

Table 4.8 MDT pressures well 7728/7-1A.

T e s t	Depth meter		Pressures			Mobility mD/cp	Temp Deg C	Comments
	MD RKB	MSL TVD	Hydr. before (bar)	Hydr. after (bar)	Forma tion (bar)			
Run 1A								
1	1389	1344,4	197,54	197,48	147,37	301		
2	1403	1358,1	199,48	199,53	148,91	304,6		
3	1411	1366,1	200,69	200,66	149,62	429,4		
4	1439	1393,9	204,68	204,64	153,02	574,8		
5	1452	1406,8	206,51	206,51	154,51	727,7		
6	1486	1440,6	211,4	211,4	158,4	161,7		
7	1493	1447,2	212,36	212,36	159,18	258,9		
8	1509	1463,5	214,64	214,64	161,01	1 116		
9	1572,8	1527	223,7	223,66	168,33	404,9		
10	1605,5	1559,6	228,34	228,35	172,16	11,4		
11	1671	1624,9	237,65	237,68	179,67	46,4		
12	1820	1773,8	258,8	258,82	196,9	8,6		
13	2030,2	1984	288,6	288,57	148,95	0	53	Tight
14	2045,6	1999,4	290,81	290,79	224,5	906	53,7	
15	2052	2005,8	291,77	291,77	224,63	184,4	54,2	
16	2057,5	2011,3	292,55	292,54	224,74	2 426	54,5	
17	2061,5	2015,3	293,09	293,1	224,82	2 045	54,9	
18	2068	2021,8	294,04	294,05	224,93	146,7	55,2	
19	2079,5	2033,3	295,69	295,7	225,13	177,1	55,6	
20	2087	2040,8	296,76	296,74	225,28	116,5	55,8	
21	2091,2	2044,9	297,36	297,35	225,57	385,5		
22	2104,5	2058,2	299,25	299,23	226,77	42,5	56,2	
23	2370,5	2323,8	337,03	337,05	287,72		62,2	Supercharged
24	2448,8	2401,6	346,19	346,21	140,18		68,8	Tight
25	2490,3	2442,8	354,03	354,08	164,39		65,4	Tight
26	2492,8	2445,3	354,36	354,37	316,58		66,3	Supercharged
27	2091	2044,7	297,26	297,28	225,48	438,1	60,1	
28	2093	2046,8	297,57	297,56	225,64	245,9	58,7	
29	2104,2	2058	299,15	299,21	120,39		58,2	Tight
30	2104,3	2058,1	299,2	299,21	136,03		57,9	Tight
31	2104,5	2058,2	299,25	299,28	224,75		57,7	Tight
32	2104,6	2058,4	299,29	299,3	107,87		57,7	Tight
33	2105,5	2059,3	299,37	299,43	226,84	32,3		
34	2104,6	2058,4	299,3	299,27	181,52		57,3	Tight
35	2054,2	2008	292,18	292,17	100,53		56,8	Tight
36	2051,1	2004,9	291,69		224,62	242	54,8	Sampling depth
Run 1B								
1	2091,1	2045,1	299,82	299,65	225,59	486,2	59,3	Oil sample
2	2061,5		295,46	NA	NA			Lost seal
3	2057,5	2011,6	294,9	294,8	224,72	1 613	58,1	Gas sample
4	2087,5	2041,6	299,19		225,41	79,4		OFA scanning
5	2086,9	2040,9	299,12		225,33	184	58,7	OFA scanning

FINAL WELL REPORT
PL 202
Well 7228/7-1A and 7228/7-1B

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0

Table 4.9 MDT pressures well 7728/7-1B

T e s t	Depth meter		Pressures			Mobility mD/cp	Comments
	MD RKB	MSL TVD	Hydr. before (bar)	Hydr. after (bar)	Forma tion (bar)		
1	2175,5	2095,4	275,07	275,04	237,61	11,38	Supercharged
2	2173	2094	274,92	274,9			Tight
3	2173,4	2094,2	274,95	274,92	227,68	19,2	
4	2164	2088,7	274,22	274,21			Tight
5	2163,4	2088,4	274,16	274,16			Tight
6	2162,5	2087,8	274,07	274,07			Tight
8	2158,2	2085,2	273,73	273,72			Tight
9	2147,4	2078,5	272,83	272,85	225,96	13	
10	2145,8	2077,5	272,73	272,73			Tight
11	2146,6	2078	272,75	272,76			Tight
12	2142,5	2075,4	272,41	272,43			Tight
13	2142	2075,1	272,36	272,36			Tight
14	2130	2067,2	271,33	271,34			Tight
15	2126	2064,5	270,95	270,97			Tight
16	2119	2059,7	270,36	270,38	224,87	1,16	Poor permeability
17	2118	2059	270,26	270,26			Tight
18	2173,4	2094,3	274,83	274,82			Lost seal
19	2147,2	2078,4	272,79	272,79	225,95	4,38	Tight
20	2127	2065,1	271,03	271,03	225,9	0,46	Supercharged
7	2161,5	2087,2	274,01	273,97			Tight

Table 4.9 Samples collected

Run no.	Depth sample type	Sample Size	Shut-in pressure (bar)	Opening pressure (bar)	Pump Vol. (Litres)	Sampling pressure (bar)	Mobility mD/cp	Comments
1A	2051.1 m Gas sample	2 3/4 gal.	224,6	145,0		188-219	242,0	1883 litre Gas, 137 ml mudfiltrate of which 15 ml mud. Only trace of condensate observed . H2S<0.2 ppm, CO2<2% and R-SH<0.5 ppm Geochemical bottle no: 98-08
		1 gal	224,6	300,0		210,0	242,0	
		250 cc	224,7	420,0		217,0	242,0	Used for rig analysis (bottle returned) H2S=0 ppm, CO2=0.322%, N2=1.4% C1=87.55%, GOR=50736Sm/Sm Density at res cond.= 0.1962 kg/Sm3
		250 cc	224,66	393,0		218,0	242,0	
		450 cc	224,7	290,0		219,0	242,0	
1B	Oil sample @ 2091.1 m	250 cc coated	225,2	518.0 @ -3 C	27,0	225,4	486,2	
		250 cc	225,2	511 @ -3 deg C	28,5	225,4	486,2	
		450 cc	495,0	220 @ 2 deg.C	32,0	224,4	486,2	
		450 cc	495,0	200 @ 2 deg.C	35,0	224,6	486,2	
		1 gal	495,0	180 @ 2 degC	37,5	224,6	486,2	Start to leak during stabilisation (prior to transfer).
	Gas sample @ 2057.5 m	250 cc	224,5	394 bar @ -3 deg.C	43,0	224,5	1613,0	
		250 cc	225,5	401 bar @ -3 deg.C	48,0	224,5	1613,0	
		1 gal	495	300 @ 2 deg.C	53	224,5	1 613	After transfer to three shipping bottles, rest of 1 gal chamb. was drained.

In general the samples were of good quality. The gas sample in run 2B was collected due to suspicion that the gas sample in run 1A was sampled below the dew point.

