

ESSO 6607/5-1 ST1

<u>DEPTH</u>	<u>GAS</u>	<u>OIL</u>	<u>S2</u>	<u>Tmax</u>	<u>GPI</u>	<u>OPI</u>	<u>TPI</u>	<u>TOC</u>	<u>HI</u>	<u>REMARKS</u>
2120	0	0.2	1.01	420	0	0.17	0.17	0.54	187	
2130	0	0.39	1.87	415	0	0.17	0.17	0.18	1038	
2140	0	0.25	1.30	428	0	0.16	0.16	0.12	1083	
2150	0	0.24	1.17	427	0	0.17	0.17	0.11	1063	
2160	0.05	0.46	2.27	424	0.02	0.17	0.19	0.23	986	
2170	0.06	0.33	1.71	428	0.03	0.16	0.19	0.50	342	
2180	0.05	0.34	1.92	427	0.02	0.15	0.17	0.19	1010	
2190	0.05	0.33	1.33	424	0.03	0.19	0.22	0.14	950	
2200	0.05	0.19	1.00	411	0.04	0.15	0.19	0.10	1000	
2210	0.05	0.30	0.75	410	0.05	0.27	0.32	0.09	833	
2220	0.04	0.25	1.00	418	0.03	0.20	0.23	0.61	163	
2230	0.05	0.24	0.92	410	0.04	0.20	0.24	0.14	657	
2240	0.04	0.31	0.89	407	0.03	0.25	0.28	0.10	890	
2250	0	0.42	1.27	389	0	0.25	0.25	1.12	113	
2260	0	0.52	1.35	411	0	0.28	0.28	0.15	900	
2270	0	0.34	1.00	409	0	0.25	0.25	0.11	909	
2280	0	0.23	0.95	405	0	0.19	0.19	0.80	118	
2290	0	0.40	1.70	400	0	0.19	0.19	0.17	1000	Bimodal S2
2300	0	0.42	1.49	406	0	0.22	0.22	0.15	993	
2310	0	0.26	1.31	415	0	0.17	0.17	0.61	214	Higher TOC
2320	0	0.42	4.61	566	0	0.08	0.08	0.41	1124	Bimodal S2
2330	0	0.30	1.45	418	0	0.17	0.17	0.14	1035	Bimodal S2
2340	0	0.25	1.62	405	0	0.13	0.13	0.63	257	
2350	0	0.37	0.68	403	0	0.36	0.36	0.08	850	
2360	0	0.28	1.12	538	0	0.20	0.20	0.11	1018	Bimodal S2
2370	0.04	0.29	1.89	412	0.02	0.13	0.15	0.18	1050	
2380	0.04	0.29	1.69	419	0.02	0.14	0.16	0.16	1056	
2390	0.04	0.25	1.91	417	0.02	0.11	0.13	0.18	1061	
2400	0.05	0.22	1.45	423	0.03	0.13	0.16	0.14	1035	
2410	0.05	0.30	2.44	418	0.02	0.11	0.13	0.23	1060	
2420	0.05	0.43	4.42	417	0.01	0.09	0.10	0.40	1105	Flat S2
2430	0.06	0.49	4.91	419	0.01	0.09	0.10	4.20	116	High TOC
2440	0	0.19	2.89	415	0	0.06	0.06	0.25	1156	
2450	0.04	0.27	2.37	413	0.01	0.10	0.11	2.12	111	
2460	0.02	0.40	2.86	418	0.01	0.12	0.13	0.27	1056	
2470	0.04	0.16	0.99	416	0.03	0.14	0.17	0.88	112	
2480	0.04	0.36	1.63	404	0.02	0.18	0.20	0.16	1018	Flat S2
2490	0.03	0.08	1.00	449	0.03	0.07	0.10	0.09	1111	Flat S2
2500	0	0.07	0.30	426	0	0.19	0.19	0.02	1500	Low TOC
2510	0	0.10	1.58	419	0	0.06	0.06	0.13	1215	
2520	0	0.06	1.01	414	0	0.06	0.06	0.08	1262	Low TOC
2530	0	0.01	0.31	477	0	0.03	0.03	0.02	1550	Flat/low S2, low TOC
2540	0	0.02	1.05	416	0	0.02	0.02	0.20	525	
2550	0	0.15	2.97	415	0	0.05	0.05	1.06	280	
2560	0.01	0.04	0.95	421	0.01	0.04	0.05	1.40	67	
2570	0.01	0.06	1.00	410	0.01	0.06	0.07	0.76	131	Bimodal S2
2580	0	0.07	1.56	439	0	0.04	0.04	0.98	159	
2590	0	0.02	1.43	427	0	0.01	0.01	2.23	64	
2600	0.01	0.09	1.35	437	0.01	0.06	0.07	1.26	107	
2610	0	0.07	2.29	428	0	0.03	0.03	2.54	90	
2620	0	0.06	1.82	428	0	0.03	0.03	2.97	61	
2630	0	0.06	1.82	428	0	0.03	0.03	2.20	82	
2640	0	0.09	1.62	426	0	0.05	0.05	0.45	360	
2650	0	0.12	3.25	485	0	0.04	0.04	1.98	164	Bimodal S2
2660	0	0.10	1.93	418	0	0.05	0.05	1.24	155	
2670	0	0.11	2.77	425	0	0.04	0.04	0.23	1204	
2680	0	0.12	3.56	426	0	0.03	0.03	3.17	112	
2690	0	0.05	2.82	426	0	0.02	0.02	2.28	123	

