

Petroleum Geochemistry Data Report -
Reservoir Study 7228/7-1 A, 7228/7-1
B and 7228/7-1 ST3



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Summary

This report is a data report on work performed under the Statoil project number APT2001-06. 3 drill cuttings samples, 7 side well cores and 32 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	SWC	Core Earlier+New	Total Earlier+New
Lithology Descriptions	3	7	3+32	3+42
Solvent Extraction	3	7	3+32	3+42
Asphaltene Precipitation	3	7	3+32	3+42
Iatroscan	2	4	2+20	2+26
MPLC	2	4	4+18	4+24
Carbon Isotopes	1	2	16	19
EOM GC	3	7	31	41
Saturates GC	2	4	4+18	4+24
Aromatics GC	2	4	4+18	4+24
Saturates GCMS	1	2	2+14	2+17
Aromatics GCMS	1	2	2+14	2+17

Table 1. Lithology Description

Well	Sample type	Upper Depth	Lower Depth	API ID	%	Lithology	Remarks
7228/7-1 ST3	COCH	1367.38	1367.40	11309	100 %	SST	f-m
7228/7-1 ST3	COCH	1377.00	1377.05	11786	100 %	SST	f-m
7228/7-1 ST3	COCH		1386.45	11787	100 %	SST	f-m-c
7228/7-1 ST3	COCH		1394.00	11788	100 %	SST	f-m-c
7228/7-1 ST3	DC		1719.00	11789A	70 %	SST	f-m
7228/7-1 ST3	DC		1719.00	11789B	20 %	CLYST	ltgy
7228/7-1 ST3	DC		1719.00	11789C	10 %	CLYST	dkgy
7228/7-1 ST3	DC		1911.00	11790A	80 %	SST	f-m
7228/7-1 ST3	DC		1911.00	11790B	20 %	CLYST	dkgy
7228/7-1 ST3	DC		1914.00	11791A	80 %	SST	f-m
7228/7-1 ST3	DC		1914.00	11791B	20 %	CLYST	dkgy
7228/7-1 B	SWC		1381.50	11792	100 %	SLST	clayey
7228/7-1 B	SWC		2132.00	11848	100 %	CLYST	sandy
7228/7-1 B	SWC		2136.50	11849	100 %	CLYST	sandy
7228/7-1 B	SWC		2139.00	11850	100 %	SST	f-m-c, clayey
7228/7-1 B	SWC		2152.00	11851	100 %	SST	f-m, clayey
7228/7-1 B	SWC		2158.00	11793	100 %	SLST	clayey
7228/7-1 B	SWC		2165.50	11852			
7228/7-1 A	COCH	2060.33	2060.35	11020	100 %	SST	f-m gy, sl calc
7228/7-1 A	COCH		2066.50	11794	100 %	SST	f-m-c
7228/7-1 A	COCH		2071.45	11795	100 %	SST	f-m-c
7228/7-1 A	COCH		2077.30	11796	100 %	SST	f-m-c
7228/7-1 A	COCH		2082.70	11797	100 %	SST	f-m-c, clayey silt lam dkgy
7228/7-1 A	COCH		2084.75	11798	100 %	SST	f-m
7228/7-1 A	COCH		2086.50	11799	100 %	SST	f-m
7228/7-1 A	COCH		2087.00	11800	100 %	SST	f-m
7228/7-1 A	COCH		2087.30	11801	100 %	SST	f-m
7228/7-1 A	COCH		2088.95	11802	100 %	SST	f-m
7228/7-1 A	COCH		2088.95	11803	100 %	SST	f-m
7228/7-1 A	COCH		2090.90	11804	100 %	SST	f-m-c
7228/7-1 A	COCH		2091.30	11805	100 %	SST	f-m-c
7228/7-1 A	COCH		2092.80	11806	100 %	SST	f-m-c
7228/7-1 A	COCH	2093.52	2093.54	11021	100 %	SST	m, gr-gy
7228/7-1 A	COCH		2093.80	11807	100 %	SST	f-m-c
7228/7-1 A	COCH		2095.00	11808	100 %	SST	f-m-c
7228/7-1 A	COCH		2096.00	11809	100 %	SST	f-m-c
7228/7-1 A	COCH		2097.00	11810	100 %	SST	f-m-c
7228/7-1 A	COCH		2098.30	11811	100 %	SST	f-m
7228/7-1 A	COCH		2099.30	11812	100 %	SST	f-m
7228/7-1 A	COCH		2100.95	11813	100 %	SST	f-m, clayey silt lam
7228/7-1 A	COCH		2101.25	11814	100 %	SST	f-m-c
7228/7-1 A	COCH		2101.90	11815	100 %	SST	f-m
7228/7-1 A	COCH		2102.25	11816	100 %	SST	f-m
7228/7-1 A	COCH		2102.50	11817	100 %	SST	f-m, slty-clayey dkgy
7228/7-1 A	COCH	2833.00	2833.02	11024A	100%	SST	silt-f gy, calc
7228/7-1 A	COCH	2833.00	2833.02	11024B	trace	COAL	lam

Well	Sample-type	Upper Depth	Lower Depth	SPH ID	%	Lithology	Stratigraphy
7228/7-1 A	COCH		2835.25	11818	100 %	CLYST	slty dkgy-ltgy
7228/7-1 A	COCH		2846.25	11819	100 %	SST	c-m-f
7228/7-1 A	COCH		2853.15	11820	100 %	SST	c-m-f
7228/7-1 A	COCH		2858.70	11821	100 %	SST	f-m, clayey dkgy-ltgy

Table 2. GC of saturated compounds (parameters)

Well	Sample-type	Upper Depth	Lower Depth	SPH ID	Prn(C17)	Prn(C18)	Prn(C19) (Prn(C17)) (Prn(C18))	Prn(C20)	Prn(C21) (C17/C21)
7228/7-1 ST3	COCH	1367.38	1367.40	11309	0.53	0.63	0.85	0.75	1.00
7228/7-1 ST3	DC		1719	11789	0.55	0.32	1.72	1.92	0.88
7228/7-1 ST3	DC		1911	11790	0.61	0.25	2.42	3.37	0.88
7228/7-1 B	SWC	1381.50	1381.50	11792	0.82	0.51	1.61	1.57	0.75
7228/7-1 B	SWC	2139.00	2139	11850	0.46	0.30	1.54	1.35	0.67
7228/7-1 B	SWC	2152.00	2152	11851	0.65	0.39	1.67	1.68	0.69
7228/7-1 B	SWC	2165.50	2165.50	11852	0.39	0.26	1.49	1.50	0.76
7228/7-1 A	COCH	2060.33	2060.35	11020	0.46	0.31	1.50	1.54	0.72
7228/7-1 A	COCH	2066.50	2066.50	11794	0.46	0.31	1.50	1.46	0.71
7228/7-1 A	COCH	2071.45	2071.45	11795	0.47	0.30	1.53	1.46	0.69
7228/7-1 A	COCH	2082.70	2082.70	11797	0.43	0.29	1.48	1.53	0.75
7228/7-1 A	COCH	2086.50	2086.50	11799	0.46	0.31	1.51	1.54	0.74
7228/7-1 A	COCH	2087.00	2087	11800	0.47	0.49	0.96	0.82	1.00
7228/7-1 A	COCH	2087.30	2087.30	11801	0.45	0.30	1.52	1.54	0.73
7228/7-1 A	COCH	2088.95	2088.95	11802	0.45	0.30	1.50	1.53	0.74
7228/7-1 A	COCH	2088.95	2088.95	11803	0.45	0.29	1.55	1.57	0.74
7228/7-1 A	COCH	2091.30	2091.30	11805	0.43	0.29	1.50	1.54	0.74
7228/7-1 A	COCH	2093.52	2093.54	11021	0.45	0.30	1.49	1.59	0.73
7228/7-1 A	COCH	2093.80	2093.80	11807	0.43	0.30	1.44	1.45	0.75
7228/7-1 A	COCH	2095.00	2095	11808	0.42	0.32	1.34	1.35	0.76
7228/7-1 A	COCH	2096.00	2096	11809	0.46	0.32	1.44	1.41	0.74
7228/7-1 A	COCH	2097.00	2097	11810	0.46	0.36	1.29	1.24	0.76
7228/7-1 A	COCH	2098.30	2098.30	11811	0.46	0.30	1.54	1.54	0.73
7228/7-1 A	COCH	2099.30	2099.30	11812	0.45	0.30	1.49	1.51	0.73
7228/7-1 A	COCH	2101.25	2101.25	11814	0.43	0.29	1.49	1.50	0.74
7228/7-1 A	COCH	2102.25	2102.25	11816	0.43	0.29	1.47	1.49	0.73
7228/7-1 A	COCH	2102.50	2102.50	11817	0.43	0.27	1.57	1.54	0.73
7228/7-1 A	COCH	2833.00	2833.02	11024	0.50	0.57	0.87	0.67	1.00

Table 3. GCMS SIR of saturated compounds (parameters)

Well	Sample Type	Depth (m)	Core Depth (m)	APIID	%C17	%C18αβ	%C19D	%C20M	%C21S	%C22S	%C23T	%C24S	%C25dBS	%C26	%C27	%C29
7228/7-1 ST3	COCH	1367.38	1367.40	11309	61.84	9.63	7.95	72.48	55.23	28.84	53.39	56.82	69.32	49.86	28.11	
7228/7-1 ST3	DC		1719	11789	4.51	5.20	4.91	11.11	59.74	9.19	53.75	44.91	49.18	26.04	52.41	
7228/7-1 B	SWC	2139.00	2139	11850	20.98	3.88	10.23	33.65	59.67	16.95	53.41	52.32	62.55	32.26	43.06	
7228/7-1 B	SWC	2165.50	2165.50	11852	40.24	9.31	11.89	51.77	60.97	26.28	59.45	52.57	51.85	35.39	40.92	
7228/7-1 A	COCH	2066.50	2066.50	11794	38.80	5.76	10.60	47.66	58.80	19.29	54.81	53.79	66.53	39.78	37.10	
7228/7-1 A	COCH	2071.45	2071.45	11795	24.49	3.66	11.64	33.11	58.24	17.03	55.50	51.51	64.01	32.11	45.71	
7228/7-1 A	COCH	2082.70	2082.70	11797	22.83	4.24	11.68	31.79	58.98	17.33	50.78	47.49	62.97	30.36	46.33	
7228/7-1 A	COCH	2086.50	2086.50	11799	23.80	4.80	11.14	34.75	59.24	16.93	50.47	50.45	65.75	30.57	44.89	
7228/7-1 A	COCH	2087.30	2087.30	11801	21.97	3.87	12.10	32.39	60.43	16.54	53.41	50.19	68.00	29.60	46.95	
7228/7-1 A	COCH	2088.95	2088.95	11802	21.39	3.53	11.42	32.21	59.57	15.98	49.82	48.77	69.15	30.03	46.53	
7228/7-1 A	COCH	2088.95	2088.95	11803	21.18	4.56	11.79	32.45	59.07	15.92	51.05	48.24	71.44	29.27	46.68	
7228/7-1 A	COCH	2093.80	2093.80	11807	20.82	3.94	11.78	33.71	59.61	16.05	50.58	48.21	70.23	29.72	46.55	
7228/7-1 A	COCH	2097.00	2097	11810	59.10	9.02	7.67	71.37	59.75	26.62	60.02	59.76	71.56	48.49	27.99	
7228/7-1 A	COCH	2098.30	2098.30	11811	21.72	4.38	11.41	31.99	60.18	15.96	49.63	48.72	69.75	29.80	45.71	
7228/7-1 A	COCH	2099.30	2099.30	11812	21.84	4.57	11.56	32.68	59.74	15.82	51.75	47.81	69.36	30.32	46.60	
7228/7-1 A	COCH	2101.25	2101.25	11814	22.60	3.87	11.99	32.13	59.82	16.97	51.02	48.22	70.64	29.23	46.61	
7228/7-1 A	COCH	2102.25	2102.25	11816	28.23	4.43	11.68	40.44	59.10	17.98	51.04	50.60	70.77	34.81	41.21	
7228/7-1 A	COCH	2102.50	2102.50	11817	23.16	4.30	11.87	33.75	59.93	16.43	51.30	48.22	69.24	31.00	44.87	
7228/7-1 A	COCH	2833.00	2833.02	11024	63.51	10.76	6.84	75.08	58.56	28.29	60.68	61.01	72.69	48.93	27.82	

- %C23T $23/3/(23/3+30\alpha\beta)*100$
- %C28αβ $28\alpha\beta/(28\alpha\beta+30\alpha\beta)*100$
- %C30D $30D/(30D+30\alpha\beta)*100$
- %C28Ts $27Ts/(27Ts+27Tm)*100$
- %C22S $(32\alpha\beta S)/(32\alpha\beta S+32\alpha\beta R)*100$
- %C29Ts $(29Ts/29Ts+30\alpha\beta)*100$
- %C20S $(29\alpha S/29\alpha S+29\alpha R)*100$
- %ββ $(29\beta\beta(R+S)/(29\beta\beta(R+S)+29\alpha(R+S))*100$
- %C27dBS $27d\beta S/(27d\beta S+27\alpha(R+S))*100$
- %C27 $(27\beta\beta(R+S)/(27\beta\beta(R+S)+28\beta\beta(R+S)+29\beta\beta(R+S))*100$
- %C29 $(29\beta\beta(R+S)/(27\beta\beta(R+S)+28\beta\beta(R+S)+29\beta\beta(R+S))*100$



Table 4. GCMS SIR of aromatic compounds (parameters)

Well	Sample	Upper Element	Lower Element	AROM	AROM2	Crack1	Crack2	MA2	MA3	MA4	MA5	MA6	MA7	MA8	MA9
7228/7-1 ST3	COCH	1367.38	1367.40	11309	0.338	0.593	0.286	0.313	2.775	0.367	1.603	2.537	0.707	0.122	1.136
7228/7-1 ST3	DC		1719	11789	0.735	0.350	0.211	0.312	2.044	0.433	1.859	4.516	0.442	0.085	3.118
7228/7-1 B	SWC	2139.00	2139	11850	0.752	0.646	0.389	0.329	4.260	0.435	1.144	3.433	0.868	0.100	6.613
7228/7-1 B	SWC	2165.50	2165.50	11852	0.975	0.862	0.581		4.312	0.357	1.369	4.904	0.769	0.089	32.479
7228/7-1 A	COCH	2066.50	2066.50	11794	0.768	0.762	0.526	0.402	5.073	0.427	1.197	4.338	0.834	0.104	7.337
7228/7-1 A	COCH	2071.45	2071.45	11795	0.794	0.740	0.501	0.415	4.601	0.430	1.275	5.166	0.770	0.105	7.525
7228/7-1 A	COCH	2082.70	2082.70	11797	0.900	0.828	0.619	0.520	4.672	0.436	1.825	7.451	0.689	0.102	10.314
7228/7-1 A	COCH	2086.50	2086.50	11799	0.749	0.698	0.445	0.381	4.883	0.440	1.208	5.236	0.801	0.109	6.496
7228/7-1 A	COCH	2087.30	2087.30	11801	0.723	0.642	0.393	0.372	4.710	0.448	1.387	6.445	0.812	0.111	6.021
7228/7-1 A	COCH	2088.95	2088.95	11802	0.714	0.626	0.377	0.349	4.623	0.456	1.393	6.162	0.845	0.111	5.760
7228/7-1 A	COCH	2088.95	2088.95	11803	0.713	0.592	0.354	0.337	4.635	0.447	1.420	6.451	0.818	0.110	5.810
7228/7-1 A	COCH	2093.80	2093.80	11807	0.731	0.613	0.372	0.328	4.678	0.449	1.475	6.019	0.834	0.109	6.393
7228/7-1 A	COCH	2097.00	2097	11810	0.769	0.675	0.420	0.406	5.704	0.436	1.380	6.027	0.819	0.106	6.520
7228/7-1 A	COCH	2098.30	2098.30	11811	0.731	0.621	0.374	0.349	4.738	0.452	1.488	6.625	0.837	0.108	5.963
7228/7-1 A	COCH	2099.30	2099.30	11812	0.738	0.617	0.365	0.364	4.855	0.454	1.497	6.434	0.841	0.107	6.083
7228/7-1 A	COCH	2101.25	2101.25	11814	0.775	0.665	0.420	0.377	4.856	0.443	1.783	7.627	0.770	0.100	7.465
7228/7-1 A	COCH	2102.25	2102.25	11816	0.720	0.588	0.349	0.334	4.734	0.441	1.498	6.395	0.908	0.102	5.909
7228/7-1 A	COCH	2102.50	2102.50	11817	0.742	0.636	0.390	0.348	4.723	0.442	1.640	6.253	0.853	0.098	6.746
7228/7-1 A	COCH	2833.00	2833.02	11024	0.818	1.000	1.000		9.303	0.459	1.327	3.947	1.107	0.038	60.087

AROM2: $(C_{20}TA+C_{21}TA+SC_{26}TA+RC_{26}TA+SC_{27}TA+SC_{28}TA+RC_{27}TA+RC_{28}TA)/(C_{20}TA+C_{21}TA+SC_{26}TA+RC_{26}TA+SC_{27}TA+SC_{28}TA+RC_{27}TA+RC_{28}TA+C_{21}MA+C_{22}MA+\beta SC_{27}MA+\beta RC_{27}MA+\beta RC_{27}DMA+\alpha SC_{27}MA+\beta SC_{28}MA+\beta SC_{28}DMA+\alpha RC_{27}DMA+\alpha SC_{27}DMA+\alpha RC_{27}MA+\alpha SC_{28}MA+\alpha SC_{29}MA+\alpha RC_{29}MA)$

Crack1: $(C_{26}TA)/(C_{26}TA+RC_{26}TA)$

Crack2: $(C_{26}TA+C_{27}TA)/(C_{26}TA+C_{27}TA+SC_{26}TA+RC_{26}TA+SC_{27}TA+SC_{28}TA+RC_{27}TA+RC_{28}TA)$

MA2: $(C_{21}MA+C_{22}MA)/(C_{21}MA+C_{22}MA+\beta SC_{27}MA+\beta RC_{27}MA+\beta RC_{27}DMA+\alpha SC_{27}MA+\beta SC_{28}MA+\beta SC_{28}DMA+\alpha RC_{27}DMA+\alpha SC_{27}DMA+\alpha RC_{27}MA+\alpha SC_{28}MA+\alpha SC_{29}MA+\alpha RC_{29}MA)$

MA3: 4-MDBT/1-MDBT

MA4: $(2-MP+3-MP)/(1-MP+2-MP+3-MP+9-MP)$

MA5: 2-MN/1-MN

MA6: $(2,6-DMN+2,7-DMN)/1,5-DMN$

MA7: 4-MDBT/DBT

MA8: DBT/P

MA9: 3-MP/Retene

Table 5. Extraction, Asphaltene precipitation and Iatroscan data

Well	Sample Type	Top Depth	Core Depth	API ID	Rock Weight (g)	SOI (mg)	EOI (mg/kg Rock)	Sol (mg/kg Rock)	ARO (mg/kg Rock)	POI (mg/kg Rock)	AS (mg/kg Rock)	SAT (wt% of EOI/Oil)	ARO (wt% of EOI/Oil)	POI (wt% of EOI/Oil)	AS (wt% of EOI/Oil)	HC (wt% of EOI/Oil)
7228/7-1 ST3	COCH	1367.38	1367.40	11309	12.510	30	2398	1831	16	320	232	76.3	0.7	13.3	9.7	77.0
7228/7-1 ST3	COCH	1377.00	1377.05	11786	14.310	26	1817				797				43.8	
7228/7-1 ST3	COCH		1386.45	11787	12.330	8	649				292				45.0	
7228/7-1 ST3	COCH		1394.00	11788	15.130	22	1454				152				10.5	
7228/7-1 ST3	DC		1719.00	11789	16.030	48	2994	234	35	2563	162	7.8	1.2	85.6	5.4	9.0
7228/7-1 ST3	DC		1911.00	11790	16.620	45	2708	90	31	2496	90	3.3	1.2	92.2	3.3	4.5
7228/7-1 ST3	DC		1914.00	11791	15.610	29	1858				115				6.2	
7228/7-1 B	SWC		1381.50	11792	15.900	74	4654	87	6	4171	390	1.9	0.1	89.6	8.4	2.0
7228/7-1 B	SWC		2132.00	11848	8.950	80	8939				1162				13.0	
7228/7-1 B	SWC		2136.50	11849	10.210	116	11361				1469				12.9	
7228/7-1 B	SWC		2139.00	11850	7.940	121	15239	9746	697	3574	1222	64.0	4.6	23.5	8.0	68.5
7228/7-1 B	SWC		2152.00	11851	5.070	59	11637	327	0	10600	710	2.8	0.0	91.1	6.1	2.8
7228/7-1 B	SWC		2158.00	11793	11.480	79	6882				357				5.2	
7228/7-1 B	SWC		2165.50	11852	9.860	118	11968	3876	661	6813	619	32.4	5.5	56.9	5.2	37.9
7228/7-1 A	COCH	2060.33	2060.35	11020	14.640	53	3620	1275	50	553	1742	35.2	1.4	15.3	48.1	36.6
7228/7-1 A	COCH		2066.50	11794	14.750	44	2983	1075	71	1470	366	36.0	2.4	49.3	12.3	38.4
7228/7-1 A	COCH		2071.45	11795	16.830	41	2436	1223	83	982	149	50.2	3.4	40.3	6.1	53.6
7228/7-1 A	COCH		2077.30	11796	16.460	30	1823				425				23.3	
7228/7-1 A	COCH		2082.70	11797	15.480	84	5426	3192	786	964	484	58.8	14.5	17.8	8.9	73.3
7228/7-1 A	COCH		2084.75	11798	15.340	67	4368				326				7.5	
7228/7-1 A	COCH		2086.50	11799	14.900	45	3020	1599	112	973	336	52.9	3.7	32.2	11.1	56.7
7228/7-1 A	COCH		2087.00	11800	15.500	262	16903	15906	3	168	826	94.1	0.0	1.0	4.9	94.1
7228/7-1 A	COCH		2087.30	11801	15.110	100	6618	5564	377	466	212	84.1	5.7	7.0	3.2	89.8
7228/7-1 A	COCH		2088.95	11802	15.080	207	13727	12163	738	481	345	88.6	5.4	3.5	2.5	94.0
7228/7-1 A	COCH		2088.95	11803	13.440	128	9524	8886	459	0	179	93.3	4.8	0.0	1.9	98.1
7228/7-1 A	COCH		2090.90	11804	15.190	6	395				145				36.7	
7228/7-1 A	COCH		2091.30	11805	14.400	157	10903	9579	502	460	361	87.9	4.6	4.2	3.3	92.5
7228/7-1 A	COCH		2092.80	11806	14.150	137	9682				226				2.3	



Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3

Well	Sample type	Upper Depth	Lower Depth	API ID	Rock Weight (g)	EOI (wt%)	EOI (mg/g Rock)	Sulfur (wt% Rock)	Aluminum (wt% Rock)	Iron (wt% Rock)	ASP (mg/g Rock)	Sulfur (wt% EOI)	Aluminum (wt% EOI)	Iron (wt% EOI)	ASP (wt% EOI)	HC (wt% EOI)
7228/7-1 A	COCH	2093.52	2093.54	11021	21.820	342	15674	12811	1459	803	600	81.7	9.3	5.1	3.8	91.0
7228/7-1 A	COCH		2093.80	11807	14.760	196	13279	11543	761	0	976	86.9	5.7	0.0	7.3	92.7
7228/7-1 A	COCH		2095.00	11808	14.940	359	24029	23110	544	0	375	96.2	2.3	0.0	1.6	98.4
7228/7-1 A	COCH		2096.00	11809	14.610	295	20192	18976	477	0	739	94.0	2.4	0.0	3.7	96.3
7228/7-1 A	COCH		2097.00	11810	15.140	97	6407	6101	52	168	86	95.2	0.8	2.6	1.3	96.0
7228/7-1 A	COCH		2098.30	11811	14.340	82	5718	4752	325	467	174	83.1	5.7	8.2	3.0	88.8
7228/7-1 A	COCH		2099.30	11812	14.610	104	7118	6336	440	172	171	89.0	6.2	2.4	2.4	95.2
7228/7-1 A	COCH		2100.95	11813	14.930	75	5023				362				7.2	
7228/7-1 A	COCH		2101.25	11814	15.360	67	4362	3756	232	172	202	86.1	5.3	3.9	4.6	91.4
7228/7-1 A	COCH		2101.90	11815	14.540	70	4814				89				1.9	
7228/7-1 A	COCH		2102.25	11816	16.260	86	5289	4402	254	80	554	83.2	4.8	1.5	10.5	88.0
7228/7-1 A	COCH		2102.50	11817	14.770	81	5484	4704	265	265	251	85.8	4.8	4.8	4.6	90.6
7228/7-1 A	COCH	2833.00	2833.02	11024	8.733	92	10535	10042	11	126	355	95.3	0.1	1.2	3.4	95.4
7228/7-1 A	COCH		2835.25	11818	16.030	8	499				125				25.0	
7228/7-1 A	COCH		2846.25	11819	12.410	29	2337				177				7.6	
7228/7-1 A	COCH		2853.15	11820	16.370	40	2443				116				4.8	
7228/7-1 A	COCH		2858.70	11821	14.110	3	213				113				53.3	



Table 6. GC of saturated compounds (peak area)

Well	Sample type	Upper Depth	Lower Depth	APIID	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22
7228/7-1 ST3	COCH	1367.38	1367.40	11309	3.05e2	8.12e2	1.24e3	2.48e2	2.73e2	2.33e3	9.82e2	7.29e3	4.13e3	1.48e4	2.22e4	9.01e3	2.36e4
7228/7-1 ST3	DC		1719.00	11789	6.88e3	7.06e3	1.51e4	3.59e3	4.85e3	4.18e4	1.31e4	8.60e4	3.85e4	1.36e5	1.54e5	5.79e4	1.54e5
7228/7-1 ST3	DC		1911.00	11790	7.08e3	5.93e3	5.78e3	1.12e3	1.02e3	7.11e3	2.02e3	1.11e4	6.27e3	1.59e4	1.45e4	6.72e3	1.47e4
7228/7-1 B	SWC		1381.50	11792	8.37e3	6.42e2	1.60e3	7.62e2	7.52e2	2.88e3	8.97e2	2.76e3	1.38e3	2.22e3	2.37e3	1.80e3	3.28e3
7228/7-1 B	SWC		2139.00	11850	4.06e2	7.47e2	1.47e3	4.69e2	3.49e2	2.39e3	4.48e3	3.67e4	3.84e4	1.79e5	3.43e5	1.39e5	4.72e5
7228/7-1 B	SWC		2152.00	11851	1.91e3	1.75e3	1.75e3	3.74e2	3.20e2	1.52e3	4.77e2	1.90e3	1.31e3	4.49e3	5.95e3	2.53e3	6.04e3
7228/7-1 B	SWC		2165.50	11852	1.59e3	2.32e3	4.54e3	1.17e3	2.50e3	2.77e4	9.41e3	6.87e4	2.85e4	1.09e5	1.25e5	4.03e4	1.33e5
7228/7-1 A	COCH	2060.33	2060.35	11020	0.00e0	3.69e2	4.85e3	1.59e3	3.14e3	2.66e4	8.54e3	5.66e4	2.30e4	8.53e4	9.53e4	3.31e4	1.00e5
7228/7-1 A	COCH		2066.50	11794	2.59e2	2.37e2	1.75e3	7.56e2	1.96e3	1.77e4	8.76e3	5.64e4	2.98e4	1.03e5	1.34e5	4.98e4	1.52e5
7228/7-1 A	COCH		2071.45	11795	2.66e3	3.72e3	9.64e3	3.04e3	6.29e3	4.86e4	1.77e4	1.13e5	4.91e4	1.71e5	2.06e5	7.40e4	2.27e5
7228/7-1 A	COCH		2082.70	11797	1.90e4	4.65e4	1.65e5	3.66e4	3.87e4	3.13e5	6.32e4	4.03e5	1.38e5	4.71e5	4.80e5	1.46e5	4.74e5
7228/7-1 A	COCH		2086.50	11799	1.05e3	1.17e3	1.46e4	5.39e3	1.25e4	9.97e4	3.58e4	2.19e5	9.23e4	3.07e5	3.33e5	1.15e5	3.42e5
7228/7-1 A	COCH		2087.00	11800	6.11e3	8.14e3	2.39e4	6.19e3	7.56e3	5.63e4	1.25e4	7.37e4	2.74e4	8.96e4	1.05e5	4.42e4	1.26e5
7228/7-1 A	COCH		2087.30	11801	2.70e3	6.80e3	1.09e5	3.10e4	4.38e4	3.32e5	8.56e4	5.38e5	2.05e5	7.07e5	7.64e5	2.60e5	7.76e5
7228/7-1 A	COCH		2088.95	11802	2.05e3	2.77e4	1.48e5	3.90e4	4.86e4	3.58e5	9.22e4	5.70e5	2.09e5	7.68e5	8.41e5	2.79e5	8.71e5
7228/7-1 A	COCH		2088.95	11803	3.37e3	7.91e3	1.25e5	3.61e4	5.34e4	4.18e5	1.14e5	7.11e5	2.70e5	9.60e5	1.06e6	3.64e5	1.10e6
7228/7-1 A	COCH		2091.30	11805	5.38e3	1.13e4	9.09e4	2.55e4	3.57e4	2.70e5	7.19e4	4.59e5	1.77e5	6.22e5	6.76e5	2.24e5	6.88e5
7228/7-1 A	COCH	2093.52	2093.54	11021	6.98e3	2.80e4	6.14e4	1.42e4	1.34e4	9.70e4	2.12e4	1.33e5	4.68e4	1.64e5	1.66e5	5.49e4	1.65e5
7228/7-1 A	COCH		2093.80	11807	2.28e3	1.93e4	1.27e5	3.42e4	4.45e4	3.46e5	9.27e4	5.90e5	2.43e5	8.52e5	9.95e5	3.28e5	1.03e6
7228/7-1 A	COCH		2095.00	11808	2.34e3	3.54e4	1.60e5	4.06e4	4.42e4	3.19e5	7.37e4	4.51e5	1.70e5	5.78e5	6.31e5	2.11e5	6.49e5
7228/7-1 A	COCH		2096.00	11809	5.02e3	7.74e3	3.54e4	9.94e3	1.40e4	1.07e5	3.20e4	2.07e5	8.83e4	3.19e5	3.81e5	1.34e5	4.09e5
7228/7-1 A	COCH		2097.00	11810	5.47e2	5.03e3	3.79e4	1.09e4	1.49e4	1.12e5	3.05e4	1.84e5	7.35e4	2.50e5	2.77e5	9.64e4	2.90e5
7228/7-1 A	COCH		2098.30	11811	1.00e3	1.49e4	1.54e5	4.42e4	5.91e4	4.31e5	1.14e5	6.71e5	2.68e5	8.84e5	9.76e5	3.44e5	1.02e6
7228/7-1 A	COCH		2099.30	11812	3.02e3	2.13e4	1.68e5	4.36e4	5.37e4	4.17e5	1.02e5	6.36e5	2.43e5	8.25e5	8.91e5	3.01e5	9.06e5
7228/7-1 A	COCH		2101.25	11814	8.58e3	1.64e4	1.20e5	3.12e4	4.65e4	3.77e5	1.01e5	6.36e5	2.49e5	8.58e5	9.39e5	3.14e5	9.65e5
7228/7-1 A	COCH		2102.25	11816	2.69e3	6.04e3	8.68e4	2.42e4	3.84e4	3.02e5	8.57e4	5.47e5	2.22e5	7.83e5	8.91e5	2.96e5	9.24e5
7228/7-1 A	COCH		2102.50	11817	2.18e3	9.07e3	5.60e4	1.50e4	2.31e4	1.79e5	5.57e4	3.63e5	1.59e5	5.85e5	7.18e5	2.56e5	7.97e5
7228/7-1 A	COCH	2833.00	2833.02	11024	5.00e2	4.58e2	8.86e2	2.09e2	1.92e2	1.77e3	3.99e2	2.79e3	1.41e3	6.41e3	1.10e4	5.03e3	1.43e4



Table 6. continued, GC of saturated compounds (peak area)

Well	Sample #	API Gravity	Concentration	Peak ID	C ₁₀	C ₁₁	C ₁₂	C ₁₃	C ₁₄	C ₁₅	C ₁₆	C ₁₇	C ₁₈	C ₁₉	C ₂₀	C ₂₁	C ₂₂	C ₂₃
7228/7-1 ST3	COCH	1367.38	1367.40	11309	1.26e4	2.65e4	1.66e4	2.78e4	3.14e4	2.42e4	1.80e4	1.12e4	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0
7228/7-1 ST3	DC		1719.00	11789	8.50e4	1.38e5	4.42e4	1.07e5	8.24e4	5.83e4	4.25e4	3.82e4	2.62e4	2.85e4	1.80e4	2.14e4	1.38e4	
7228/7-1 ST3	DC		1911.00	11790	8.95e3	1.06e4	2.66e3	8.33e3	7.09e3	5.36e3	5.16e3	6.01e3	3.10e3	3.16e3	2.20e3	2.09e3	1.60e3	
7228/7-1 B	SWC		1381.50	11792	2.69e3	3.35e3	1.71e3	2.59e3	2.78e3	2.08e3	1.89e3	4.27e3	1.45e3	1.87e3	1.12e3	1.08e3	9.65e2	
7228/7-1 B	SWC		2139.00	11850	2.18e5	5.41e5	1.62e5	5.53e5	5.46e5	5.04e5	4.54e5	4.13e5	3.59e5	3.29e5	2.54e5	2.32e5	1.63e5	
7228/7-1 B	SWC		2152.00	11851	3.90e3	6.01e3	2.32e3	5.67e3	5.85e3	4.60e3	4.21e3	6.07e3	3.41e3	3.28e3	2.60e3	2.66e3	1.96e3	
7228/7-1 B	SWC		2165.50	11852	5.20e4	1.32e5	3.48e4	1.27e5	1.21e5	1.07e5	9.48e4	8.43e4	6.90e4	6.09e4	4.87e4	4.18e4	2.98e4	
7228/7-1 A	COCH	2060.33	2060.35	11020	4.61e4	9.73e4	2.99e4	8.89e4	7.94e4	6.68e4	5.80e4	5.18e4	4.64e4	4.72e4	4.04e4	3.89e4	2.86e4	
7228/7-1 A	COCH		2066.50	11794	6.97e4	1.56e5	4.78e4	1.55e5	1.51e5	1.34e5	1.20e5	1.08e5	9.22e4	8.42e4	6.58e4	6.23e4	4.32e4	
7228/7-1 A	COCH		2071.45	11795	1.06e5	2.39e5	7.27e4	2.36e5	2.29e5	2.08e5	1.91e5	1.75e5	1.51e5	1.39e5	1.11e5	1.03e5	7.23e4	
7228/7-1 A	COCH		2082.70	11797	2.04e5	4.61e5	1.33e5	4.31e5	4.02e5	3.55e5	3.16e5	2.85e5	2.44e5	2.17e5	1.69e5	1.58e5	1.10e5	
7228/7-1 A	COCH		2086.50	11799	1.59e5	3.35e5	1.03e5	3.13e5	2.95e5	2.57e5	2.31e5	2.10e5	1.82e5	1.66e5	1.30e5	1.22e5	8.65e4	
7228/7-1 A	COCH		2087.00	11800	5.90e4	1.48e5	7.18e4	1.79e5	2.30e5	1.98e5	1.22e5	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	
7228/7-1 A	COCH		2087.30	11801	3.48e5	7.66e5	2.26e5	7.32e5	6.98e5	6.22e5	5.60e5	4.99e5	4.42e5	3.96e5	3.11e5	2.84e5	1.97e5	
7228/7-1 A	COCH		2088.95	11802	3.88e5	8.57e5	2.54e5	8.23e5	7.83e5	6.87e5	6.10e5	5.50e5	4.87e5	4.33e5	3.28e5	2.99e5	2.09e5	
7228/7-1 A	COCH		2088.95	11803	4.95e5	1.08e6	3.16e5	1.06e6	9.79e5	8.67e5	7.72e5	6.94e5	6.26e5	5.37e5	4.24e5	3.93e5	2.74e5	
7228/7-1 A	COCH		2091.30	11805	2.99e5	6.72e5	1.95e5	6.53e5	6.29e5	5.58e5	5.03e5	4.60e5	3.93e5	3.41e5	2.62e5	2.45e5	1.74e5	
7228/7-1 A	COCH	2093.52	2093.54	11021	7.41e4	1.55e5	4.67e4	1.43e5	1.27e5	1.08e5	9.50e4	8.63e4	7.85e4	7.88e4	6.66e4	6.18e4	4.38e4	
7228/7-1 A	COCH		2093.80	11807	4.44e5	1.02e6	3.05e5	1.01e6	9.36e5	8.35e5	7.46e5	6.70e5	5.77e5	5.15e5	3.95e5	3.52e5	2.34e5	
7228/7-1 A	COCH		2095.00	11808	2.75e5	6.46e5	2.04e5	6.45e5	6.42e5	5.71e5	5.30e5	4.14e5	3.40e5	3.07e5	2.07e5	2.08e5	1.41e5	
7228/7-1 A	COCH		2096.00	11809	1.87e5	4.19e5	1.33e5	4.18e5	4.29e5	3.72e5	3.46e5	2.75e5	2.30e5	2.16e5	1.36e5	1.43e5	9.96e4	
7228/7-1 A	COCH		2097.00	11810	1.33e5	3.01e5	1.07e5	3.10e5	3.32e5	2.89e5	2.19e5	1.86e5	1.38e5	1.43e5	7.57e4	9.23e4	6.10e4	
7228/7-1 A	COCH		2098.30	11811	4.66e5	1.01e6	3.02e5	1.01e6	9.41e5	8.40e5	7.51e5	6.75e5	5.99e5	5.15e5	4.02e5	3.67e5	2.47e5	
7228/7-1 A	COCH		2099.30	11812	4.04e5	8.93e5	2.67e5	8.60e5	8.14e5	7.18e5	6.38e5	5.76e5	5.20e5	4.55e5	3.54e5	3.35e5	2.36e5	
7228/7-1 A	COCH		2101.25	11814	4.13e5	9.59e5	2.75e5	9.47e5	8.83e5	7.89e5	7.04e5	6.34e5	5.64e5	4.86e5	3.79e5	3.43e5	2.35e5	
7228/7-1 A	COCH		2102.25	11816	3.98e5	9.16e5	2.68e5	9.18e5	8.57e5	7.65e5	6.80e5	6.06e5	5.41e5	4.62e5	3.69e5	3.36e5	2.32e5	
7228/7-1 A	COCH		2102.50	11817	3.43e5	8.14e5	2.23e5	8.00e5	7.61e5	6.85e5	6.10e5	5.41e5	4.71e5	4.20e5	3.24e5	2.88e5	1.99e5	
7228/7-1 A	COCH	2833.00	2833.02	11024	7.16e3	1.88e4	1.08e4	2.41e4	3.24e4	2.70e4	2.07e4	9.59e3	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	

Table 6. continued, GC of saturated compounds (peak area)

Peak	Sample No.	Area (Height)	Area (Height)	Area (Height)	Area (Height)	Area (Height)	Area (Height)	Area (Height)	Area (Height)	Area (Height)	Area (Height)	Area (Height)
7228/7-1 ST3	COCH	1367.38	1367.40	11309	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0
7228/7-1 ST3	DC		1719.00	11789	1.37e4	8.36e3	9.15e3	3.78e3	3.47e3	1.61e3	6.76e2	2.18e2
7228/7-1 ST3	DC		1911.00	11790	1.84e3	9.61e2	1.34e3	3.76e2	3.74e2	0.00e0	0.00e0	0.00e0
7228/7-1 B	SWC		1381.50	11792	9.14e2	5.44e2	1.23e3	1.86e2	5.20e2	0.00e0	0.00e0	0.00e0
7228/7-1 B	SWC		2139.00	11850	1.32e5	9.00e4	6.75e4	3.86e4	3.22e4	2.87e4	1.31e4	8.61e3
7228/7-1 B	SWC		2152.00	11851	2.03e3	1.40e3	2.11e3	7.99e2	8.36e2	4.17e2	0.00e0	2.00e-1
7228/7-1 B	SWC		2165.50	11852	2.36e4	1.65e4	1.19e4	6.97e3	5.47e3	4.53e3	1.94e3	1.31e3
7228/7-1 A	COCH	2060.33	2060.35	11020	2.61e4	1.93e4	1.50e4	9.54e3	8.86e3	8.58e3	5.05e3	2.88e3
7228/7-1 A	COCH		2066.50	11794	3.55e4	2.56e4	1.93e4	1.14e4	8.84e3	7.27e3	3.71e3	2.15e3
7228/7-1 A	COCH		2071.45	11795	6.05e4	4.26e4	3.25e4	1.99e4	1.49e4	1.28e4	6.30e3	3.90e3
7228/7-1 A	COCH		2082.70	11797	8.86e4	6.31e4	4.74e4	2.89e4	2.14e4	1.82e4	9.92e3	6.17e3
7228/7-1 A	COCH		2086.50	11799	7.22e4	5.06e4	3.83e4	2.33e4	1.95e4	1.60e4	8.14e3	5.10e3
7228/7-1 A	COCH		2087.00	11800	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0
7228/7-1 A	COCH		2087.30	11801	1.62e5	1.07e5	8.08e4	4.76e4	3.75e4	3.11e4	1.59e4	9.80e3
7228/7-1 A	COCH		2088.95	11802	1.63e5	1.12e5	8.12e4	4.73e4	3.44e4	2.93e4	1.55e4	1.05e4
7228/7-1 A	COCH		2088.95	11803	2.24e5	1.53e5	1.14e5	6.81e4	4.85e4	3.78e4	2.01e4	1.30e4
7228/7-1 A	COCH		2091.30	11805	1.40e5	9.55e4	7.13e4	4.15e4	3.13e4	2.85e4	1.38e4	9.53e3
7228/7-1 A	COCH	2093.52	2093.54	11021	3.92e4	2.81e4	2.19e4	1.44e4	1.32e4	1.40e4	7.57e3	4.80e3
7228/7-1 A	COCH		2093.80	11807	1.84e5	1.20e5	8.66e4	4.95e4	3.25e4	3.03e4	1.43e4	8.72e3
7228/7-1 A	COCH		2095.00	11808	1.11e5	7.68e4	5.85e4	3.30e4	2.37e4	1.96e4	1.02e4	6.72e3
7228/7-1 A	COCH		2096.00	11809	7.53e4	5.28e4	4.04e4	2.27e4	1.89e4	1.87e4	8.18e3	5.12e3
7228/7-1 A	COCH		2097.00	11810	5.44e4	4.08e4	3.09e4	1.85e4	1.47e4	1.28e4	7.07e3	4.61e3
7228/7-1 A	COCH		2098.30	11811	2.01e5	1.34e5	9.66e4	5.72e4	4.25e4	3.46e4	1.78e4	1.01e4
7228/7-1 A	COCH		2099.30	11812	1.92e5	1.31e5	9.85e4	5.85e4	4.17e4	3.31e4	1.84e4	1.20e4
7228/7-1 A	COCH		2101.25	11814	1.90e5	1.26e5	9.23e4	5.41e4	3.64e4	3.00e4	1.58e4	1.02e4
7228/7-1 A	COCH		2102.25	11816	1.90e5	1.25e5	9.14e4	5.40e4	3.75e4	3.21e4	1.67e4	1.11e4
7228/7-1 A	COCH		2102.50	11817	1.60e5	1.06e5	7.71e4	4.50e4	3.18e4	2.86e4	1.36e4	9.18e3
7228/7-1 A	COCH	2833.00	2833.02	11024	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0



Table 7. GC of saturated compounds (amounts in ng/g)

Well	Sample No.	Core Depth	Core Depth	Depth	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20	C21	C22	C23
7228/7-1 ST3	COCH	1367.38	1367.40	11309	9.21e3	2.45e4	3.75e4	7.48e3	8.24e3	7.02e4	2.97e4	2.20e5	1.25e5	4.48e5	6.71e5	2.72e5	7.12e5	
7228/7-1 ST3	DC		1719.00	11789	4.58e4	4.70e4	1.01e5	2.39e4	3.23e4	2.78e5	8.72e4	5.72e5	2.56e5	9.08e5	1.03e6	3.86e5	1.03e6	
7228/7-1 ST3	DC		1911.00	11790	4.76e4	3.99e4	3.89e4	7.56e3	6.83e3	4.78e4	1.36e4	7.46e4	4.22e4	1.07e5	9.74e4	4.52e4	9.88e4	
7228/7-1 B	SWC		1381.50	11792	6.71e4	5.14e3	1.28e4	6.11e3	6.03e3	2.31e4	7.19e3	2.21e4	1.11e4	1.78e4	1.90e4	1.44e4	2.63e4	
7228/7-1 B	SWC		2139.00	11850	3.06e3	5.63e3	1.11e4	3.54e3	2.63e3	1.80e4	3.38e4	2.76e5	2.90e5	1.35e6	2.58e6	1.05e6	3.56e6	
7228/7-1 B	SWC		2152.00	11851	1.69e4	1.54e4	1.55e4	3.31e3	2.83e3	1.34e4	4.22e3	1.68e4	1.16e4	3.97e4	5.27e4	2.24e4	5.34e4	
7228/7-1 B	SWC		2165.50	11852	1.65e4	2.40e4	4.70e4	1.21e4	2.59e4	2.87e5	9.75e4	7.12e5	2.95e5	1.13e6	1.29e6	4.17e5	1.38e6	
7228/7-1 A	COCH	2060.33	2060.35	11020	0.00e0	2.04e4	2.68e5	8.81e4	1.73e5	1.47e6	4.72e5	3.13e6	1.27e6	4.71e6	5.26e6	1.83e6	5.52e6	
7228/7-1 A	COCH		2066.50	11794	2.47e3	2.26e3	1.67e4	7.21e3	1.87e4	1.69e5	8.36e4	5.39e5	2.84e5	9.87e5	1.28e6	4.75e5	1.45e6	
7228/7-1 A	COCH		2071.45	11795	2.65e4	3.70e4	9.59e4	3.03e4	6.25e4	4.84e5	1.76e5	1.12e6	4.88e5	1.70e6	2.05e6	7.36e5	2.26e6	
7228/7-1 A	COCH		2082.70	11797	1.78e5	4.34e5	1.54e6	3.42e5	3.62e5	2.93e6	5.90e5	3.77e6	1.29e6	4.40e6	4.48e6	1.37e6	4.43e6	
7228/7-1 A	COCH		2086.50	11799	1.02e4	1.14e4	1.42e5	5.26e4	1.22e5	9.74e5	3.50e5	2.14e6	9.03e5	3.00e6	3.25e6	1.12e6	3.34e6	
7228/7-1 A	COCH		2087.00	11800	5.89e4	7.85e4	2.31e5	5.97e4	7.30e4	5.43e5	1.21e5	7.11e5	2.64e5	8.65e5	1.01e6	4.27e5	1.21e6	
7228/7-1 A	COCH		2087.30	11801	2.94e4	7.40e4	1.19e6	3.37e5	4.76e5	3.61e6	9.32e5	5.85e6	2.24e6	7.69e6	8.32e6	2.83e6	8.45e6	
7228/7-1 A	COCH		2088.95	11802	2.41e4	3.25e5	1.74e6	4.58e5	5.71e5	4.21e6	1.08e6	6.70e6	2.46e6	9.03e6	9.88e6	3.28e6	1.02e7	
7228/7-1 A	COCH		2088.95	11803	2.90e4	6.82e4	1.07e6	3.11e5	4.60e5	3.60e6	9.82e5	6.13e6	2.33e6	8.28e6	9.18e6	3.14e6	9.44e6	
7228/7-1 A	COCH		2091.30	11805	5.91e4	1.25e5	9.99e5	2.80e5	3.92e5	2.97e6	7.90e5	5.04e6	1.95e6	6.83e6	7.42e6	2.46e6	7.56e6	
7228/7-1 A	COCH	2093.52	2093.54	11021	5.99e5	2.40e6	5.27e6	1.22e6	1.15e6	8.33e6	1.82e6	1.14e7	4.02e6	1.41e7	1.43e7	4.71e6	1.42e7	
7228/7-1 A	COCH		2093.80	11807	2.75e4	2.32e5	1.53e6	4.12e5	5.36e5	4.16e6	1.12e6	7.10e6	2.93e6	1.03e7	1.20e7	3.95e6	1.24e7	
7228/7-1 A	COCH		2095.00	11808	2.45e4	3.71e5	1.67e6	4.26e5	4.64e5	3.35e6	7.74e5	4.73e6	1.79e6	6.07e6	6.62e6	2.21e6	6.81e6	
7228/7-1 A	COCH		2096.00	11809	7.54e4	1.16e5	5.32e5	1.49e5	2.10e5	1.60e6	4.81e5	3.11e6	1.33e6	4.79e6	5.72e6	2.01e6	6.13e6	
7228/7-1 A	COCH		2097.00	11810	5.84e3	5.37e4	4.05e5	1.17e5	1.59e5	1.19e6	3.26e5	1.96e6	7.85e5	2.66e6	2.96e6	1.03e6	3.09e6	
7228/7-1 A	COCH		2098.30	11811	8.57e3	1.28e5	1.32e6	3.79e5	5.07e5	3.69e6	9.74e5	5.76e6	2.30e6	7.58e6	8.37e6	2.95e6	8.71e6	
7228/7-1 A	COCH		2099.30	11812	2.78e4	1.96e5	1.54e6	4.01e5	4.94e5	3.83e6	9.35e5	5.85e6	2.23e6	7.59e6	8.20e6	2.77e6	8.33e6	
7228/7-1 A	COCH		2101.25	11814	8.15e4	1.56e5	1.14e6	2.96e5	4.41e5	3.57e6	9.58e5	6.04e6	2.37e6	8.14e6	8.92e6	2.98e6	9.16e6	
7228/7-1 A	COCH		2102.25	11816	2.79e4	6.28e4	9.03e5	2.52e5	3.99e5	3.14e6	8.91e5	5.69e6	2.31e6	8.14e6	9.27e6	3.07e6	9.61e6	
7228/7-1 A	COCH		2102.50	11817	2.52e4	1.05e5	6.49e5	1.74e5	2.67e5	2.08e6	6.45e5	4.20e6	1.85e6	6.77e6	8.30e6	2.97e6	9.23e6	
7228/7-1 A	COCH	2833.00	2833.02	11024	5.18e4	4.75e4	9.18e4	2.16e4	1.99e4	1.83e5	4.13e4	2.89e5	1.46e5	6.63e5	1.14e6	5.21e5	1.48e6	



Table 7. continued, GC of saturated compounds (amounts in ng/g)

Well	Sample type	Upper limit	Lower limit	API no	C ₁	C ₂	C ₃	C ₄	C ₅	C ₆	C ₇	C ₈	C ₉	C ₁₀	C ₁₁	C ₁₂	C ₁₃	C ₁₄
7228/7-1 ST3	COCH	1367.38	1367.40	11309	3.80e5	8.00e5	5.03e5	8.39e5	9.48e5	7.31e5	5.44e5	3.39e5	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0
7228/7-1 ST3	DC		1719.00	11789	5.66e5	9.19e5	2.94e5	7.14e5	5.48e5	3.88e5	2.83e5	2.54e5	1.75e5	1.90e5	1.20e5	1.43e5	1.43e5	9.17e4
7228/7-1 ST3	DC		1911.00	11790	6.03e4	7.11e4	1.79e4	5.60e4	4.77e4	3.61e4	3.48e4	4.05e4	2.09e4	2.13e4	1.48e4	1.41e4	1.08e4	
7228/7-1 B	SWC		1381.50	11792	2.16e4	2.69e4	1.37e4	2.08e4	2.23e4	1.67e4	1.51e4	3.42e4	1.17e4	1.50e4	8.97e3	8.66e3	7.74e3	
7228/7-1 B	SWC		2139.00	11850	1.64e6	4.07e6	1.22e6	4.17e6	4.12e6	3.80e6	3.42e6	3.11e6	2.71e6	2.48e6	1.91e6	1.75e6	1.23e6	
7228/7-1 B	SWC		2152.00	11851	3.46e4	5.32e4	2.05e4	5.02e4	5.18e4	4.07e4	3.72e4	5.37e4	3.02e4	2.90e4	2.30e4	2.35e4	1.73e4	
7228/7-1 B	SWC		2165.50	11852	5.39e5	1.37e6	3.61e5	1.32e6	1.26e6	1.10e6	9.82e5	8.73e5	7.14e5	6.30e5	5.04e5	4.33e5	3.09e5	
7228/7-1 A	COCH	2060.33	2060.35	11020	2.55e6	5.37e6	1.65e6	4.91e6	4.39e6	3.69e6	3.21e6	2.86e6	2.56e6	2.61e6	2.23e6	2.15e6	1.58e6	
7228/7-1 A	COCH		2066.50	11794	6.65e5	1.49e6	4.56e5	1.48e6	1.44e6	1.28e6	1.15e6	1.04e6	8.80e5	8.03e5	6.28e5	5.94e5	4.13e5	
7228/7-1 A	COCH		2071.45	11795	1.06e6	2.38e6	7.23e5	2.35e6	2.28e6	2.07e6	1.90e6	1.74e6	1.51e6	1.39e6	1.11e6	1.02e6	7.19e5	
7228/7-1 A	COCH		2082.70	11797	1.90e6	4.31e6	1.25e6	4.03e6	3.76e6	3.32e6	2.96e6	2.66e6	2.28e6	2.03e6	1.58e6	1.47e6	1.03e6	
7228/7-1 A	COCH		2086.50	11799	1.55e6	3.27e6	1.01e6	3.06e6	2.88e6	2.51e6	2.26e6	2.06e6	1.78e6	1.62e6	1.27e6	1.19e6	8.46e5	
7228/7-1 A	COCH		2087.00	11800	5.70e5	1.42e6	6.93e5	1.72e6	2.22e6	1.91e6	1.18e6	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	
7228/7-1 A	COCH		2087.30	11801	3.78e6	8.34e6	2.46e6	7.97e6	7.59e6	6.77e6	6.09e6	5.43e6	4.81e6	4.31e6	3.39e6	3.09e6	2.14e6	
7228/7-1 A	COCH		2088.95	11802	4.56e6	1.01e7	2.98e6	9.67e6	9.21e6	8.07e6	7.17e6	6.47e6	5.72e6	5.09e6	3.86e6	3.51e6	2.45e6	
7228/7-1 A	COCH		2088.95	11803	4.27e6	9.33e6	2.73e6	9.18e6	8.44e6	7.48e6	6.65e6	5.98e6	5.40e6	4.63e6	3.66e6	3.39e6	2.36e6	
7228/7-1 A	COCH		2091.30	11805	3.29e6	7.38e6	2.14e6	7.17e6	6.91e6	6.13e6	5.53e6	5.05e6	4.32e6	3.74e6	2.88e6	2.69e6	1.91e6	
7228/7-1 A	COCH	2093.52	2093.54	11021	6.36e6	1.33e7	4.01e6	1.22e7	1.09e7	9.23e6	8.15e6	7.41e6	6.74e6	6.76e6	5.71e6	5.31e6	3.76e6	
7228/7-1 A	COCH		2093.80	11807	5.35e6	1.23e7	3.68e6	1.22e7	1.13e7	1.00e7	8.97e6	8.06e6	6.95e6	6.20e6	4.75e6	4.23e6	2.81e6	
7228/7-1 A	COCH		2095.00	11808	2.89e6	6.77e6	2.15e6	6.77e6	6.74e6	5.99e6	5.56e6	4.34e6	3.56e6	3.22e6	2.18e6	2.18e6	1.48e6	
7228/7-1 A	COCH		2096.00	11809	2.81e6	6.29e6	2.00e6	6.28e6	6.44e6	5.58e6	5.19e6	4.12e6	3.45e6	3.24e6	2.05e6	2.14e6	1.49e6	
7228/7-1 A	COCH		2097.00	11810	1.42e6	3.21e6	1.14e6	3.30e6	3.55e6	3.09e6	2.33e6	1.99e6	1.47e6	1.53e6	8.08e5	9.85e5	6.51e5	
7228/7-1 A	COCH		2098.30	11811	3.99e6	8.68e6	2.59e6	8.67e6	8.07e6	7.21e6	6.44e6	5.79e6	5.13e6	4.42e6	3.45e6	3.15e6	2.12e6	
7228/7-1 A	COCH		2099.30	11812	3.72e6	8.21e6	2.46e6	7.91e6	7.49e6	6.60e6	5.87e6	5.30e6	4.78e6	4.19e6	3.25e6	3.08e6	2.18e6	
7228/7-1 A	COCH		2101.25	11814	3.92e6	9.11e6	2.61e6	8.99e6	8.38e6	7.49e6	6.69e6	6.02e6	5.36e6	4.62e6	3.60e6	3.25e6	2.23e6	
7228/7-1 A	COCH		2102.25	11816	4.14e6	9.53e6	2.78e6	9.55e6	8.92e6	7.96e6	7.07e6	6.30e6	5.62e6	4.81e6	3.84e6	3.50e6	2.41e6	
7228/7-1 A	COCH		2102.50	11817	3.97e6	9.42e6	2.58e6	9.26e6	8.80e6	7.93e6	7.06e6	6.26e6	5.45e6	4.86e6	3.75e6	3.33e6	2.31e6	
7228/7-1 A	COCH	2833.00	2833.02	11024	7.41e5	1.94e6	1.11e6	2.49e6	3.35e6	2.80e6	2.14e6	9.92e5	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	

Table 7. continued, GC of saturated compounds (amounts in ng/g)

WELL	SAMPLE NO.	API GRAVITY	DENSITY	TEMPERATURE	C15	C16	C17	C18	C19	C20	C21	C22
7228/7-1 ST3	COCH	1367.38	1367.40	11309	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0
7228/7-1 ST3	DC		1719.00	11789	9.13e4	5.57e4	6.09e4	2.52e4	2.31e4	1.07e4	4.50e3	1.45e3
7228/7-1 ST3	DC		1911.00	11790	1.24e4	6.46e3	9.03e3	2.53e3	2.52e3	0.00e0	0.00e0	0.00e0
7228/7-1 B	SWC		1381.50	11792	7.33e3	4.36e3	9.84e3	1.49e3	4.17e3	0.00e0	0.00e0	0.00e0
7228/7-1 B	SWC		2139.00	11850	9.93e5	6.79e5	5.08e5	2.91e5	2.43e5	2.16e5	9.89e4	6.49e4
7228/7-1 B	SWC		2152.00	11851	1.80e4	1.23e4	1.86e4	7.07e3	7.39e3	3.69e3	0.00e0	1.77e0
7228/7-1 B	SWC		2165.50	11852	2.45e5	1.71e5	1.23e5	7.22e4	5.67e4	4.69e4	2.01e4	1.36e4
7228/7-1 A	COCH	2060.33	2060.35	11020	1.44e6	1.06e6	8.30e5	5.27e5	4.89e5	4.74e5	2.79e5	1.59e5
7228/7-1 A	COCH		2066.50	11794	3.38e5	2.45e5	1.84e5	1.09e5	8.43e4	6.94e4	3.54e4	2.05e4
7228/7-1 A	COCH		2071.45	11795	6.02e5	4.23e5	3.24e5	1.98e5	1.48e5	1.28e5	6.27e4	3.88e4
7228/7-1 A	COCH		2082.70	11797	8.28e5	5.90e5	4.43e5	2.70e5	2.00e5	1.70e5	9.28e4	5.77e4
7228/7-1 A	COCH		2086.50	11799	7.06e5	4.94e5	3.75e5	2.28e5	1.91e5	1.56e5	7.95e4	4.98e4
7228/7-1 A	COCH		2087.00	11800	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0
7228/7-1 A	COCH		2087.30	11801	1.76e6	1.17e6	8.80e5	5.18e5	4.08e5	3.39e5	1.73e5	1.07e5
7228/7-1 A	COCH		2088.95	11802	1.91e6	1.31e6	9.54e5	5.56e5	4.04e5	3.45e5	1.82e5	1.24e5
7228/7-1 A	COCH		2088.95	11803	1.93e6	1.32e6	9.80e5	5.87e5	4.18e5	3.26e5	1.73e5	1.12e5
7228/7-1 A	COCH		2091.30	11805	1.54e6	1.05e6	7.84e5	4.56e5	3.43e5	3.13e5	1.52e5	1.05e5
7228/7-1 A	COCH	2093.52	2093.54	11021	3.36e6	2.41e6	1.88e6	1.23e6	1.13e6	1.20e6	6.50e5	4.12e5
7228/7-1 A	COCH		2093.80	11807	2.22e6	1.45e6	1.04e6	5.96e5	3.91e5	3.64e5	1.73e5	1.05e5
7228/7-1 A	COCH		2095.00	11808	1.17e6	8.05e5	6.13e5	3.46e5	2.48e5	2.06e5	1.07e5	7.05e4
7228/7-1 A	COCH		2096.00	11809	1.13e6	7.92e5	6.07e5	3.41e5	2.84e5	2.80e5	1.23e5	7.68e4
7228/7-1 A	COCH		2097.00	11810	5.81e5	4.35e5	3.30e5	1.97e5	1.56e5	1.37e5	7.54e4	4.92e4
7228/7-1 A	COCH		2098.30	11811	1.72e6	1.15e6	8.29e5	4.91e5	3.65e5	2.97e5	1.52e5	8.70e4
7228/7-1 A	COCH		2099.30	11812	1.77e6	1.21e6	9.06e5	5.38e5	3.84e5	3.05e5	1.69e5	1.10e5
7228/7-1 A	COCH		2101.25	11814	1.80e6	1.20e6	8.76e5	5.14e5	3.45e5	2.85e5	1.50e5	9.67e4
7228/7-1 A	COCH		2102.25	11816	1.97e6	1.30e6	9.51e5	5.61e5	3.90e5	3.34e5	1.74e5	1.15e5
7228/7-1 A	COCH		2102.50	11817	1.85e6	1.22e6	8.92e5	5.20e5	3.69e5	3.31e5	1.58e5	1.06e5
7228/7-1 A	COCH	2833.00	2833.02	11024	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0

Table 8. GC of aromatic compounds (peak area)

Well	Sample type	Core Depth	Zone Depth	API ID	2-MN	3-MN	4-MN	5-MP	6-MP	7-MP	8-MP
7228/7-1 ST3	COCH	1367.38	1367.40	11309	19375	14116	5588	1692	1905	4213	2052
7228/7-1 ST3	DC		1719.00	11789	40322	23483	17304	6195	8026	9640	6243
7228/7-1 ST3	DC		1911.00	11790	23846	12029	22951	10753	13615	10393	7440
7228/7-1 B	SWC		1381.50	11792	3607	2740	2882	961	971	1534	958
7228/7-1 B	SWC		2139.00	11850	3601	3111	22536	14159	17654	20521	17606
7228/7-1 B	SWC		2152.00	11851	4561	2699	2482	1115	1388	2014	1241
7228/7-1 B	SWC		2165.50	11852	32274	25570	19672	6496	8320	15564	11333
7228/7-1 A	COCH	2060.33	2060.35	11020	11938	10944	9601	6986	7357	10998	9401
7228/7-1 A	COCH		2066.50	11794	7164	6515	10624	5944	7537	10319	8131
7228/7-1 A	COCH		2071.45	11795	20826	18175	20110	10983	15315	17265	14916
7228/7-1 A	COCH		2082.70	11797	247332	166628	85121	38412	50895	66503	43229
7228/7-1 A	COCH		2086.50	11799	15889	14702	16152	11109	12100	15104	12839
7228/7-1 A	COCH		2087.00	11800	7989	7474	2538	1578	1915	2381	1918
7228/7-1 A	COCH		2087.30	11801	46425	41968	24902	17165	24429	23281	22293
7228/7-1 A	COCH		2088.95	11802	36924	33678	19397	14145	21095	18992	17889
7228/7-1 A	COCH		2088.95	11803	45830	41186	28777	19641	28243	26269	23794
7228/7-1 A	COCH		2091.30	11805	23594	21898	15455	10462	14909	15646	13655
7228/7-1 A	COCH	2093.52	2093.54	11021	46970	38069	10835	8404	11973	12507	12067
7228/7-1 A	COCH		2093.80	11807	69125	56038	41995	28020	40782	38023	34698
7228/7-1 A	COCH		2095.00	11808	44391	40647	20294	13753	14048	18718	17634
7228/7-1 A	COCH		2096.00	11809	12048	11166	13533	8718	10689	11764	11640
7228/7-1 A	COCH		2097.00	11810	21078	18373	8723	5617	7348	8598	7772
7228/7-1 A	COCH		2098.30	11811	82919	69257	32487	21668	33358	31104	29031
7228/7-1 A	COCH		2099.30	11812	69376	56977	26866	18589	25517	23919	23360
7228/7-1 A	COCH		2101.25	11814	161940	111731	52937	27025	39046	40712	33361
7228/7-1 A	COCH		2102.25	11816	55655	48109	36459	26145	37637	35877	34402
7228/7-1 A	COCH		2102.50	11817	92445	65952	48222	29793	35189	42887	42178
7228/7-1 A	COCH	2833.00	2833.02	11024	3071	3419	883	685	882	1513	980



Table 9. GCMS SIR of saturated compounds (peak height)

Well	Sample No.	m/e		177		191											
		Upper Depth	Lower Depth	11309	11309	2003	2013	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015
7228/7-1 ST3	COCH	1367.38	1367.40	11309	1.06e6	5.41e5	2.68e6	4.40e6	1.92e7	9.72e6	4.48e6	3.90e6	1.63e7	2.95e6	2.85e6	2.03e6	1.82e6
7228/7-1 ST3	DC		1719.00	11789	0.00e0	0.00e0	5.20e4	4.89e4	6.53e4	1.19e5	2.03e4	1.95e4	1.11e5	2.21e4	1.58e4	1.63e4	1.39e4
7228/7-1 B	SWC		2139.00	11850	0.00e0	0.00e0	2.83e5	4.82e5	8.20e5	7.39e5	2.40e5	2.48e5	2.81e5	2.64e5	2.38e5	2.43e5	2.36e5
7228/7-1 B	SWC		2165.50	11852	0.00e0	0.00e0	1.30e5	2.30e5	3.22e5	3.58e5	7.77e4	8.08e4	7.88e4	8.16e4	7.91e4	8.12e4	7.87e4
7228/7-1 A	COCH		2066.50	11794	0.00e0	0.00e0	1.62e5	2.86e5	7.22e5	6.27e5	1.73e5	1.71e5	3.09e5	1.42e5	1.33e5	1.05e5	1.12e5
7228/7-1 A	COCH		2071.45	11795	0.00e0	0.00e0	1.81e5	3.13e5	5.06e5	5.11e5	1.28e5	1.38e5	1.41e5	1.52e5	1.41e5	1.53e5	1.48e5
7228/7-1 A	COCH		2082.70	11797	0.00e0	0.00e0	4.14e5	6.75e5	9.53e5	7.84e5	2.35e5	2.59e5	2.84e5	2.67e5	2.38e5	2.61e5	2.56e5
7228/7-1 A	COCH		2086.50	11799	0.00e0	0.00e0	2.53e5	4.26e5	7.07e5	6.63e5	1.86e5	1.95e5	2.21e5	2.06e5	1.88e5	1.95e5	2.00e5
7228/7-1 A	COCH		2087.30	11801	0.00e0	0.00e0	4.87e5	8.40e5	1.33e6	1.18e6	3.82e5	4.06e5	3.84e5	4.30e5	4.12e5	4.44e5	4.39e5
7228/7-1 A	COCH		2088.95	11802	0.00e0	0.00e0	5.37e5	9.19e5	1.48e6	1.31e6	4.02e5	4.13e5	3.95e5	4.74e5	4.33e5	5.00e5	4.74e5
7228/7-1 A	COCH		2088.95	11803	0.00e0	0.00e0	3.66e5	6.23e5	9.57e5	8.00e5	2.91e5	3.14e5	2.72e5	3.52e5	3.07e5	3.52e5	3.51e5
7228/7-1 A	COCH		2093.80	11807	0.00e0	0.00e0	3.91e5	6.74e5	1.02e6	8.44e5	3.13e5	3.42e5	2.99e5	3.75e5	3.41e5	3.71e5	3.76e5
7228/7-1 A	COCH		2097.00	11810	0.00e0	0.00e0	6.69e5	1.48e6	5.39e6	3.25e6	1.16e6	1.14e6	3.05e6	7.63e5	7.68e5	4.79e5	4.46e5
7228/7-1 A	COCH		2098.30	11811	0.00e0	0.00e0	3.55e5	6.07e5	9.37e5	7.77e5	2.78e5	3.00e5	2.67e5	3.26e5	3.07e5	3.31e5	3.36e5
7228/7-1 A	COCH		2099.30	11812	0.00e0	0.00e0	2.50e5	4.30e5	6.79e5	5.77e5	2.02e5	2.23e5	1.88e5	2.31e5	2.19e5	2.36e5	2.44e5
7228/7-1 A	COCH		2101.25	11814	0.00e0	0.00e0	2.99e5	5.22e5	7.91e5	6.69e5	2.32e5	2.48e5	2.23e5	2.78e5	2.72e5	2.89e5	2.81e5
7228/7-1 A	COCH		2102.25	11816	0.00e0	0.00e0	5.11e5	9.24e5	1.83e6	1.33e6	4.84e5	5.00e5	6.86e5	5.23e5	4.75e5	4.98e5	4.89e5
7228/7-1 A	COCH		2102.50	11817	0.00e0	0.00e0	3.73e5	6.93e5	1.09e6	8.75e5	3.26e5	3.36e5	3.34e5	3.74e5	3.60e5	3.85e5	3.87e5
7228/7-1 A	COCH	2833.00	2833.02	11024	9.04e5	0.00e0	2.63e6	5.68e6	2.28e7	1.20e7	5.08e6	4.62e6	1.29e7	3.02e6	2.91e6	1.82e6	1.64e6



Table 9. continued, GCMS SIR of saturated compounds (peak height)

m/e		191															
Well	Sample type	1367.38	1367.40	11309	10948	10949	10950	10951	10952	10953	10954	10955	10956	10957	10958	10959	10960
7228/7-1 ST3	COCH	1367.38	1367.40	11309	1.61e6	1.58e6	1.22e7	4.63e6	9.11e5	1.18e6	1.27e6	7.69e5	1.43e7	4.81e6	1.03e6	1.48e6	0.00e0
7228/7-1 ST3	DC		1719.00	11789	0.00e0	0.00e0	9.37e4	7.50e5	0.00e0	0.00e0	7.58e4	0.00e0	1.26e6	1.40e5	7.13e4	1.82e5	0.00e0
7228/7-1 B	SWC		2139.00	11850	2.42e5	2.34e5	4.92e5	9.71e5	1.69e5	2.32e5	1.25e5	0.00e0	2.69e6	6.30e5	3.52e5	4.07e5	0.00e0
7228/7-1 B	SWC		2165.50	11852	6.25e4	6.00e4	1.95e5	1.82e5	5.24e4	1.03e5	4.91e4	0.00e0	4.98e5	1.71e5	6.46e4	8.95e4	0.00e0
7228/7-1 A	COCH		2066.50	11794	1.09e5	1.01e5	3.12e5	3.43e5	6.70e4	1.20e5	6.97e4	0.00e0	1.05e6	2.72e5	1.35e5	1.61e5	0.00e0
7228/7-1 A	COCH		2071.45	11795	1.34e5	1.31e5	2.37e5	4.78e5	9.08e4	1.43e5	5.93e4	0.00e0	1.30e6	3.21e5	2.06e5	2.26e5	0.00e0
7228/7-1 A	COCH		2082.70	11797	2.23e5	2.24e5	5.27e5	1.13e6	1.63e5	2.05e5	1.43e5	0.00e0	2.65e6	6.75e5	4.26e5	4.81e5	0.00e0
7228/7-1 A	COCH		2086.50	11799	1.96e5	1.76e5	3.52e5	6.62e5	1.34e5	1.77e5	1.14e5	0.00e0	1.77e6	4.61e5	2.84e5	3.11e5	0.00e0
7228/7-1 A	COCH		2087.30	11801	4.04e5	3.83e5	6.95e5	1.45e6	2.97e5	3.47e5	1.90e5	0.00e0	3.84e6	9.36e5	6.50e5	6.93e5	0.00e0
7228/7-1 A	COCH		2088.95	11802	4.38e5	4.29e5	7.37e5	1.55e6	2.98e5	3.60e5	2.00e5	0.00e0	4.27e6	1.04e6	7.03e5	7.62e5	0.00e0
7228/7-1 A	COCH		2088.95	11803	3.22e5	3.13e5	4.95e5	1.03e6	2.25e5	2.36e5	1.70e5	0.00e0	2.91e6	6.74e5	4.76e5	5.12e5	0.00e0
7228/7-1 A	COCH		2093.80	11807	3.56e5	3.25e5	5.63e5	1.11e6	2.47e5	2.53e5	1.59e5	0.00e0	3.07e6	7.38e5	5.16e5	5.63e5	0.00e0
7228/7-1 A	COCH		2097.00	11810	4.46e5	4.37e5	2.58e6	1.03e6	2.69e5	3.28e5	3.70e5	0.00e0	4.86e6	1.35e6	3.10e5	4.40e5	0.00e0
7228/7-1 A	COCH		2098.30	11811	3.16e5	2.85e5	4.76e5	1.01e6	2.24e5	2.27e5	1.55e5	0.00e0	2.68e6	6.41e5	4.35e5	4.85e5	0.00e0
7228/7-1 A	COCH		2099.30	11812	2.22e5	2.07e5	3.49e5	7.19e5	1.64e5	1.70e5	1.16e5	0.00e0	1.96e6	4.56e5	3.17e5	3.58e5	0.00e0
7228/7-1 A	COCH		2101.25	11814	2.54e5	2.41e5	3.97e5	8.39e5	1.83e5	2.01e5	1.09e5	0.00e0	2.20e6	5.54e5	3.69e5	3.99e5	0.00e0
7228/7-1 A	COCH		2102.25	11816	4.61e5	4.24e5	9.53e5	1.40e6	3.29e5	3.39e5	2.16e5	0.00e0	3.97e6	1.02e6	6.16e5	6.76e5	0.00e0
7228/7-1 A	COCH		2102.50	11817	3.64e5	3.41e5	5.60e5	1.10e6	2.45e5	2.68e5	1.62e5	0.00e0	2.88e6	7.08e5	4.85e5	5.32e5	0.00e0
7228/7-1 A	COCH	2833.00	2833.02	11024	1.61e6	1.54e6	1.02e7	3.40e6	1.05e6	1.00e6	1.58e6	0.00e0	1.82e7	5.17e6	9.63e5	1.39e6	0.00e0



Table 9. continued, GCMS SIR of saturated compounds (peak height)

m/e		191															
Well	Sample Type	Upper Depth	Lower Depth	API ID	310e5	316e5	317e5	318e5	319e5	320e5	321e5	322e5	323e5	324e5	325e5	326e5	327e5
7228/7-1 ST3	COCH	1367.38	1367.40	11309	1.19e7	1.32e6	4.65e6	3.53e6	5.03e5	2.11e6	1.71e6	1.16e6	8.70e5	6.42e5	5.03e5	5.89e5	4.93e5
7228/7-1 ST3	DC		1719.00	11789	1.38e6	2.62e5	6.45e5	4.46e5	6.64e4	3.41e5	2.30e5	1.45e5	9.01e4	1.05e5	7.79e4	1.31e5	9.55e4
7228/7-1 B	SWC		2139.00	11850	3.09e6	6.51e5	1.31e6	9.51e5	1.85e5	8.00e5	5.41e5	4.10e5	2.71e5	2.43e5	1.80e5	1.52e5	9.95e4
7228/7-1 B	SWC		2165.50	11852	4.79e5	9.12e4	2.09e5	1.55e5	6.87e4	1.17e5	7.50e4	6.20e4	4.27e4	3.77e4	2.54e4	3.00e4	2.31e4
7228/7-1 A	COCH		2066.50	11794	1.14e6	2.28e5	4.50e5	3.19e5	6.00e4	2.67e5	1.87e5	1.32e5	8.84e4	7.70e4	5.29e4	4.49e4	3.22e4
7228/7-1 A	COCH		2071.45	11795	1.56e6	3.74e5	6.41e5	4.46e5	8.82e4	3.86e5	2.77e5	1.88e5	1.25e5	1.23e5	8.16e4	5.62e4	3.93e4
7228/7-1 A	COCH		2082.70	11797	3.22e6	7.68e5	1.28e6	9.07e5	1.84e5	7.59e5	5.28e5	3.74e5	2.54e5	2.19e5	1.63e5	9.96e4	6.85e4
7228/7-1 A	COCH		2086.50	11799	2.26e6	4.97e5	9.43e5	6.32e5	1.21e5	5.62e5	3.86e5	2.79e5	1.90e5	1.62e5	1.14e5	8.41e4	6.20e4
7228/7-1 A	COCH		2087.30	11801	4.72e6	1.12e6	1.97e6	1.37e6	2.46e5	1.22e6	7.97e5	5.98e5	4.07e5	3.65e5	2.76e5	1.93e5	1.32e5
7228/7-1 A	COCH		2088.95	11802	5.46e6	1.25e6	2.23e6	1.54e6	2.92e5	1.44e6	9.74e5	6.92e5	4.61e5	4.34e5	2.94e5	2.12e5	1.48e5
7228/7-1 A	COCH		2088.95	11803	3.56e6	8.55e5	1.51e6	1.08e6	1.84e5	9.53e5	6.60e5	4.71e5	3.28e5	3.16e5	2.18e5	1.48e5	1.16e5
7228/7-1 A	COCH		2093.80	11807	3.86e6	9.42e5	1.65e6	1.13e6	2.09e5	1.05e6	7.11e5	5.35e5	3.63e5	3.37e5	2.33e5	1.70e5	1.16e5
7228/7-1 A	COCH		2097.00	11810	3.73e6	4.04e5	1.61e6	1.26e6	1.95e5	8.28e5	5.58e5	4.32e5	2.86e5	2.12e5	1.41e5	1.61e5	9.55e4
7228/7-1 A	COCH		2098.30	11811	3.38e6	7.91e5	1.40e6	9.72e5	1.78e5	9.00e5	5.95e5	4.28e5	3.05e5	2.79e5	1.92e5	1.35e5	9.04e4
7228/7-1 A	COCH		2099.30	11812	2.43e6	5.78e5	1.01e6	6.98e5	1.21e5	6.33e5	4.27e5	3.18e5	2.12e5	2.02e5	1.41e5	9.80e4	7.54e4
7228/7-1 A	COCH		2101.25	11814	2.71e6	6.34e5	1.15e6	7.75e5	1.47e5	7.03e5	4.72e5	3.60e5	2.40e5	2.28e5	1.62e5	1.06e5	7.78e4
7228/7-1 A	COCH		2102.25	11816	4.66e6	9.99e5	1.96e6	1.34e6	2.41e5	1.16e6	8.00e5	6.03e5	4.21e5	3.88e5	2.68e5	1.98e5	1.32e5
7228/7-1 A	COCH		2102.50	11817	3.60e6	8.50e5	1.52e6	1.04e6	1.93e5	9.50e5	6.35e5	4.89e5	3.23e5	2.99e5	2.18e5	1.53e5	1.08e5
7228/7-1 A	COCH	2833.00	2833.02	11024	1.31e7	9.42e5	5.61e6	4.12e6	6.22e5	2.67e6	1.89e6	1.38e6	9.33e5	6.89e5	4.42e5	5.22e5	3.37e5



Table 9. continued, GCMS SIR of saturated compounds (peak height)

m/e		217															
Well	Sample no.	Upper Depth	Lower Depth	GC#ID	170	176	182	188	194	200	206	212	218	224	230	236	242
7228/7-1 ST3	COCH	1367.38	1367.40	11309	3.46e6	4.57e6	2.75e6	2.70e6	9.53e6	5.79e6	2.32e6	2.90e6	2.89e6	2.73e6	1.66e6	1.98e6	1.28e6
7228/7-1 ST3	DC		1719.00	11789	3.07e4	3.57e4	2.16e4	2.10e4	6.53e4	3.76e4	1.77e4	1.87e4	3.92e4	3.78e4	2.10e4	2.69e4	1.71e4
7228/7-1 B	SWC		2139.00	11850	1.78e5	1.49e5	1.25e5	6.29e4	4.44e5	2.51e5	1.13e5	1.41e5	2.00e5	1.95e5	1.10e5	1.35e5	9.16e4
7228/7-1 B	SWC		2165.50	11852	6.91e4	5.88e4	3.88e4	2.44e4	9.81e4	5.72e4	2.38e4	3.06e4	3.77e4	4.12e4	2.23e4	2.22e4	1.80e4
7228/7-1 A	COCH		2066.50	11794	1.74e5	2.12e5	1.56e5	9.74e4	3.15e5	1.81e5	7.16e4	9.07e4	1.24e5	1.28e5	6.41e4	7.68e4	5.60e4
7228/7-1 A	COCH		2071.45	11795	1.13e5	8.88e4	7.95e4	3.11e4	2.37e5	1.32e5	5.69e4	7.11e4	1.05e5	1.14e5	6.03e4	7.15e4	4.96e4
7228/7-1 A	COCH		2082.70	11797	2.24e5	1.71e5	1.48e5	5.81e4	3.88e5	2.27e5	1.03e5	1.32e5	1.80e5	1.81e5	1.05e5	1.15e5	7.91e4
7228/7-1 A	COCH		2086.50	11799	1.92e5	1.48e5	1.31e5	5.55e4	3.51e5	2.09e5	7.96e4	1.09e5	1.57e5	1.65e5	8.75e4	9.76e4	6.74e4
7228/7-1 A	COCH		2087.30	11801	3.09e5	2.25e5	2.16e5	8.00e4	6.94e5	4.00e5	1.71e5	2.19e5	3.04e5	3.19e5	1.78e5	2.00e5	1.43e5
7228/7-1 A	COCH		2088.95	11802	3.39e5	2.33e5	2.28e5	7.68e4	7.55e5	4.32e5	1.82e5	2.31e5	3.28e5	3.59e5	1.97e5	2.18e5	1.41e5
7228/7-1 A	COCH		2088.95	11803	2.34e5	1.51e5	1.59e5	5.20e4	5.83e5	3.16e5	1.38e5	1.71e5	2.46e5	2.66e5	1.37e5	1.67e5	1.06e5
7228/7-1 A	COCH		2093.80	11807	2.39e5	1.60e5	1.66e5	5.35e4	6.02e5	3.47e5	1.51e5	1.86e5	2.60e5	2.85e5	1.54e5	1.80e5	1.09e5
7228/7-1 A	COCH		2097.00	11810	1.52e6	1.98e6	1.23e6	1.15e6	2.70e6	1.70e6	6.31e5	7.63e5	9.19e5	8.67e5	5.12e5	5.87e5	3.72e5
7228/7-1 A	COCH		2098.30	11811	2.24e5	1.61e5	1.48e5	5.08e4	5.30e5	3.01e5	1.27e5	1.60e5	2.17e5	2.43e5	1.34e5	1.50e5	9.94e4
7228/7-1 A	COCH		2099.30	11812	1.60e5	1.03e5	1.07e5	3.72e4	3.72e5	2.03e5	8.88e4	1.10e5	1.57e5	1.70e5	9.55e4	1.03e5	7.09e4
7228/7-1 A	COCH		2101.25	11814	1.84e5	1.29e5	1.27e5	4.12e4	4.52e5	2.54e5	1.07e5	1.36e5	1.87e5	2.04e5	1.11e5	1.28e5	8.01e4
7228/7-1 A	COCH		2102.25	11816	4.51e5	4.29e5	3.38e5	1.98e5	1.01e6	5.95e5	2.36e5	2.90e5	3.91e5	4.23e5	2.38e5	2.72e5	1.66e5
7228/7-1 A	COCH		2102.50	11817	2.64e5	1.88e5	1.87e5	6.93e4	6.16e5	3.68e5	1.49e5	1.99e5	2.66e5	2.83e5	1.57e5	1.78e5	1.19e5
7228/7-1 A	COCH	2833.00	2833.02	11024	5.28e6	7.27e6	4.52e6	4.08e6	9.61e6	6.00e6	2.14e6	2.64e6	3.13e6	3.02e6	1.78e6	2.03e6	1.22e6



Table 9. continued, GCMS SIR of saturated compounds (peak height)

m/e		217																
Well	Sample Type	1367.38	1367.40	11309	202e6	3.35e6	2.46e6	9.90e5	2.20e6	2.49e6	1.87e6	3.94e5	1.23e6	1.14e6	1.47e6	6.99e5	1.13e6	
7228/7-1 ST3	COCH		1719.00	11789	2.21e4	8.89e4	2.55e4	1.44e4	4.54e4	6.04e4	2.99e4	1.20e4	3.35e4	3.40e4	2.84e4	4.39e4	7.28e4	
7228/7-1 ST3	DC		2139.00	11850	1.13e5	3.89e5	1.31e5	8.46e4	1.53e5	2.54e5	1.53e5	4.85e4	1.42e5	9.91e4	1.37e5	8.63e4	1.76e5	
7228/7-1 B	SWC		2165.50	11852	2.86e4	5.76e4	3.14e4	1.60e4	6.25e4	4.01e4	2.99e4	1.09e4	2.07e4	2.20e4	2.71e4	3.17e4	4.14e4	
7228/7-1 B	SWC		2066.50	11794	6.57e4	1.88e5	7.72e4	4.60e4	9.26e4	1.22e5	7.60e4	1.37e4	5.35e4	4.31e4	5.55e4	4.46e4	7.09e4	
7228/7-1 A	COCH		2071.45	11795	5.39e4	2.19e5	5.31e4	4.76e4	7.93e4	1.31e5	8.47e4	2.45e4	7.61e4	4.96e4	5.87e4	5.01e4	8.86e4	
7228/7-1 A	COCH		2082.70	11797	9.67e4	3.68e5	9.25e4	7.85e4	1.32e5	2.36e5	1.58e5	4.01e4	1.34e5	8.58e4	1.05e5	8.26e4	1.59e5	
7228/7-1 A	COCH		2086.50	11799	7.61e4	3.10e5	8.16e4	5.98e4	1.07e5	1.96e5	1.20e5	2.86e4	1.07e5	7.09e4	8.51e4	5.83e4	1.12e5	
7228/7-1 A	COCH		2087.30	11801	1.44e5	6.38e5	1.44e5	1.35e5	1.83e5	4.00e5	2.61e5	5.75e4	2.37e5	1.35e5	1.67e5	1.03e5	2.49e5	
7228/7-1 A	COCH		2088.95	11802	1.47e5	7.24e5	1.56e5	1.41e5	1.90e5	4.49e5	2.82e5	7.10e4	2.63e5	1.43e5	1.99e5	1.17e5	2.60e5	
7228/7-1 A	COCH		2088.95	11803	1.05e5	5.24e5	1.09e5	1.01e5	1.28e5	3.09e5	2.07e5	4.70e4	1.78e5	9.68e4	1.39e5	7.15e4	1.91e5	
7228/7-1 A	COCH		2093.80	11807	1.17e5	5.50e5	1.21e5	1.06e5	1.39e5	3.41e5	2.21e5	4.65e4	2.06e5	1.07e5	1.48e5	8.16e4	2.10e5	
7228/7-1 A	COCH		2097.00	11810	5.61e5	9.98e5	6.78e5	2.66e5	5.10e5	7.16e5	4.59e5	1.28e5	3.19e5	3.33e5	4.36e5	1.77e5	3.29e5	
7228/7-1 A	COCH		2098.30	11811	1.04e5	4.89e5	1.10e5	9.59e4	1.25e5	3.01e5	1.99e5	4.74e4	1.73e5	9.56e4	1.31e5	7.44e4	1.69e5	
7228/7-1 A	COCH		2099.30	11812	7.21e4	3.43e5	7.58e4	6.38e4	9.22e4	2.09e5	1.40e5	3.52e4	1.23e5	6.54e4	9.17e4	5.33e4	1.27e5	
7228/7-1 A	COCH		2101.25	11814	8.27e4	3.83e5	8.76e4	7.87e4	1.05e5	2.41e5	1.56e5	3.64e4	1.47e5	7.88e4	1.03e5	6.11e4	1.45e5	
7228/7-1 A	COCH		2102.25	11816	1.97e5	7.57e5	2.30e5	1.56e5	2.19e5	4.71e5	3.25e5	7.03e4	2.69e5	1.63e5	2.30e5	1.12e5	2.62e5	
7228/7-1 A	COCH		2102.50	11817	1.25e5	5.53e5	1.31e5	1.09e5	1.48e5	3.39e5	2.31e5	5.40e4	1.97e5	1.08e5	1.48e5	8.64e4	2.04e5	
7228/7-1 A	COCH	2833.00	2833.02	11024	1.87e6	3.30e6	2.37e6	9.28e5	1.74e6	2.28e6	1.61e6	4.37e5	1.02e6	1.16e6	1.51e6	6.10e5	1.08e6	



Table 9. continued, GCMS SIR of saturated compounds (peak height)

m/e	Sample Type	Upper Depth	Lower Depth	217								218							
				11309	2916E	2918E	2920E	2922E	2924E	2926E	2928E	2930E	2932E	2934E	2936E	2938E	2940E		
7228/7-1 ST3	COCH	1367.38	1367.40	11309	1.44e6	1.35e6	9.89e5	3.35e5	3.31e5	1.74e5	1.83e5	4.50e6	3.88e6	1.70e6	2.01e6	2.46e6	2.27e6		
7228/7-1 ST3	DC		1719.00	11789	5.67e4	5.37e4	6.26e4	0.00e0	9.39e3	7.62e3	0.00e0	3.98e4	3.39e4	3.09e4	3.02e4	7.64e4	7.21e4		
7228/7-1 B	SWC		2139.00	11850	1.90e5	1.72e5	1.54e5	0.00e0	4.36e4	4.50e4	2.50e4	2.07e5	1.72e5	1.28e5	1.62e5	2.58e5	2.48e5		
7228/7-1 B	SWC		2165.50	11852	4.05e4	3.66e4	2.82e4	0.00e0	0.00e0	0.00e0	0.00e0	4.61e4	3.75e4	2.64e4	2.96e4	5.15e4	4.52e4		
7228/7-1 A	COCH		2066.50	11794	8.11e4	6.94e4	5.84e4	3.17e4	2.30e4	2.02e4	0.00e0	1.21e5	9.61e4	6.05e4	6.55e4	1.05e5	9.70e4		
7228/7-1 A	COCH		2071.45	11795	8.96e4	8.00e4	7.10e4	0.00e0	1.70e4	2.46e4	0.00e0	7.99e4	6.11e4	4.31e4	5.43e4	1.00e5	1.01e5		
7228/7-1 A	COCH		2082.70	11797	1.53e5	1.29e5	1.54e5	0.00e0	3.67e4	3.89e4	0.00e0	1.36e5	1.13e5	8.51e4	1.07e5	1.97e5	1.84e5		
7228/7-1 A	COCH		2086.50	11799	1.14e5	1.11e5	1.09e5	0.00e0	2.79e4	3.46e4	0.00e0	1.20e5	9.91e4	7.90e4	9.72e4	1.64e5	1.59e5		
7228/7-1 A	COCH		2087.30	11801	2.44e5	2.26e5	2.17e5	0.00e0	6.29e4	7.06e4	0.00e0	2.32e5	1.75e5	1.41e5	1.82e5	3.23e5	3.23e5		
7228/7-1 A	COCH		2088.95	11802	2.57e5	2.40e5	2.62e5	0.00e0	6.67e4	6.65e4	0.00e0	2.59e5	1.94e5	1.50e5	2.03e5	3.73e5	3.29e5		
7228/7-1 A	COCH		2088.95	11803	1.84e5	1.65e5	1.83e5	0.00e0	4.34e4	4.44e4	0.00e0	1.83e5	1.45e5	1.19e5	1.51e5	2.65e5	2.59e5		
7228/7-1 A	COCH		2093.80	11807	2.03e5	1.83e5	2.05e5	0.00e0	4.70e4	4.53e4	0.00e0	2.06e5	1.57e5	1.24e5	1.66e5	2.89e5	2.79e5		
7228/7-1 A	COCH		2097.00	11810	4.29e5	3.86e5	2.19e5	0.00e0	9.09e4	6.21e4	4.76e4	1.19e6	1.01e6	4.96e5	5.72e5	6.60e5	6.11e5		
7228/7-1 A	COCH		2098.30	11811	1.71e5	1.53e5	1.72e5	0.00e0	4.11e4	4.14e4	2.06e4	1.72e5	1.33e5	1.10e5	1.41e5	2.42e5	2.26e5		
7228/7-1 A	COCH		2099.30	11812	1.19e5	1.06e5	1.19e5	0.00e0	3.06e4	3.15e4	1.64e4	1.21e5	9.31e4	6.93e4	9.34e4	1.69e5	1.59e5		
7228/7-1 A	COCH		2101.25	11814	1.40e5	1.24e5	1.39e5	0.00e0	3.24e4	3.57e4	2.24e4	1.39e5	1.07e5	8.92e4	1.14e5	2.03e5	1.89e5		
7228/7-1 A	COCH		2102.25	11816	2.79e5	2.47e5	2.51e5	0.00e0	6.72e4	6.07e4	2.98e4	3.66e5	3.05e5	2.00e5	2.62e5	4.12e5	3.83e5		
7228/7-1 A	COCH		2102.50	11817	1.94e5	1.77e5	1.94e5	0.00e0	4.73e4	4.88e4	2.42e4	2.06e5	1.69e5	1.27e5	1.65e5	2.81e5	2.63e5		
7228/7-1 A	COCH	2833.00	2833.02	11024	1.43e6	1.36e6	7.01e5	3.24e5	3.44e5	1.94e5	1.52e5	4.62e6	3.68e6	1.85e6	2.10e6	2.44e6	2.29e6		