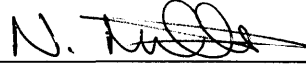

Well:		7228/7-1S T3		DRILLING FLUIDS PROGRAM																	
Field:		Barents Sea																			
Rig:		Transocean Arctic																			
HOLE		CASING		MUD TYPE	MW [sg]	LGS [KG/m ³]	10 sec. [Pa]	10 min. [Pa]	Fann 3 rpm	O / W ratio / Filter cake*	PV [mPa]	API FL [m]	HTHP FL [m]	MBT [KG/m ³]	pH	Kcl [KG/m ³]	Glyc. [%]	YP [Pa] / ES***	Ex time [KG/m ³]	Total Volume	
SIZE	TVD MD	SIZE	TVD MD																	Old Volume	
																					Usage [m ³]
36"	372 372	30"	372 372	SW / Polymer	1.03-1.35							< 10 in displ. volume			9-10						320 0 320 179
				Comments: Sea water was used in combination with high viscous pills. Displaced to 1.35 sg Bentonite mud prior to running 30" conductor. A minimum of 60 m3 of 1.60 sg kill mud shall be ready in the pits, prior to drilling out of the 30" shoe.																	
26"	507 507	20"	502 502	SW / Polymer	1.03-1.2							< 10 in displ. volume			9-10						318 141 177 318
				Comments: Sea water was used in combination with high viscous pills. Displaced to 1.20 sg. Bentonite mud treated with polymers for fluid loss control, prior to running 20" casing.																	
17 1/2" Track 1	1348 1362	14" x 13 3/8"		Flo Pro / SW	1.20-1.30 1.03	75 - 123	3-8	5-12	9-10		13-20	1.8-3.2		10	8.4-9.5		3-5	9.5-14.5			1075 0 1075 563
				Comments: The section was drilled with NaCl/Polymer system as per programme, down to 709m. Due to heavy losses at the shale shakers, it was displaced back to SW at 709 m and drilled down to 1362m. The hole was displaced back to the NaCl/Polymer mud at TD. The string got stuck at 1332m on a wipertrip, hence the string was shot off and the hole was sidetracked.																	
17 1/2" Track 2	1337 1348	14" x 13 3/8"		Flo Pro	1.32-1.37	112-160	5-6	5-16	8-12		15-25	1.8-2.6		10-49	9.2-10.9		5	11.5-18.5			718 512 206 178
				Comments: The section was drilled with a modified NaCl/Polymer system - diluting the active system 50/50 with premix made of drillwater, polymers and 5% glycol. The hole was drilled down to 1348m. Bit and BHA were heavily belled up. The 13 3/8" casing was ran to but unable to pass 620m, hence the casing was pulled out again. A wipertrip showed hole problems, and the hole was plugged back to the 20" casing shoe for another sidetrack.																	
17 1/2" Track 3	1315 1333	14" x 13 3/8"	1306 1323	Glydrit (KCl/ Polymer/ Glykol)	1.35-1.45	157-199	4-6	8-14	8 - 10		15-26	1.6-2.4		14-49	8.0-9.6	145-174	5	13.5-17.5			1211 217 994 429
				Comments:																	
8 1/2"	1987 2087	7" Optional		Glydrit (KCl/ Polymer/ Glykol)*	1,35	142-148	5-7	8-11	7-9		19-21	2.0-2.5		32-42	7.7-8.7	158-170	5	13.5-17.0			688 565 123 79
				Comments: Sidetrack due to unintendedly drilling through a fault and into Perm.																	

Well:		7228/7-1A and 1B		DRILLING FLUIDS PROGRAM																
Field:		Barents Sea																		
Rig:		Transocean Arctic																		
HOLE		CASING		MUD TYPE	MW [sg]	LGS [KG/m ³]	10 sec. [Pa]	10 min. [Pa]	Fann 3 rpm	O/W ratio	PV [mPa]	API FL [m]	HTHP FL [m]	MBT [KG/m ³]	pH	Kcl [KG/m ³]	Glyc. [%]	YP [Pa]	Ex llme [KG/m ³]	Total Volume Old Volume New Volume Usage [m ³]
SIZE	TVD MD	SIZE	TVD MD																	
8 1/2"	2848	7"		GlydriI (KCl/ Polymer/ Glykol)	1.35-1.45	108-176	6-7	9-14	6-13		18-28	1.8-2.6		25-29	8-9	150-170	5-5.5	12-22		1377
7228/7-1A	2881	Optional		<i>Comments: Minor bit balling was experienced in this section. Sidetrack to verify oil-water contact downflanks on the structure.</i>																
8 1/2"	2122	7"		GlydriI (KCl/ Polymer/ Glykol)	1.31-1.32	148-153	6-6.5	9-11	7-8		20-23	1.9-2.5		19-22	9-9.4	159-163	5-5.5	14-15.5		991
7228/7-1B	2227	Optional		<i>Comments:</i>																

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Authors
 Kjell Urdal
 Kristine Aasgaard
 Per Erling Johansen

REGISTRERT
 OLJEDIREKTORATET
 20 FEB. 2002
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	Name	Date	Signature
Reviewed by	Nigel Mills	2002-01-07	
Approved by	for Tore Haaland	2002-01-07	

Summary

This report is a data report on work performed under the Statoil project number APT2001-05. 9 drill cuttings samples, 11 side well cores and 2 core samples were included in this study. In addition, some samples that were analysed earlier in project APT2001-01, are also included in this report.

The numbers of different sample types and of analyses performed are shown below:

Analysis	Cuttings Earlier+New	SWC	Core Earlier+New	Total Earlier+New
Lithology Descriptions	6+9	11	1+2	7+22
Pre-extraction	4+3	11	1+2	5+16
TOC and Pyrolysis	6+9	11	1+2	7+22
Visual kerogen	6+2	3	1+1	7+6
Vitrinite reflection	6+0		1+0	7+0
Solvent Extraction	3+4	4	0+1	3+9
Asphaltene Precipitation	3+4	4	0+1	3+9
Iatroscan	2+5	4	0+1	2+10
MPLC	3+4	4	0+1	3+9
Carbon Isotopes	0+7*5	0+4*5	0+1*5	0+12*5
Pyrolysis GC	3+4	4	0+1	3+9
Saturates GC	3+4	4	0+1	3+9
Aromatics GC	3+4	4	0+1	3+9
Saturates GCMS	2+5	4	0+1	2+10
Aromatics GCMS	2+5	4	0+1	2+10
GCMS age diagnostic compounds	0+4	2		0+6

Experimental Procedures

All procedures follow NIGOGA, 4th Edition. Below are brief descriptions of procedures/analytical conditions.

Sample preparation

Cuttings samples are washed in water to remove mud. When oil based mud is used, soap (Zalo) is added to the sample and the sample is washed thoroughly in warm water to remove mud and soap.