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<u>DEPTH</u>	<u>GAS</u>	<u>OIL</u>	<u>S2</u>	<u>Tmax</u>	<u>GPI</u>	<u>OPI</u>	<u>TPI</u>	<u>TOC</u>	<u>HI</u>	<u>REMARKS</u>
2680	0	0.03	1.72	433	0	0.02	0.02	0.36	477	
2690	0.01	0.14	3.20	440	0	0.04	0.04	4.26	75	
2700	0	0.16	4.04	439	0	0.04	0.04	3.92	103	
2710	0	0.08	2.34	445	0	0.03	0.03	4.73	49	
2720	0	0.09	4.17	444	0	0.02	0.02	2.24	186	
2730	0	0.09	4.10	443	0	0.02	0.02	10.00	40	Organic contamination
2740	0	0.10	3.68	421	0	0.03	0.03	0.31	1187	Low TOC/High S2
2750	0	0.05	3.00	445	0	0.02	0.02	0.25	1200	" "
2760	0	0.12	3.11	440	0	0.04	0.04	0.26	1196	" "
2770	0	0.04	2.14	443	0	0.02	0.02	21.23	10	Organic contamination
2780	0	0	1.31	435	0	0	0	0.65	201	
2790	0	0	1.41	432	0	0	0	0.11	1281	
2800	0	0	0.82	429	0	0	0	0.06	1366	
2810	0	0	1.72	529	0	0	0	0.14	1228	Bimodal S2
2820	0	0.01	1.54	438	0	0.01	0.01	0.94	162	
2830	0	0.07	1.59	430	0	0.04	0.04	0.75	212	
2840	0	0.02	3.48	435	0	0.01	0.01	0.29	1200	
2850	0	0.04	1.62	432	0	0.02	0.02	0.79	205	
2860	0	0.09	3.90	438	0	0.02	0.02	1.00	390	
2870	0	0.02	3.69	494	0	0.01	0.01	0.79	467	Flat S2
2880	0	0.08	2.04	433	0	0.04	0.04	0.65	424	
2890	0	0.11	2.76	432	0	0.04	0.04	1.00	276	
2897	0	0.07	1.24	426	0	0.05	0.05	0.59	210	
2910	0	0.05	2.06	434	0	0.02	0.02	0.17	1211	
2920	0.02	0.12	2.00	434	0.01	0.06	0.07	0.88	227	
2930	0	0.15	2.58	432	0	0.06	0.06	1.29	200	
2940	0	0.13	1.89	416	0	0.06	0.06	0.16	1181	
2950	0	0.01	1.94	436	0	0.01	0.01	0.89	217	
2960	0	0.03	2.01	436	0	0.01	0.01	0.77	261	
2970	0	0.05	1.99	434	0	0.02	0.02	0.98	203	
2975	0.02	0.03	0.23	476	0.07	0.11	0.18	0.10	230	High sand % Core No.1
2983	0	0.22	1.32	420	0	0.14	0.14	0.12	1100	" "
3000	0.01	0.79	1.81	400	0	0.30	0.30	0.21	861	
3010	0	0.20	1.58	423	0	0.11	0.11	0.14	1128	
3020	0	0.02	0.95	431	0	0.02	0.02	0.83	114	
3030	0	0.04	0.96	443	0	0.04	0.04	0.08	1200	
3040	0	0.08	1.62	432	0	0.05	0.05	0.14	1157	High HI due to low TOC
3050	0	0.02	0.66	416	0	0.03	0.03	0.05	1320	"
3060	0	0.05	1.40	443	0	0.02	0.02	0.11	1272	"
3070	0	0.11	1.76	433	0	0.06	0.06	0.15	1173	"
3080	0	0.03	1.34	445	0	0.02	0.02	0.11	1218	"
3090	0	0.06	0.95	434	0	0.06	0.06	0.08	1187	"
3100	0	0.09	1.17	438	0	0.07	0.07	0.38	307	
3110	0	0.04	1.04	439	0	0.04	0.04	0.47	221	
3120	0	0.03	0.69	444	0	0.04	0.04	0.38	181	
3130	0	0.22	0.91	429	0	0.20	0.20	0.36	252	
3140	0	0.05	1.12	436	0	0.04	0.04	0.47	238	
3150	0	0.07	1.21	431	0	0.05	0.05	0.60	201	
3160	0	0.08	0.94	426	0	0.08	0.08	0.65	144	
3170	0	0.05	1.24	432	0	0.04	0.04	0.61	203	
3180	0	0.08	1.13	440	0	0.07	0.07	0.59	191	
3190	0	0.07	1.08	433	0	0.06	0.06	0.65	166	
3200	0.01	0.13	1.39	434	0.01	0.09	0.10	0.67	207	

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3210	0	0.10	1.09	428	0	0.08	0.08	0.67	162	
3220	0	0.24	1.73	424	0	0.12	0.12	0.82	210	
3230	0	0.12	1.78	399	0	0.06	0.06	0.15	1186	
3240	0	0.08	1.34	432	0	0.06	0.06	0.11	1218	
3250	0	0.04	0.85	433	0	0.05	0.05	0.28	303	
3260	0	0.08	1.23	432	0	0.06	0.06	0.41	300	
3270	0	0.05	0.67	431	0	0.07	0.07	0.48	139	
3280	0	0.24	1.14	423	0	0.17	0.17	0.63	180	
3290	0	0.02	0.12	433	0	0.14	0.14	0.01	1200	High sand % after trip
3300	0	0.04	0.99	450	0	0.04	0.04	0.22	450	"
3310	0	0.06	0.88	419	0	0.06	0.06	0.26	338	"
3320	0	0.05	1.08	447	0	0.04	0.04	0.40	270	
3330	0	0.07	1.31	445	0	0.05	0.05	0.51	256	
3340	0	0.08	1.45	443	0	0.05	0.05	0.60	241	
3350	0.01	0.10	1.09	438	0.01	0.08	0.09	0.62	175	
3360	0.01	0.08	1.00	431	0.01	0.07	0.08	0.51	196	
3370	0.02	0.09	0.91	437	0.02	0.09	0.11	0.52	175	
3380	0.01	0.11	1.31	413	0.01	0.08	0.09	0.44	297	20% Limestone
3390	0.01	0.13	1.23	444	0.01	0.10	0.11	0.54	227	High sand %
3400	0.01	0.12	1.33	436	0.01	0.01	0.09	0.72	184	"
3405	0	0.13	1.90	433	0	0.06	0.06	0.50	380	Core No. 2 (3405.75)
3409	0	0.23	3.41	437	0	0.06	0.06	1.38	247	" (3409.85)
3416	0.02	0.17	1.78	436	0.01	0.09	0.10	1.07	166	" (3416.62)
3422	0.01	0.13	1.60	431	0.01	0.07	0.08	0.80	200	" (3422.23)
3430	0.01	0.39	0.93	413	0.01	0.30	0.31	0.41	226	Contaminated by pipe
3440	0	0.05	0.59	421	0	0.08	0.08	0.35	168	dope, metal, cavings
3450	0	0.05	0.72	419	0	0.07	0.07	0.35	205	etc.
3460	0	0.04	0.74	436	0	0.05	0.05	0.43	172	
3470	0	0.04	0.50	428	0	0.07	0.07	0.24	208	
3480	0	0.03	0.79	436	0	0.04	0.04	0.39	202	
3490	0	0.04	0.85	444	0	0.05	0.05	0.57	149	
3500	0	0.04	0.41	435	0	0.09	0.09	0.37	110	Change to Type III OM
3510	0.01	0.09	0.94	438	0.01	0.09	0.10	0.61	154	
3520	0.02	0.08	0.75	435	0.02	0.10	0.12	0.66	113	
3530	0.01	0.09	0.76	421	0.01	0.10	0.11	0.63	120	Bimodal S2
3540	0	0.03	0.35	438	0	0.08	0.08	0.20	175	
3550	0	0.06	0.67	437	0	0.08	0.08	0.53	126	
3560	0	0.06	0.56	434	0	0.10	0.10	0.58	96	
3570	0.01	0.08	0.50	437	0.02	0.14	0.16	0.59	84	
3580	0.02	0.10	0.67	435	0.03	0.13	0.16	0.62	108	
3590	0.01	0.08	0.87	435	0.01	0.08	0.09	0.64	135	
3600	0	0.06	0.63	436	0	0.09	0.09	0.48	131	
3610	0	0.06	0.63	434	0	0.09	0.09	0.64	98	
3620	0.01	0.06	0.48	442	0.02	0.11	0.13	0.32	150	
3630	0	0.02	0.35	430	0	0.06	0.06	0.33	106	
3640	0	0.03	0.42	441	0	0.07	0.07	0.38	110	
3650	0	0.02	0.34	414	0	0.06	0.06	0.36	94	