Table 9. continued, GCMS SIR of saturated compounds (peak height)

m/e		218				
Well	Sample type	Peak Height	Peak Height	RT (min)	GCMSR	GCMS
7228/7-1 ST3	COCH	1367.38	1367.40	11309	3.34e5	2.83e5
7228/7-1 ST3	DC		1719.00	11789	1.01e4	9.62e3
7228/7-1 B	SWC		2139.00	11850	4.01e4	4.79e4
7228/7-1 B	SWC		2165.50	11852	0.00e0	0.00e0
7228/7-1 A	COCH		2066.50	11794	2.07e4	1.87e4
7228/7-1 A	COCH		2071.45	11795	1.85e4	2.00e4
7228/7-1 A	COCH		2082.70	11797	3.38e4	3.62e4
7228/7-1 A	COCH		2086.50	11799	3.03e4	3.24e4
7228/7-1 A	COCH		2087.30	11801	5.42e4	6.27e4
7228/7-1 A	COCH		2088.95	11802	6.30e4	6.80e4
7228/7-1 A	COCH		2088.95	11803	4.84e4	4.99e4
7228/7-1 A	COCH		2093.80	11807	5.01e4	5.55e4
7228/7-1 A	COCH		2097.00	11810	1.03e5	9.63e4
7228/7-1 A	COCH		2098.30	11811	4.25e4	4.57e4
7228/7-1 A	COCH		2099.30	11812	2.76e4	3.17e4
7228/7-1 A	COCH		2101.25	11814	3.24e4	3.56e4
7228/7-1 A	COCH		2102.25	11816	7.03e4	7.35e4
7228/7-1 A	COCH		2102.50	11817	4.84e4	5.13e4
7228/7-1 A	COCH	2833.00	2833.02	11024	3.82e5	3.15e5



Table 10. GCMS SIR of saturated compounds (amounts in ng/g)

m/e				177		191													
Well	Sample Id	1367.38	1367.40	AP11D	251e3	251e3	251e3	251e3	251e3	251e3	251e3	251e3	251e3	251e3	251e3	251e3	251e3	251e3	251e3
7228/7-1 ST3	COCH	1367.38	1367.40	11309	2.60e3	1.33e3	6.58e3	1.08e4	4.72e4	2.38e4	1.10e4	9.57e3	4.01e4	7.25e3	6.98e3	4.98e3	4.45e3		
7228/7-1 ST3	DC		1719.00	11789	0.00e0	0.00e0	8.65e2	8.12e2	1.09e3	1.98e3	3.37e2	3.24e2	1.85e3	3.68e2	2.63e2	2.71e2	2.31e2		
7228/7-1 B	SWC		2139.00	11850	0.00e0	0.00e0	2.53e3	4.30e3	7.31e3	6.59e3	2.14e3	2.21e3	2.51e3	2.36e3	2.12e3	2.17e3	2.11e3		
7228/7-1 B	SWC		2165.50	11852	0.00e0	0.00e0	1.30e3	2.30e3	3.23e3	3.59e3	7.78e2	8.10e2	7.90e2	8.18e2	7.93e2	8.14e2	7.89e2		
7228/7-1 A	COCH		2066.50	11794	0.00e0	0.00e0	1.37e3	2.42e3	6.12e3	5.31e3	1.46e3	1.45e3	2.62e3	1.20e3	1.13e3	8.87e2	9.48e2		
7228/7-1 A	COCH		2071.45	11795	0.00e0	0.00e0	1.54e3	2.67e3	4.32e3	4.36e3	1.09e3	1.17e3	1.20e3	1.30e3	1.20e3	1.31e3	1.26e3		
7228/7-1 A	COCH		2082.70	11797	0.00e0	0.00e0	3.22e3	5.23e3	7.39e3	6.08e3	1.83e3	2.01e3	2.20e3	2.07e3	1.85e3	2.02e3	1.99e3		
7228/7-1 A	COCH		2086.50	11799	0.00e0	0.00e0	1.92e3	3.24e3	5.38e3	5.05e3	1.42e3	1.48e3	1.69e3	1.57e3	1.43e3	1.49e3	1.53e3		
7228/7-1 A	COCH		2087.30	11801	0.00e0	0.00e0	4.55e3	7.85e3	1.24e4	1.10e4	3.57e3	3.79e3	3.58e3	4.02e3	3.85e3	4.15e3	4.10e3		
7228/7-1 A	COCH		2088.95	11802	0.00e0	0.00e0	5.82e3	9.95e3	1.61e4	1.41e4	4.35e3	4.48e3	4.28e3	5.13e3	4.69e3	5.41e3	5.13e3		
7228/7-1 A	COCH		2088.95	11803	0.00e0	0.00e0	4.98e3	8.46e3	1.30e4	1.09e4	3.95e3	4.27e3	3.70e3	4.78e3	4.17e3	4.78e3	4.77e3		
7228/7-1 A	COCH		2093.80	11807	0.00e0	0.00e0	6.71e3	1.16e4	1.74e4	1.45e4	5.37e3	5.87e3	5.14e3	6.43e3	5.86e3	6.38e3	6.46e3		
7228/7-1 A	COCH		2097.00	11810	0.00e0	0.00e0	9.04e3	2.00e4	7.29e4	4.39e4	1.56e4	1.55e4	4.12e4	1.03e4	1.04e4	6.47e3	6.03e3		
7228/7-1 A	COCH		2098.30	11811	0.00e0	0.00e0	4.97e3	8.49e3	1.31e4	1.09e4	3.89e3	4.20e3	3.74e3	4.56e3	4.29e3	4.63e3	4.70e3		
7228/7-1 A	COCH		2099.30	11812	0.00e0	0.00e0	4.38e3	7.52e3	1.19e4	1.01e4	3.53e3	3.89e3	3.28e3	4.04e3	3.83e3	4.13e3	4.26e3		
7228/7-1 A	COCH		2101.25	11814	0.00e0	0.00e0	5.45e3	9.51e3	1.44e4	1.22e4	4.23e3	4.52e3	4.07e3	5.07e3	4.95e3	5.28e3	5.13e3		
7228/7-1 A	COCH		2102.25	11816	0.00e0	0.00e0	6.18e3	1.12e4	2.22e4	1.61e4	5.86e3	6.05e3	8.31e3	6.33e3	5.75e3	6.04e3	5.92e3		
7228/7-1 A	COCH		2102.50	11817	0.00e0	0.00e0	5.27e3	9.81e3	1.54e4	1.24e4	4.62e3	4.76e3	4.73e3	5.29e3	5.09e3	5.44e3	5.47e3		
7228/7-1 A	COCH	2833.00	2833.02	11024	6.53e2	0.00e0	1.90e3	4.10e3	1.65e4	8.65e3	3.67e3	3.33e3	9.32e3	2.18e3	2.10e3	1.31e3	1.18e3		



Table 10. continued, GCMS SIR of saturated compounds (amounts in ng/g)

m/e				191																			
	Sample	Retention	Retention	11309	11789	11850	11852	11794	11795	11797	11799	11801	11802	11803	11807	11810	11811	11812	11814	11816	11817	11024	
7228/7-1 ST3	COCH	1367.38	1367.40	3.96e3	3.88e3	2.99e4	1.14e4	2.23e3	2.89e3	3.10e3	1.89e3	3.50e4	1.18e4	2.52e3	3.63e3	0.00e0							
7228/7-1 ST3	DC		1719.00	0.00e0	0.00e0	1.56e3	1.25e4	0.00e0	0.00e0	1.26e3	0.00e0	2.09e4	2.32e3	1.19e3	3.03e3	0.00e0							
7228/7-1 B	SWC		2139.00	2.15e3	2.08e3	4.39e3	8.66e3	1.50e3	2.07e3	1.11e3	0.00e0	2.39e4	5.62e3	3.14e3	3.63e3	0.00e0							
7228/7-1 B	SWC		2165.50	6.26e2	6.01e2	1.96e3	1.82e3	5.26e2	1.04e3	4.92e2	0.00e0	4.99e3	1.71e3	6.48e2	8.97e2	0.00e0							
7228/7-1 A	COCH		2066.50	9.26e2	8.52e2	2.64e3	2.90e3	5.67e2	1.02e3	5.90e2	0.00e0	8.87e3	2.31e3	1.14e3	1.36e3	0.00e0							
7228/7-1 A	COCH		2071.45	1.14e3	1.12e3	2.02e3	4.08e3	7.74e2	1.22e3	5.05e2	0.00e0	1.11e4	2.73e3	1.75e3	1.92e3	0.00e0							
7228/7-1 A	COCH		2082.70	1.73e3	1.74e3	4.09e3	8.78e3	1.26e3	1.59e3	1.11e3	0.00e0	2.06e4	5.24e3	3.30e3	3.73e3	0.00e0							
7228/7-1 A	COCH		2086.50	1.49e3	1.34e3	2.68e3	5.04e3	1.02e3	1.35e3	8.69e2	0.00e0	1.35e4	3.51e3	2.16e3	2.37e3	0.00e0							
7228/7-1 A	COCH		2087.30	3.78e3	3.58e3	6.49e3	1.36e4	2.77e3	3.24e3	1.78e3	0.00e0	3.59e4	8.74e3	6.07e3	6.48e3	0.00e0							
7228/7-1 A	COCH		2088.95	4.75e3	4.65e3	7.98e3	1.68e4	3.22e3	3.90e3	2.16e3	0.00e0	4.62e4	1.12e4	7.61e3	8.25e3	0.00e0							
7228/7-1 A	COCH		2088.95	4.38e3	4.25e3	6.72e3	1.40e4	3.06e3	3.21e3	2.31e3	0.00e0	3.95e4	9.17e3	6.47e3	6.96e3	0.00e0							
7228/7-1 A	COCH		2093.80	6.11e3	5.58e3	9.67e3	1.90e4	4.24e3	4.35e3	2.72e3	0.00e0	5.28e4	1.27e4	8.86e3	9.67e3	0.00e0							
7228/7-1 A	COCH		2097.00	6.03e3	5.90e3	3.48e4	1.40e4	3.64e3	4.43e3	5.00e3	0.00e0	6.56e4	1.83e4	4.19e3	5.95e3	0.00e0							
7228/7-1 A	COCH		2098.30	4.42e3	3.99e3	6.67e3	1.42e4	3.13e3	3.17e3	2.17e3	0.00e0	3.74e4	8.98e3	6.08e3	6.78e3	0.00e0							
7228/7-1 A	COCH		2099.30	3.88e3	3.63e3	6.11e3	1.26e4	2.87e3	2.98e3	2.04e3	0.00e0	3.44e4	7.99e3	5.56e3	6.26e3	0.00e0							
7228/7-1 A	COCH		2101.25	4.63e3	4.40e3	7.24e3	1.53e4	3.33e3	3.67e3	1.99e3	0.00e0	4.02e4	1.01e4	6.73e3	7.27e3	0.00e0							
7228/7-1 A	COCH		2102.25	5.58e3	5.13e3	1.15e4	1.70e4	3.98e3	4.10e3	2.61e3	0.00e0	4.81e4	1.24e4	7.46e3	8.19e3	0.00e0							
7228/7-1 A	COCH		2102.50	5.15e3	4.82e3	7.92e3	1.55e4	3.47e3	3.80e3	2.29e3	0.00e0	4.07e4	1.00e4	6.86e3	7.53e3	0.00e0							
7228/7-1 A	COCH	2833.00	2833.02	1.16e3	1.11e3	7.38e3	2.45e3	7.54e2	7.23e2	1.14e3	0.00e0	1.32e4	3.73e3	6.95e2	1.00e3	0.00e0							

Table 10. continued, GCMS SIR of saturated compounds (amounts in ng/g)

m/e		191															
Well	Sample Type	Upper Depth	Lower Depth	1130D	1021	1022	1140S	1140B	106	1028S	1028B	1048S	1048B	1068S	1068B	1088S	1088B
7228/7-1 ST3	COCH	1367.38	1367.40	11309	2.91e4	3.24e3	1.14e4	8.65e3	1.23e3	5.18e3	4.20e3	2.83e3	2.13e3	1.58e3	1.23e3	1.45e3	1.21e3
7228/7-1 ST3	DC		1719.00	11789	2.30e4	4.35e3	1.07e4	7.42e3	1.10e3	5.67e3	3.82e3	2.42e3	1.50e3	1.74e3	1.30e3	2.17e3	1.59e3
7228/7-1 B	SWC		2139.00	11850	2.75e4	5.80e3	1.17e4	8.48e3	1.65e3	7.14e3	4.82e3	3.66e3	2.42e3	2.16e3	1.60e3	1.35e3	8.88e2
7228/7-1 B	SWC		2165.50	11852	4.80e3	9.14e2	2.09e3	1.56e3	6.89e2	1.17e3	7.52e2	6.21e2	4.28e2	3.78e2	2.54e2	3.00e2	2.32e2
7228/7-1 A	COCH		2066.50	11794	9.65e3	1.93e3	3.81e3	2.70e3	5.08e2	2.26e3	1.58e3	1.12e3	7.49e2	6.52e2	4.48e2	3.80e2	2.72e2
7228/7-1 A	COCH		2071.45	11795	1.33e4	3.19e3	5.46e3	3.80e3	7.52e2	3.29e3	2.36e3	1.61e3	1.06e3	1.05e3	6.95e2	4.79e2	3.35e2
7228/7-1 A	COCH		2082.70	11797	2.50e4	5.96e3	9.95e3	7.04e3	1.43e3	5.89e3	4.10e3	2.91e3	1.97e3	1.70e3	1.27e3	7.73e2	5.31e2
7228/7-1 A	COCH		2086.50	11799	1.72e4	3.78e3	7.18e3	4.81e3	9.25e2	4.28e3	2.94e3	2.12e3	1.44e3	1.23e3	8.72e2	6.40e2	4.72e2
7228/7-1 A	COCH		2087.30	11801	4.41e4	1.05e4	1.84e4	1.28e4	2.30e3	1.14e4	7.45e3	5.59e3	3.80e3	3.41e3	2.58e3	1.80e3	1.24e3
7228/7-1 A	COCH		2088.95	11802	5.91e4	1.35e4	2.41e4	1.66e4	3.17e3	1.55e4	1.05e4	7.49e3	4.99e3	4.70e3	3.19e3	2.30e3	1.60e3
7228/7-1 A	COCH		2088.95	11803	4.84e4	1.16e4	2.05e4	1.47e4	2.50e3	1.29e4	8.97e3	6.40e3	4.46e3	4.29e3	2.96e3	2.01e3	1.58e3
7228/7-1 A	COCH		2093.80	11807	6.63e4	1.62e4	2.83e4	1.94e4	3.60e3	1.80e4	1.22e4	9.19e3	6.23e3	5.79e3	4.00e3	2.91e3	1.98e3
7228/7-1 A	COCH		2097.00	11810	5.04e4	5.46e3	2.17e4	1.70e4	2.63e3	1.12e4	7.54e3	5.84e3	3.86e3	2.87e3	1.90e3	2.17e3	1.29e3
7228/7-1 A	COCH		2098.30	11811	4.73e4	1.11e4	1.96e4	1.36e4	2.50e3	1.26e4	8.33e3	5.99e3	4.27e3	3.90e3	2.68e3	1.89e3	1.27e3
7228/7-1 A	COCH		2099.30	11812	4.25e4	1.01e4	1.77e4	1.22e4	2.11e3	1.11e4	7.47e3	5.56e3	3.72e3	3.54e3	2.47e3	1.71e3	1.32e3
7228/7-1 A	COCH		2101.25	11814	4.94e4	1.16e4	2.10e4	1.41e4	2.68e3	1.28e4	8.61e3	6.57e3	4.38e3	4.16e3	2.95e3	1.94e3	1.42e3
7228/7-1 A	COCH		2102.25	11816	5.64e4	1.21e4	2.37e4	1.63e4	2.92e3	1.40e4	9.70e3	7.30e3	5.10e3	4.70e3	3.25e3	2.40e3	1.59e3
7228/7-1 A	COCH		2102.50	11817	5.10e4	1.20e4	2.15e4	1.48e4	2.73e3	1.34e4	8.99e3	6.92e3	4.57e3	4.23e3	3.08e3	2.16e3	1.53e3
7228/7-1 A	COCH	2833.00	2833.02	11024	9.46e3	6.80e2	4.05e3	2.97e3	4.49e2	1.93e3	1.36e3	9.98e2	6.74e2	4.97e2	3.19e2	3.77e2	2.43e2



Table 10. continued, GCMS SIR of saturated compounds (amounts in ng/g)

m/e																	
	Sample Type	Upper Depth	Lower Depth	API ID	2460	248	2700	2460	2705	2705R	2706R	2720S	2800S#1	2800S#2	2800S#3	2800S#4	2800S#5
7228/7-1 ST3	COCH	1367.38	1367.40	11309	8.48e3	1.12e4	6.74e3	6.63e3	2.34e4	1.42e4	5.68e3	7.11e3	7.08e3	6.70e3	4.08e3	4.86e3	3.14e3
7228/7-1 ST3	DC		1719.00	11789	5.10e2	5.93e2	3.59e2	3.49e2	1.08e3	6.26e2	2.95e2	3.12e2	6.51e2	6.28e2	3.49e2	4.46e2	2.84e2
7228/7-1 B	SWC		2139.00	11850	1.59e3	1.33e3	1.11e3	5.61e2	3.96e3	2.24e3	1.01e3	1.26e3	1.78e3	1.74e3	9.84e2	1.21e3	8.17e2
7228/7-1 B	SWC		2165.50	11852	6.93e2	5.89e2	3.89e2	2.45e2	9.83e2	5.73e2	2.38e2	3.07e2	3.78e2	4.13e2	2.23e2	2.22e2	1.80e2
7228/7-1 A	COCH		2066.50	11794	1.48e3	1.80e3	1.32e3	8.24e2	2.66e3	1.53e3	6.06e2	7.68e2	1.05e3	1.09e3	5.43e2	6.50e2	4.74e2
7228/7-1 A	COCH		2071.45	11795	9.66e2	7.57e2	6.78e2	2.65e2	2.02e3	1.13e3	4.85e2	6.06e2	8.91e2	9.75e2	5.14e2	6.09e2	4.23e2
7228/7-1 A	COCH		2082.70	11797	1.74e3	1.33e3	1.15e3	4.51e2	3.01e3	1.76e3	7.96e2	1.02e3	1.40e3	1.41e3	8.12e2	8.91e2	6.14e2
7228/7-1 A	COCH		2086.50	11799	1.46e3	1.13e3	1.00e3	4.23e2	2.67e3	1.59e3	6.06e2	8.29e2	1.20e3	1.26e3	6.66e2	7.43e2	5.13e2
7228/7-1 A	COCH		2087.30	11801	2.88e3	2.10e3	2.02e3	7.48e2	6.49e3	3.74e3	1.60e3	2.05e3	2.84e3	2.98e3	1.66e3	1.87e3	1.34e3
7228/7-1 A	COCH		2088.95	11802	3.67e3	2.53e3	2.47e3	8.31e2	8.17e3	4.68e3	1.97e3	2.51e3	3.55e3	3.89e3	2.13e3	2.37e3	1.53e3
7228/7-1 A	COCH		2088.95	11803	3.18e3	2.05e3	2.16e3	7.07e2	7.93e3	4.30e3	1.87e3	2.33e3	3.34e3	3.62e3	1.86e3	2.26e3	1.45e3
7228/7-1 A	COCH		2093.80	11807	4.10e3	2.75e3	2.86e3	9.19e2	1.03e4	5.96e3	2.59e3	3.19e3	4.46e3	4.90e3	2.64e3	3.10e3	1.87e3
7228/7-1 A	COCH		2097.00	11810	2.05e4	2.67e4	1.66e4	1.56e4	3.64e4	2.29e4	8.53e3	1.03e4	1.24e4	1.17e4	6.92e3	7.93e3	5.03e3
7228/7-1 A	COCH		2098.30	11811	3.13e3	2.25e3	2.07e3	7.11e2	7.41e3	4.21e3	1.78e3	2.23e3	3.03e3	3.41e3	1.88e3	2.10e3	1.39e3
7228/7-1 A	COCH		2099.30	11812	2.80e3	1.80e3	1.88e3	6.51e2	6.50e3	3.55e3	1.55e3	1.92e3	2.75e3	2.97e3	1.67e3	1.80e3	1.24e3
7228/7-1 A	COCH		2101.25	11814	3.35e3	2.34e3	2.32e3	7.51e2	8.25e3	4.62e3	1.95e3	2.49e3	3.42e3	3.72e3	2.02e3	2.34e3	1.46e3
7228/7-1 A	COCH		2102.25	11816	5.47e3	5.20e3	4.10e3	2.40e3	1.22e4	7.20e3	2.86e3	3.52e3	4.74e3	5.13e3	2.89e3	3.30e3	2.01e3
7228/7-1 A	COCH		2102.50	11817	3.73e3	2.65e3	2.65e3	9.81e2	8.72e3	5.20e3	2.11e3	2.82e3	3.77e3	4.00e3	2.22e3	2.52e3	1.69e3
7228/7-1 A	COCH	2833.00	2833.02	11024	3.81e3	5.25e3	3.26e3	2.94e3	6.93e3	4.33e3	1.55e3	1.91e3	2.26e3	2.18e3	1.28e3	1.46e3	8.83e2



Table 10. continued, GCMS SIR of saturated compounds (amounts in ng/g)

m/e 217

Well	Sample Type	Upper Depth	Lower Depth	API ID	2170s	2181s-2190s	2191s	2192s	2193s	2194s	2195s	2196s	2197s	2198s	2199s	2200s	2201s	2202s
7228/7-1 ST3	COCH	1367.38	1367.40	11309	4.95e3	8.23e3	6.03e3	2.43e3	5.40e3	6.11e3	4.59e3	9.67e2	3.02e3	2.79e3	3.61e3	1.71e3	2.78e3	
7228/7-1 ST3	DC		1719.00	11789	3.67e2	1.48e3	4.24e2	2.39e2	7.54e2	1.00e3	4.97e2	1.99e2	5.56e2	5.64e2	4.72e2	7.30e2	1.21e3	
7228/7-1 B	SWC		2139.00	11850	1.01e3	3.47e3	1.17e3	7.54e2	1.36e3	2.26e3	1.36e3	4.33e2	1.27e3	8.84e2	1.22e3	7.69e2	1.57e3	
7228/7-1 B	SWC		2165.50	11852	2.87e2	5.78e2	3.15e2	1.60e2	6.27e2	4.02e2	3.00e2	1.09e2	2.07e2	2.20e2	2.72e2	3.17e2	4.15e2	
7228/7-1 A	COCH		2066.50	11794	5.56e2	1.59e3	6.54e2	3.89e2	7.84e2	1.04e3	6.43e2	1.16e2	4.53e2	3.65e2	4.70e2	3.78e2	6.00e2	
7228/7-1 A	COCH		2071.45	11795	4.60e2	1.87e3	4.53e2	4.06e2	6.76e2	1.12e3	7.22e2	2.09e2	6.49e2	4.22e2	5.01e2	4.27e2	7.55e2	
7228/7-1 A	COCH		2082.70	11797	7.50e2	2.85e3	7.18e2	6.09e2	1.02e3	1.83e3	1.23e3	3.11e2	1.04e3	6.66e2	8.15e2	6.41e2	1.23e3	
7228/7-1 A	COCH		2086.50	11799	5.80e2	2.36e3	6.21e2	4.56e2	8.13e2	1.49e3	9.10e2	2.18e2	8.16e2	5.40e2	6.48e2	4.44e2	8.49e2	
7228/7-1 A	COCH		2087.30	11801	1.34e3	5.96e3	1.35e3	1.26e3	1.71e3	3.74e3	2.44e3	5.37e2	2.22e3	1.26e3	1.56e3	9.63e2	2.32e3	
7228/7-1 A	COCH		2088.95	11802	1.59e3	7.84e3	1.68e3	1.52e3	2.05e3	4.86e3	3.05e3	7.69e2	2.85e3	1.55e3	2.15e3	1.27e3	2.82e3	
7228/7-1 A	COCH		2088.95	11803	1.43e3	7.12e3	1.48e3	1.37e3	1.74e3	4.20e3	2.81e3	6.38e2	2.42e3	1.32e3	1.88e3	9.71e2	2.60e3	
7228/7-1 A	COCH		2093.80	11807	2.00e3	9.44e3	2.07e3	1.82e3	2.38e3	5.85e3	3.80e3	7.98e2	3.54e3	1.85e3	2.54e3	1.40e3	3.60e3	
7228/7-1 A	COCH		2097.00	11810	7.58e3	1.35e4	9.16e3	3.60e3	6.90e3	9.68e3	6.20e3	1.73e3	4.32e3	4.50e3	5.90e3	2.39e3	4.45e3	
7228/7-1 A	COCH		2098.30	11811	1.46e3	6.84e3	1.54e3	1.34e3	1.75e3	4.22e3	2.79e3	6.63e2	2.42e3	1.34e3	1.83e3	1.04e3	2.37e3	
7228/7-1 A	COCH		2099.30	11812	1.26e3	6.01e3	1.33e3	1.12e3	1.61e3	3.66e3	2.45e3	6.17e2	2.15e3	1.14e3	1.61e3	9.32e2	2.23e3	
7228/7-1 A	COCH		2101.25	11814	1.51e3	6.98e3	1.60e3	1.43e3	1.92e3	4.40e3	2.85e3	6.63e2	2.67e3	1.44e3	1.88e3	1.11e3	2.64e3	
7228/7-1 A	COCH		2102.25	11816	2.39e3	9.18e3	2.78e3	1.88e3	2.65e3	5.70e3	3.94e3	8.52e2	3.26e3	1.98e3	2.78e3	1.36e3	3.17e3	
7228/7-1 A	COCH		2102.50	11817	1.77e3	7.83e3	1.85e3	1.55e3	2.10e3	4.80e3	3.26e3	7.64e2	2.79e3	1.52e3	2.09e3	1.22e3	2.89e3	
7228/7-1 A	COCH	2833.00	2833.02	11024	1.35e3	2.38e3	1.71e3	6.70e2	1.26e3	1.64e3	1.16e3	3.16e2	7.37e2	8.39e2	1.09e3	4.40e2	7.81e2	



Table 10. continued, GCMS SIR of saturated compounds (amounts in ng/g)

Well	Sample type	Depth	Depth	API ID	217						218						
					29BBR	29BBS	29CZAS	30CZAS	30BBR	30BBS	30CZAS	37BBR	37BBS	37CZAS	38BBR	38BBS	
7228/7-1 ST3	COCH	1367.38	1367.40	11309	3.54e3	3.31e3	2.43e3	8.21e2	8.12e2	4.26e2	4.48e2	1.10e4	9.53e3	4.16e3	4.92e3	6.03e3	5.56e3
7228/7-1 ST3	DC		1719.00	11789	9.42e2	8.92e2	1.04e3	0.00e0	1.56e2	1.27e2	0.00e0	6.62e2	5.64e2	5.14e2	5.02e2	1.27e3	1.20e3
7228/7-1 B	SWC		2139.00	11850	1.69e3	1.54e3	1.37e3	0.00e0	3.89e2	4.01e2	2.23e2	1.85e3	1.53e3	1.14e3	1.44e3	2.30e3	2.21e3
7228/7-1 B	SWC		2165.50	11852	4.06e2	3.67e2	2.83e2	0.00e0	0.00e0	0.00e0	0.00e0	4.62e2	3.76e2	2.64e2	2.97e2	5.16e2	4.53e2
7228/7-1 A	COCH		2066.50	11794	6.87e2	5.88e2	4.95e2	2.68e2	1.95e2	1.71e2	0.00e0	1.02e3	8.14e2	5.12e2	5.55e2	8.90e2	8.21e2
7228/7-1 A	COCH		2071.45	11795	7.64e2	6.82e2	6.05e2	0.00e0	1.44e2	2.10e2	0.00e0	6.81e2	5.21e2	3.68e2	4.63e2	8.52e2	8.60e2
7228/7-1 A	COCH		2082.70	11797	1.19e3	1.00e3	1.19e3	0.00e0	2.85e2	3.02e2	0.00e0	1.06e3	8.79e2	6.60e2	8.28e2	1.53e3	1.43e3
7228/7-1 A	COCH		2086.50	11799	8.69e2	8.45e2	8.34e2	0.00e0	2.13e2	2.63e2	0.00e0	9.18e2	7.55e2	6.02e2	7.40e2	1.25e3	1.21e3
7228/7-1 A	COCH		2087.30	11801	2.28e3	2.11e3	2.03e3	0.00e0	5.88e2	6.60e2	0.00e0	2.17e3	1.64e3	1.32e3	1.70e3	3.02e3	3.02e3
7228/7-1 A	COCH		2088.95	11802	2.78e3	2.60e3	2.84e3	0.00e0	7.22e2	7.19e2	0.00e0	2.80e3	2.10e3	1.63e3	2.20e3	4.04e3	3.56e3
7228/7-1 A	COCH		2088.95	11803	2.50e3	2.24e3	2.49e3	0.00e0	5.90e2	6.03e2	0.00e0	2.49e3	1.97e3	1.62e3	2.05e3	3.60e3	3.52e3
7228/7-1 A	COCH		2093.80	11807	3.48e3	3.15e3	3.52e3	0.00e0	8.07e2	7.78e2	0.00e0	3.54e3	2.70e3	2.13e3	2.85e3	4.97e3	4.79e3
7228/7-1 A	COCH		2097.00	11810	5.80e3	5.22e3	2.97e3	0.00e0	1.23e3	8.39e2	6.43e2	1.61e4	1.37e4	6.71e3	7.72e3	8.92e3	8.26e3
7228/7-1 A	COCH		2098.30	11811	2.39e3	2.14e3	2.40e3	0.00e0	5.75e2	5.79e2	2.88e2	2.41e3	1.86e3	1.54e3	1.98e3	3.39e3	3.17e3
7228/7-1 A	COCH		2099.30	11812	2.08e3	1.86e3	2.08e3	0.00e0	5.35e2	5.52e2	2.87e2	2.11e3	1.63e3	1.21e3	1.64e3	2.96e3	2.79e3
7228/7-1 A	COCH		2101.25	11814	2.55e3	2.27e3	2.53e3	0.00e0	5.90e2	6.51e2	4.08e2	2.53e3	1.95e3	1.63e3	2.08e3	3.70e3	3.44e3
7228/7-1 A	COCH		2102.25	11816	3.38e3	2.99e3	3.04e3	0.00e0	8.14e2	7.35e2	3.61e2	4.44e3	3.70e3	2.43e3	3.18e3	4.99e3	4.64e3
7228/7-1 A	COCH		2102.50	11817	2.75e3	2.50e3	2.75e3	0.00e0	6.69e2	6.91e2	3.43e2	2.92e3	2.40e3	1.80e3	2.34e3	3.97e3	3.72e3
7228/7-1 A	COCH	2833.00	2833.02	11024	1.03e3	9.82e2	5.06e2	2.34e2	2.48e2	1.40e2	1.09e2	3.33e3	2.66e3	1.33e3	1.51e3	1.76e3	1.65e3

Table 10. continued, GCMS SIR of saturated compounds (amounts in ng/g)

Well	Sample Code	218	218	218	218	218
		m/e				
7228/7-1 ST3	COCH	1367.38	1367.40	11309	8.18e2	6.95e2
7228/7-1 ST3	DC		1719.00	11789	1.68e2	1.60e2
7228/7-1 B	SWC		2139.00	11850	3.57e2	4.27e2
7228/7-1 B	SWC		2165.50	11852	0.00e0	0.00e0
7228/7-1 A	COCH		2066.50	11794	1.75e2	1.58e2
7228/7-1 A	COCH		2071.45	11795	1.58e2	1.70e2
7228/7-1 A	COCH		2082.70	11797	2.63e2	2.81e2
7228/7-1 A	COCH		2086.50	11799	2.31e2	2.47e2
7228/7-1 A	COCH		2087.30	11801	5.07e2	5.86e2
7228/7-1 A	COCH		2088.95	11802	6.82e2	7.37e2
7228/7-1 A	COCH		2088.95	11803	6.58e2	6.78e2
7228/7-1 A	COCH		2093.80	11807	8.61e2	9.53e2
7228/7-1 A	COCH		2097.00	11810	1.39e3	1.30e3
7228/7-1 A	COCH		2098.30	11811	5.94e2	6.40e2
7228/7-1 A	COCH		2099.30	11812	4.83e2	5.55e2
7228/7-1 A	COCH		2101.25	11814	5.91e2	6.49e2
7228/7-1 A	COCH		2102.25	11816	8.52e2	8.90e2
7228/7-1 A	COCH		2102.50	11817	6.85e2	7.26e2
7228/7-1 A	COCH	2833.00	2833.02	11024	2.76e2	2.28e2



Table 11. GCMS SIR of aromatic compounds (peak height)

m/e					142	156												170
Well	Sample Type	Upper Depth	Lower Depth	API-10	2-MN	1-MN	2,3-DN	3-MN	6-DMN	7-DMN	8-DMN	10-DMN	12,3,4-DMN	13-DMN	14-DMN	15-DMN	16-DMN	17-DMN
7228/7-1 ST3	COCH	1367.38	1367.40	11309	6.63e7	4.14e7	5.40e6	3.35e6	5.53e6	5.94e6	1.93e7	1.65e7	1.66e7	4.52e6	5.34e6	2.61e5	2.81e6	
7228/7-1 ST3	DC		1719.00	11789	6.26e7	3.37e7	5.06e6	2.93e6	7.76e6	8.73e6	2.03e7	1.26e7	1.13e7	3.65e6	4.68e6	1.27e5	4.48e6	
7228/7-1 B	SWC		2139.00	11850	4.00e6	3.50e6	6.30e5	4.90e5	3.55e6	3.85e6	1.11e7	6.70e6	4.60e6	2.16e6	2.00e6	6.22e4	1.33e7	
7228/7-1 B	SWC		2165.50	11852	4.62e7	3.37e7	2.72e6	2.33e6	1.46e7	1.57e7	3.94e7	2.35e7	1.37e7	6.18e6	5.74e6	3.46e5	1.24e7	
7228/7-1 A	COCH		2066.50	11794	6.88e6	5.75e6	1.13e6	7.78e5	4.75e6	4.95e6	1.36e7	7.75e6	4.57e6	2.24e6	1.76e6	4.37e4	8.10e6	
7228/7-1 A	COCH		2071.45	11795	1.97e7	1.55e7	2.61e6	1.66e6	1.14e7	1.16e7	3.10e7	1.70e7	9.23e6	4.45e6	3.50e6	9.38e4	1.44e7	
7228/7-1 A	COCH		2082.70	11797	9.97e8	5.46e8	5.95e7	3.11e7	2.51e8	2.57e8	5.14e8	3.35e8	1.83e8	6.82e7	6.58e7	1.63e6	1.61e8	
7228/7-1 A	COCH		2086.50	11799	1.40e7	1.16e7	2.73e6	1.64e6	1.13e7	1.20e7	3.16e7	1.80e7	9.61e6	4.46e6	3.71e6	9.94e4	1.64e7	
7228/7-1 A	COCH		2087.30	11801	7.14e7	5.15e7	9.72e6	5.59e6	4.10e7	4.11e7	9.91e7	5.78e7	2.96e7	1.27e7	1.17e7	3.02e5	4.46e7	
7228/7-1 A	COCH		2088.95	11802	7.77e7	5.58e7	1.05e7	5.66e6	4.28e7	4.42e7	1.08e8	6.30e7	3.15e7	1.41e7	1.21e7	3.40e5	5.11e7	
7228/7-1 A	COCH		2088.95	11803	8.97e7	6.32e7	1.31e7	7.19e6	5.57e7	5.58e7	1.34e8	7.81e7	4.06e7	1.73e7	1.55e7	4.11e5	6.24e7	
7228/7-1 A	COCH		2093.80	11807	1.05e8	7.14e7	1.23e7	6.67e6	4.86e7	5.05e7	1.18e8	7.11e7	3.84e7	1.65e7	1.47e7	3.79e5	5.94e7	
7228/7-1 A	COCH		2097.00	11810	2.29e7	1.66e7	2.62e6	1.56e6	1.13e7	1.14e7	2.74e7	1.60e7	8.34e6	3.76e6	3.20e6	7.31e4	1.14e7	
7228/7-1 A	COCH		2098.30	11811	1.28e8	8.57e7	1.45e7	7.96e6	5.90e7	5.86e7	1.39e8	7.95e7	4.25e7	1.78e7	1.55e7	4.00e5	5.66e7	
7228/7-1 A	COCH		2099.30	11812	1.08e8	7.20e7	1.24e7	6.38e6	5.11e7	5.19e7	1.20e8	7.07e7	3.65e7	1.60e7	1.32e7	3.50e5	5.19e7	
7228/7-1 A	COCH		2101.25	11814	2.73e8	1.53e8	1.89e7	1.04e7	8.31e7	8.54e7	1.77e8	1.11e8	5.62e7	2.21e7	2.09e7	5.83e5	6.40e7	
7228/7-1 A	COCH		2102.25	11816	7.58e7	5.06e7	1.13e7	6.11e6	4.96e7	4.96e7	1.15e8	6.68e7	3.76e7	1.55e7	1.41e7	4.29e5	5.51e7	
7228/7-1 A	COCH		2102.50	11817	1.28e8	7.77e7	1.09e7	5.79e6	4.61e7	4.78e7	1.08e8	6.53e7	3.49e7	1.50e7	1.28e7	3.99e5	4.76e7	
7228/7-1 A	COCH	2833.00	2833.02	11024	7.73e6	5.82e6	6.31e5	4.09e5	2.30e6	2.39e6	6.74e6	3.96e6	1.89e6	1.19e6	9.31e5	1.21e4	2.55e6	



Table 11. continued, GCMS SIR of aromatic compounds (peak height)

m/e		170										178			192			206		
Well	Sample Type	Peak Height	Peak Height	11309	1301E6	1471E6	1641E6	1811E6	1981E6	2151E6	2321E6	2491E6	2661E6	2831E6	3001E6	3171E6	3341E6	3511E6	3681E6	3851E6
7228/7-1 ST3	COCH	1367.38	1367.40	11309	4.26e6	4.15e6	3.32e6	1.66e6	3.93e6	1.21e6	5.16e6	2.70e7	4.61e6	5.81e6	1.16e7	6.36e6	9.11e5			
7228/7-1 ST3	DC		1719.00	11789	6.09e6	4.61e6	4.39e6	1.51e6	3.93e6	9.15e5	5.27e6	3.31e7	7.20e6	7.38e6	1.14e7	7.67e6	9.88e5			
7228/7-1 B	SWC		2139.00	11850	1.63e7	1.21e7	1.29e7	2.90e6	9.81e6	1.65e6	5.26e6	4.38e7	1.82e7	1.87e7	2.90e7	1.89e7	4.36e6			
7228/7-1 B	SWC		2165.50	11852	1.57e7	1.18e7	1.09e7	2.82e6	9.37e6	1.61e6	4.87e6	3.29e7	8.05e6	9.38e6	1.98e7	1.16e7	1.42e6			
7228/7-1 A	COCH		2066.50	11794	9.02e6	7.15e6	6.65e6	1.56e6	5.24e6	8.20e5	2.54e6	1.49e7	5.65e6	6.02e6	9.50e6	6.14e6	1.28e6			
7228/7-1 A	COCH		2071.45	11795	1.65e7	1.30e7	1.23e7	2.61e6	9.15e6	1.38e6	4.49e6	2.14e7	8.09e6	8.30e6	1.30e7	8.66e6	1.80e6			
7228/7-1 A	COCH		2082.70	11797	2.18e8	1.32e8	1.62e8	3.14e7	1.07e8	1.61e7	5.28e7	4.39e8	1.44e8	1.72e8	2.46e8	1.63e8	2.65e7			
7228/7-1 A	COCH		2086.50	11799	1.95e7	1.42e7	1.34e7	2.98e6	9.97e6	1.58e6	4.91e6	1.77e7	7.05e6	7.28e6	1.12e7	7.05e6	1.69e6			
7228/7-1 A	COCH		2087.30	11801	5.44e7	3.82e7	3.64e7	8.25e6	2.63e7	4.17e6	1.27e7	3.92e7	1.66e7	1.67e7	2.49e7	1.61e7	3.99e6			
7228/7-1 A	COCH		2088.95	11802	6.09e7	4.27e7	4.15e7	9.28e6	3.00e7	4.64e6	1.42e7	4.18e7	1.90e7	1.84e7	2.72e7	1.74e7	4.67e6			
7228/7-1 A	COCH		2088.95	11803	7.51e7	5.26e7	5.05e7	1.11e7	3.65e7	5.68e6	1.74e7	5.35e7	2.31e7	2.29e7	3.46e7	2.21e7	5.71e6			
7228/7-1 A	COCH		2093.80	11807	6.88e7	4.89e7	4.92e7	1.11e7	3.61e7	5.53e6	1.71e7	7.00e7	3.00e7	3.07e7	4.51e7	2.94e7	6.87e6			
7228/7-1 A	COCH		2097.00	11810	1.34e7	9.63e6	9.05e6	2.08e6	6.65e6	1.03e6	3.19e6	9.77e6	3.92e6	3.91e6	6.18e6	3.95e6	9.01e5			
7228/7-1 A	COCH		2098.30	11811	6.61e7	4.78e7	4.63e7	9.72e6	3.36e7	5.03e6	1.56e7	5.05e7	2.14e7	2.18e7	3.15e7	2.08e7	5.01e6			
7228/7-1 A	COCH		2099.30	11812	6.05e7	4.14e7	4.27e7	9.13e6	2.94e7	4.40e6	1.35e7	4.18e7	1.80e7	1.76e7	2.60e7	1.69e7	4.19e6			
7228/7-1 A	COCH		2101.25	11814	8.05e7	5.24e7	5.64e7	1.17e7	3.99e7	5.83e6	1.88e7	8.94e7	3.24e7	3.59e7	5.18e7	3.40e7	6.88e6			
7228/7-1 A	COCH		2102.25	11816	6.65e7	4.62e7	4.50e7	1.03e7	3.32e7	5.09e6	1.58e7	5.19e7	2.28e7	2.26e7	3.51e7	2.23e7	5.47e6			
7228/7-1 A	COCH		2102.50	11817	5.68e7	3.92e7	4.16e7	8.84e6	3.02e7	4.36e6	1.41e7	7.20e7	2.84e7	3.08e7	4.53e7	2.96e7	6.49e6			
7228/7-1 A	COCH	2833.00	2833.02	11024	3.00e6	2.49e6	1.92e6	6.98e5	1.82e6	3.68e5	7.19e5	3.38e6	1.80e6	1.74e6	2.40e6	1.78e6	3.48e5			



Table 11. continued, GCMS SIR of aromatic compounds (peak height)

m/e		206													219	184	198		
Well	Sample Type	Upper Depth	Lower Depth	1,2-DBP	1,3-DBP	2,6-DiMe-DBP	1,2,4,5-TetraMe-DBP	1,2,4,6-TetraMe-DBP	1,2,3,6-TetraMe-DBP	1,2,4,7-TetraMe-DBP	1,2,3,7-TetraMe-DBP	1,2,4,8-TetraMe-DBP	1,2,3,7,8-PentaMe-DBP	1,2,3,6,7-PentaMe-DBP	1,2,3,6,8-PentaMe-DBP	1,2,3,7,8-PentaMe-DBP	1,2,3,6,8-PentaMe-DBP	1,2,3,7,8-PentaMe-DBP	1,2,3,6,8-PentaMe-DBP
7228/7-1 ST3	COCH	1367.38	1367.40	11309	9.77e5	4.95e5	3.09e6	1.52e6	1.27e6	8.23e5	1.23e6	4.79e5	7.04e5	4.06e6	3.28e6	2.32e6	1.16e6		
7228/7-1 ST3	DC		1719.00	11789	1.13e6	5.65e5	3.77e6	1.75e6	1.82e6	1.06e6	1.21e6	5.84e5	9.47e5	2.31e6	2.81e6	1.24e6	6.29e5		
7228/7-1 B	SWC		2139.00	11850	6.66e6	3.59e6	2.30e7	9.93e6	8.47e6	4.80e6	6.85e6	2.78e6	1.86e6	2.75e6	4.37e6	3.80e6	1.98e6		
7228/7-1 B	SWC		2165.50	11852	2.43e6	1.36e6	1.02e7	4.70e6	3.82e6	2.29e6	4.33e6	1.50e6	1.02e6	2.48e5	2.92e6	2.25e6	7.18e5		
7228/7-1 A	COCH		2066.50	11794	1.91e6	1.08e6	7.22e6	3.07e6	2.61e6	1.43e6	2.12e6	8.33e5	5.37e5	7.70e5	1.55e6	1.29e6	5.90e5		
7228/7-1 A	COCH		2071.45	11795	2.74e6	1.44e6	9.76e6	4.19e6	3.47e6	1.98e6	2.97e6	1.15e6	7.48e5	1.08e6	2.26e6	1.74e6	8.48e5		
7228/7-1 A	COCH		2082.70	11797	4.62e7	2.78e7	1.67e8	7.27e7	6.55e7	3.37e7	4.67e7	2.08e7	1.45e7	1.40e7	4.49e7	3.09e7	1.57e7		
7228/7-1 A	COCH		2086.50	11799	2.44e6	1.31e6	8.84e6	3.74e6	3.04e6	1.72e6	2.52e6	9.85e5	6.33e5	1.08e6	1.93e6	1.54e6	7.35e5		
7228/7-1 A	COCH		2087.30	11801	6.03e6	3.05e6	2.02e7	8.59e6	7.10e6	4.04e6	5.66e6	2.27e6	1.49e6	2.76e6	4.35e6	3.53e6	1.75e6		
7228/7-1 A	COCH		2088.95	11802	6.73e6	3.47e6	2.25e7	9.68e6	8.00e6	4.46e6	6.61e6	2.52e6	1.66e6	3.30e6	4.64e6	3.92e6	2.00e6		
7228/7-1 A	COCH		2088.95	11803	8.66e6	4.34e6	2.84e7	1.21e7	1.00e7	5.64e6	8.12e6	3.12e6	2.10e6	3.97e6	5.90e6	4.83e6	2.52e6		
7228/7-1 A	COCH		2093.80	11807	1.07e7	5.61e6	3.60e7	1.51e7	1.28e7	7.04e6	1.02e7	4.09e6	2.74e6	4.69e6	7.66e6	6.39e6	3.28e6		
7228/7-1 A	COCH		2097.00	11810	1.33e6	7.16e5	4.75e6	2.04e6	1.69e6	9.44e5	1.38e6	5.24e5	3.24e5	6.02e5	1.04e6	8.48e5	3.75e5		
7228/7-1 A	COCH		2098.30	11811	7.67e6	4.00e6	2.55e7	1.08e7	9.25e6	5.20e6	7.31e6	2.91e6	1.91e6	3.58e6	5.45e6	4.56e6	2.25e6		
7228/7-1 A	COCH		2099.30	11812	6.30e6	3.23e6	2.14e7	8.97e6	7.69e6	4.23e6	6.30e6	2.33e6	1.55e6	2.96e6	4.46e6	3.75e6	1.87e6		
7228/7-1 A	COCH		2101.25	11814	1.12e7	6.17e6	3.74e7	1.64e7	1.45e7	7.77e6	1.10e7	4.56e6	3.08e6	4.34e6	8.94e6	6.89e6	3.35e6		
7228/7-1 A	COCH		2102.25	11816	8.33e6	4.24e6	2.82e7	1.18e7	9.78e6	5.66e6	8.54e6	3.27e6	2.08e6	3.85e6	5.31e6	4.82e6	2.24e6		
7228/7-1 A	COCH		2102.50	11817	1.02e7	5.38e6	3.49e7	1.48e7	1.30e7	7.08e6	1.09e7	4.15e6	2.78e6	4.21e6	7.08e6	6.04e6	2.88e6		
7228/7-1 A	COCH	2833.00	2833.02	11024	5.51e5	3.27e5	2.07e6	9.07e5	9.34e5	4.34e5	6.70e5	3.04e5	1.91e5	3.00e4	1.30e5	1.44e5	4.88e4		



Table 11. continued, GCMS SIR of aromatic compounds (peak height)

Well	Sample type	1 st Peak Depth	1 st Peak Height	API ID	198		253																			
					FMDB	C21MA	C22MA	BSC27MA	DSC27DMA	BSC27MA-B RC27DMA	aSC27MA	BSC28MA-B C28DMA-B C27DMA	aSC27DMA	RC27DMA	aSC28MA	BSC28MA-B RC28DMA	BSC29MA-B C29DMA									
7228/7-1 ST3	COCH	1367.38	1367.40	11309	8.36e5	2.62e5	1.43e5	5.76e4	2.39e5	2.26e5	4.52e4	3.49e5	4.52e4	3.32e4	6.31e4	1.98e5	2.21e5									
7228/7-1 ST3	DC		1719.00	11789	6.07e5	9.03e4	5.26e4	9.21e3	5.74e4	4.49e4	9.25e3	1.69e5	3.10e4	0.00e0	1.79e4	1.11e5	3.83e5									
7228/7-1 B	SWC		2139.00	11850	8.91e5	1.69e5	1.23e5	3.37e4	1.20e5	9.11e4	4.35e4	2.13e5	5.29e4	2.78e4	4.81e4	1.30e5	3.21e5									
7228/7-1 B	SWC		2165.50	11852	5.21e5	0.00e0	0.00e0	0.00e0	3.58e3	4.36e3	3.27e3	7.49e3	0.00e0	0.00e0	0.00e0	3.89e3	5.97e3									
7228/7-1 A	COCH		2066.50	11794	2.54e5	2.74e4	1.81e4	4.03e3	1.40e4	1.02e4	4.90e3	2.37e4	6.25e3	4.38e3	4.64e3	1.13e4	3.16e4									
7228/7-1 A	COCH		2071.45	11795	3.78e5	3.93e4	3.02e4	5.17e3	2.13e4	1.66e4	7.24e3	3.25e4	1.03e4	3.77e3	7.03e3	2.01e4	5.81e4									
7228/7-1 A	COCH		2082.70	11797	6.62e6	2.17e5	1.67e5	1.76e4	7.90e4	5.13e4	2.59e4	1.29e5	3.50e4	1.83e4	2.79e4	8.05e4	2.16e5									
7228/7-1 A	COCH		2086.50	11799	3.16e5	5.59e4	3.74e4	8.27e3	3.09e4	2.15e4	1.22e4	5.21e4	1.49e4	6.83e3	1.23e4	2.81e4	8.35e4									
7228/7-1 A	COCH		2087.30	11801	7.50e5	2.11e5	1.54e5	3.08e4	1.38e5	9.47e4	4.55e4	2.22e5	6.28e4	2.48e4	4.25e4	1.27e5	3.51e5									
7228/7-1 A	COCH		2088.95	11802	8.49e5	2.45e5	1.91e5	3.94e4	1.73e5	1.23e5	6.55e4	2.85e5	7.68e4	3.24e4	6.18e4	1.77e5	4.63e5									
7228/7-1 A	COCH		2088.95	11803	1.04e6	2.98e5	2.49e5	5.35e4	2.24e5	1.70e5	8.16e4	3.63e5	1.07e5	4.82e4	8.22e4	2.25e5	5.90e5									
7228/7-1 A	COCH		2093.80	11807	1.37e6	3.04e5	2.45e5	5.40e4	2.36e5	1.60e5	8.79e4	4.01e5	1.06e5	4.53e4	9.35e4	2.38e5	6.23e5									
7228/7-1 A	COCH		2097.00	11810	1.49e5	2.87e4	1.56e4	3.52e3	1.20e4	1.05e4	4.33e3	2.12e4	6.35e3	3.42e3	5.20e3	1.10e4	3.18e4									
7228/7-1 A	COCH		2098.30	11811	9.62e5	2.46e5	1.87e5	4.15e4	1.77e5	1.18e5	6.59e4	2.91e5	7.68e4	3.05e4	5.44e4	1.74e5	4.73e5									
7228/7-1 A	COCH		2099.30	11812	7.72e5	1.97e5	1.56e5	2.90e4	1.38e5	8.72e4	4.99e4	2.17e5	5.86e4	2.84e4	4.76e4	1.35e5	3.64e5									
7228/7-1 A	COCH		2101.25	11814	1.42e6	2.12e5	1.59e5	2.89e4	1.28e5	9.31e4	4.93e4	2.24e5	6.03e4	2.33e4	4.18e4	1.32e5	3.45e5									
7228/7-1 A	COCH		2102.25	11816	1.02e6	3.19e5	2.34e5	5.57e4	2.46e5	1.60e5	8.82e4	3.75e5	1.10e5	4.23e4	8.43e4	2.42e5	5.94e5									
7228/7-1 A	COCH		2102.50	11817	1.28e6	2.68e5	2.18e5	4.67e4	2.13e5	1.42e5	6.78e4	3.24e5	8.72e4	3.73e4	6.61e4	1.89e5	4.89e5									
7228/7-1 A	COCH	2833.00	2833.02	11024	1.54e4	0.00e0	0.00e0	0.00e0	3.24e3	0.00e0	0.00e0	4.12e3	0.00e0	0.00e0	0.00e0	3.34e3	3.78e3									



Table 11. continued, GCMS SIR of aromatic compounds (peak height)

m/e		253						231						
Well	Sample type	1179.00	1179.00	1179.00	SC09MA	RC09MA RC09MA-SC RC09MA	RC09MA	SC201A	SC201A	SC201A	RC09MA-SC 7MA	SC09MA	RC09MA	RC09MA
7228/7-1 ST3	COCH	1367.38	1367.40	11309	3.73e4	1.58e5	2.97e4	1.13e5	7.59e4	8.16e4	1.89e5	6.77e4	5.52e4	7.73e4
7228/7-1 ST3	DC		1719.00	11789	2.05e4	2.23e5	1.31e4	1.65e5	1.03e5	6.65e4	2.66e5	2.54e5	1.06e5	3.06e5
7228/7-1 B	SWC		2139.00	11850	4.74e4	1.90e5	3.75e4	6.86e5	3.63e5	1.87e5	4.99e5	3.84e5	2.00e5	3.76e5
7228/7-1 B	SWC		2165.50	11852	0.00e0	3.88e3	0.00e0	2.39e5	9.63e4	3.76e4	1.00e5	3.70e4	2.91e4	3.83e4
7228/7-1 A	COCH		2066.50	11794	4.30e3	2.06e4	5.24e3	1.37e5	6.05e4	2.08e4	5.42e4	4.19e4	1.79e4	4.28e4
7228/7-1 A	COCH		2071.45	11795	8.82e3	3.29e4	6.66e3	2.25e5	9.97e4	3.66e4	9.31e4	8.21e4	3.20e4	7.89e4
7228/7-1 A	COCH		2082.70	11797	2.84e4	1.26e5	2.04e4	2.77e6	1.35e6	3.30e5	7.30e5	6.08e5	2.92e5	5.77e5
7228/7-1 A	COCH		2086.50	11799	1.39e4	4.74e4	9.21e3	2.21e5	1.04e5	4.87e4	1.16e5	1.05e5	3.96e4	9.56e4
7228/7-1 A	COCH		2087.30	11801	5.73e4	2.29e5	3.43e4	6.62e5	3.41e5	1.84e5	4.33e5	4.02e5	1.64e5	3.69e5
7228/7-1 A	COCH		2088.95	11802	7.50e4	2.96e5	5.63e4	7.72e5	4.04e5	2.27e5	5.46e5	5.01e5	2.07e5	4.61e5
7228/7-1 A	COCH		2088.95	11803	9.95e4	3.85e5	7.32e4	9.20e5	5.07e5	2.95e5	7.26e5	6.56e5	2.88e5	6.35e5
7228/7-1 A	COCH		2093.80	11807	1.03e5	3.98e5	7.54e4	1.11e6	5.80e5	3.31e5	7.92e5	7.29e5	3.06e5	7.04e5
7228/7-1 A	COCH		2097.00	11810	6.39e3	1.94e4	4.06e3	1.05e5	4.77e4	2.42e4	6.20e4	5.16e4	2.22e4	5.05e4
7228/7-1 A	COCH		2098.30	11811	7.69e4	2.99e5	5.14e4	8.27e5	4.30e5	2.46e5	5.98e5	5.30e5	2.27e5	5.05e5
7228/7-1 A	COCH		2099.30	11812	5.94e4	2.28e5	3.86e4	6.63e5	3.36e5	2.00e5	4.84e5	4.62e5	1.79e5	4.11e5
7228/7-1 A	COCH		2101.25	11814	5.31e4	2.25e5	3.82e4	9.42e5	4.79e5	2.38e5	5.47e5	4.87e5	2.13e5	4.75e5
7228/7-1 A	COCH		2102.25	11816	1.11e5	3.81e5	7.52e4	9.61e5	5.30e5	3.27e5	7.68e5	7.04e5	3.03e5	6.72e5
7228/7-1 A	COCH		2102.50	11817	8.10e4	3.12e5	5.90e4	1.02e6	5.40e5	2.93e5	6.78e5	6.28e5	2.61e5	5.85e5
7228/7-1 A	COCH	2833.00	2833.02	11024	0.00e0	0.00e0	0.00e0	1.25e4	6.05e3	0.00e0	0.00e0	0.00e0	0.00e0	0.00e0

Table 12. Isotopes of fractions, $\delta^{13}\text{C}$ (‰ PDB)

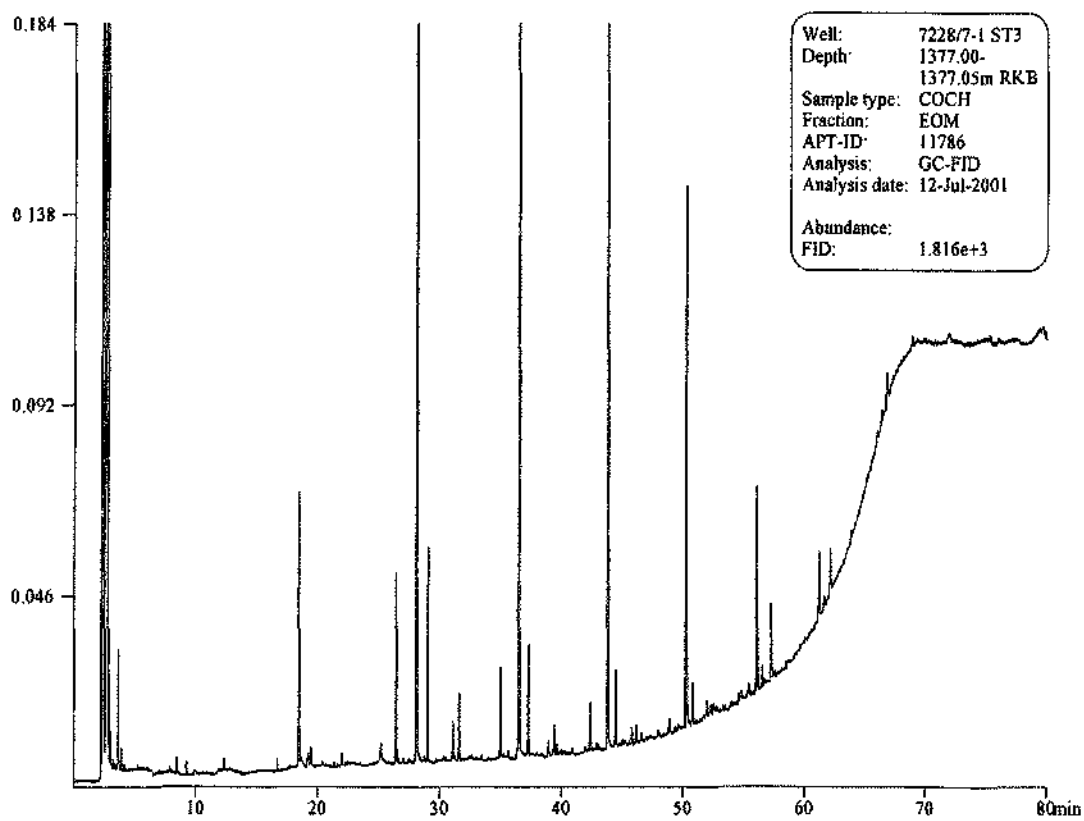
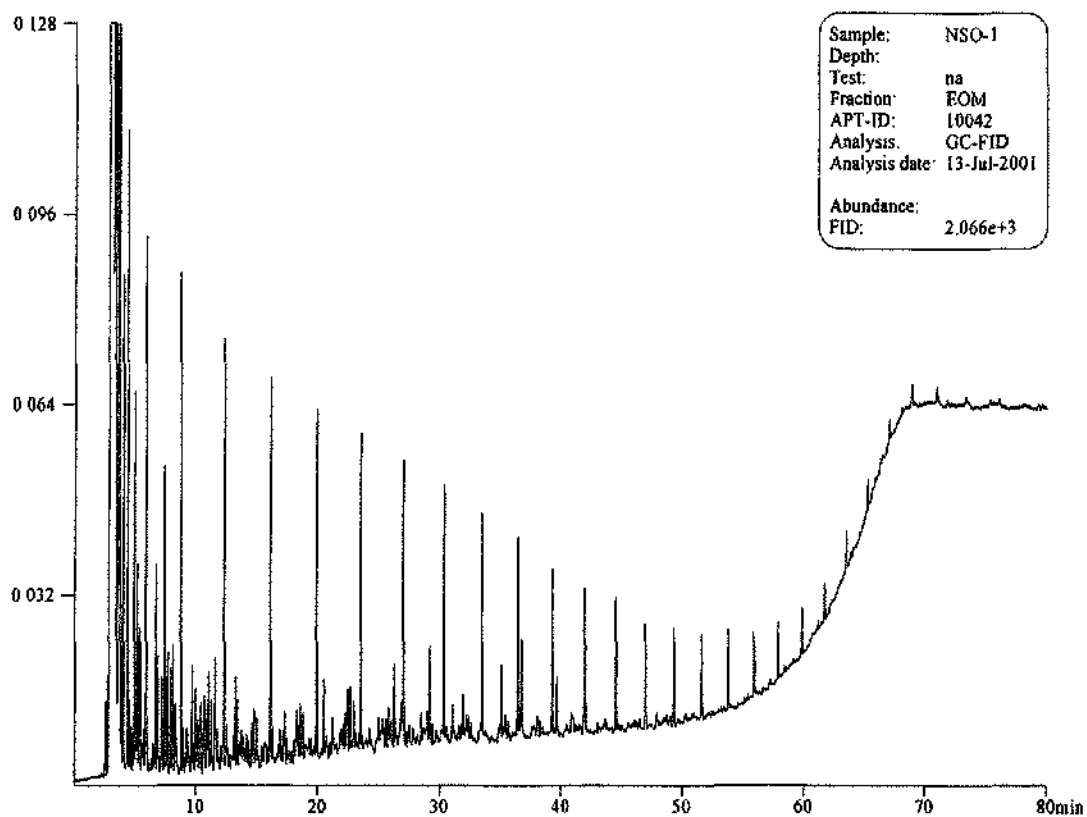
Well	Sample type	Upper Depth	Lower Depth	API ID	CHRON	S ₁	S ₂	S ₃	S ₄
7228/7-1 ST3	COCH	1367.38	1367.40	11309	-28.5	-27.9	-27.1	-29.2	-28.8
7228/7-1 ST3	DC		1719.00	11789	-29.3	-29.1	-27.1	-30.2	-27.8
7228/7-1 B	SWC		2139.00	11850	-29.3	-29.3	-28.4	-30.1	-28.3
7228/7-1 B	SWC		2165.50	11852		-29.3	-28.4	-30.1	-27.6
7228/7-1 A	COCH		2066.50	11794	-29.7	-29.0	-28.2	-30.2	-29.1
7228/7-1 A	COCH		2071.45	11795	-29.5	-29.3	-28.2	-30.1	-29.4
7228/7-1 A	COCH		2082.70	11797	-29.0	-29.4	-27.8	-29.8	-28.6
7228/7-1 A	COCH		2086.50	11799	-29.5	-29.4	-28.4	-30.1	-29.1
7228/7-1 A	COCH		2087.30	11801	-29.3	-29.4	-28.4	-30.4	-29.3
7228/7-1 A	COCH		2088.95	11802	-29.1	-29.4	-28.4	-29.4	-29.5
7228/7-1 A	COCH		2088.95	11803	-29.2	-29.4	-28.4	-29.4	-29.1
7228/7-1 A	COCH		2093.80	11807	-29.2	-29.4	-28.3	-30.1	-29.3
7228/7-1 A	COCH		2097.00	11810	-28.9	-28.7	-28.4	-29.8	-28.4
7228/7-1 A	COCH		2098.30	11811	-29.2	-29.4	-28.4	-30.0	-29.1
7228/7-1 A	COCH		2099.30	11812	-29.1	-29.4	-28.4	-30.2	-29.2
7228/7-1 A	COCH		2101.25	11814	-29.2	-29.4	-28.2	-30.2	-28.8
7228/7-1 A	COCH		2102.25	11816	-29.1	-29.4	-28.4	-29.9	-29.0
7228/7-1 A	COCH		2102.50	11817	-29.1	-29.4	-28.4	-30.1	-28.9
7228/7-1 A	COCH	2833.00	2833.02	11024	-28.3	-28.4	-27.8	-29.5	-29.4



GC Chromatograms of EOM

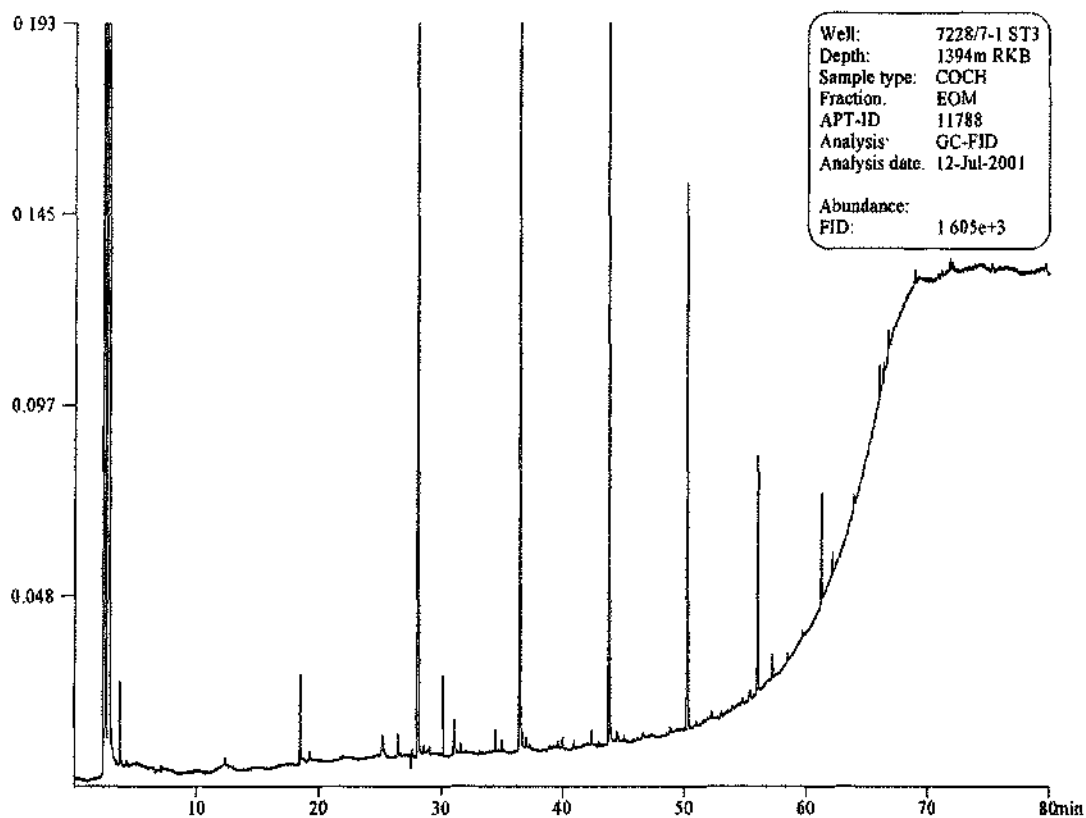
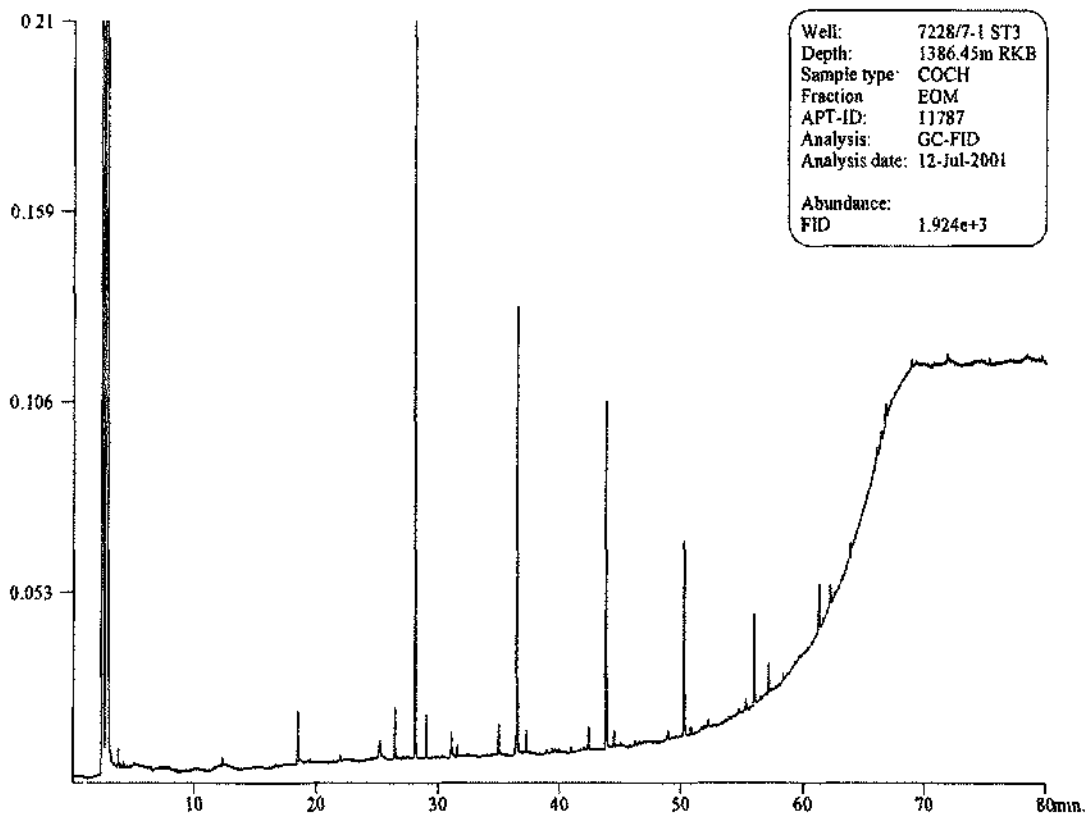


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



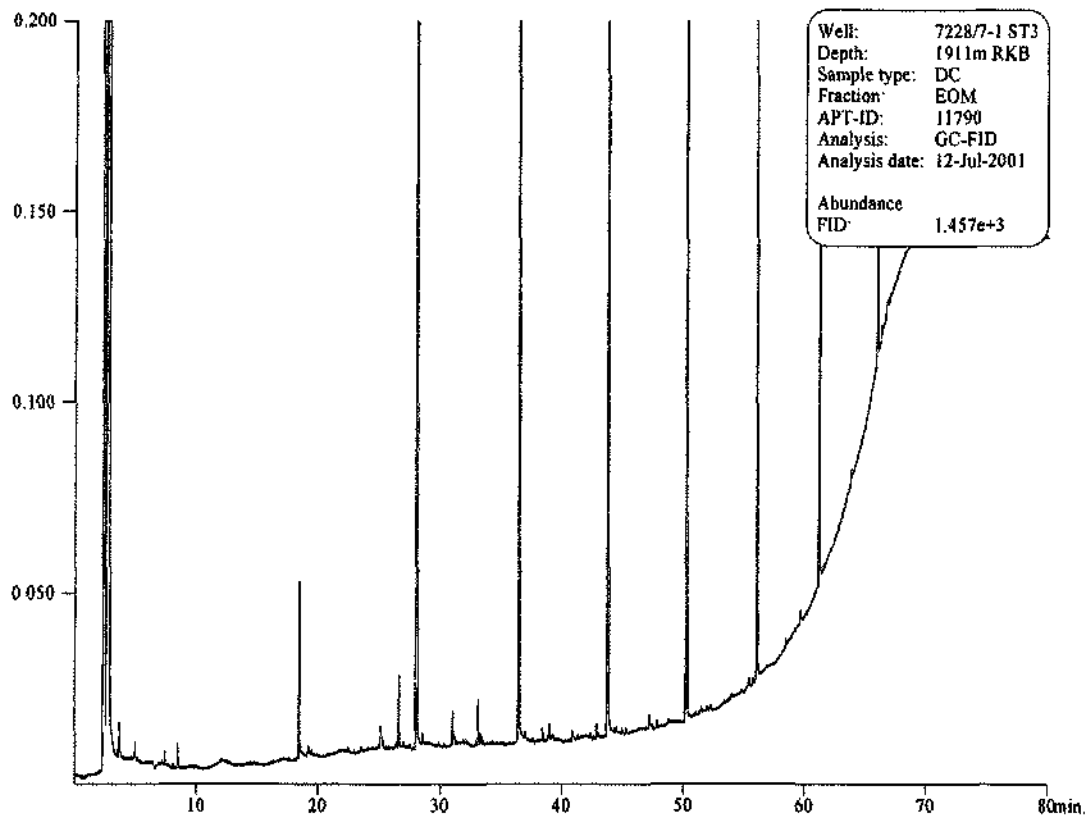
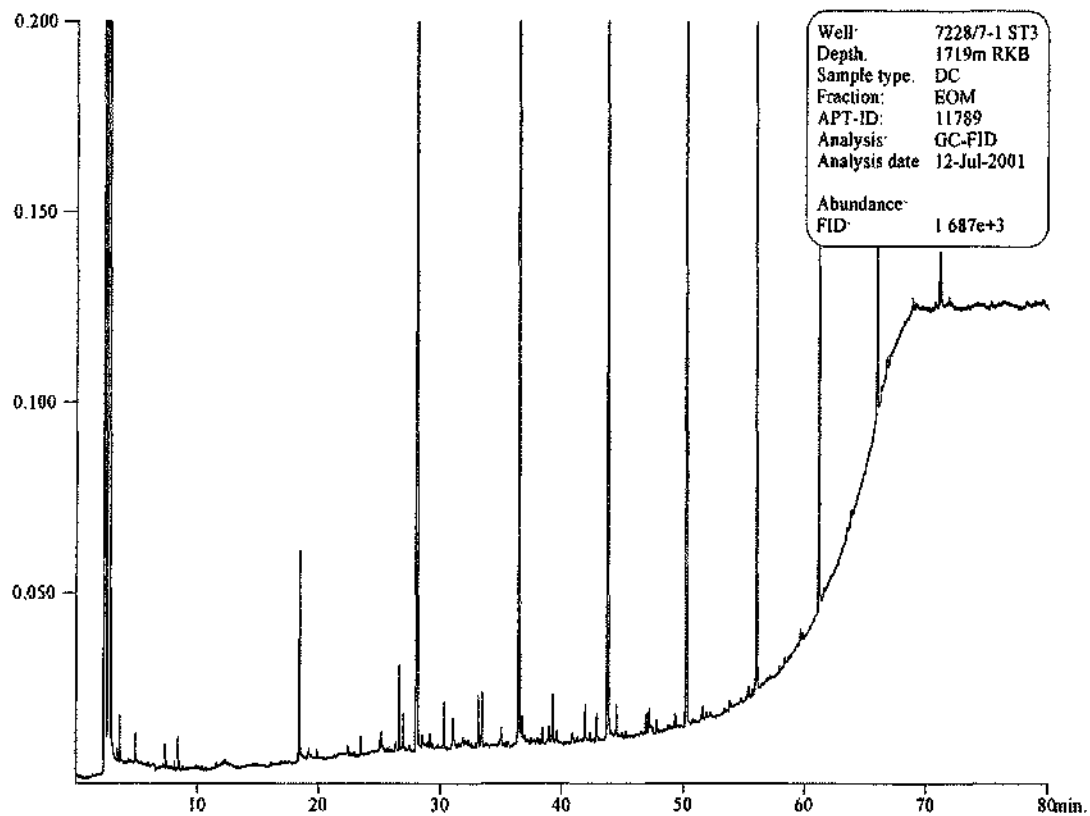


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



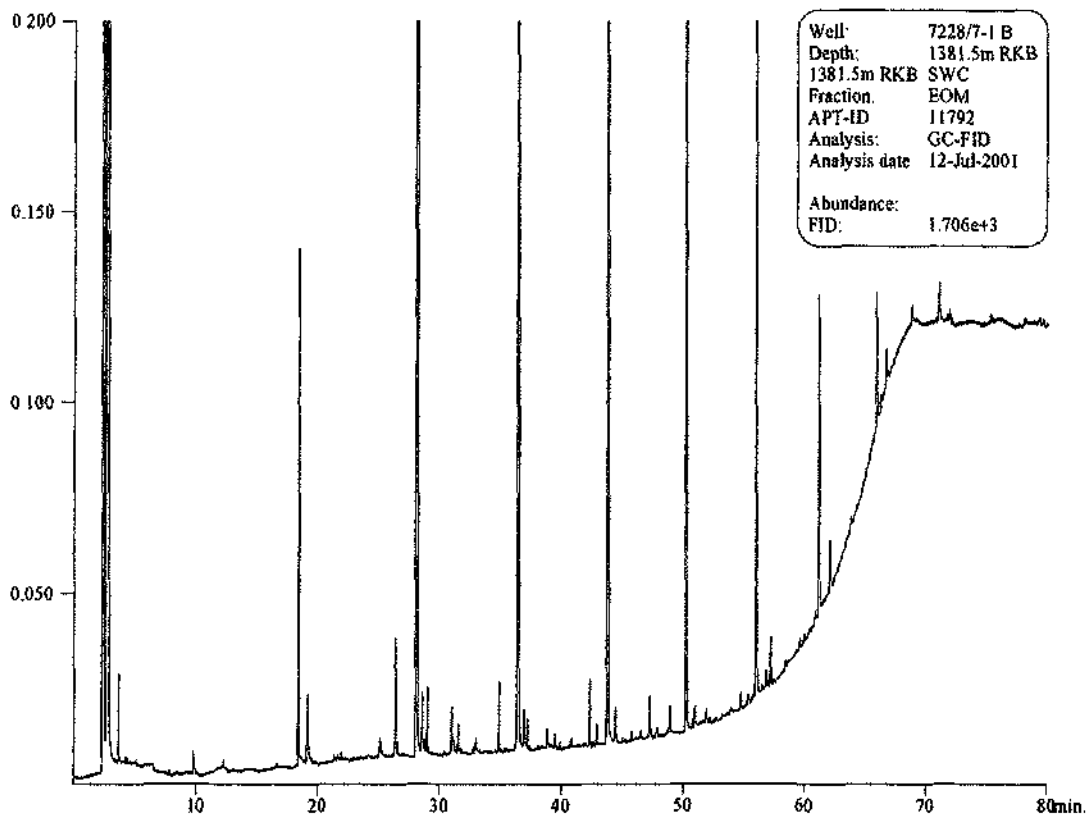
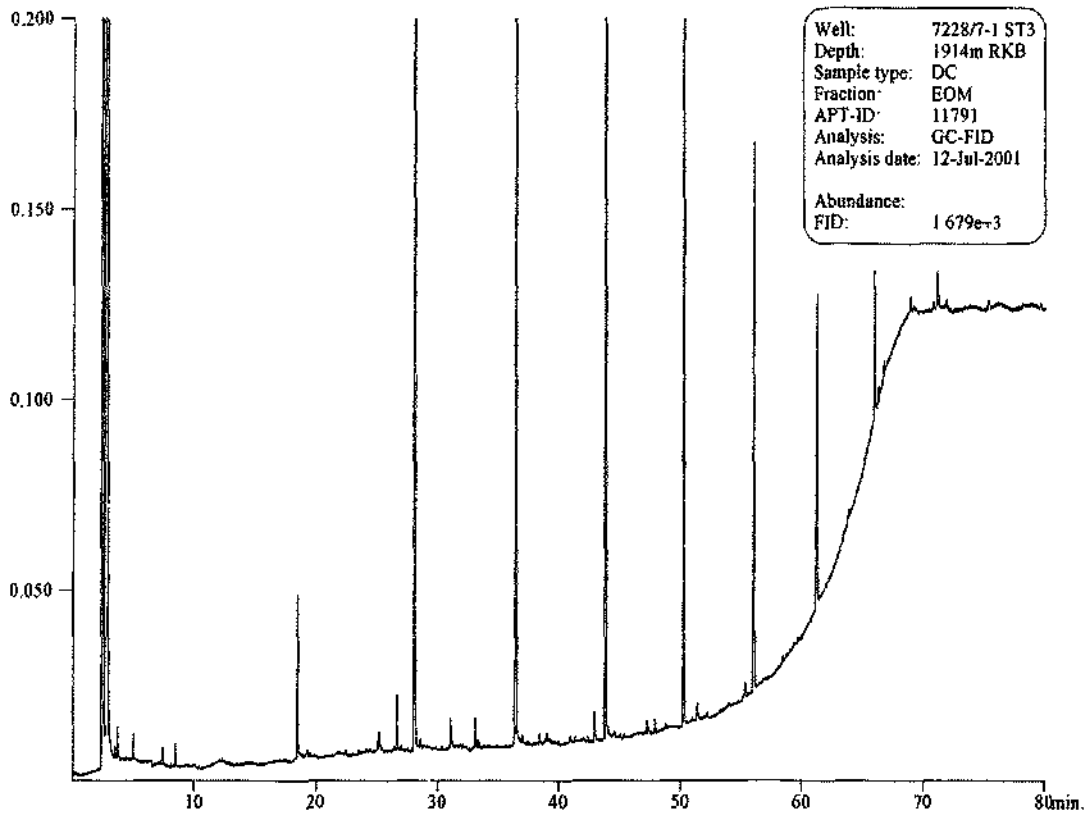


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



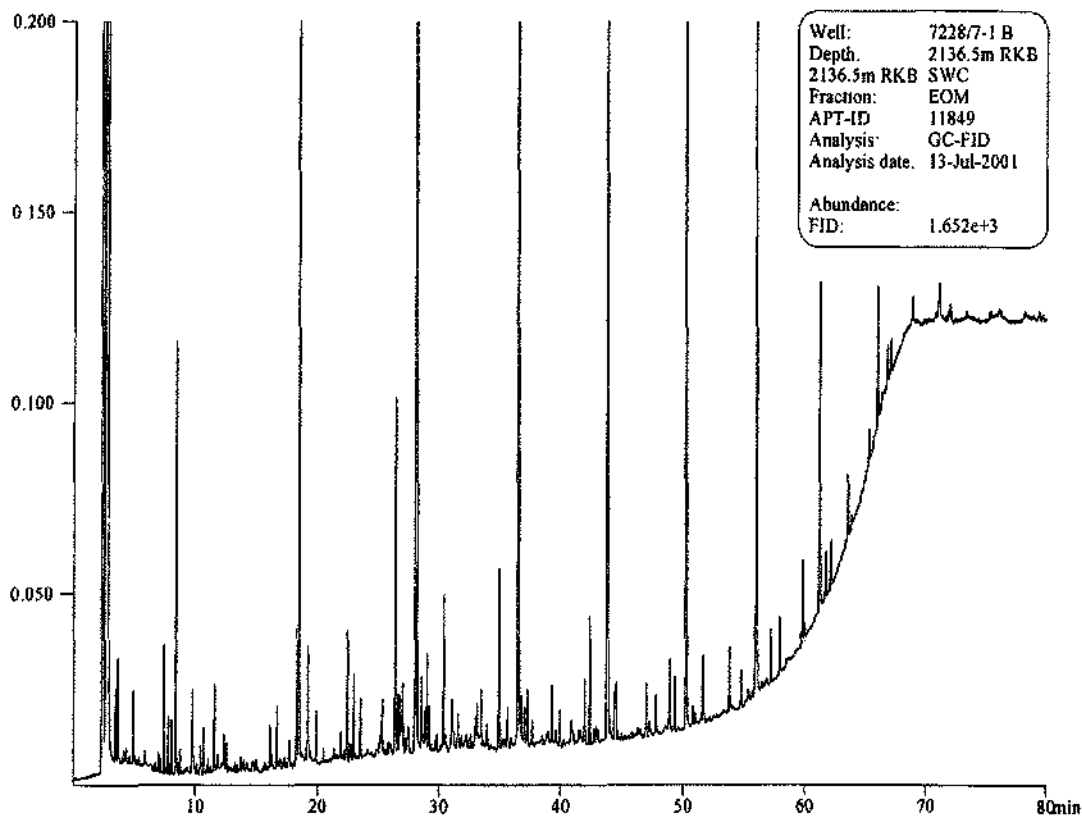
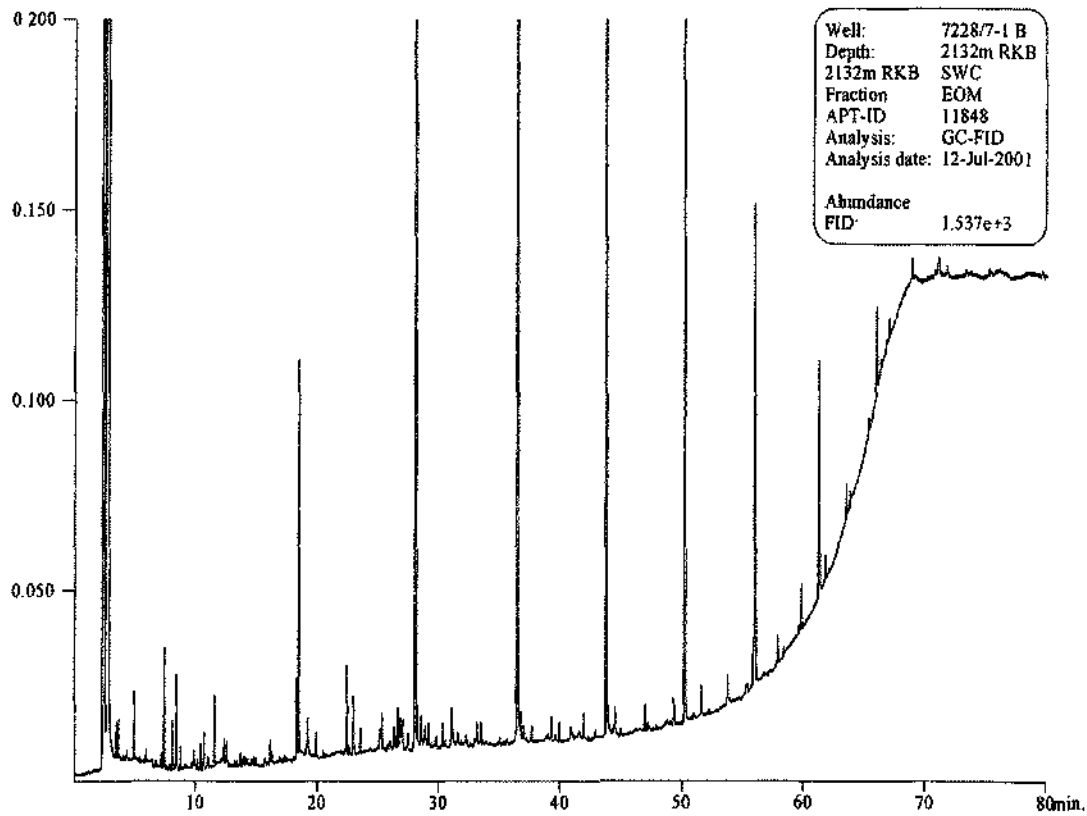


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



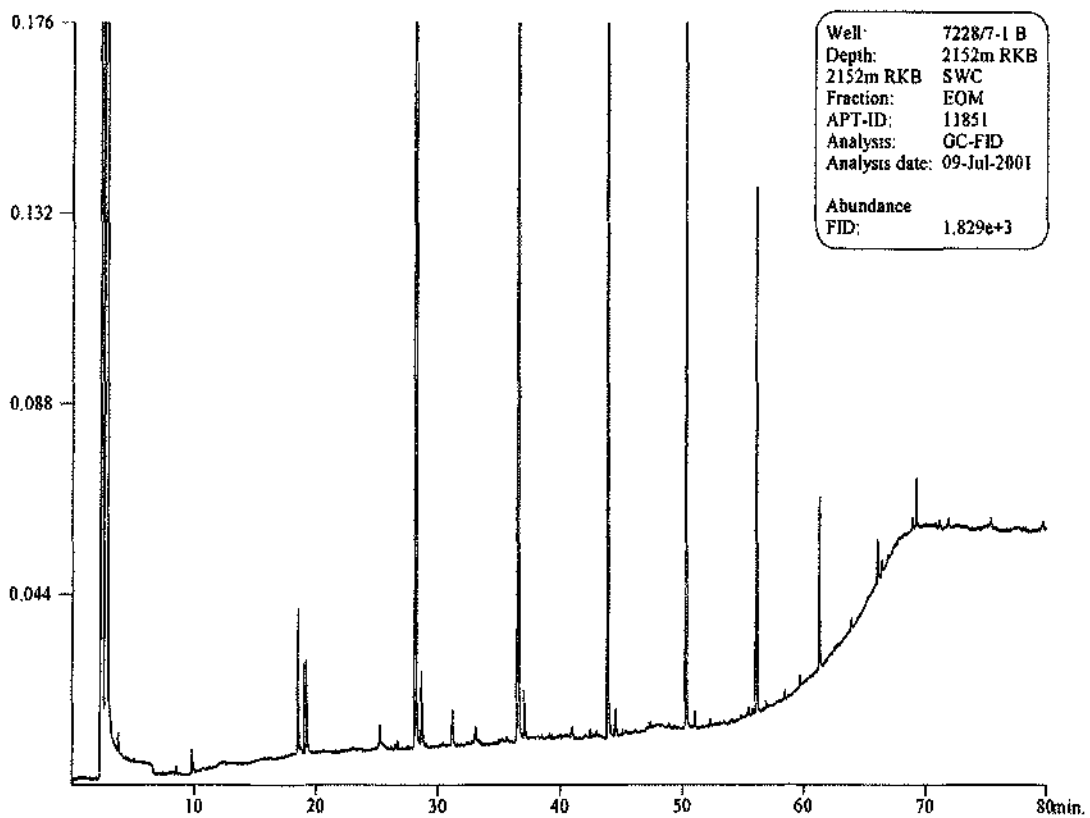
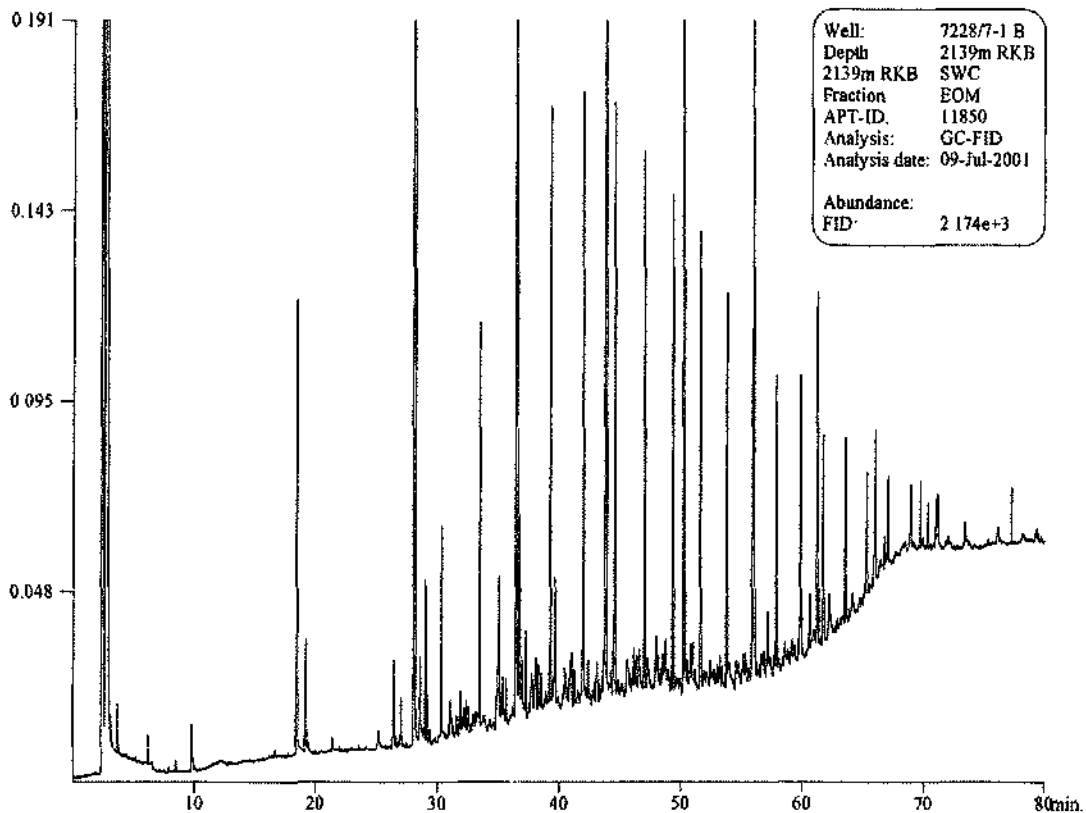


