-10 ALKANES	1.318	1.308	1.551	0.022
N-PROPYLBENZENE	0.023	0.022	0.032	0.000
1-METHYL-3-ETHYLBENZENE	0.136	0.128	0.136	0.001
1-METHYL-4-ETHYLBENZENE	0.058	0.054	0.070	0.000
1-METHYL-2-ETHYLBENZENE	0.166	0.153	0.166	0.001
1,3,5-TRIMETHYLBENZENE	0.281	0.263	0.271	0.000
1,2,4-TRIMETHYLBENZENE	0.256	0.242	0.244	0.001
1,2,3-TRIMETHYLBENZENE	0.040	0.072	0.079	0.000
N-DECANE	0.829	0.798	0.769	0.000
UNDECANES AND HEAVIER	25.027	23.813	21.183	0.001

FIGURE 2. Odd-Even Predominance (OEP) as a function of carbon number for crude oil recovered from Danian Limestone in the Albuskjell 2/4-9X Well, Norwegian Sector, North Sea.



U, Y, W



FIGURE 3. Concentration of n-alkanes by carbon number for Crude Oil recovered from Danian Limestone in the Albuskjell 2/4-9X Well, Norwegian Sector, North Sea.

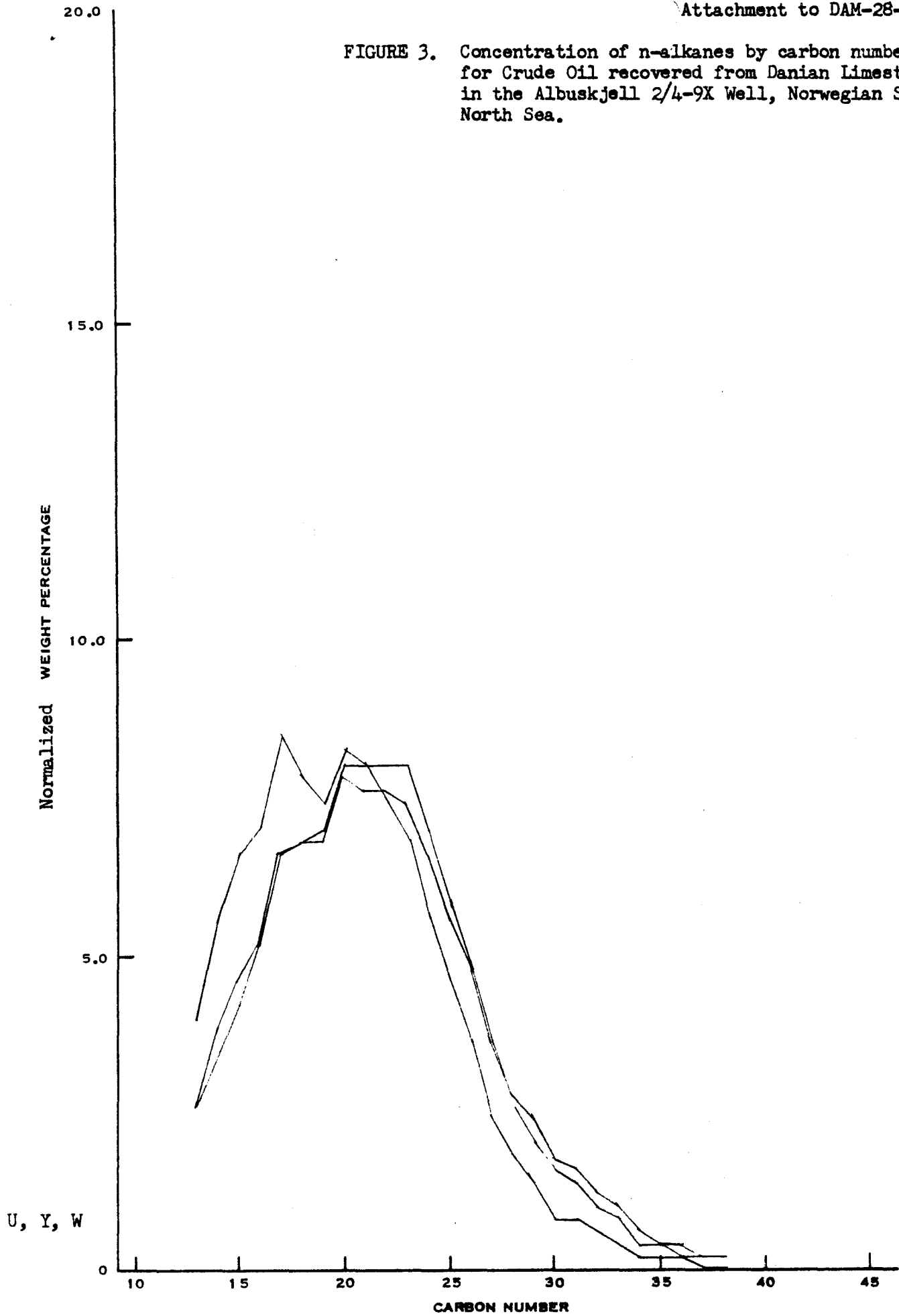


FIGURE 4. RATIOS OF COMPONENTS

for pairs not easily fractionated in the earth for crude oils recovered from Danian Limestone in the Albuskjell 2/4-9X Well, Norwegian Sector, North Sea. Unique character of the three nearly coincident curves will be cataloged for future use in correlation of North Sea petroleum. Weight percentages of respective components are listed in Tables II through IV.