ESSO 6607/5-1 ST2

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3660	0.01	0.05	0.29	435	0.03	0.15	0.18	0.37	78	
3670	0.02	0.07	0.44	433	0.04	0.13	0.17	0.41	107	
3680	0.01	0.06	0.51	426	0.02	0.10	0.12	0.59	86	Flat S2
3690	0	0.04	0.41	436	0	0.09	0.09	0.57	71	
3700	0	0.05	0.28	417	0	0.16	0.16	0.09	311	High sand % after trip
3710	0	0.02	0.13	408	0	0.14	0.14	0.07	185	"
3720	0	0.03	0.63	398	0	0.05	0.05	0.36	175	"
3730	0	0.04	0.48	427	0	0.08	0.08	0.45	106	
3740	0	0.02	0.18	439	0	0.10	0.10	0.24	75	
3750	0	0.06	0.50	396	0	0.11	0.11	0.34	147	Mud contamination
3760	0.01	0.05	0.54	430	0.02	0.08	0.10	0.33	163	
3770	0	0	0.25	384	0	0	0	0.01	2500	Loose sand,
3780	0	0.01	0.02	396	0	0.50	0.50	0	0	Kerogens washed out,
3790	0.01	0.02	0.02	337	0.25	0.50	0.75	0	0	Results unreliable.
3800	0	0.01	0.08	393	0	0.12	0.12	0	0	"
3810	0	0.02	0.07	484	0	0.25	0.25	0	0	"

Units used -

Depth - Metres along hole below drill floor.
 Gas - milligrammes/gramme
 Oil - milligrammes/gramme
 S2 - milligrammes/gramme
 Tmax - degrees Centigrade
 TOC - %

GPI, OPI, TPI, and HI have no units.



Norsk Hydro a.s Bergen
 U&P-Forskningscenter

Dokumentforside
 Utforskning og Produksjon

Dok. type: Avtale Tillegg Rapport

Oppbevar.tid: 2 år 5 år Uendelig

Gradering: Åpen Intern Fortrolig Meget fortr. Strengt fort.

Dok. id

Kopi nr.

Distribusjon
 J. Augustson, HA(5)
 B.Martin/Arkiv
 E.Rygg/Arkiv
 N.Telnes
 A.Steen(2)

Tittel
 Data report
 of
 Well 6607/5-1

FORTROLIG

Sammendrag/Konklusjoner/Anbefalinger

GC/MS(SMIM)-analysis of SAT-biomarkers are performed by standard lab procedures at Hydro Research Centre, Bergen.

1. Analysed samples and peak data.....: blue chapter.
2. Bargraphs of the SAT-biomarker distributions...: red chapter.
3. Experimental information and abbreviations.....: green chapter.

BA 91-2117-1

16 OKT. 1991

REGISTRERT

OLJEDIREKTORATET

Emneord

Petroleum geochemistry, Oil-source correlation, Biomarkers

Sider/vedlegg 19	Tillegg nr.	Revisjon nr.	Revisjonsdato
Kvadrant/Blokk-brønn 6607/5-1	Prosjekt nr. 30770	Lisens nr.	Dato 18.07.90
Seksjon	Geo-section		
Avdelling	Bas.mod./Pet.Geochemistry		
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0 Depth	1 Depth	2 Sample	3 Lith.	4 Well	5 Geochem	6 MS-	7 26Y	8 26YY	9 25Y	10 24Y
start int	end int.	type			job #	file	360-191/2	360-191/2	346-191	332-191/1
1	3414.65	3414.65	CORE	SLST	6607/5-1	3237 AS08060	1.51	1.39	1.26	2.72
2	3420.15	3420.15	CORE	SLST	6607/5-1	3237 AS11060	0.20	0.15	0.38	0.47
3	3537.00	3540.00	DC	SLST	6607/5-1	3237 AS11060	8.14	7.07	10.80	17.90
4	3540.00	3543.00	DC	SLST	6607/5-1	3237 AS11060	4.92	4.32	6.72	12.29
5	3546.00	3549.00	DC	SLST	6607/5-1	3237 AS08060	13.46	11.46	16.81	24.26
6	3549.00	3552.00	DC	SLST	6607/5-1	3237 AS08060	4.29	3.59	5.38	9.22
7	ST08060B					AS08060	0.73	0.79	1.09	2.13
8	ST11060A					AS11060	0.36	0.44	0.77	1.83
9	ST11060B					AS11060	0.78	0.68	1.31	2.43
10	ST11060C					AS11060	0.50	0.43	0.87	1.52