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



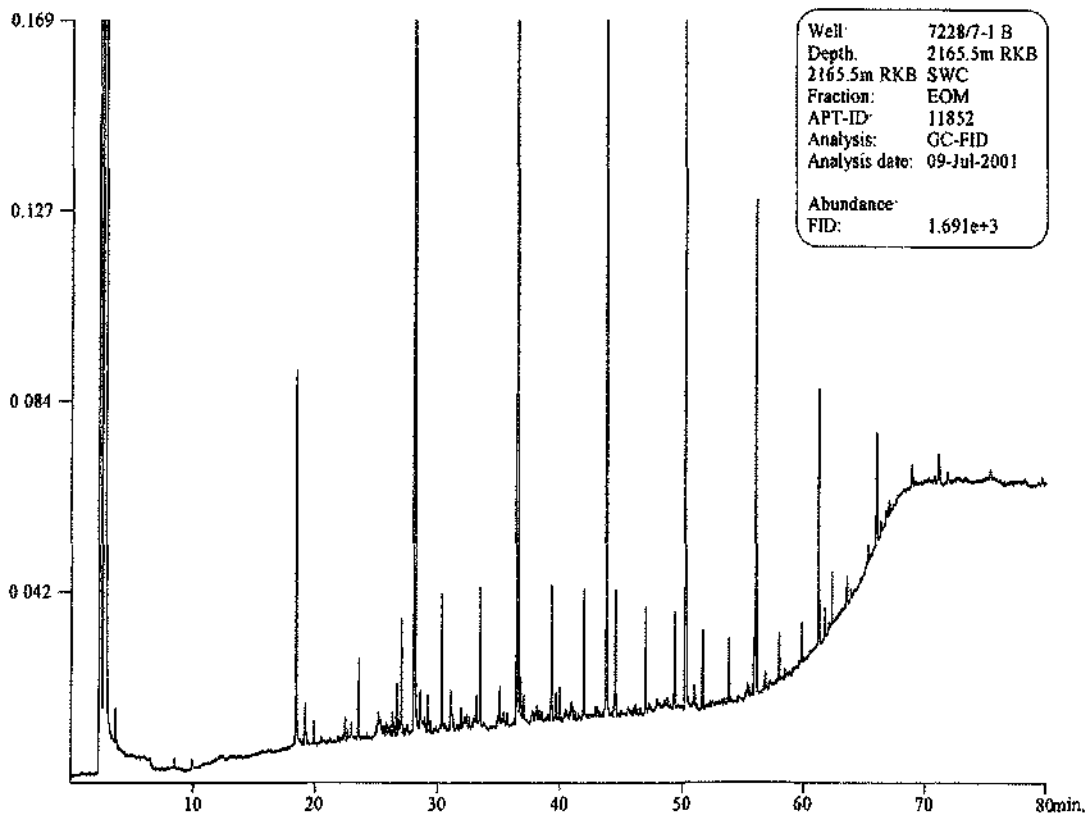
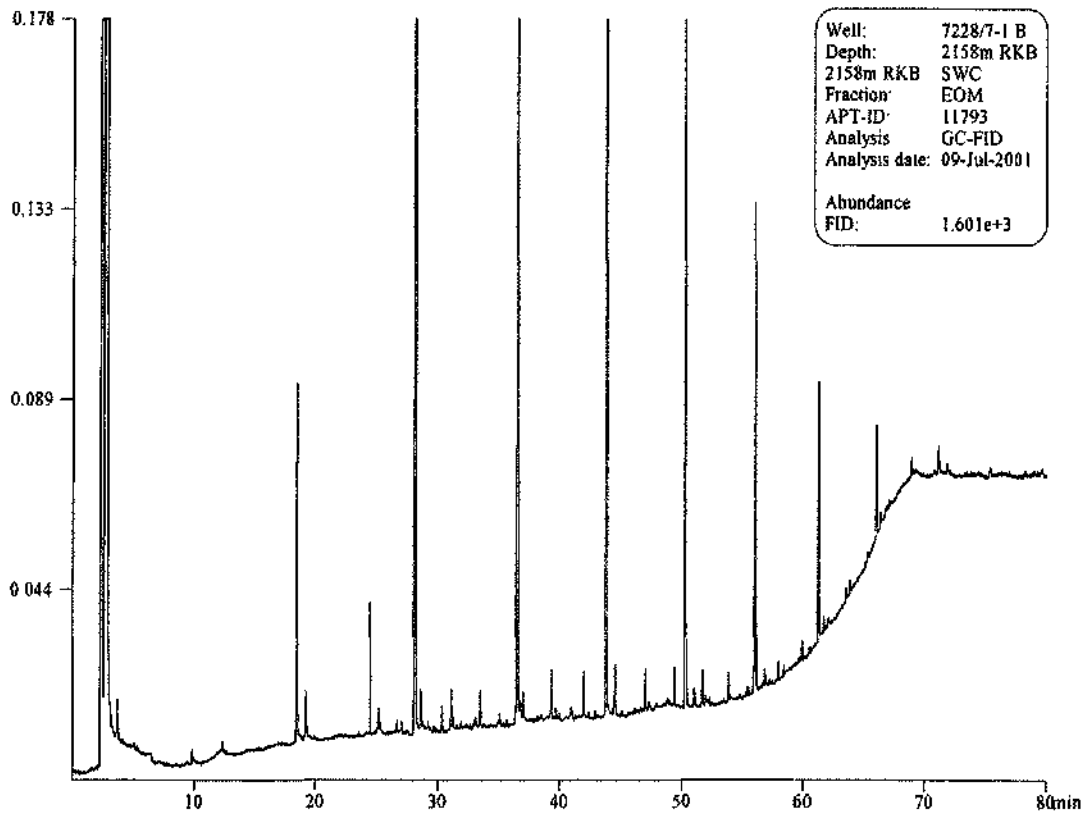


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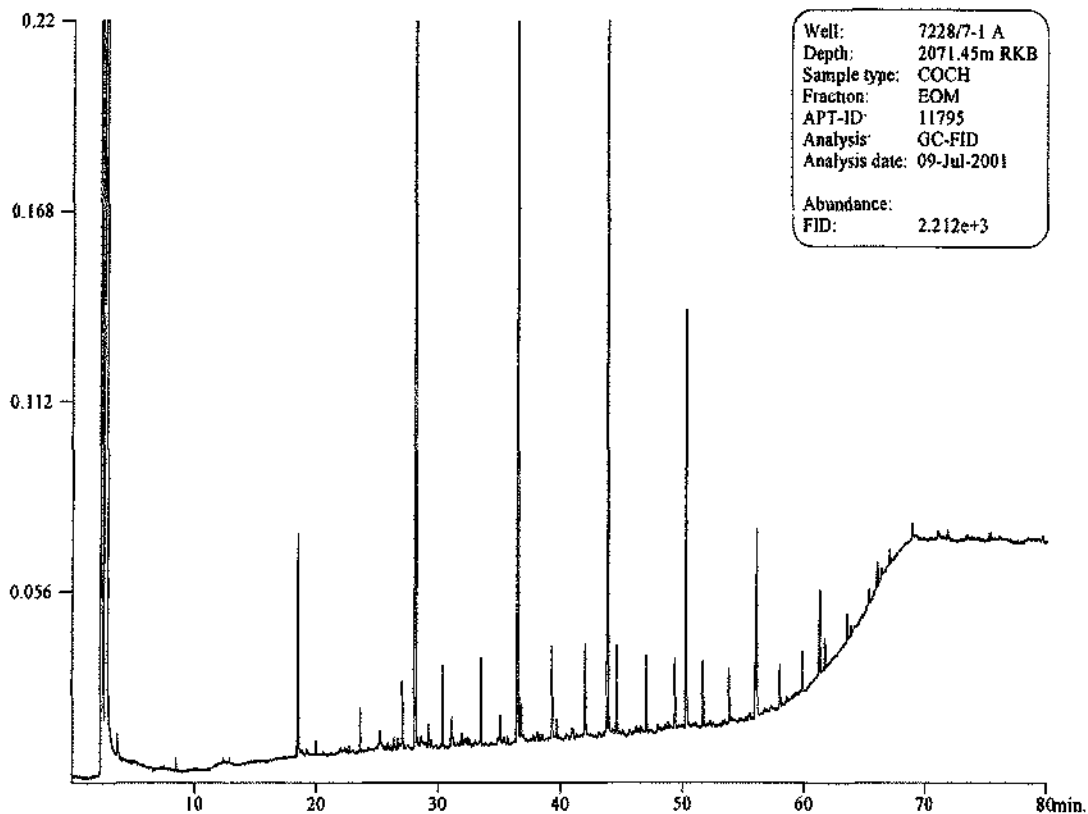
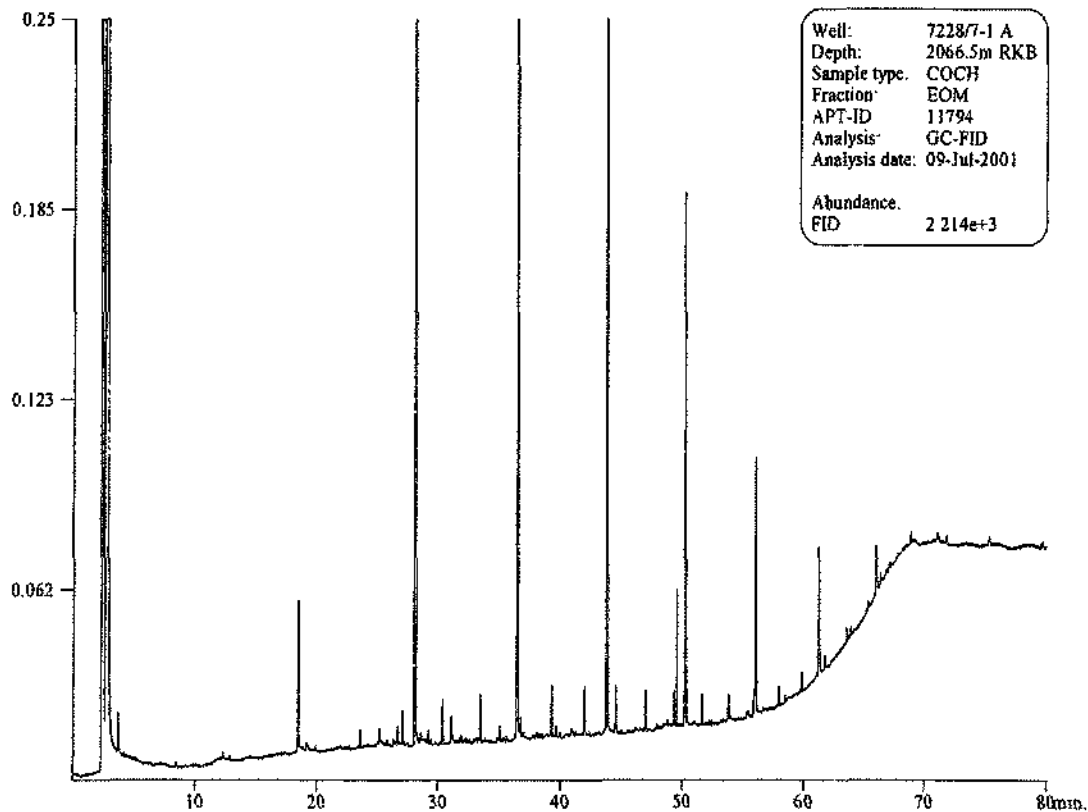


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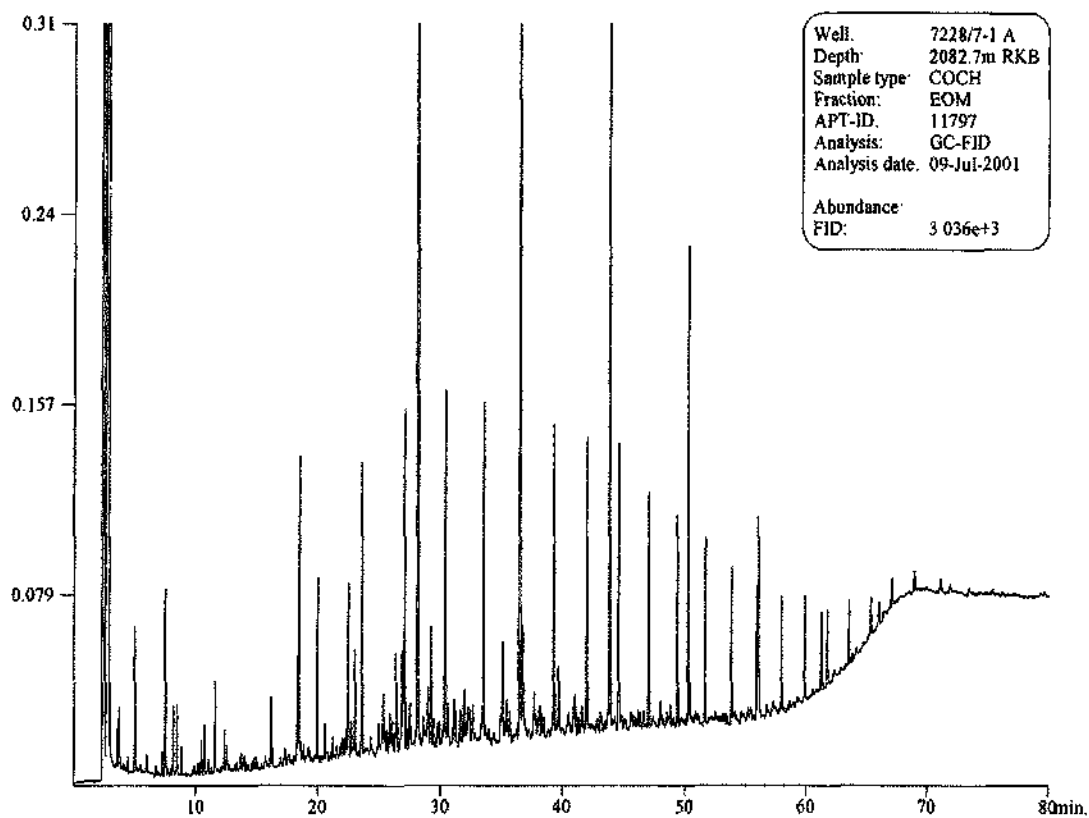
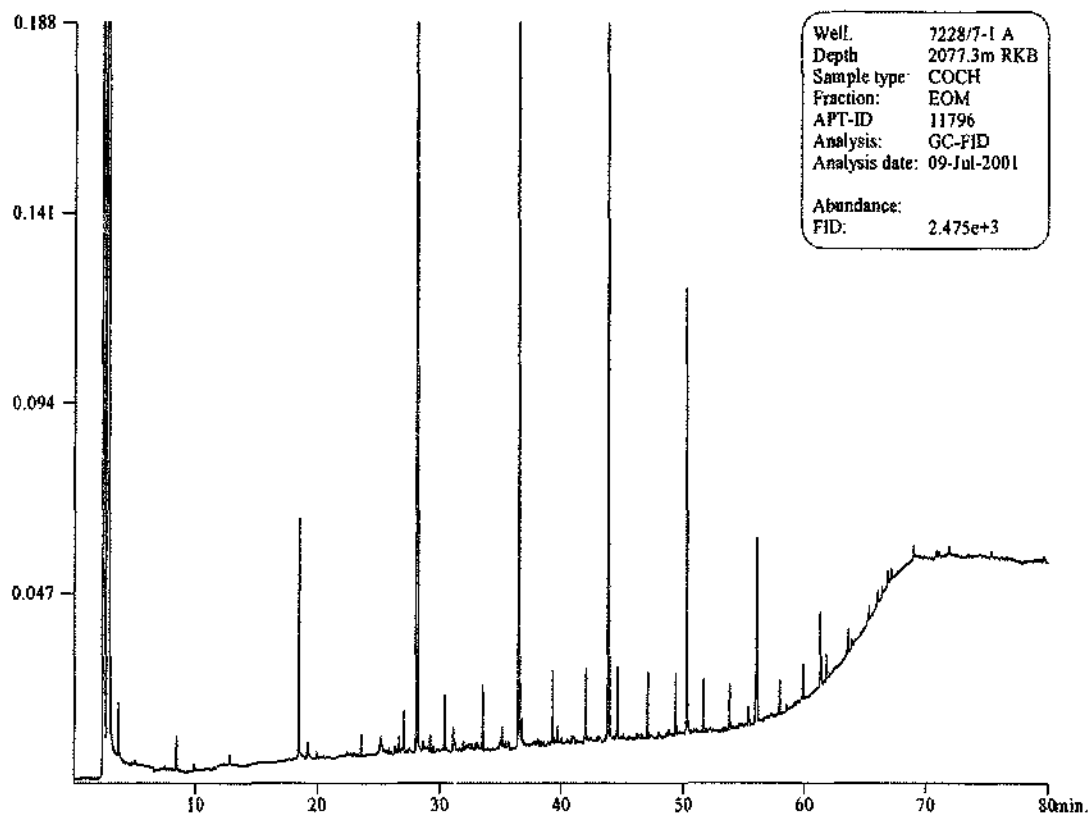


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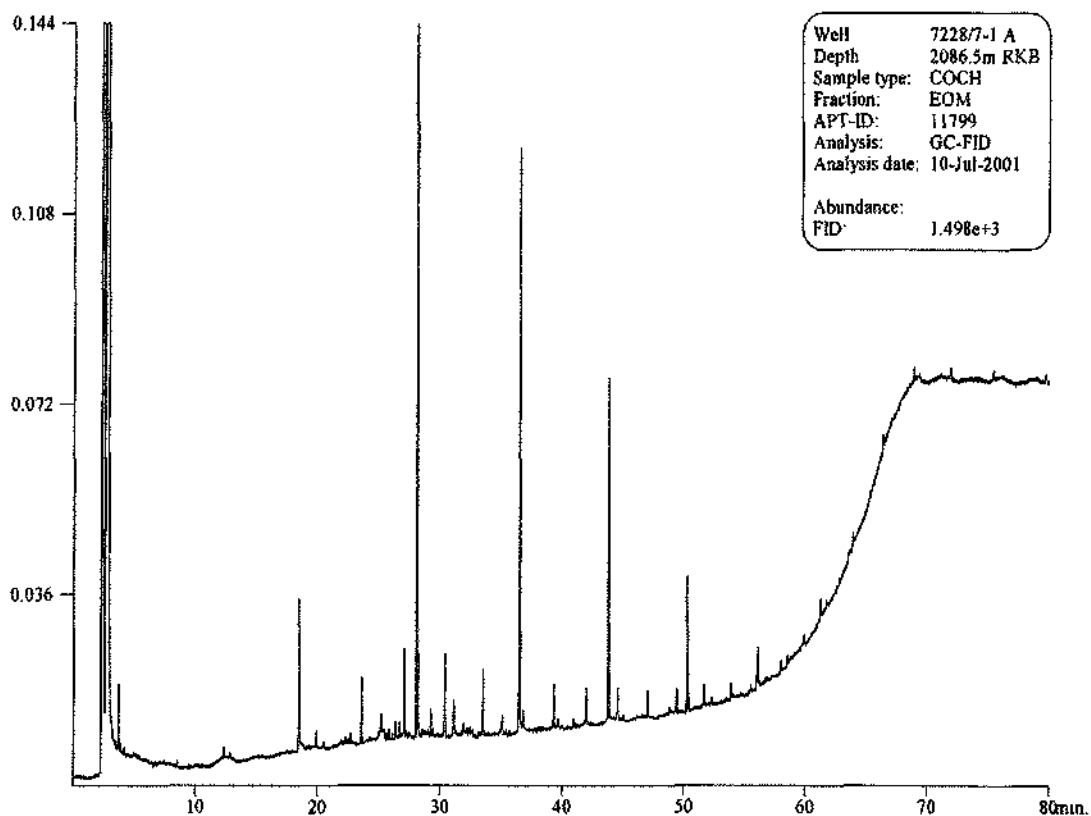
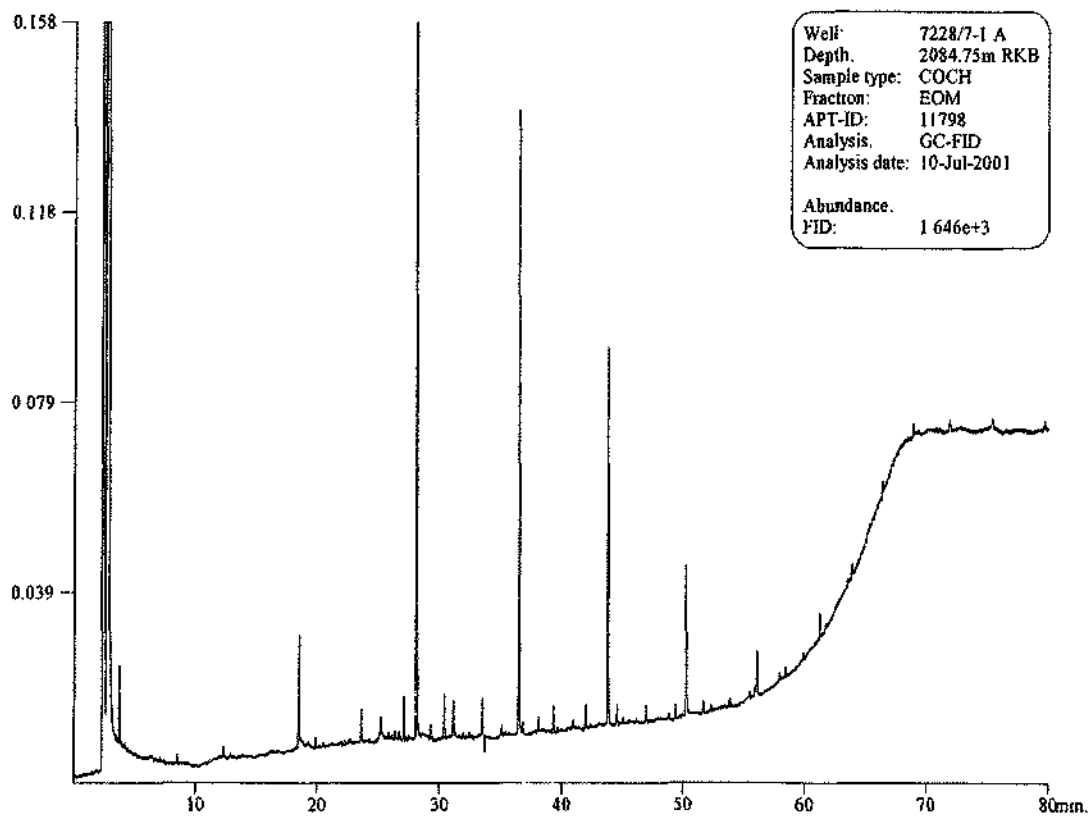


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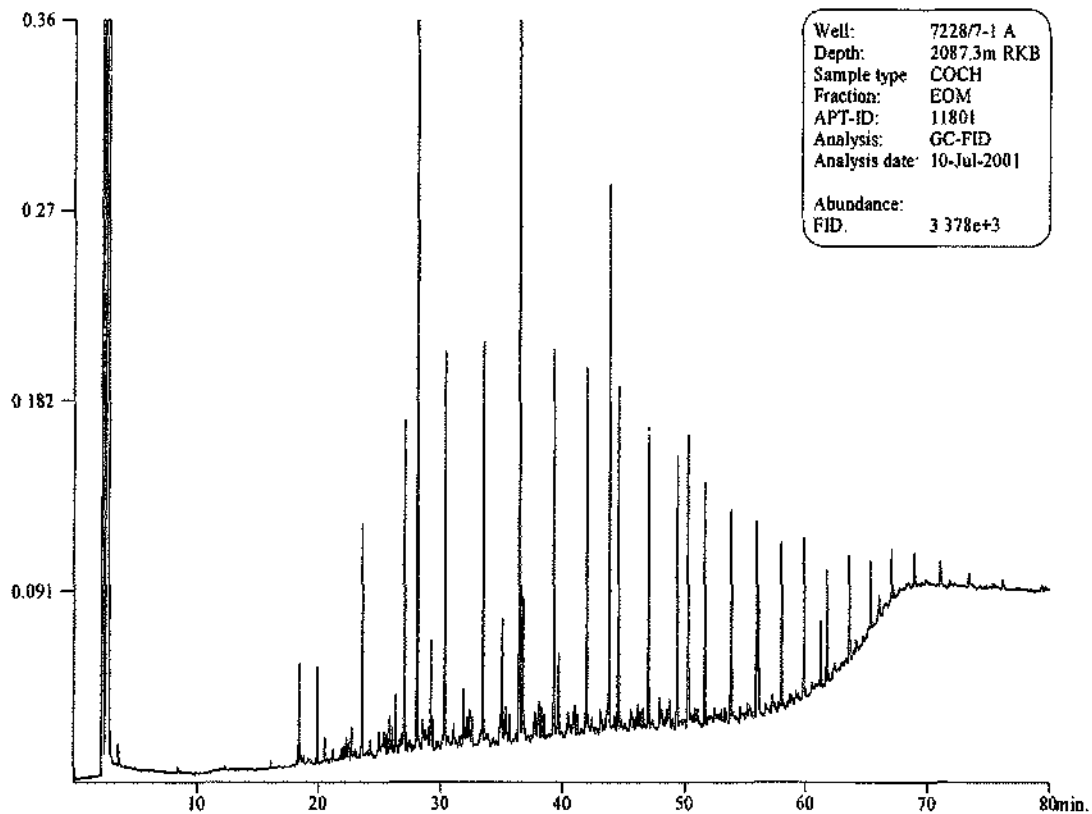
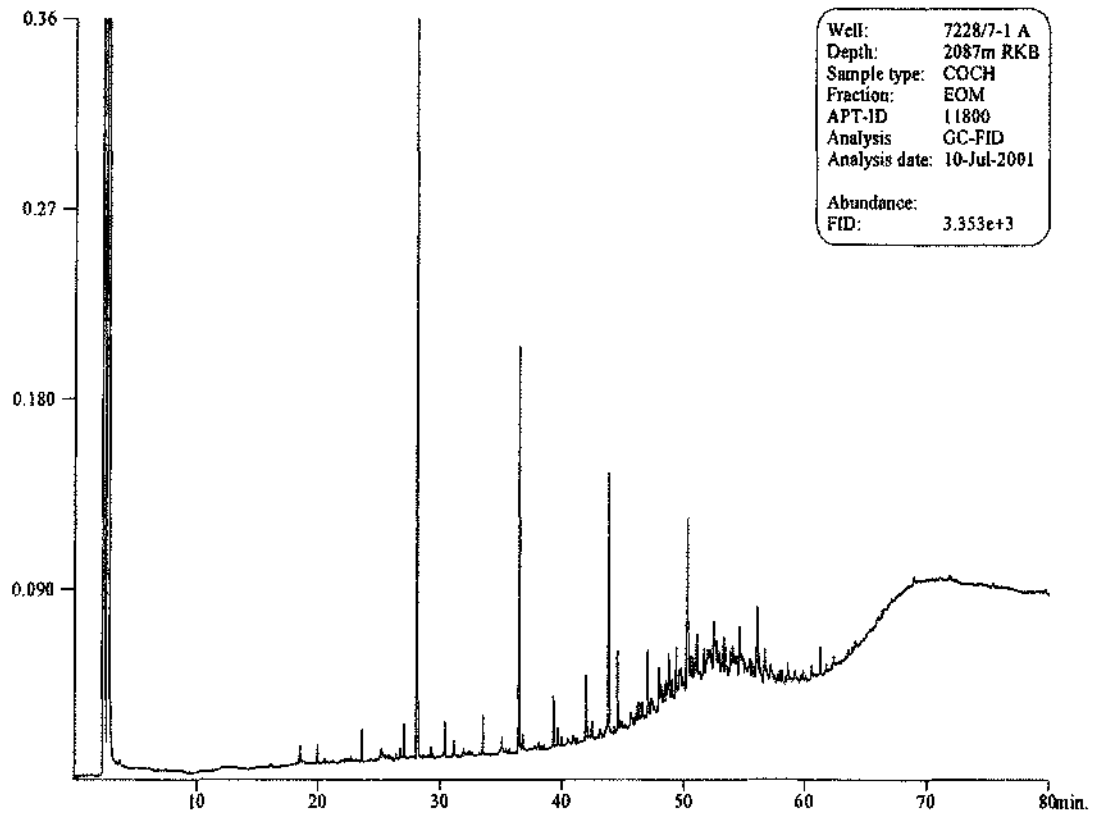


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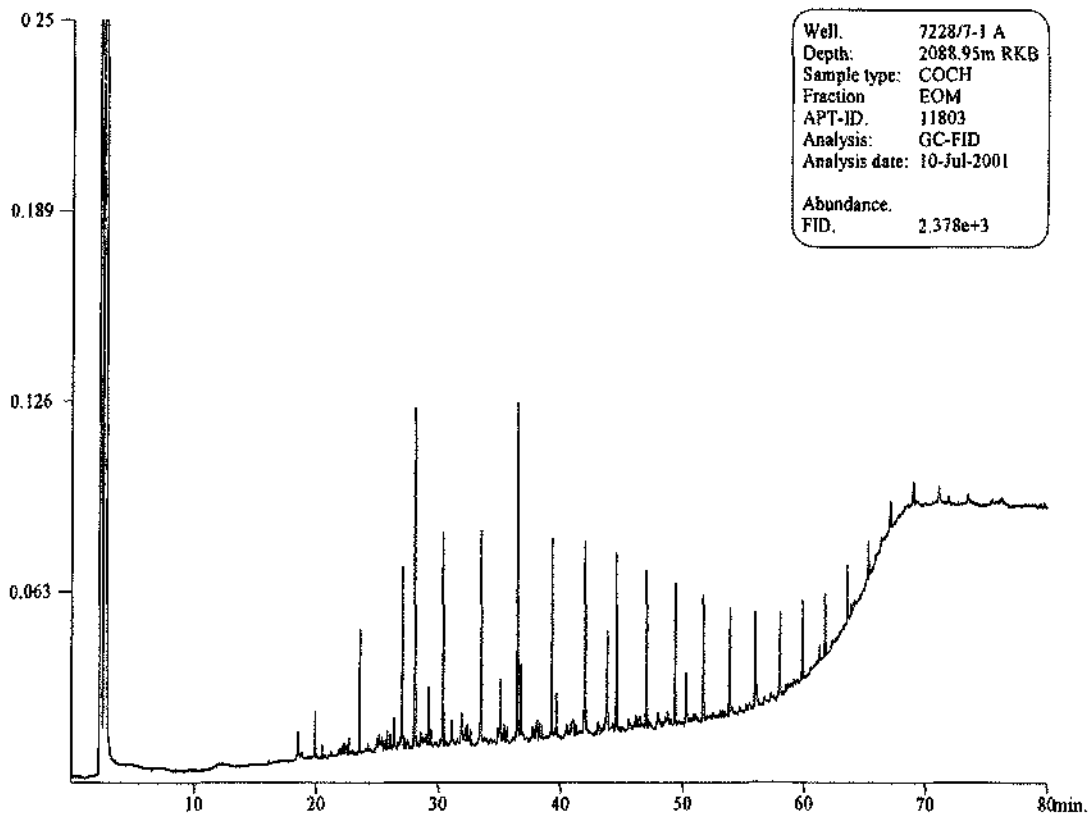
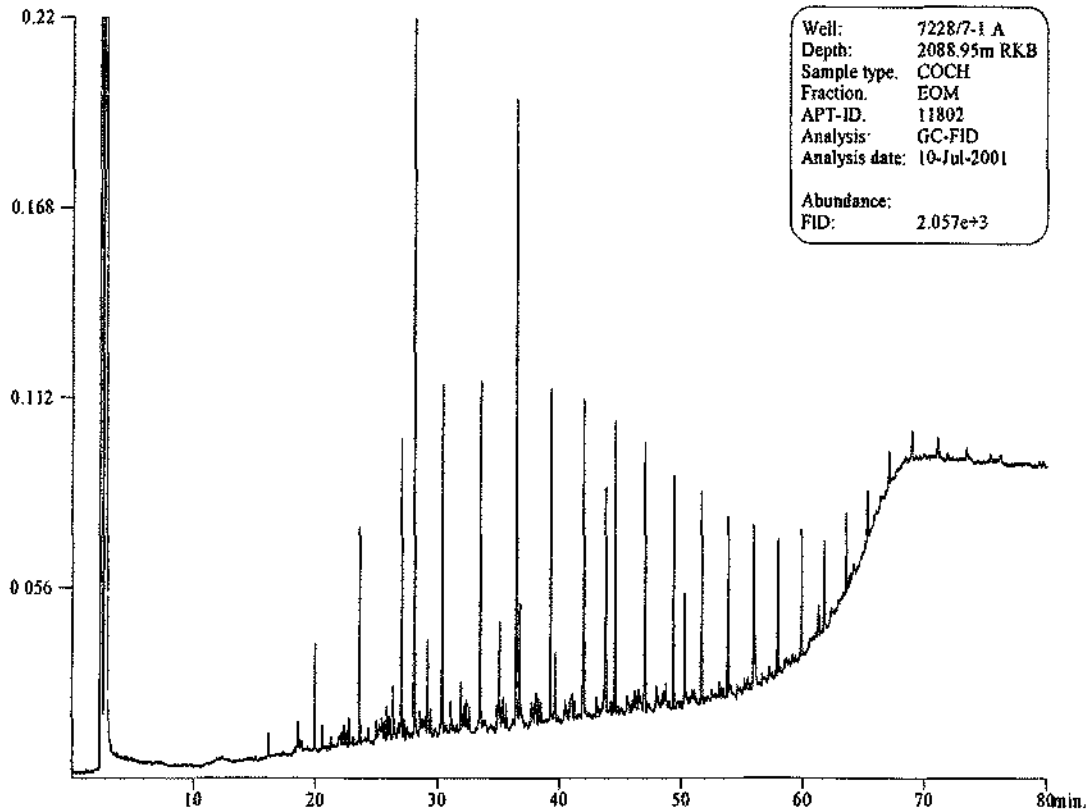


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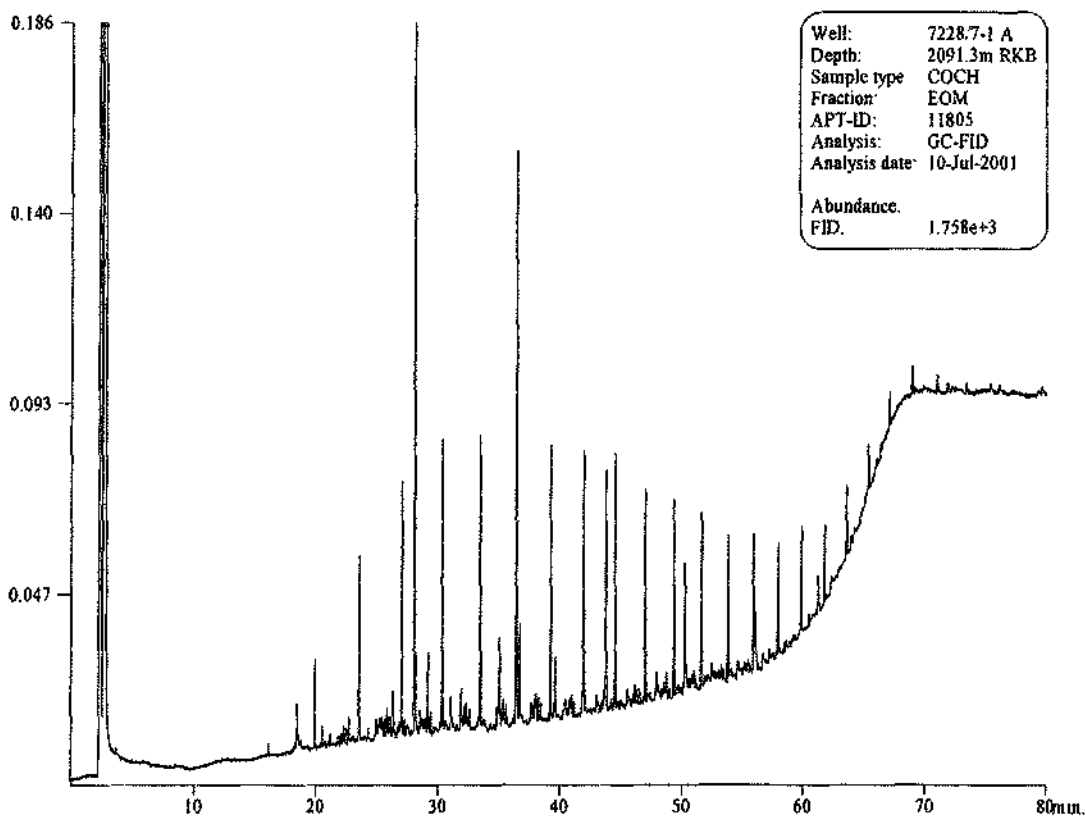
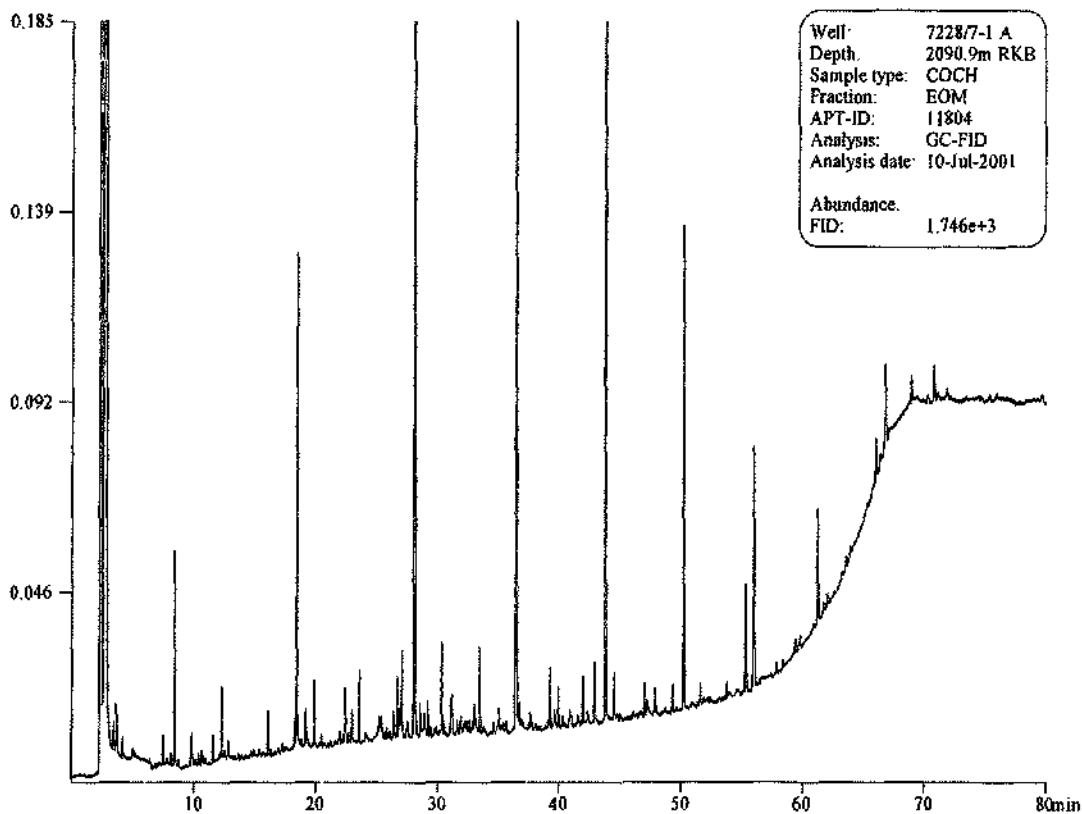


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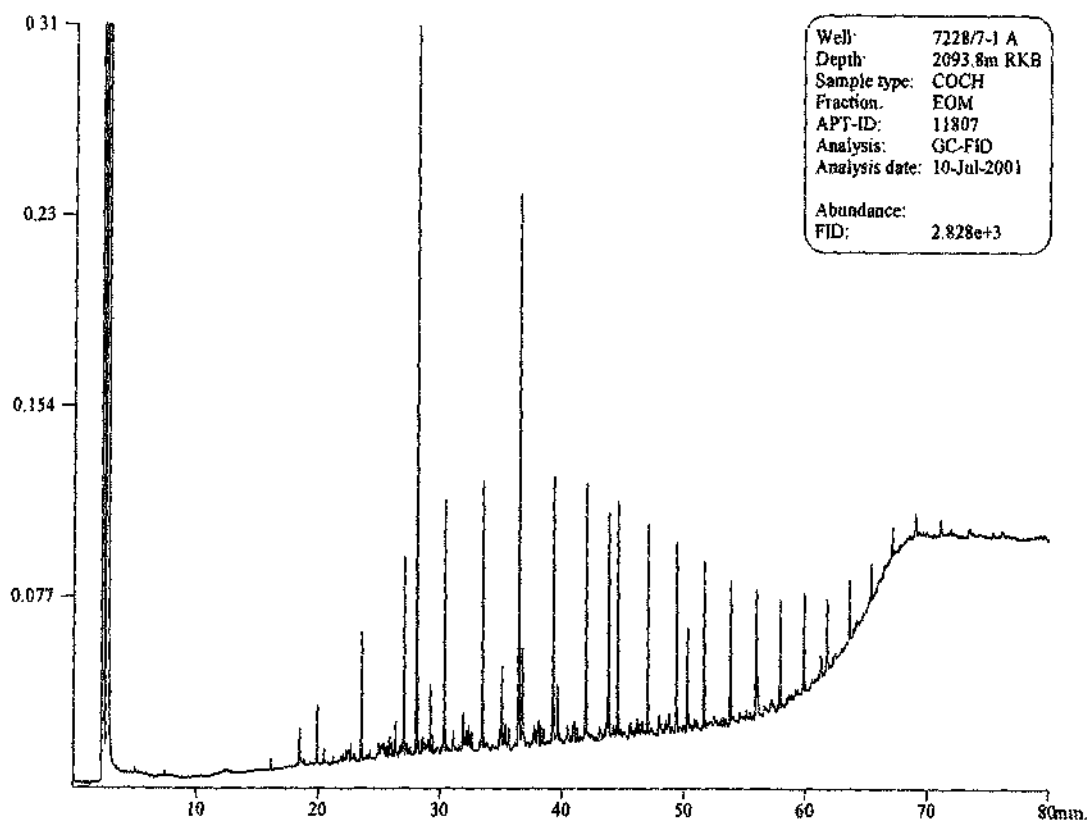
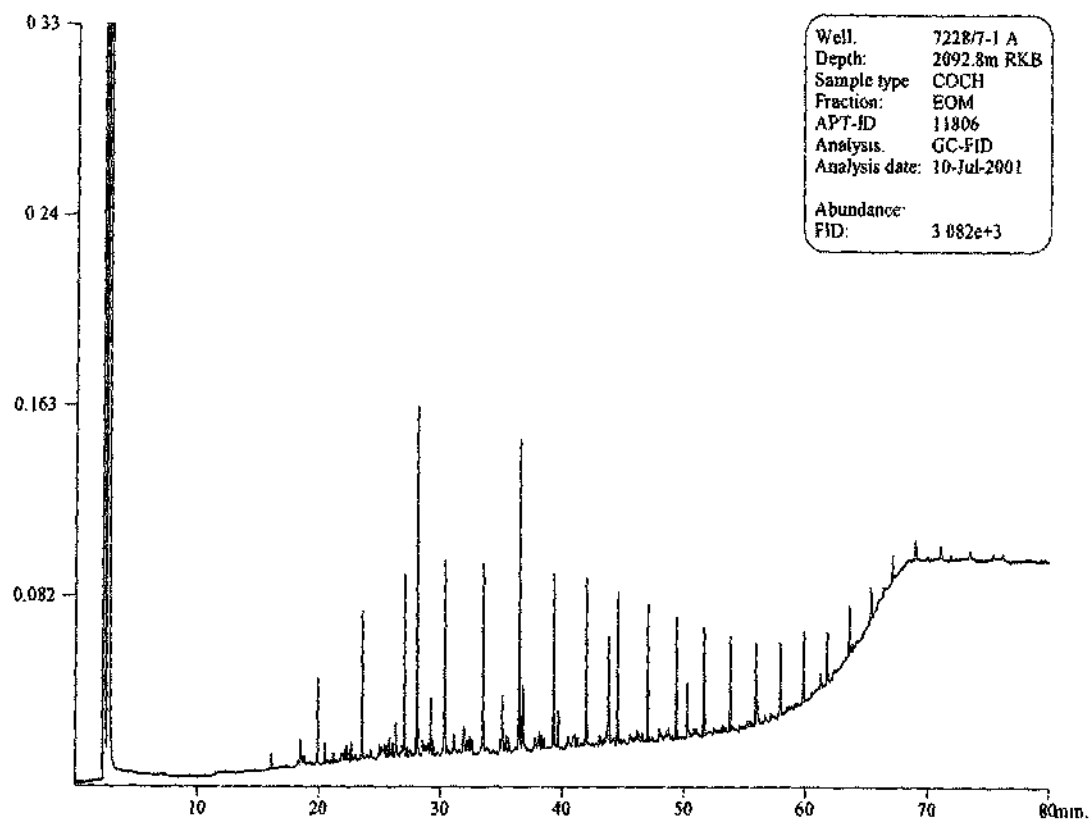


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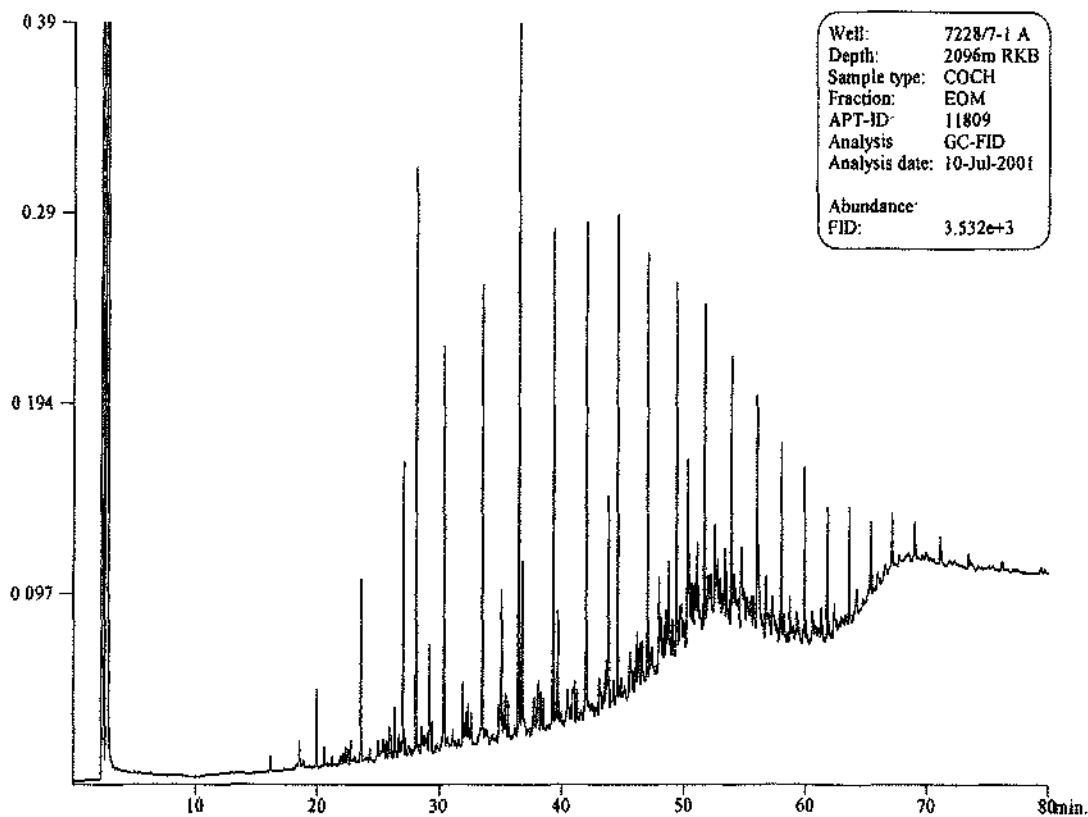
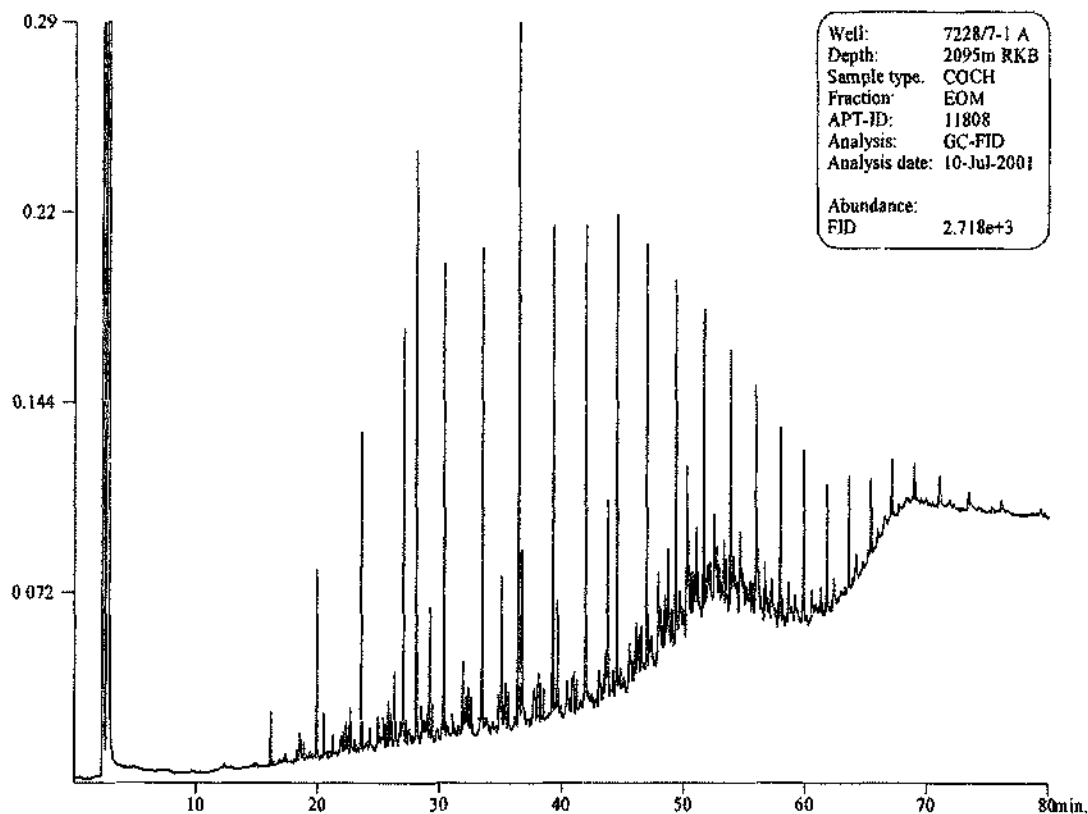


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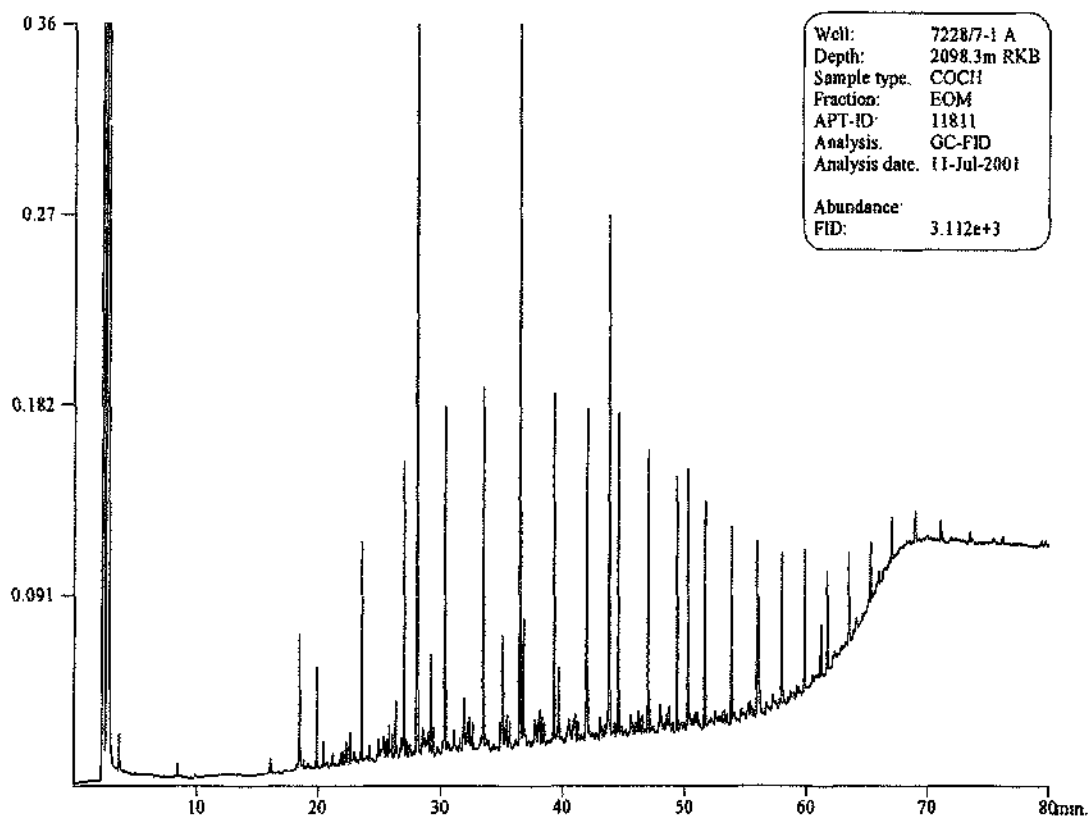
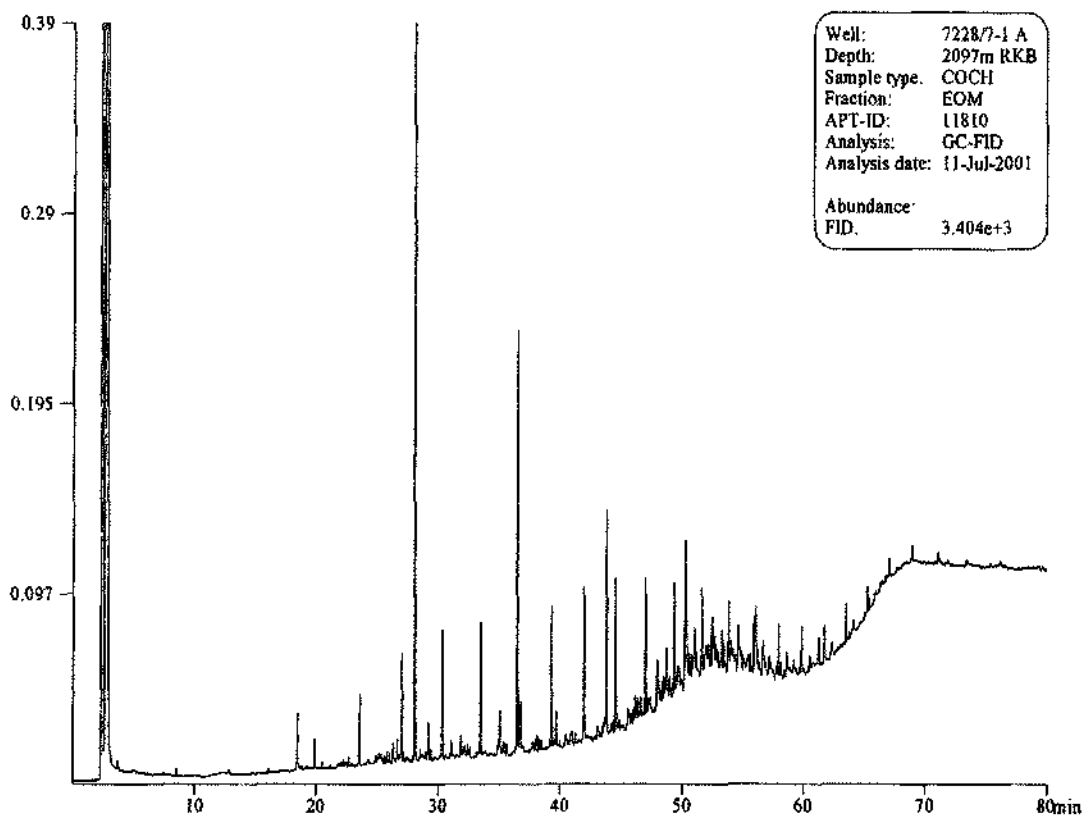


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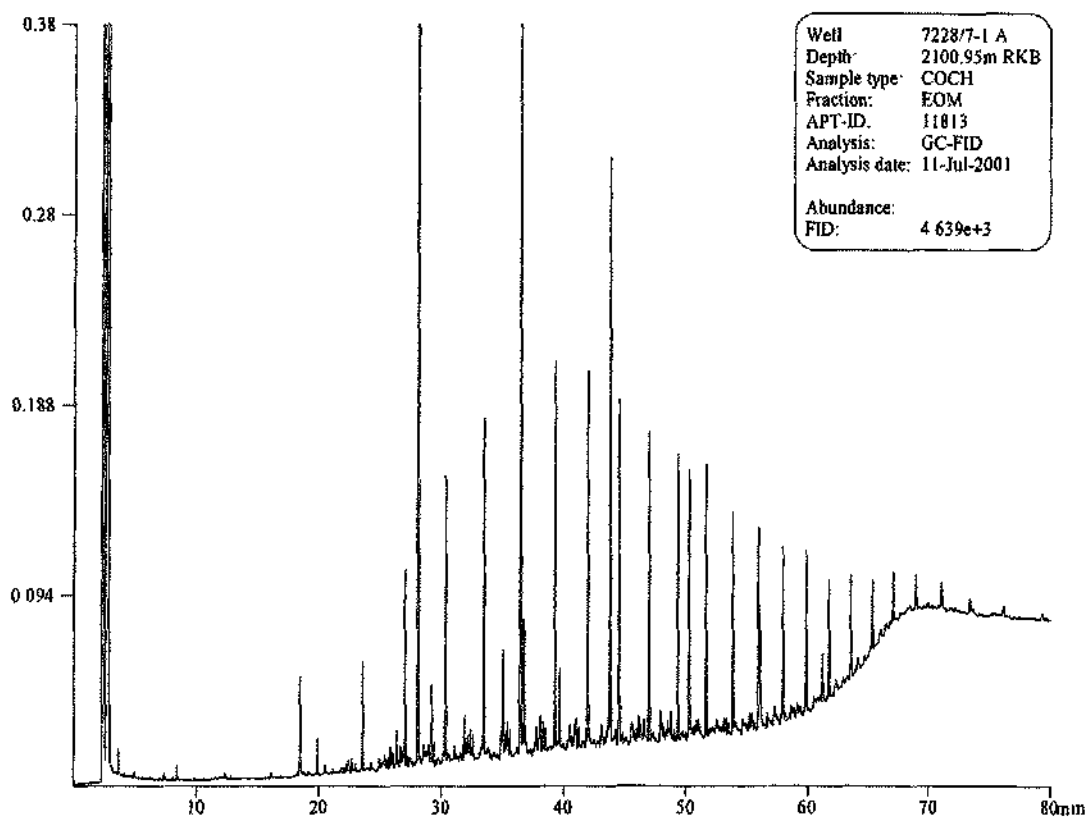
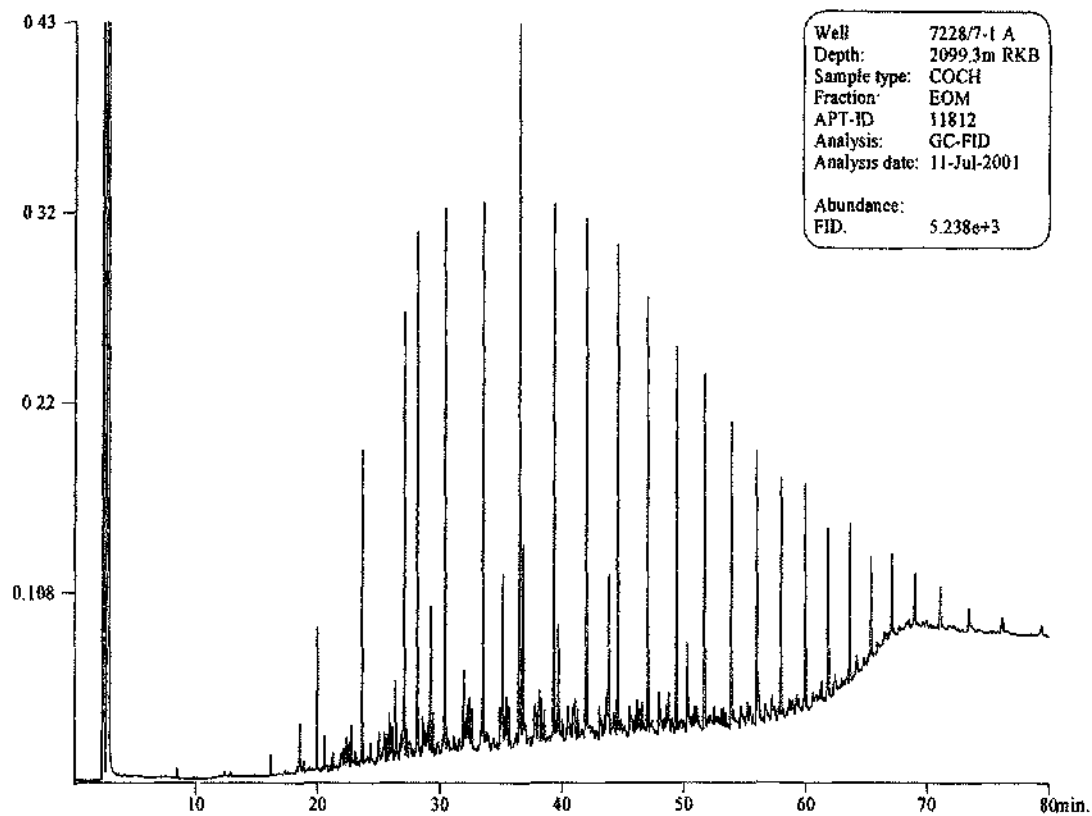


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



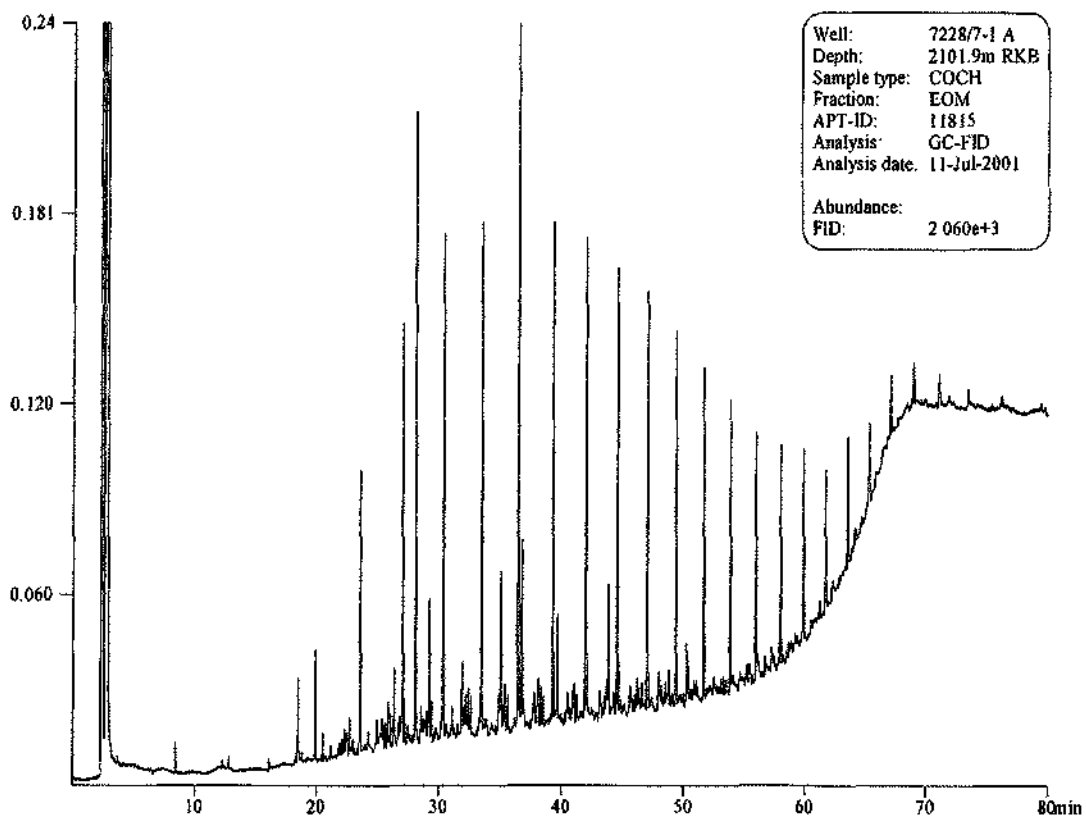
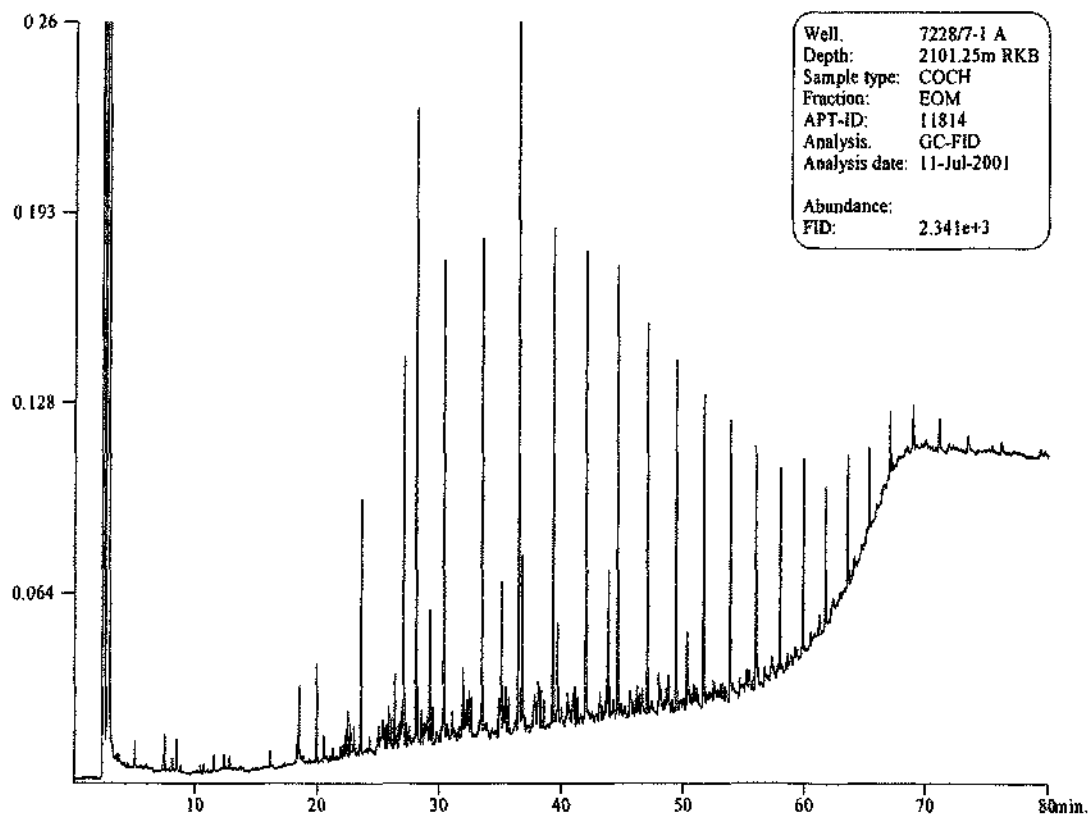


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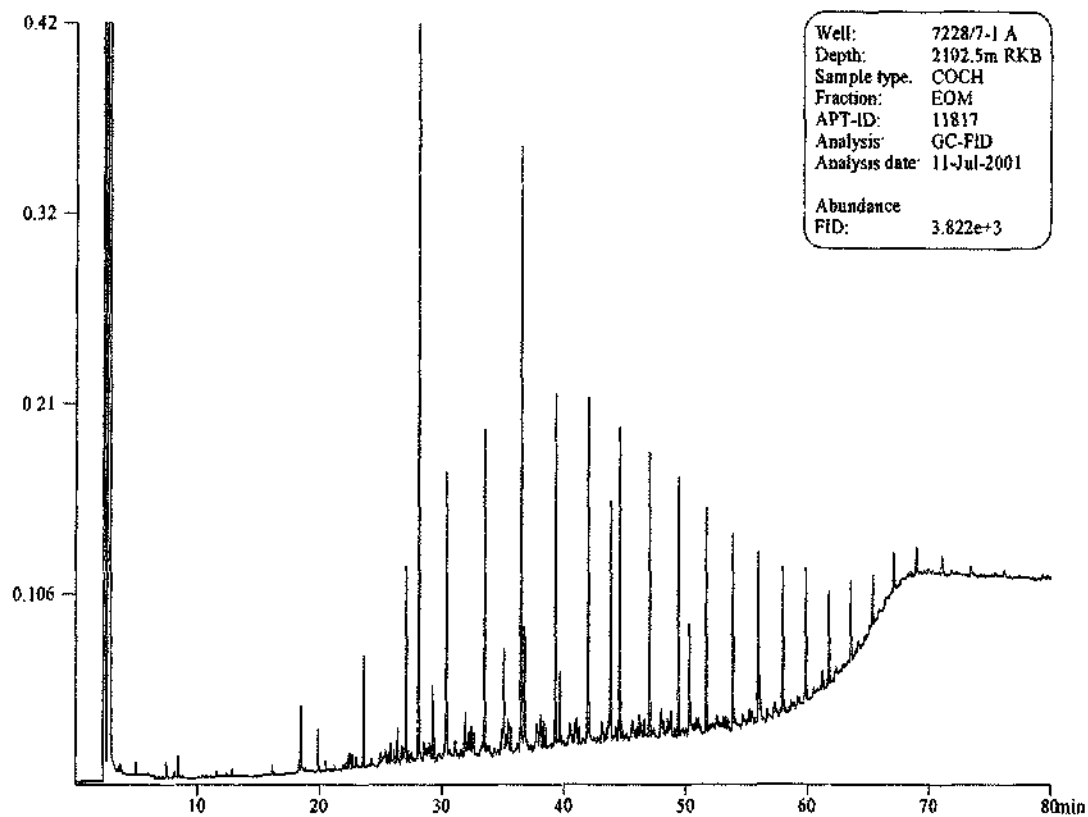
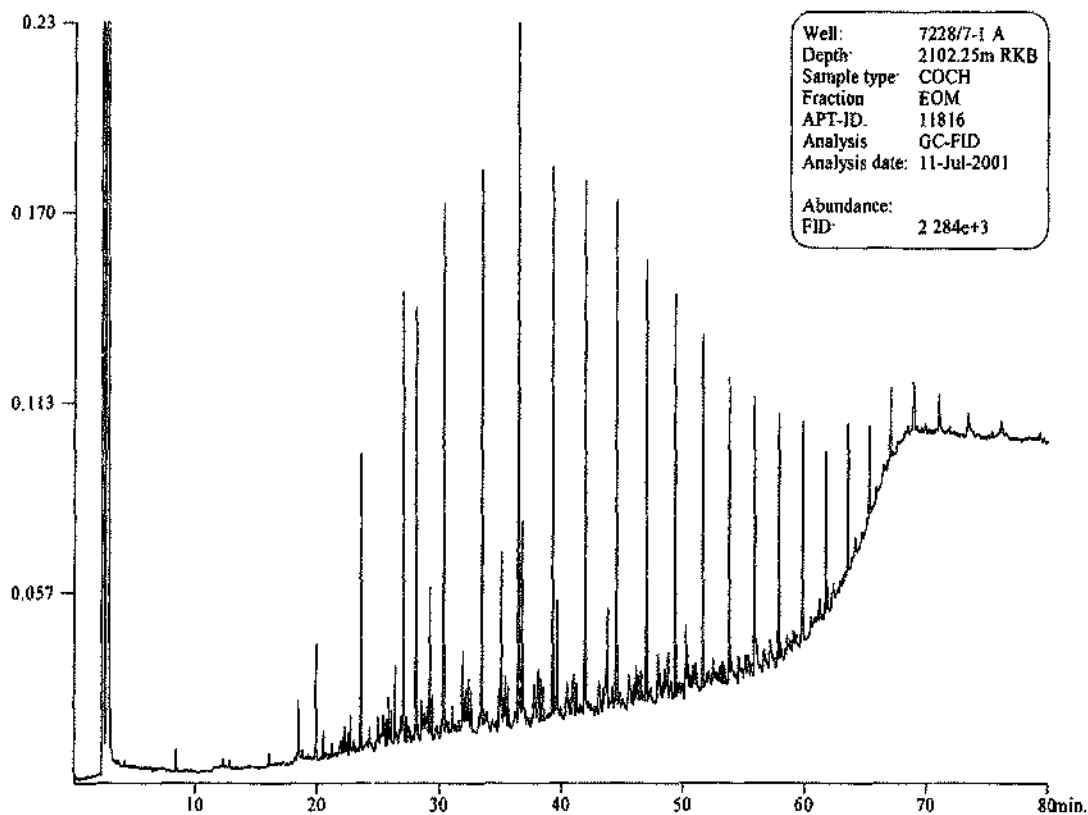


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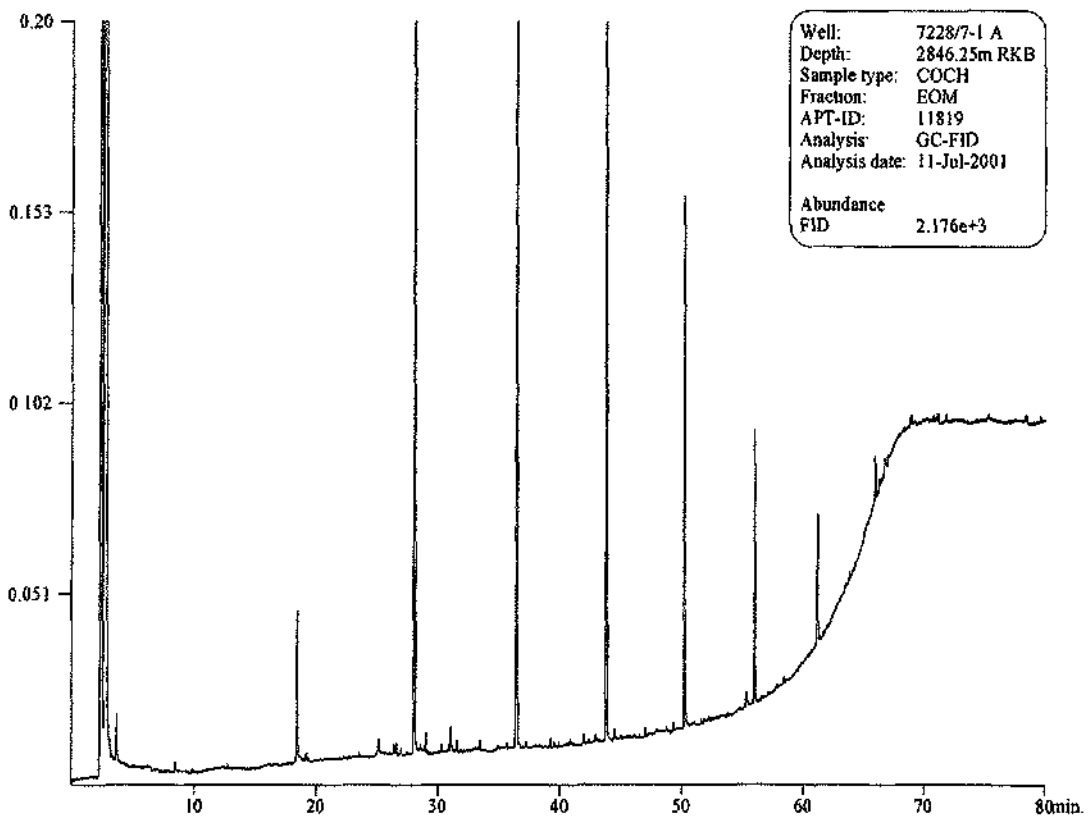
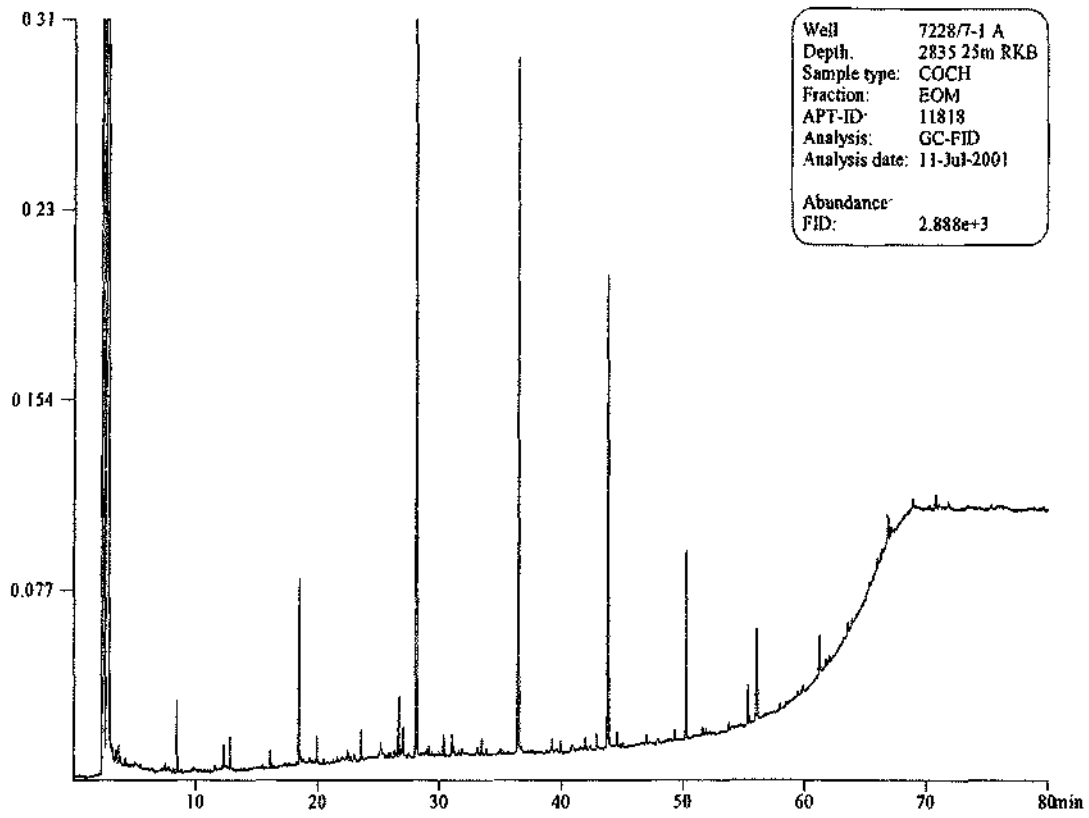


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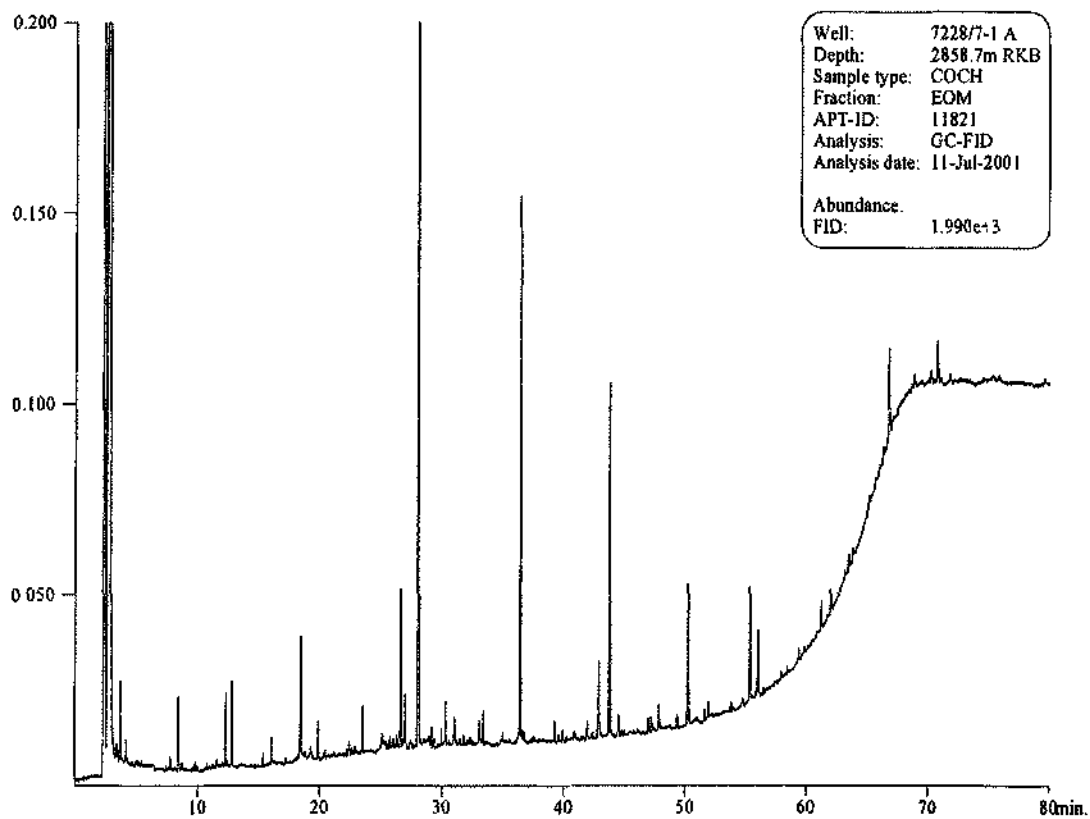
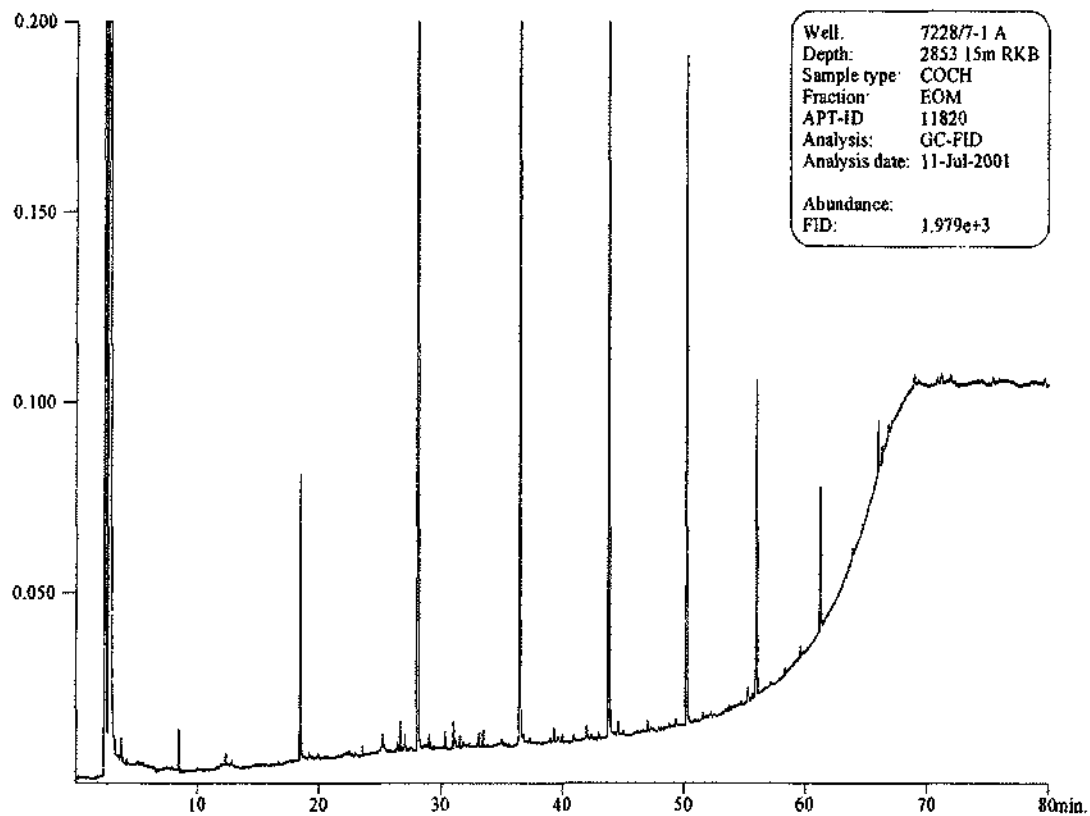


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3





Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3

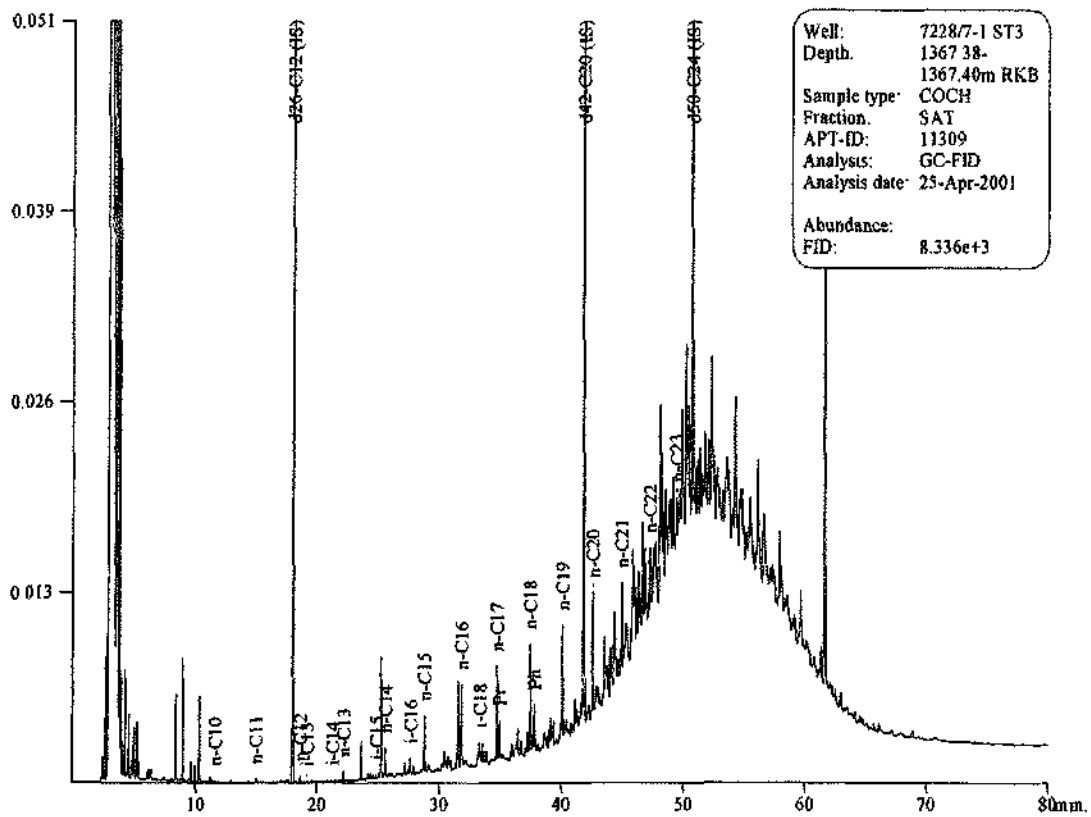
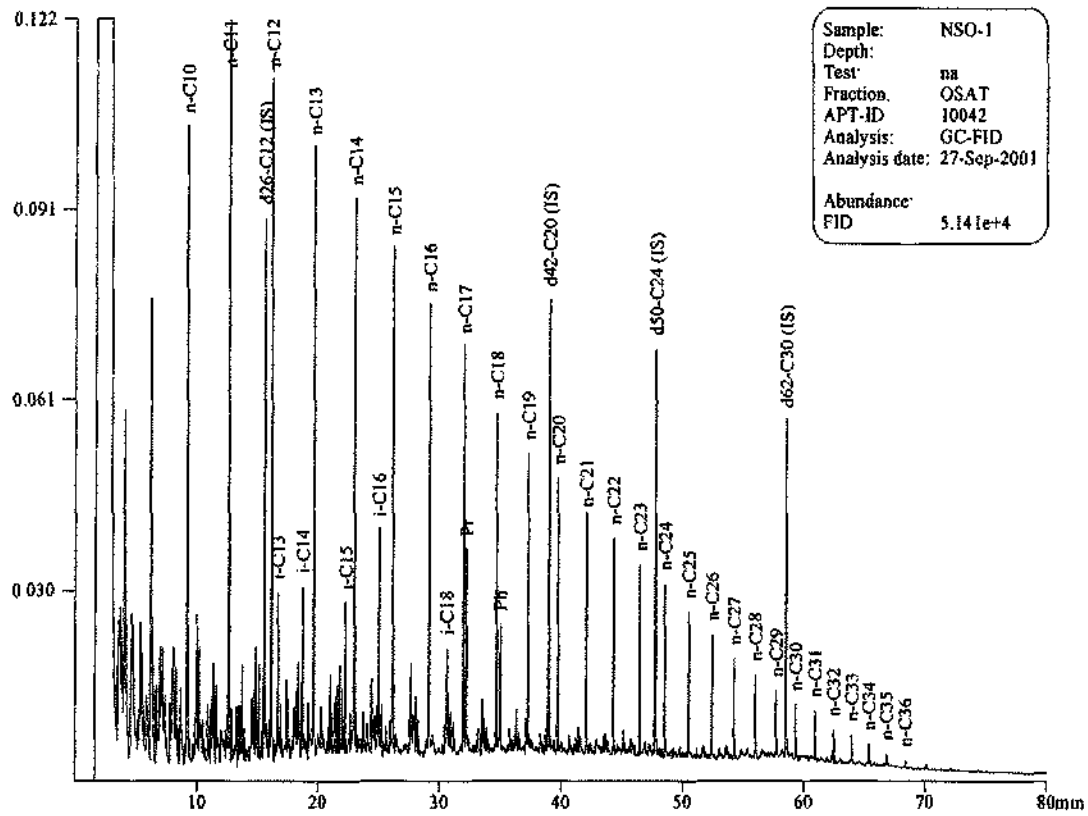




GC Chromatograms of Saturated Hydrocarbons

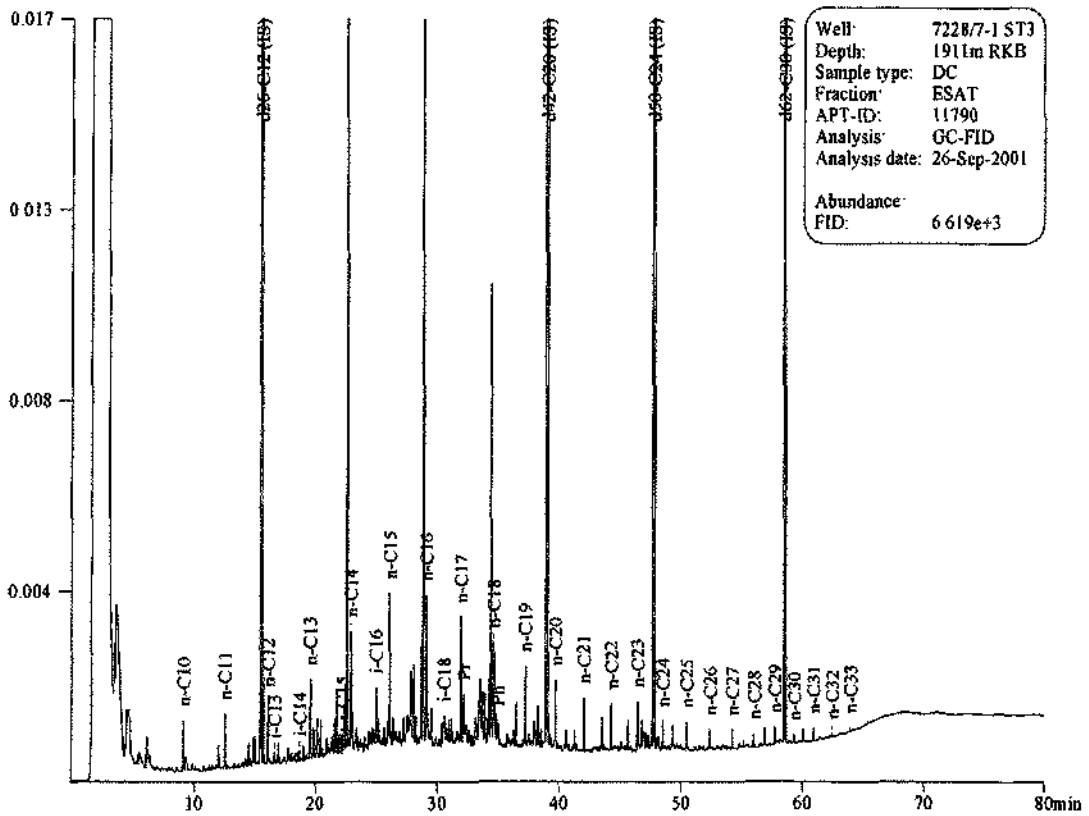
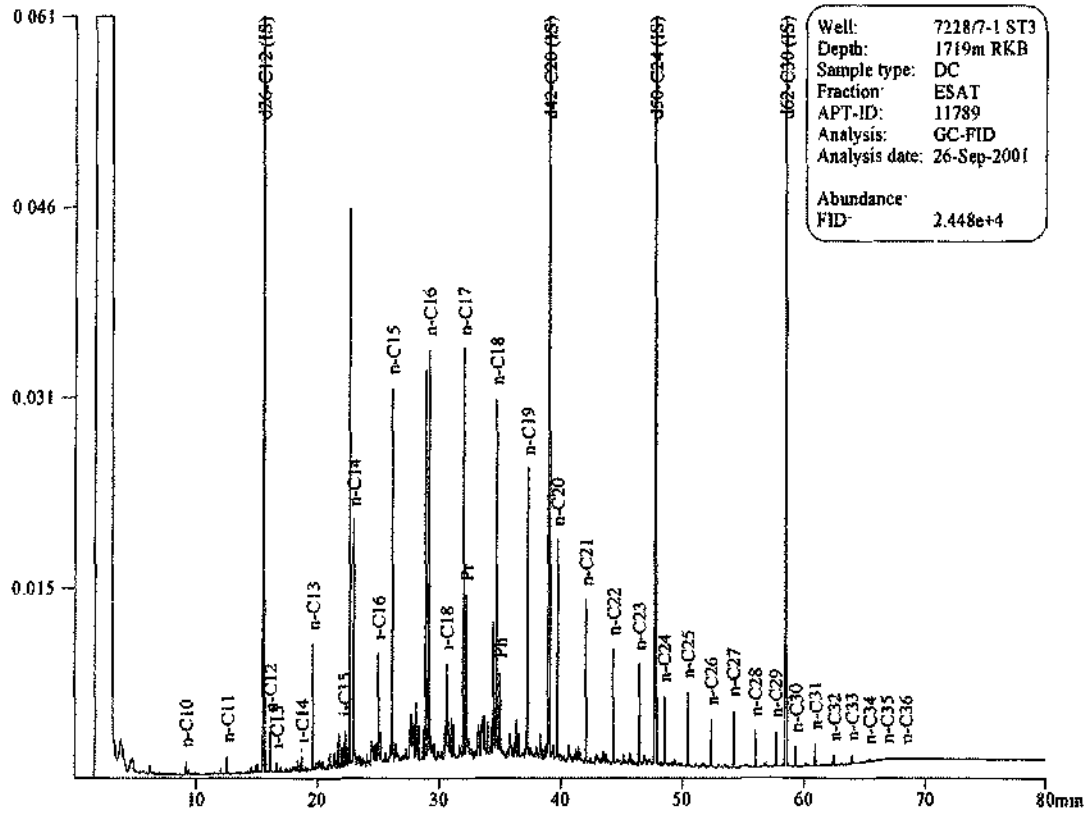