Extraction

A Soxtec Tecator instrument is used. Thimbles are pre extracted in dichloromethane with 7% (vol/vol) methanol, 10 min boiling and 20 min rinsing. The crushed sample is weighed accurately in the pre extracted thimbles and boiled for 1 hour and rinsed for 2 hours in approximately 80 cc of dichloromethane with 7% (vol/vol) methanol. Copper blades activated in concentrated hydrochloric acid are added to the extraction cups to cause free sulphur to react with the copper. An aliquot of 10% of the extract is transferred to a pre weighed bottle and evaporated to dryness. The amount of extractable organic matter is calculated from the weight of this 10% aliquot.

Deasphalting

The extract is evaporated almost to dryness before a small amount of dichloromethane (3 times the amount of EOM) is added. Then pentane is added in excess (40 times the volume of EOM and dichloromethane). The solution is stored for at least 12 hours in a dark place before the solution is filtered or centrifuged and the weight of the asphaltenes measured.

MPLC

The MPLC is constructed as described by Radke et al. (1980). The system includes two HPLC pumps, sample injector, sample collector, RI-detector, UV-detector and two packed columns. The pre column is filled with Kieselgel 100, which is heated at 600 °C for 2 hours to deactivate it. The main column is a LiChroprep Si60, which is heated at 120 °C for 2 hours to make it water free.

Approximately 30 mg of deasphalted oil or EOM diluted in 1 ml hexane is injected and separated into a saturated, an aromatic and a polar fraction.

TOC and Rock-Eval

A Rock-Eval 6 instrument is used. The analysis is performed in two steps, pyrolysis and oxidation, when TOC is measured. Jet-Rock 1 was run as every tenth sample and checked against the acceptable range given in NIGOGA.

Temperature programme

Pyrolysis: 300 °C (3 min.) - 25 °C/min. - 650 °C (0 min.)

Oxidation: 400 °C (3 min.) - 25 °C/min. - 850 °C (5 min.)

Iatroscan

An Iatroscan MK-5 (TLC/FID Analyser) instrument is used. 2 µl of extract or diluted oil is spotted on Chromarod S-III rods before elution in hexane (25 min), toluene (8 min) and dichloromethane with 7 % methanol (vol/vol). The solvent is allowed to evaporate before the rods are placed into the next elution chamber. Before running the rods in the analyser, the rods are heated for 90 sec. in a heating chamber at 60 °C.

GC of whole oil

A HP5890 II instrument is used. The column is a HP PONA, length 50 m, i.d. 0.2 mm, film thickness 0.5 µm. 2,2,4-tri-methane-pentane is used as an internal standard.

Temperature programme

30 °C (10 min.) - 2 °C/min. - 60 °C (10 min.) - 2 °C/min - 240 °C (60 min.)

GC of saturated fraction

A HP5890 II instrument is used. The column is a CP-Sil-5 CB-MS, length 25 m, i.d. 0.25 mm, film thickness 0.25 µm. C12D26, C20D42, C24D50 and C30D62 are used as internal standards.

Temperature programme

50 °C (1 min.) - 4 °C/min. - 310 °C (25 min.)

GC of aromatic fraction

A HP5890 instrument is used. The column is a CP-Sil-8 CB, length 50 m, i.d. 0.25 mm, film thickness 0.25 µm.

Temperature programme

50 °C (1 min.) - 4 °C/min. - 310 °C (25 min.)

PyGC

A HP5890 II instrument with a MSSV injector and a FID is used. The column is a CP-Sil-5 CB-MS, length 25 m, i.d. 0.25 mm, film thickness 0.25 µm.

During the run the pyrolysis oven starts at 330 °C. The tube is then broken and the temperature increased to 600 °C at a rate of 25 °C/min. The pyrolysis products are collected in the cold trap for fourteen minutes.

Temperature programme

30 °C (15 min.) - 5 °C/min. - 310 °C (23 min.)

GCMS of saturated and aromatic fractions

A Micromass ProSpec high resolution instrument is used. The instrument is tuned to a resolution of 3000 and data is acquired in Selected Ion Recording (SIR) mode. The column used is a 60 m CP-Sil-5 CB-MS with an i.d. of 0.25 mm and a film thickness 0.25 µm.

d4-27 α R is used as internal standard when quantitative results are requested for the saturated compounds. The aromatic and aliphatic fractions may be analysed together or separately.

Temperature programme

50 °C (1 min.) - 20 °C/min. - 120 °C - 2 °C/min - 320 °C (20 min.)

Stable isotope analysis of gas compounds

5-10 ml of the gas is sampled with a syringe and then separated into the different gas components by a Carlo Erba 4200 gas chromatograph. The hydrocarbon gas components are oxidised in separate CuO-ovens in order to prevent cross contamination. The combustion products CO₂ and H₂O are frozen into collection vessels and separated.

The combustion water is reduced with zinc metal in sealed quartz tubes to prepare hydrogen for isotopic analysis. The isotopic measurements are performed on a Finnigan MAT 251 and a Finnigan Delta mass spectrometer.

The value for the NBS 22 standard is -29.77 ± 0.06 ‰ PDB. The analytical procedures are tested with a laboratory gas standard mixture. Based on repeated analysis of the gas standard, the reproducibility in the $\delta^{13}\text{C}$ value is better than 0.5 ‰ PDB for all components. The reproducibility in the δD value is likewise better than 10 ‰.

Stable carbon isotope analysis of oil, EOM and kerogen

The samples are dissolved in a known amount of dichloromethane, and 1-2 mg of the sample (or as much as possible) is then transferred to a glass container. The solvent is evaporated in an oven at 50 °C. CuO and some silver wires are added to the containers, which are then sealed by melting in a vacuum. The samples are then combusted in an oven at 550 °C for 1 hour (Sofer, 1980). The combustion products CO₂ and H₂O are separated at -80°C before the isotopic ratio is determined on a Finnigan MAT 251 mass spectrometer.

A standard (NGS NSO-1, topped oil) is analysed for each 10th sample. The $\delta^{13}\text{C}$ value obtained for this standard is -28.73 ‰ PDB. The variation in the isotopic values for the standard by repeated analysis over a period of four years is ± 0.16 ‰.

GC analysis of gas components

Aliquots of 0.2 ml are sampled with a syringe for analysis on a Porabond Q column on a Carlo Erba HRGC 5300 equipped with a flame ionisation (FID) and a thermal conductivity (TCD) detector. The detection limit for the hydrocarbon gas components is 0.001 $\mu\text{l/ml}$, for CO₂ 0.05 $\mu\text{l/ml}$.

Vitrinite reflectance analysis

The samples are prepared either as “whole rock” or are treated with hydrochloric and hydrofluoric acid prior to further preparation. The aim of the acid treatment is to avoid soft and expanding mineral phases in order to ensure good polishing quality. The whole rock or the kerogen resulting from the acid treatment is embedded in an epoxy resin to make

briquettes, ground flat and polished using 0.25 micron diamond paste and magnesium oxide as the two final steps.