0 Depth	11 24X-Y	12 23Y	13 22Y	14 21Y	15 20Y	16 23a	17 23k	18 22a	19 22k	
start int	332-191/1	318-191	304-191	290-191	276-191	316-217/1	316-217/2	302-217/1	302-217/2	
1	3414.65	2.86	4.11	0.52	3.72	8.17	2.63	0.66	6.29	2.54
2	3420.15	0.60	0.68	0.14	0.54	0.86	0.44	0.12	0.80	0.54
3	3537.00	8.64	38.56	3.38	8.82	5.01	1.83	1.41	2.74	7.33
4	3540.00	7.57	27.72	2.71	7.51	6.06	2.74	1.35	4.42	7.11
5	3546.00	7.57	45.47	6.07	14.52	8.58	4.09	3.20	5.32	10.89
6	3549.00	3.88	19.27	2.86	8.85	11.13	2.23	1.15	4.97	6.31
7	ST08060B	1.22	2.45	0.64	2.21	2.25	3.28	0.95	6.48	4.71
8	ST11060A	1.17	2.21	0.35	1.75	1.82	2.65	0.77	5.51	3.63
9	ST11060B	1.83	3.10	0.45	2.26	2.29	3.58	1.15	8.83	5.91
10	ST11060C	1.28	1.98	0.43	1.59	1.50	2.31	0.66	5.20	3.48

0 Depth	20 21a	21 21k	22 33A	23 33B	24 32A	25 32B	26 31A	27 31B	
start int	288-217/1	288-217/2	454-191/1	454-191/2	440-191/1	440-191/2	426-191/1	426-191/2	
1	3414.65	8.58	8.00	3.81	2.84	13.27	9.60	37.31	28.85
2	3420.15	0.82	1.15	0.42	0.31	1.06	0.75	3.24	2.54
3	3537.00	2.69	9.91	4.93	2.75	9.29	6.35	26.19	17.13
4	3540.00	4.62	12.06	4.13	2.55	9.03	6.25	28.22	18.87
5	3546.00	5.35	15.04	7.21	4.16	14.68	9.77	30.60	21.79
6	3549.00	6.90	13.77	3.23	2.39	7.53	5.66	25.62	19.45
7	ST08060B	8.25	8.85	3.13	1.01	4.58	3.22	8.00	5.32
8	ST11060A	6.99	7.40	2.41	1.69	3.97	2.70	6.93	5.00
9	ST11060B	11.29	12.42	9.74	5.87	14.03	8.69	24.11	14.90
10	ST11060C	6.36	7.10	3.71	2.21	5.61	3.63	9.92	6.22

0 Depth	28 31C	29 31D	30 30F	31 30A	32 30H	33 30C	34 29N	35 29A	36 29F	
start int	426-191/3	426-191/4	412-191	412-191	412-191	412-191	398-191	398-191	398-191	
1	3414.65	5.37	6.43	6.20	142.69	5.70	15.81	3.15	87.49	30.28
2	3420.15	0.69	0.54	0.53	19.55	0.37	1.38	0.31	10.23	3.28
3	3537.00	2.58	1.81	2.83	75.94	3.01	4.87	29.96	69.31	16.84
4	3540.00	3.30	2.68	2.52	87.25	2.25	6.26	13.05	70.56	20.61
5	3546.00	4.21	3.88	5.22	75.93	5.24	7.13	36.29	69.67	21.63
6	3549.00	3.57	5.12	2.44	80.32	3.23	9.92	10.14	60.03	17.43
7	ST08060B	0.87	0.70	2.32	26.61	1.52	1.77	3.16	12.07	5.55
8	ST11060A	0.87	0.71	1.57	31.02	1.27	1.40	2.29	10.84	5.42
9	ST11060B	1.97	1.73	4.82	72.52	3.03	3.65	5.76	29.43	11.41
10	ST11060C	1.05	0.84	2.42	37.78	1.47	1.71	3.02	13.91	5.77

0 Depth	37 29C	38 28A	39 28N	40 27F	41 27A	42 30a	43 30b	44 30c	45 30d	46 30e	
start int	398-191	384-191	384-191	370-191	370-191	414-217	414-217	414-217	414-217	414-217	
1	3414.65	18.43	112.40	1.00	3.90	5.75	1.57	1.14	0.74	0.45	1.18
2	3420.15	1.83	29.65	0.01	1.52	2.72	0.01	0.01	0.01	0.01	0.01
3	3537.00	6.74	23.82	11.98	27.57	33.43	2.18	1.50	0.78	0.63	1.15
4	3540.00	7.82	44.14	5.47	26.14	33.40	2.96	1.92	0.83	0.55	1.17
5	3546.00	9.18	32.58	17.35	30.08	34.83	6.38	4.98	3.61	3.30	4.08
6	3549.00	12.68	82.94	3.87	15.88	29.96	1.80	1.79	1.80	1.00	1.35
7	ST08060B	2.17	7.26	1.63	6.80	4.78	2.29	1.96	1.46	1.07	1.20
8	ST11060A	1.76	6.13	1.85	6.03	4.42	1.51	0.91	0.51	0.39	0.34
9	ST11060B	4.45	17.15	2.83	15.44	9.06	3.45	2.39	1.33	0.87	1.77
10	ST11060C	2.36	7.63	1.54	6.86	4.66	1.80	0.97	0.62	0.49	0.78

0 Depth	47 30f	48 30g	49 30h	50 29a	51 29b	52 29c	53 29d	54 29e	55 29f	56 29g	
start int	414-217	414-217	414-217	400-217	400-217	400-217	400-217	400-217	400-217	400-217	
1	3414.65	0.74	1.66	4.42	15.84	12.13	4.88	3.71	9.75	8.00	11.60
2	3420.15	0.01	0.01	0.01	1.49	1.16	0.31	0.36	0.76	1.26	1.28
3	3537.00	1.71	2.40	1.67	19.47	14.94	6.71	9.62	11.30	15.85	17.88
4	3540.00	1.50	2.11	2.08	26.88	17.65	6.98	7.54	11.06	13.97	15.47
5	3546.00	5.18	6.05	4.93	30.73	24.46	12.72	18.33	20.61	25.40	25.50
6	3549.00	1.10	2.10	3.44	13.65	10.31	4.99	4.87	9.79	9.31	11.04
7	ST08060B	1.59	2.12	1.53	12.15	8.28	3.73	2.27	2.76	3.45	3.98
8	ST11060A	0.59	0.98	0.40	9.02	6.52	2.71	2.11	1.93	3.10	4.07
9	ST11060B	1.98	2.67	1.78	26.62	17.66	7.45	4.44	5.86	7.56	8.63
10	ST11060C	0.92	1.35	0.63	12.45	8.09	3.51	2.10	2.73	3.50	4.11