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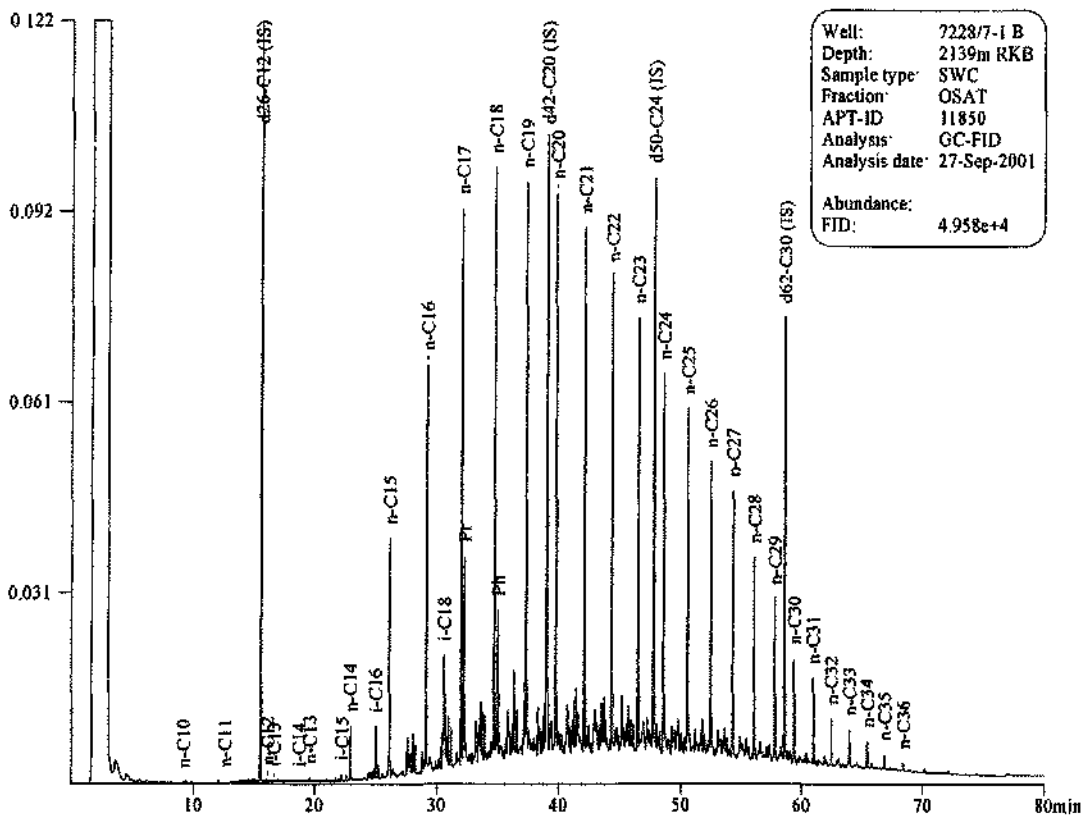
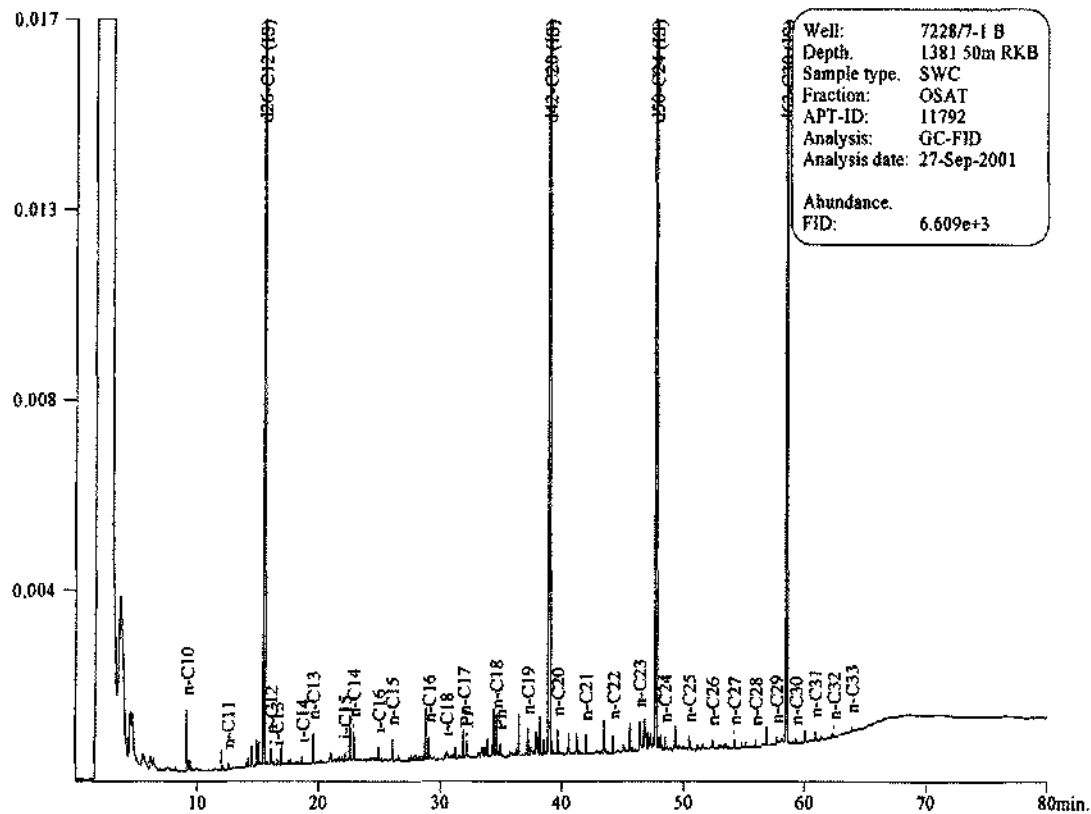


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



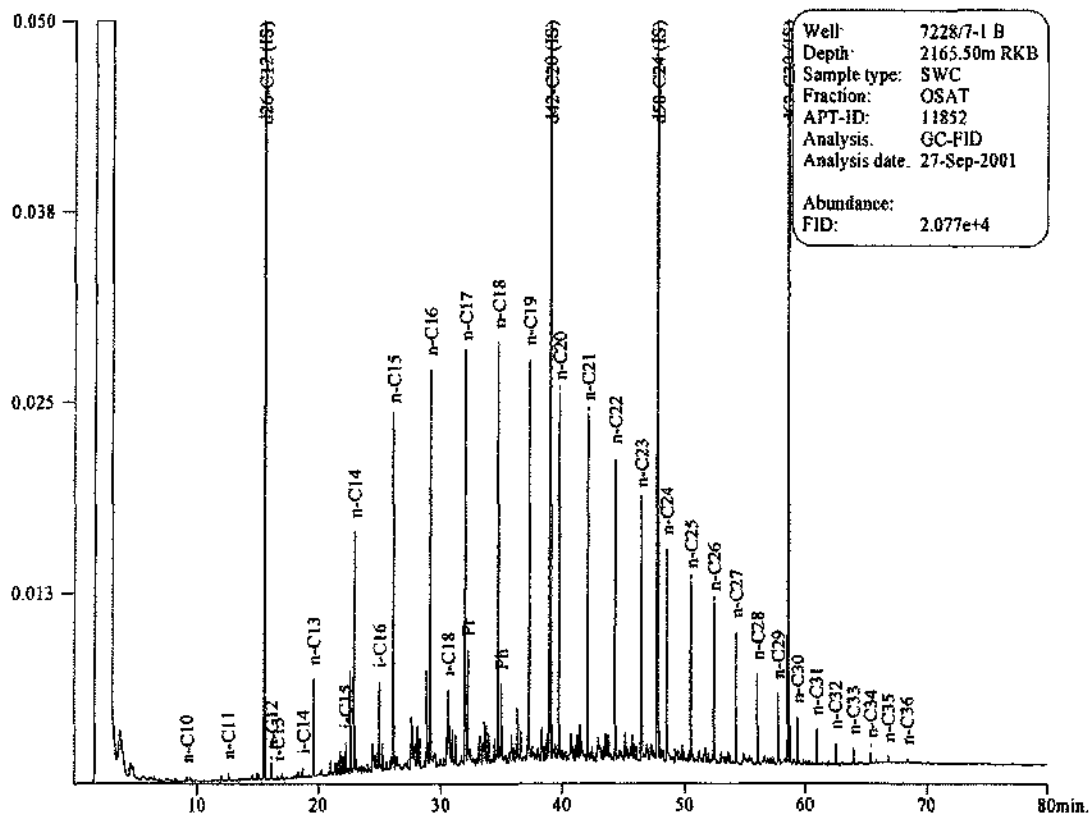
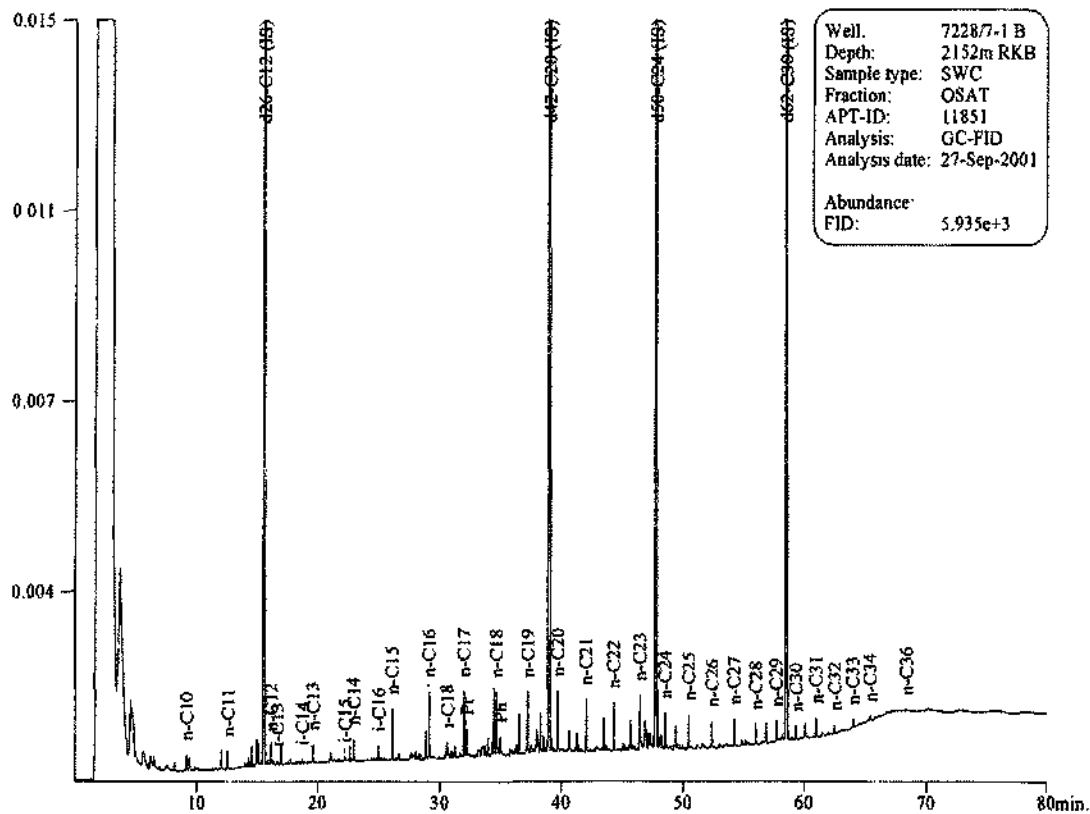


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



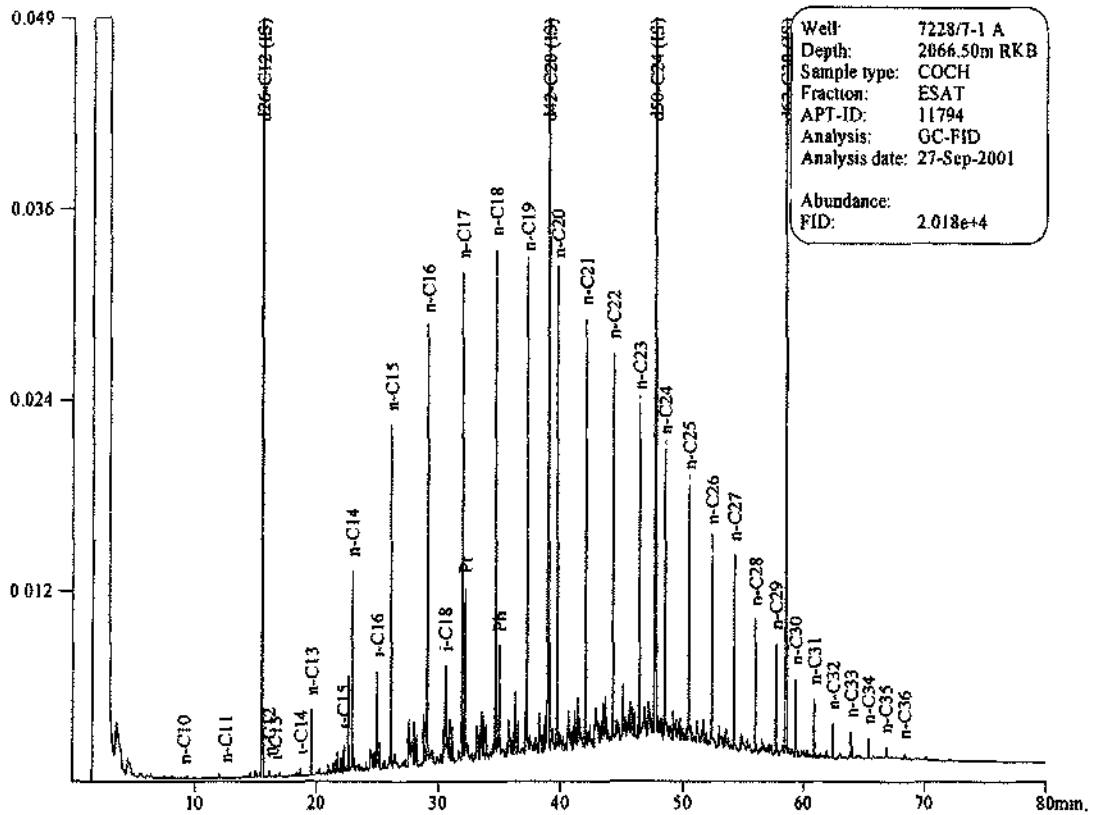
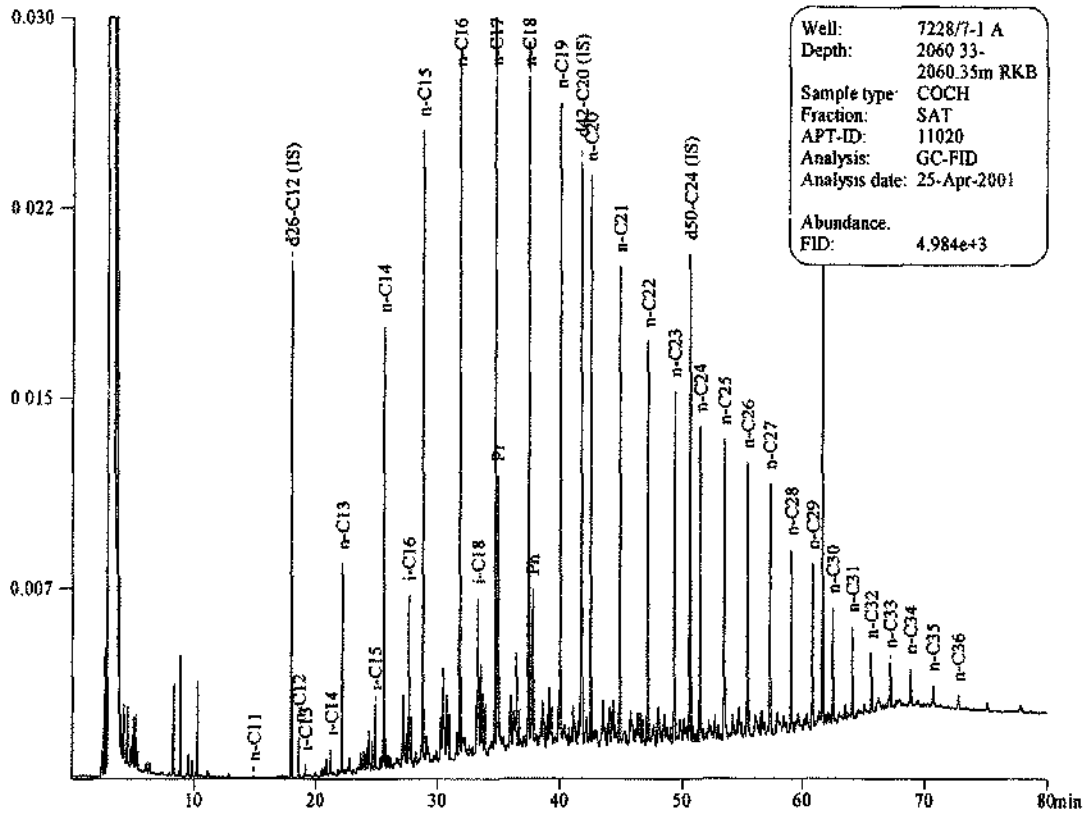


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



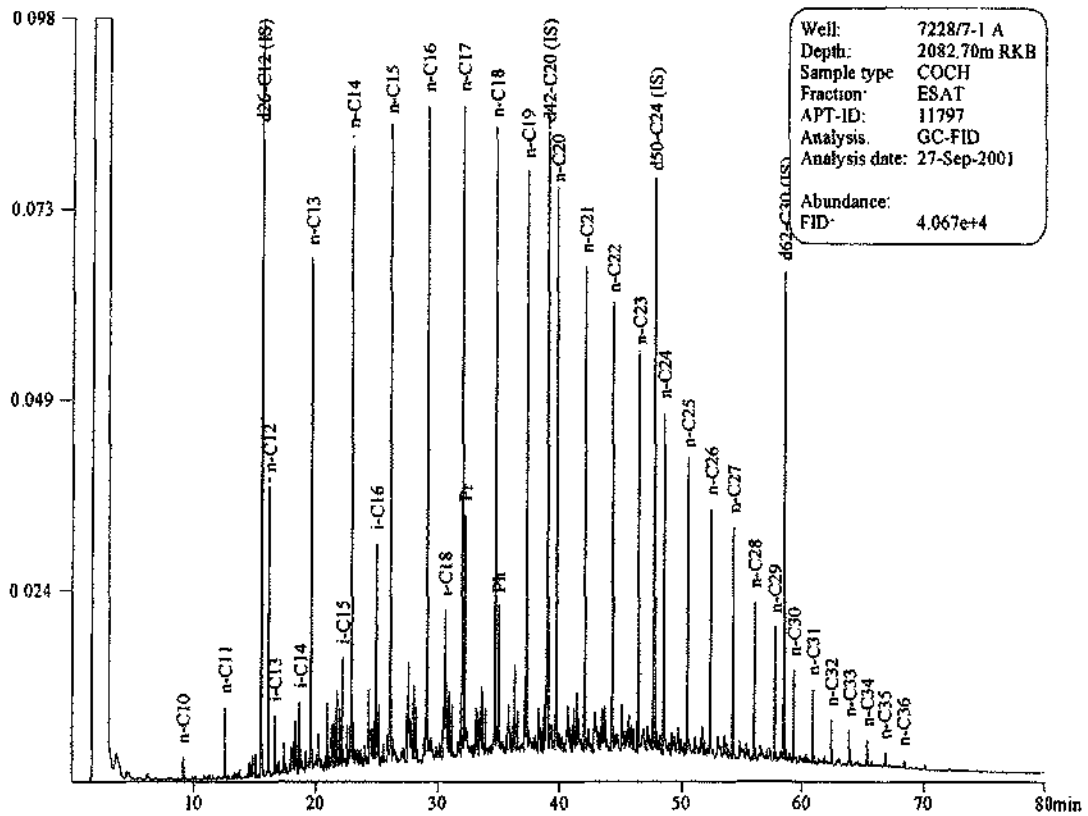
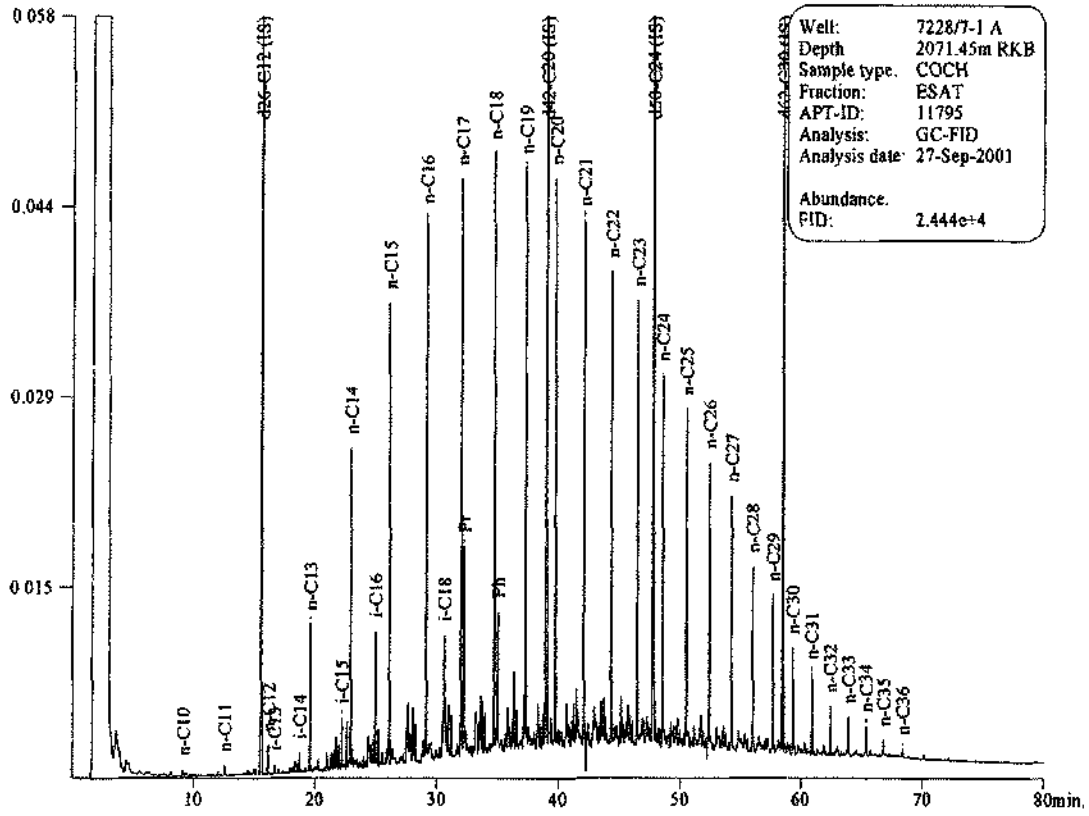


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



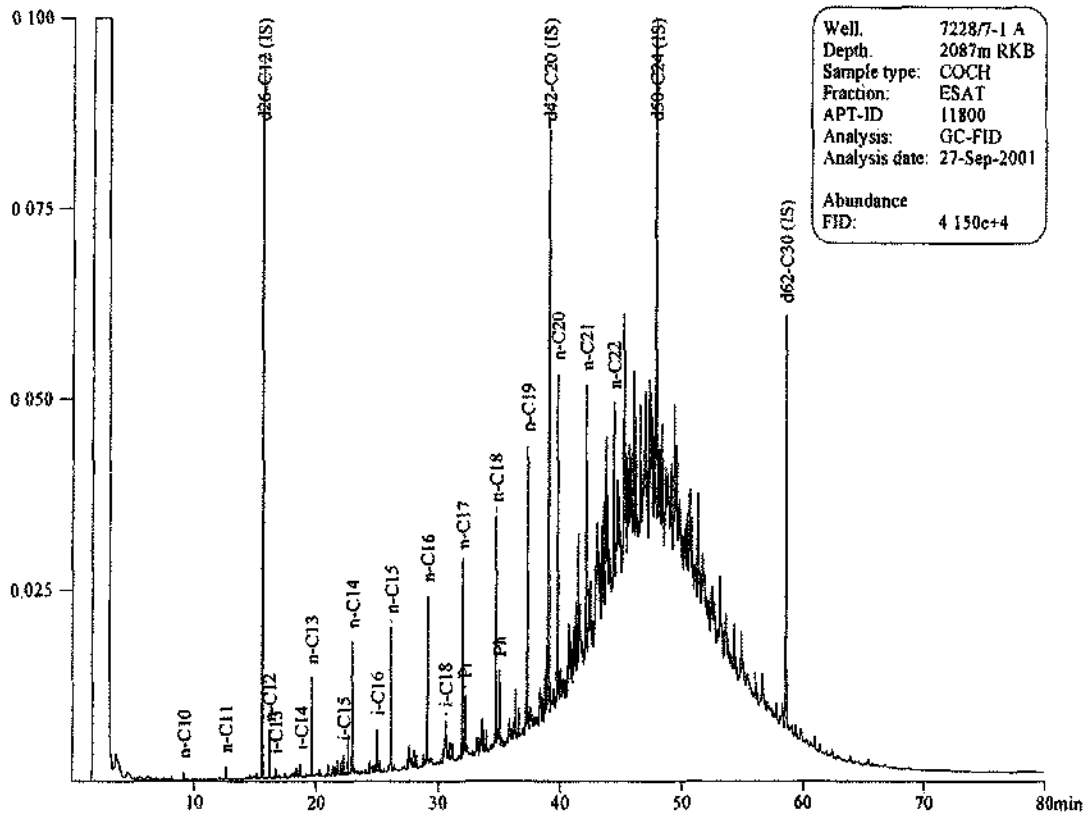
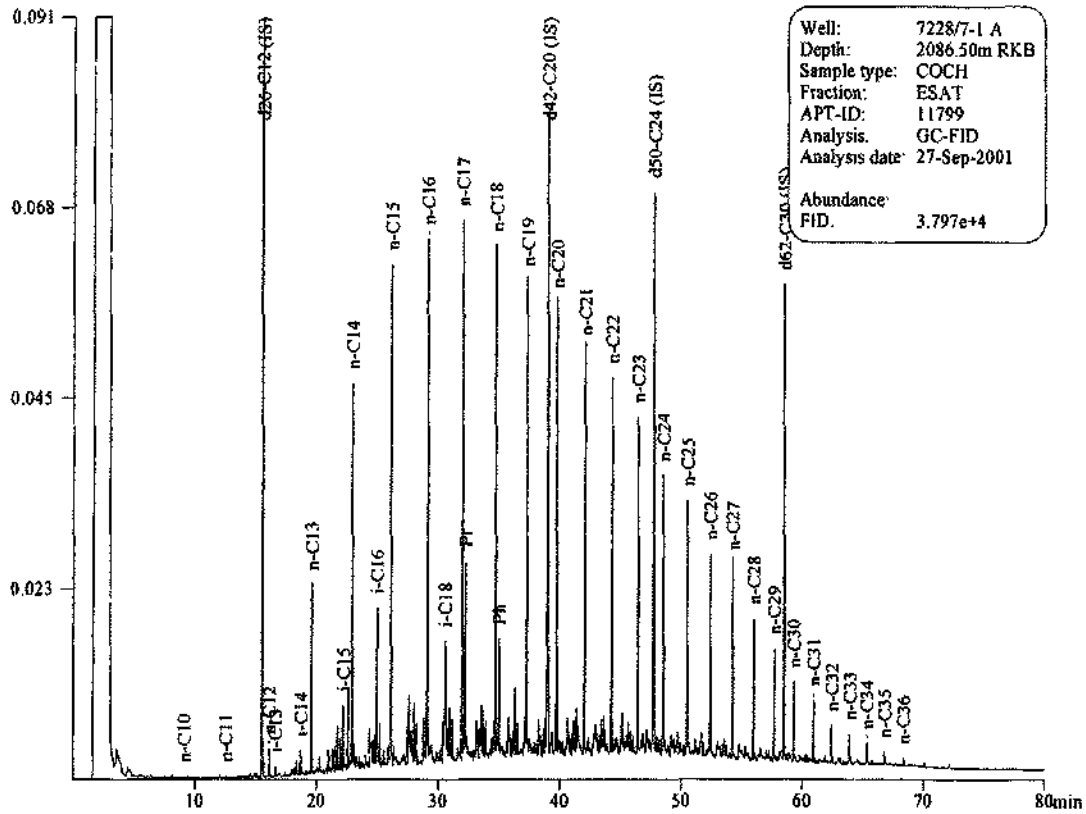


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



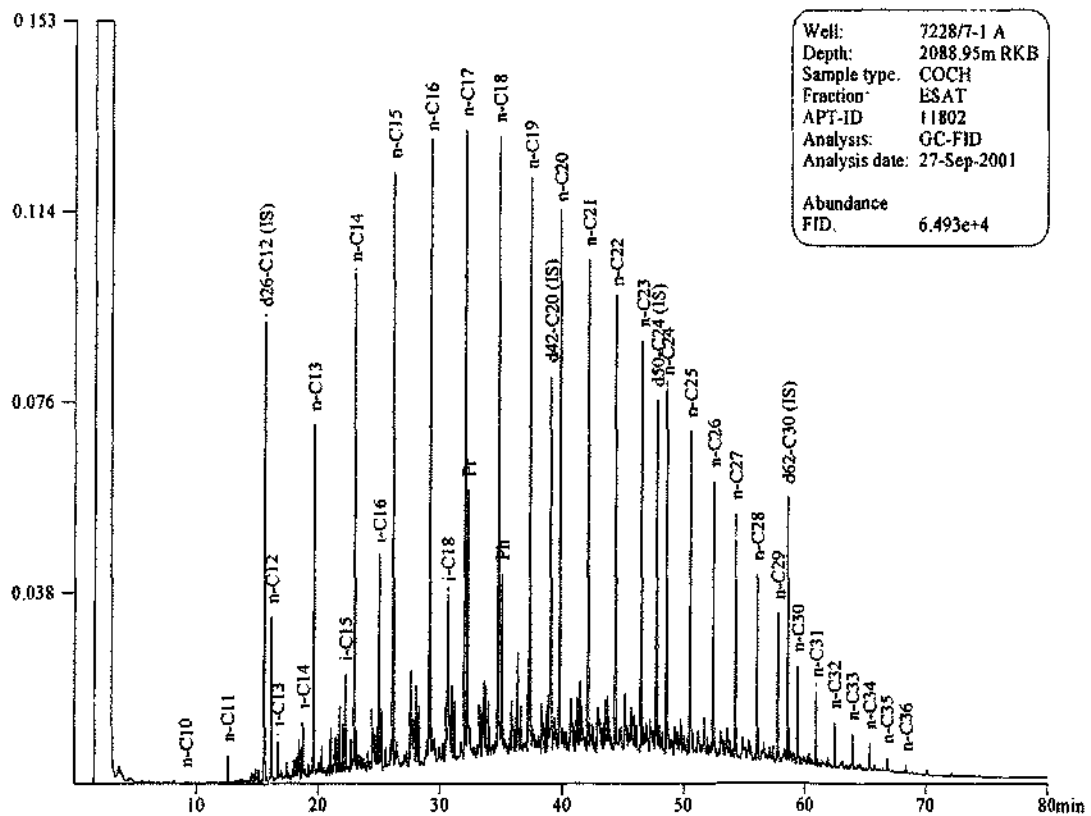
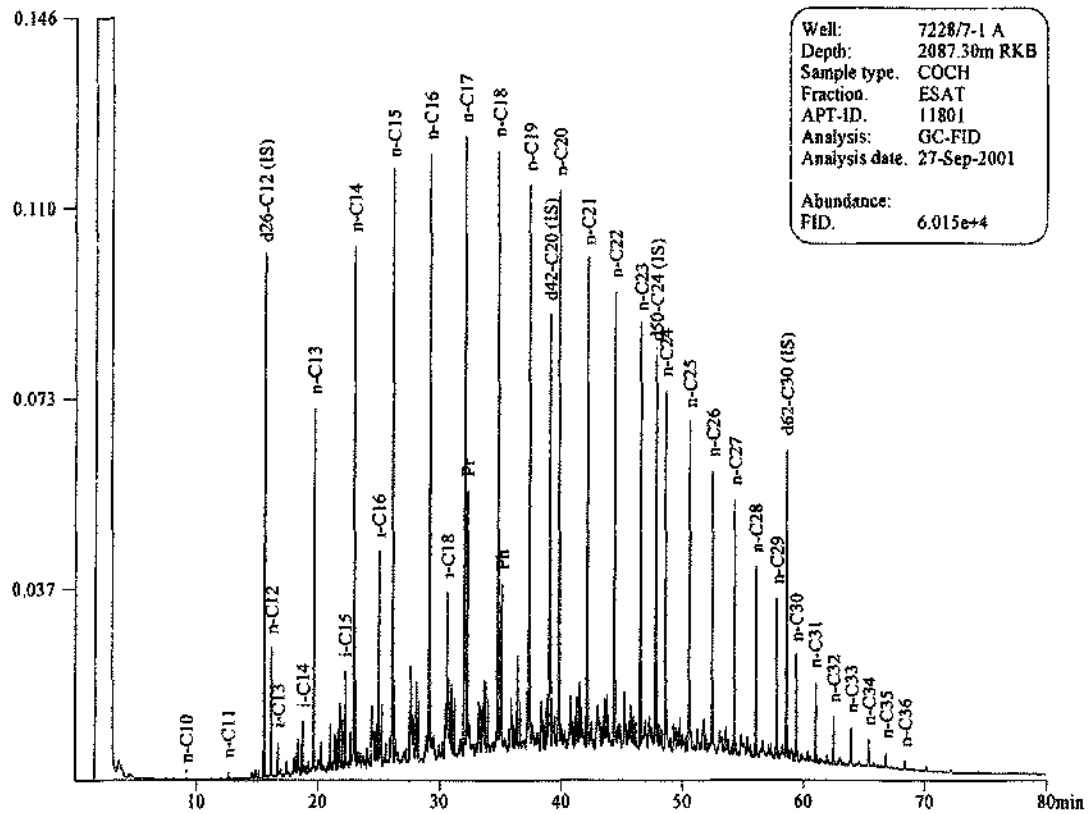


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



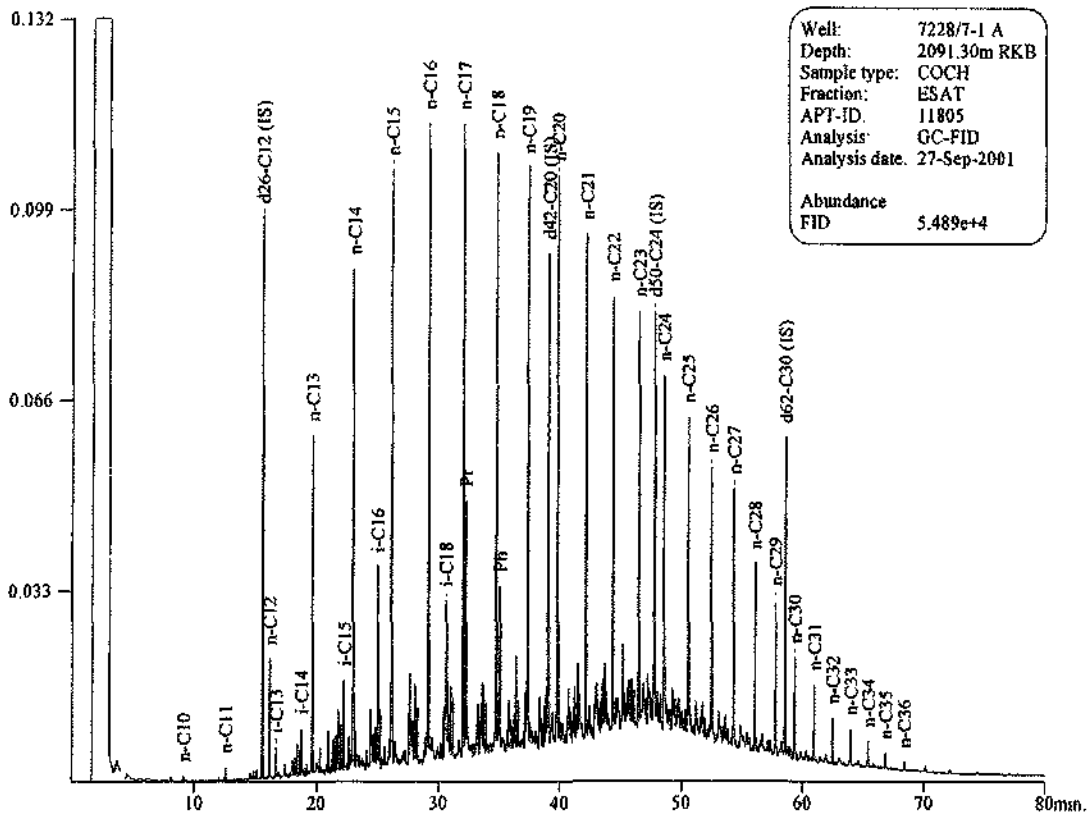
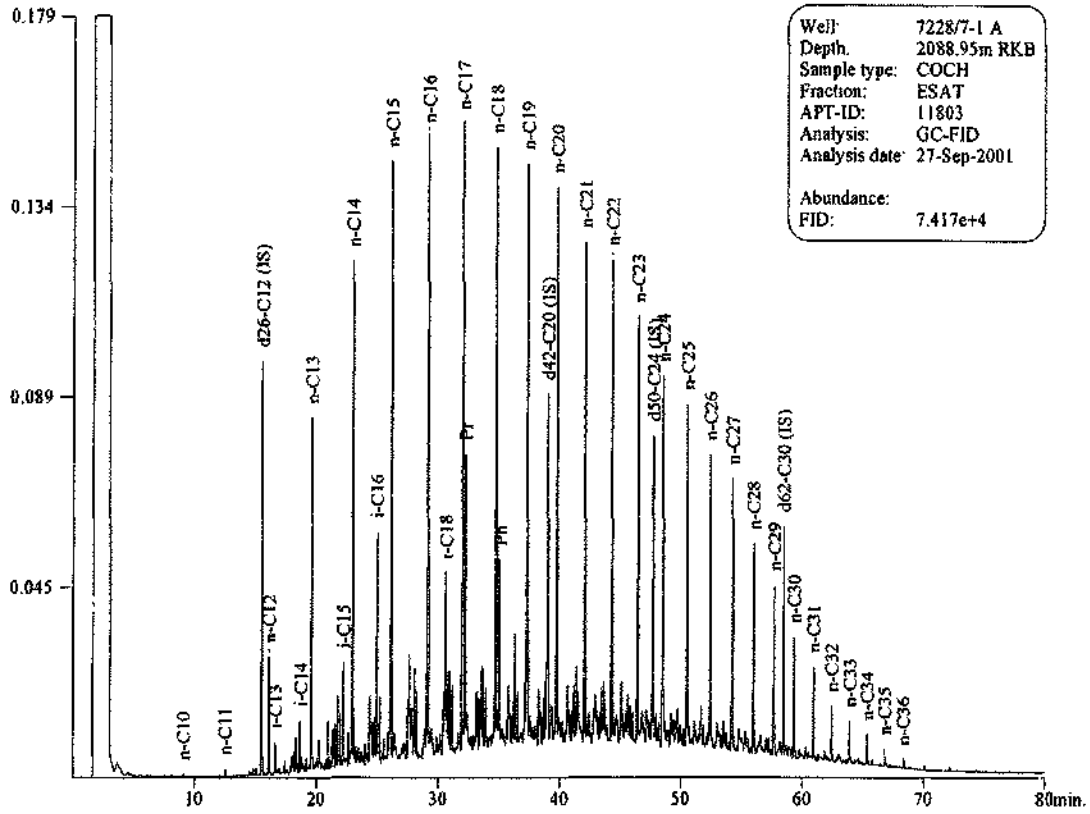


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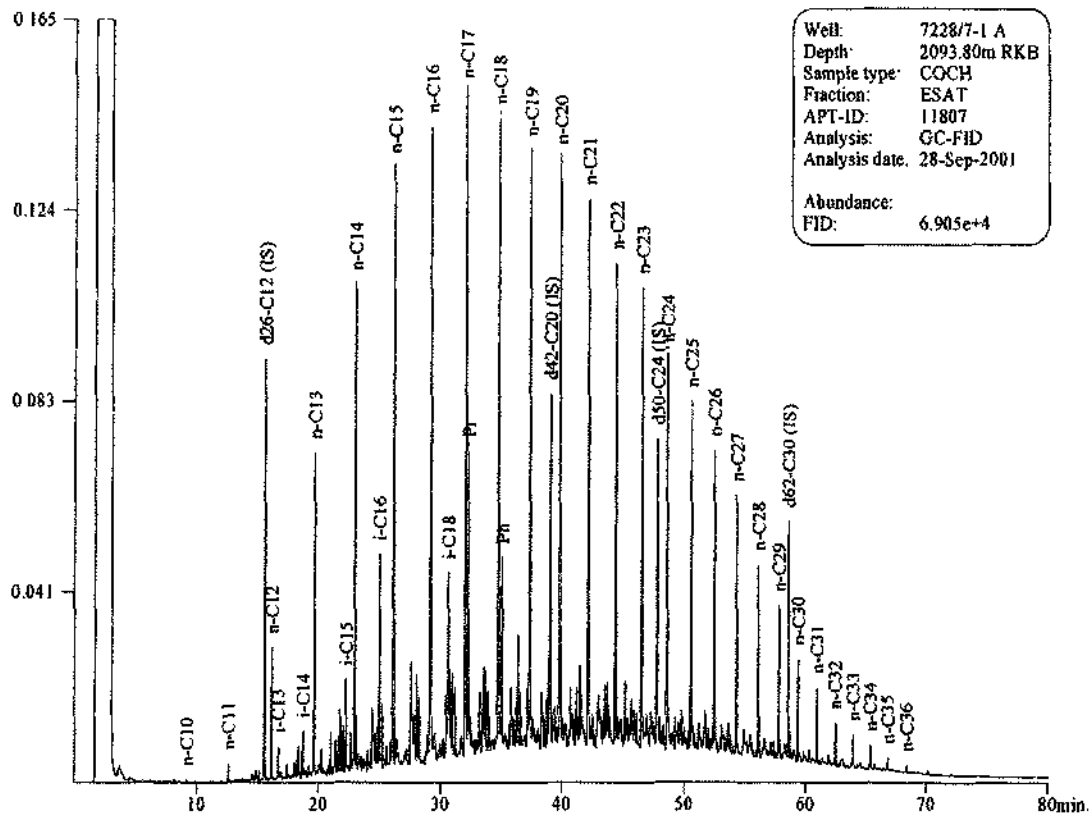
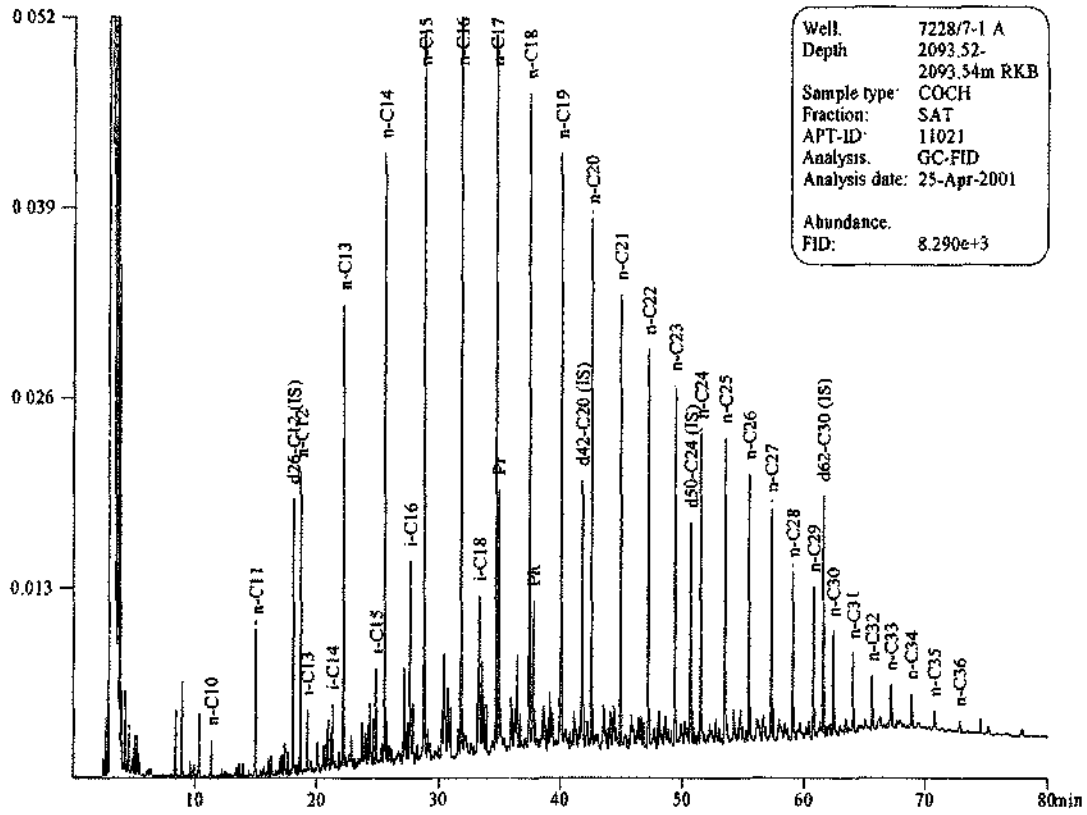


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



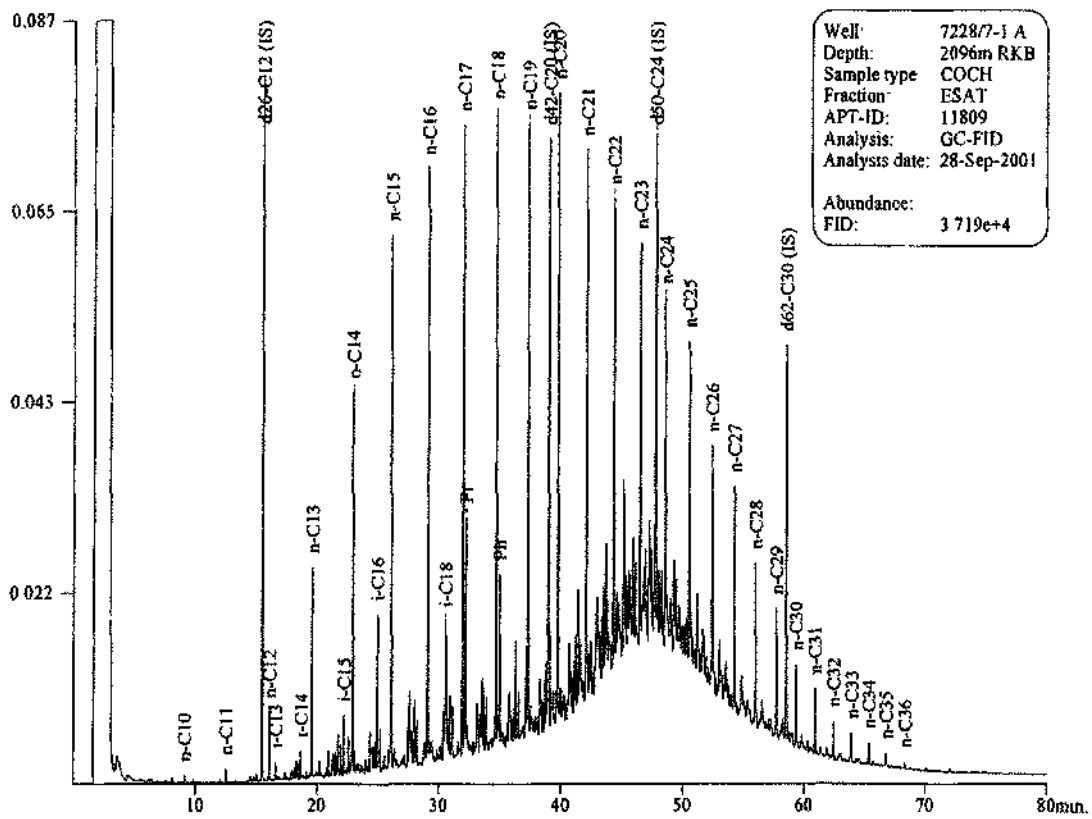
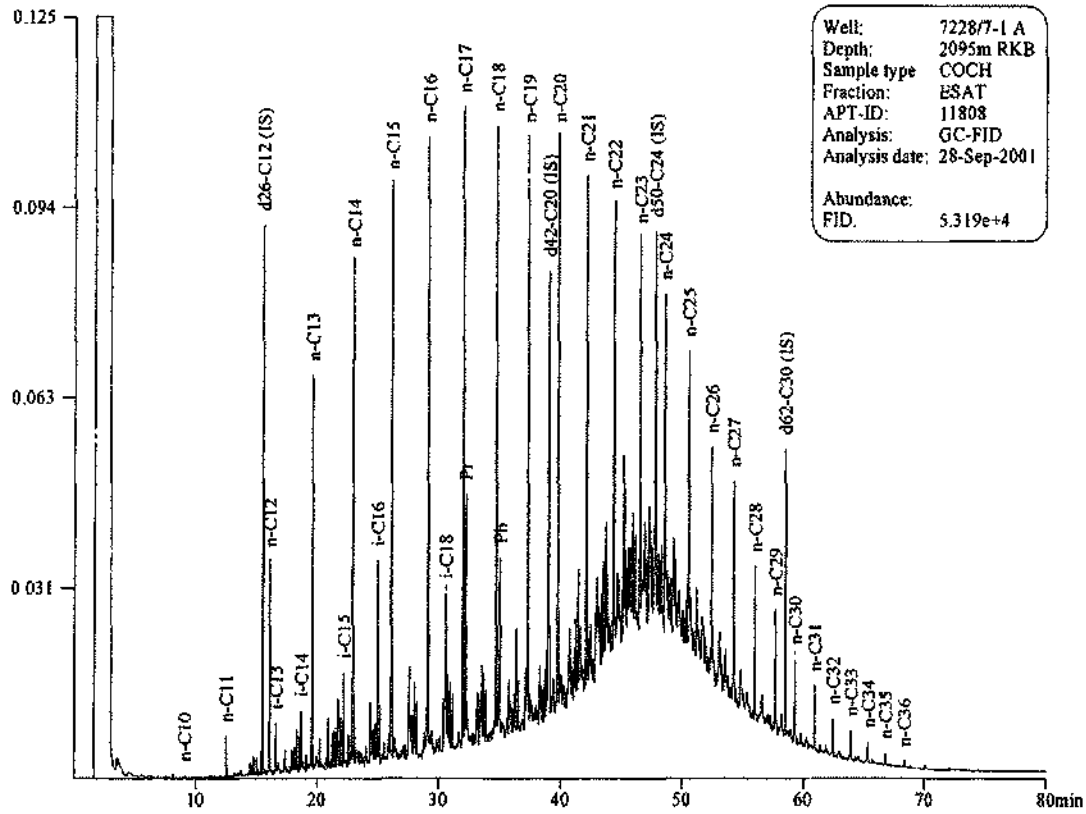


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



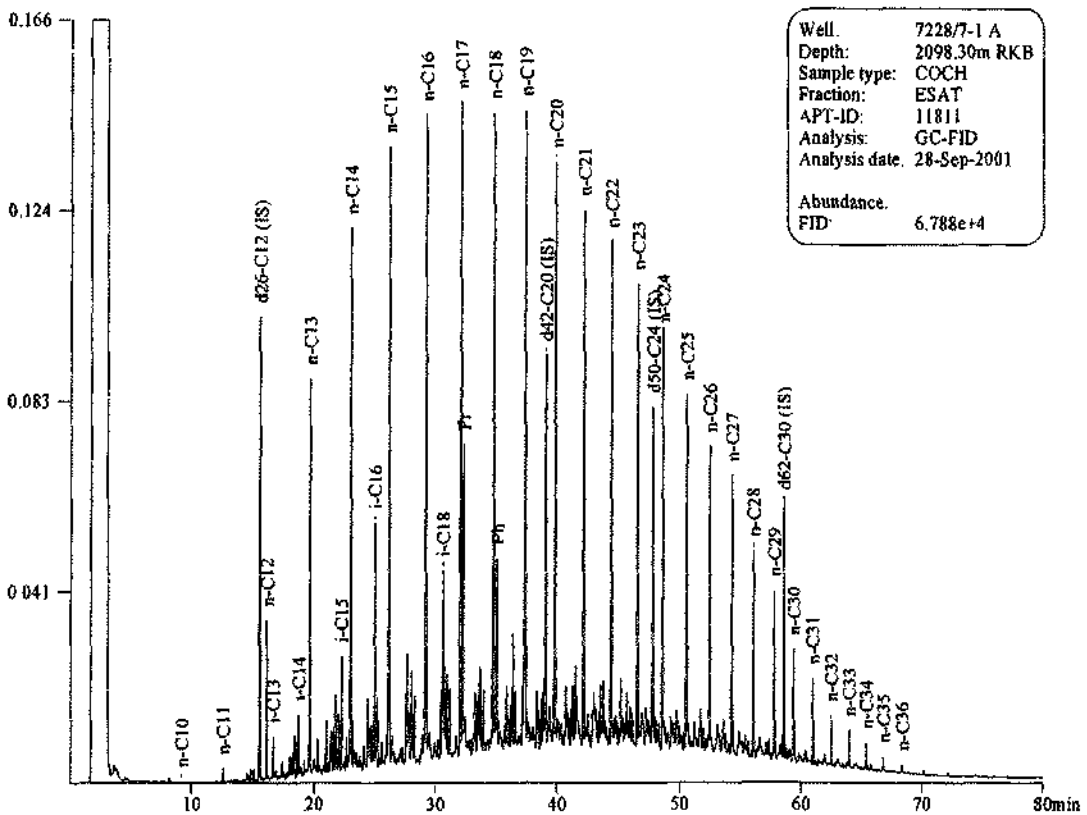
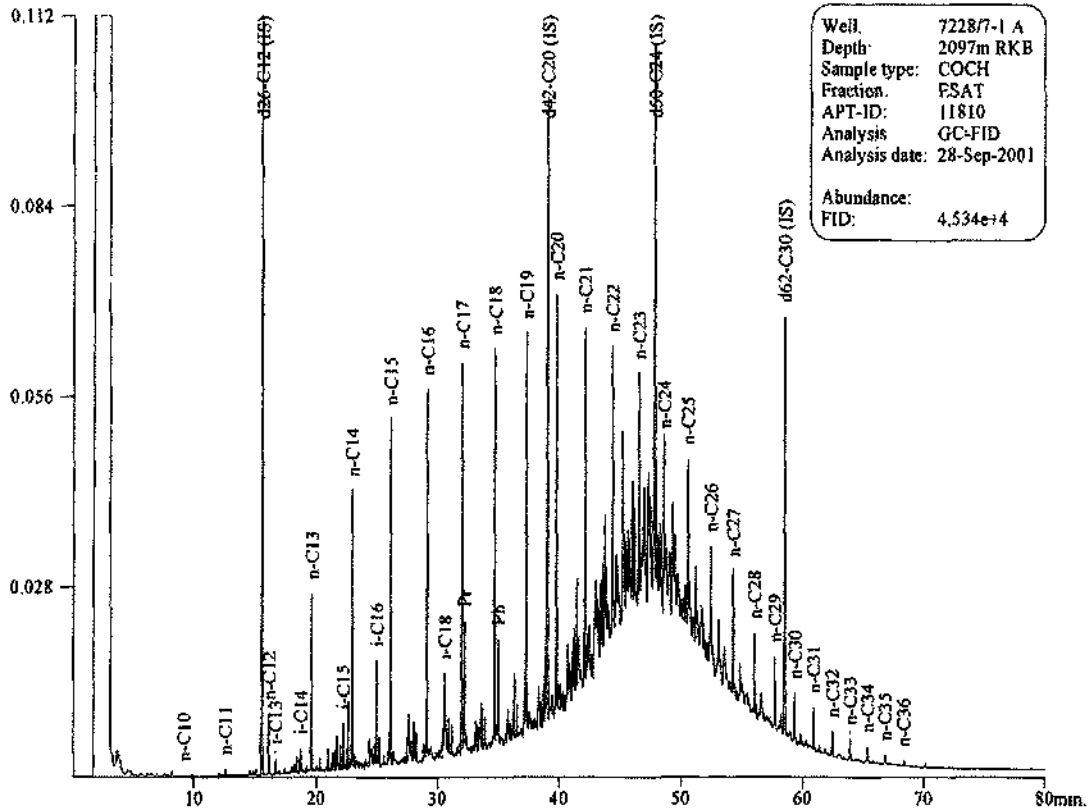


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



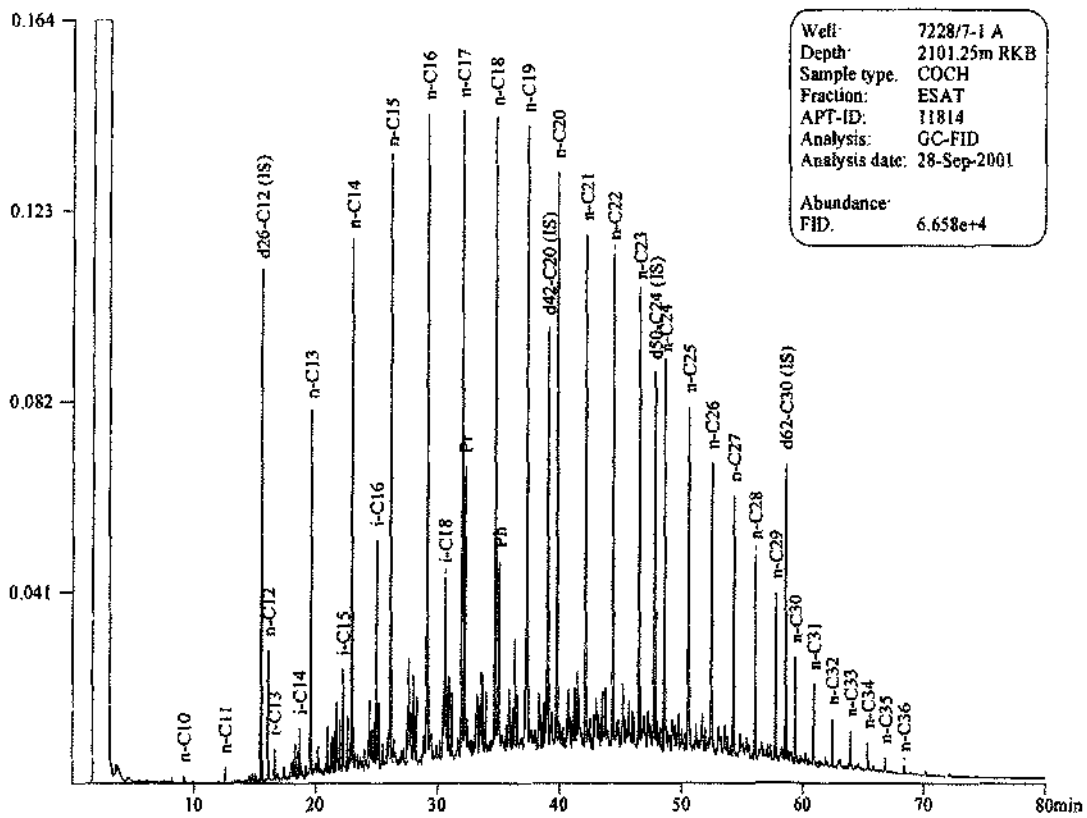
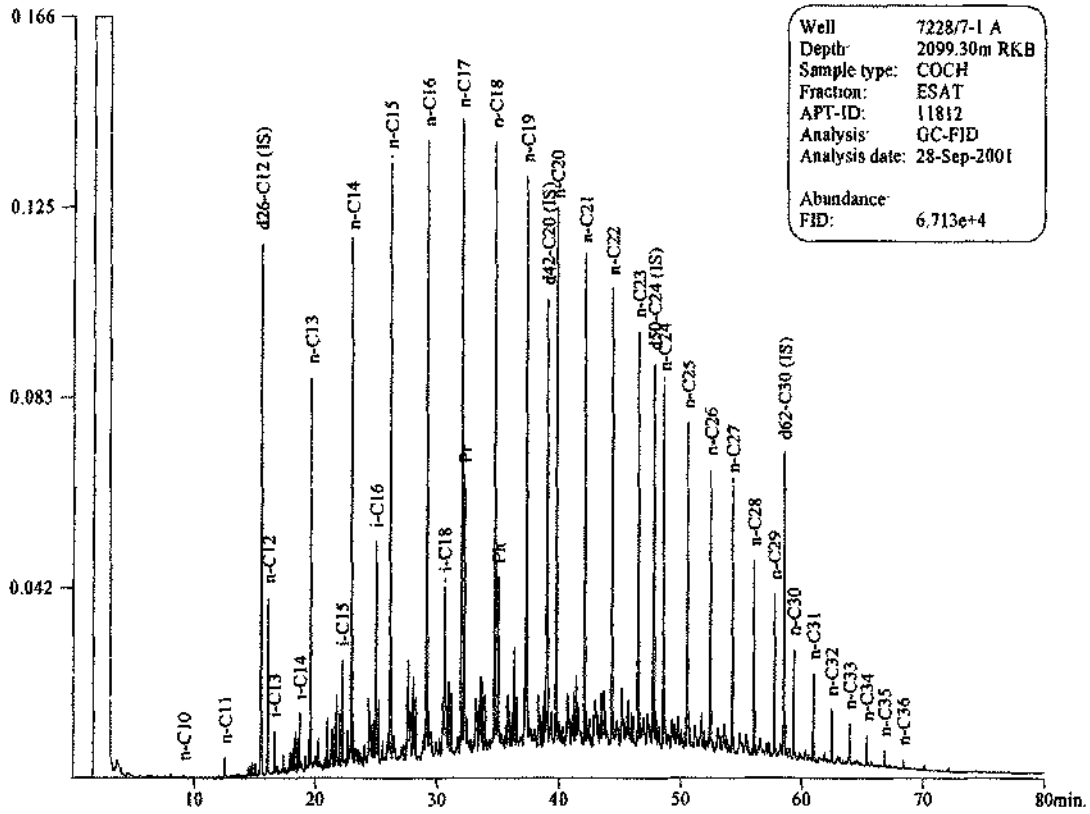


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



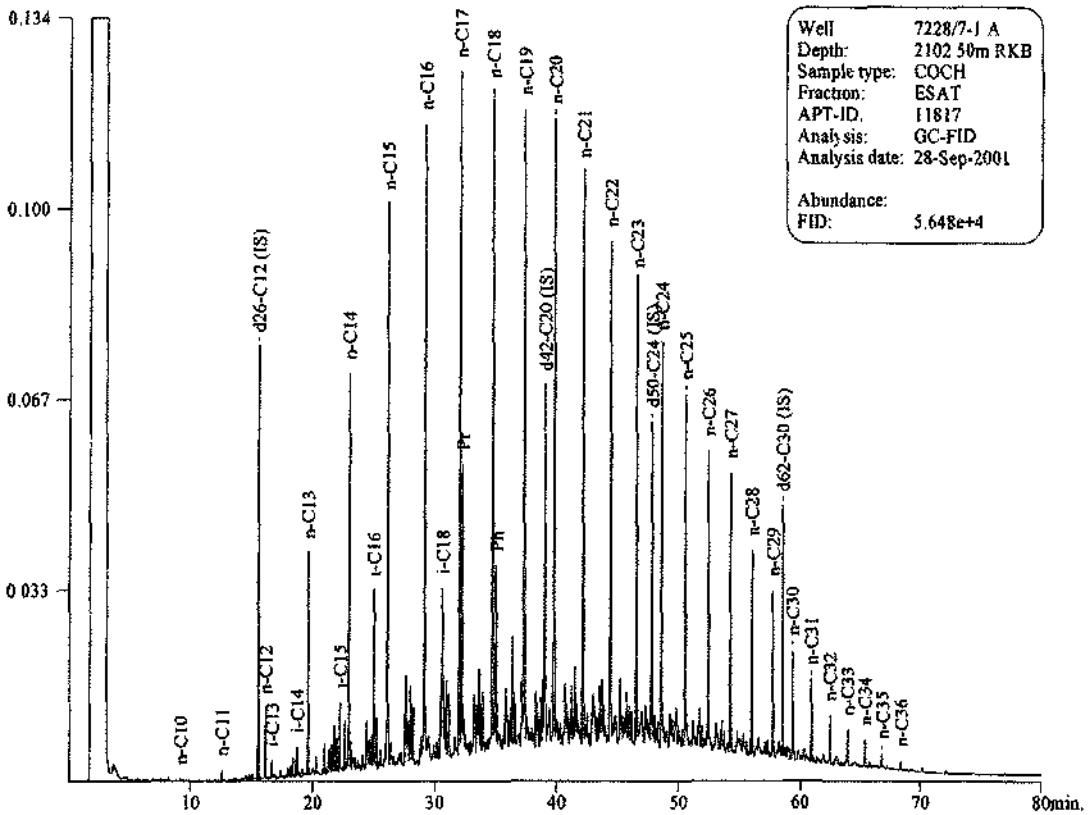
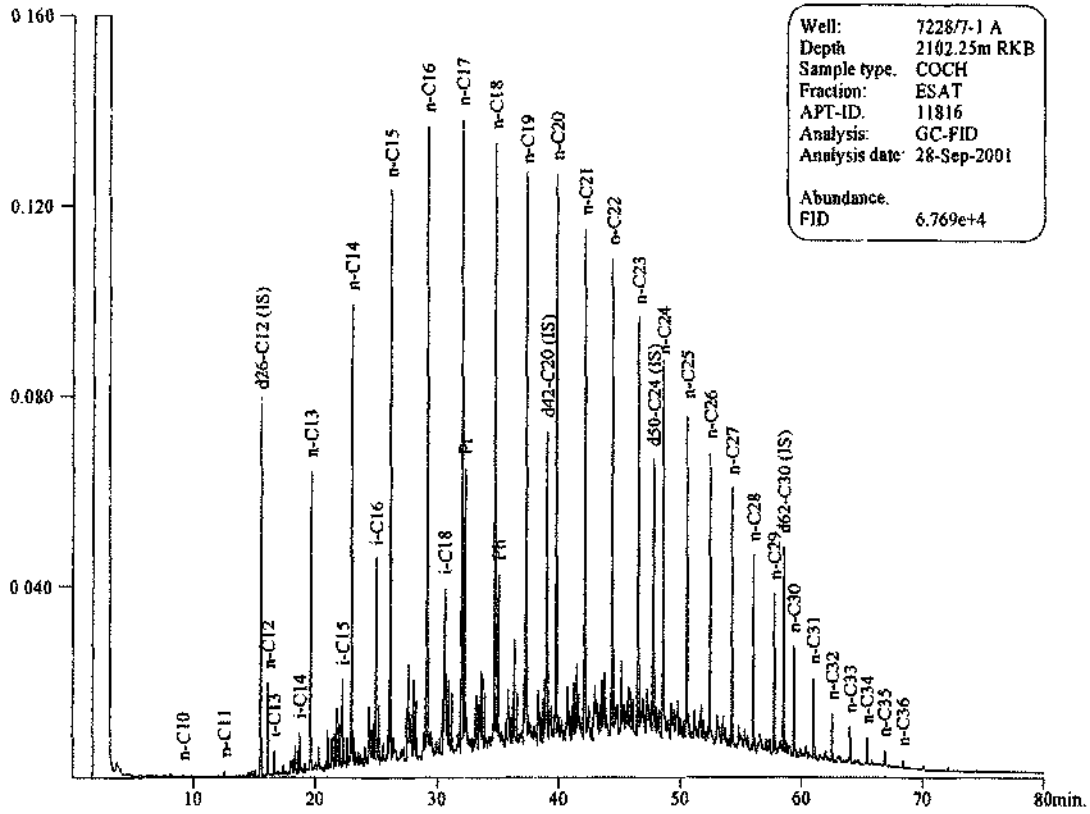


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



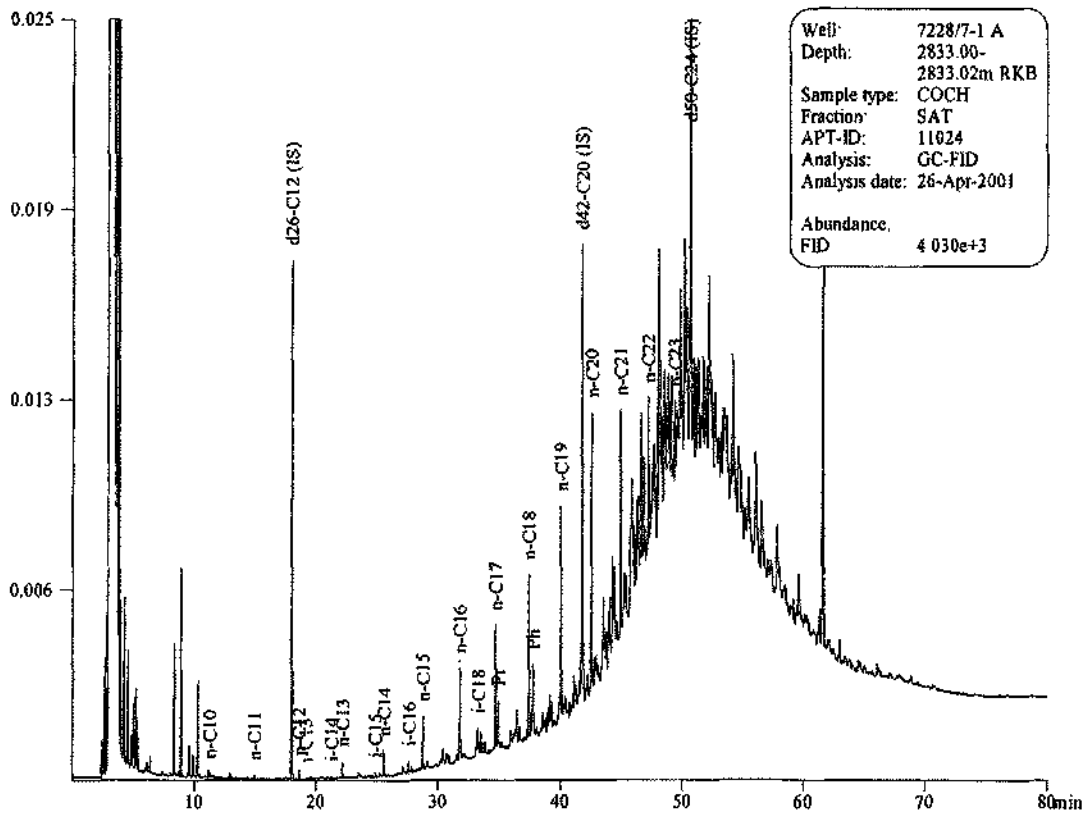


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3





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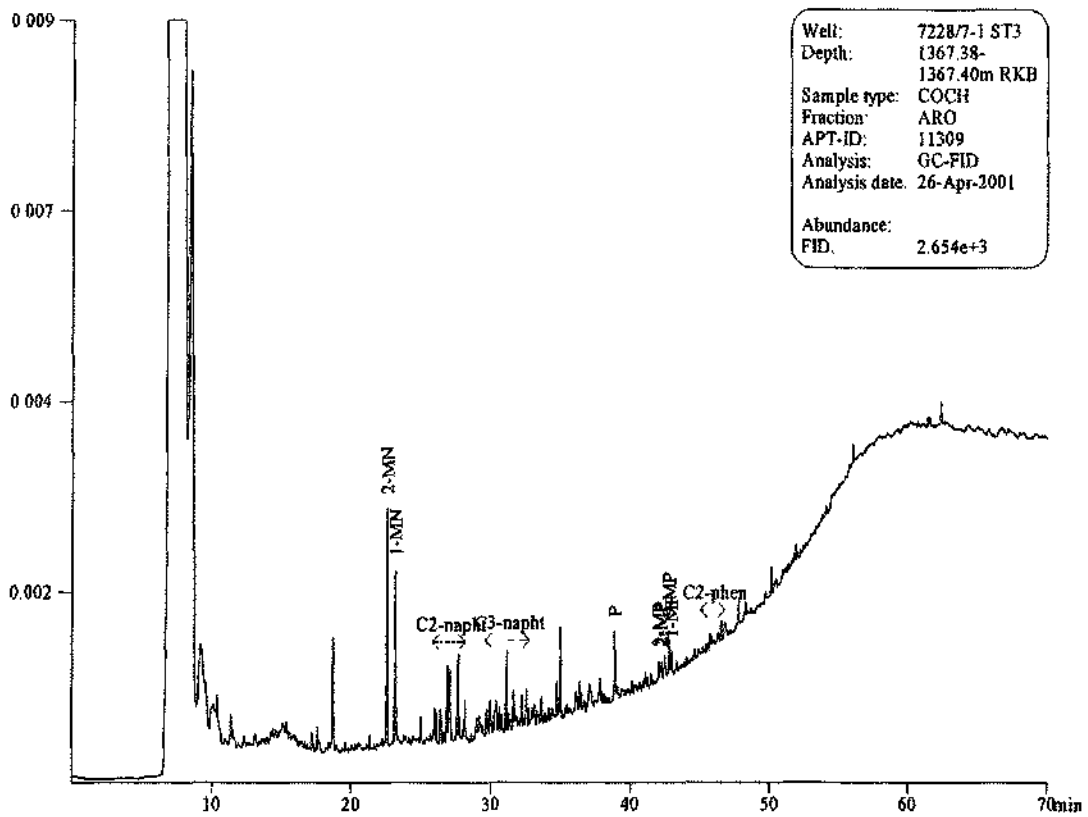
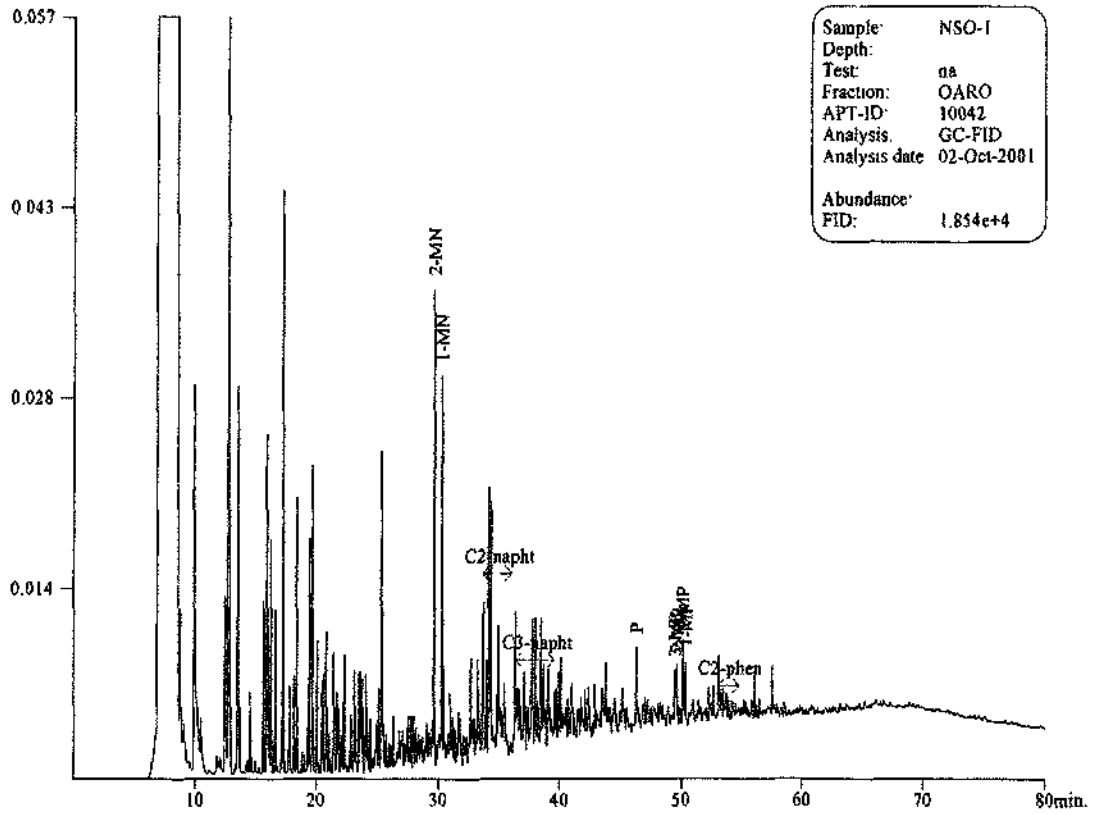




GC Chromatograms of Aromatic Hydrocarbons

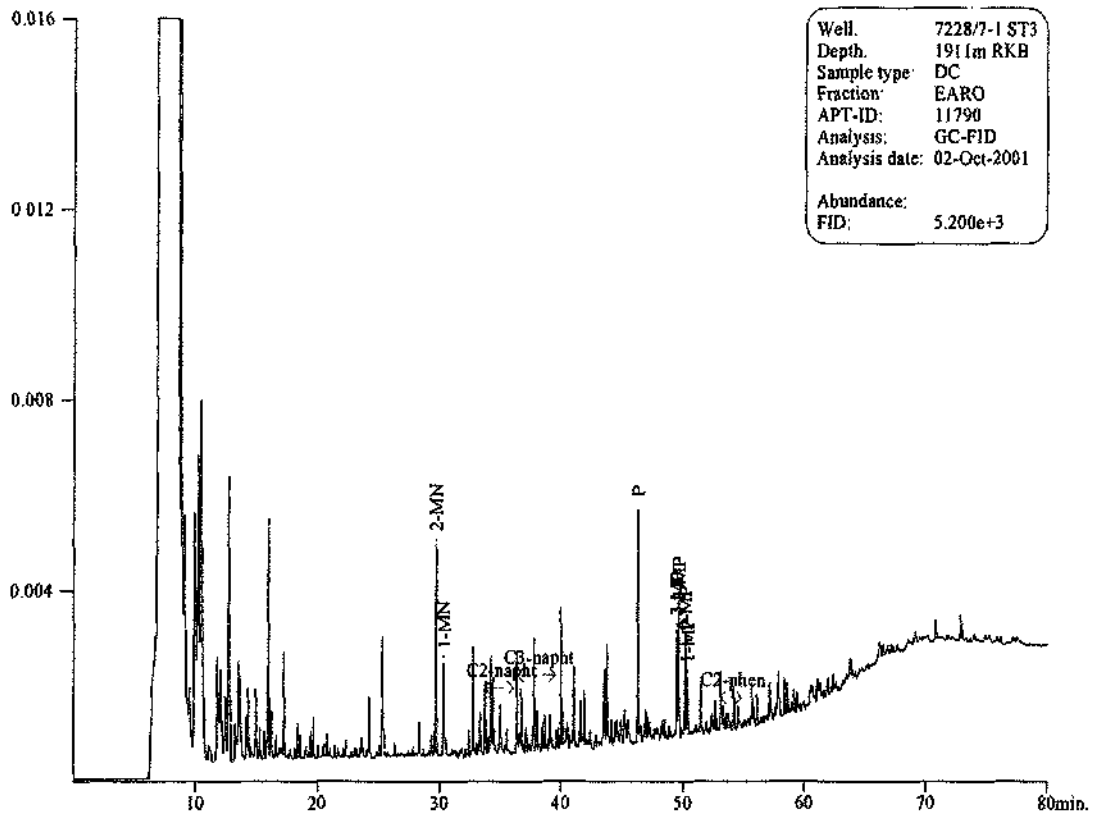
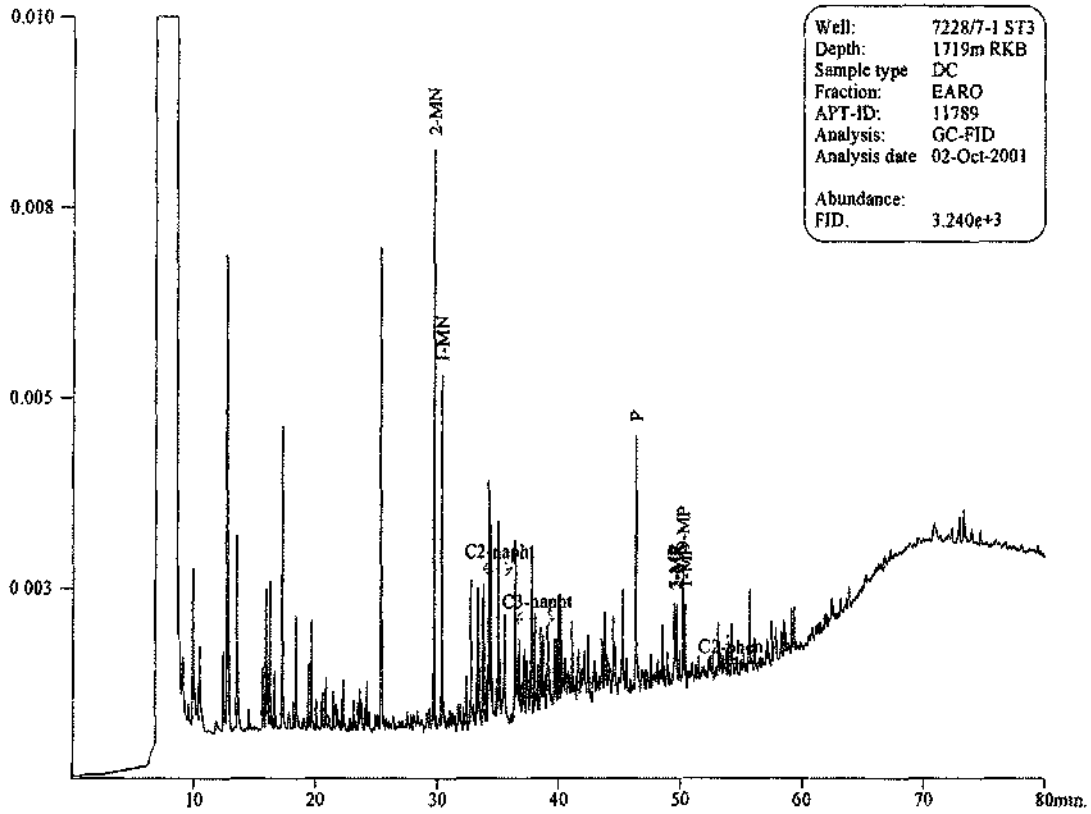


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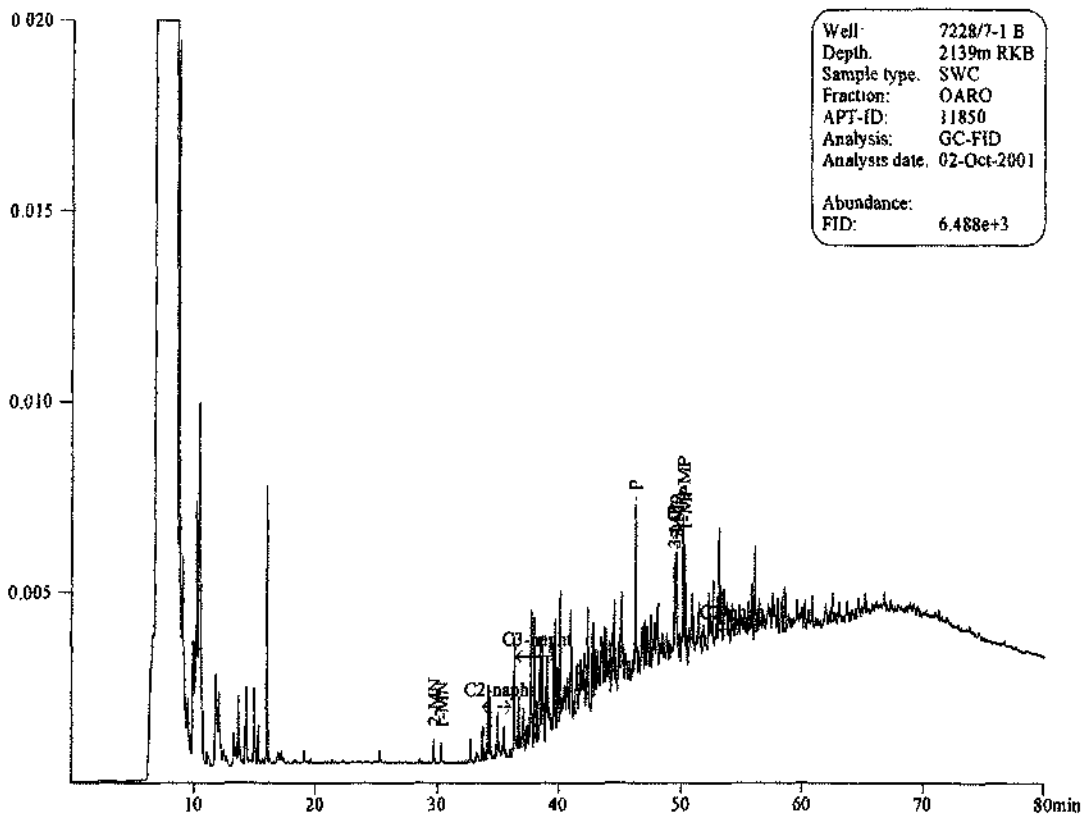
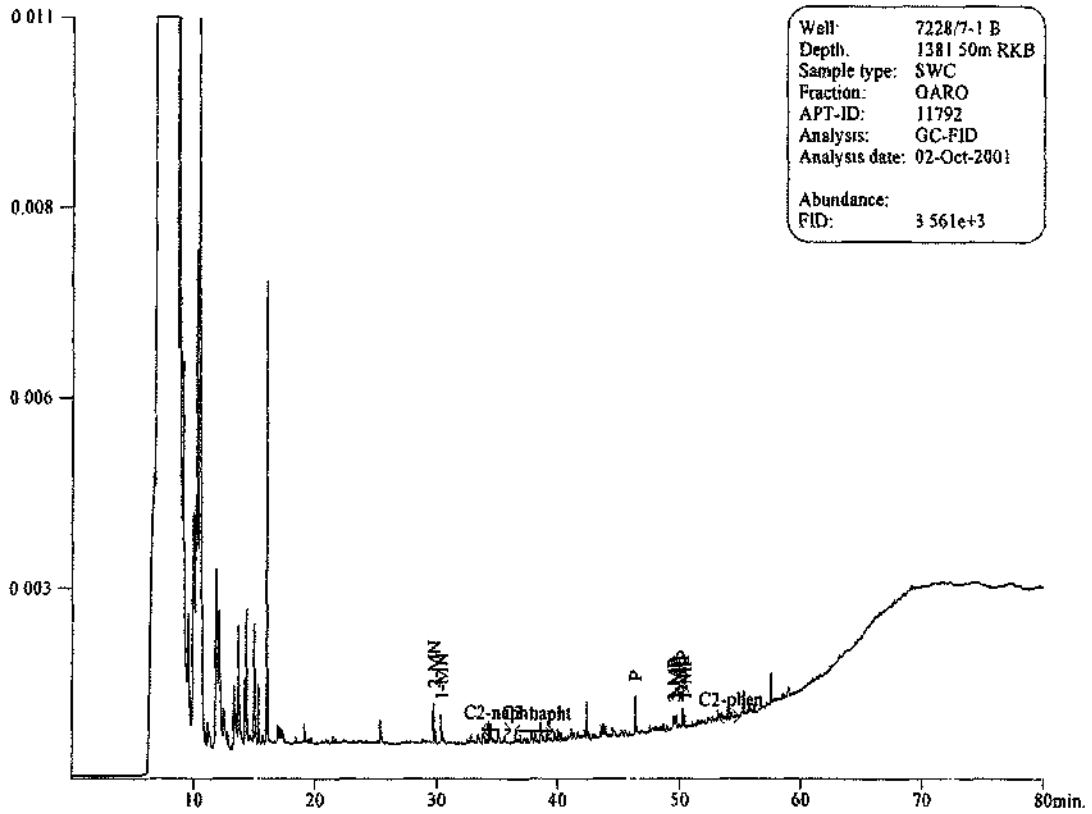


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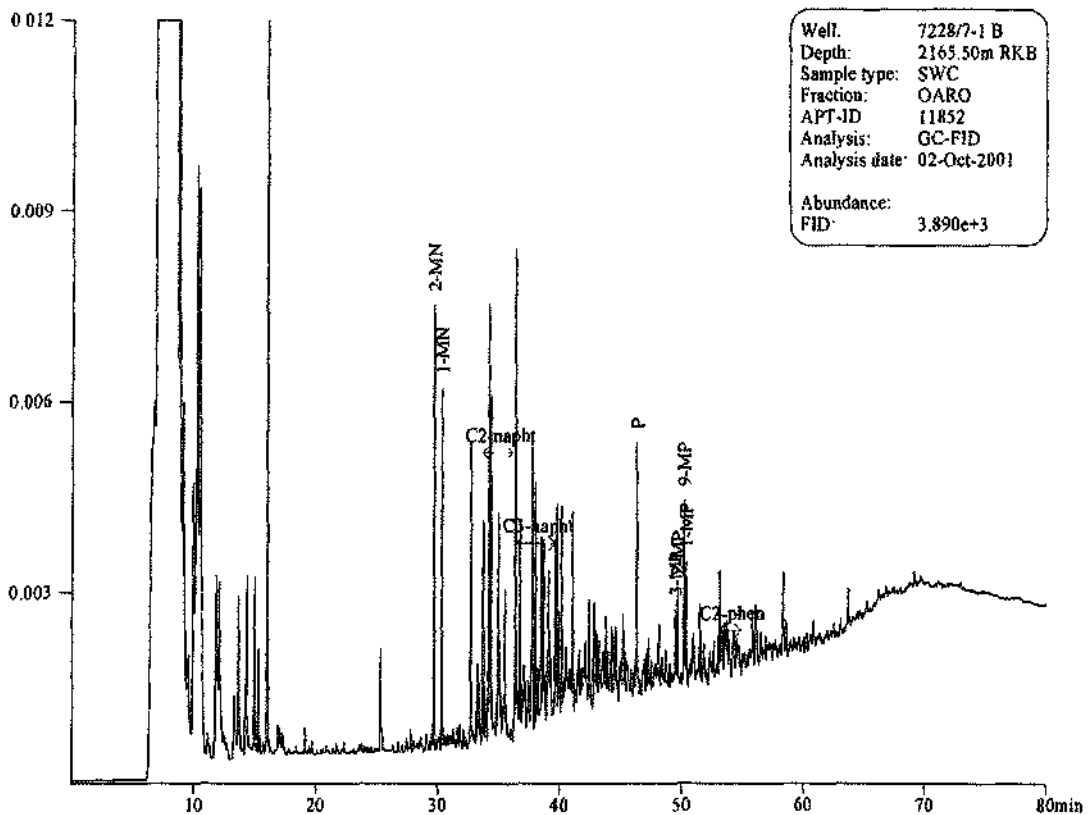
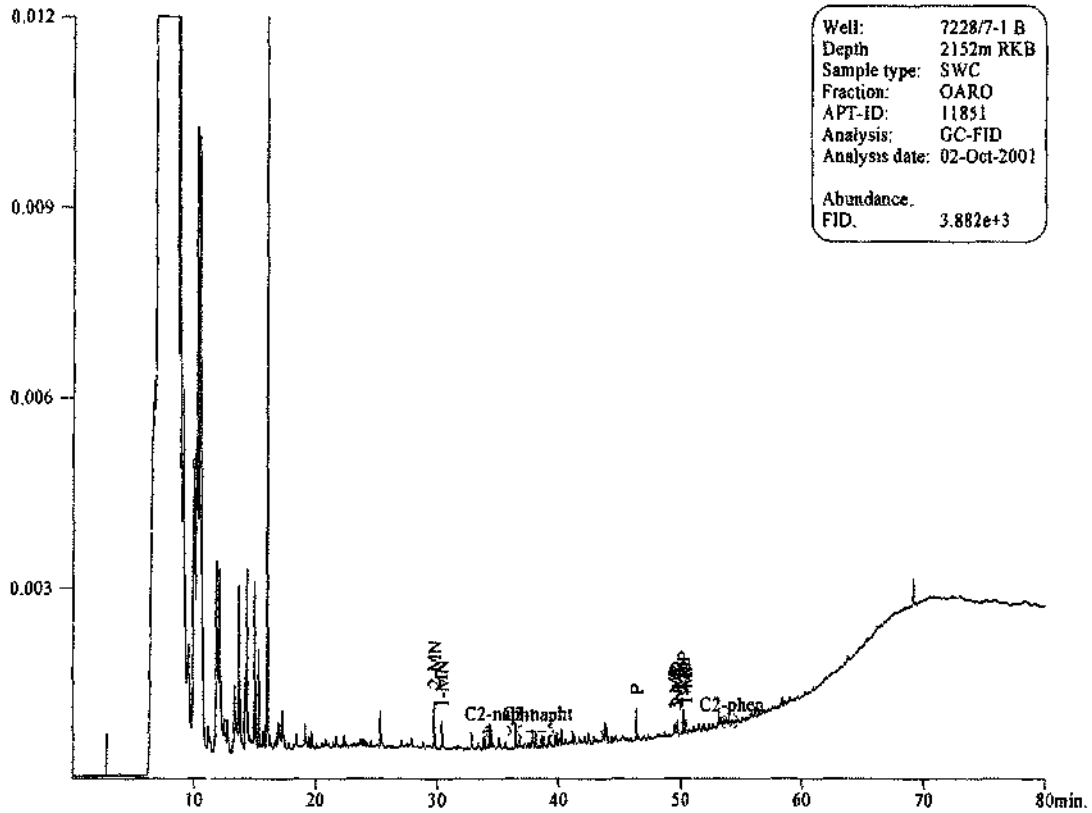