The analytical equipment used is a Zeiss MPM 03 photometer microscope equipped with an Epiplan-Neofluar 40/0.90 oil objective. The sensitive measuring spot is kept constant for all measurements at about 2.5 micron in diameter. The measurements are made through a green band pass filter (546 nm) and in oil immersion (refractive index 1.515 at 18 °C). The readings are made without a polarizer and using a stationary stage. This procedure is called measurement of random reflectance (%Rm). The photometer is calibrated daily against a standard of known reflectance (%Rm = 0.588) and routinely (daily) checked against two other standards of significant different reflectances (%Rm = 0.879 and 1.696). A deviation from these values of less than ± 0.01 and ± 0.02 respectively is considered acceptable. The calibration is routinely checked during the course of measurements at least every hour, and a deviation of less than ± 0.005 is considered acceptable.

For each sample at least 20 points are measured if possible, and quality ratings are given to various important aspects, which may affect the measurements. These aspects are abundance of vitrinite, uncertainties in the identification of indigenous vitrinite, type of vitrinite, particle size, particle surface quality and abundance of pyrite.

Table 1. Lithology Description

Well	Sample type	Upper Depth	Lower Depth	APT ID	%	Lithology	Attributes
7228/7-1 S	DC		1314	11059A	100%	CLYST	gy, sl calc
7228/7-1 S	DC		1314	11059B	trace	CLYST	lt br
7228/7-1 S	DC		1323	11822	100 %	CLYST	dk gy
7228/7-1 S	DC		1335	11823	100 %	CLYST	dk gy
7228/7-1 S	DC		1341	11824	100 %	CLYST	dk gy
7228/7-1 S	DC		1347	11825	100 %	CLYST	dk gy
7228/7-1 S	DC		1353	11826	100 %	CLYST	dk gy
7228/7-1 S	DC		1359	11827	100 %	CLYST	dk gy
7228/7-1 ST3	DC		1779	11828A	70%	SST	f
7228/7-1 ST3	DC		1779	11828B	20%	CLYST	lt brn
7228/7-1 ST3	DC		1779	11828C	10%	CLYST	gy
7228/7-1 ST3	DC		1794	11063A	90%	CLYST	dk gy
7228/7-1 ST3	DC		1794	11063B	10%	CLYST	lt gy
7228/7-1 ST3	DC		1872	11065A	80%	CLYST	dk gy
7228/7-1 ST3	DC		1872	11065B	20%	CLYST	lt gy
7228/7-1 ST3	DC		1950	11829A	70%	SST	f
7228/7-1 ST3	DC		1950	11829B	15%	CLYST	dk gy
7228/7-1 ST3	DC		1950	11829C	15%	CLYST	lt gy
7228/7-1 ST3	DC		2049	11830A	40%	CLYST	dkgy
7228/7-1 ST3	DC		2049	11830B	20%	CLYST	ltgy
7228/7-1 ST3	DC		2049	11830C	40%	SST	f
7228/7-1 B	SWC	1810.00	1810.00	11831	100 %	CLYST	ltgy
7228/7-1 B	SWC		1845.50	11832	100 %	CLYST	ltgy
7228/7-1 B	SWC	1890.00	1890.00	11833	100 %	CLYST	ltgy, slty
7228/7-1 B	SWC	1932.00	1932.00	11834	100 %	CLYST	ltgy
7228/7-1 B	SWC		1959.50	11835	100 %	CLYST	ltgy
7228/7-1 B	SWC	2007.00	2007.00	11836	100 %	CLYST	brngy
7228/7-1 B	SWC		2025.50	11837	100 %	CLYST	gy
7228/7-1 B	SWC	2052.00	2052.00	11838	100 %	CLYST	ltgy, slty
7228/7-1 B	SWC	2072.00	2072.00	11839	100 %	CLYST	gy
7228/7-1 B	SWC	2081.00	2081.00	11840	100 %	CLYST	dkgy
7228/7-1 B	SWC	2123.00	2123.00	11841	100 %	CLYST	gy
7228/7-1 A	DC		1347	11032A	50%	CLYST	dk gy
7228/7-1 A	DC		1347	11032B	50%	CLYST	lt gy, calc
7228/7-1 A	COCH	2455.49	2455.52	11022A	100%	CLYST	dk gy-blk, sl slty
7228/7-1 A	COCH	2455.49	2455.52	11022B	trace	COAL	
7228/7-1 A	DC		2742	11048A	80%	CLYST	dk, sl calc
7228/7-1 A	DC		2742	11048B	20%	CLYST	lt, calc
7228/7-1 A	DC		2742	11048C	trace	SST	
7228/7-1 A	DC		2781	11049A	80%	CLYST	dk, sl calc
7228/7-1 A	DC		2781	11049B	20%	CLYST	lt, calc
7228/7-1 A	DC		2781	11049C	trace	SST	
7228/7-1 A	COCH	2845.00	2845.00	11842	100 %	CLYST	gy
7228/7-1 A	COCH		2857.75	11843	100 %	CLYST	gy



Table 2. GC of saturated compounds (parameters)

Well	Sample type	Lower Depth	APHD	P _v /n-C17	Ph/n-C18	(P _v /n-C17)/(Ph/n-C18)	P _v /Ph	n-C17/n-C17+n-C18
7228/7-1 S	DC	1335	11823	1.59	1.61	0.99	1.15	0.72
7228/7-1 S	DC	1347	11825	3.53	3.41	1.04	1.18	0.60
7228/7-1 S	DC	1359	11827	4.37	3.56	1.23	1.27	0.60
7228/7-1 ST3	DC	1779	11828	1.28	0.70	1.84	1.12	0.32
7228/7-1 ST3	DC	1794	11063	0.74	0.42	1.77	1.82	0.64
7228/7-1 B	SWC	1959.50	11835	0.82	0.52	1.56	0.77	0.38
7228/7-1 B	SWC	2025.50	11837	0.78	0.67	1.16	0.36	0.23
7228/7-1 B	SWC	2081	11840	0.61	0.14	4.46	3.00	0.22
7228/7-1 B	SWC	2123	11841	0.58	0.23	2.49	2.31	0.48
7228/7-1 A	DC	1347	11032	3.96	3.13	1.27	1.50	0.73
7228/7-1 A	DC	2742	11048	0.41	0.23	1.77	2.54	0.83
7228/7-1 A	COCH	2857.75	11843	0.23	0.16	1.46	0.86	0.58

L Depth →

APT ID →

$P_v/n-C17$ →

$Ph/n-C18$ →

$\frac{P_v/n-C17}{Ph/n-C18}$ →

P_v/Ph →

$\frac{n-C17}{n-C17+n-C18}$

Table 3. GCMS SIR of saturated compounds (parameters)