0 Depth	57 29h	58 28a	59 28aa	60 28b	61 28bb	62 28c	63 28d	64 28e	65 28f	66 28g	
start int	400-217	386-217	386-217	386-217	386-217	386-217	386-217	386-217	386-217	386-217	
1	3414.65	31.71	10.98	12.79	7.86	8.69	3.45	3.26	5.86	16.20	5.23
2	3420.15	2.39	0.99	1.24	0.87	0.87	0.33	0.47	0.18	1.53	0.45
3	3537.00	11.50	10.24	11.52	8.00	9.44	3.81	4.23	4.80	19.28	16.07
4	3540.00	16.69	14.11	16.20	10.16	11.45	4.56	4.87	5.90	19.53	12.97
5	3546.00	21.15	18.20	20.22	17.00	17.80	9.36	10.01	11.56	28.34	24.15
6	3549.00	25.49	9.41	11.42	6.82	7.87	3.65	3.80	5.59	14.92	8.22
7	ST08060B	2.50	6.64	7.07	4.80	5.13	2.51	2.10	1.55	3.85	2.86
8	ST11060A	1.98	4.52	6.20	4.00	4.53	1.85	1.99	1.16	3.33	2.77
9	ST11060B	5.86	11.34	13.22	7.87	8.92	3.97	4.10	2.58	7.32	5.82
10	ST11060C	2.58	5.84	6.59	4.09	4.75	1.86	2.00	1.30	3.64	2.80

0 Depth	67 28h	68 27a	69 27b	70 27c	71 27d	72 27e	73 27f	74 27g	75 27h	76
start int	386-217	372-217	372-217	372-217	372-217	372-217	372-217	372-217	372-217	
1	3414.65	33.18	26.87	19.40	5.28	6.52	15.82	6.18	4.83	34.25
2	3420.15	2.79	3.10	2.04	0.49	0.60	1.52	0.65	0.52	2.72
3	3537.00	10.18	33.20	24.20	6.01	7.71	16.11	23.14	19.36	18.03
4	3540.00	14.70	44.18	30.21	6.48	9.24	16.14	21.41	17.07	23.74
5	3546.00	17.97	43.44	33.89	11.36	14.15	25.33	32.20	27.06	27.60
6	3549.00	22.43	22.16	16.10	4.71	6.22	12.60	11.32	9.20	24.59
7	ST08060B	1.83	17.10	11.50	3.69	4.57	3.35	3.88	3.16	2.60
8	ST11060A	1.13	14.24	8.27	2.04	2.96	1.97	3.03	2.58	1.70
9	ST11060B	3.02	35.65	22.35	4.98	7.66	5.71	6.75	5.90	5.09
10	ST11060C	1.49	17.72	10.98	2.79	3.41	2.64	3.22	2.81	2.25

0 Depth	77 24X	78 Status	79 D-MIX	80 D4-C21	81 D2-C29	82 D4-C27	83	84 %-NORM	85 %-NORM	86 %-NORM	
start int	330-191		DATE	292-221	400-193	376-221		TRI-CYCL.	L.M.STE.	PENTA-CYCL.	
1	3414.65	7.11	OK						3	3	58
2	3420.15	0.91	WEAK						3	3	68
3	3537.00	13.86	OK						12	3	43
4	3540.00	12.03	OK						9	4	43
5	3546.00	17.21	OK						12	4	36
6	3549.00	10.02	OK						8	4	50
7	ST08060B	2.47	OK						5	11	35
8	ST11060A	1.89	OK						4	11	41
9	ST11060B	2.88	OK						3	7	45
10	ST11060C	1.92	OK						4	9	43

0 Depth	87 %-NORM	88 GROUP
start int	STERANES	SUM
1	3414.65	36 931.41
2	3420.15	26 119.27
3	3537.00	42 876.18
4	3540.00	45 918.90
5	3546.00	49 1240.57
6	3549.00	38 810.07
7	ST08060B	49 289.03
8	ST11060A	44 241.27
9	ST11060B	45 581.47
10	ST11060C	45 284.34

EXPERIMENTAL

The SAT-fractions of extracted samples are analyzed by GC/MS.

Standard lab procedures of selected metastable ion monitoring are used to detect pre-selected groups of SAT-biomarkers.

List of analyzed metastable transitions:

Group 1 (low molecular weight biomarkers):

360 m/z	-> 191 m/z	=> C ₂₆	tricyclic terpanes
346	-> 191	=> C ₂₅	-----"-----
332	-> 191	=> C ₂₄	-----"-----
330	-> 191	=> C ₂₄	tetracyclic terpanes
318	-> 191	=> C ₂₃	tricyclic terpanes
304	-> 191	=> C ₂₂	-----"-----
290	-> 191	=> C ₂₁	-----"-----
276	-> 191	=> C ₂₀	-----"-----
316	-> 217	=> C ₂₃	steranes
302	-> 217	=> C ₂₂	----"----
288	-> 217	=> C ₂₁	----"----

Group 2:

482 m/z	-> 191 m/z	=> C ₃₅	pentacyclic triterpanes
468	-> 191	=> C ₃₄	-----"-----
454	-> 191	=> C ₃₃	-----"-----
440	-> 191	=> C ₃₂	-----"-----
426	-> 191	=> C ₃₁	-----"-----
412	-> 191	=> C ₃₀	-----"-----
398	-> 191	=> C ₂₉	-----"-----
384	-> 191	=> C ₂₈	-----"-----
370	-> 191	=> C ₂₇	-----"-----
414	-> 217	=> C ₃₀	steranes
400	-> 217	=> C ₂₉	----"----
386	-> 217	=> C ₂₈	----"----
372	-> 217	=> C ₂₇	----"----

Standardized identification of SAT-biomarkers:

Triterpanes:

Numbers from 18 to 35 correspond to the carbon number of the molecule, the subsequent capital letter identifies the stereochemistry and/or the number of rings.