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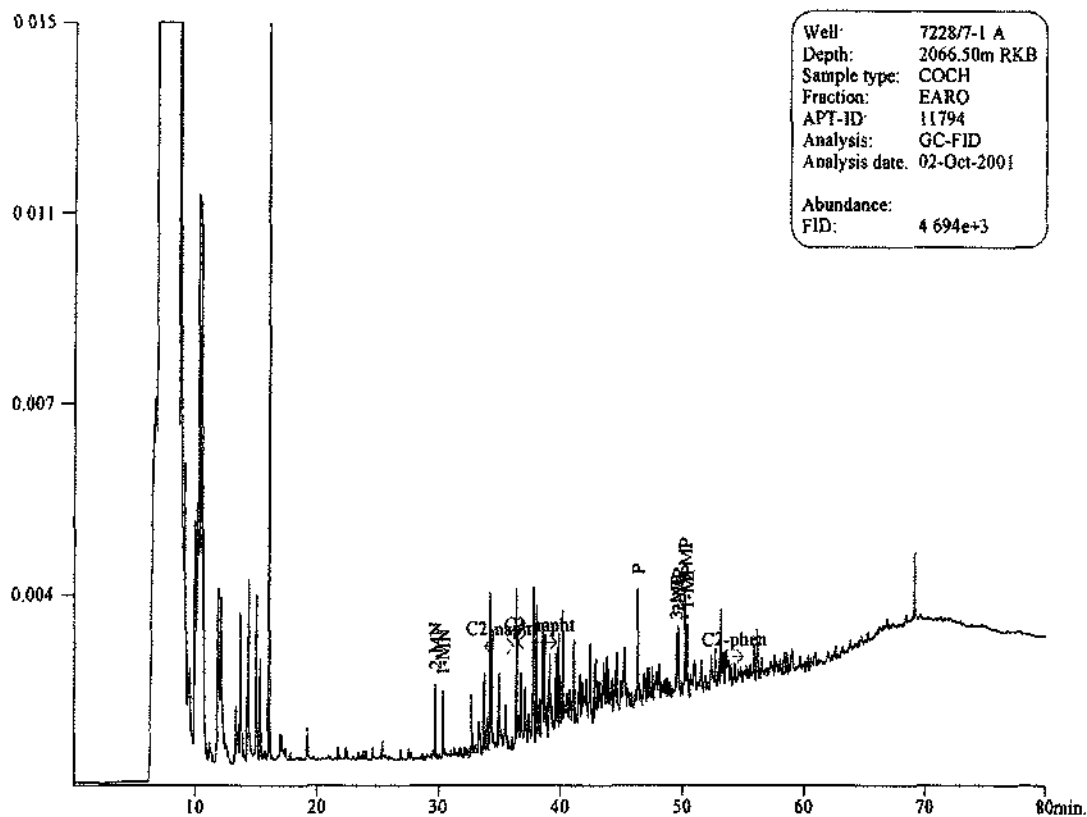
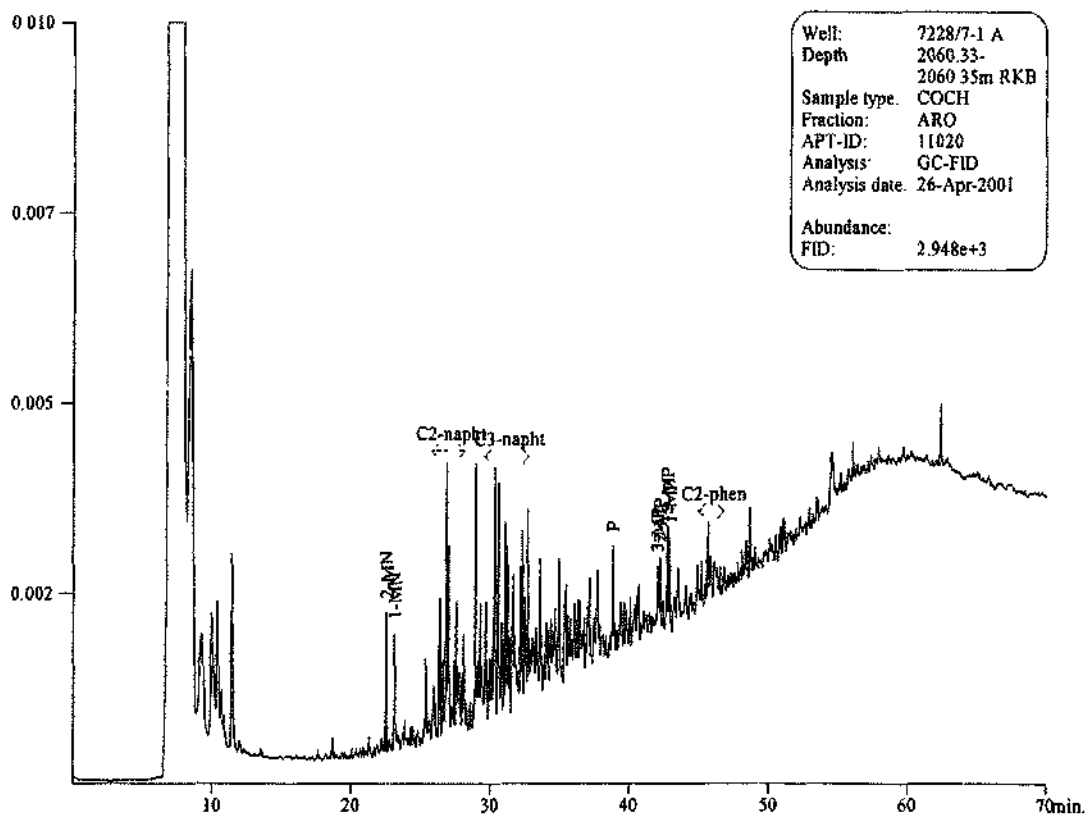


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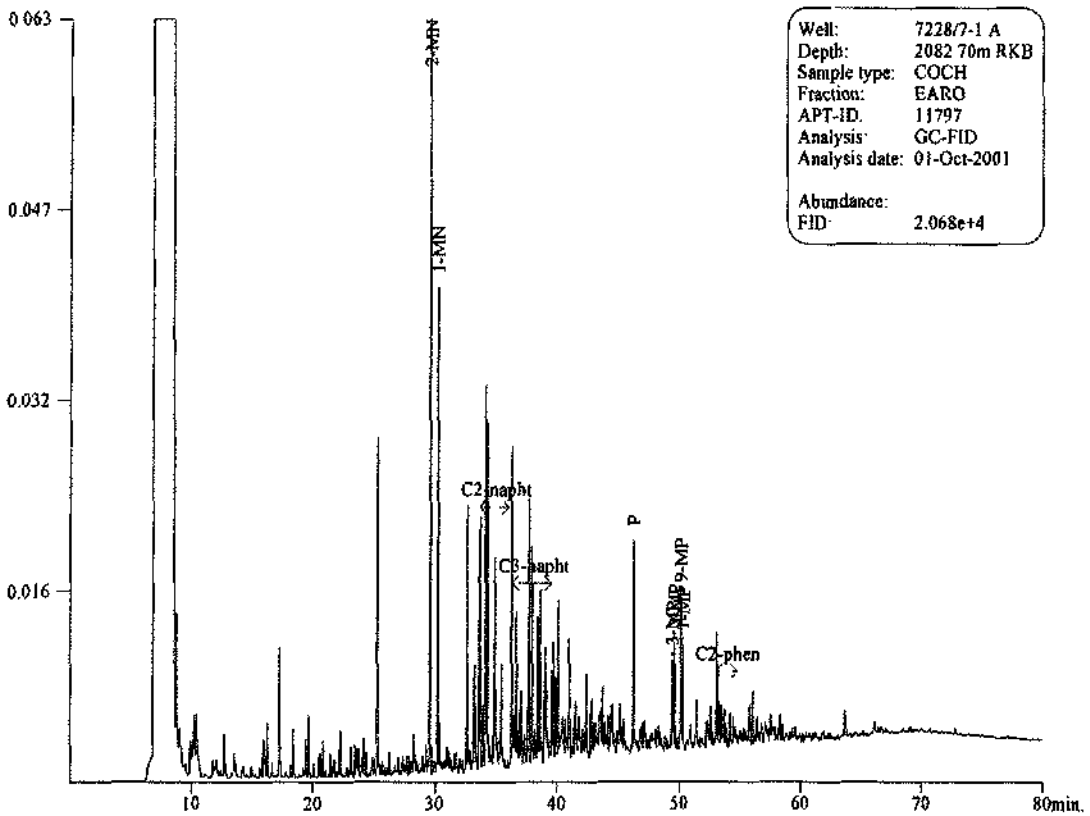
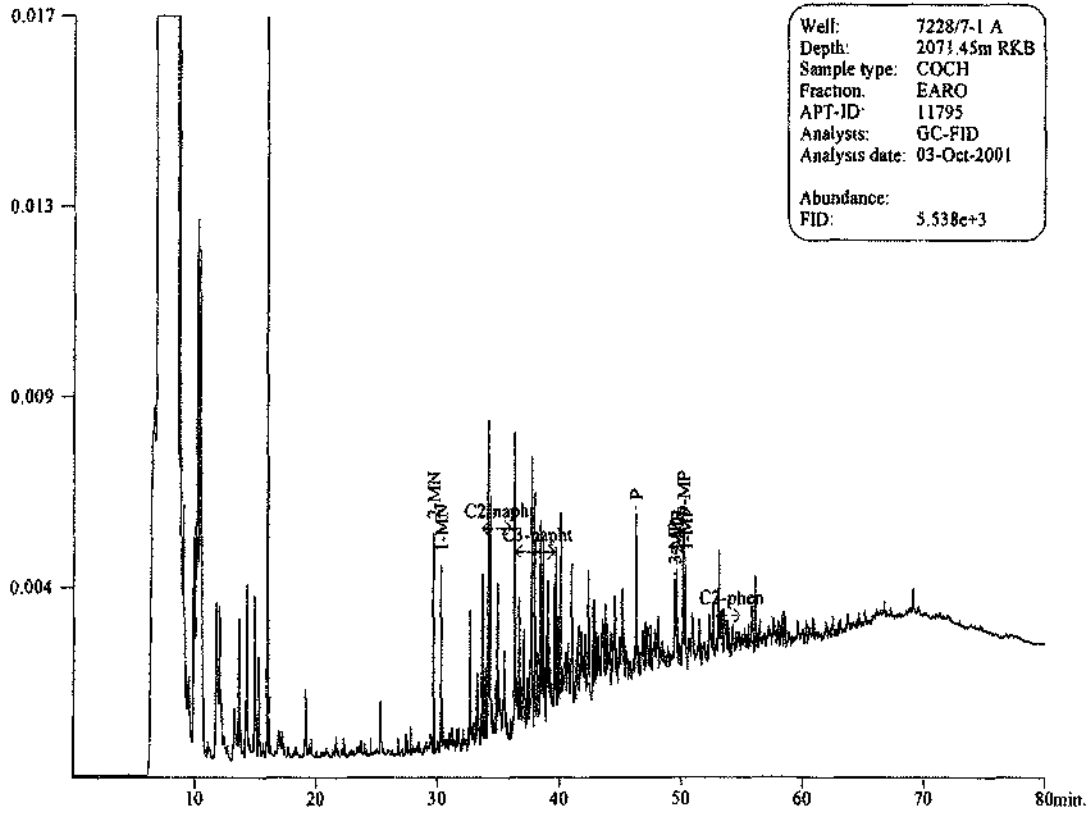


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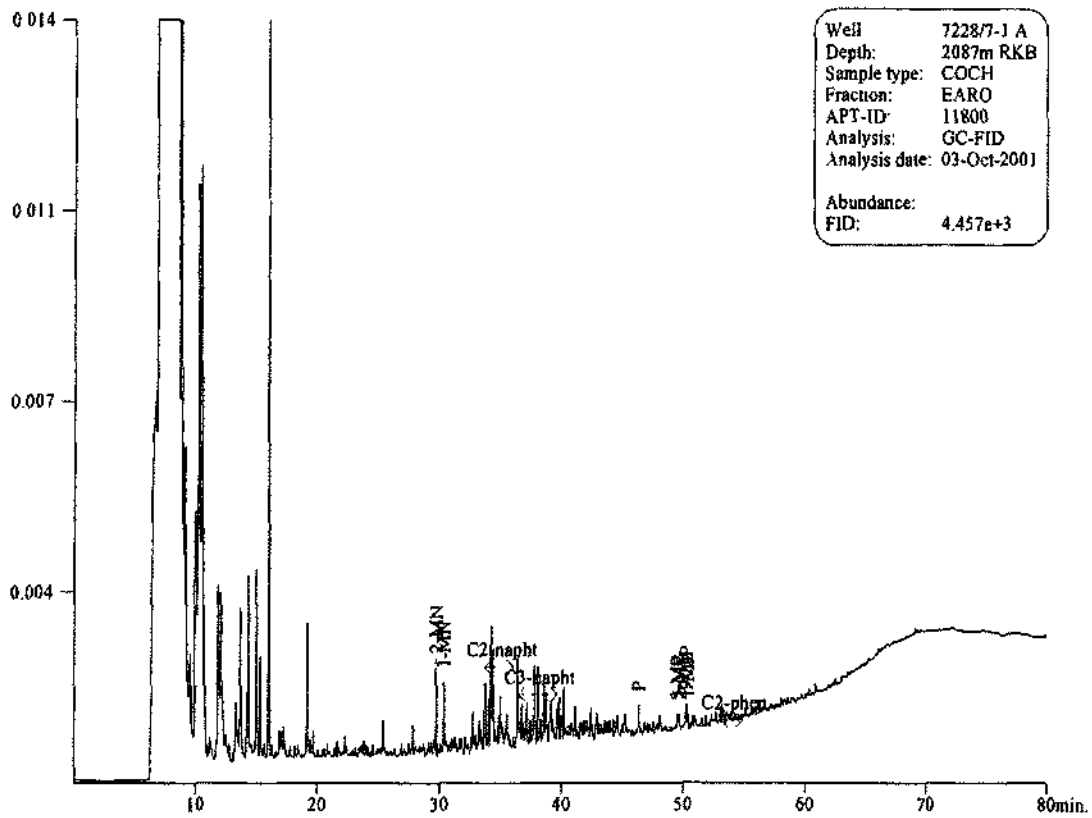
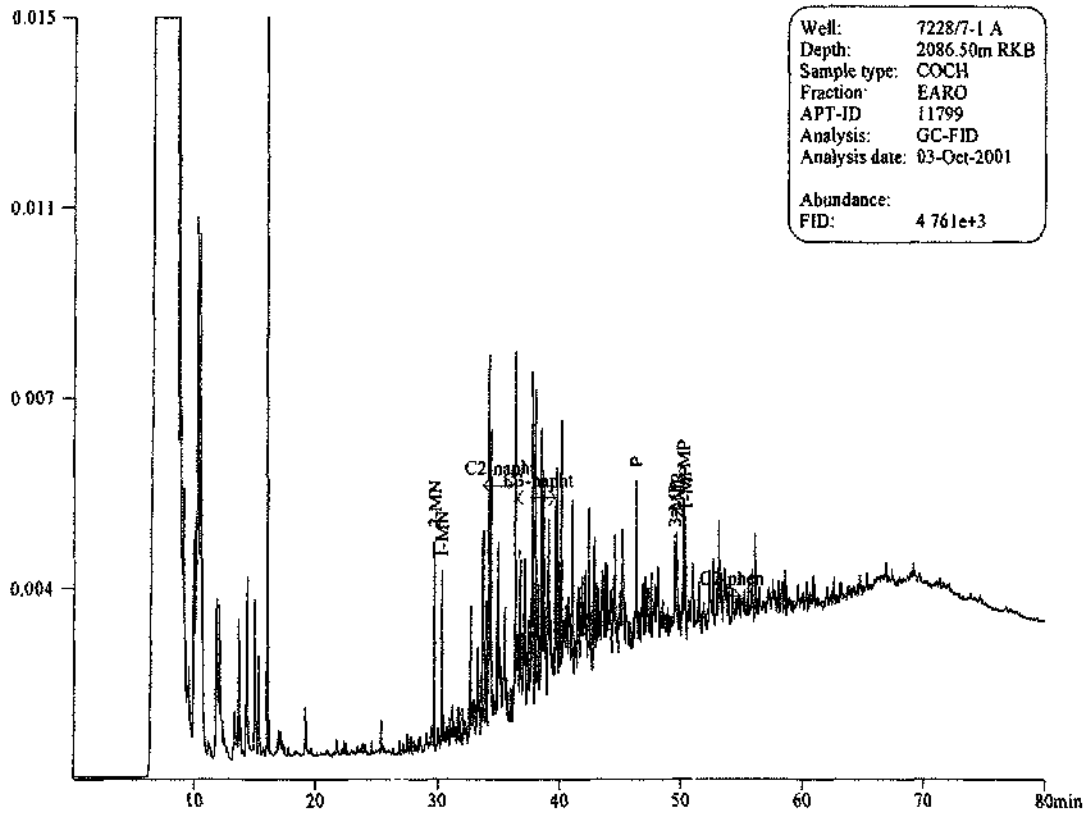


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



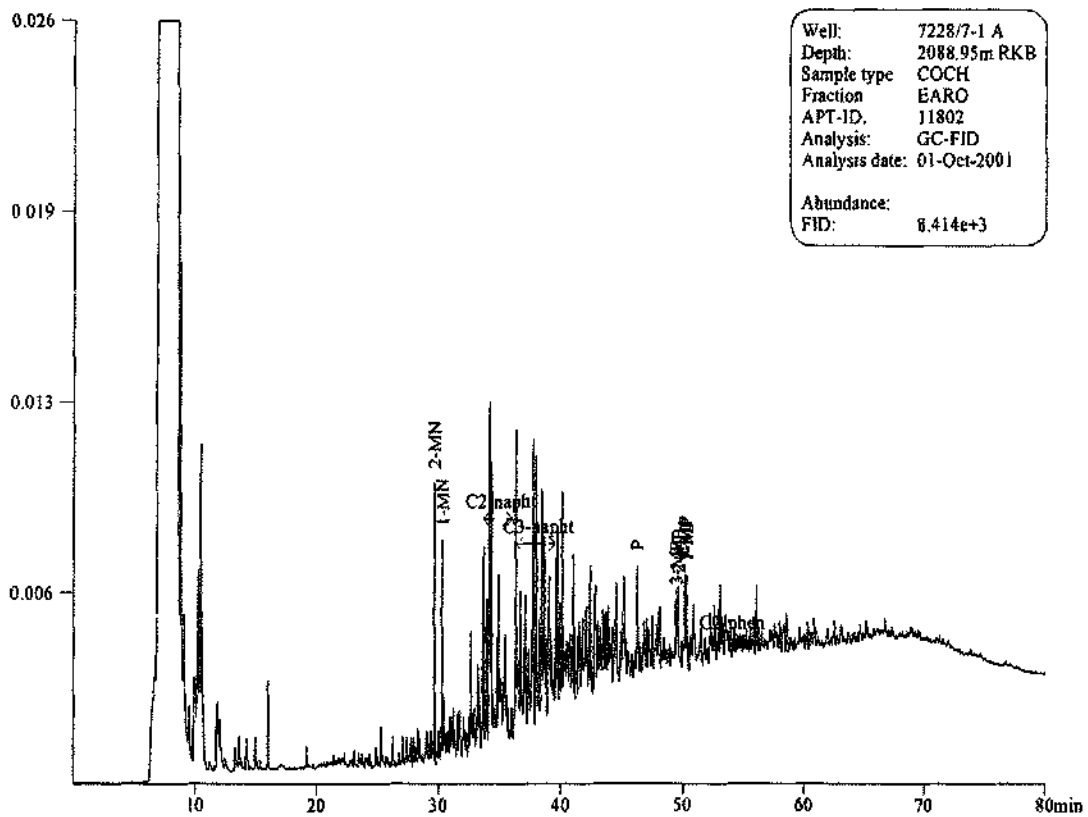
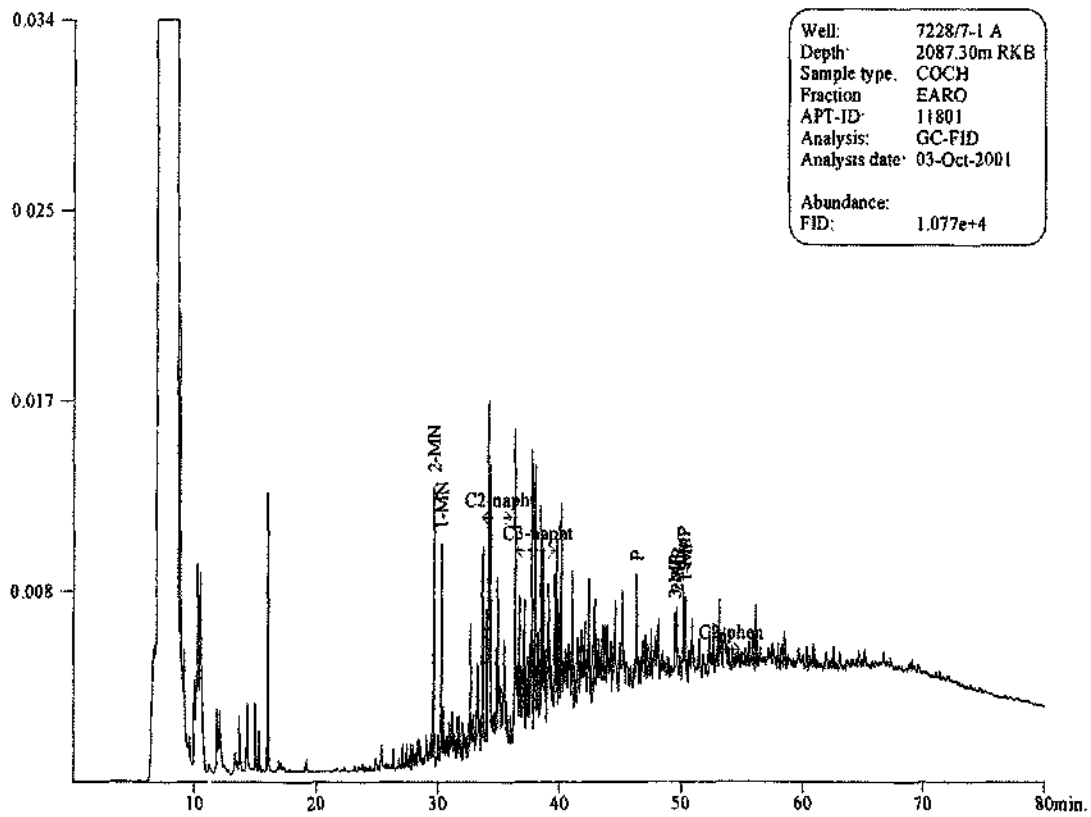


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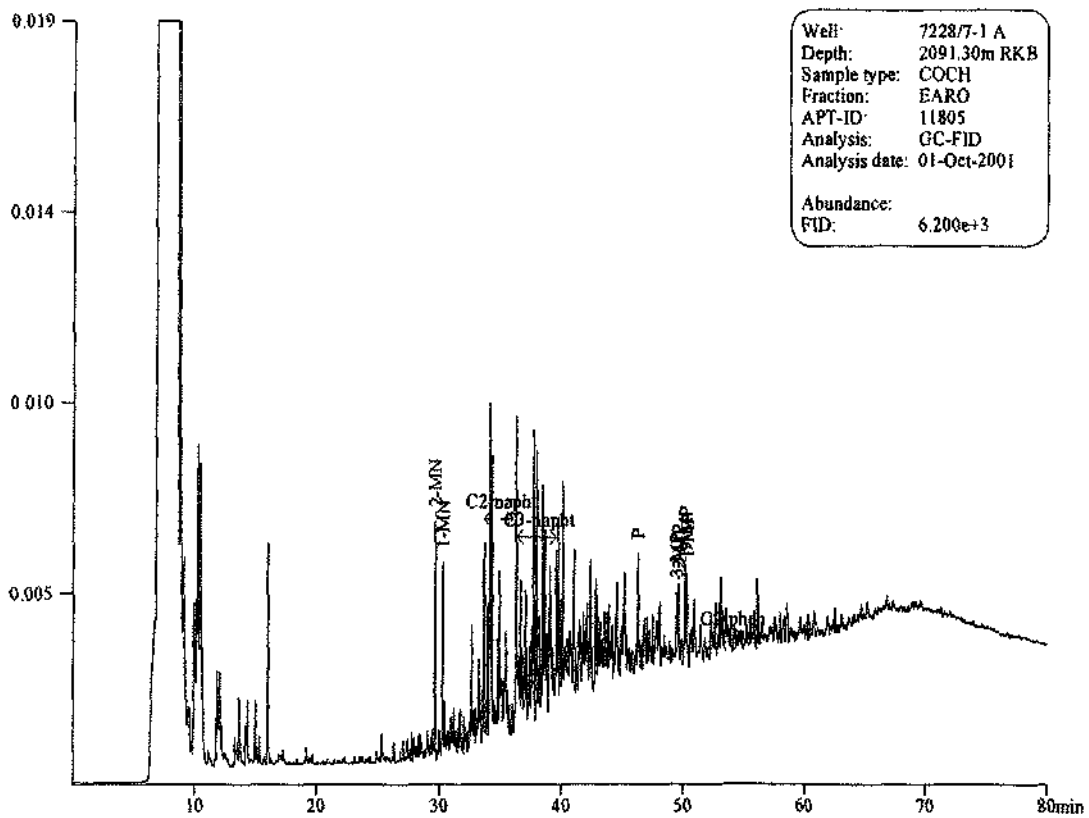
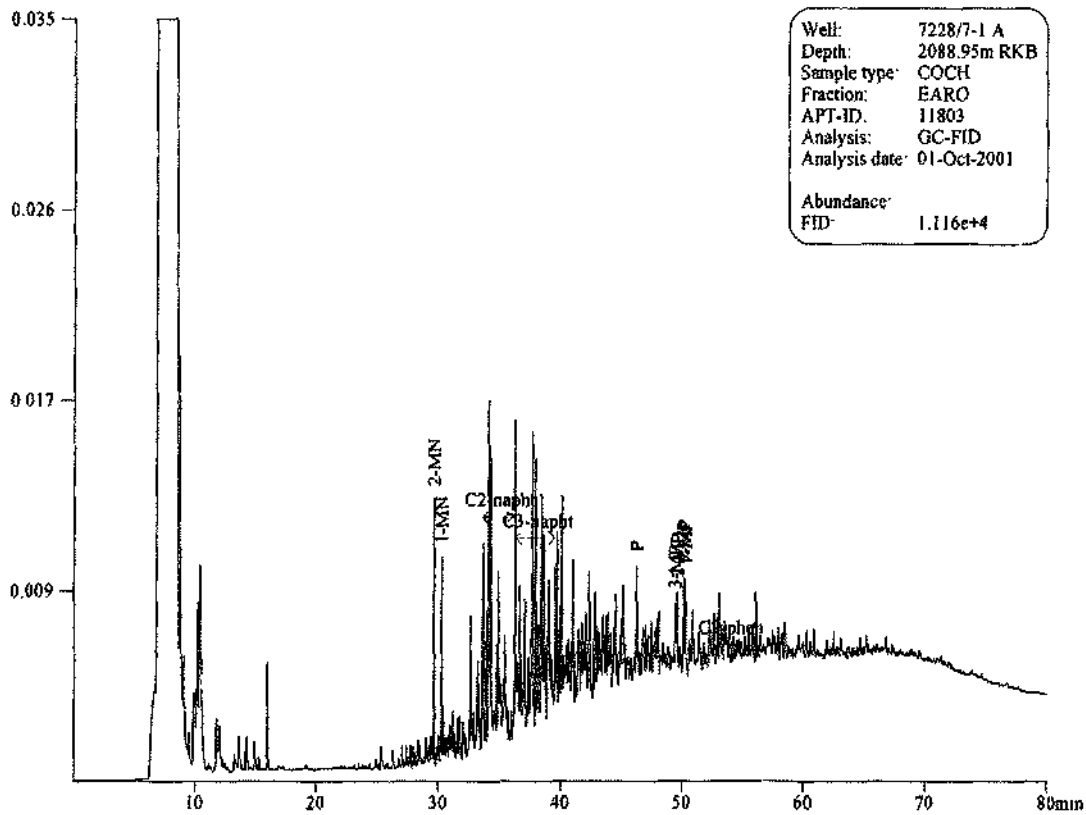


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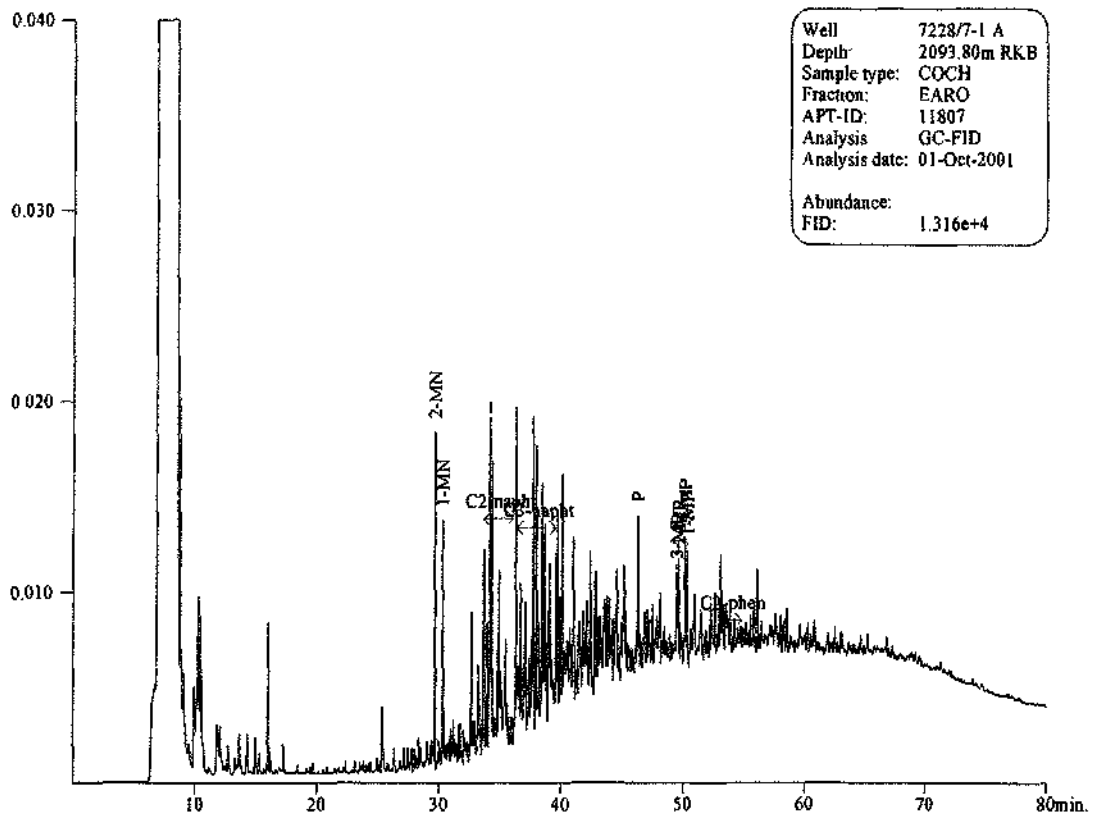
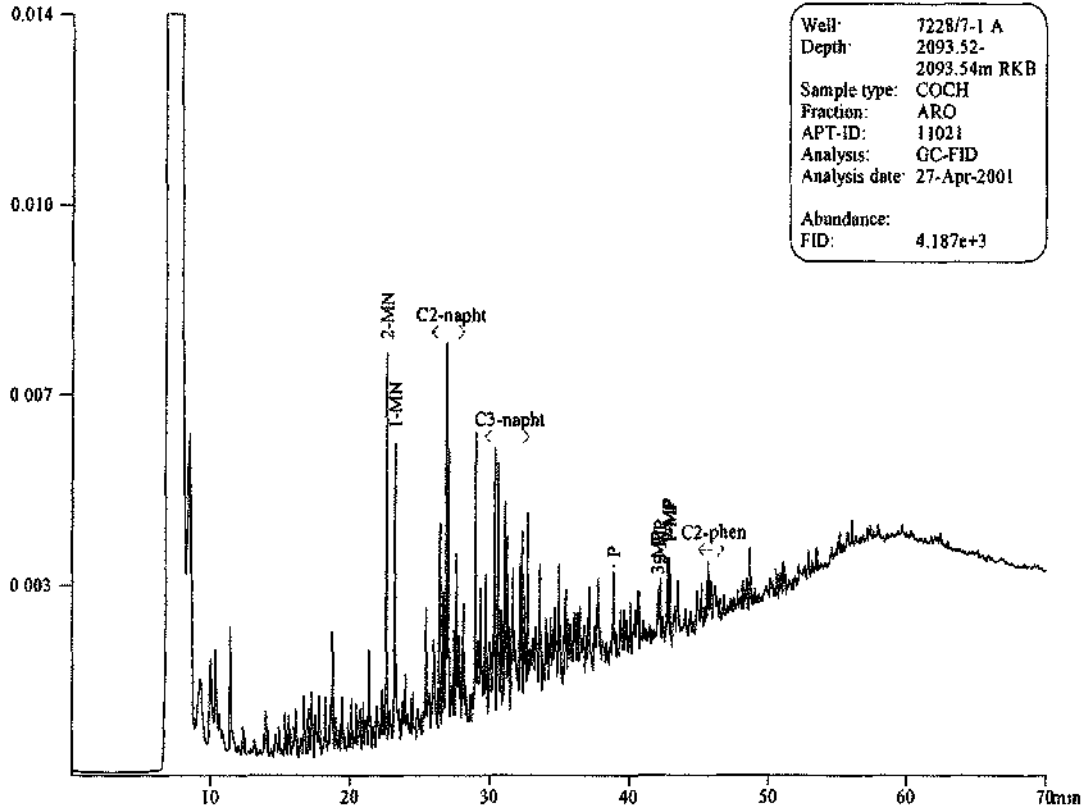


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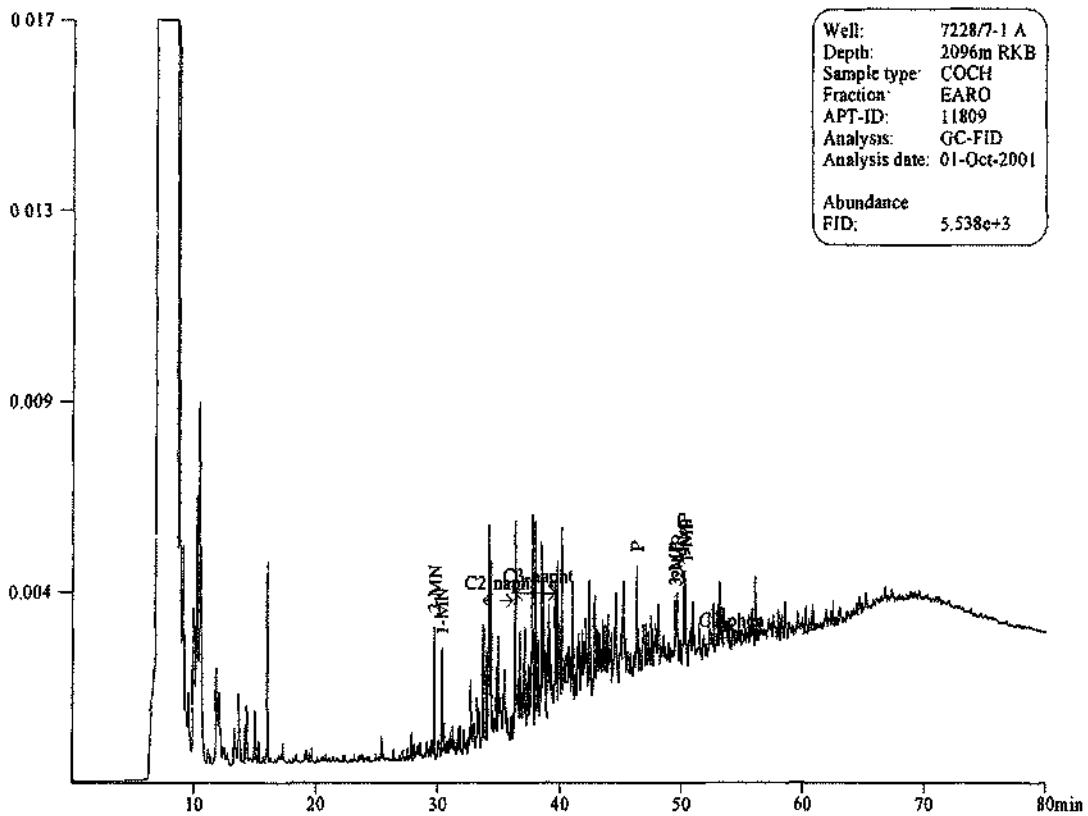
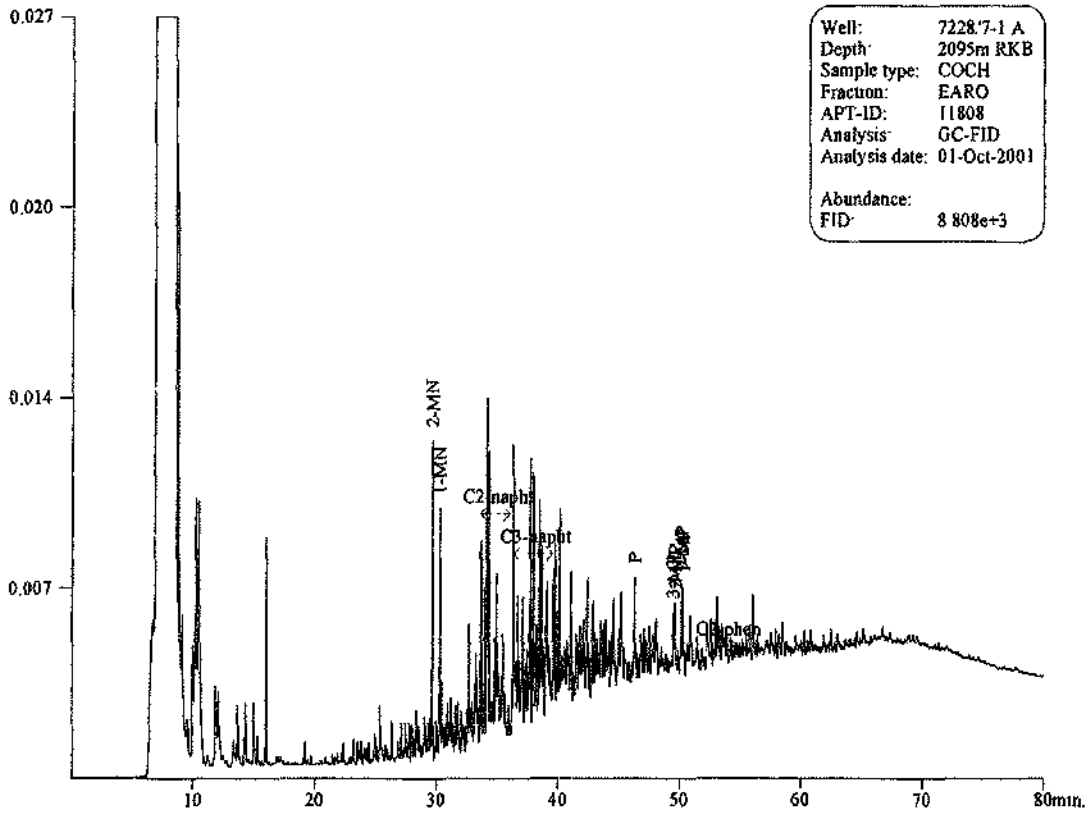


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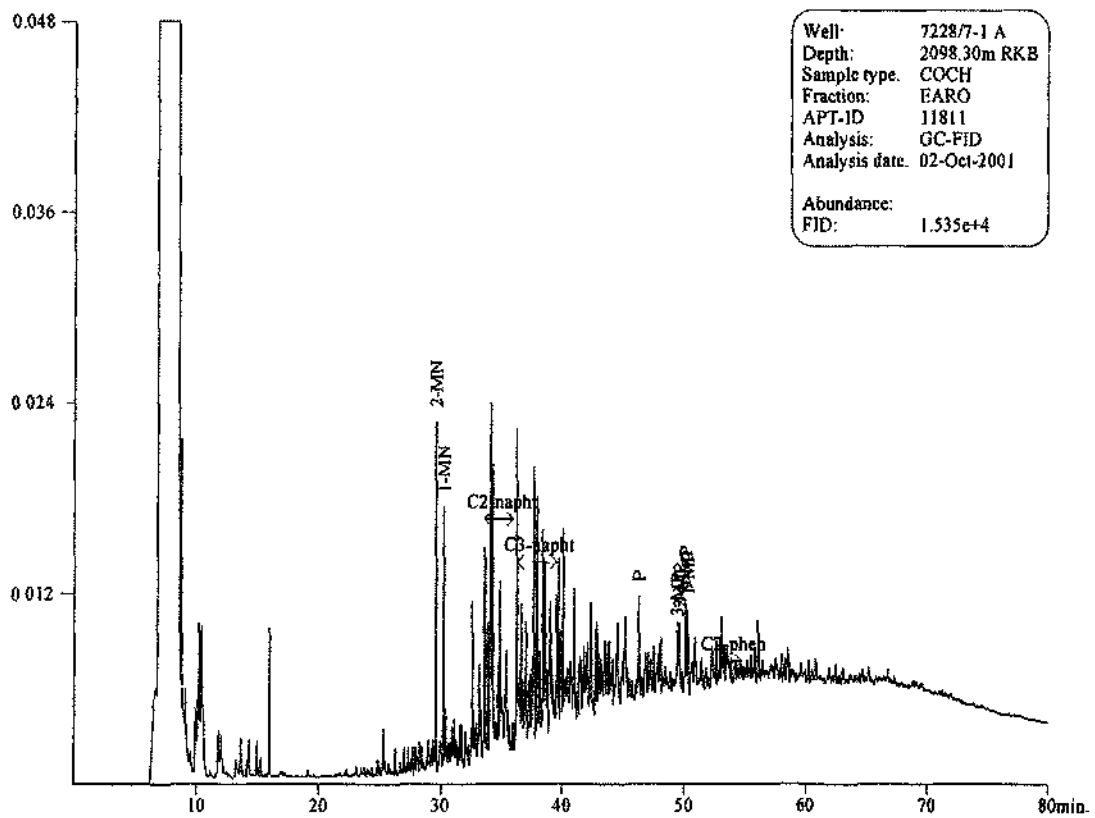
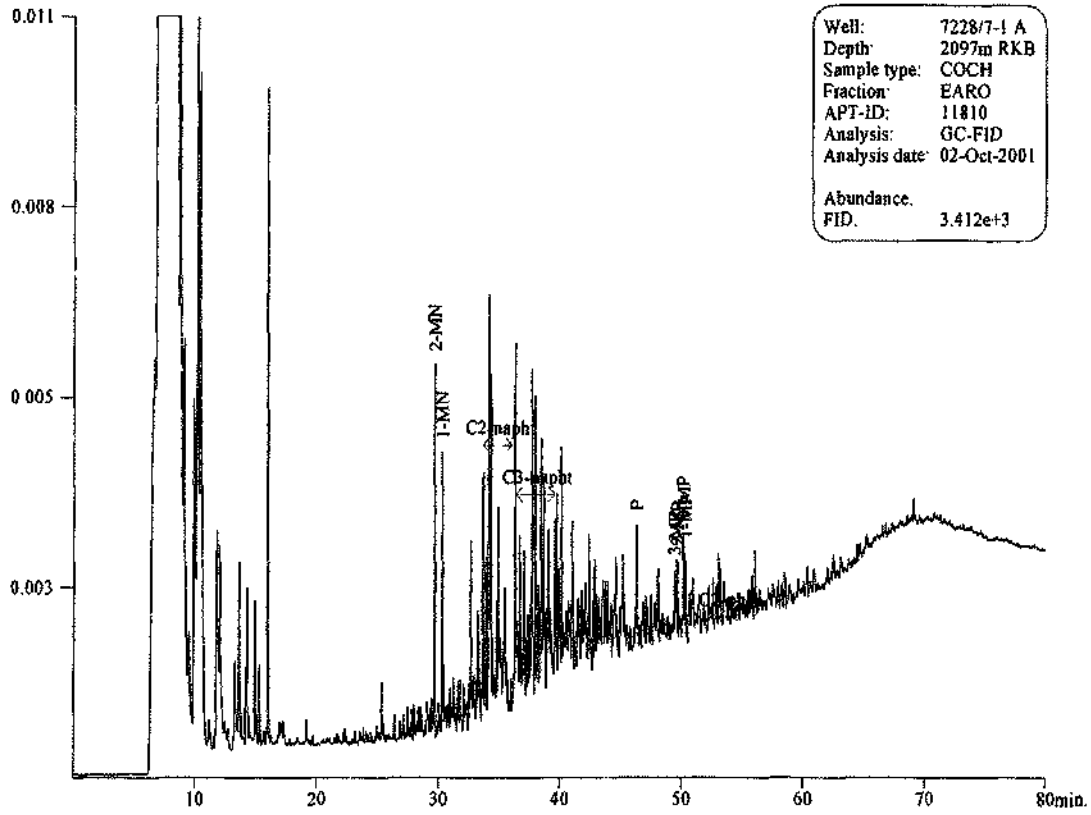


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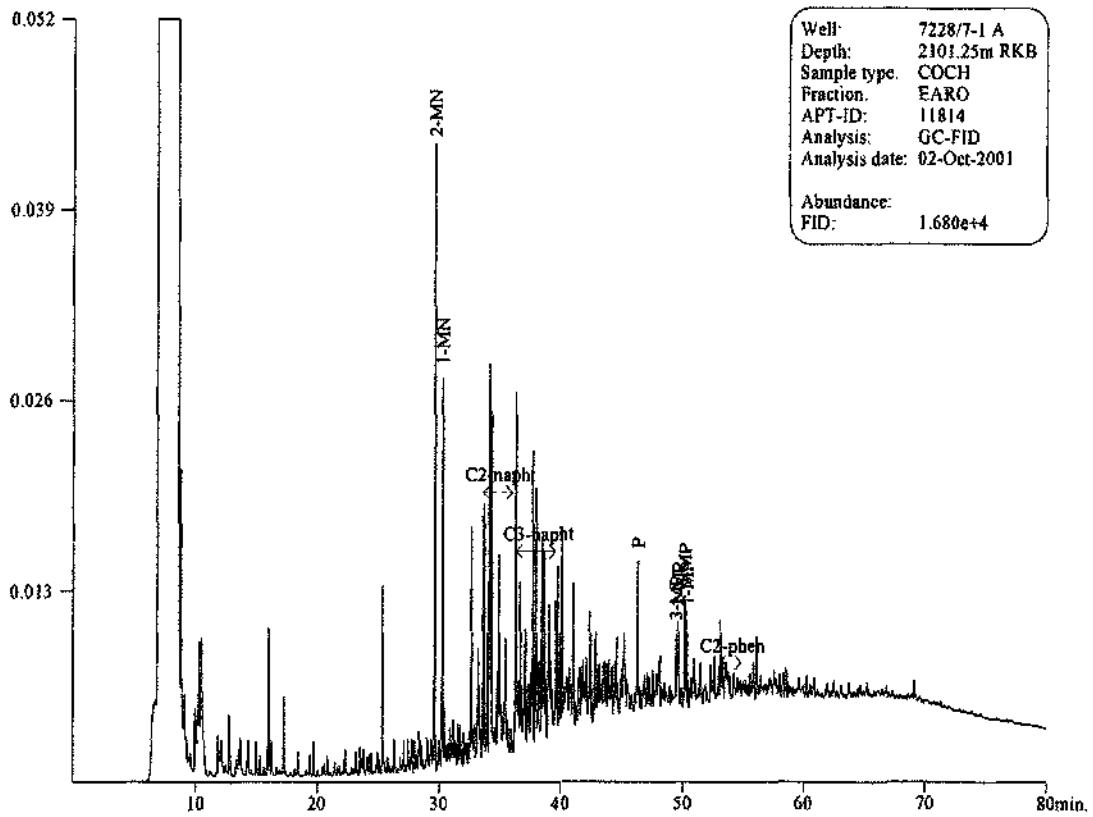
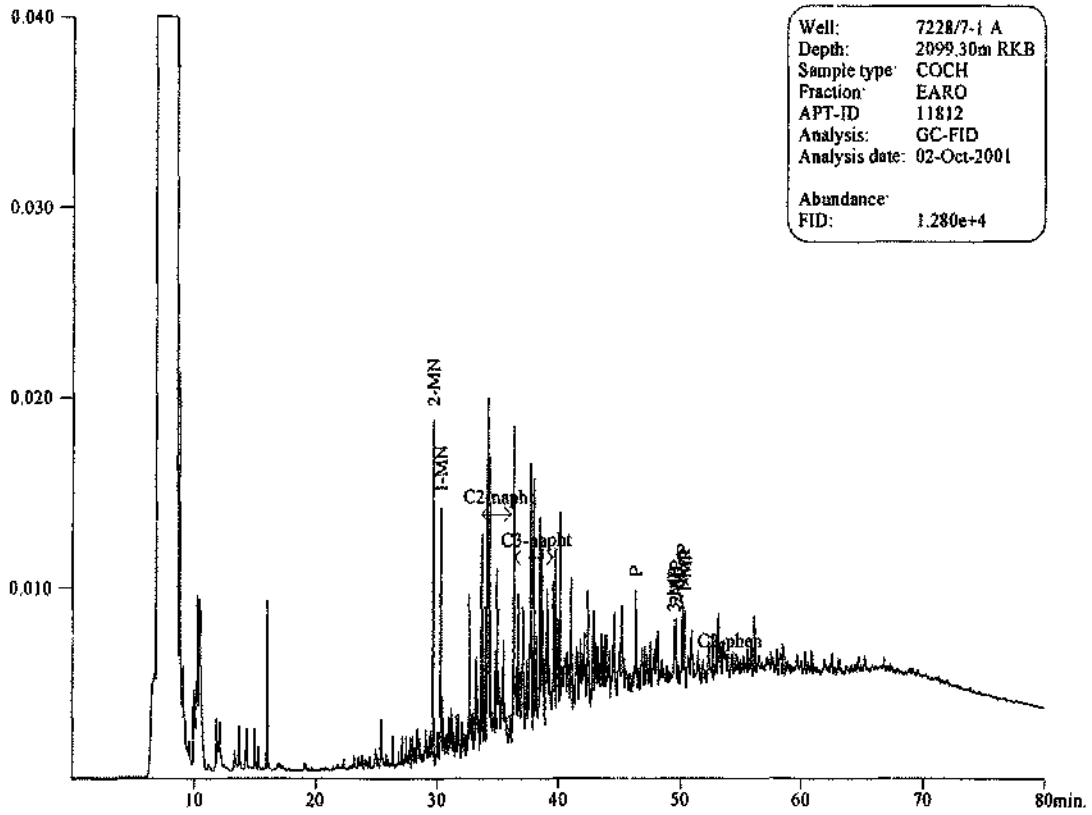


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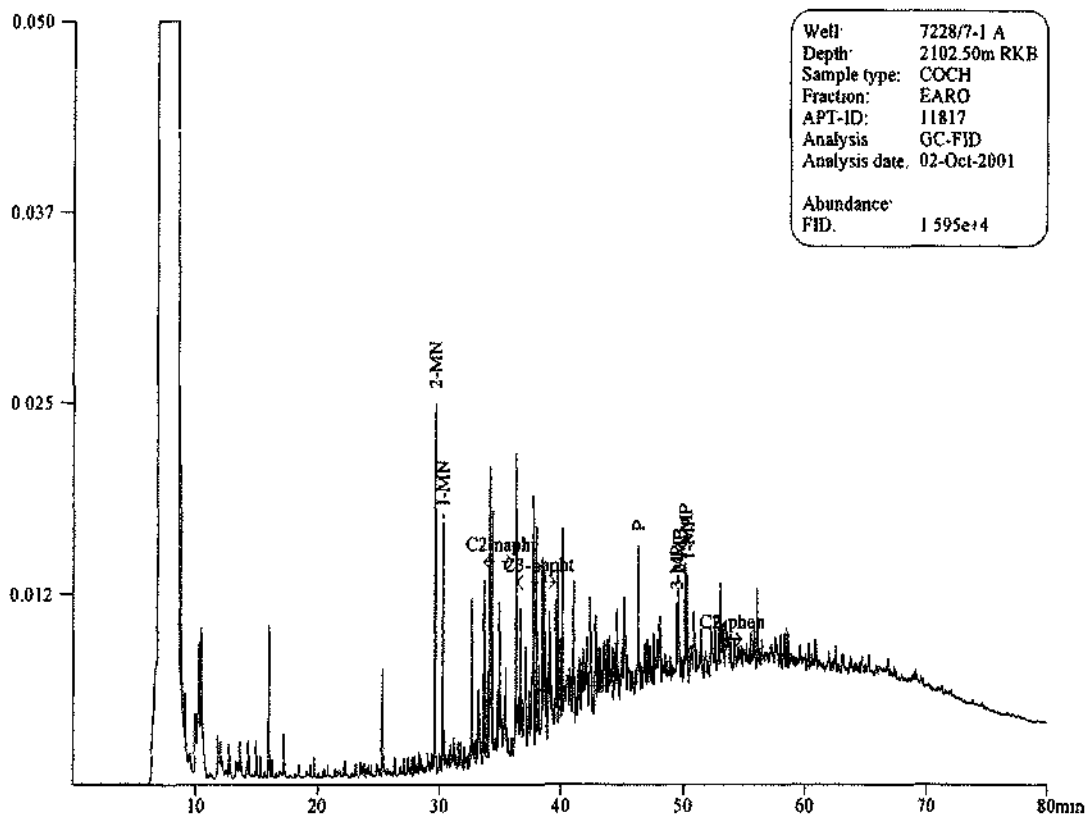
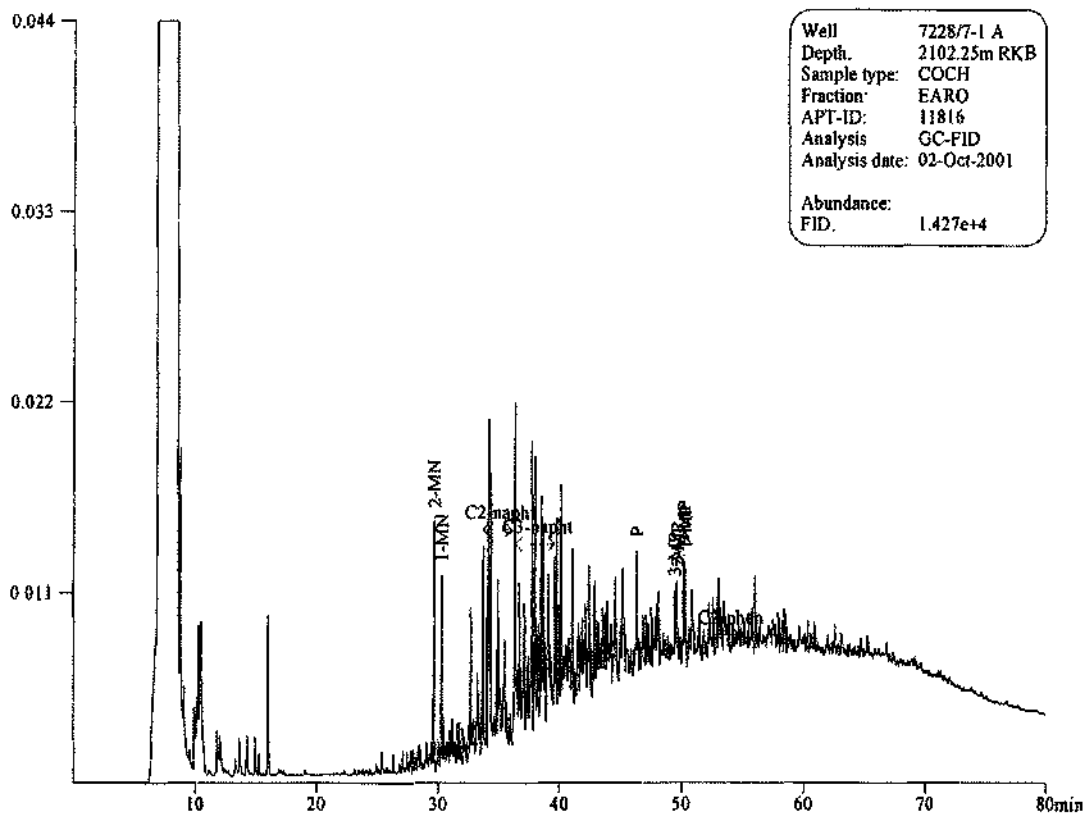


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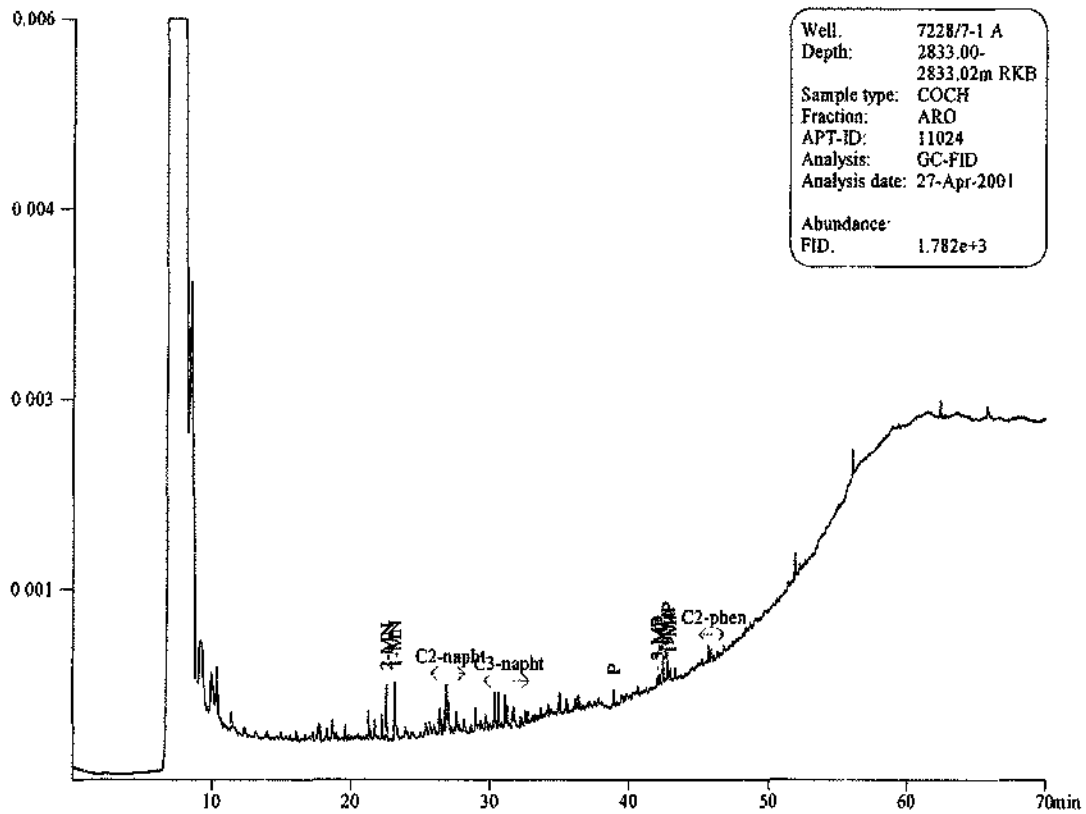


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3





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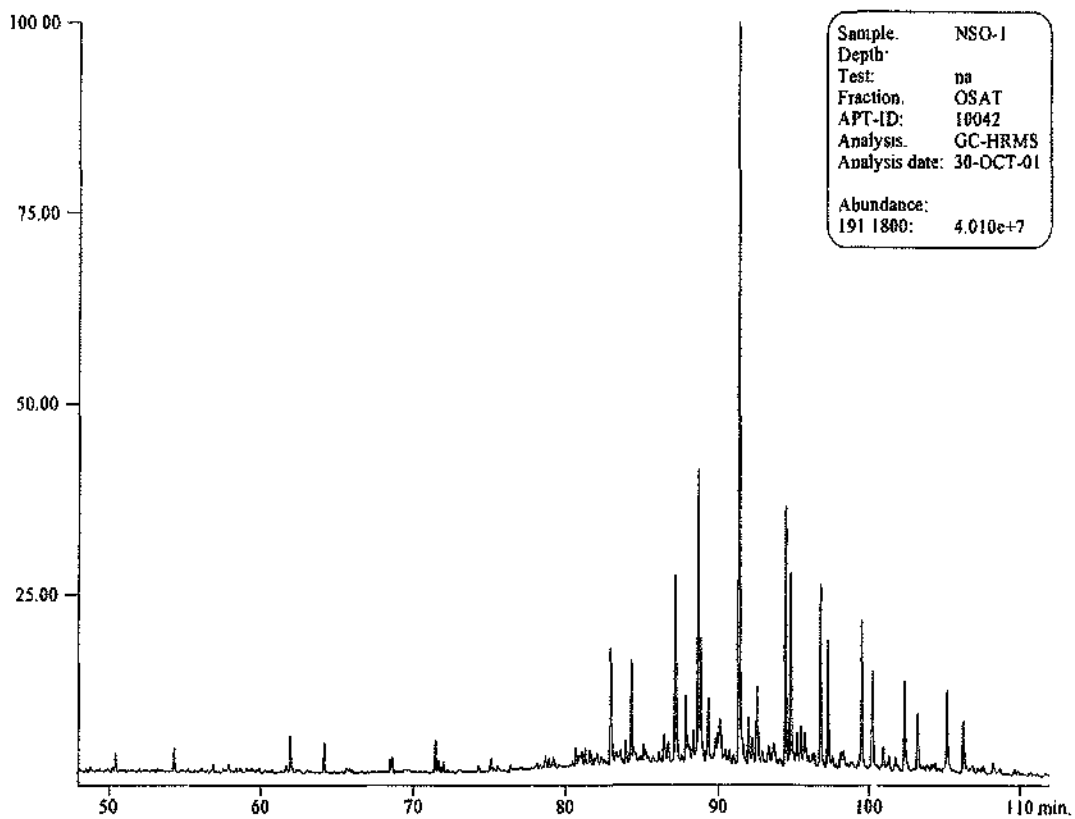
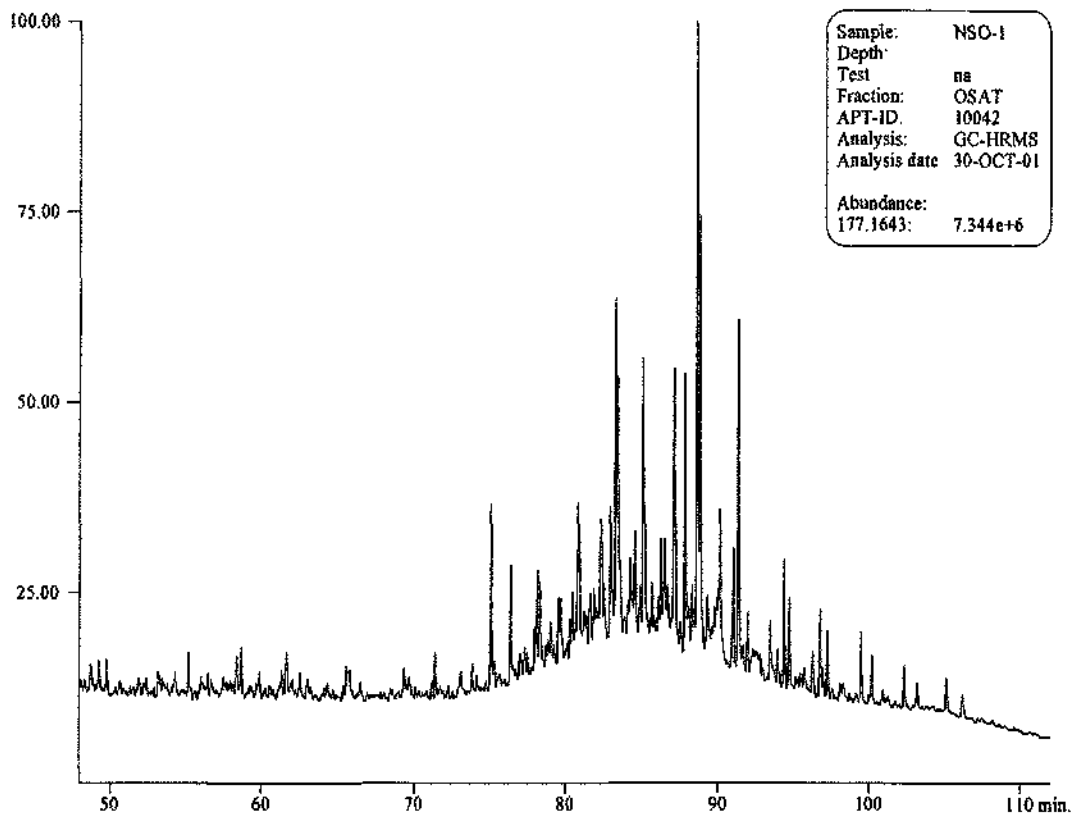




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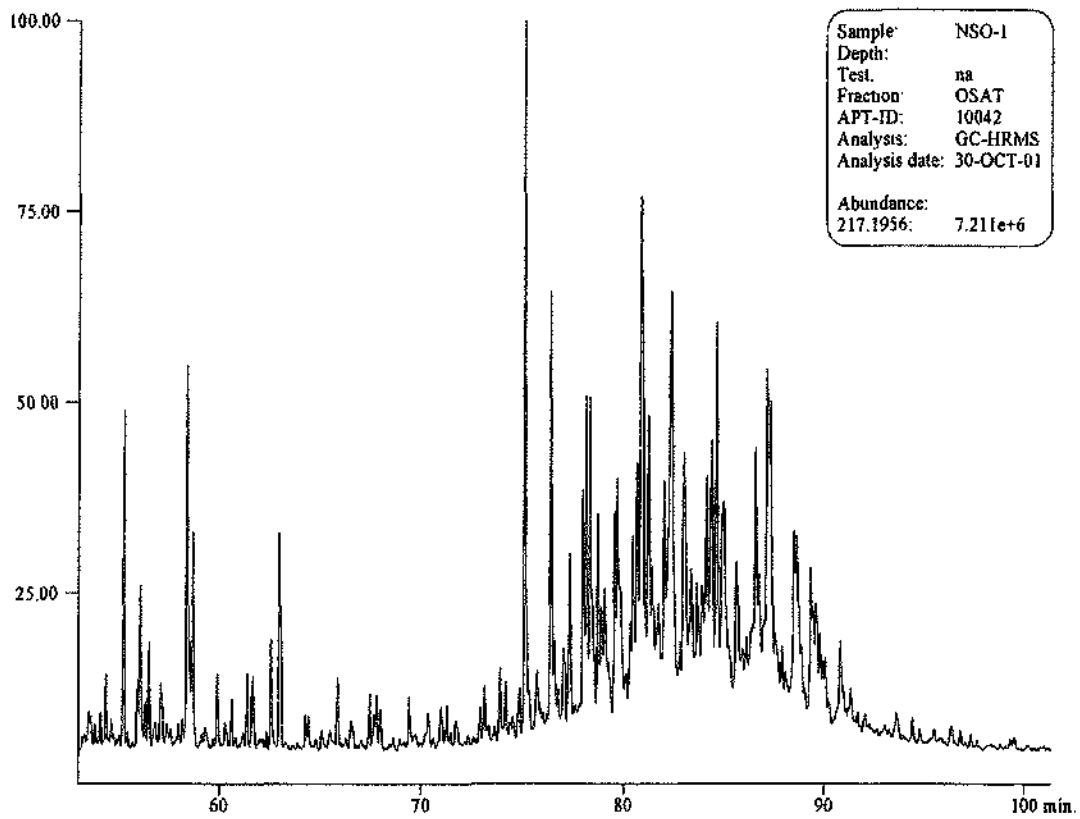
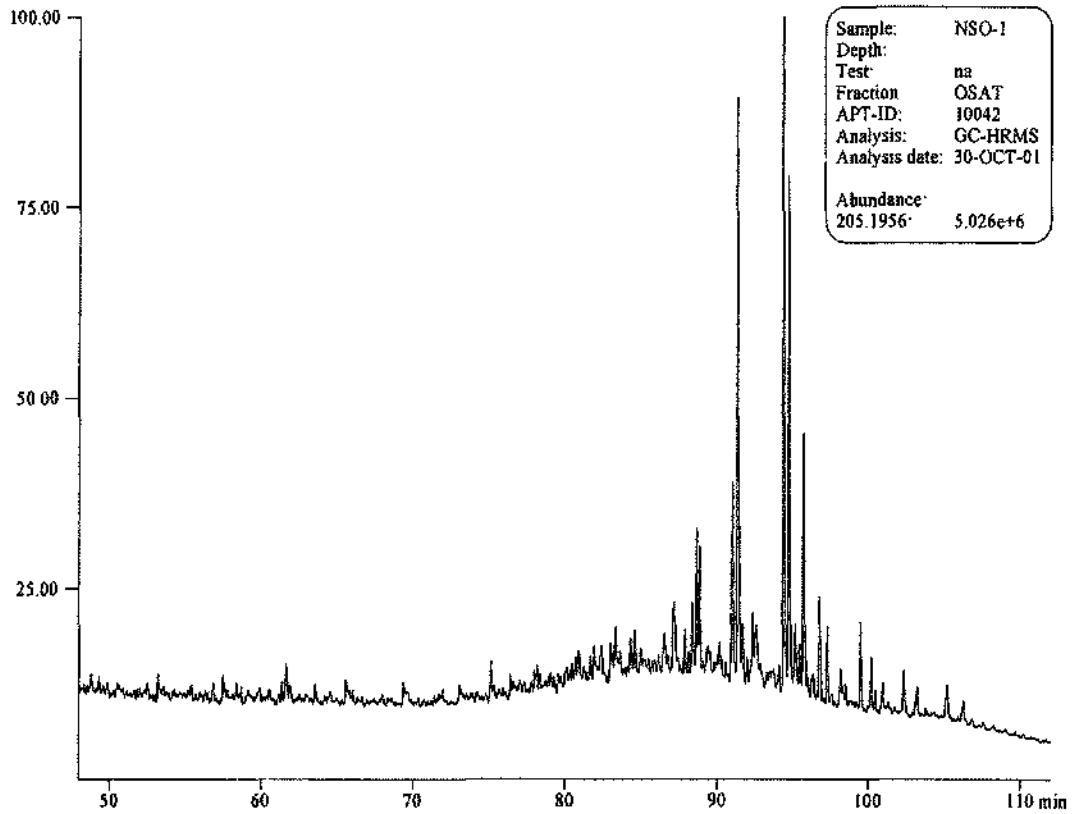


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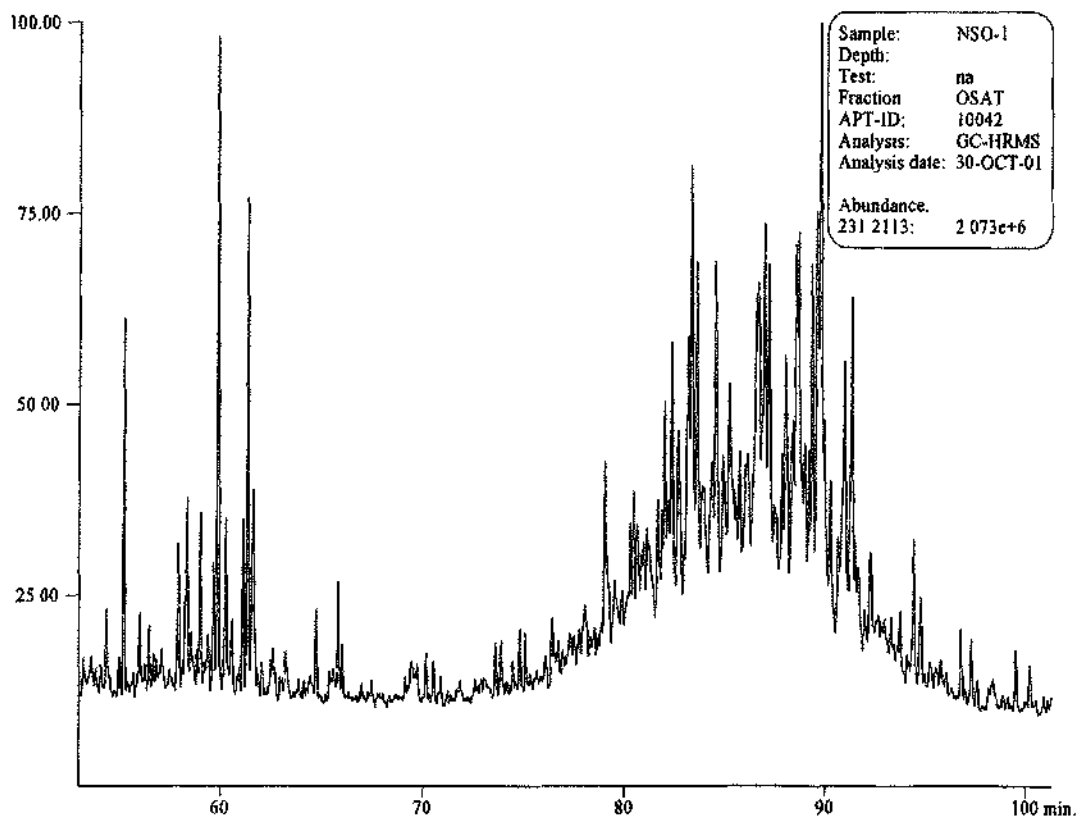
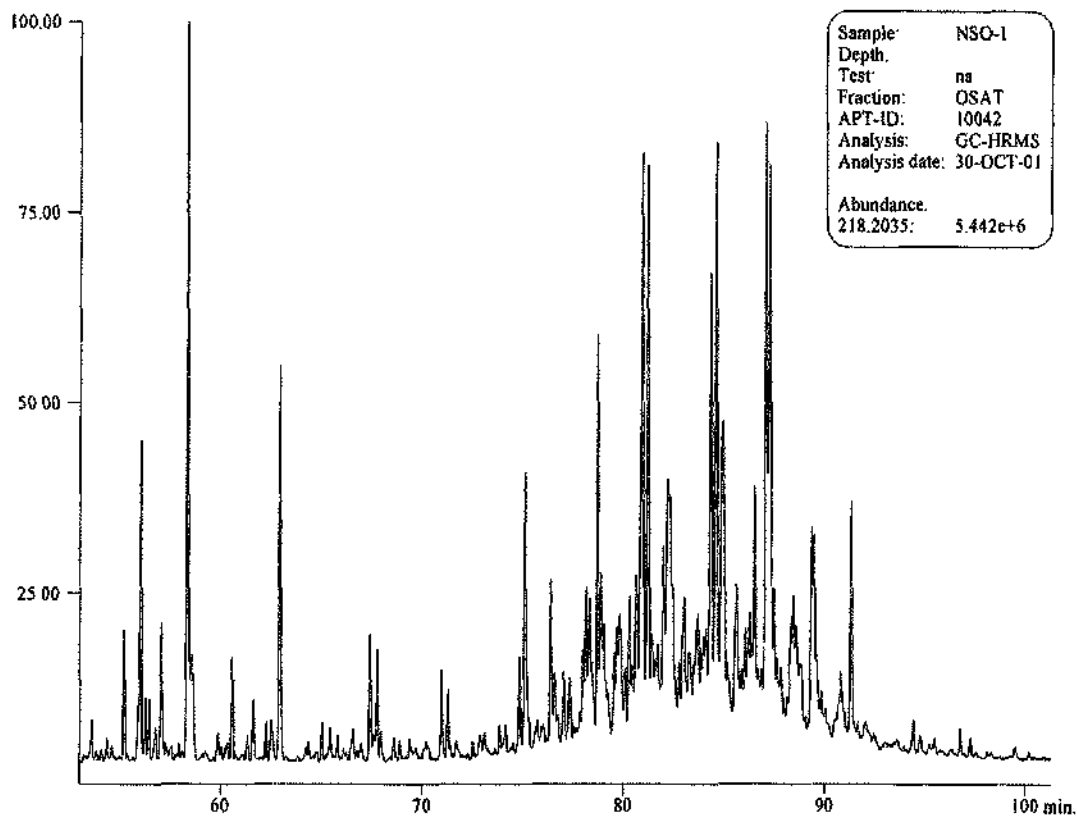


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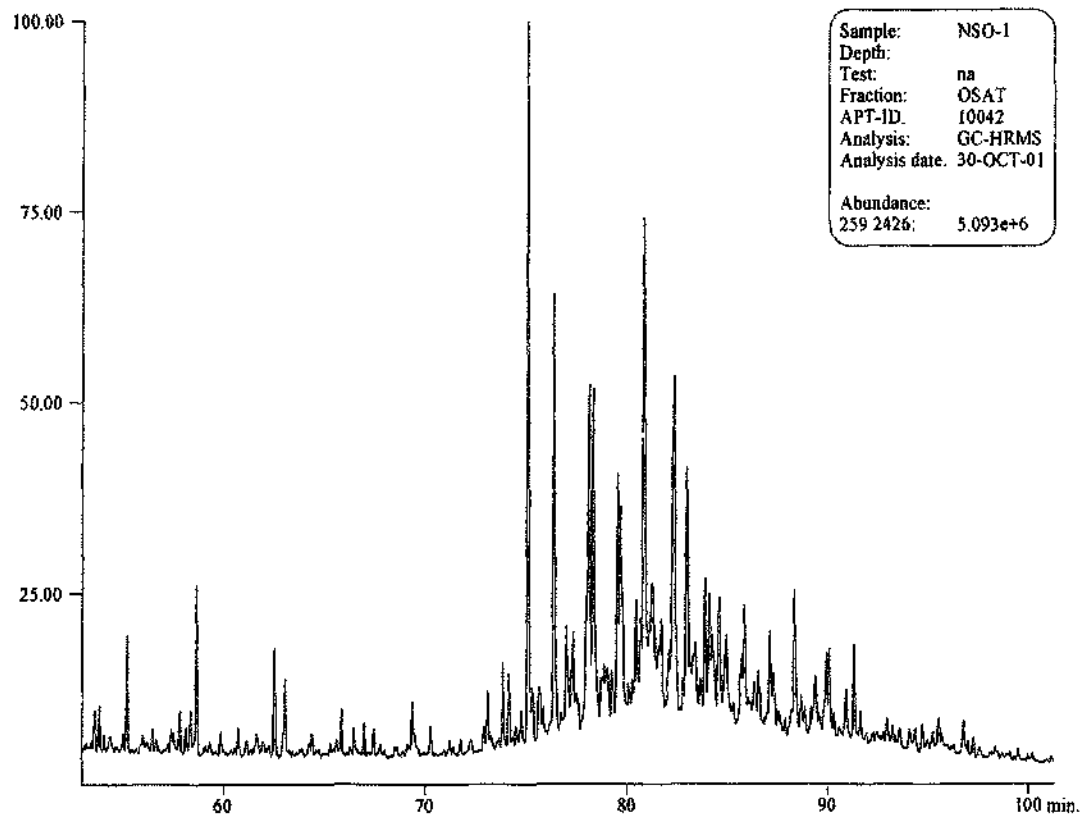
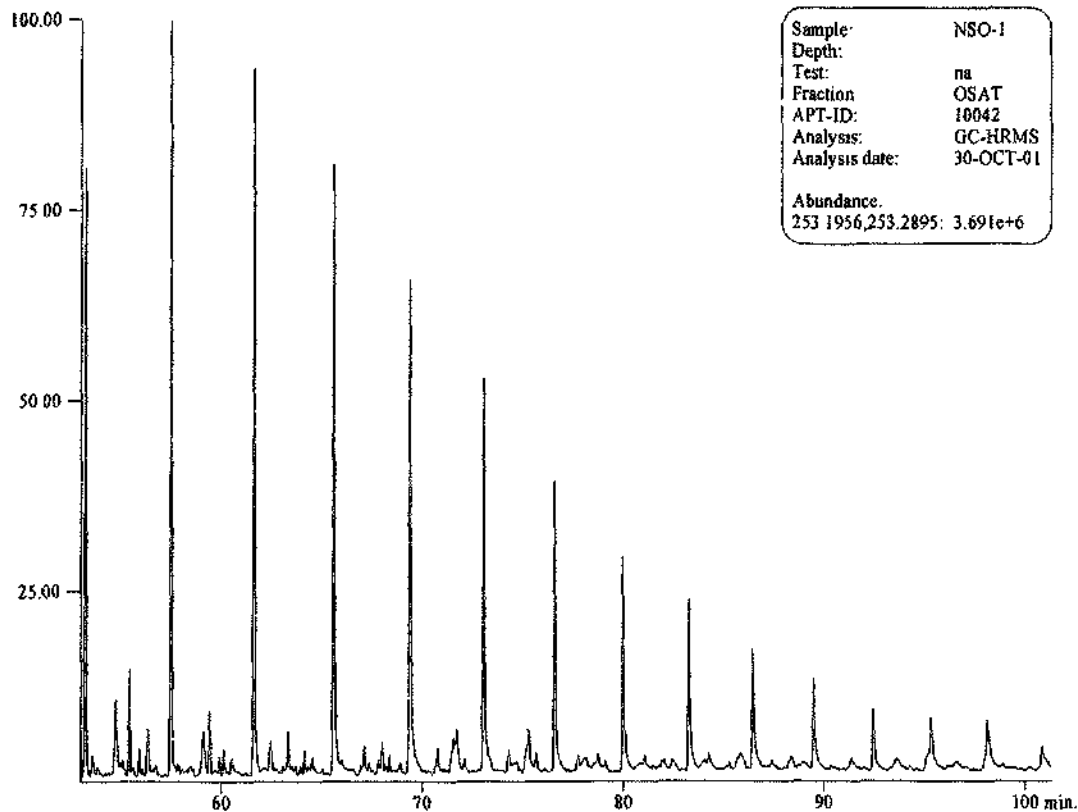


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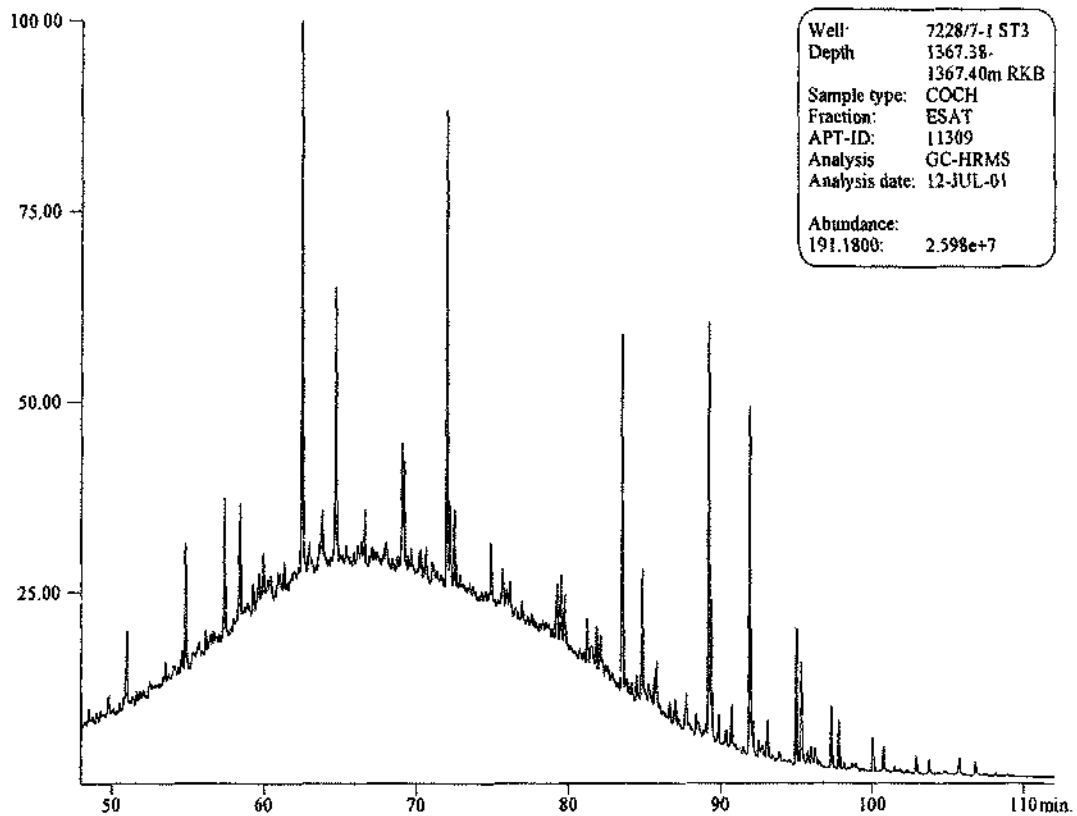
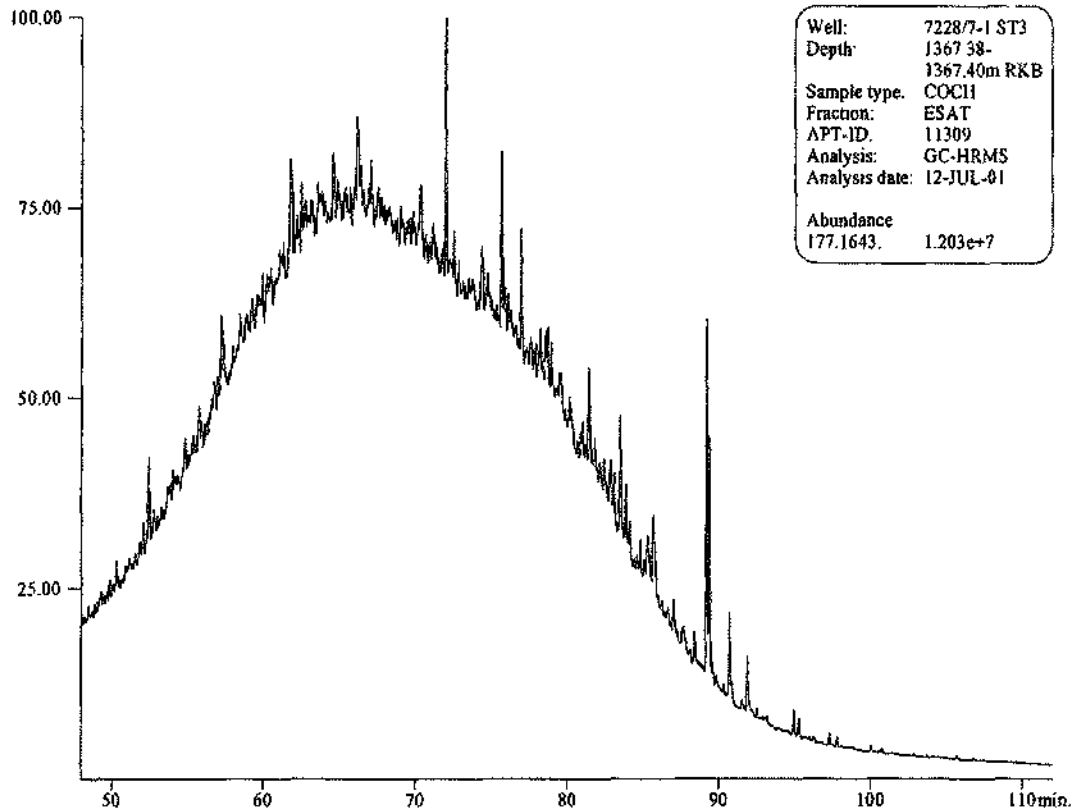


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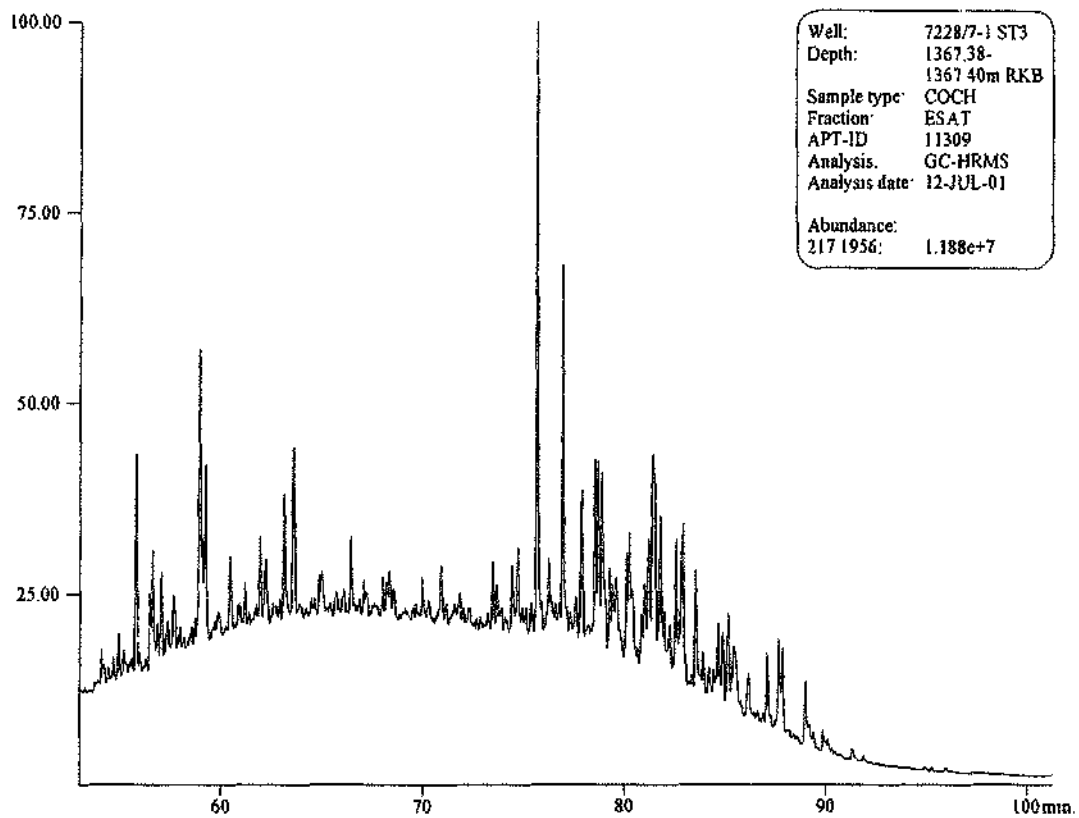
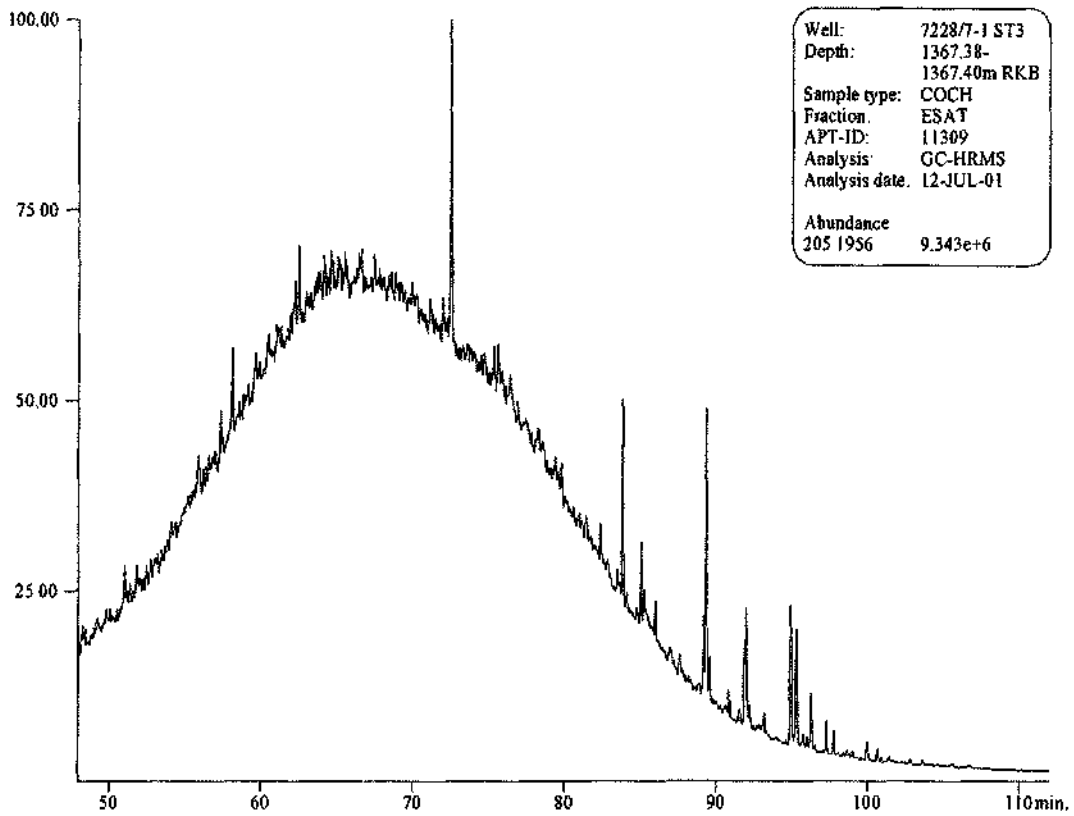