Well	Sample type	Lower Depth	APT ID	%23/	%28αβ	%30D	%27Ts	%22S	%29Ts	%20S	%ββ	%27dbS	%C27	%C29	28/29	%24:4/23:3
7228/7-1 S	DC	1335	11823	3.50	2.40	3.89	26.39	43.25	12.55	13.02		24.18	27.13	28.19	1.48	0.54
7228/7-1 S	DC	1347	11825	5.10	2.22	3.96	18.84	47.02	11.86	15.26		26.42	28.91	27.47	1.57	0.51
7228/7-1 S	DC	1359	11827	6.21	1.79	4.45	7.84	53.59	8.48	21.31		35.52	34.59	27.42	1.60	0.60
7228/7-1 ST3	DC	1779	11828	21.29	4.99	15.46	29.22	59.96	16.96	56.34	58.44	60.85	42.67	37.28	0.56	0.89
7228/7-1 ST3	DC	1794	11063	14.80	2.09	15.98	23.49	58.61	14.43	55.85	56.97	65.99	39.54	46.38	0.40	1.05
7228/7-1 B	SWC	1959.50	11835	34.88	5.12	2.57	24.82	59.26	8.73	42.48	40.60	24.60	36.25	30.92	0.92	0.23
7228/7-1 B	SWC	2025.50	11837	70.74	8.64	4.44	37.29	53.91	20.33	32.67	43.23	24.33	36.65	42.54	1.06	0.22
7228/7-1 B	SWC	2081	11840	1.35	1.42	3.91	4.07	60.40	8.19	54.62	35.40	14.33		91.59	0.20	6.01
7228/7-1 B	SWC	2123	11841	6.73	2.34	9.53	7.40	58.95	9.69	59.26	37.13	30.10	24.01	56.87	0.31	1.53
7228/7-1 A	DC	1347	11032	8.05	2.61	5.32	4.61	58.70	6.97	51.46	43.94	57.08	44.99	31.00	0.75	0.84
7228/7-1 A	DC	2742	11048	28.74	19.92	10.18	30.47	58.07	17.21	51.25	43.93	53.55	35.31	41.86	0.52	0.69
7228/7-1 A	COCH	2857.75	11843	77.60	10.90	10.90	52.81	54.13	23.79	54.86	53.00	36.32	40.47	38.74	0.64	0.23



Table 4. GCMS SIR of aromatic compounds (parameters)

Well	Sample type	Lower Depth	APT ID	AROM2	Crack1	Crack2	MA1	MA2	MA3	MA4	MA5	MA6	MA7	MA8	MA9	MA10
7228/7-1 S	DC	1335	11823	0.347	0.252	0.056	0.056	0.048	0.356	0.418	0.973	0.548	0.850	0.263	1.482	0.278
7228/7-1 S	DC	1347	11825	0.395	0.262	0.076	0.076	0.093	0.733	0.407	0.453	2.188	0.632	0.750	2.085	0.333
7228/7-1 S	DC	1359	11827	0.408	0.272	0.098	0.098	0.143	0.845	0.419	1.024	3.926	0.720	0.754	2.105	0.336
7228/7-1 ST3	DC	1779	11828	0.908	0.874	0.733	0.733	0.400	1.872	0.417	0.629	0.816	1.388	0.075	4.929	0.747
7228/7-1 ST3	DC	1794	11063	0.928	0.833	0.677	0.677	0.500	2.803	0.462	1.912	5.658	0.957	0.097	11.056	0.867
7228/7-1 B	SWC	1959.50	11835	0.790	0.448	0.253	0.253	0.175	1.488	0.369			0.798	0.051	2.298	0.818
7228/7-1 B	SWC	2025.50	11837	0.588	0.891	0.630	0.630	0.449	2.531	0.344	0.919	0.996	0.576	0.092	17.647	0.534
7228/7-1 B	SWC	2081	11840	0.935	0.412	0.302	0.302	0.246	2.306	0.412	0.722	0.923	0.563	0.123	4.828	0.899
7228/7-1 B	SWC	2123	11841	0.939	0.175	0.091	0.091	0.209	1.882	0.377	1.376	3.894	0.395	0.075	2.435	0.916
7228/7-1 A	DC	1347	11032	0.433	0.285	0.118	0.118	0.183	0.773	0.401	1.195	4.046	0.465	0.918	1.910	0.340
7228/7-1 A	DC	2742	11048	0.685	0.623	0.401	0.401	0.168	3.104	0.480	1.727	6.175	0.671	0.067	13.202	0.453
7228/7-1 A	COCH	2857.75	11843	0.747	0.915	0.741	0.741	0.430	4.138	0.484	0.488	2.859	1.203	0.053	134.798	0.571

Table 5. Extraction, Asphaltene precipitation and Iatrosan data

Well	Sample type	Lower Depth	APT ID	Rock weight (g)	EOM (mg)	EOM (mg/kg Rock)	SAT (mg/kg Rock)	ARO (mg/kg Rock)	POL (mg/kg Rock)	ASP (mg/kg Rock)	SAT (wt% of EOM/Oil)	ARO (wt% of EOM/Oil)	POL (wt% of EOM/Oil)	ASP (wt% of EOM/Oil)	HC (wt% of EOM/Oil)
7228/7-1 S	DC	1335	11823	7.620	15	1969	226	251	796	696	11.5	12.7	40.5	35.3	24.2
7228/7-1 S	DC	1347	11825	9.880	52	5263	292	1386	1570	2014	5.6	26.3	29.8	38.3	31.9
7228/7-1 S	DC	1359	11827	10.100	84	8317	159	1952	1365	4842	1.9	23.5	16.4	58.2	25.4
7228/7-1 ST3	DC	1779	11828	10.350	12	1159	24	135	623	377	2.1	11.7	53.8	32.5	13.7
7228/7-1 ST3	DC	1794	11063	8.384	31	3697	537	1157	1372	632	14.5	31.3	37.1	17.1	45.8
7228/7-1 B	SWC	1959.50	11835	4.061	12	2881	43	0	2616	222	1.5	0.0	90.8	7.7	1.5
7228/7-1 B	SWC	2025.50	11837	10.517	35	3328	53	57	3218	0	1.6	1.7	96.7	0.0	3.3
7228/7-1 B	SWC	2081	11840	8.061	73	9093	721	1335	2286	4751	7.9	14.7	25.1	52.3	22.6
7228/7-1 B	SWC	2123	11841	7.498	30	4001	184	164	3386	267	4.6	4.1	84.6	6.7	8.7
7228/7-1 A	DC	1347	11032	4.079	132	32363	1262	8349	16279	6473	3.9	25.8	50.3	20.0	29.7
7228/7-1 A	DC	2742	11048	3.453	7	1940	164	18	1267	492	8.4	0.9	65.3	25.4	9.3
7228/7-1 A	COCH	2857.75	11843	13.134	23	1774	83	37	1540	114	4.7	2.1	86.8	6.4	6.8