A	17 α (H)-hopanes (I)	22S
B	17 α (H)-hopanes	22R
C	17 β (H)-moretanes (II)	22S
D	17 β (H)-moretanes	22R
E	17 β (H)-hopanes (III)	
F	Neohopanes (IV)	
G	Gammacerane (V)	
H	Hopenes (VI)	
I	25-norhopanes (VII)	
L	Lupane (VIII)	
O	18 α (H)-oleanane (IX)	
X	Tetracyclic terpanes (X)	
Y	Tricyclic terpanes (XI)	
N	Unidentified	

Steranes:

Numbers from 20 to 30 correspond to the carbon number of the molecules, the subsequent small letter identifies the stereochemistry.

a	13 β (H),17 α (H)-diasteranes	20S (1)
b	13 β (H),17 α (H)-diasteranes	20R (2)
c	13 α (H),17 β (H)-diasteranes	20S (3)
d	13 α (H),17 β (H)-diasteranes	20R (4)
e	5 α (H),14 α (H),17 α (H)-steranes	20S (5)
f	5 α (H),14 β (H),17 β (H)-steranes	20R (6)
g	5 α (H),14 β (H),17 β (H)-steranes	20S (7)
h	5 α (H),14 α (H),17 α (H)-steranes	20R (8)
i	5 β (H),14 α (H),17 α (H)-steranes	(9)
k	4-methylsteranes	(10)
n	unidentified	

Examples: 31B corresponds to 17 α (H)-homohopane 22R

29e corresponds to $\alpha\alpha$ -ethylcholestane 20S

The relative distribution of the analysed SAT-biomarkers are presented in bargraphs,- measured as peak heights and normalized to the most abundant compound:

This semi-quantitative presentation is strictly related to the analytical method.

The concentration/response-ratio is not necessarily comparable between different type of compounds. A quantitative comparison of biomarker distributions are hence restricted to a narrow range of concentrations.

The analysed SAT-biomarkers, presented in the included bargraphs, are abbreviated accordingly:

Terpanes:

26Y: C-26 Tri-cyclic terpanes
26YY: C-26 Tri-cyclic terpanes
25Y: C-25 Tri-cyclic terpanes
24Y: C-24 Tri-cyclic terpanes
24X: C-24 Tetra-cyclic terpanes
23Y: C-23 Tri-cyclic terpanes
22Y: C-22 Tri-cyclic terpanes
21Y: C-21 Tri-cyclic terpanes
20Y: C-20 Tri-cyclic terpanes

Low molecular weight steranes:

23a: C-23 Sterane
23k: C-23 Sterane
22a: C-22 Sterane
22k: C-22 Sterane
21a: C-21 Sterane
21k: C-21 Sterane

Triterpanes:

- 35A: C-33 17 α (H), 21 β (H)-pentakishomohopane-22S
35B: C-33 17 α (H), 21 β (H)-pentakishomohopane-22R
- 34A: C-33 17 α (H), 21 β (H)-tetrakishomohopane-22S
34B: C-33 17 α (H), 21 β (H)-tetrakishomohopane-22R
- 33A: C-33 17 α (H), 21 β (H)-trishomohopane-22S
33B: C-33 17 α (H), 21 β (H)-trishomohopane-22R
- 32A: C-32 17 α (H), 21 β (H)-bishomohopane-22S
32B: C-32 17 α (H), 21 β (H)-bishomohopane-22R
- 31A: C-31 17 α (H), 21 β (H)-homohopane-22S
31B: C-31 17 α (H), 21 β (H)-homohopane-22R
31C: C-31 17 β (H), 21 β (H)-homohopane-22S
31D: C-31 17 β (H), 21 β (H)-homohopane-22R
- 30F: C-30 ?-hopane
30O: C-30 18 α (H)-oleanane
30A: C-30 17 α (H), 21 β (H)-hopane
30H: C-30 ?-hopene
30C: C-30 17 β (H), 21 α (H)-moretane
30G: C-30 gammacerane
30E: C-30 17 β (H), 21 β (H)-hopane
- 29N: C-29 ?-30-norhopane
29A: C-29 17 α (H), 21 β (H)-30-norhopane
29F: C-29 ?-30-norhopane
29C: C-29 17 β (H), 21 α (H)-30-normoretane
- 28A: C-28 17 α (H), 21 β (H)-28,30-bisnorhopane + $\beta\alpha$ -
bisnormoretane
28N: C-28 ?-17 β (H), 21 β (H)-28,30-bisnorhopane
- 27F: C-27 18 α (H)-22,29,30-trisnorneohopane (Ts)
27A: C-27 17 α (H)-22,29,30-trisnorhopane (Tm)
27E: C-27 17 β (H)-22,29,30-trisnorhopane

Steranes:

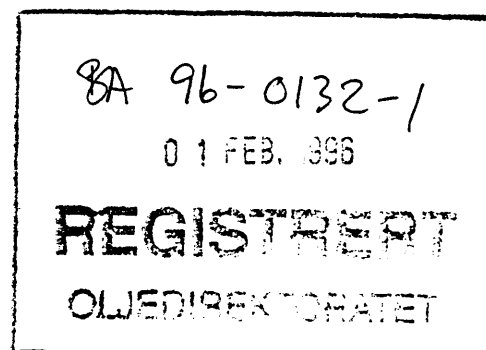
- 30a: C-30 13 β (H),17 α (H)-diasterane-20S
- b: C-30 13 β (H),17 α (H)-diasterane-20R
- c: C-30 13 α (H),17 β (H)-diasterane-20S
- d: C-30 13 α (H),17 β (H)-diasterane-20R
- e: C-30 5 α (H),14 α (H),17 α -sterane-20S
- f: C-30 5 α (H),14 β (H),17 β -sterane-20R
- g: C-30 5 α (H),14 β (H),17 β -sterane-20S
- h: C-30 5 α (H),14 α (H),17 α -sterane-20R

- 29a: C-29 13 β (H),17 α (H)-diasterane-20S
- b: C-29 13 β (H),17 α (H)-diasterane-20R
- c: C-29 13 α (H),17 β (H)-diasterane-20S
- d: C-29 13 α (H),17 β (H)-diasterane-20R
- e: C-29 5 α (H),14 α (H),17 α -sterane-20S
- f: C-29 5 α (H),14 β (H),17 β -sterane-20R
- g: C-29 5 α (H),14 β (H),17 β -sterane-20S
- h: C-29 5 α (H),14 α (H),17 α -sterane-20R