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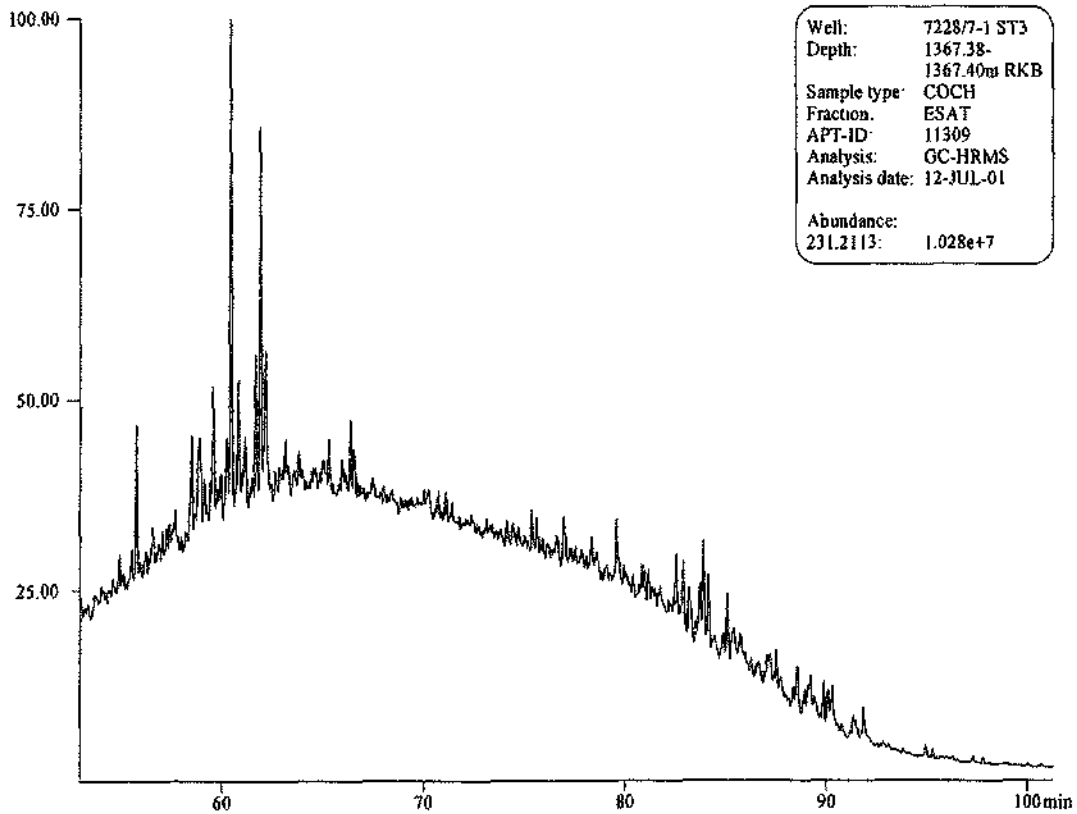
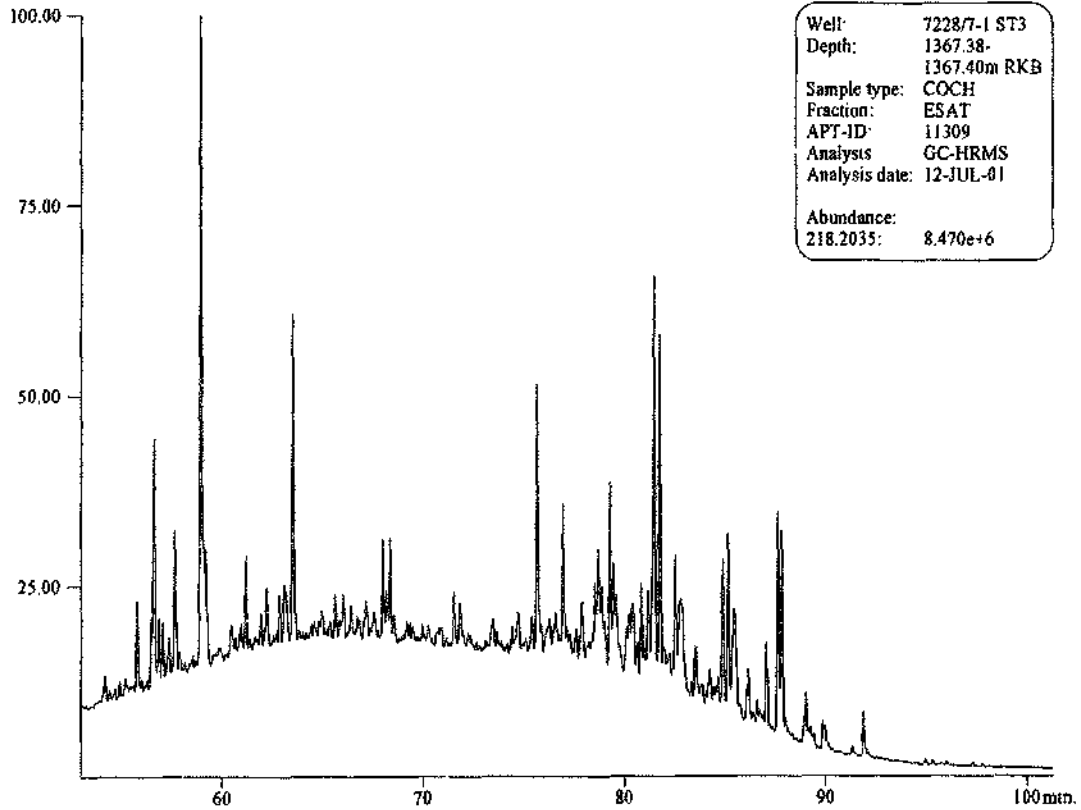


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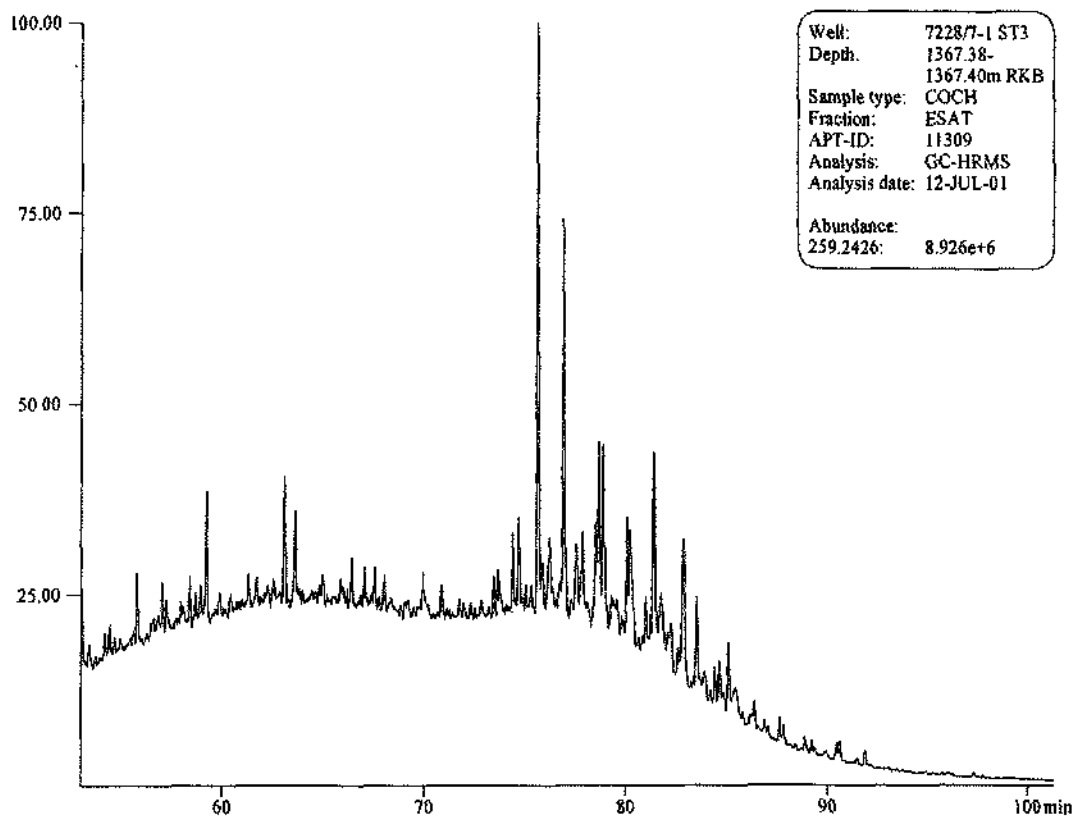
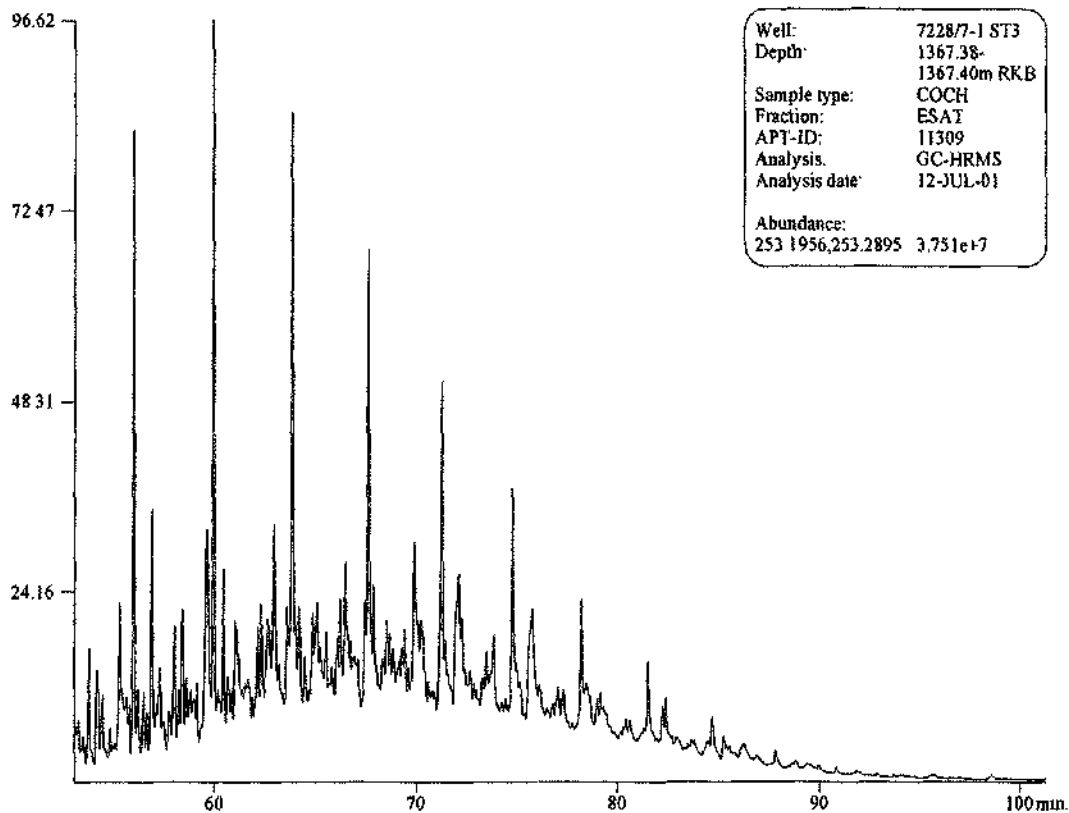


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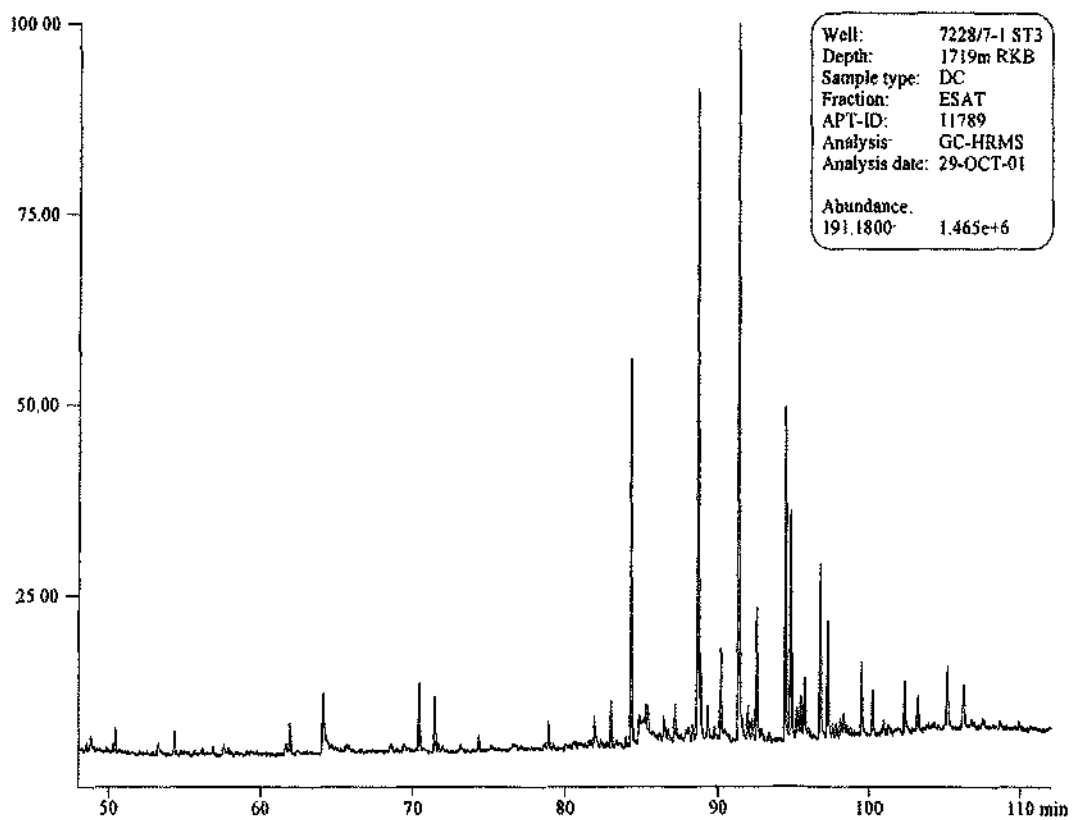
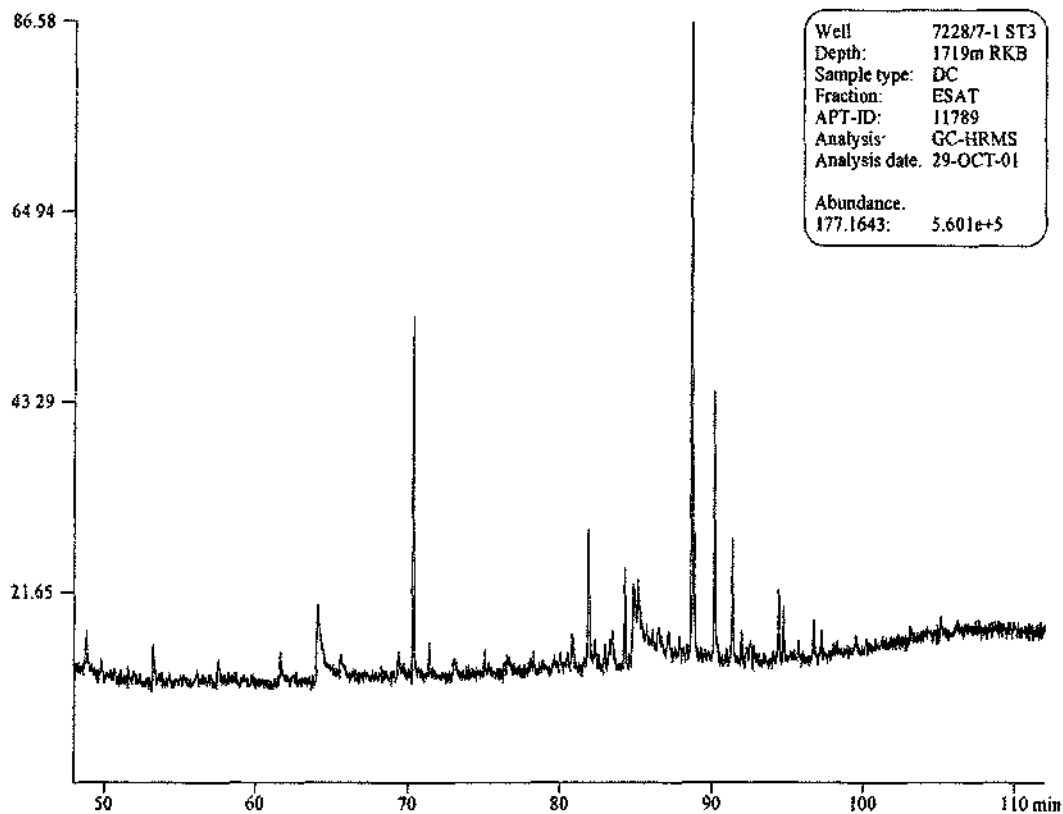


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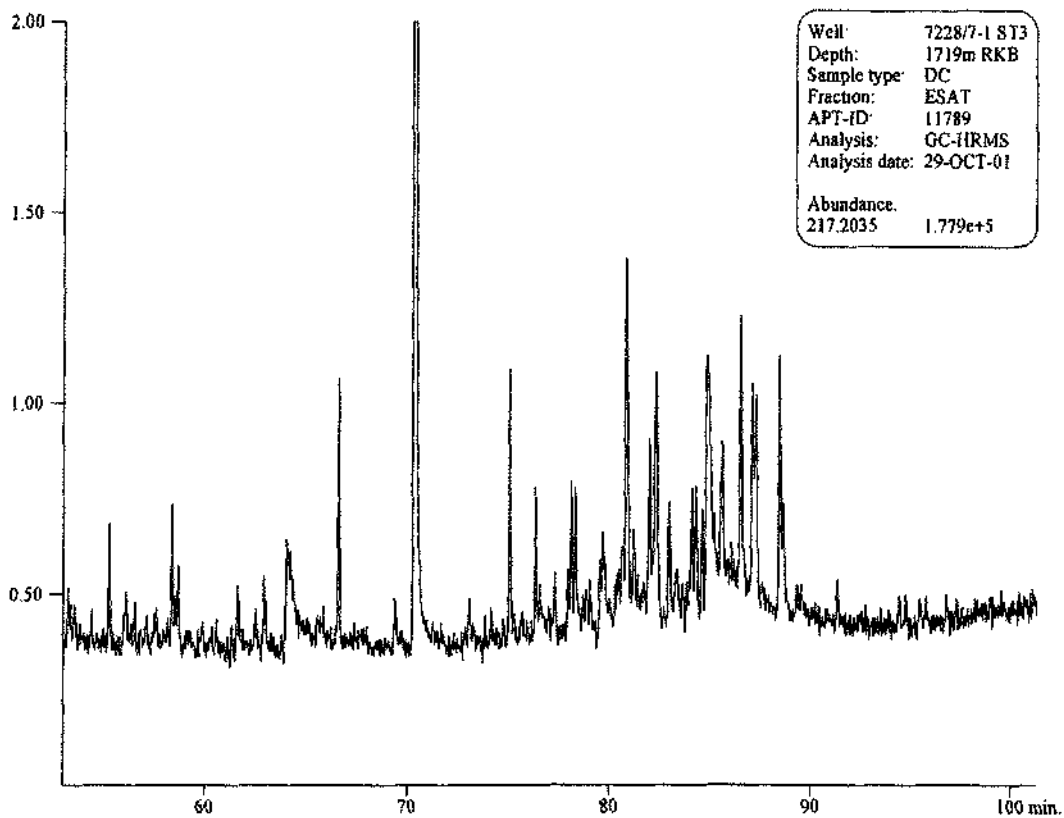
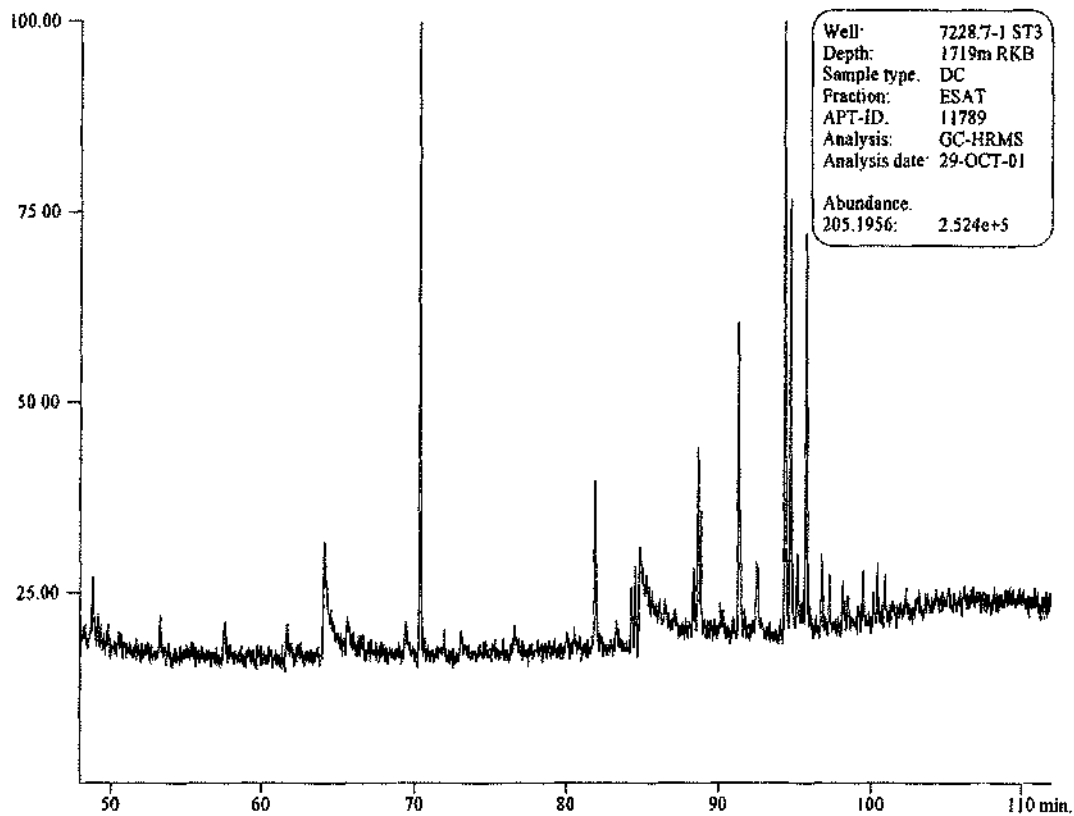


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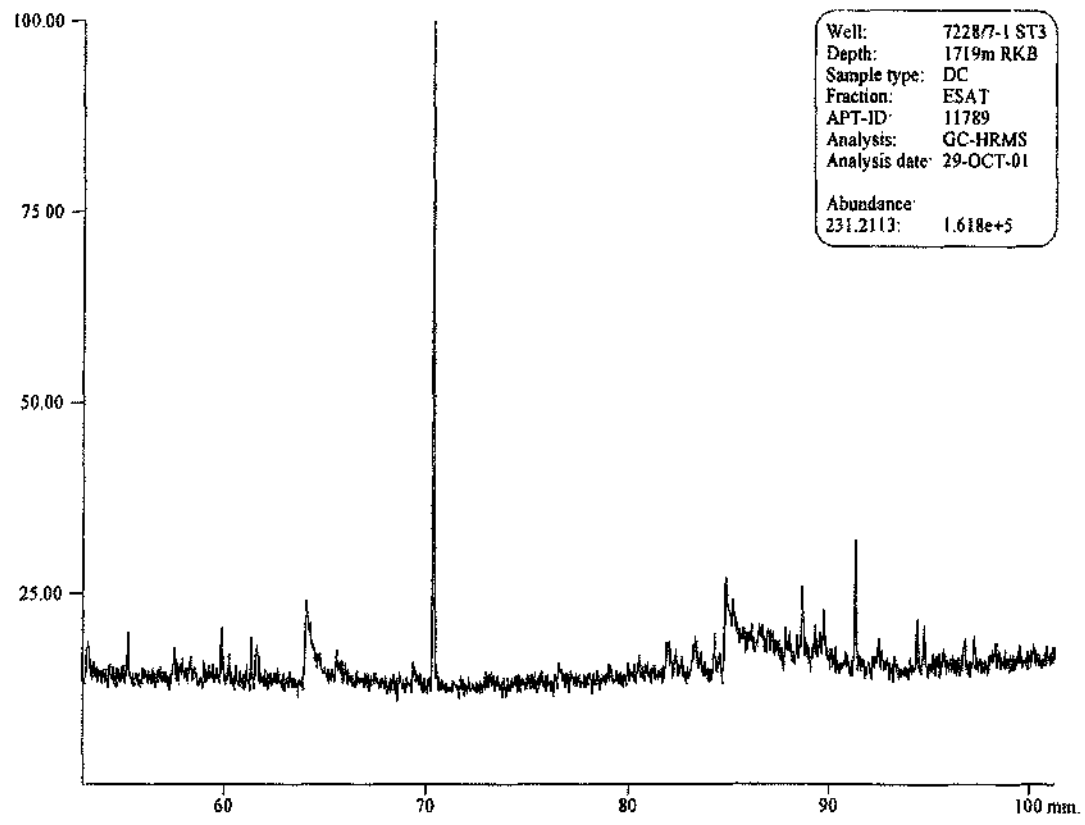
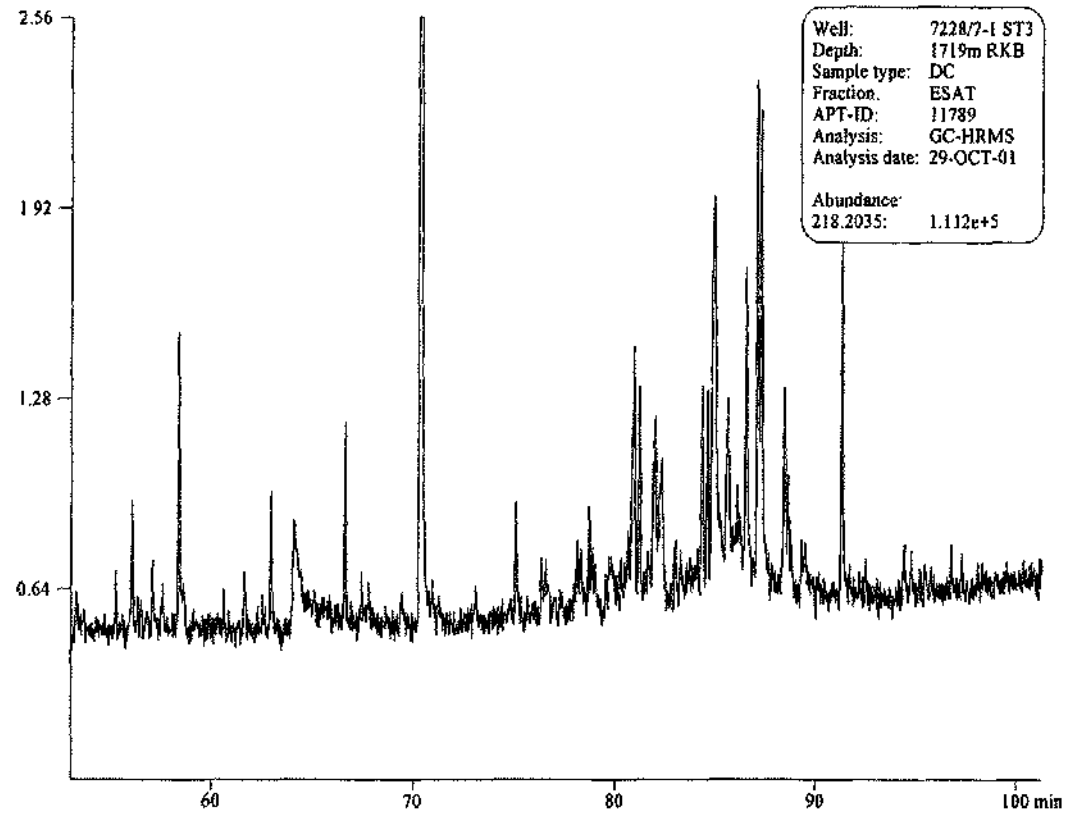


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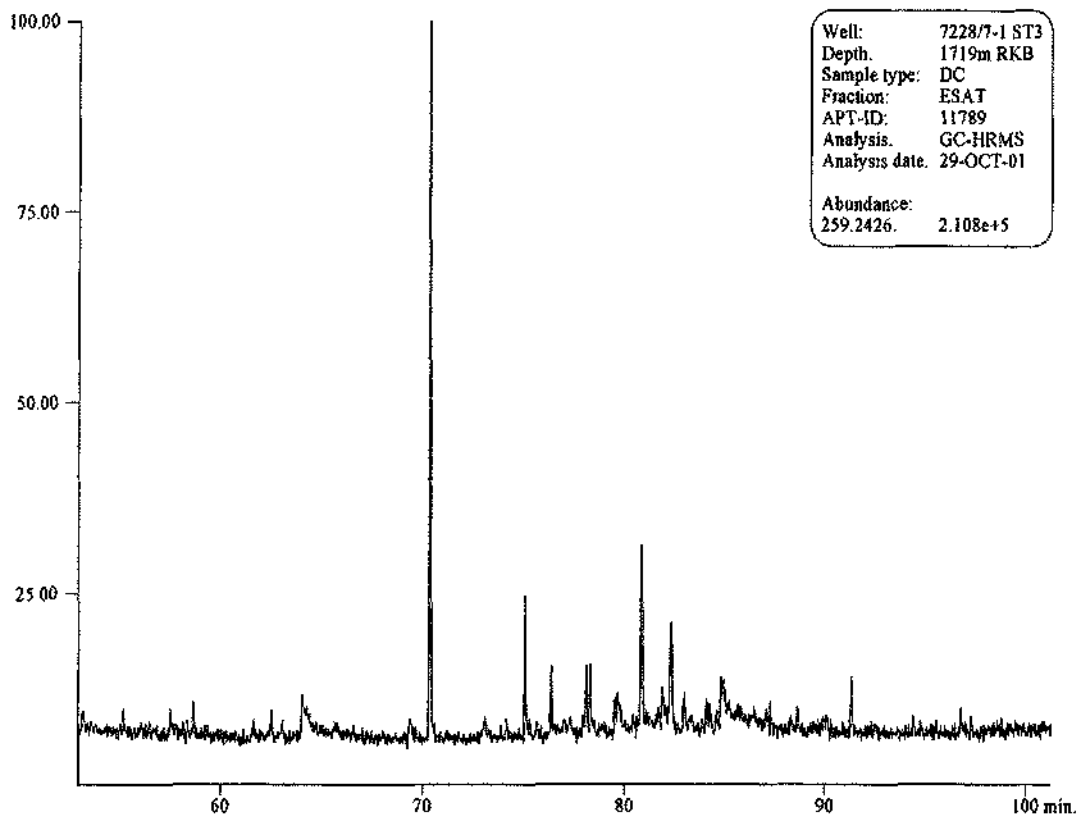
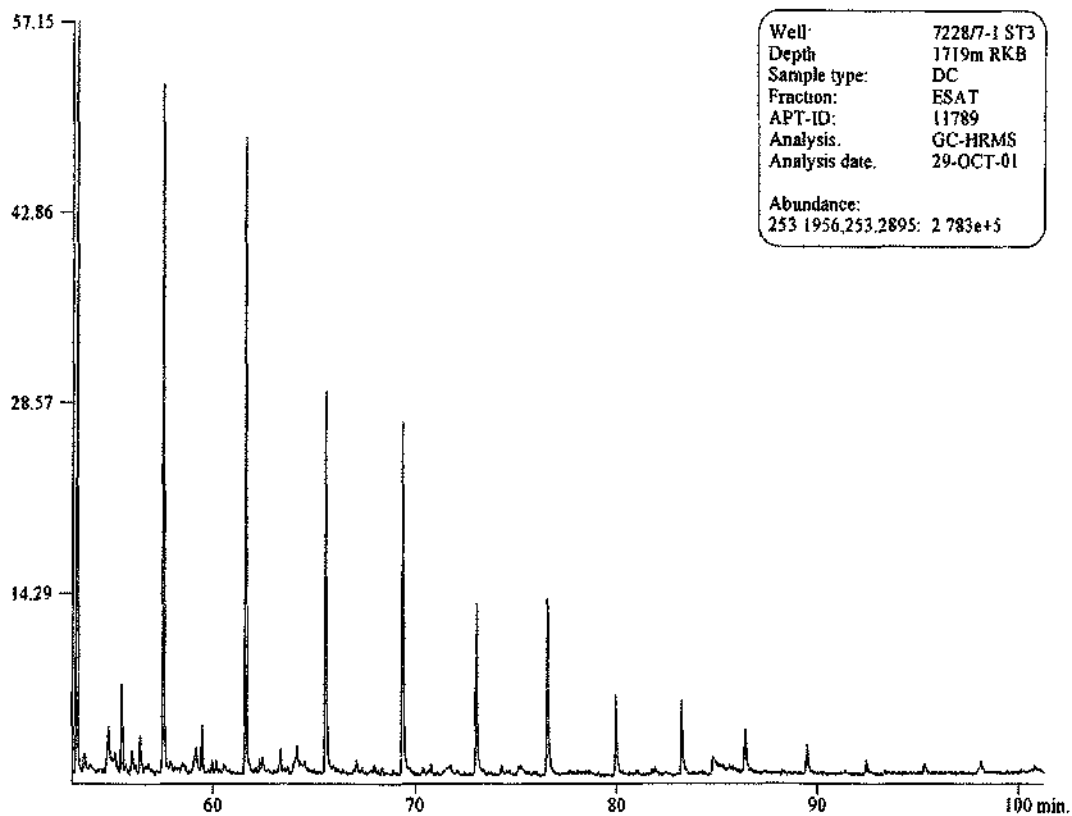


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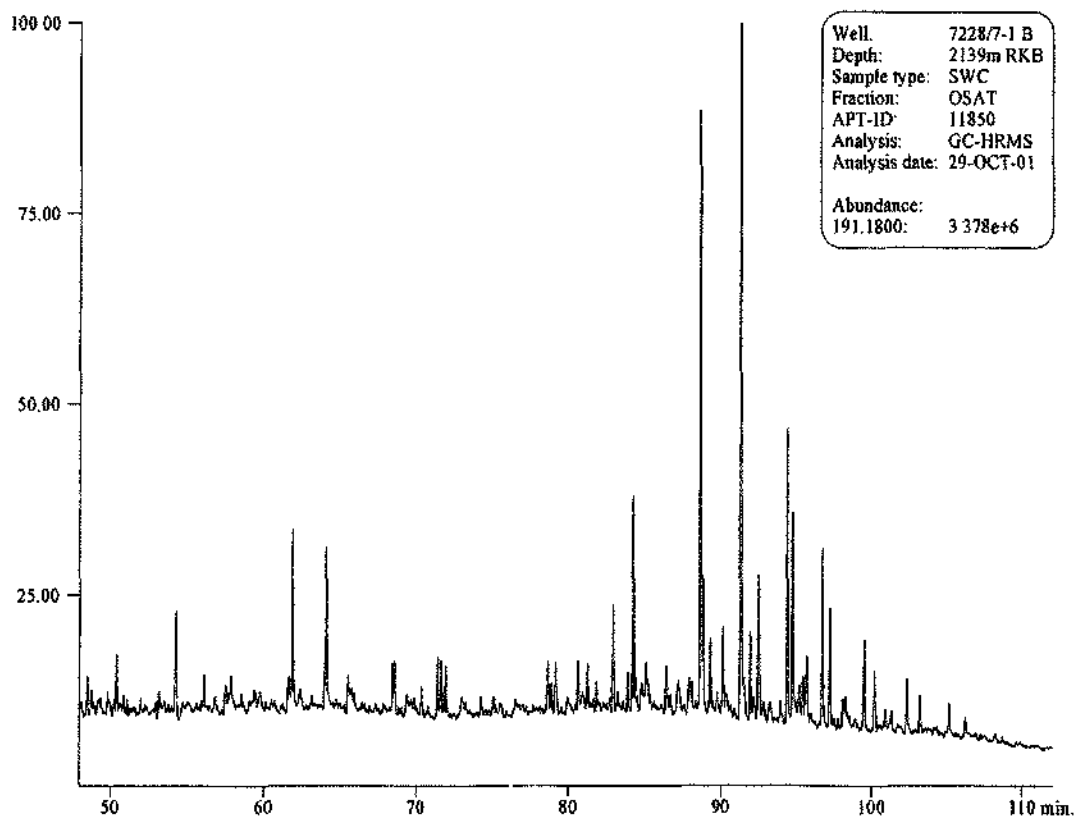
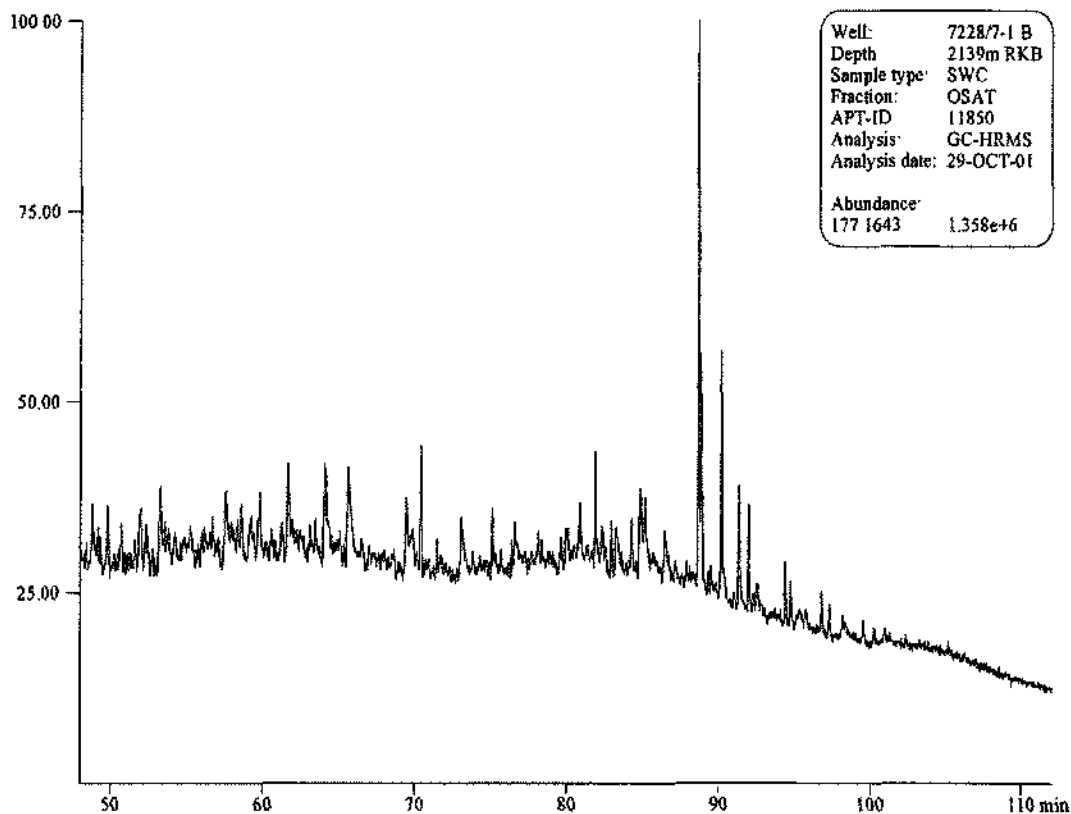


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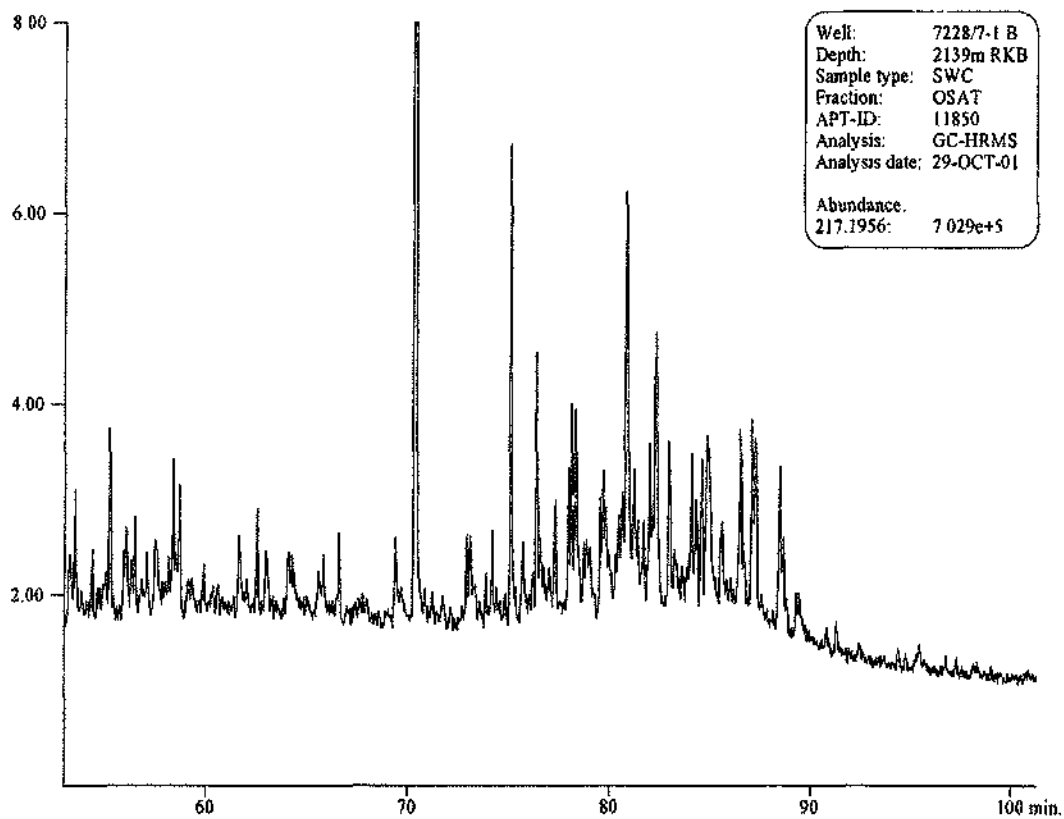
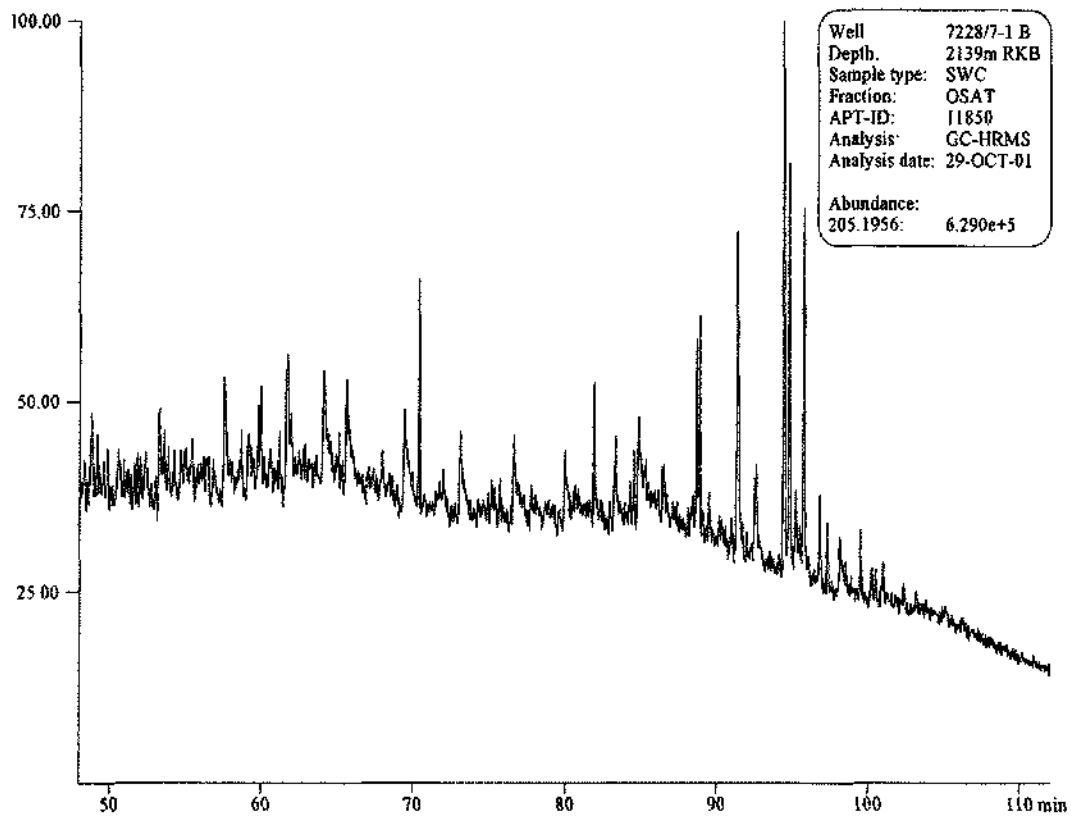


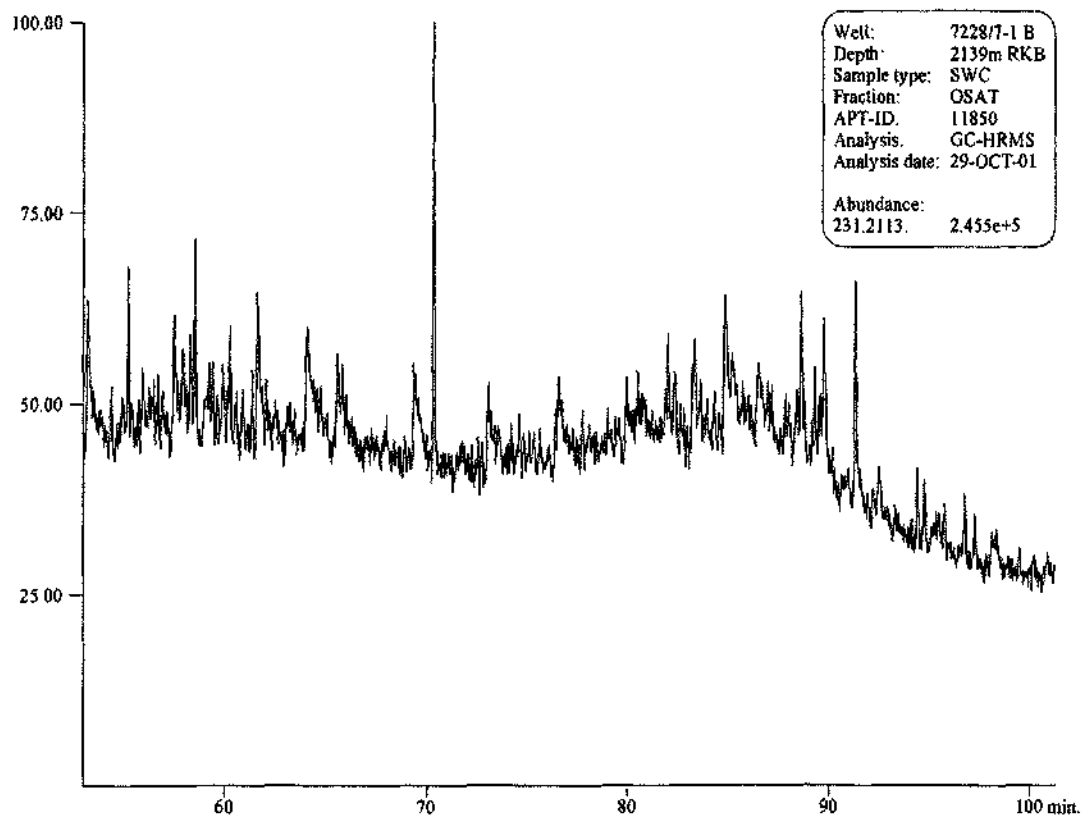
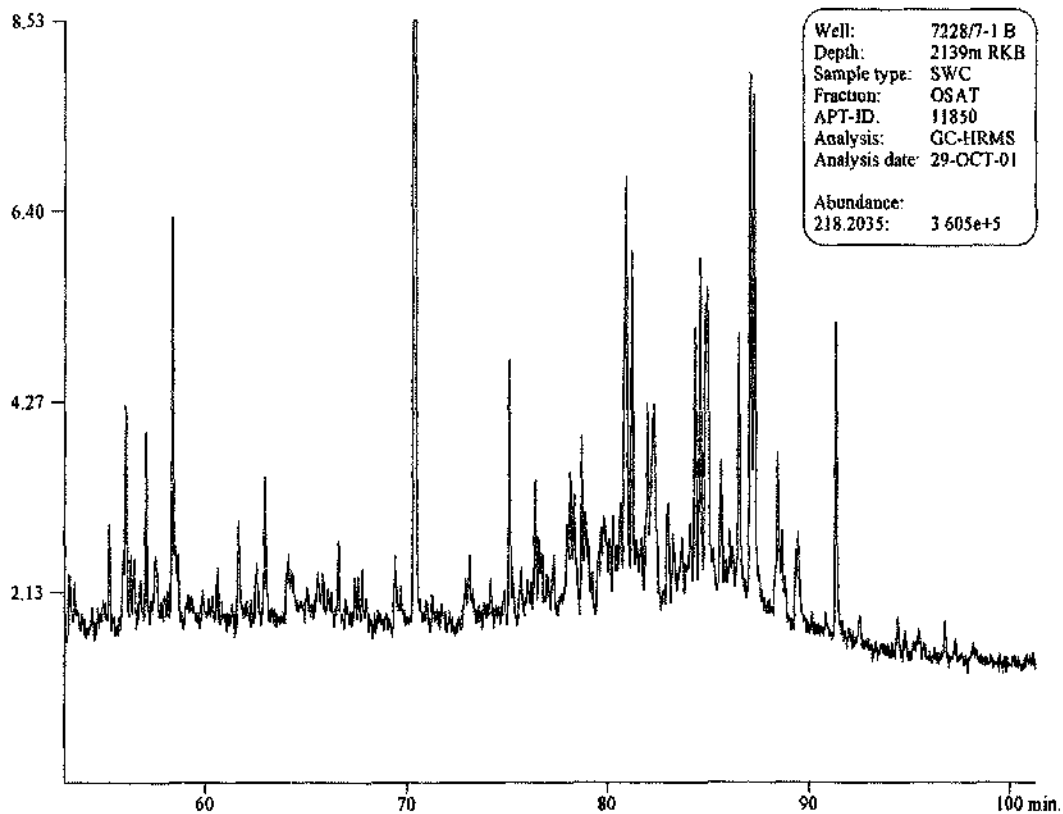
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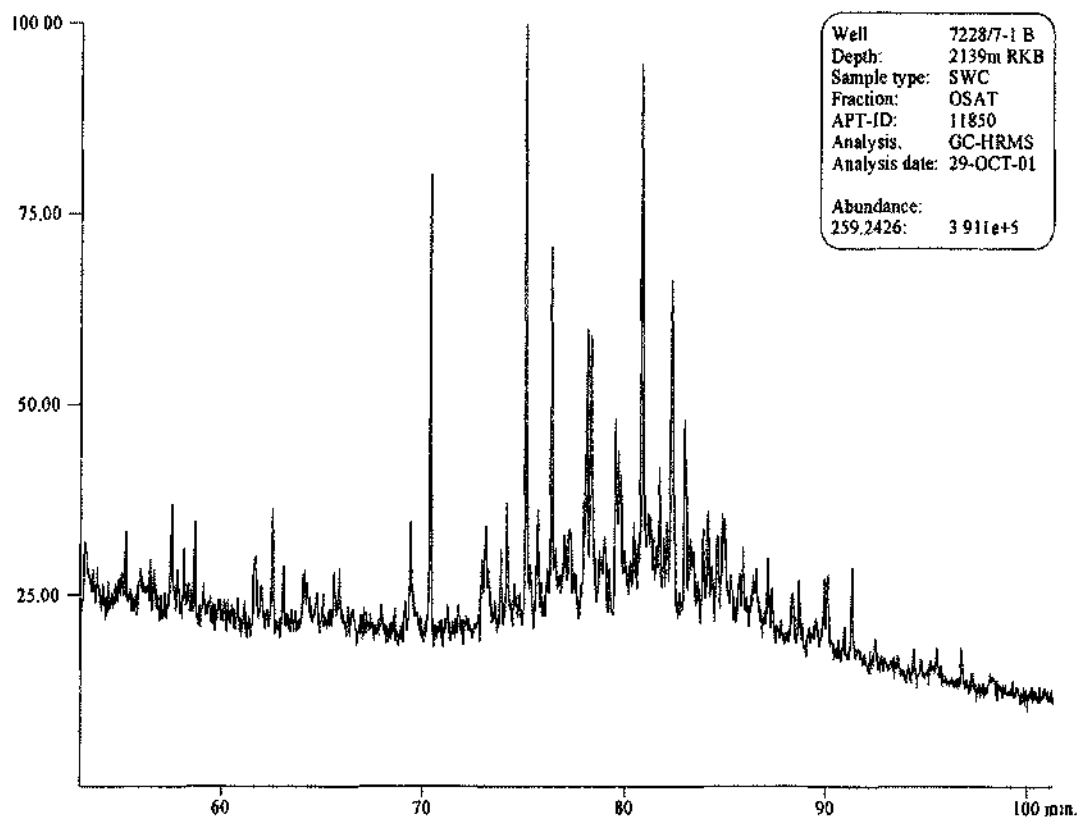
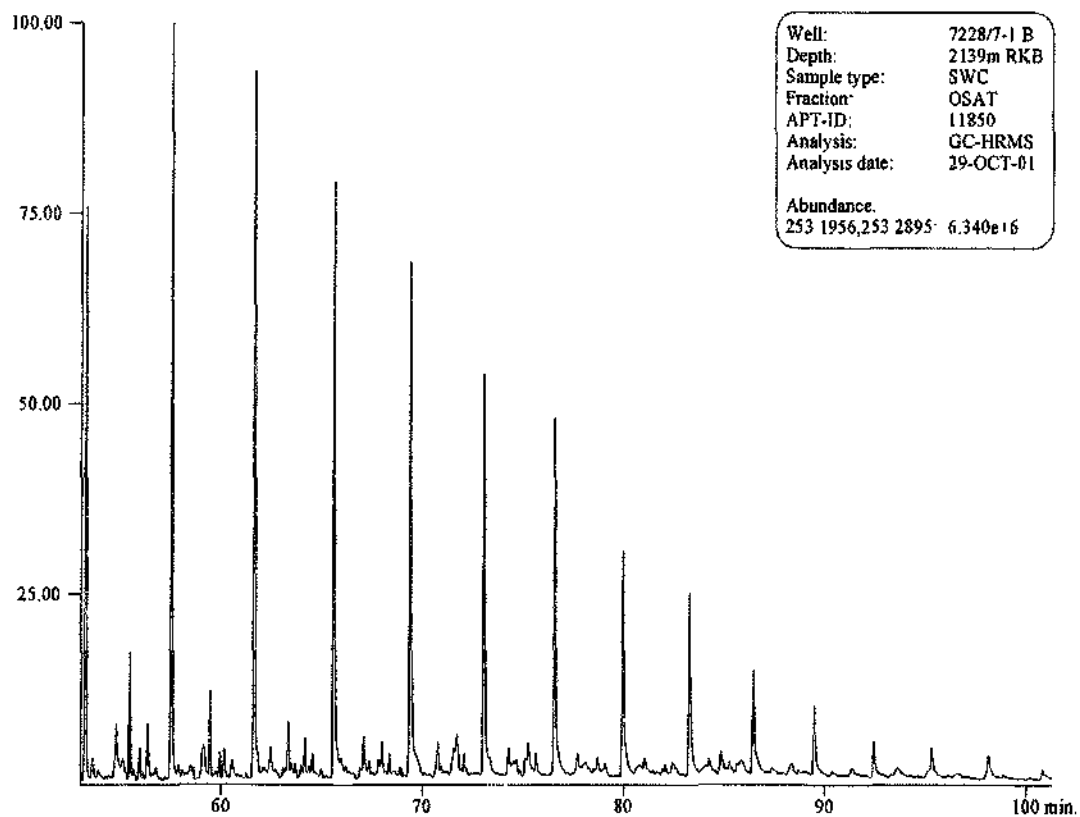
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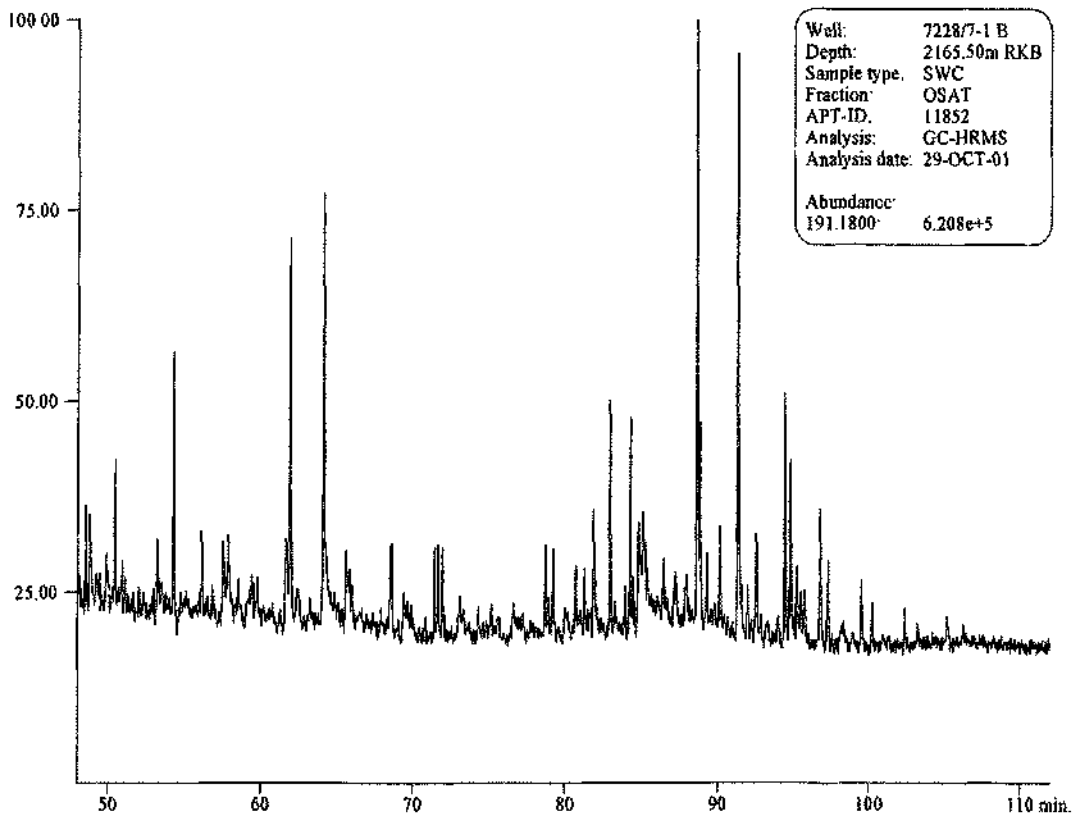
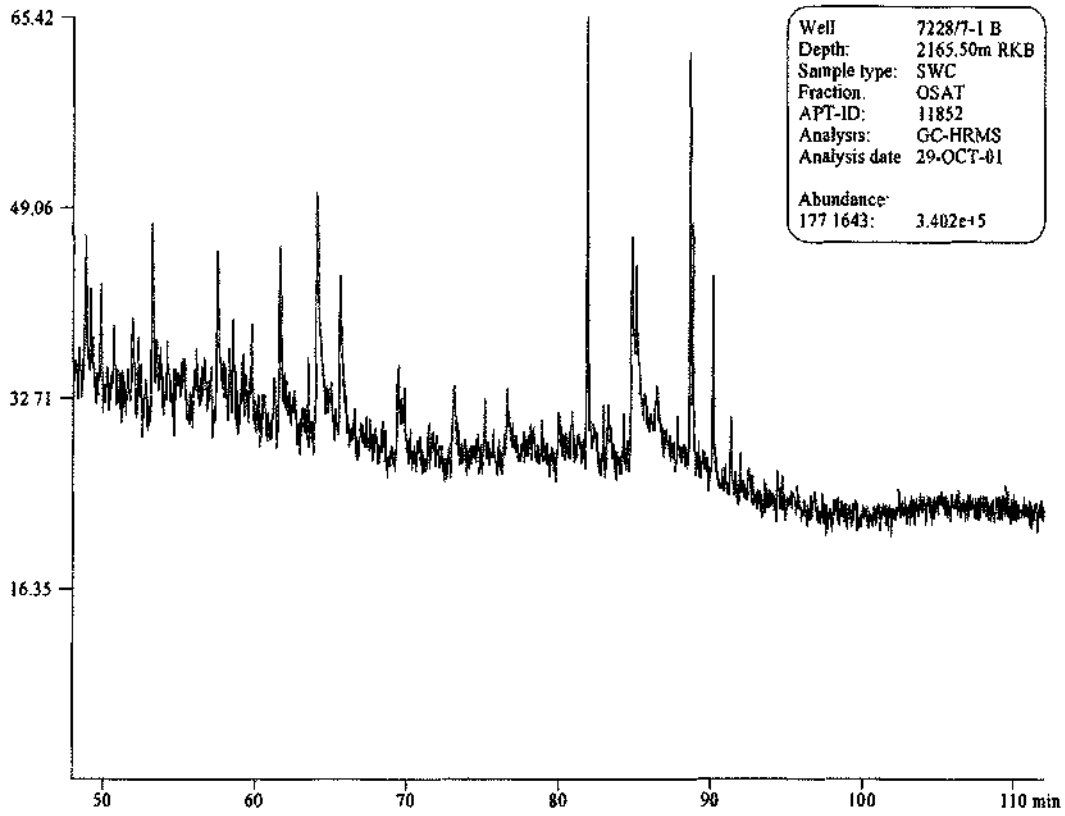


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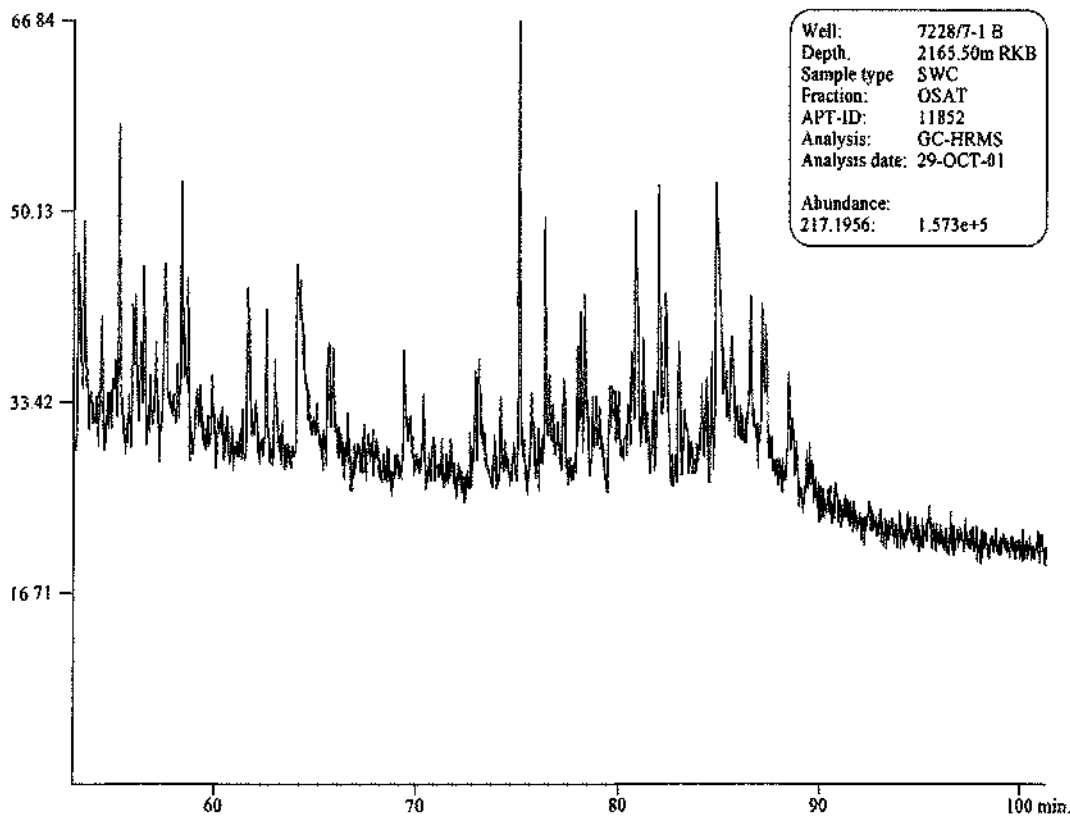
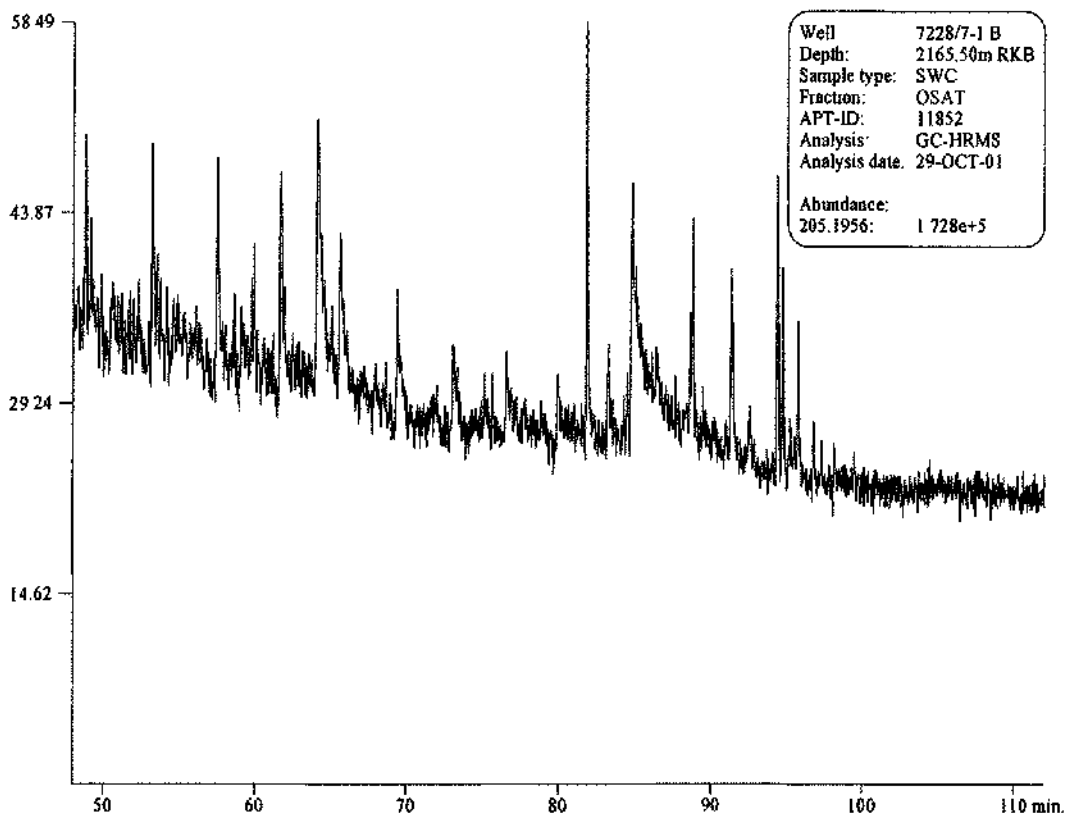


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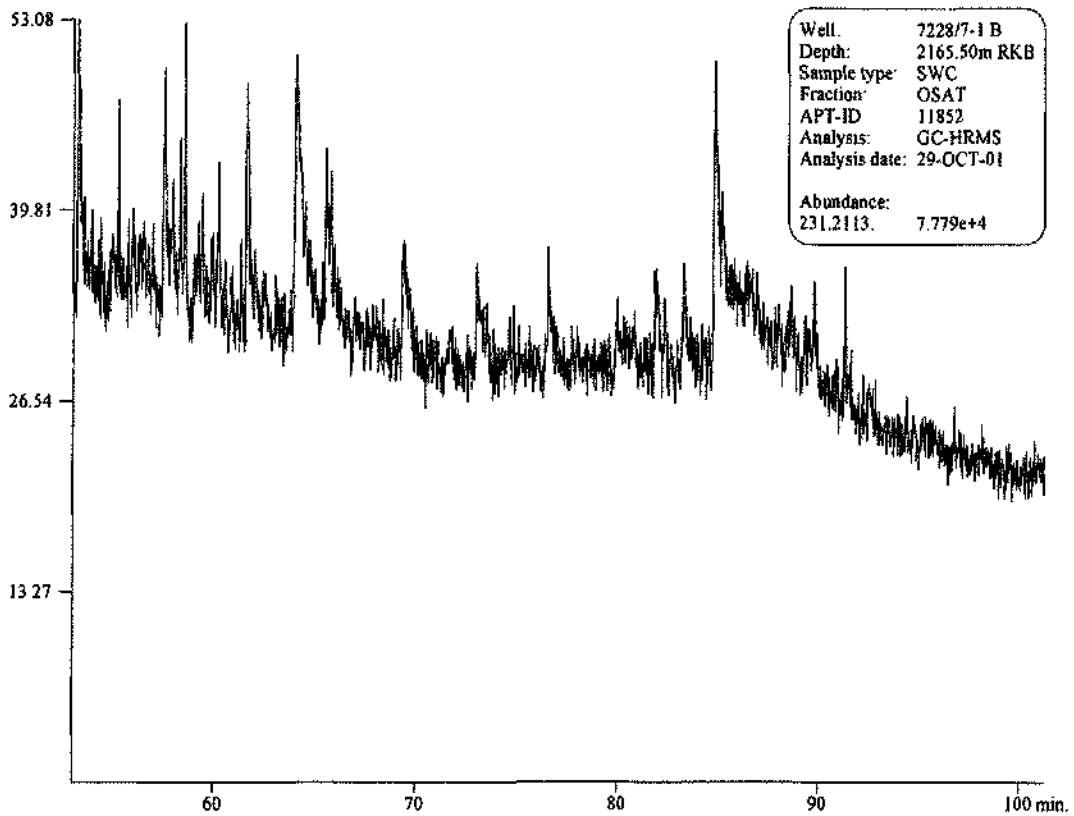
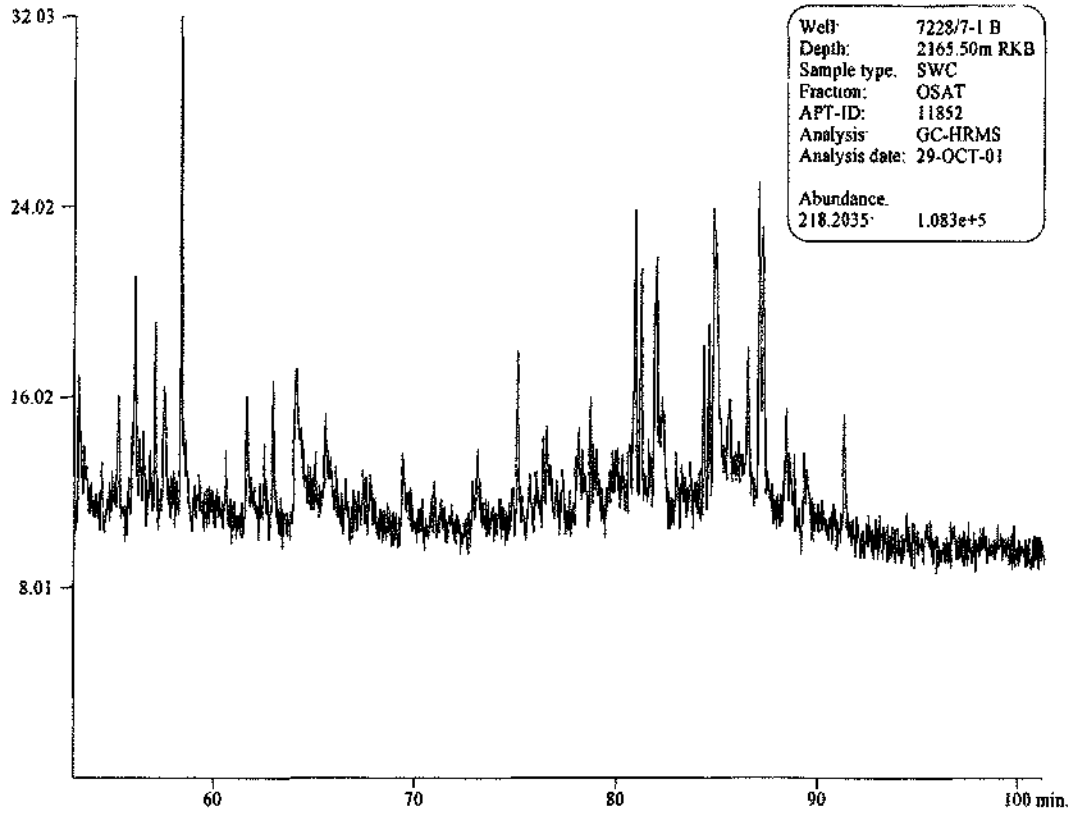


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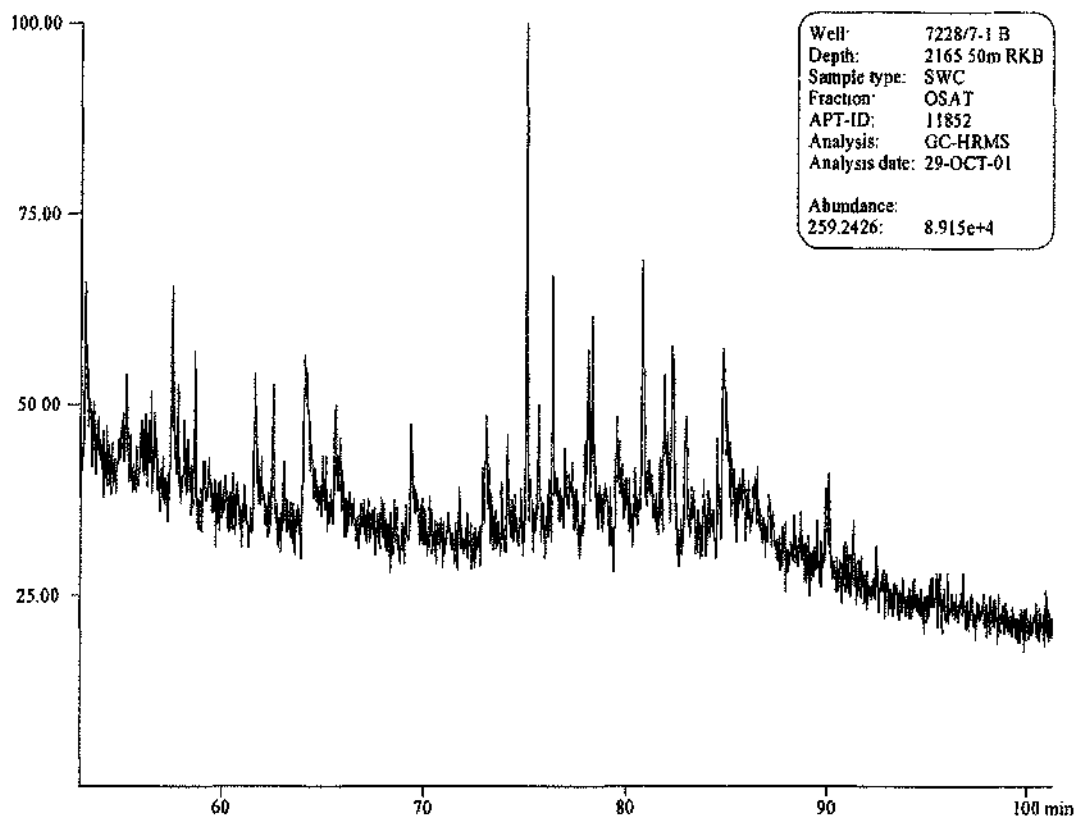
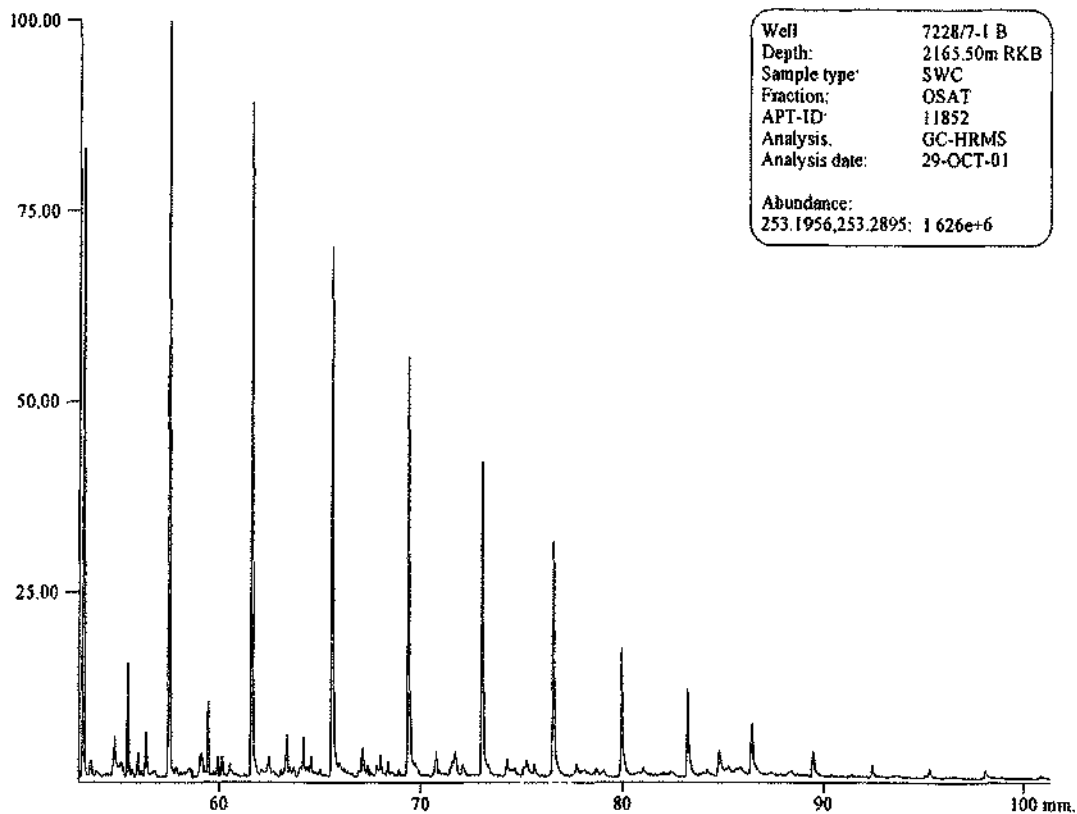


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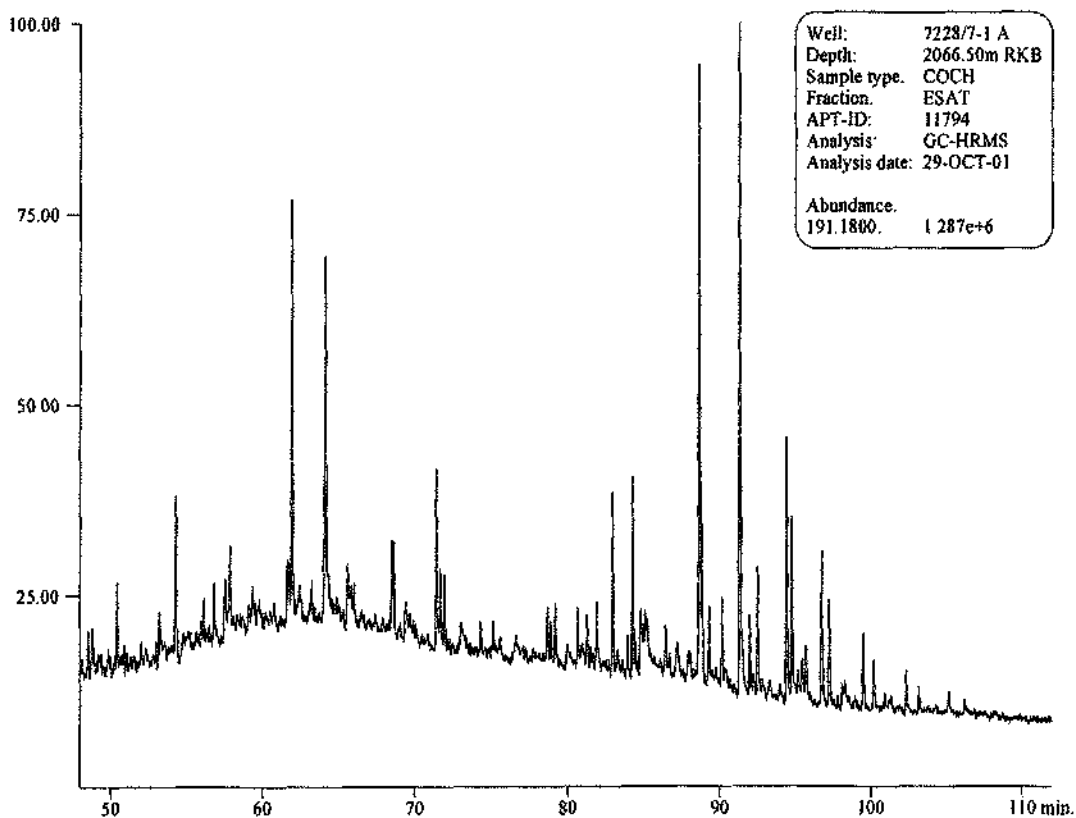
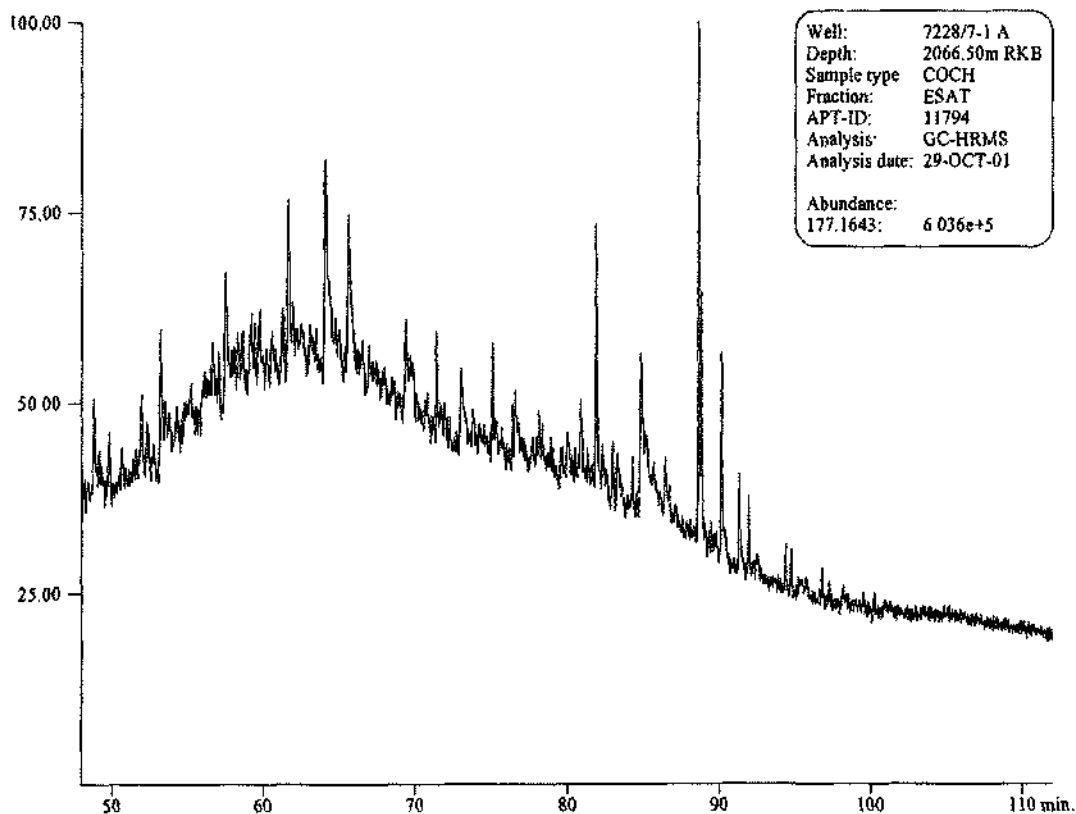


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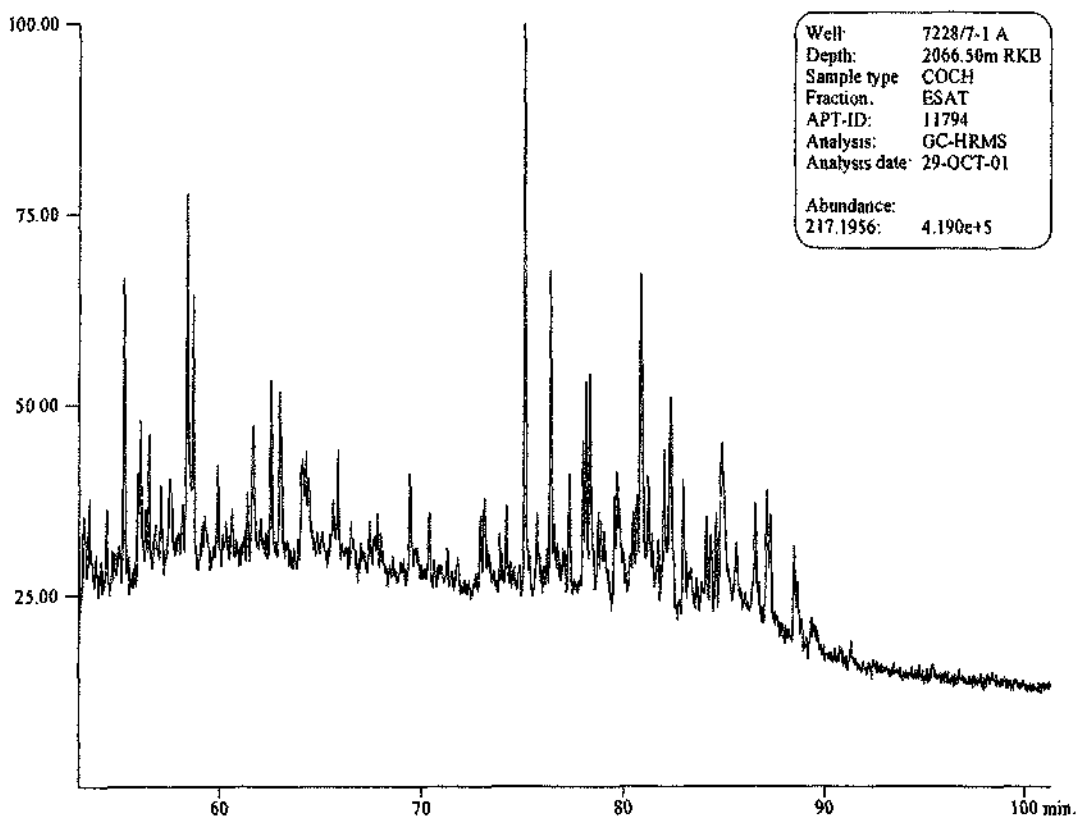
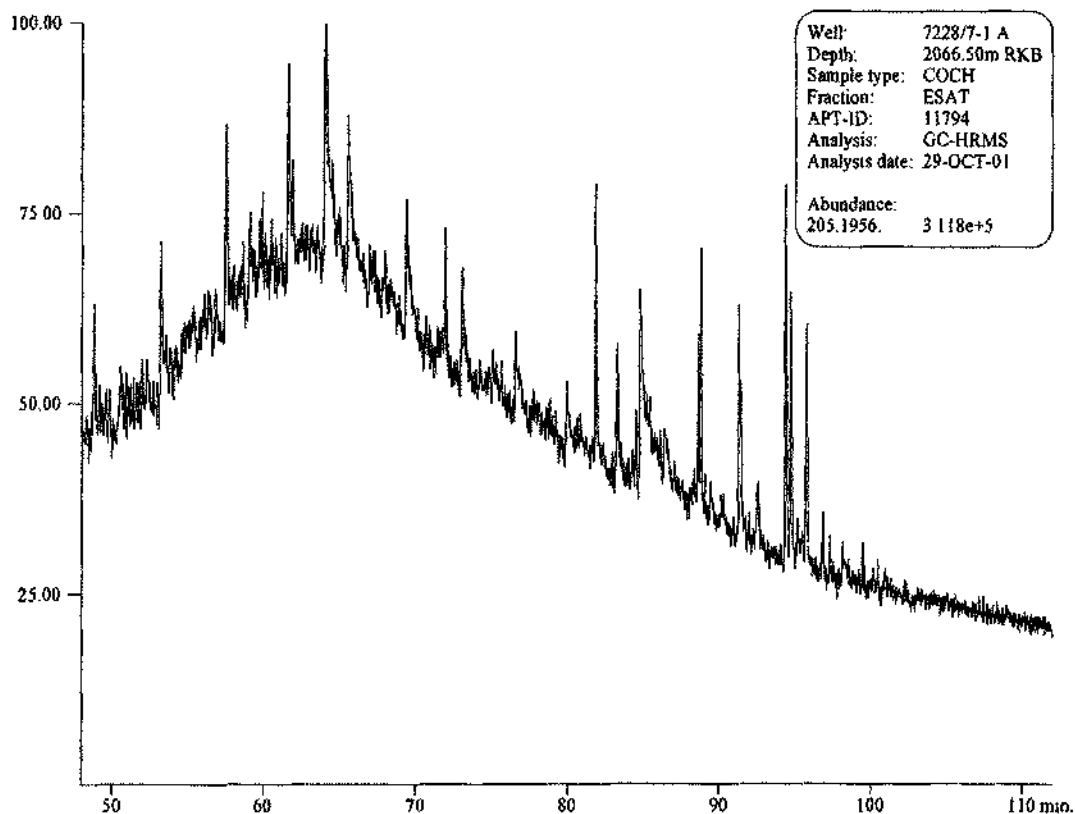


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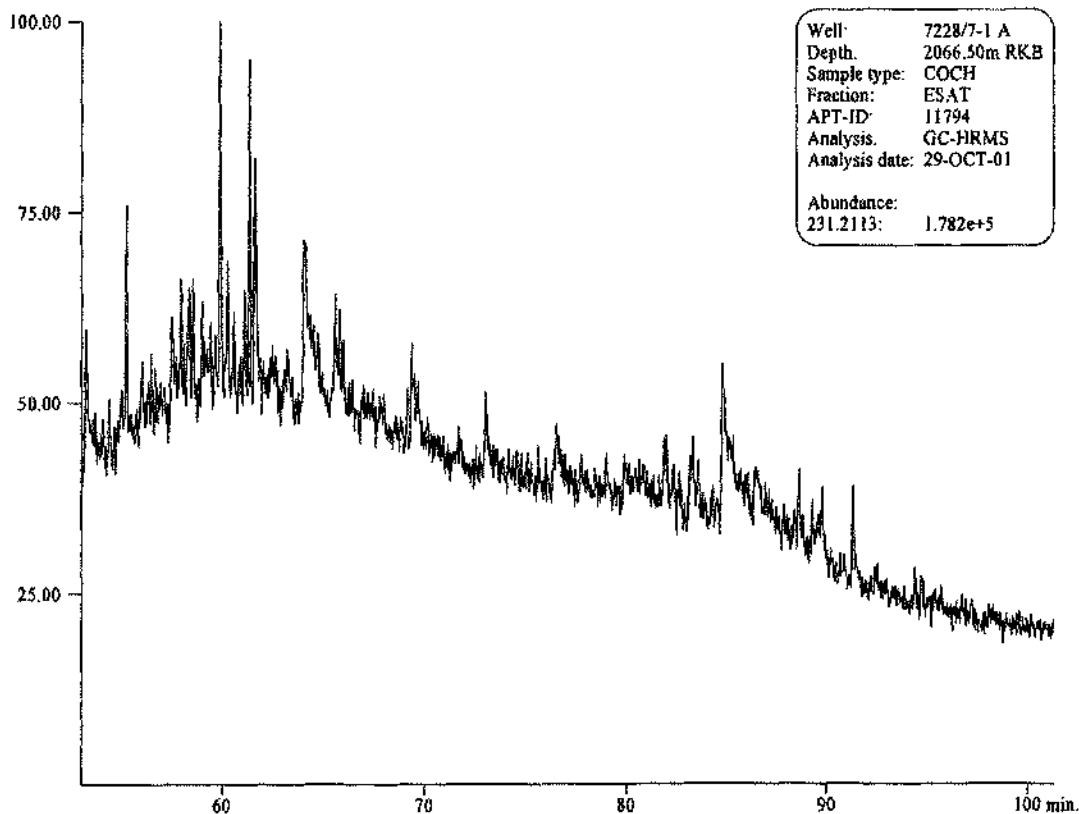
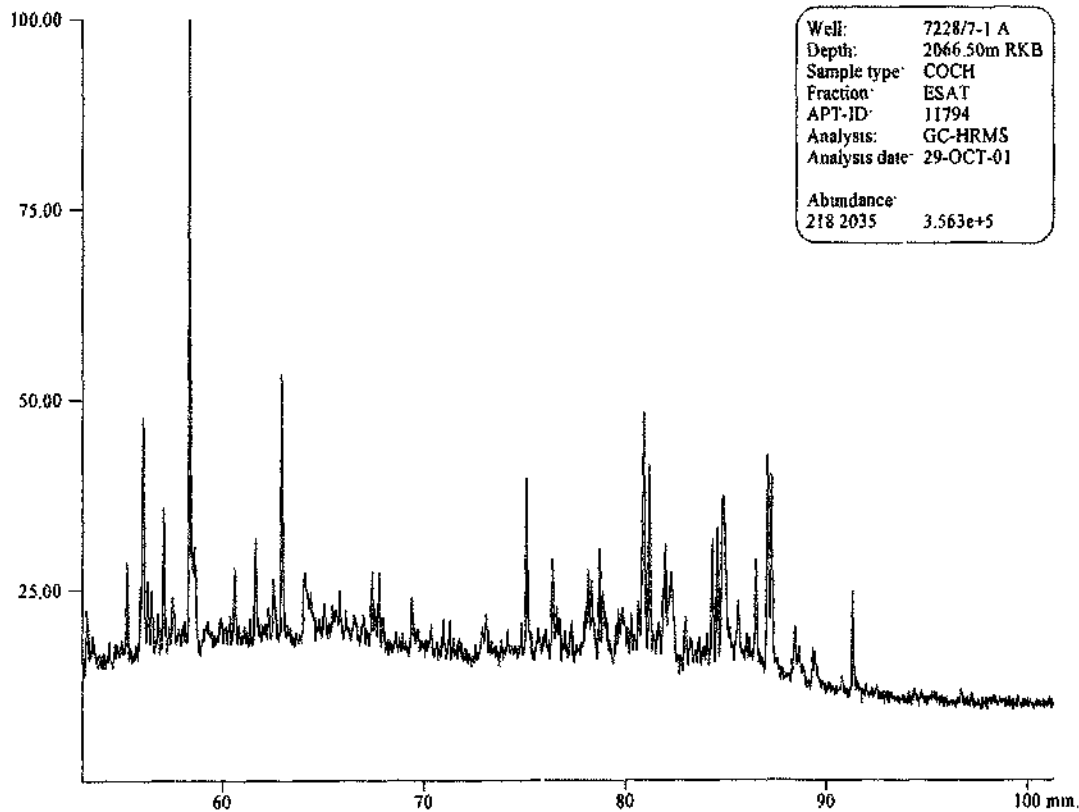