Table 6. TOC and Rock-Eval data

Well	Sample type	Lower Depth	APT ID	S1 (mg/g)	S2 (mg/g)	S3 (mg/g)	Tmax (°C)	PP (mg/g)	PI (wt ratio)	HI (mg HC/g TOC)	OI (mg CO2/g TOC)	TOC (%)
7228/7-1 S	DC	1314	11059A	0.05	0.28	0.29	424	0.33	0.15	20	20	1.42
7228/7-1 S	DC	1323	11822	0.00	0.07	0.37	481	0.07	0.03	8	42	0.88
7228/7-1 S	DC	1335	11823	0.14	7.79	0.39	425	7.93	0.02	222	11	3.51
7228/7-1 S	DC	1341	11824	0.23	13.15	0.46	423	13.38	0.02	283	10	4.65
7228/7-1 S	DC	1347	11825	0.31	16.23	0.47	418	16.54	0.02	268	8	6.05
7228/7-1 S	DC	1353	11826	0.30	15.72	0.37	416	16.01	0.02	246	6	6.39
7228/7-1 S	DC	1359	11827	0.52	24.20	0.34	413	24.71	0.02	271	4	8.93
7228/7-1 ST3	DC	1779	11828	0.07	2.43	0.83	450	2.50	0.03	105	36	2.31
7228/7-1 ST3	DC	1794	11063A	0.41	3.36	0.73	446	3.77	0.11	133	29	2.53
7228/7-1 ST3	DC	1872	11065A	0.24	1.74	0.70	360	1.98	0.12	89	36	1.96
7228/7-1 ST3	DC	1950	11829	0.07	0.54	0.51	369	0.61	0.12	45	43	1.19
7228/7-1 ST3	DC	2049	11830	0.08	0.67	0.61	368	0.74	0.10	54	50	1.23
7228/7-1 B	SWC	1810	11831	0.26	1.17	0.81	333	1.43	0.18	334	231	0.35
7228/7-1 B	SWC	1845.50	11832	0.28	1.34	0.94	336	1.63	0.17	320	224	0.42
7228/7-1 B	SWC	1890	11833	0.29	1.34	0.83	340	1.62	0.18	534	332	0.25
7228/7-1 B	SWC	1932	11834	0.41	1.93	1.67	351	2.35	0.18	471	407	0.41
7228/7-1 B	SWC	1959.50	11835	0.20	1.95	1.14	350	2.15	0.09	139	81	1.41
7228/7-1 B	SWC	2007	11836	0.23	1.30	1.14	340	1.53	0.15	540	475	0.24
7228/7-1 B	SWC	2025.50	11837	0.15	1.13	0.56	338	1.28	0.12	95	47	1.18
7228/7-1 B	SWC	2052	11838	0.21	1.22	1.03	339	1.43	0.15	255	215	0.48
7228/7-1 B	SWC	2072	11839	0.39	2.07	1.35	340	2.46	0.16	180	117	1.15
7228/7-1 B	SWC	2081	11840	0.55	4.55	1.37	432	5.10	0.11	63	19	7.24
7228/7-1 B	SWC	2123	11841	0.52	32.89	1.44	447	33.41	0.02	616	27	5.34
7228/7-1 A	DC	1347	11032A	4.62	53.26	2.24	410	57.87	0.08	326	14	16.35
7228/7-1 A	COCH	2455.52	11022	0.12	0.72	0.83	447	0.84	0.14	85	98	0.85
7228/7-1 A	DC	2742	11048A	0.46	6.05	0.70	426	6.50	0.07	177	20	3.42

Well	Sample type	Lower Depth	APT ID	S1 (mg/g)	S2 (mg/g)	S3 (mg/g)	Tmax (°C)	PP (mg/g)	PI (wt ratio)	HI (mg HC/g TOC)	OI (mg CO2/g TOC)	TOC (%)
7228/7-1 A	DC	2781	11049A	0.56	4.70	1.05	432	5.26	0.11	242	54	1.94
7228/7-1 A	COCH	2845	11842	0.04	0.30	0.03	344	0.34	0.11	100	10	0.30
7228/7-1 A	COCH	2857.75	11843	0.11	0.68	0.08	336	0.79	0.14	154	18	0.44

Table 7. GC of saturated compounds (peak area)

Well	Sample type	Lower Depth	APT ID	n-C10	n-C11	n-C12	i-C13	i-C14	n-C13	i-C15	n-C14	i-C16	n-C15	n-C16	i-C18	n-C17	Pr
7228/7-1 S	DC	1335	11823	0.00e0	0.00e0	1.27e3	1.12e2	4.79e2	3.08e3	5.67e3	2.29e4	3.76e4	8.63e4	1.29e5	1.03e5	1.73e5	2.74e5
7228/7-1 S	DC	1347	11825	0.00e0	0.00e0	3.06e2	4.90e2	1.70e3	4.99e3	1.42e4	2.47e4	5.86e4	6.48e4	8.12e4	1.20e5	1.18e5	4.16e5
7228/7-1 S	DC	1359	11827	0.00e0	0.00e0	7.99e2	0.00e0	0.00e0	4.65e2	6.20e3	1.17e4	5.13e4	5.39e4	8.19e4	1.73e5	1.25e5	5.48e5
7228/7-1 ST3	DC	1779	11828	0.00e0	0.00e0	4.67e2	0.00e0	0.00e0	0.00e0	2.10e2	1.17e2	6.31e2	1.72e3	4.16e3	4.49e3	9.85e3	1.27e4
7228/7-1 ST3	DC	1794	11063	3.41e3	3.30e3	5.45e3	2.02e3	3.50e3	8.51e3	5.15e3	1.31e4	1.09e4	1.92e4	2.03e4	1.08e4	2.11e4	1.56e4
7228/7-1 B	SWC	1959.50	11835	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	3.75e2	6.12e2	4.01e2	3.01e3	2.46e3
7228/7-1 B	SWC	2025.50	11837	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	4.70e2	1.91e2	0.00e0	1.52e3	1.18e3
7228/7-1 B	SWC	2081	11840	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	1.65e2	8.17e2	5.44e3	2.49e4	8.91e3	5.43e4	3.31e4
7228/7-1 B	SWC	2123	11841	2.52e3	4.52e3	6.73e3	1.38e3	1.20e3	8.08e3	1.32e3	8.93e3	3.21e3	8.82e3	9.31e3	2.66e3	1.09e4	6.34e3
7228/7-1 A	DC	1347	11032	2.54e3	2.15e3	2.29e3	2.65e3	1.99e3	2.68e3	2.74e3	3.15e3	4.55e3	3.71e3	3.59e3	5.25e3	3.23e3	1.28e4
7228/7-1 A	DC	2742	11048	3.63e3	1.04e4	2.02e4	3.95e3	3.04e3	1.86e4	2.70e3	1.56e4	4.68e3	1.45e4	1.17e4	3.41e3	1.15e4	4.70e3
7228/7-1 A	COCH	2857.75	11843	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	1.71e2	1.77e3	1.17e4	3.82e3	3.21e4	7.52e3

Table 7. continued, GC of saturated compounds (peak area)