- 28a: C-28 13 β (H),17 α (H)-diasterane-20S
- 28aa: C-28 ?-diasterane-20S
- b: C-28 13 β (H),17 α (H)-diasterane-20R
- 28bb: C-28 ?-diasterane-20R
- c: C-28 13 α (H),17 β (H)-diasterane-20S
- d: C-28 13 α (H),17 β (H)-diasterane-20R
- e: C-28 5 α (H),14 α (H),17 α -sterane-20S
- f: C-28 5 α (H),14 β (H),17 β -sterane-20R
- g: C-28 5 α (H),14 β (H),17 β -sterane-20S
- h: C-28 5 α (H),14 α (H),17 α -sterane-20R

- 27a: C-27 13 β (H),17 α (H)-diasterane-20S
- b: C-27 13 β (H),17 α (H)-diasterane-20R
- c: C-27 13 α (H),17 β (H)-diasterane-20S
- d: C-27 13 α (H),17 β (H)-diasterane-20R
- e: C-27 5 α (H),14 α (H),17 α -sterane-20S
- f: C-27 5 α (H),14 β (H),17 β -sterane-20R
- g: C-27 5 α (H),14 β (H),17 β -sterane-20S
- h: C-27 5 α (H),14 α (H),17 α -sterane-20R

**REPORT ON VITRINITE
REFLECTANCE AND VISUAL KEROGEN
MATURITY ANALYSES
WELLS NOCS 6607/5-1, 6607/12-1**



Client: A/S Norske Shell

Author: Ian L. Ferriday

Date: 01.11.94

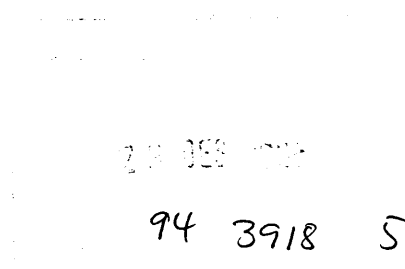


Table 1 : Thermal Maturity Data for well NOCS 6607/5-1

Depth unit of measure: m

Depth	Typ Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation	Spore Fluorescence Colour	SCI	Tmax (°C)	Sample
1080.00	com bulk	0.38	13	0.04	-	-	-	0150-0B
1300.00	cut Sltst : lt gy	0.36	2	0.00	-	3.5	-	0023-3L
1440.00	cut Sltst : lt gy to lt brn gy	-	-	-	-	4.0(??)	414	0030-2L
1580.00	cut Sltst : lt gy to lt brn gy	-	-	-	-	3.5-4.0	409	0037-2L
1800.00	cut Sltst : lt gy to lt brn gy	-	-	-	-	4.5(?)	409	0048-2L
1860.00	cut Sltst : lt gy to y gy	-	-	-	-	4.5	418	0051-2L
1920.00	cut Sltst : lt gy to y gy	-	-	-	-	4.5-5.0	-	0054-2L
2040.00	cut Sh/Clst: lt gy to y gy	-	-	-	-	5.0(?)	-	0060-2L
2184.00	cut Sh/Clst: lt gy to y gy	0.37	3	0.02	-	5.0(?)	-	0067-2L
2301.00	cut Sltst : lt gy to y gy	0.67	2	0.00	-	5.5(??)	-	0073-1L
2442.00	cut Sltst : lt gy to gy brn	-	-	-	-	5.5(?)	-	0080-1L
2601.00	cut Sh/Clst: brn gy to m gy to lt gy	0.84	4	0.09	-	5.5-6.0	-	0088-1L
2781.00	cut Sh/Clst: brn gy to m gy to lt gy	-	-	-	-	6.0	431	0097-1L
2940.00	cut Sh/Clst: lt gy to m gy to lt gy	0.64	3	0.03	-	6.0-6.5	-	0105-1L

Table 1 : Thermal Maturity Data for well NOCS 6607/5-1

Depth unit of measure: m

Depth	Typ Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation	Spore Fluorescence Colour	SCI	Tmax (°C)	Sample
3060.00	cut Sltst : lt gy to m gy	0.91	4	0.06	-	6.0-6.5	-	0111-2L
3183.00	cut Sh/Clst: lt gy to m gy	0.73	4	0.02	-	6.0-6.5	-	0117-1L
3321.00	cut Sh/Clst: lt gy to m gy	0.82	3	0.04	-	-	-	0123-1L
3363.00	cut Sh/Clst: lt gy to m gy	-	-	-	-	6.5(?)	430	0125-1L
3465.00	cut Sh/Clst: lt gy to m gy	-	-	-	-	6.5-7.0(??)	430	0130-1L
3660.00	cut Sh/Clst: lt gy to m gy	-	-	-	-	6.5-7.0	432	0140-1L
3816.00	com bulk	0.60	8	0.06	-	7.0	-	0151-0B

Table 2 : Visual Kerogen Composition Data for well NOCS 6607/5-1

Depth unit of measure: m

Depth	Typ	Lithology	L	A	L	S	C	D	I	S	I	M	S	V	C	V	A	Sample				
			%	L	t	l	l	n	e	l	t	L	%	n	s	t	n		o	I	%	n
1300.00	cut	Sltst : lt gy	80	*	**	*		* *	15		*			5	*	**		0023-3L				
1440.00	cut	Sltst : lt gy to lt brn gy	65	*	**	*		* *	20		*			15	*	**		0030-2L				
1580.00	cut	Sltst : lt gy to lt brn gy	65	*	**	*		* *	25		*			10		*		0037-2L				
1800.00	cut	Sltst : lt gy to lt brn gy	85	*	**	*	*	* *	15		*			TR		*		0048-2L				
1860.00	cut	Sltst : lt gy to y gy	85	**	**	*		* *	10		*			5		*		0051-2L				
1920.00	cut	Sltst : lt gy to y gy	75	*	**	*	*	* *	15		*			10		*		0054-2L				
2040.00	cut	Sh/Clst: lt gy to y gy	85	*	**	*	*	* *	10		*			5		*		0060-2L				
2184.00	cut	Sh/Clst: lt gy to y gy	95	*	**	*	*	* *	5		*			TR		*		0067-2L				
2301.00	cut	Sltst : lt gy to y gy	95	**	**	*		* *	5		*			TR		*		0073-1L				
2442.00	cut	Sltst : lt gy to gy brn	90	**	**	*		* *	TR		*			10		*		0080-1L				
2601.00	cut	Sh/Clst: brn gy to m gy to lt gy	60	*	**	*		* *	25	**	*			15	*	*		0088-1L				
2781.00	cut	Sh/Clst: brn gy to m gy to lt gy	65	*	**	*		* *	25	**	*			10	*	*		0097-1L				