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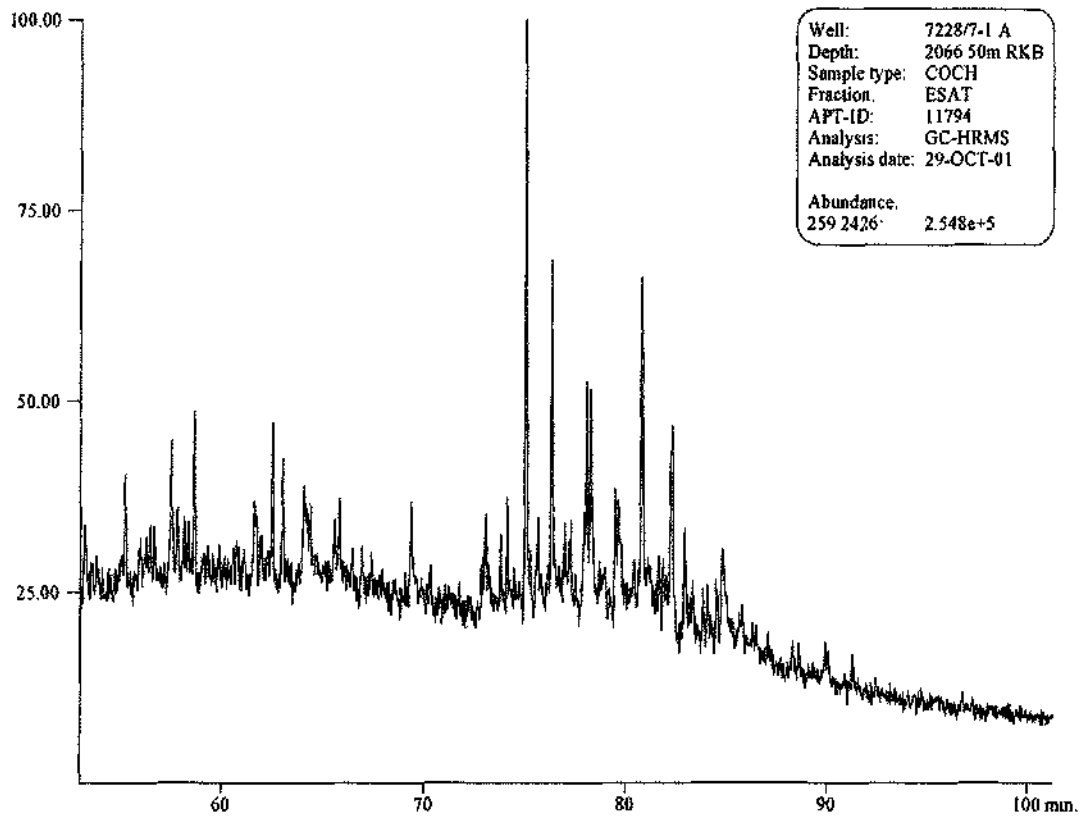
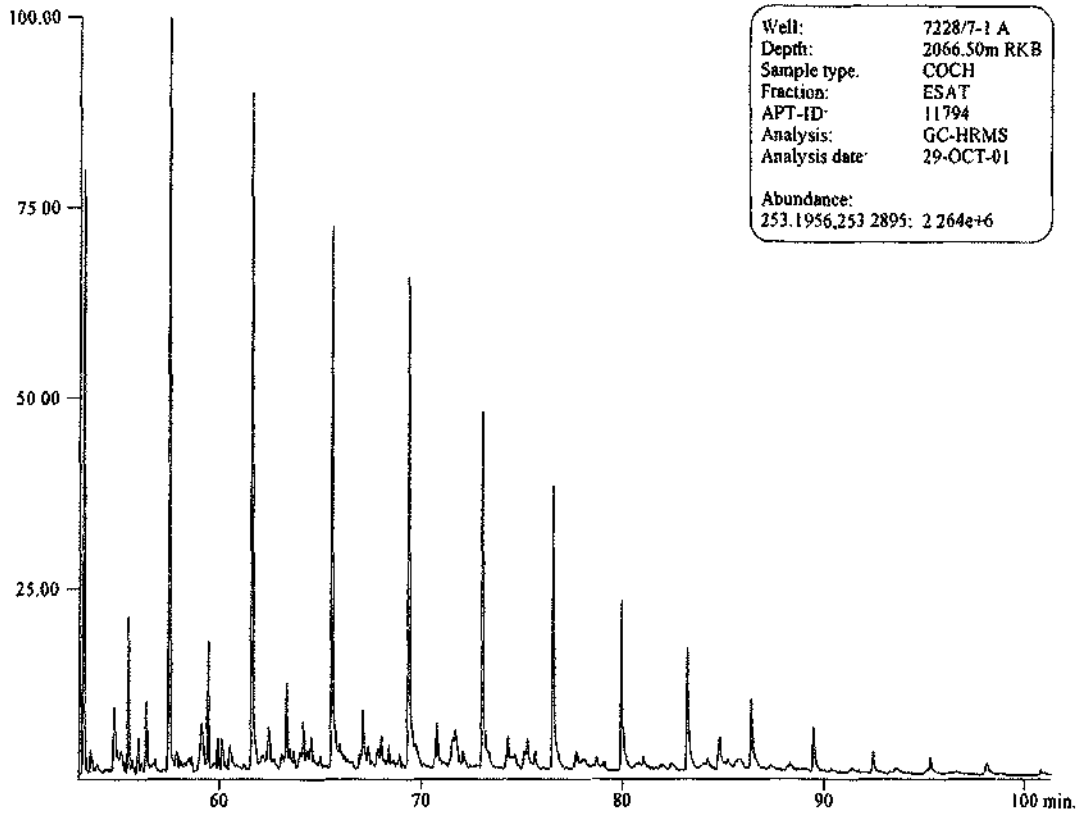


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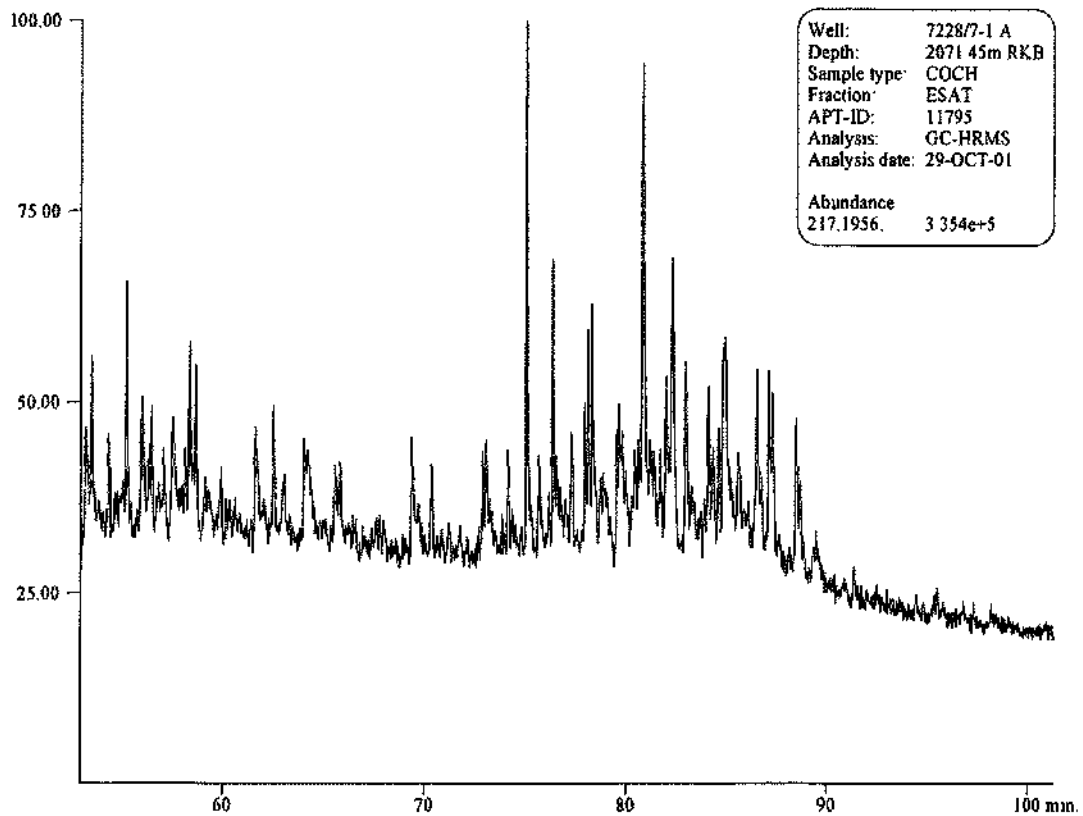
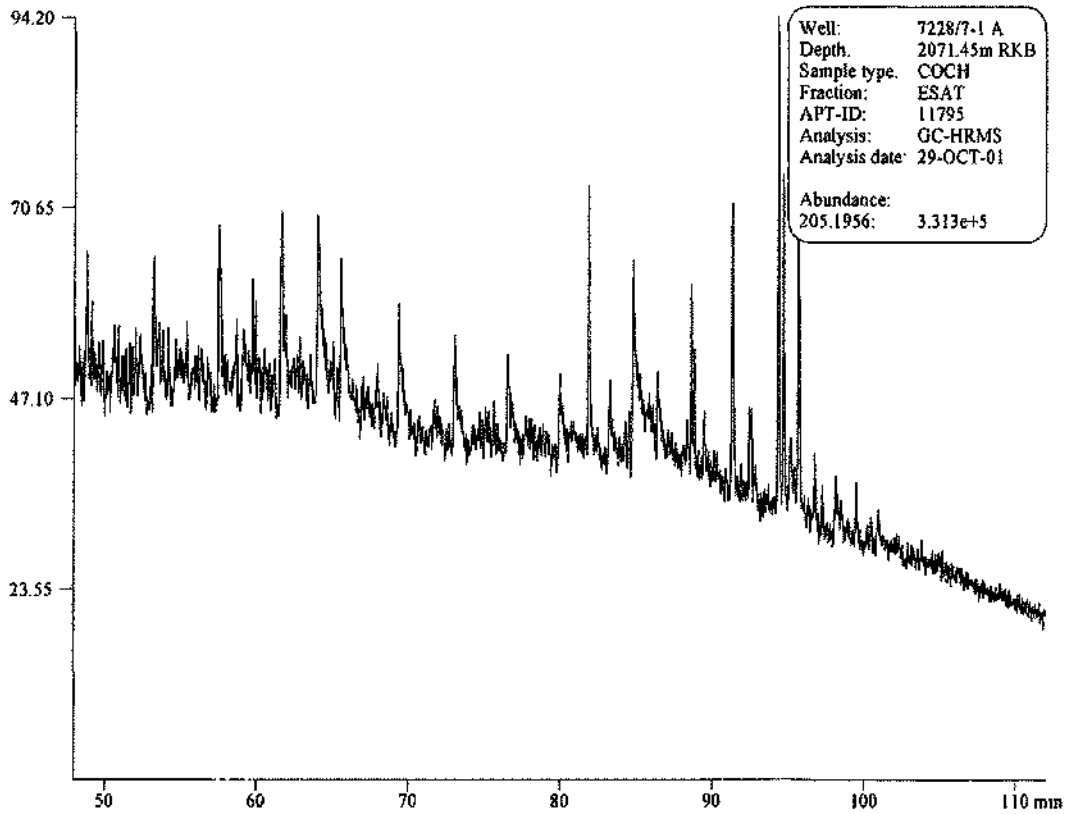


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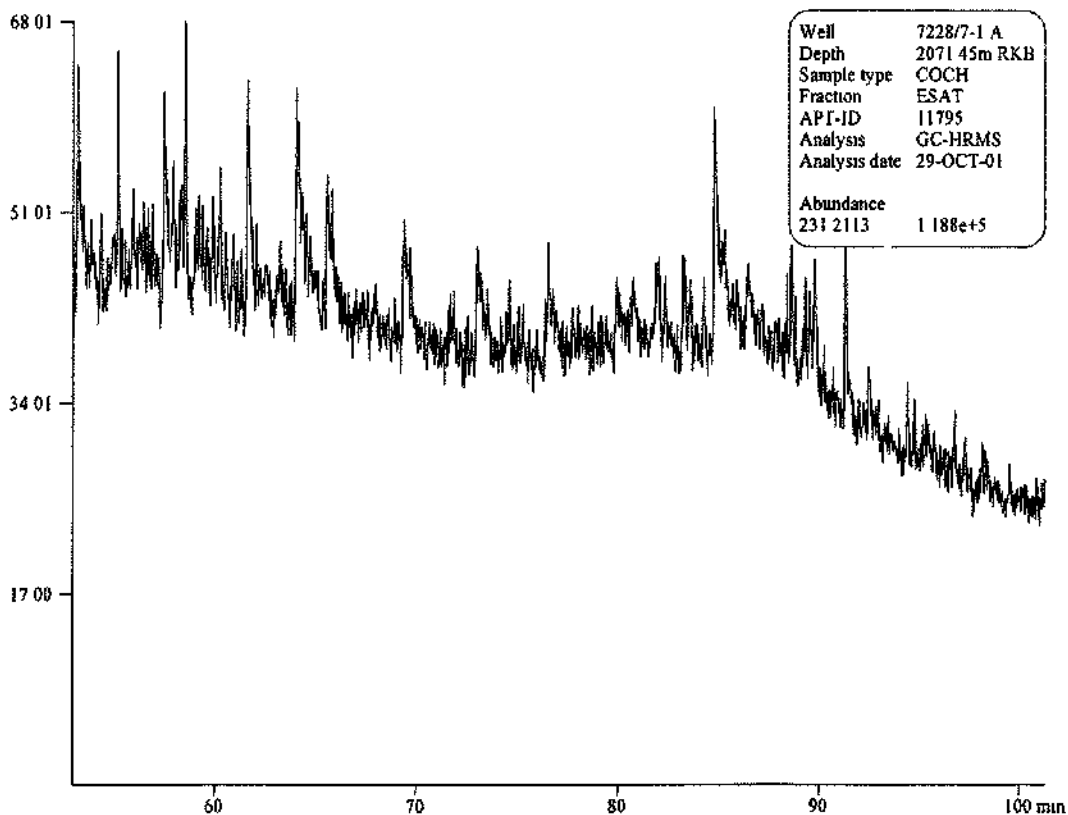
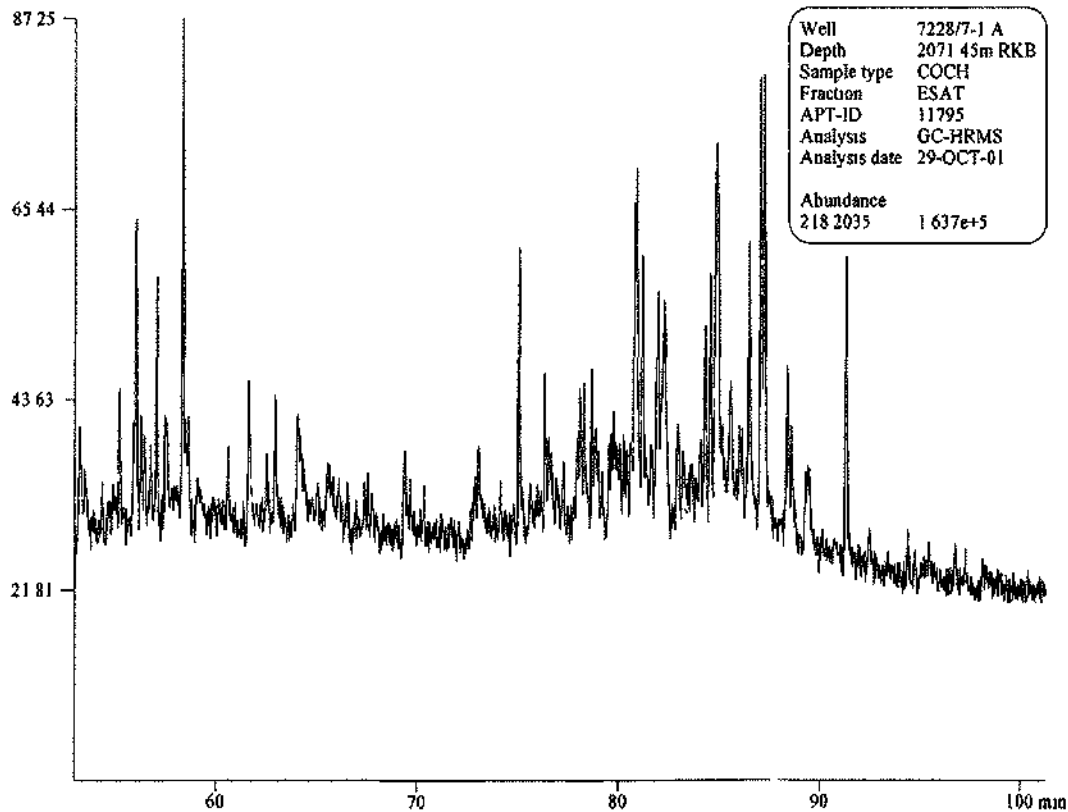


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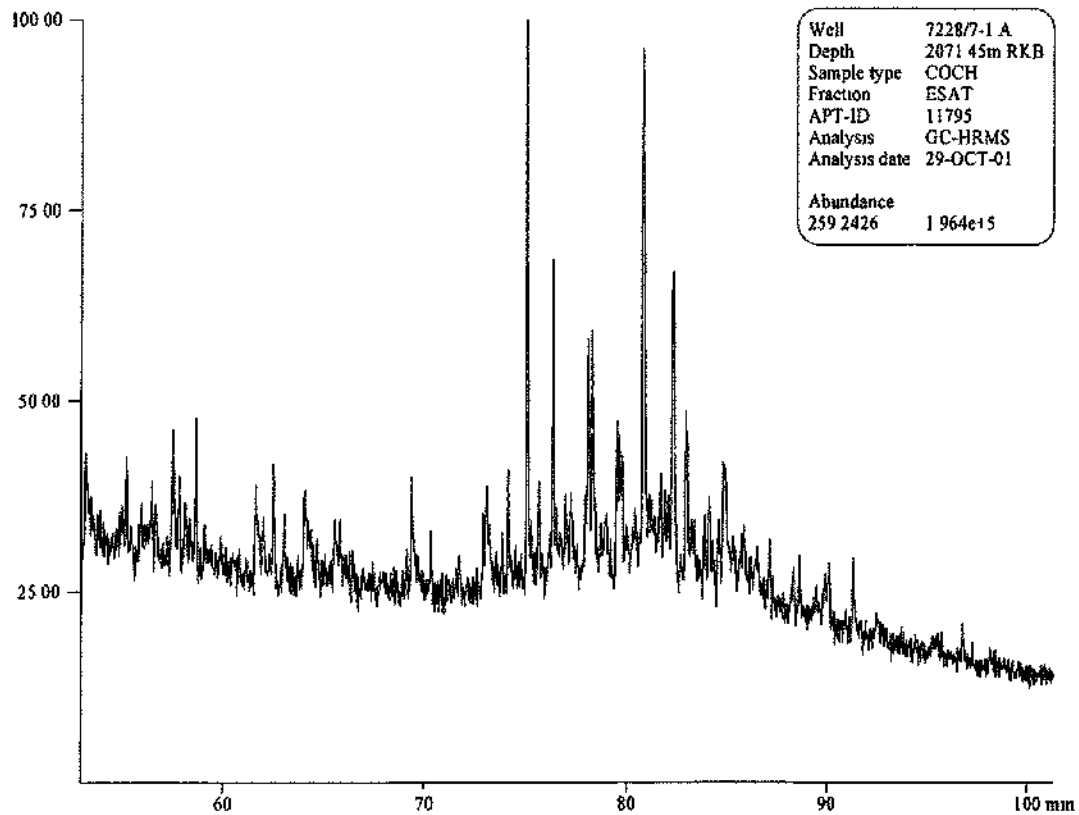
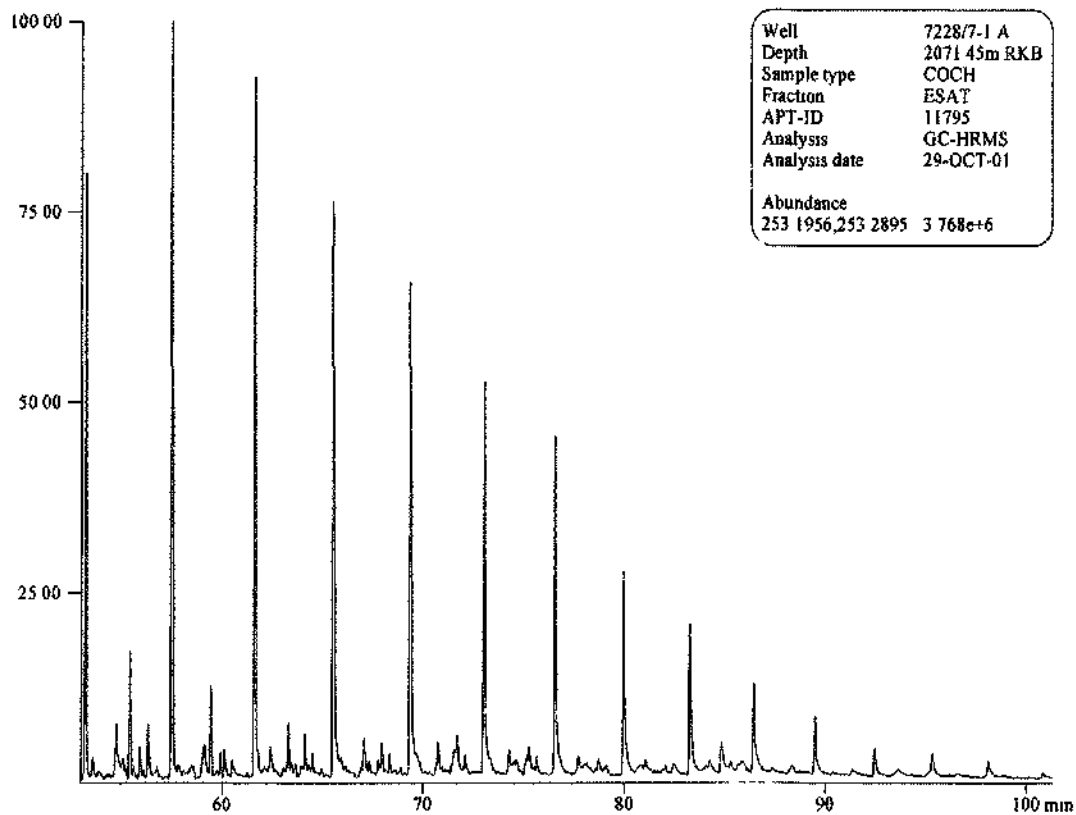


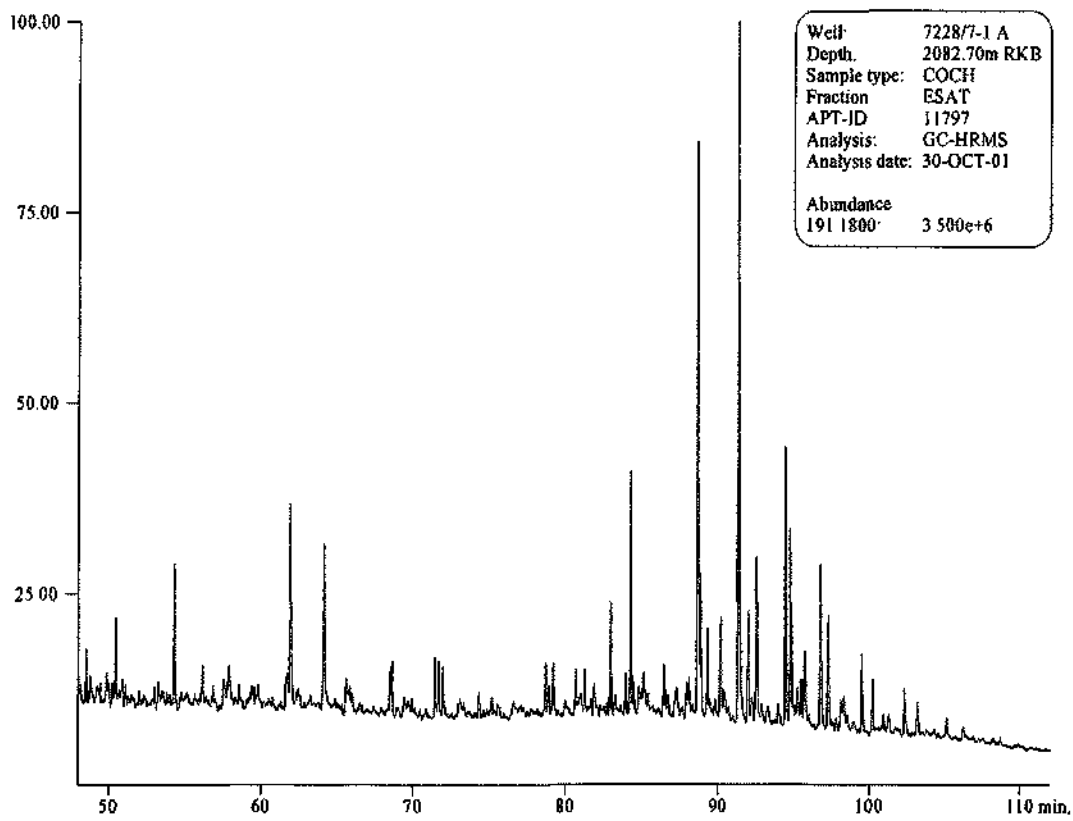
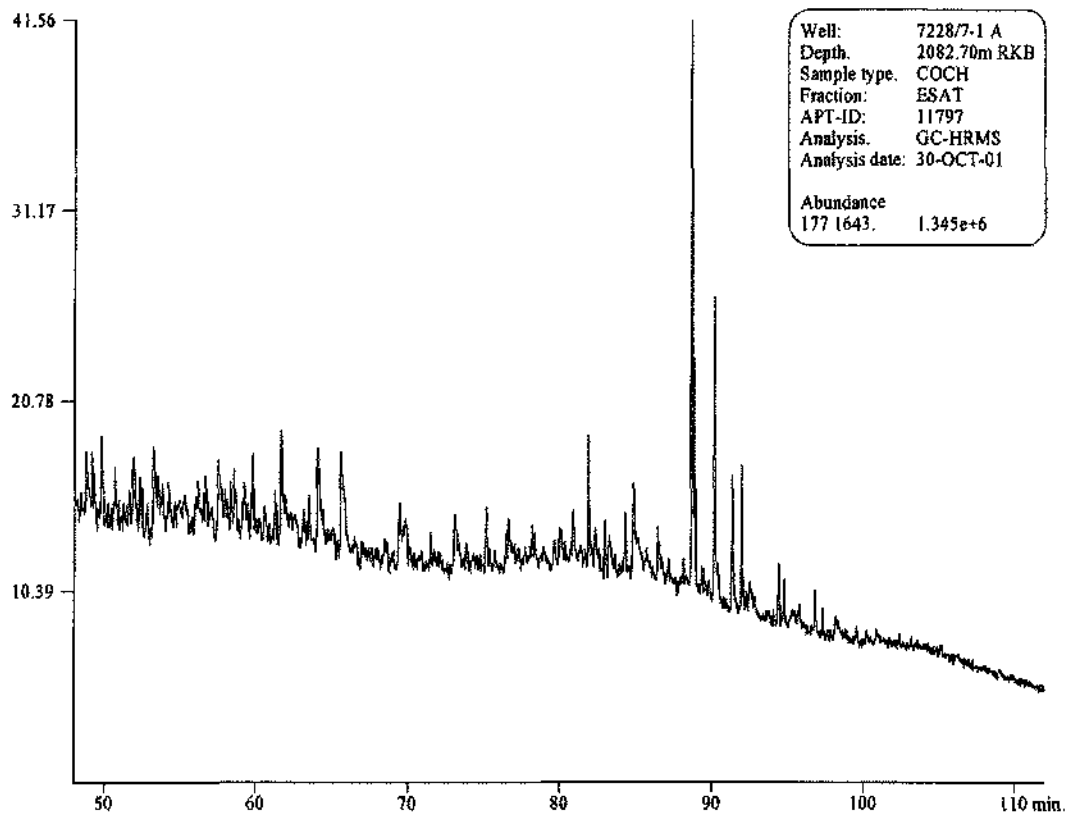
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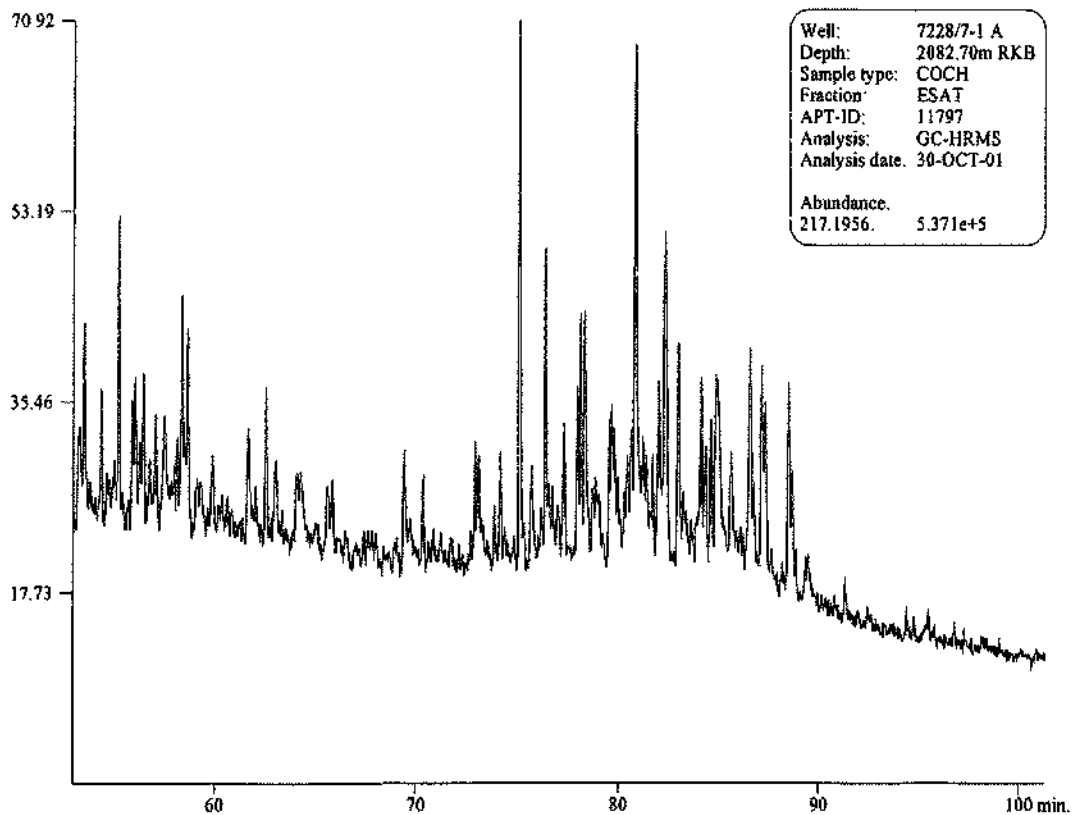
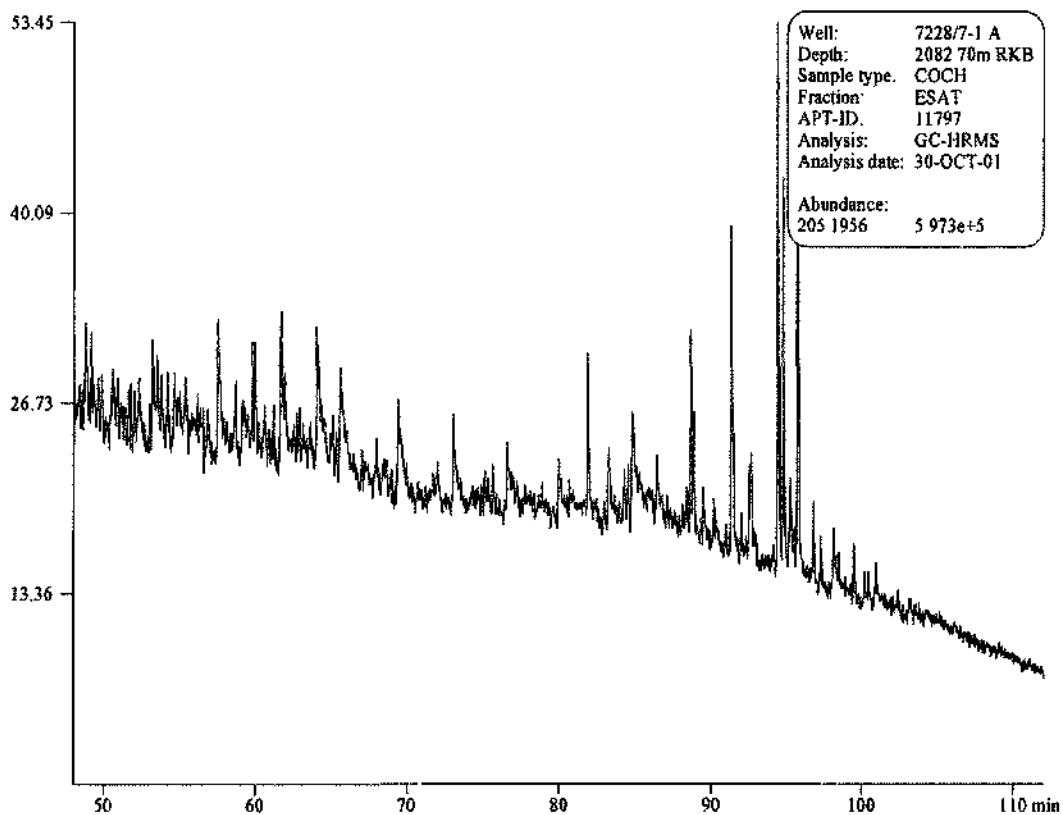




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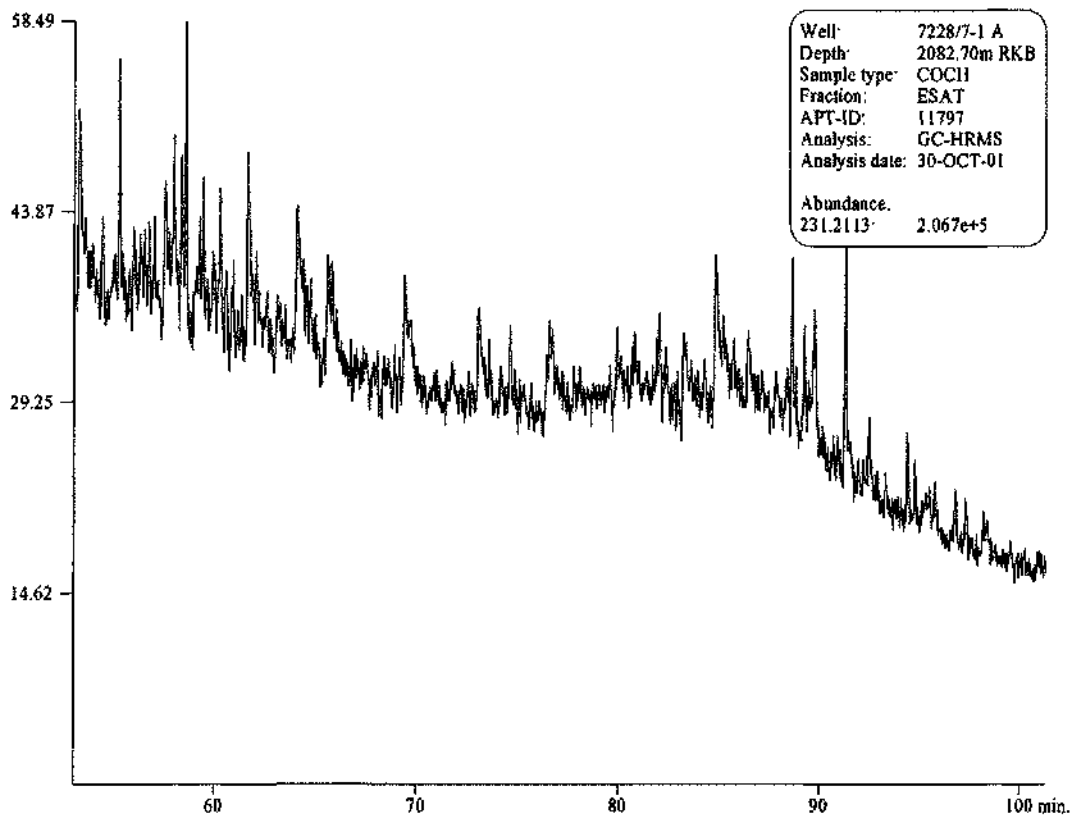
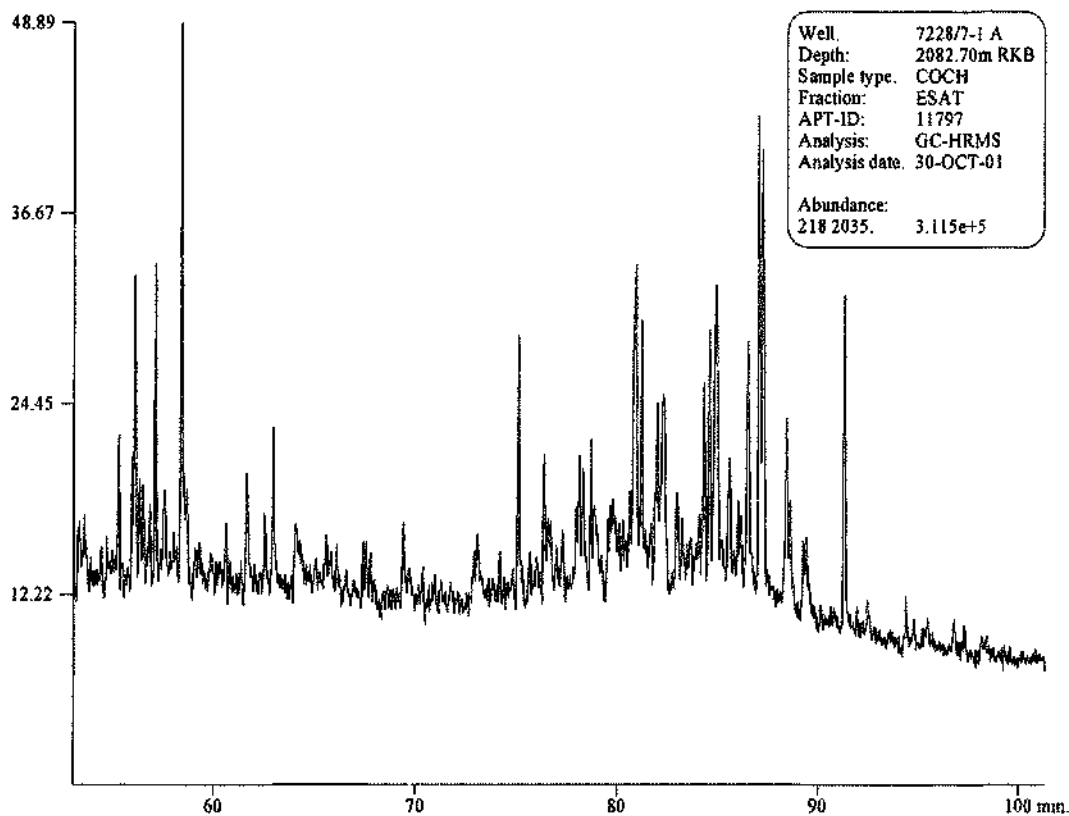






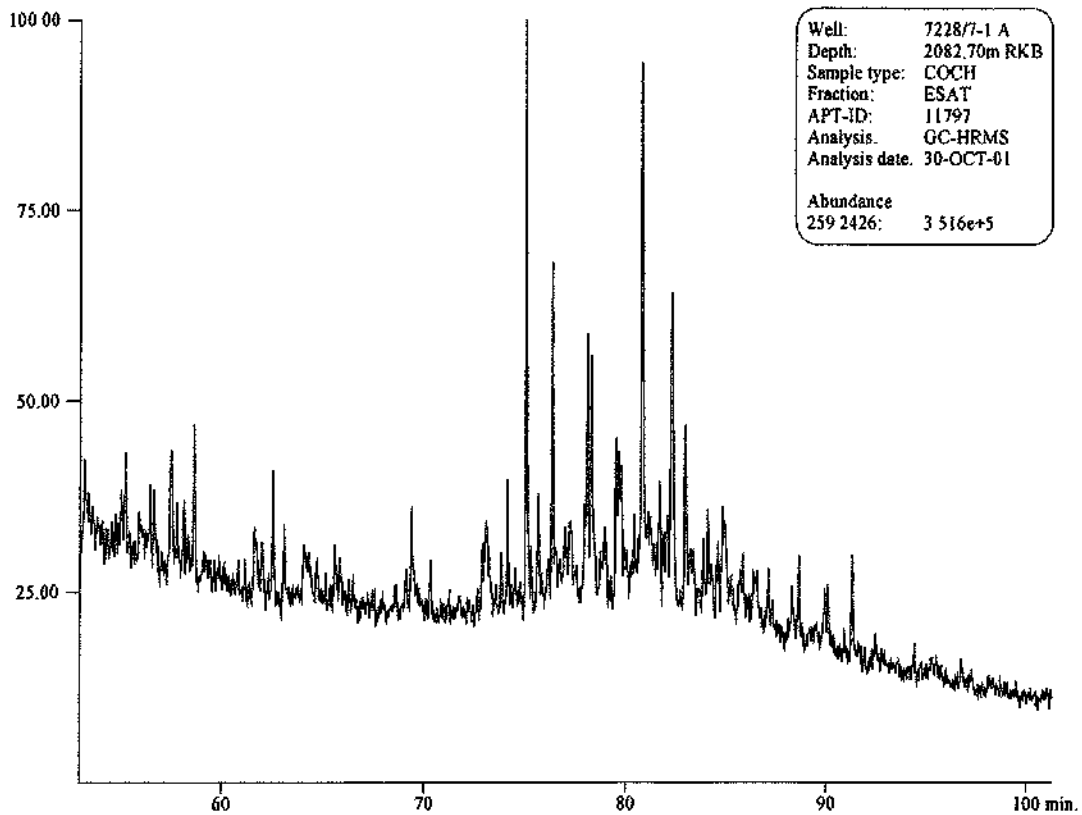
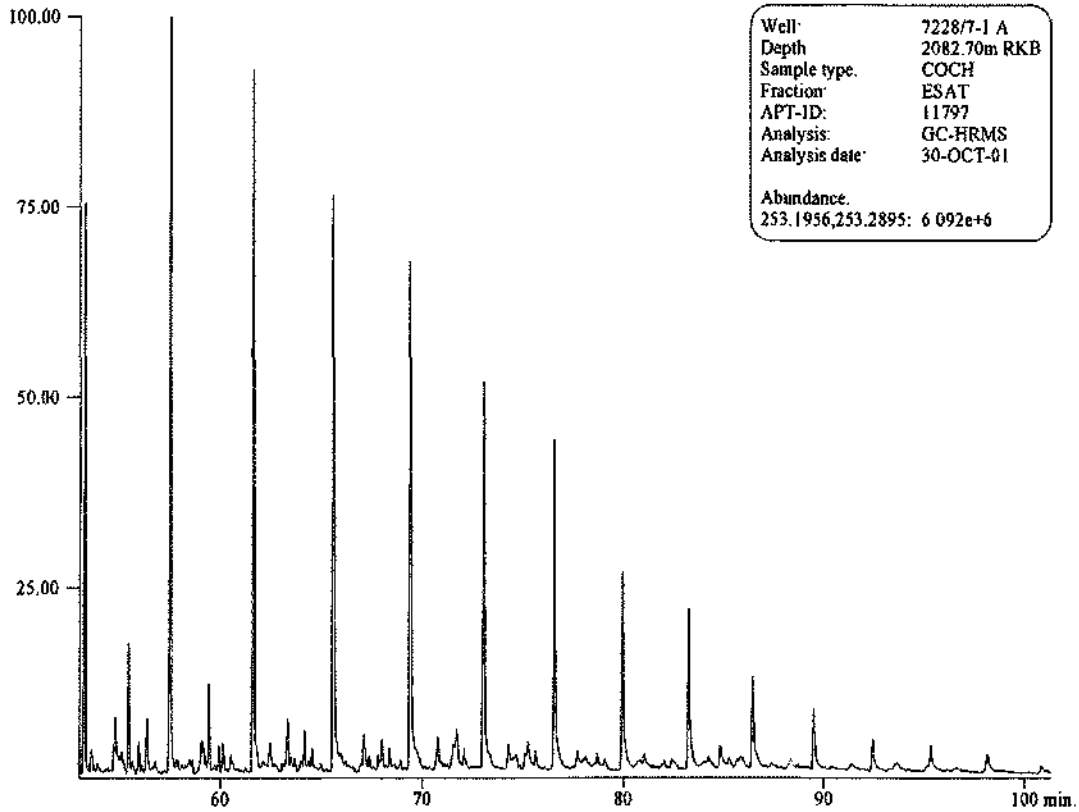


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



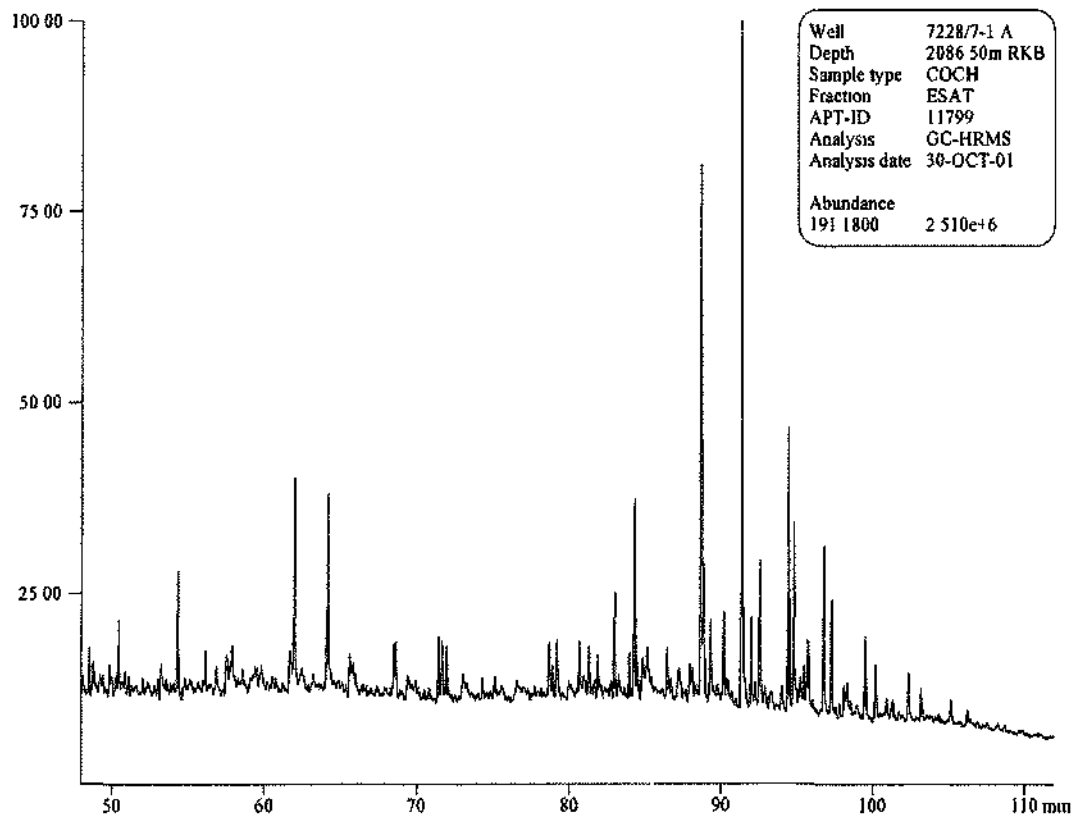
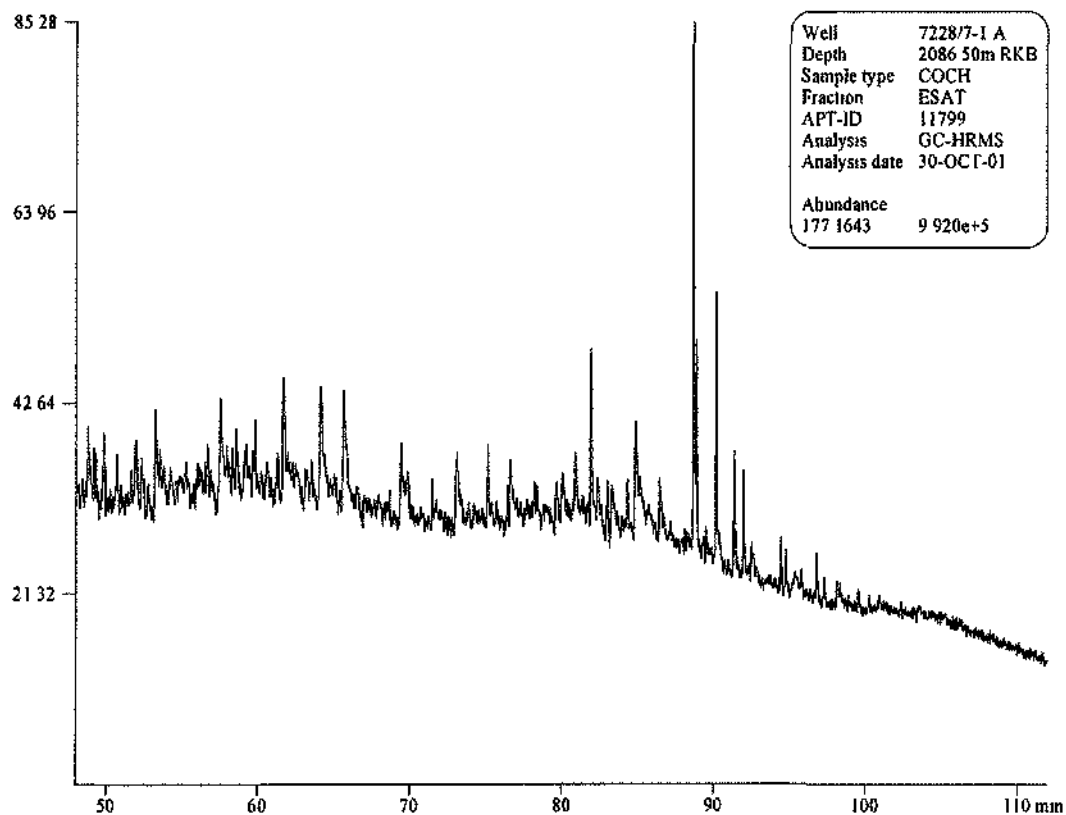


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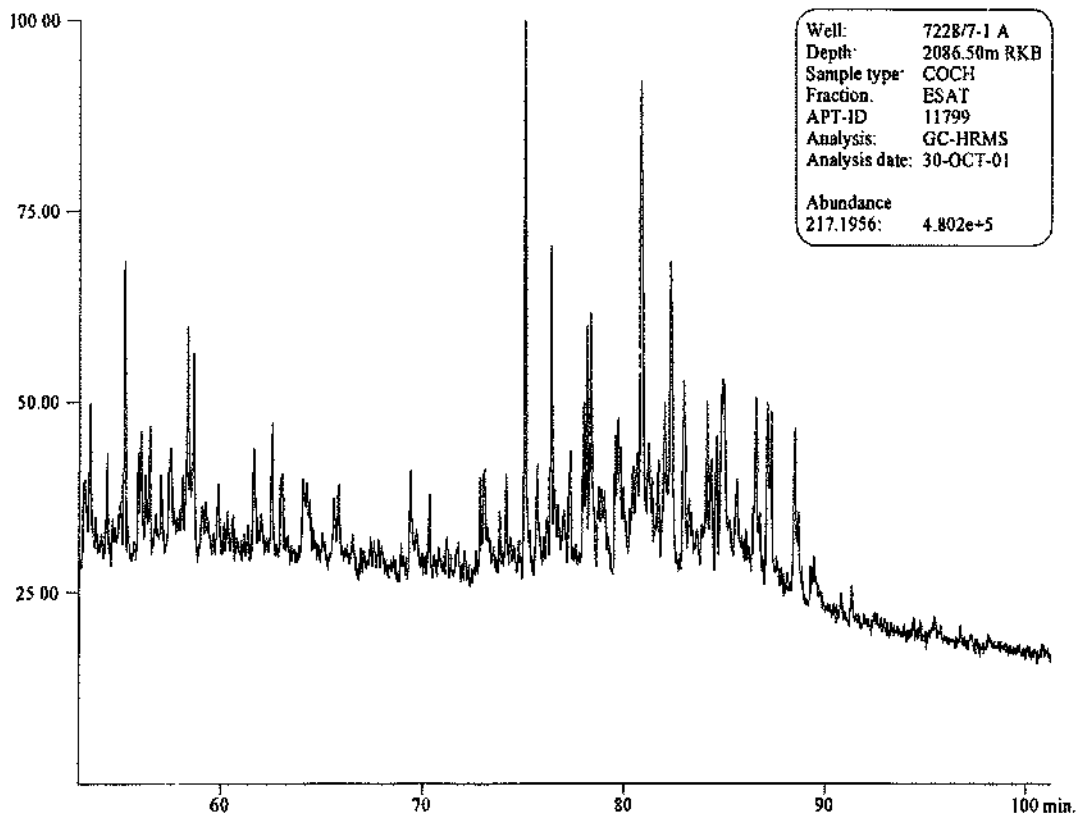
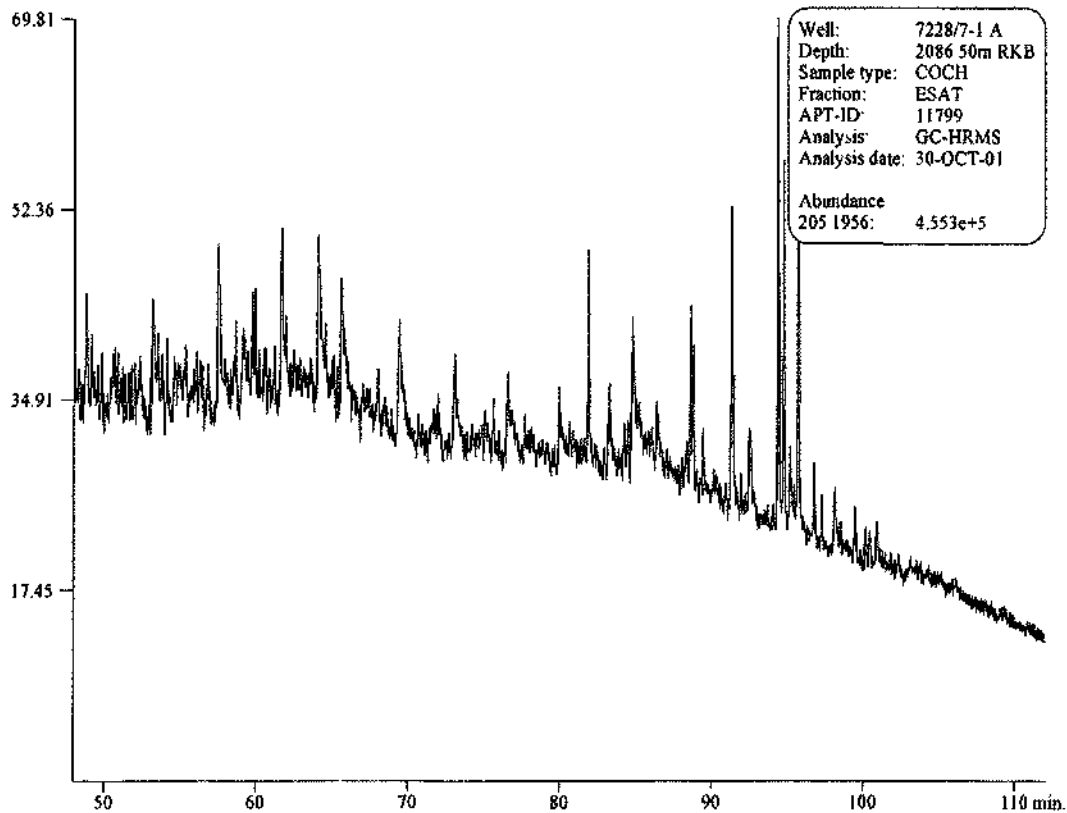


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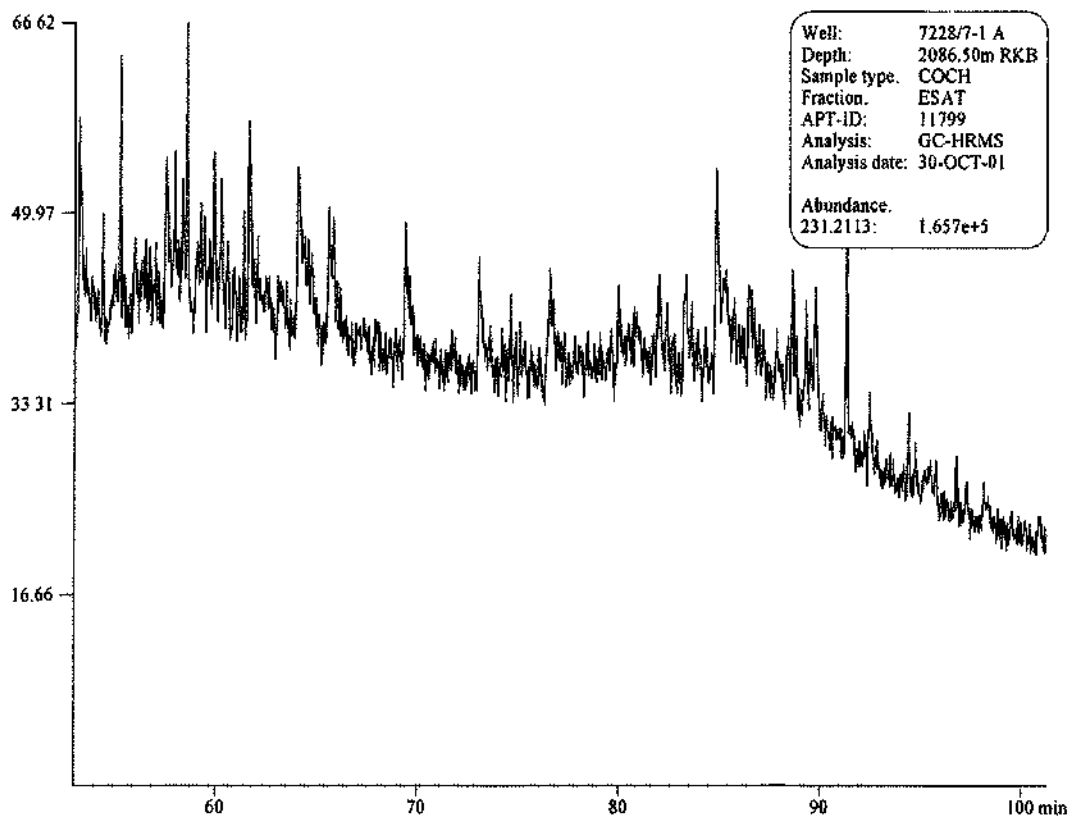
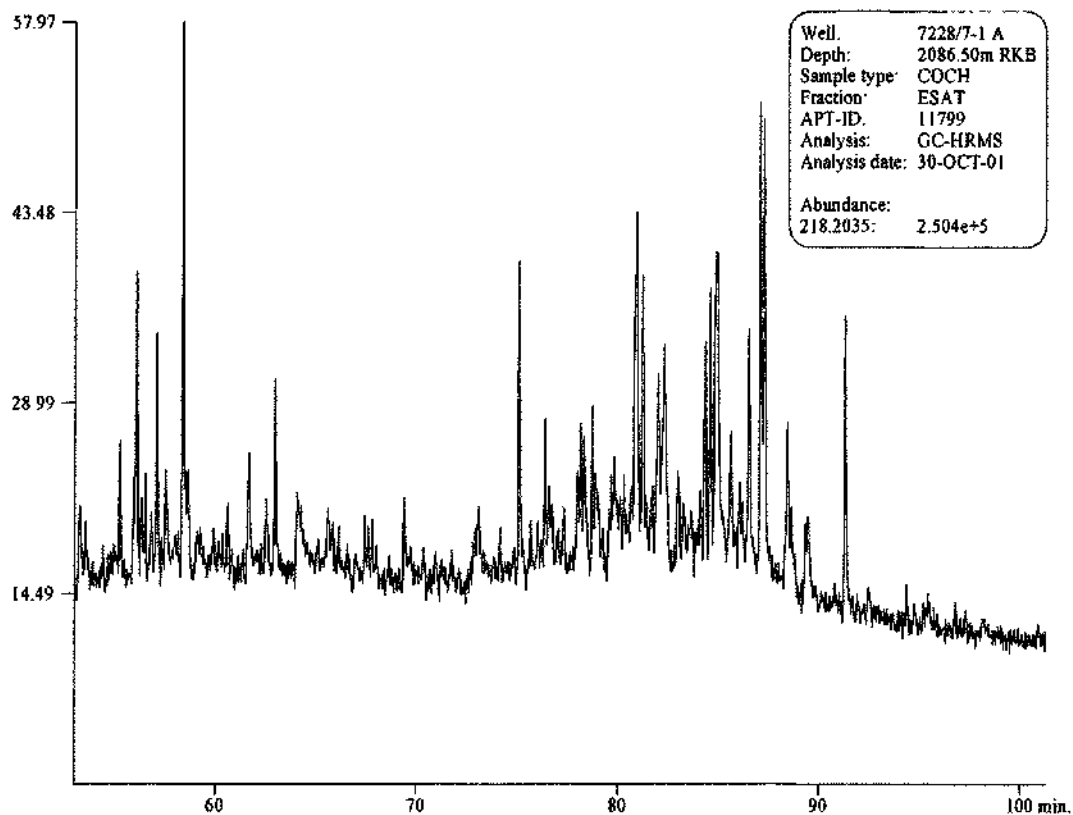


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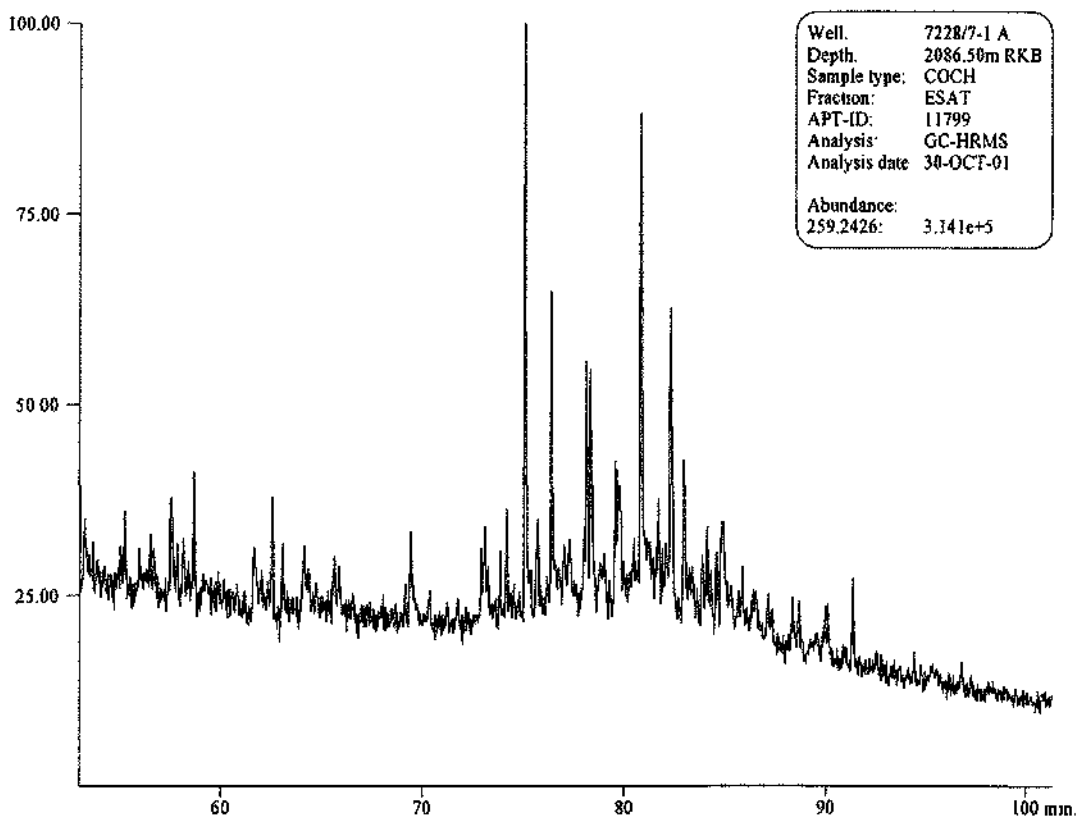
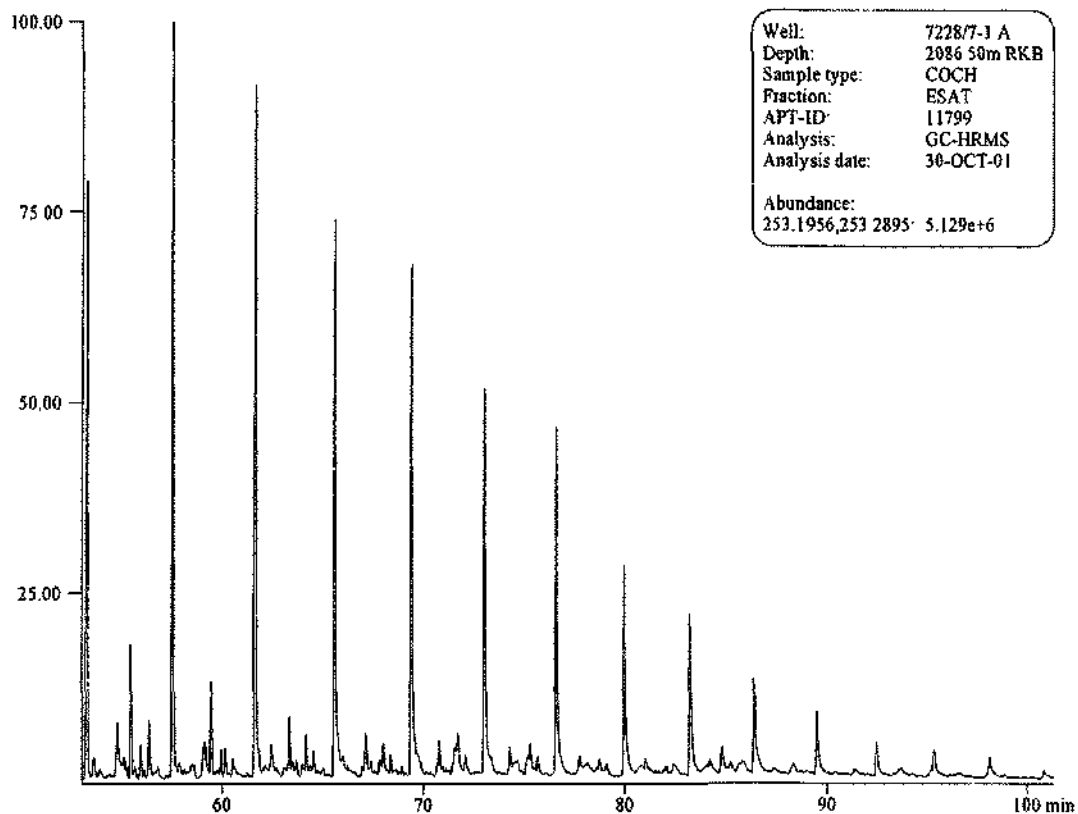


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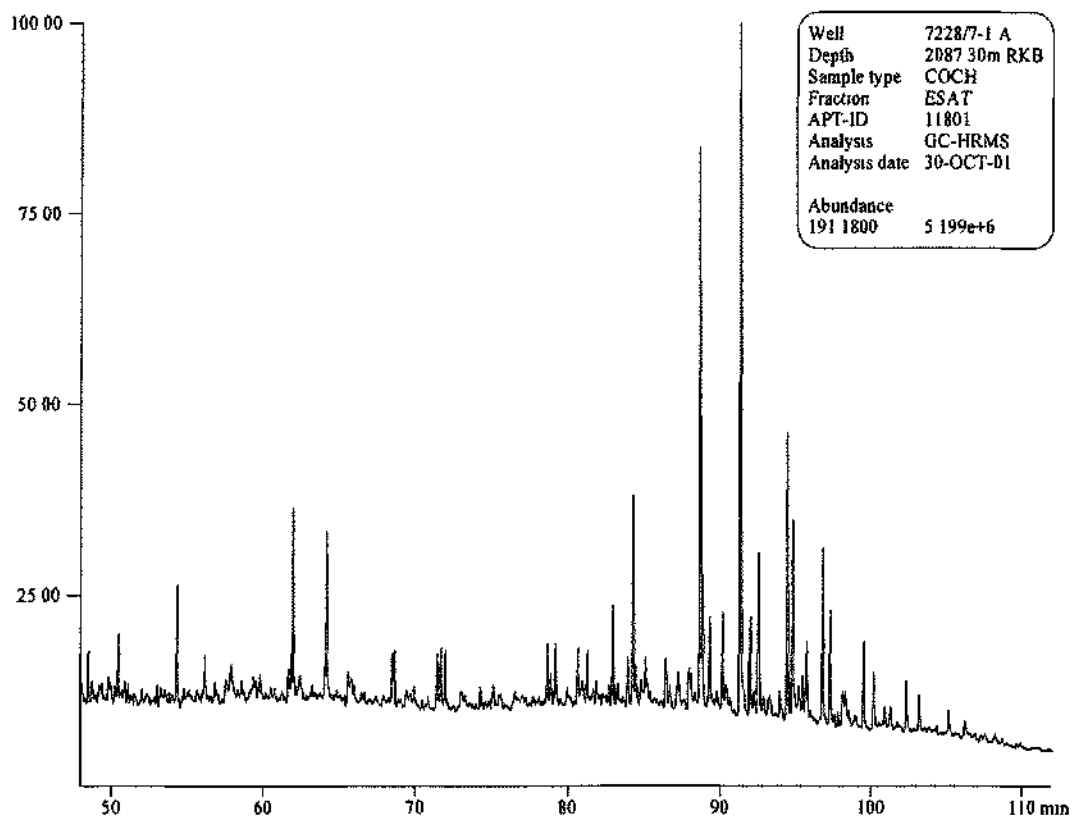
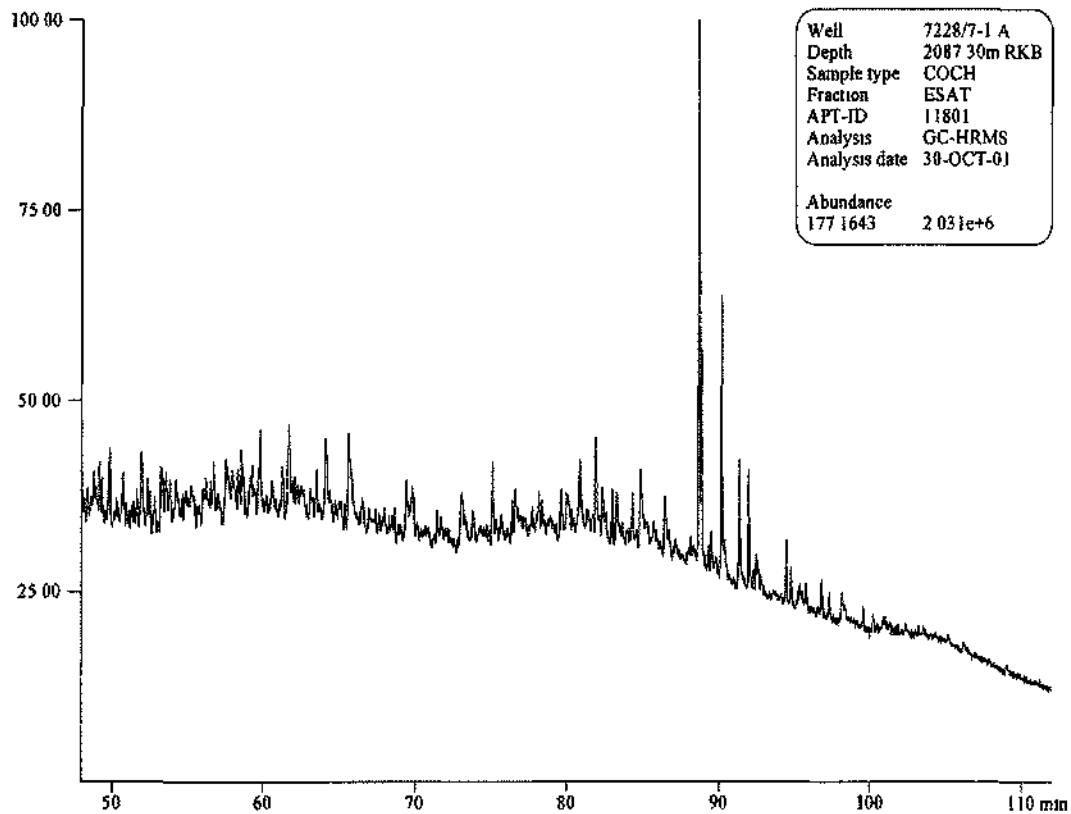


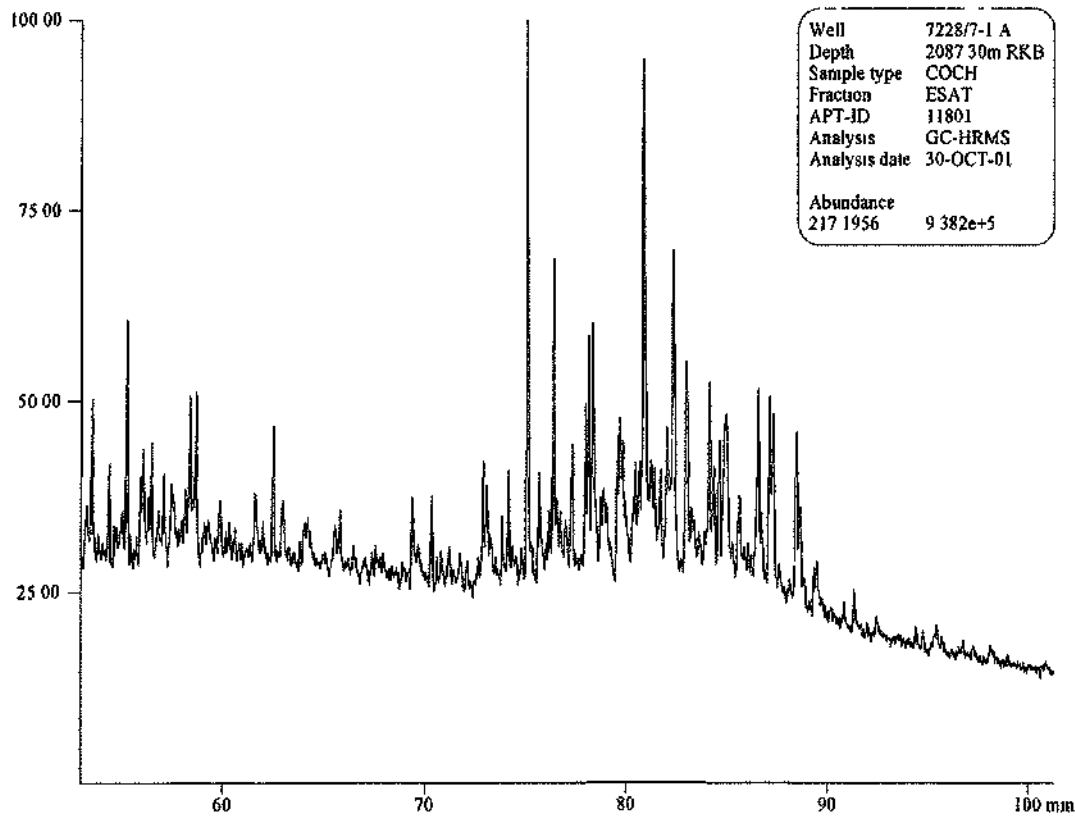
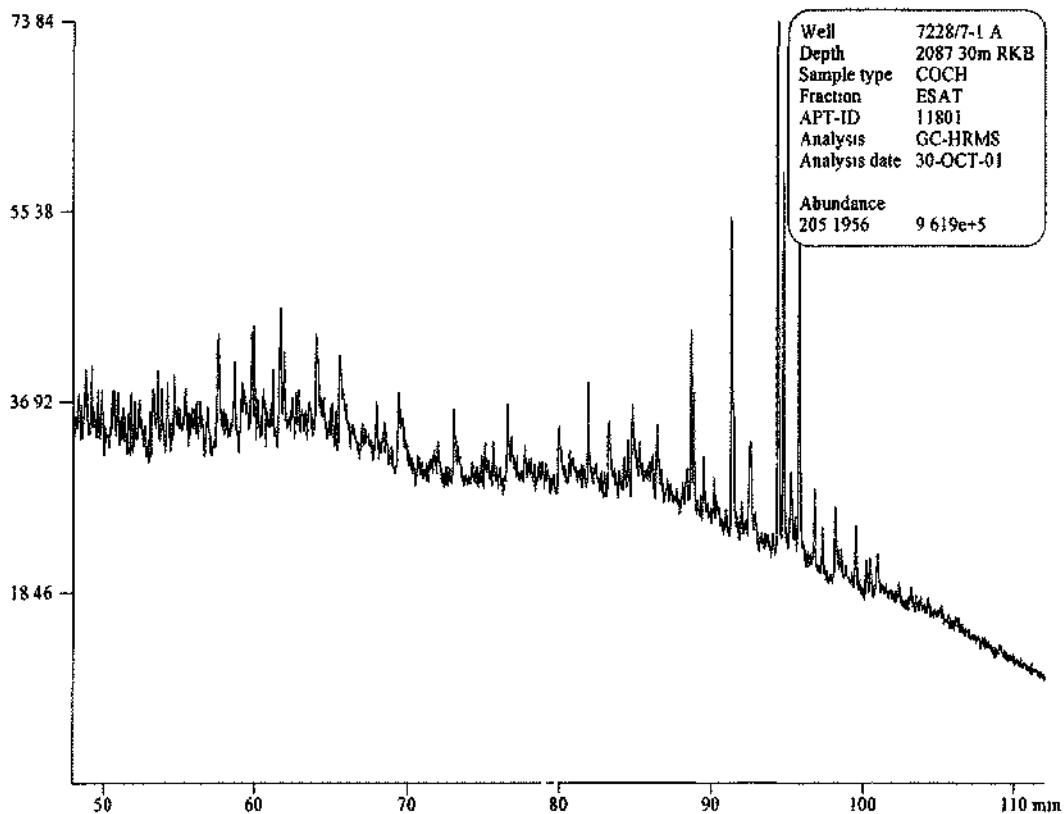
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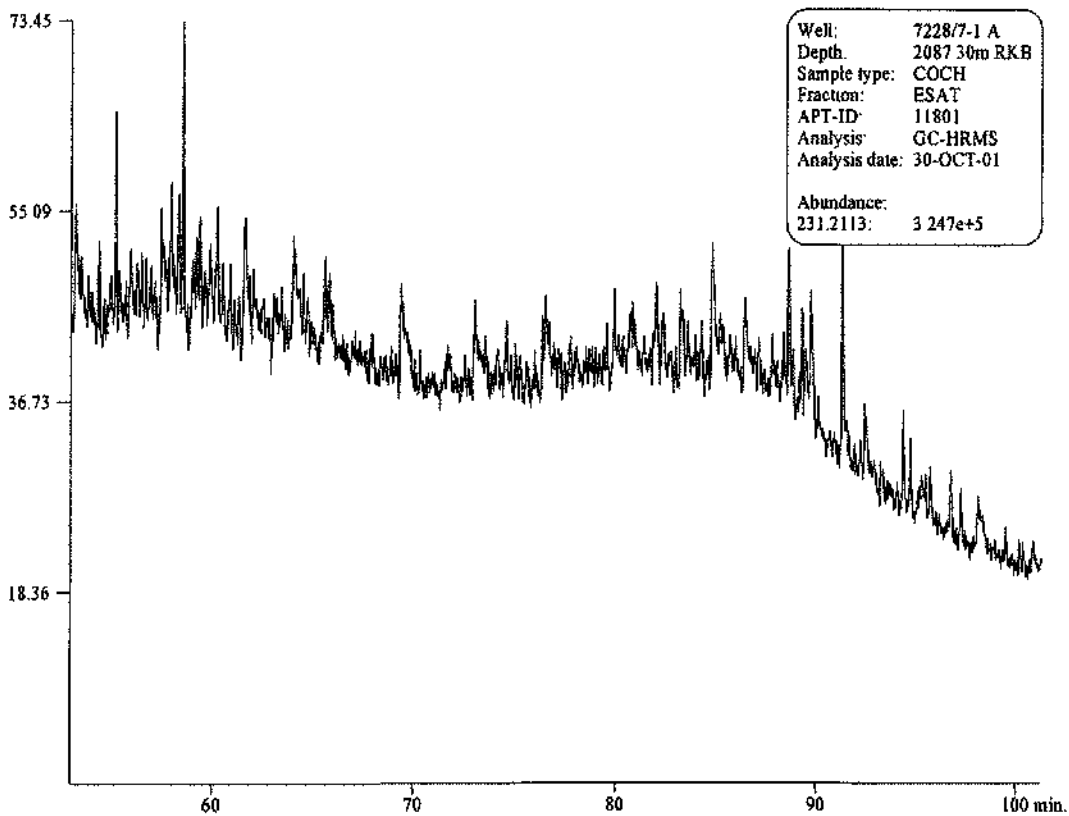
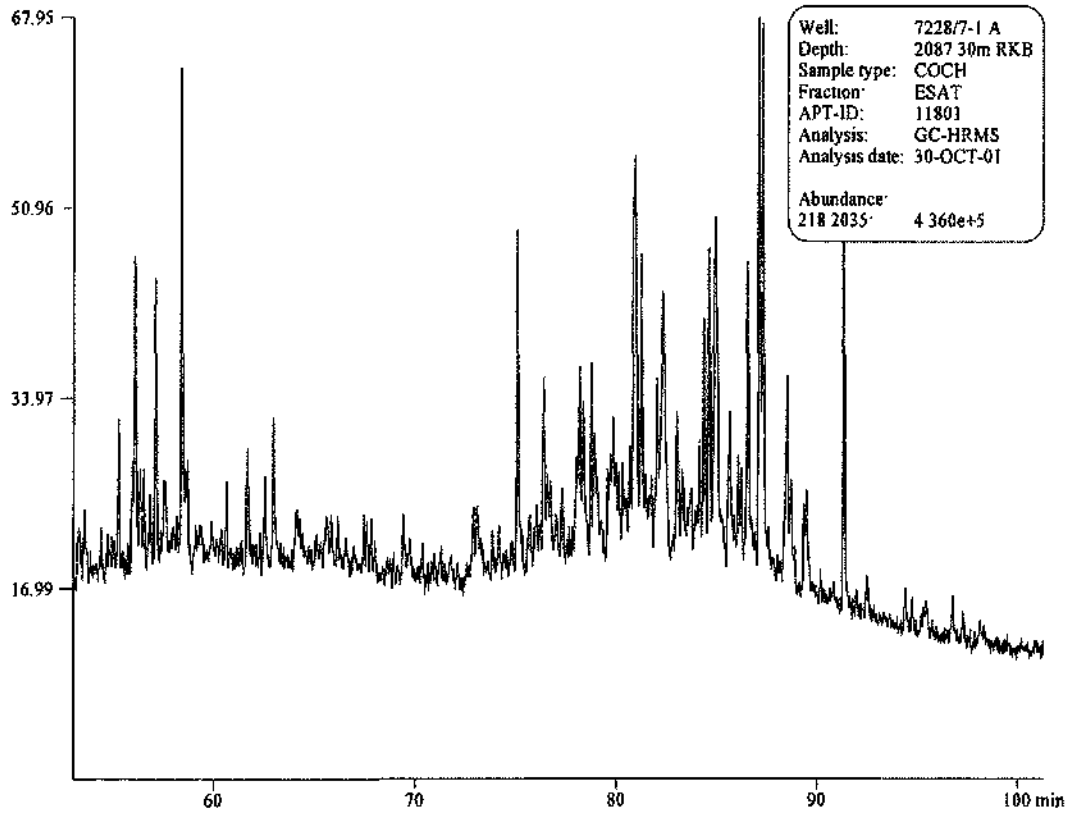
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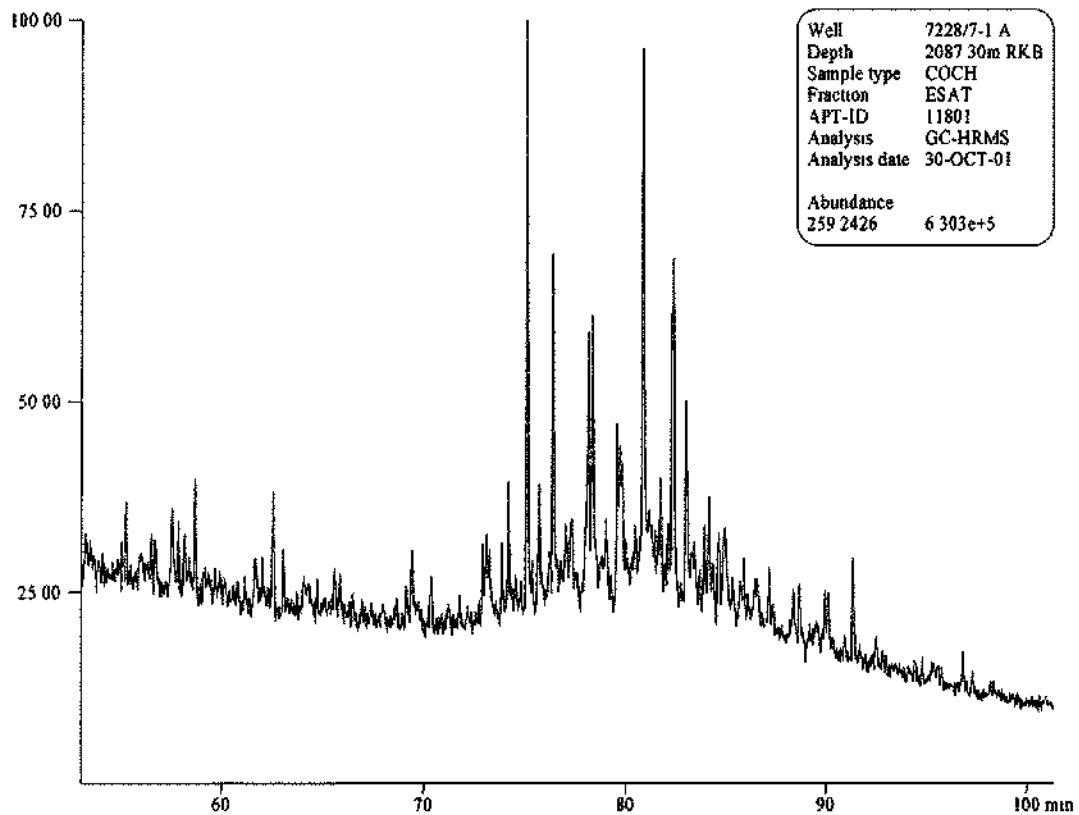
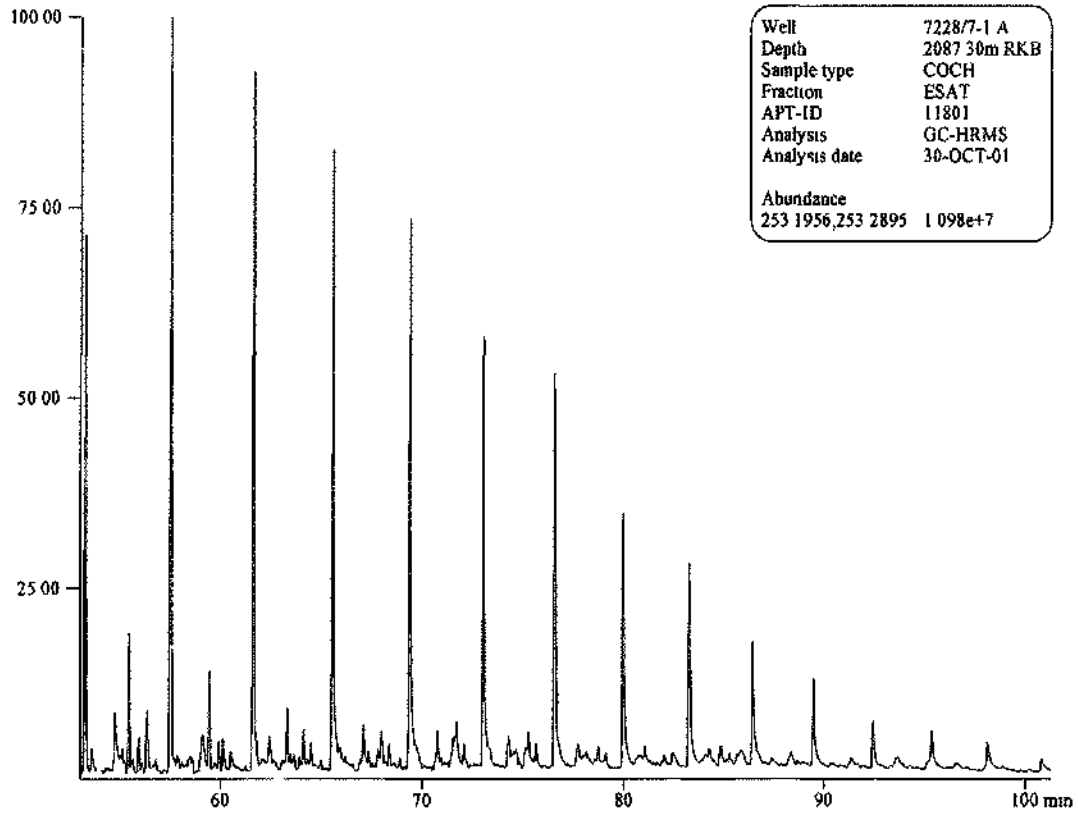