Well	Sample type	Lower Depth	APT ID	n-C18	Ph	n-C19	n-C20	n-C21	n-C22	n-C23	n-C24	n-C25	n-C26	n-C27	n-C28	n-C29	n-C30
7228/7-1 S	DC	1335	11823	1.48e5	2.38e5	1.43e5	1.24e5	1.04e5	8.53e4	9.24e4	6.94e4	7.26e4	5.47e4	6.65e4	5.23e4	4.52e4	1.93e4
7228/7-1 S	DC	1347	11825	1.03e5	3.52e5	1.08e5	1.09e5	9.21e4	8.65e4	9.45e4	7.64e4	8.16e4	6.23e4	7.75e4	7.30e4	5.46e4	2.94e4
7228/7-1 S	DC	1359	11827	1.21e5	4.31e5	1.13e5	1.18e5	9.05e4	8.60e4	9.02e4	7.35e4	7.95e4	5.43e4	8.42e4	6.63e4	5.93e4	2.64e4
7228/7-1 ST3	DC	1779	11828	1.61e4	1.13e4	1.83e4	1.86e4	2.20e4	2.72e4	3.26e4	2.71e4	2.66e4	1.99e4	2.11e4	1.41e4	1.82e4	8.63e3
7228/7-1 ST3	DC	1794	11063	2.05e4	8.57e3	2.00e4	1.76e4	1.53e4	1.41e4	1.30e4	1.19e4	1.30e4	1.21e4	1.19e4	1.02e4	1.04e4	7.22e3
7228/7-1 B	SWC	1959.50	11835	6.09e3	3.18e3	7.01e3	8.03e3	8.49e3	8.45e3	1.24e4	6.20e3	5.70e3	3.70e3	4.96e3	2.99e3	7.01e3	2.47e3
7228/7-1 B	SWC	2025.50	11837	4.96e3	3.32e3	6.88e3	9.56e3	1.16e4	1.52e4	1.71e4	1.02e4	6.80e3	4.11e3	4.98e3	3.09e3	7.84e3	3.03e3
7228/7-1 B	SWC	2081	11840	8.10e4	1.10e4	1.30e5	1.03e5	1.25e5	1.19e5	1.62e5	1.27e5	2.03e5	1.10e5	1.96e5	7.52e4	8.65e4	3.85e4
7228/7-1 B	SWC	2123	11841	1.17e4	2.75e3	1.18e4	1.19e4	1.17e4	1.17e4	1.55e4	1.05e4	1.23e4	8.73e3	1.19e4	7.74e3	9.00e3	5.24e3
7228/7-1 A	DC	1347	11032	2.73e3	8.53e3	2.08e3	2.11e3	1.42e3	1.30e3	1.54e3	9.85e2	9.59e2	8.96e2	1.19e3	9.63e2	1.28e3	8.65e2
7228/7-1 A	DC	2742	11048	8.01e3	1.85e3	5.72e3	5.16e3	4.00e3	3.70e3	3.14e3	2.36e3	2.77e3	2.37e3	2.28e3	1.81e3	1.94e3	1.21e3
7228/7-1 A	COCH	2857.75	11843	5.45e4	8.76e3	6.34e4	6.90e4	6.36e4	5.89e4	5.48e4	4.18e4	3.41e4	2.63e4	2.35e4	1.69e4	1.67e4	8.96e3

Table 7. continued, GC of saturated compounds (peak area)

Well	Sample type	Lower Depth	APT ID	n-C31	n-C32	n-C33	n-C34	n-C35	n-C36
7228/7-1 S	DC	1335	11823	3.96e4	1.25e4	1.90e4	1.16e4	9.57e3	4.74e3
7228/7-1 S	DC	1347	11825	4.71e4	1.47e4	2.71e4	2.02e4	1.05e4	5.01e3
7228/7-1 S	DC	1359	11827	5.51e4	1.62e4	3.23e4	3.01e4	0.00e0	0.00e0
7228/7-1 ST3	DC	1779	11828	1.58e4	4.04e3	6.56e3	3.41e3	1.05e3	6.54e2
7228/7-1 ST3	DC	1794	11063	6.16e3	3.88e3	3.28e3	2.78e3	8.30e2	6.44e2
7228/7-1 B	SWC	1959.50	11835	9.11e3	1.71e3	2.69e3	1.08e3	4.46e2	4.34e2
7228/7-1 B	SWC	2025.50	11837	9.48e3	2.43e3	2.61e3	1.29e3	6.23e2	4.36e2
7228/7-1 B	SWC	2081	11840	6.54e4	1.35e4	2.39e4	9.38e3	5.27e3	2.96e3
7228/7-1 B	SWC	2123	11841	7.01e3	2.83e3	2.87e3	1.30e3	7.86e2	4.36e2
7228/7-1 A	DC	1347	11032	4.65e2	3.67e2	3.85e2	3.68e2	0.00e0	0.00e0
7228/7-1 A	DC	2742	11048	1.22e3	6.84e2	5.54e2	3.54e2	0.00e0	0.00e0
7228/7-1 A	COCH	2857.75	11843	1.18e4	4.44e3	3.74e3	2.21e3	1.54e3	1.03e3

Table 8. GC of saturated compounds (amounts in ng/g)

Well	Sample type	Lower Depth	APT ID	n-C10	n-C11	n-C12	i-C13	i-C14	n-C13	i-C15	n-C14	i-C16	n-C15	n-C16	i-C18	n-C17	Pr
7228/7-1 S	DC	1335	11823	0.00e0	0.00e0	1.76e4	1.55e3	6.65e3	4.27e4	7.87e4	3.17e5	5.22e5	1.20e6	1.80e6	1.43e6	2.40e6	3.80e6
7228/7-1 S	DC	1347	11825	0.00e0	0.00e0	4.86e3	7.79e3	2.71e4	7.95e4	2.26e5	3.94e5	9.33e5	1.03e6	1.29e6	1.92e6	1.88e6	6.63e6
7228/7-1 S	DC	1359	11827	0.00e0	0.00e0	9.78e3	0.00e0	0.00e0	5.69e3	7.58e4	1.43e5	6.28e5	6.59e5	1.00e6	2.12e6	1.53e6	6.70e6
7228/7-1 ST3	DC	1779	11828	0.00e0	0.00e0	1.94e4	0.00e0	0.00e0	0.00e0	8.72e3	4.87e3	2.62e4	7.13e4	1.72e5	1.86e5	4.09e5	5.25e5
7228/7-1 ST3	DC	1794	11063	1.39e5	1.35e5	2.23e5	8.25e4	1.43e5	3.48e5	2.10e5	5.34e5	4.46e5	7.83e5	8.31e5	4.40e5	8.61e5	6.36e5
7228/7-1 B	SWC	1959.50	11835	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	1.38e4	2.25e4	1.47e4	1.11e5	9.03e4
7228/7-1 B	SWC	2025.50	11837	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	6.56e3	2.66e3	0.00e0	2.12e4	1.65e4
7228/7-1 B	SWC	2081	11840	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	2.29e3	1.13e4	7.52e4	3.45e5	1.23e5	7.52e5	4.58e5
7228/7-1 B	SWC	2123	11841	4.84e4	8.69e4	1.29e5	2.65e4	2.31e4	1.55e5	2.53e4	1.72e5	6.18e4	1.70e5	1.79e5	5.12e4	2.09e5	1.22e5
7228/7-1 A	DC	1347	11032	1.22e5	1.03e5	1.10e5	1.27e5	9.54e4	1.28e5	1.31e5	1.51e5	2.18e5	1.77e5	1.72e5	2.51e5	1.55e5	6.12e5
7228/7-1 A	DC	2742	11048	1.62e5	4.63e5	9.02e5	1.77e5	1.36e5	8.32e5	1.21e5	6.98e5	2.09e5	6.48e5	5.23e5	1.52e5	5.14e5	2.10e5
7228/7-1 A	COCH	2857.75	11843	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	4.19e3	4.36e4	2.89e5	9.41e4	7.90e5	1.85e5