Table 2 : Visual Kerogen Composition Data for well NOCS 6607/5-1

Depth unit of measure: m

Depth	Typ	Lithology	L A L S C D I S I M S V C V A										Sample												
			%	L	t	l	l	n	e	l	t	L		%	n	s	t	n	o	I	%	n	n	t	V
2940.00	cut	Sh/Clst: lt gy to m gy to lt gy	60	*	**	*		*	*		20	**	*						20	*		*			0105-1L
3060.00	cut	Sltst : lt gy to m gy	50	*	**	*		*	*		30	**	*						20	*		*			0111-2L
3183.00	cut	Sh/Clst: lt gy to m gy	50	*	**	*		*	*		30	**	*						20	*		*			0117-1L
3363.00	cut	Sh/Clst: lt gy to m gy	75	*	**	*		*	*		10		*						15	*		**			0125-1L
3465.00	cut	Sh/Clst: lt gy to m gy	75	*	**	*		*	*		20		*						5	*		**			0130-1L
3660.00	cut	Sh/Clst: lt gy to m gy	75	*	**	*	*	*			15	*	*						10	*		*			0140-1L
3816.00	com	bulk	75	*	**	*	*	*	*		10	*	*						15	*		*			0151-0B

Table 3 : Thermal Maturity Data for well NOCS 6607/12-1

Depth unit of measure: m

Depth	Typ Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation	Spore Fluorescence Colour	SCI	Tmax (°C)	Sample
1363.00	cut Sltst : y gy	0.43	3	0.00	-	3.5	-	0024-1L
1510.00	cut Sh/Clst: lt gy to lt y gn to pl brn	NDP	-	-	-	3.0	408	0031-3L
1610.00	cut Sltst : lt gy	0.34	2	0.00	-	3.5-4.0	389	0036-2L
1710.00	cut Sltst : lt gy	NDP	-	-	-	3.5	394	0041-3L
1850.00	cut Sltst : lt gy	0.42	3	0.00	-	4.0-4.5	-	0048-3L
2170.00	cut Sltst : lt gy	NDP	-	-	-	4.5(?)	-	0064-2L
2290.00	cut Sltst : lt gy to m gy	NDP	-	-	-	NDP/5.0(??)	417	0070-2L
2430.00	cut Sltst : lt gy to m gy	NDP	-	-	-	NDP	-	0077-2L
2490.00	cut Sltst : m gy	NDP	-	-	-	NDP	-	0080-3L
2550.00	cut Sltst : m gy	NDP	-	-	-	NDP	-	0083-3L
2670.00	cut Sltst : m gy to drk gy	NDP	-	-	-	NDP	-	0089-3L
2770.00	cut Sh/Clst: m gy	NDP	-	-	-	6.0(?)	364	0094-3L
2870.00	cut Sh/Clst: m gy	NDP	-	-	-	NDP	374	0099-3L

Table 3 : Thermal Maturity Data for well NOCS 6607/12-1

Depth unit of measure: m

Depth	Typ	Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation	Spore Fluorescence Colour	SCI	Tmax (°C)	Sample
3010.00	cut	Sh/Clst: m gy to drk gy	NDP	-	-	-	6.0-7.0(?)	373	0106-3L
3150.00	cut	Sh/Clst: m gy to drk gy	NDP	-	-	-	NDP	-	0113-3L
3290.00	cut	Sh/Clst: m gy to drk gy	NDP	-	-	-	NDP	367	0120-3L
3430.00	cut	Sh/Clst: m gy to drk gy	NDP	-	-	-	7.5(?)	325	0127-3L
3521.00	cut	Sh/Clst: m gy to drk gy	NDP	-	-	-	NDP	-	0132-3L

Table 4 : Visual Kerogen Composition Data for well NOCS 6607/12-1

Depth unit of measure: m

Depth	Typ	Lithology	L	A	L	S	C	D	I	S	I	M	S	V	C	V	A	Sample							
%			L	t	l	l	n	e	l	t	L	%	n	s	t	n	o	I	%	n	n	t	V	V	Sample
1363.00	cut	Sltst : y gy	95	*	**	*		* *	5	*	*			TR	*	**									0024-1L
1510.00	cut	Sh/Clst: lt gy to lt y gn to pl brn	95	*	**	*		* *	5		*			TR		*									0031-3L
1610.00	cut	Sltst : lt gy	90	**	*	**		* *	10		*			10		*									0036-2L
1710.00	cut	Sltst : lt gy	95	**	*	**		* *	TR		*			5		*									0041-3L
1850.00	cut	Sltst : lt gy	85	*	**	*		*	15	*	**			TR		*									0048-3L
2170.00	cut	Sltst : lt gy	85	*	**	*		* *	15	*	**			TR		*									0064-2L
2290.00	cut	Sltst : lt gy to m gy	40		**	*		*	60	*	**			TR		*									0070-2L
2430.00	cut	Sltst : lt gy to m gy	25		**	*		*	75	*	**			TR		*									0077-2L
2490.00	cut	Sltst : m gy	50		**	*		*	50	*	**			TR		*									0080-3L
2550.00	cut	Sltst : m gy	45		**	*		*	55	*	**			TR		*									0083-3L
2670.00	cut	Sltst : m gy to drk gy	20		**	*		?	80	*	**			TR		*									0089-3L
2770.00	cut	Sh/Clst: m gy	55		**	*		?	45	*	**			TR		*									0094-3L

Table 4 : Visual Kerogen Composition Data for well NOCS 6607/12-1

Depth unit of measure: m

Depth	Typ	Lithology	L A L S C					D I S I M S					V C V A					Sample							
			%	L	t	l	l	n	e	l	t	L	%	n	s	t	n		o	I	%	n	n	t	V
2870.00	cut	Sh/Clst: m gy	50	**	*		?				50	*	**						TR		*				0099-3L
3010.00	cut	Sh/Clst: m gy to drk gy	55	**	*		?			45	*	**							TR		*				0106-3L
3150.00	cut	Sh/Clst: m gy to drk gy	60	**	*		?			40	*	**							0						0113-3L
3290.00	cut	Sh/Clst: m gy to drk gy	55	**	*		?			45	*	**							0						0120-3L
3430.00	cut	Sh/Clst: m gy to drk gy	70	**	*		?			30	*	**							0						0127-3L
3521.00	cut	Sh/Clst: m gy to drk gy	80	**	*		?			20	*	**							0						0132-3L