Table 8. continued, GC of saturated compounds (amounts in ng/g)

Well	Sample type	Lower Depth	APT ID	n-C18	Ph	n-C19	n-C20	n-C21	n-C22	n-C23	n-C24	n-C25	n-C26	n-C27	n-C28	n-C29	n-C30
7228/7-1 S	DC	1335	11823	2.06e6	3.30e6	1.99e6	1.72e6	1.44e6	1.18e6	1.28e6	9.62e5	1.01e6	7.59e5	9.21e5	7.26e5	6.26e5	2.67e5
7228/7-1 S	DC	1347	11825	1.64e6	5.60e6	1.72e6	1.74e6	1.47e6	1.38e6	1.50e6	1.22e6	1.30e6	9.92e5	1.23e6	1.16e6	8.69e5	4.68e5
7228/7-1 S	DC	1359	11827	1.48e6	5.28e6	1.38e6	1.44e6	1.11e6	1.05e6	1.10e6	8.99e5	9.73e5	6.64e5	1.03e6	8.11e5	7.26e5	3.23e5
7228/7-1 ST3	DC	1779	11828	6.69e5	4.68e5	7.58e5	7.71e5	9.13e5	1.13e6	1.35e6	1.13e6	1.11e6	8.26e5	8.75e5	5.84e5	7.56e5	3.58e5
7228/7-1 ST3	DC	1794	11063	8.39e5	3.50e5	8.15e5	7.20e5	6.24e5	5.76e5	5.33e5	4.88e5	5.33e5	4.93e5	4.86e5	4.16e5	4.26e5	2.95e5
7228/7-1 B	SWC	1959.50	11835	2.24e5	1.17e5	2.57e5	2.95e5	3.12e5	3.10e5	4.56e5	2.28e5	2.09e5	1.36e5	1.82e5	1.10e5	2.57e5	9.06e4
7228/7-1 B	SWC	2025.50	11837	6.91e4	4.63e4	9.59e4	1.33e5	1.62e5	2.12e5	2.38e5	1.42e5	9.47e4	5.73e4	6.94e4	4.31e4	1.09e5	4.22e4
7228/7-1 B	SWC	2081	11840	1.12e6	1.53e5	1.80e6	1.42e6	1.74e6	1.65e6	2.25e6	1.76e6	2.81e6	1.52e6	2.72e6	1.04e6	1.20e6	5.33e5
7228/7-1 B	SWC	2123	11841	2.25e5	5.28e4	2.27e5	2.30e5	2.26e5	2.24e5	2.99e5	2.01e5	2.36e5	1.68e5	2.28e5	1.49e5	1.73e5	1.01e5
7228/7-1 A	DC	1347	11032	1.31e5	4.08e5	9.96e4	1.01e5	6.81e4	6.22e4	7.35e4	4.72e4	4.59e4	4.29e4	5.69e4	4.61e4	6.12e4	4.14e4
7228/7-1 A	DC	2742	11048	3.58e5	8.26e4	2.56e5	2.30e5	1.79e5	1.65e5	1.40e5	1.05e5	1.24e5	1.06e5	1.02e5	8.07e4	8.68e4	5.41e4
7228/7-1 A	COCH	2857.75	11843	1.34e6	2.15e5	1.56e6	1.70e6	1.56e6	1.45e6	1.35e6	1.03e6	8.39e5	6.48e5	5.78e5	4.15e5	4.10e5	2.20e5

Table 8. continued, GC of saturated compounds (amounts in ng/g)

Well	Sample type	Lower Depth	APT ID	n-C31	n-C32	n-C33	n-C34	n-C35	n-C36
7228/7-1 S	DC	1335	11823	5.49e5	1.73e5	2.63e5	1.60e5	1.33e5	6.57e4
7228/7-1 S	DC	1347	11825	7.49e5	2.34e5	4.31e5	3.22e5	1.68e5	7.97e4
7228/7-1 S	DC	1359	11827	6.75e5	1.99e5	3.96e5	3.68e5	0.00e0	0.00e0
7228/7-1 ST3	DC	1779	11828	6.54e5	1.68e5	2.72e5	1.41e5	4.37e4	2.71e4
7228/7-1 ST3	DC	1794	11063	2.52e5	1.58e5	1.34e5	1.14e5	3.39e4	2.63e4
7228/7-1 B	SWC	1959.50	11835	3.34e5	6.28e4	9.88e4	3.97e4	1.64e4	1.59e4
7228/7-1 B	SWC	2025.50	11837	1.32e5	3.38e4	3.64e4	1.80e4	8.68e3	6.08e3
7228/7-1 B	SWC	2081	11840	9.06e5	1.87e5	3.31e5	1.30e5	7.29e4	4.10e4
7228/7-1 B	SWC	2123	11841	1.35e5	5.44e4	5.52e4	2.50e4	1.51e4	8.37e3
7228/7-1 A	DC	1347	11032	2.23e4	1.75e4	1.84e4	1.76e4	0.00e0	0.00e0
7228/7-1 A	DC	2742	11048	5.45e4	3.05e4	2.48e4	1.58e4	0.00e0	0.00e0
7228/7-1 A	COCH	2857.75	11843	2.91e5	1.09e5	9.21e4	5.43e4	3.80e4	2.52e4

Table 9. GC of aromatic compounds (peak area)

Well	Sample type	Lower Depth	APT ID	2-MN	1-MN	P	3-MP	2-MP	9-MP	1-MP
7228/7-1 S	DC	1335	11823	16500	13589	4530	3303	2806	3325	3709
7228/7-1 S	DC	1347	11825	32577	22974	7288	3729	2372	4108	4144
7228/7-1 S	DC	1359	11827	59120	39964	12950	4630	3798	8009	7539
7228/7-1 ST3	DC	1779	11828	13445	8776	8236	4839	3976	7143	6924
7228/7-1 ST3	DC	1794	11063	23915	16757	14167	0	0	18412	18166
7228/7-1 B	SWC	1959.50	11835	367	610	2025	299	281	363	276
7228/7-1 B	SWC	2025.50	11837	20802	15197	14178	1423	1729	2555	2213
7228/7-1 B	SWC	2081	11840	21025	16077	11548	4496	4687	7037	6157
7228/7-1 B	SWC	2123	11841	20677	16271	6175	2227	1866	3068	3028
7228/7-1 A	DC	1347	11032	123976	84751	26028	13334	13547	24873	20042
7228/7-1 A	DC	2742	11048	42702	29707	12770	5462	6827	8075	6158
7228/7-1 A	COCH	2857.75	11843	22704	15627	11029	6978	8373	8365	6928