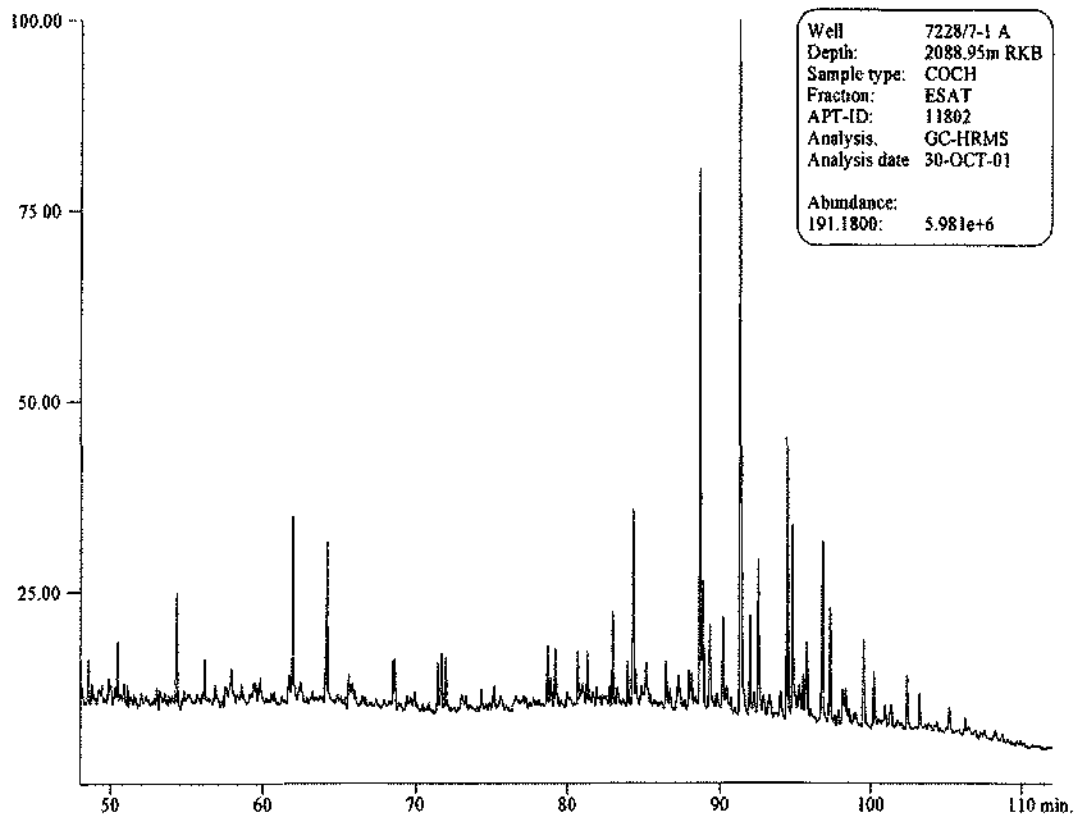
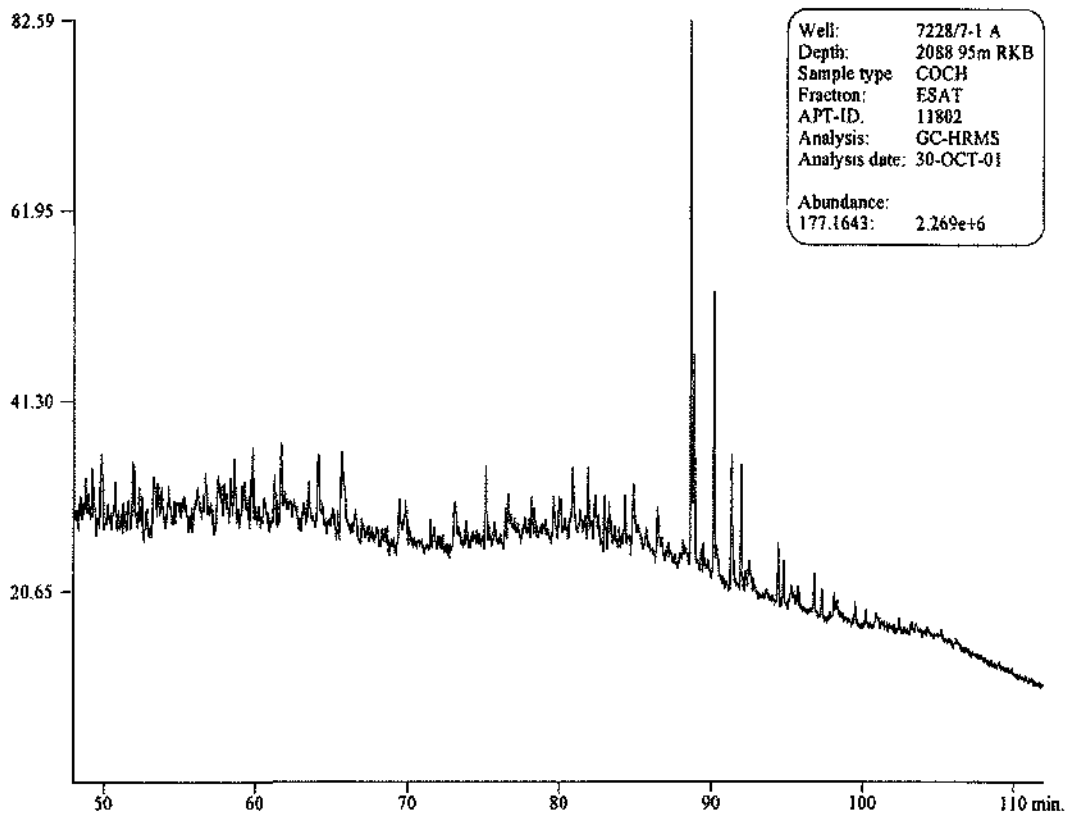
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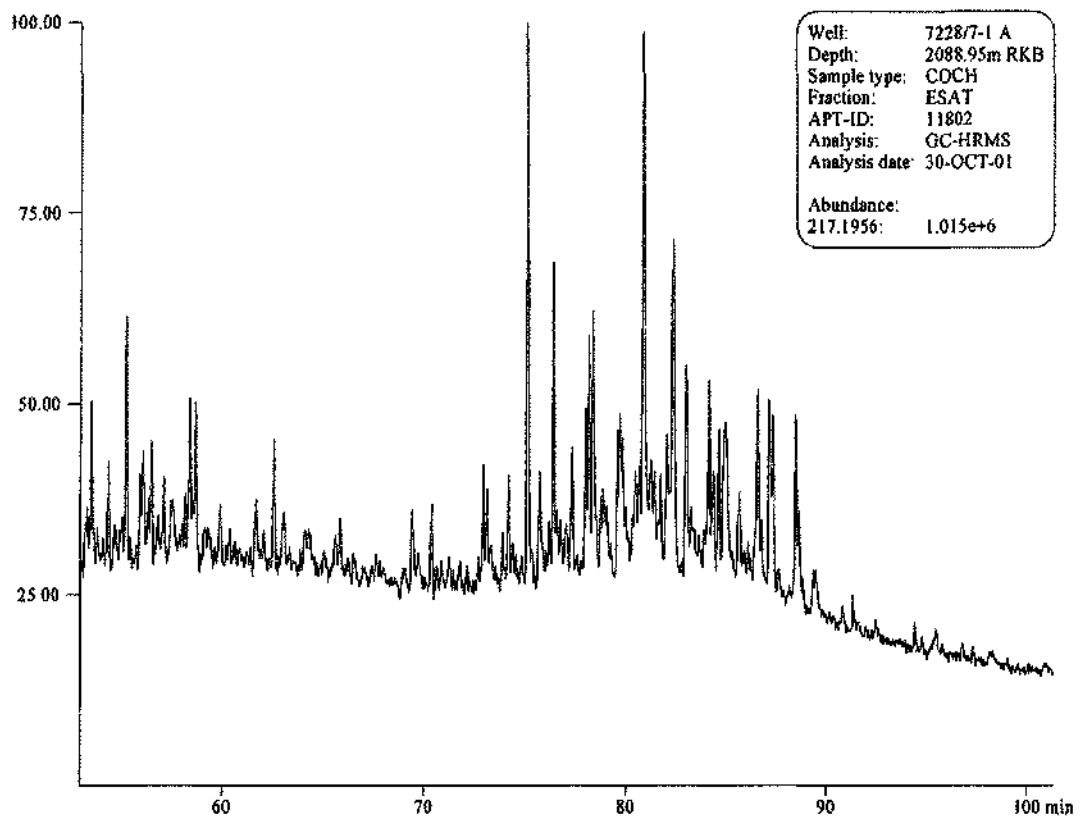
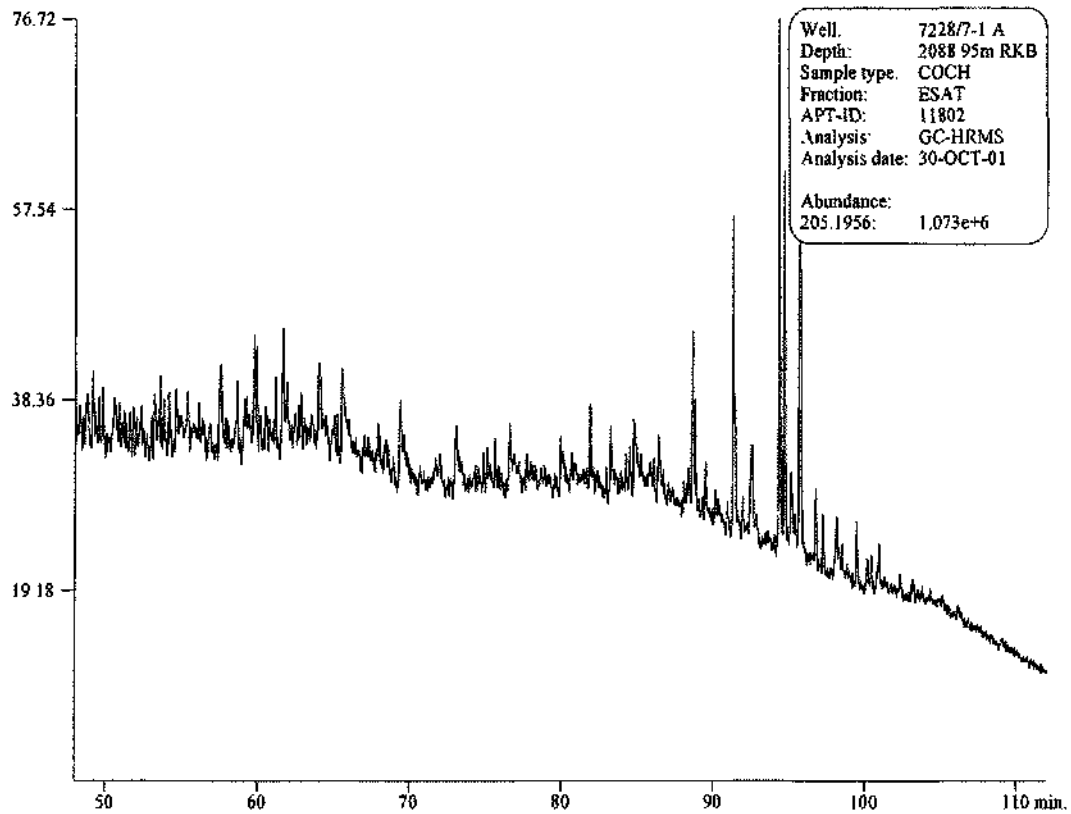
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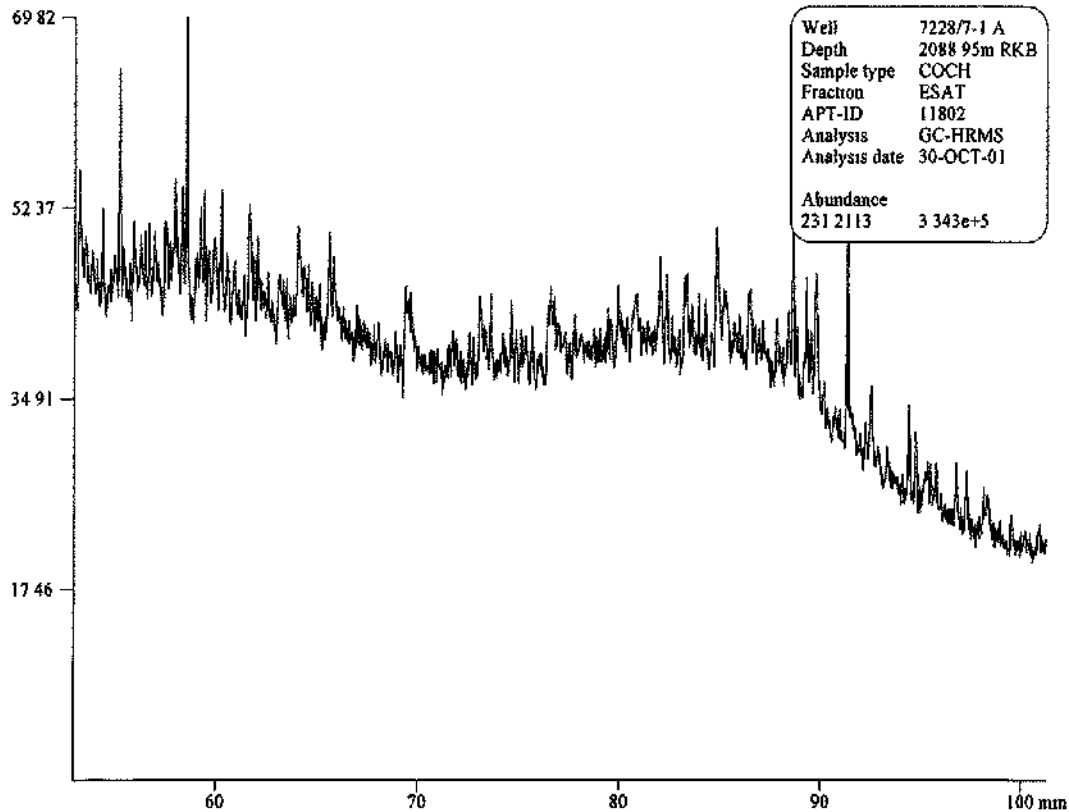
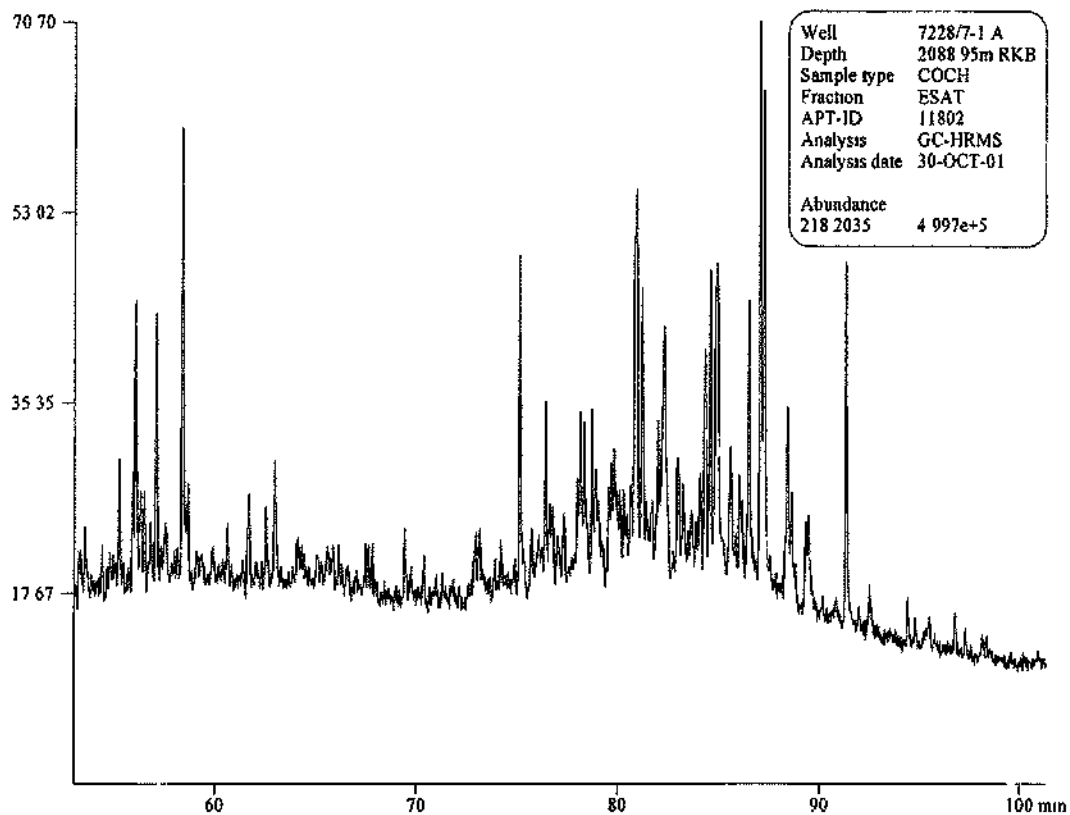


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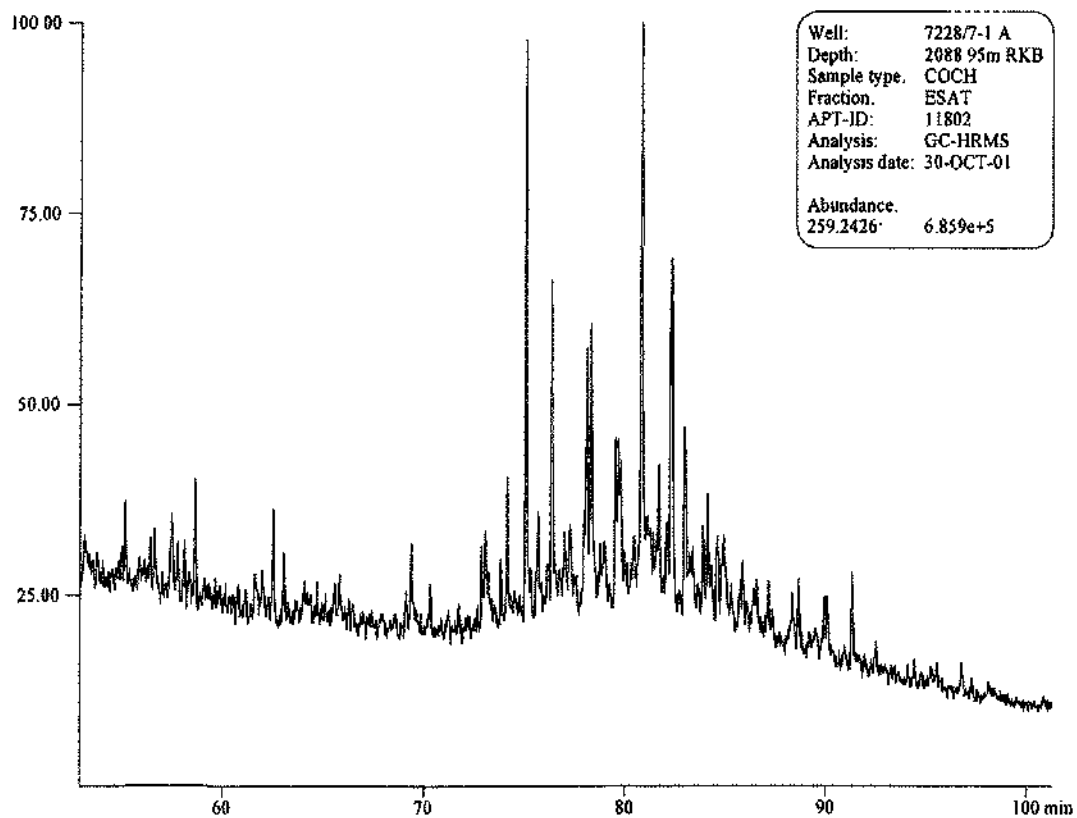
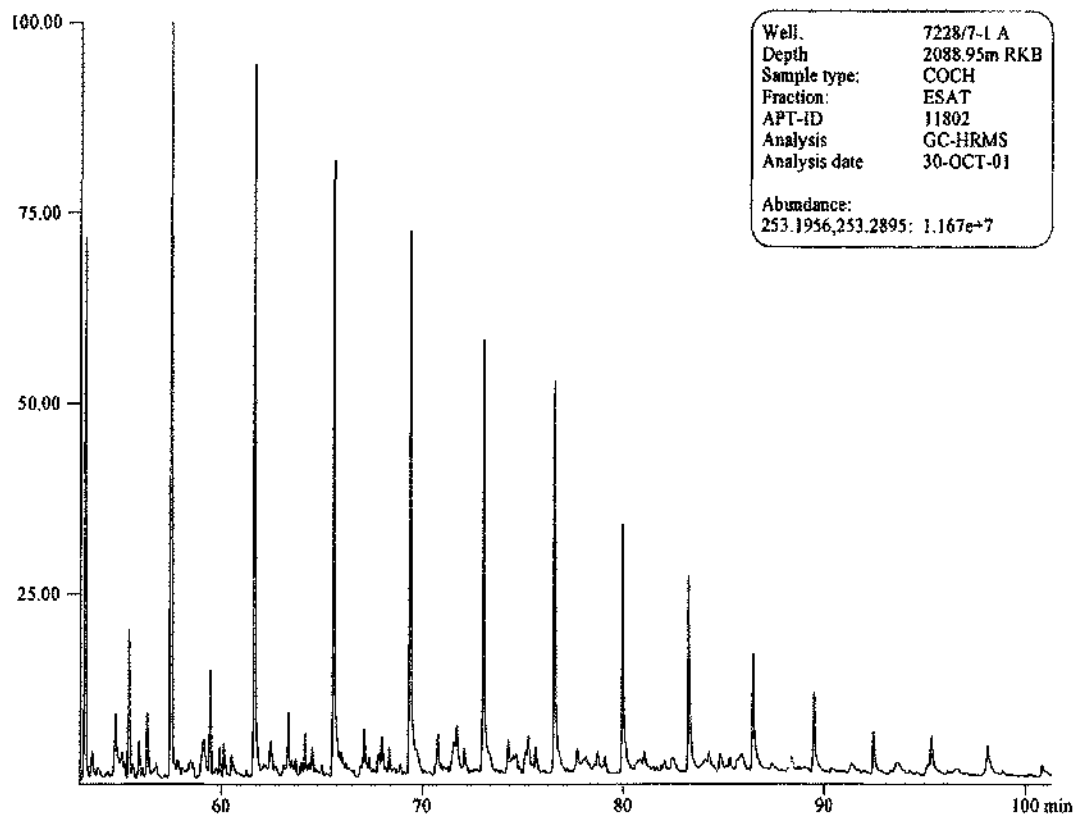


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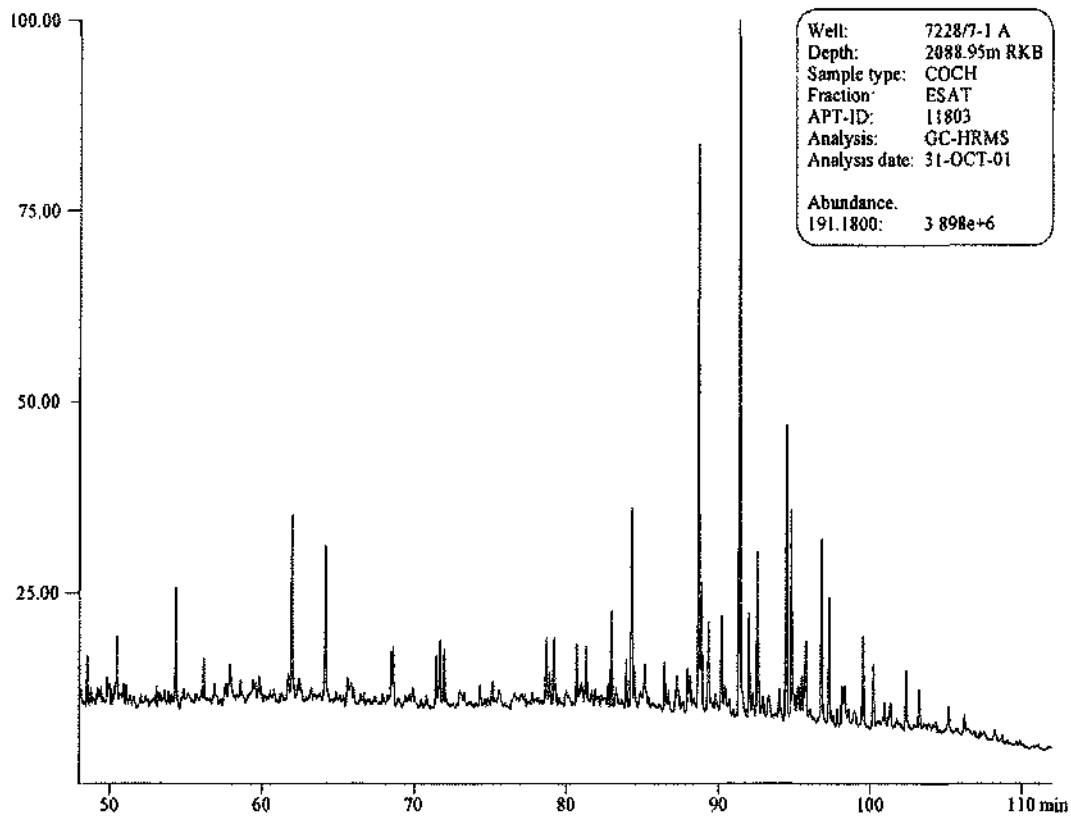
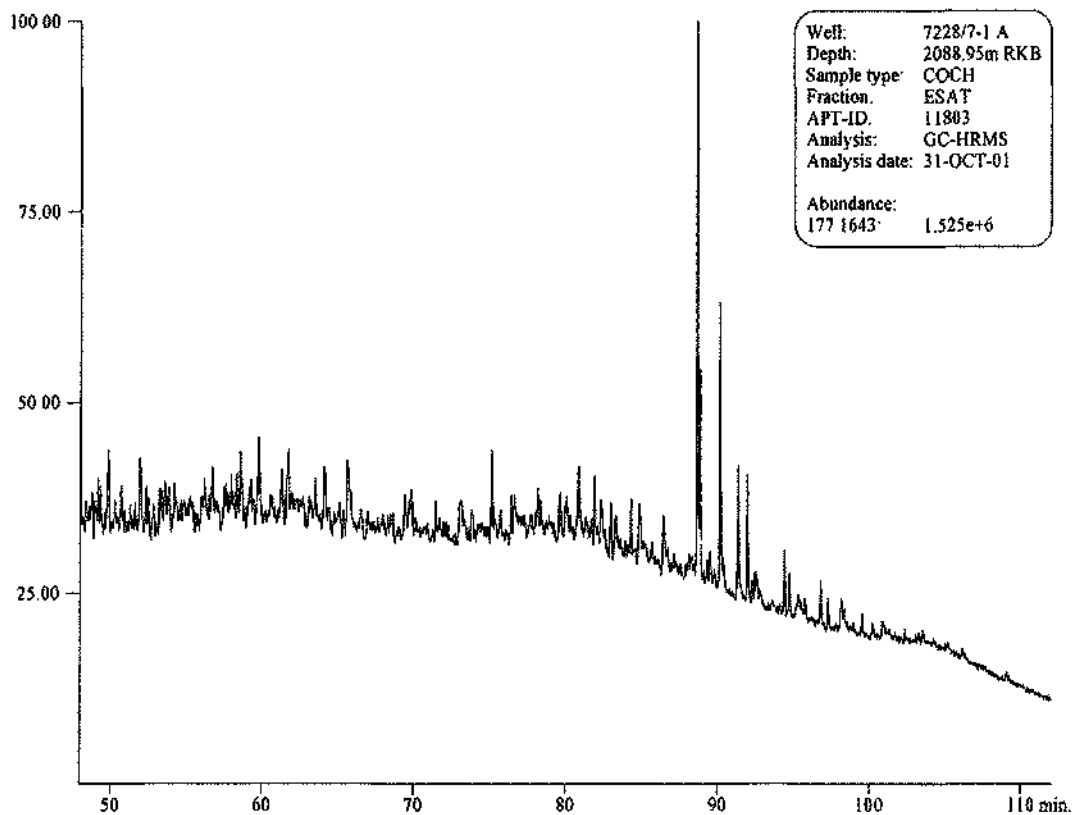


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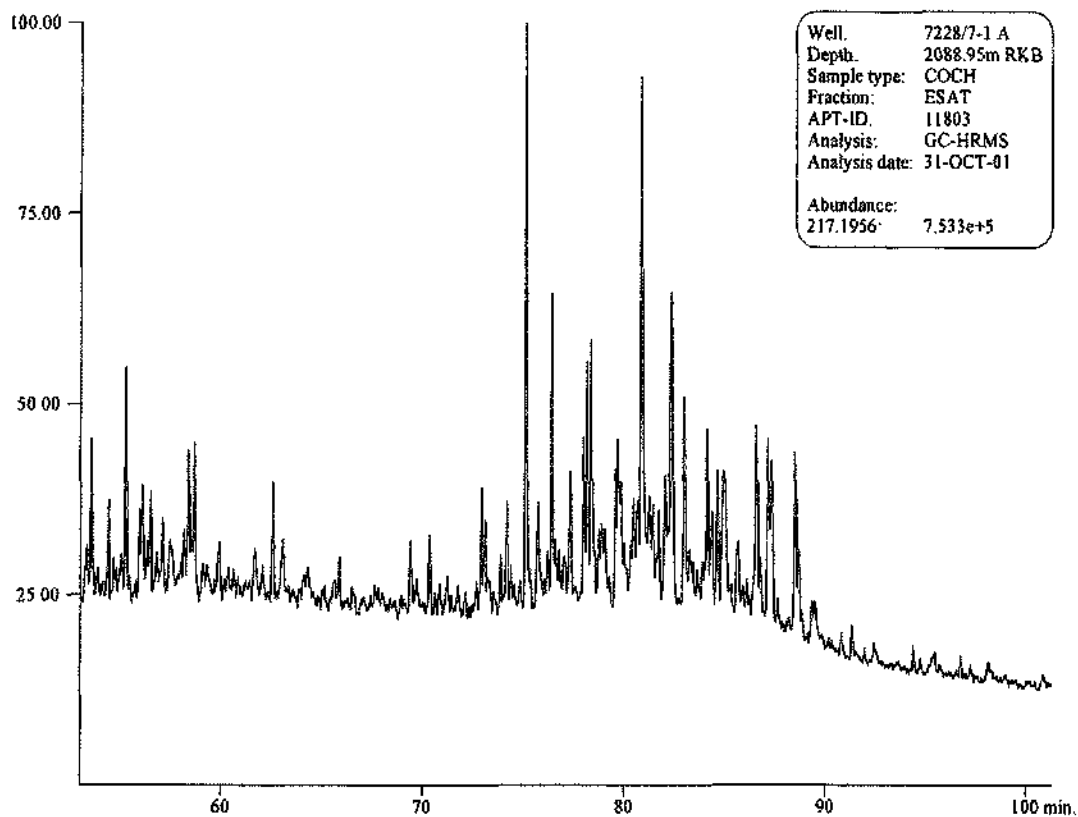
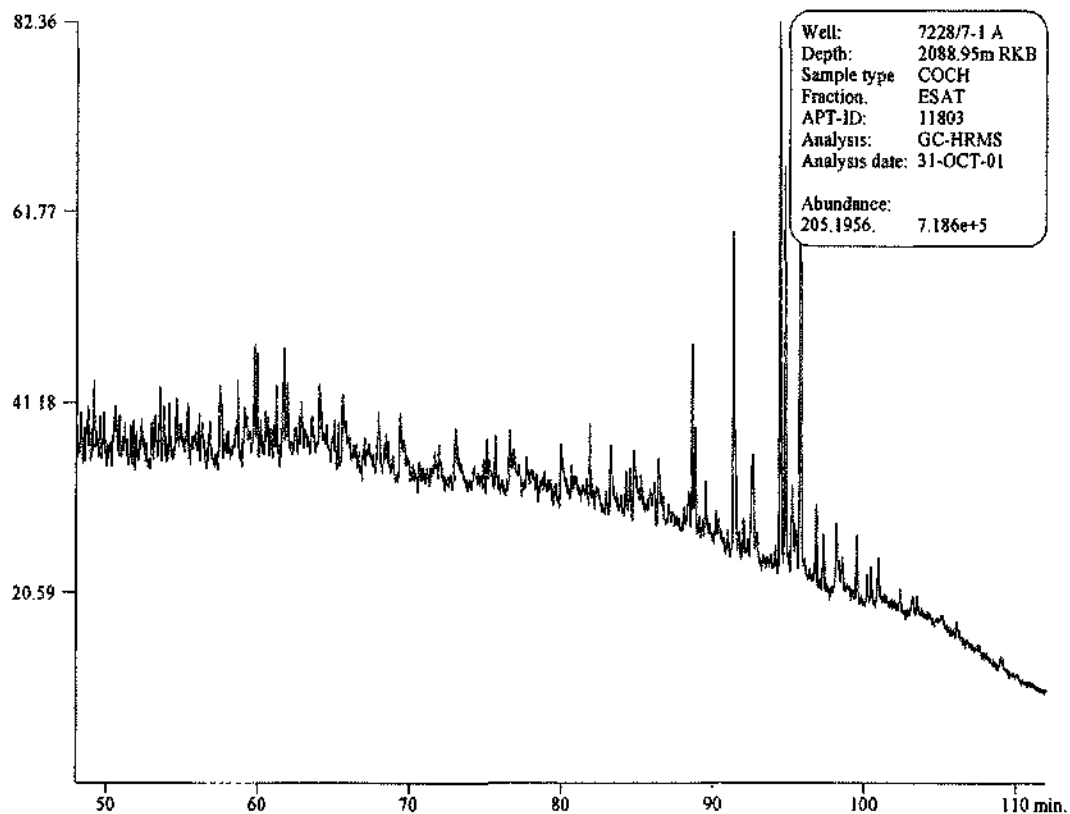


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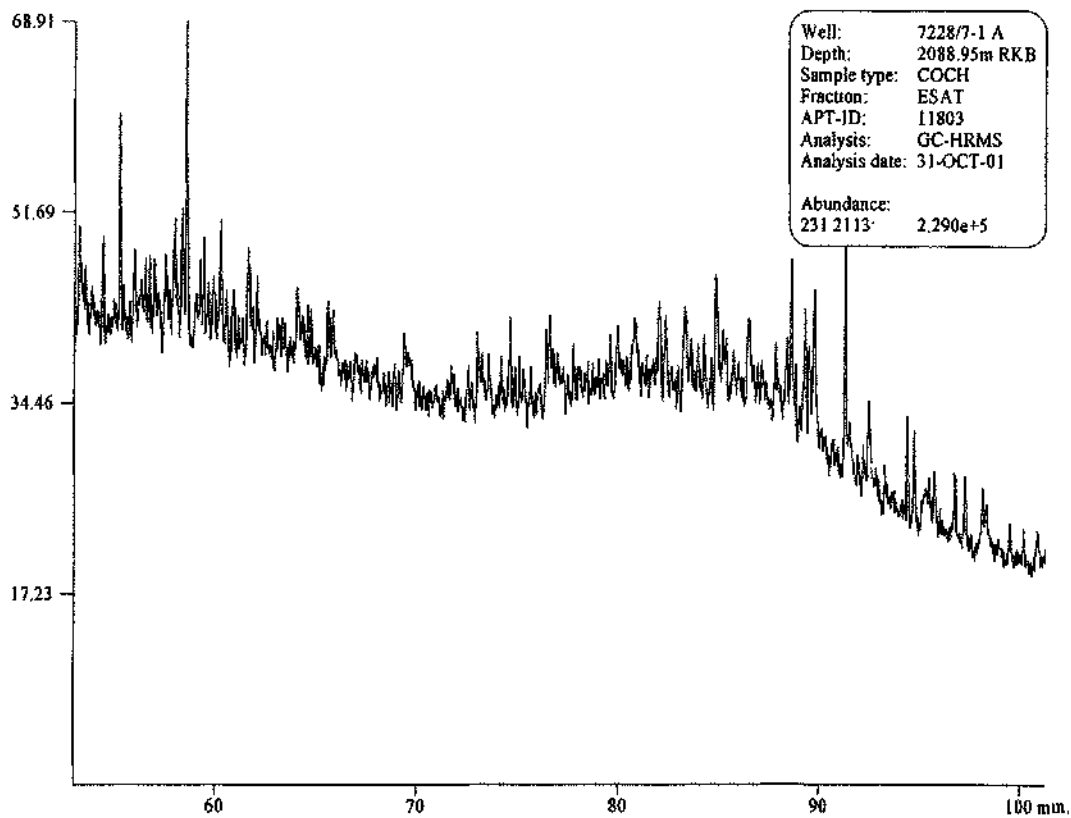
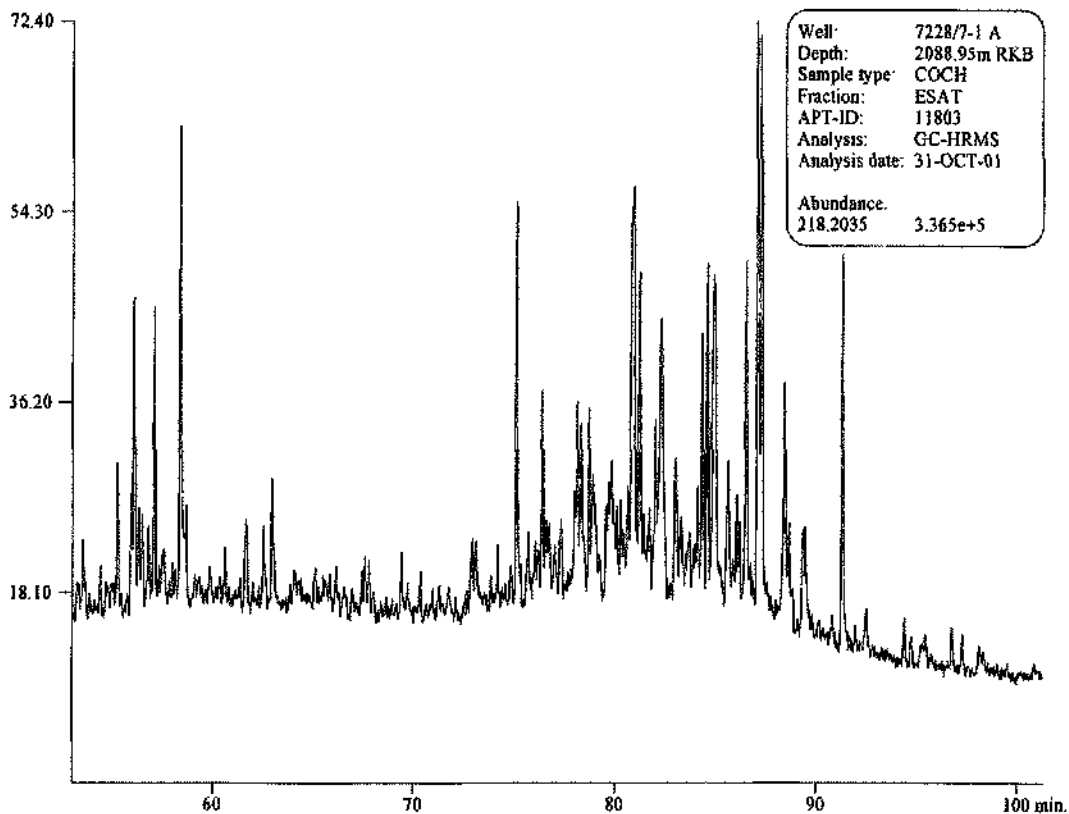


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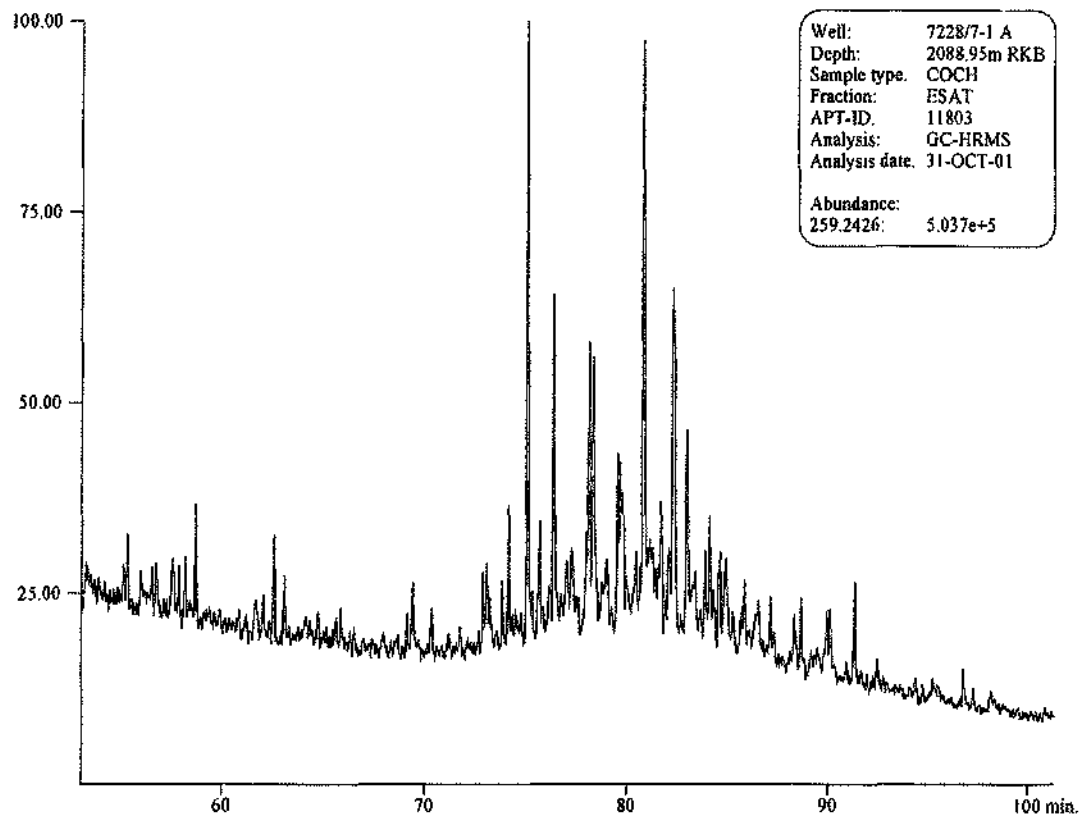
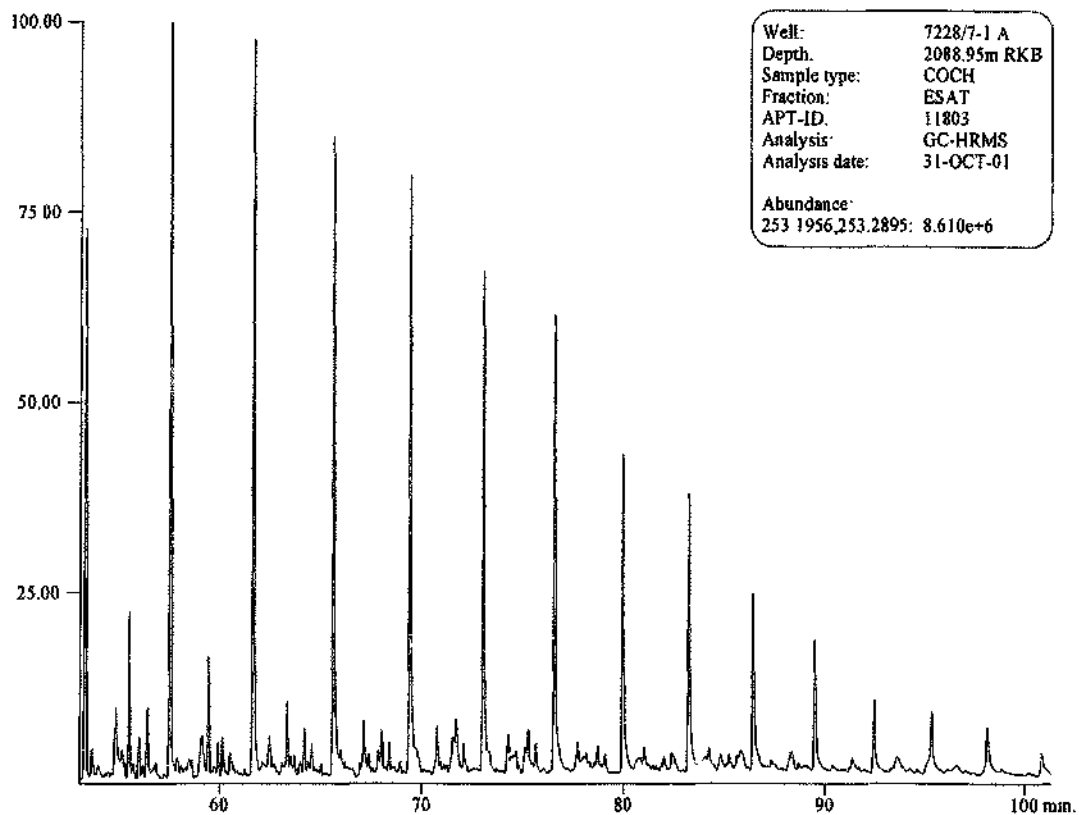


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



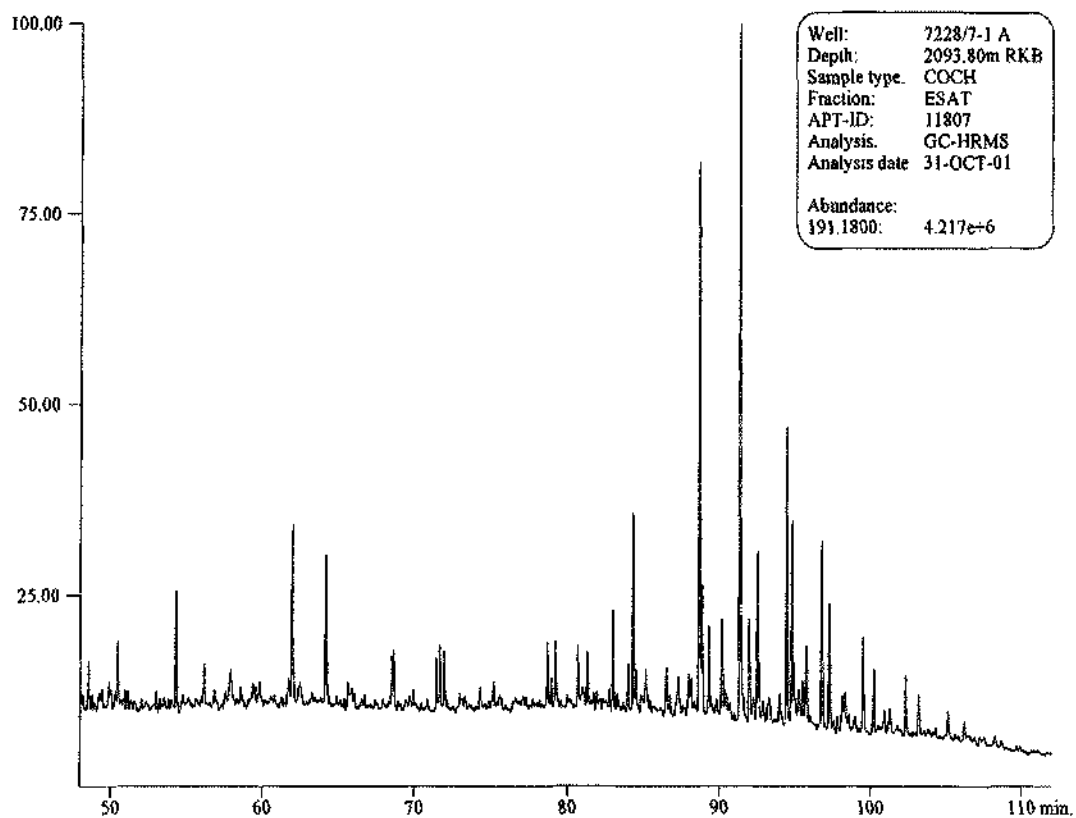
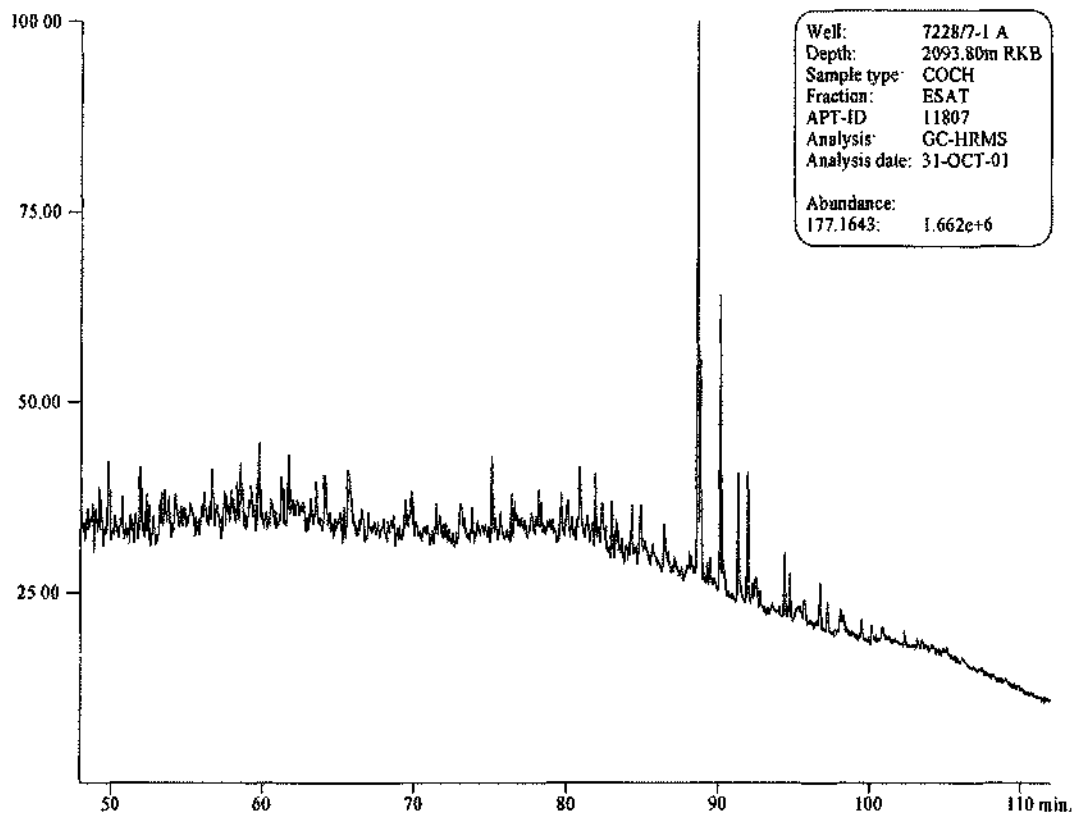


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



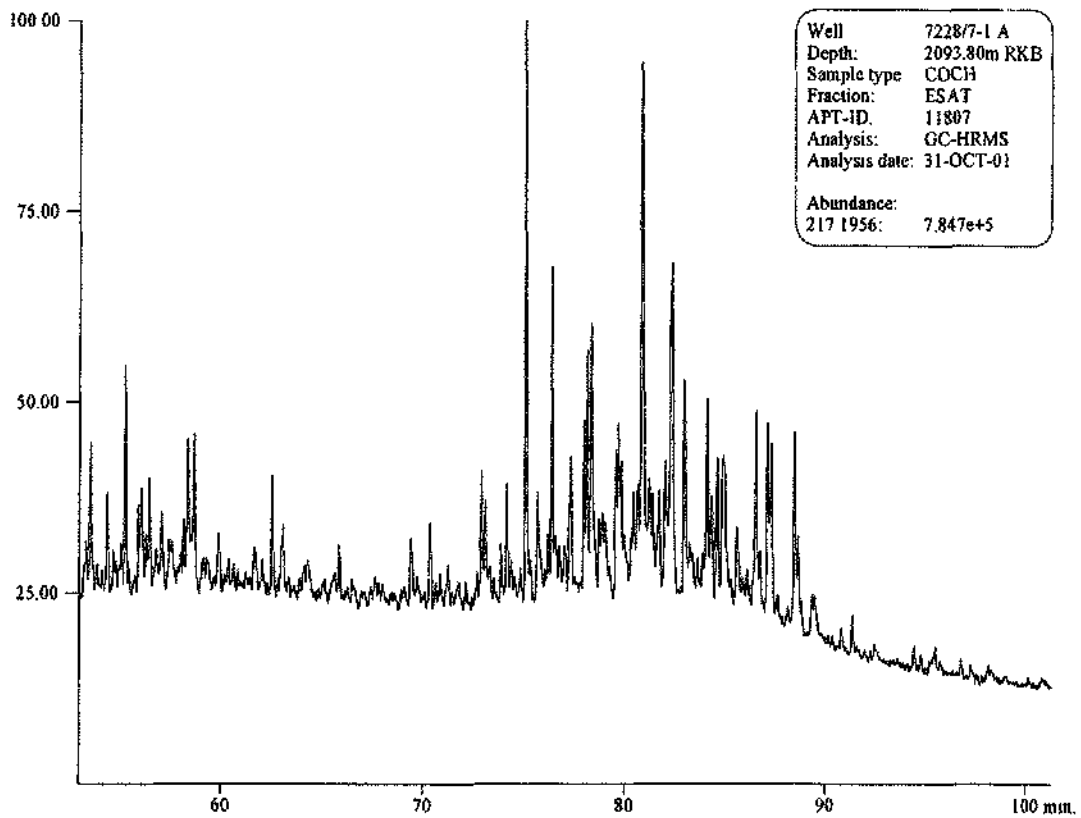
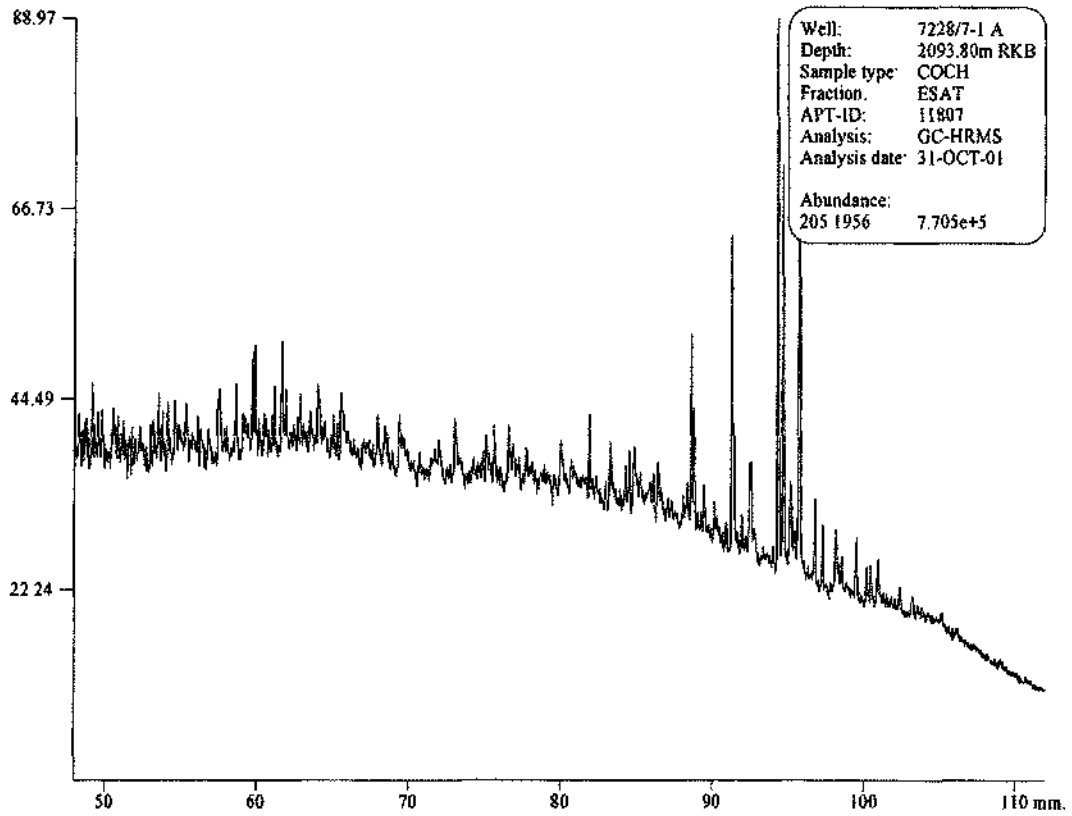


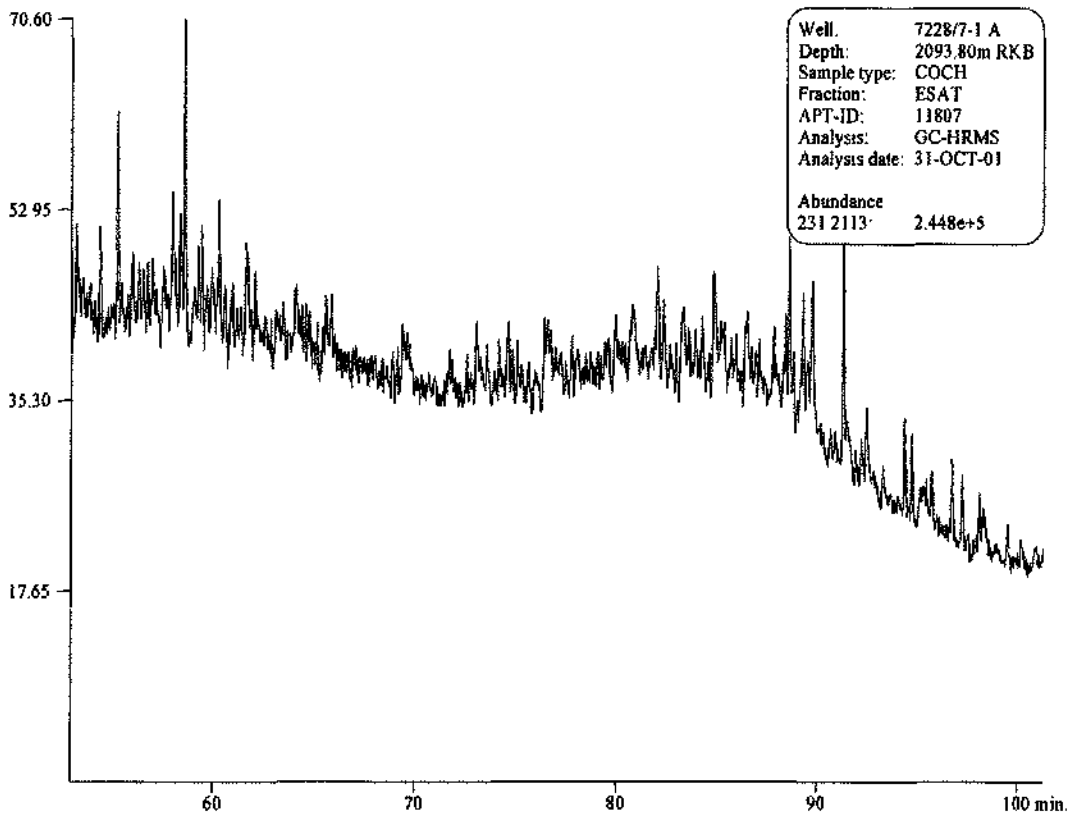
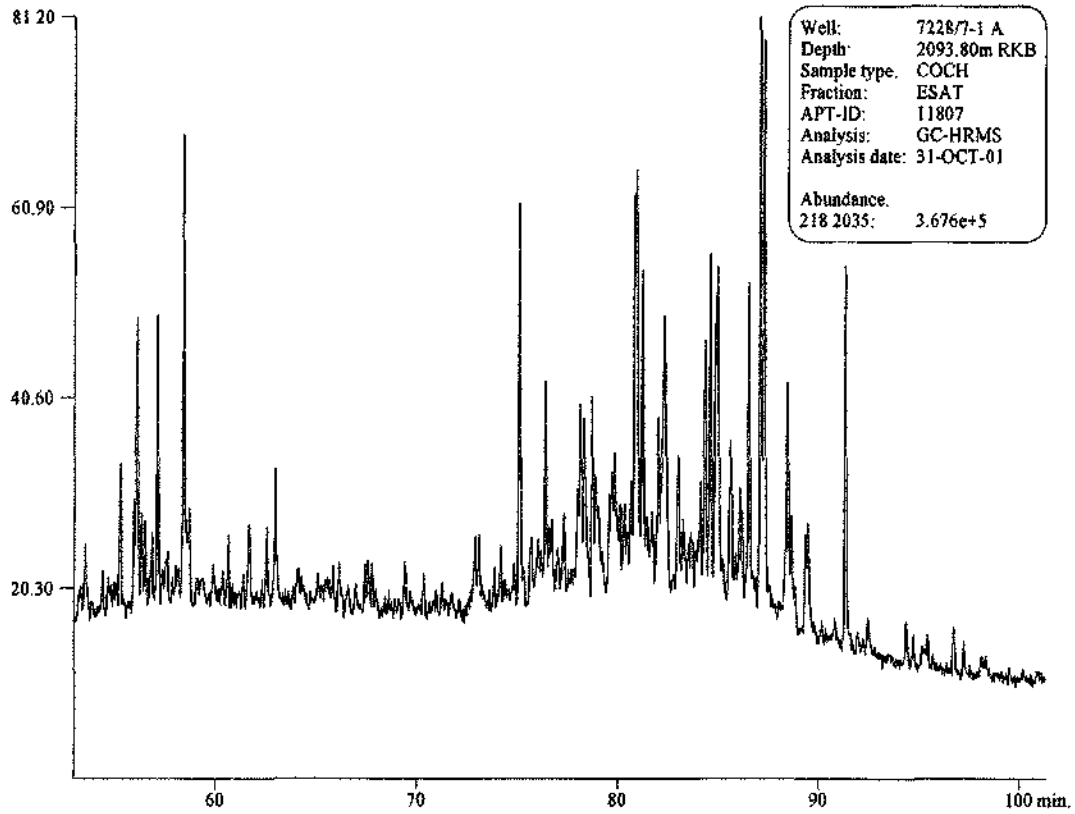
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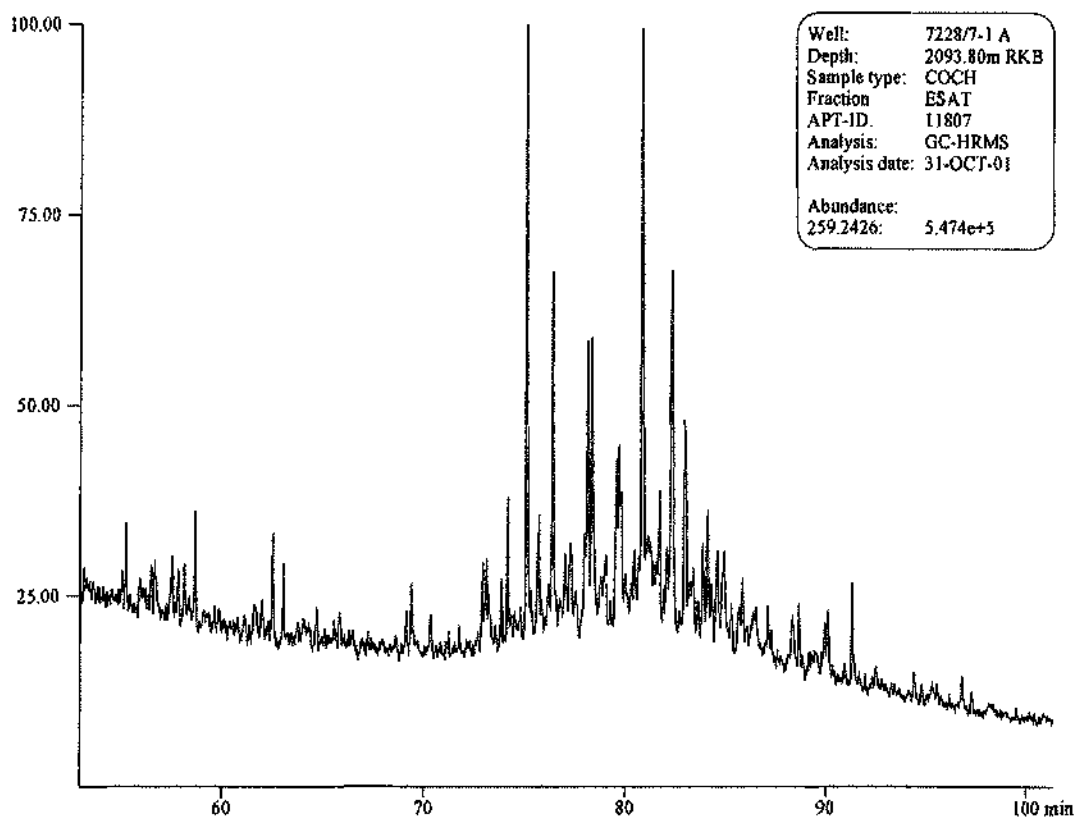
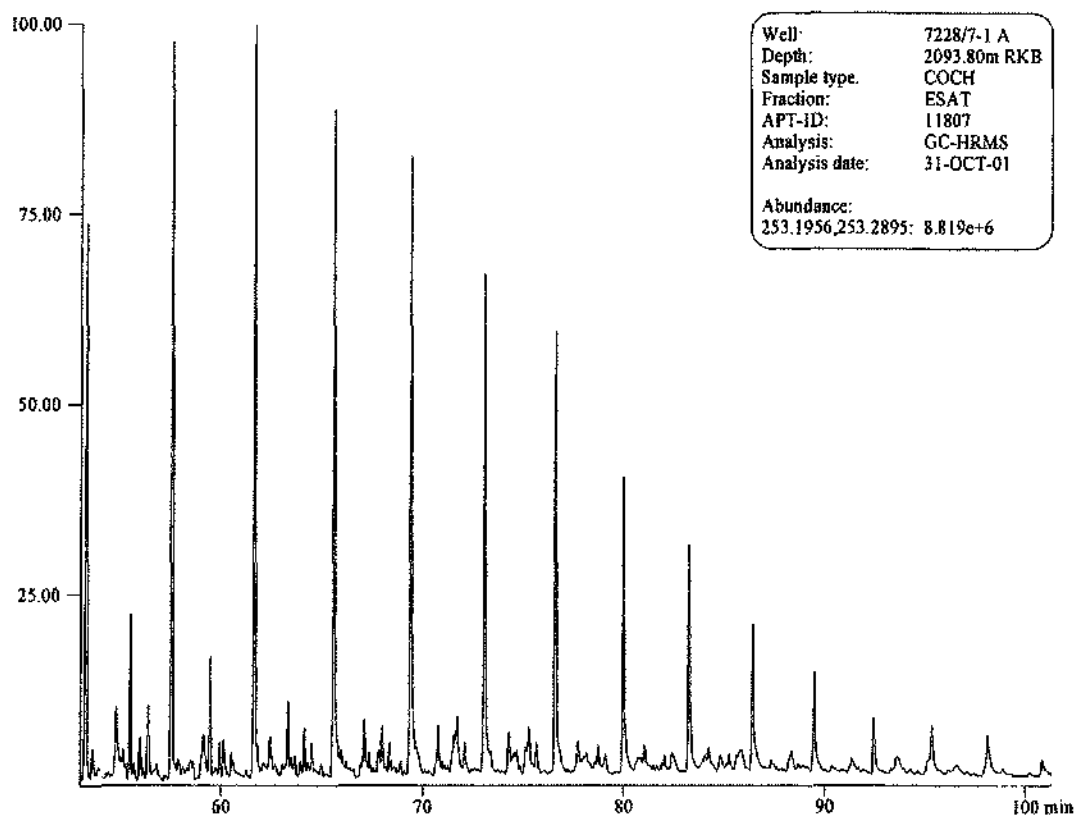
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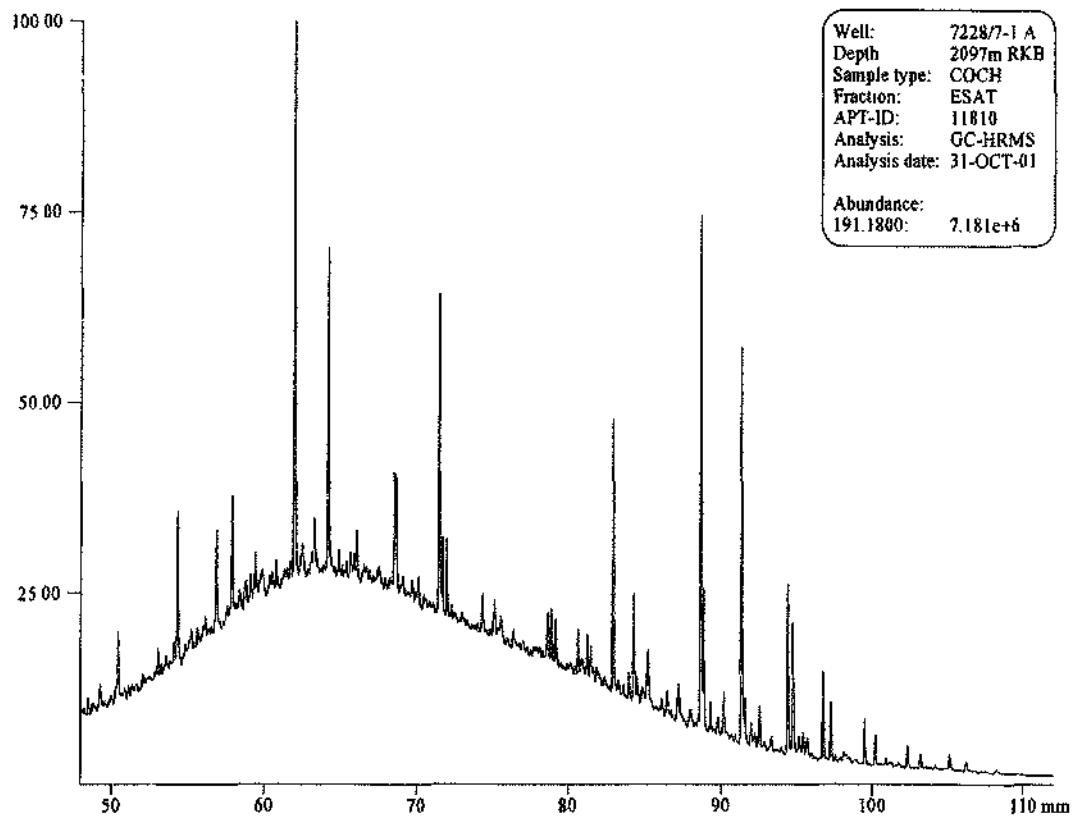
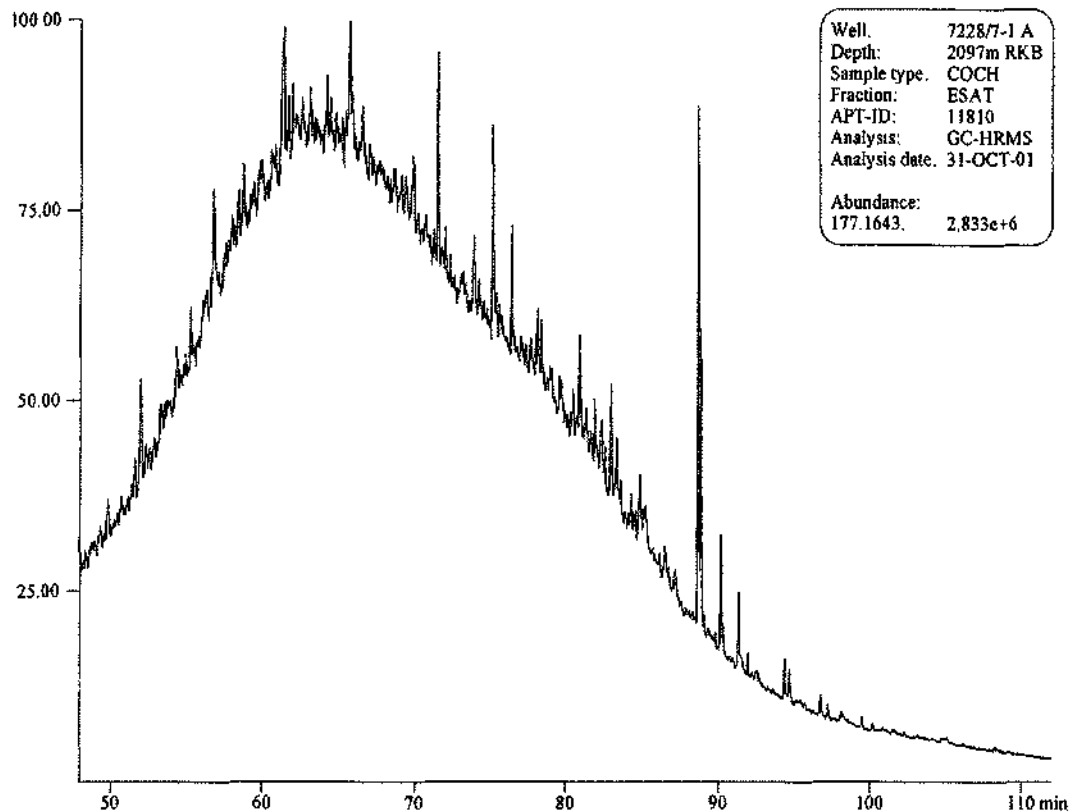


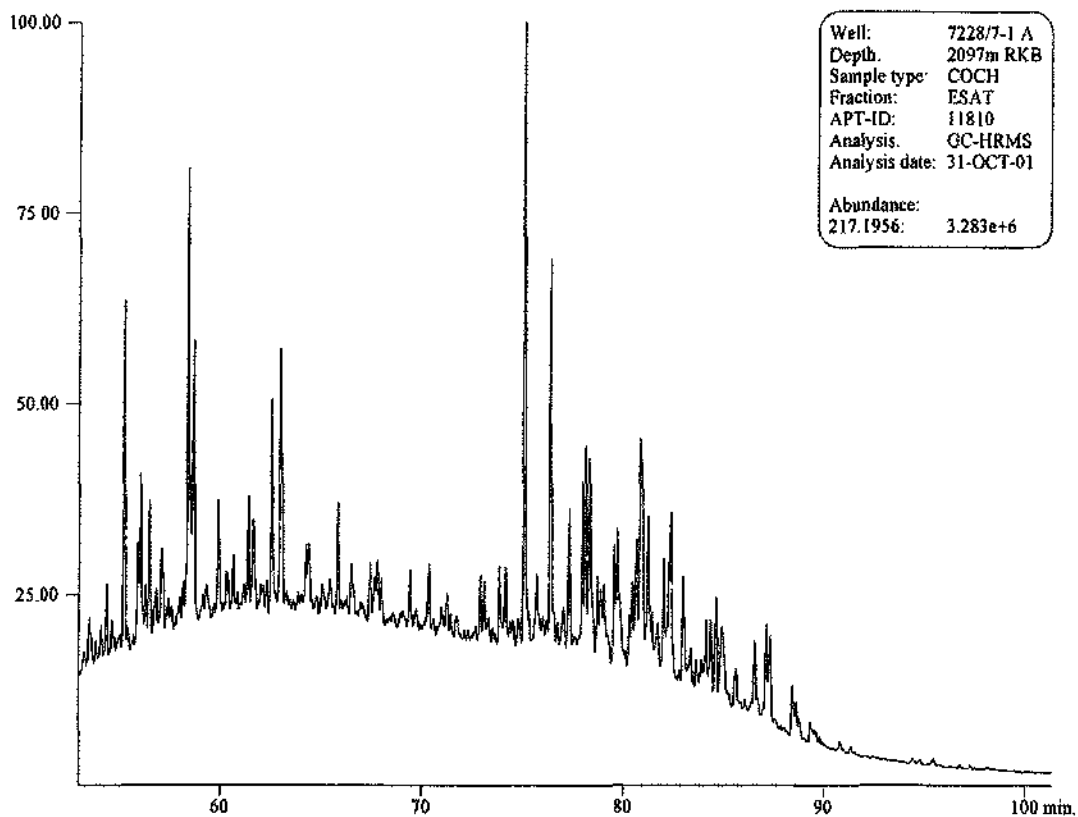
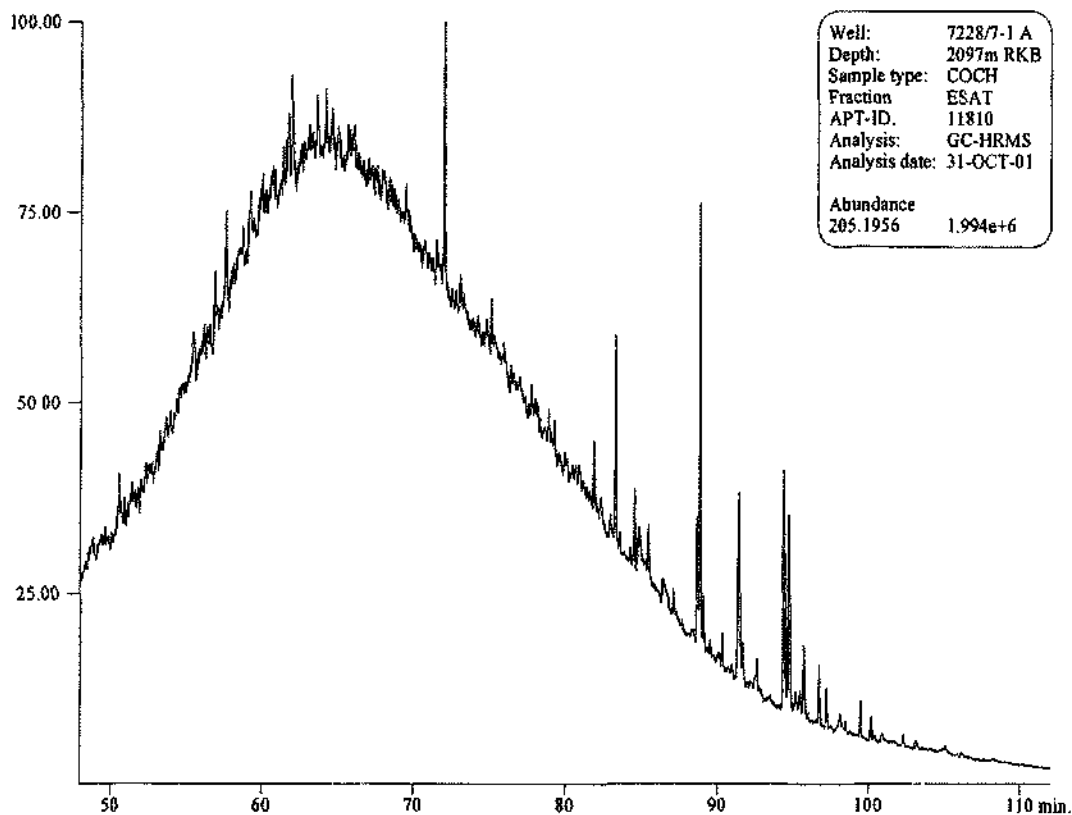
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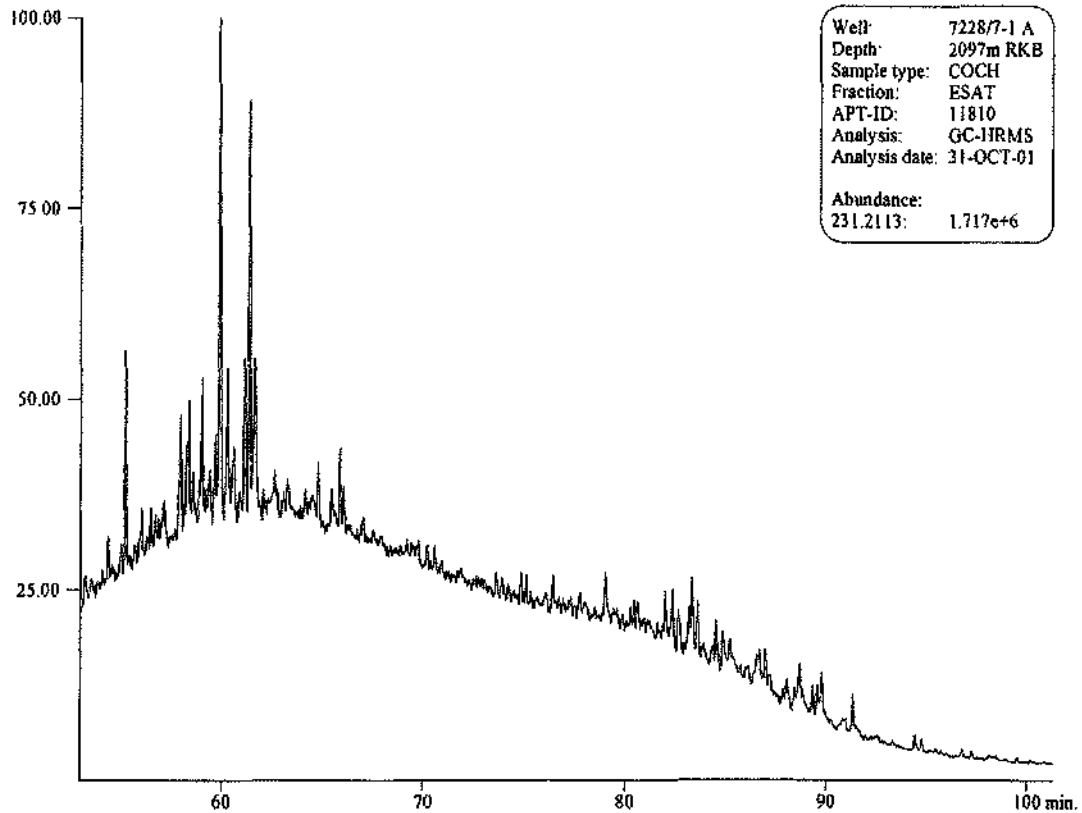
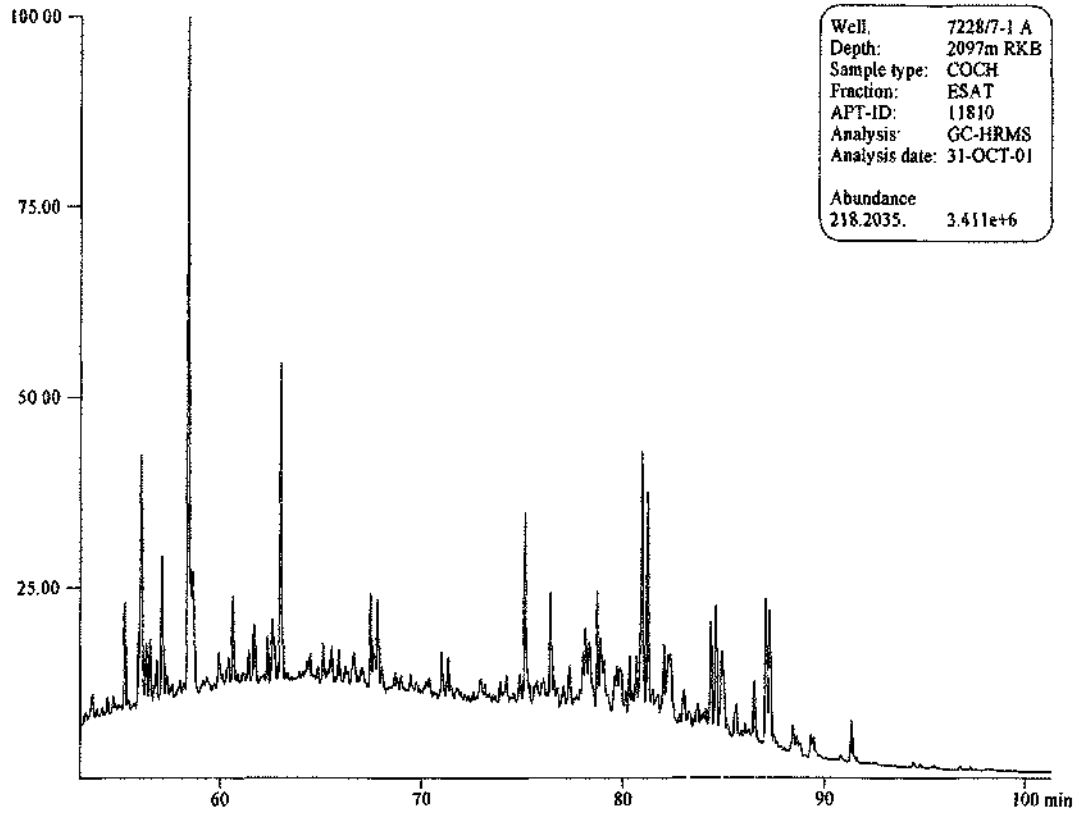
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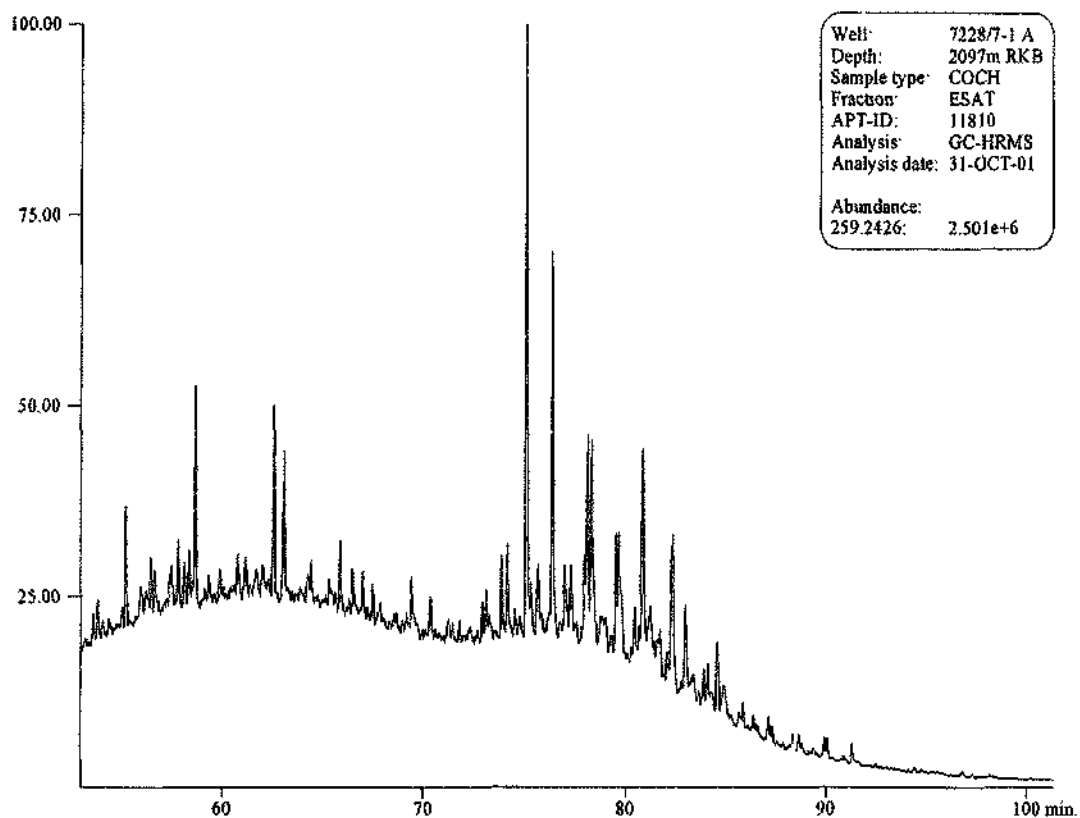
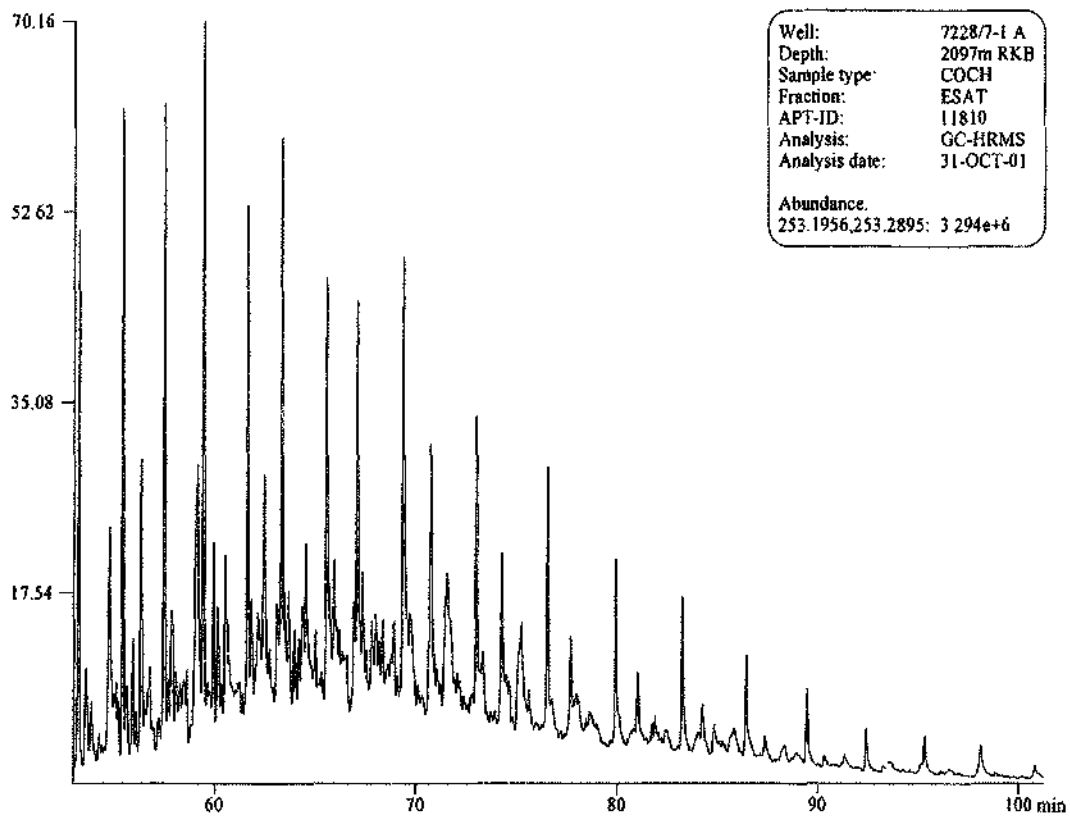


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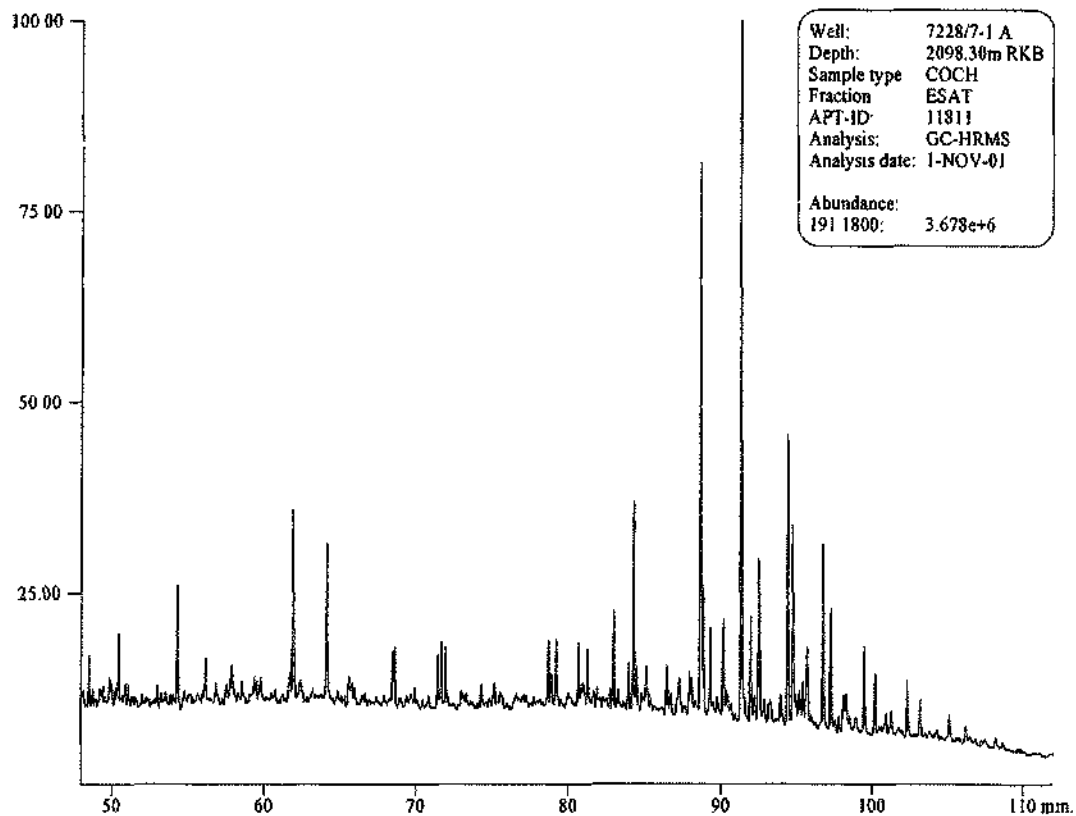
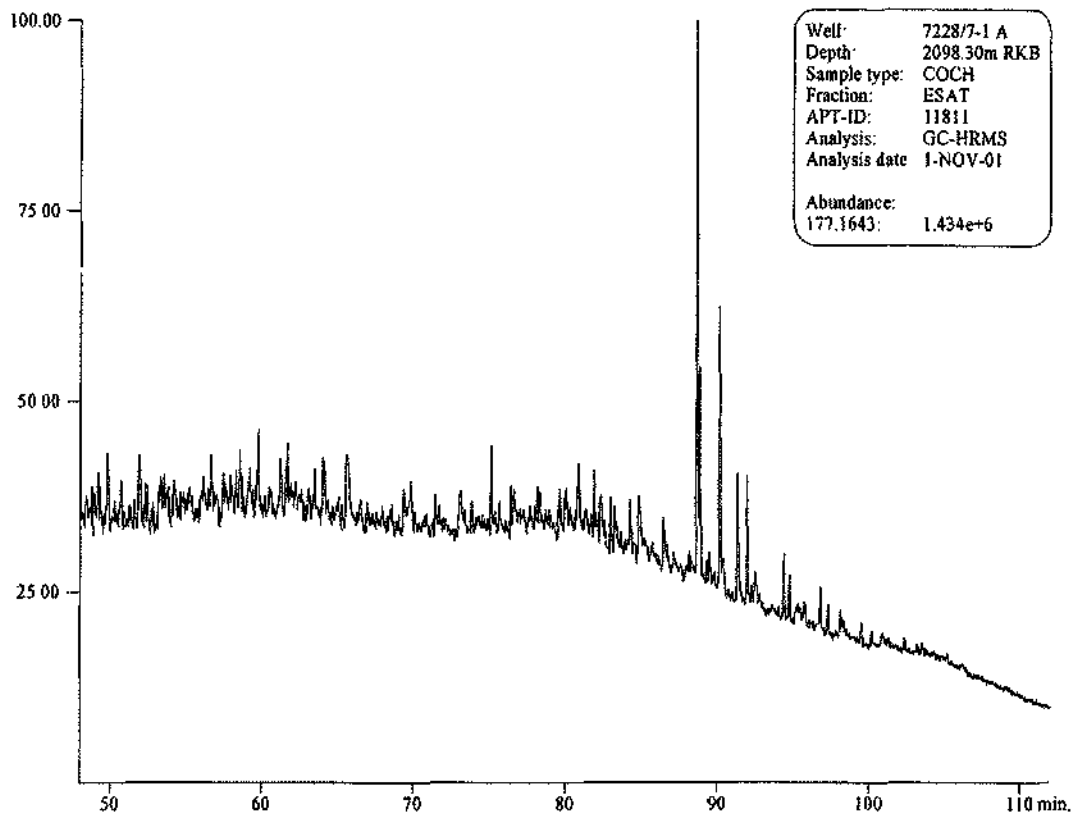


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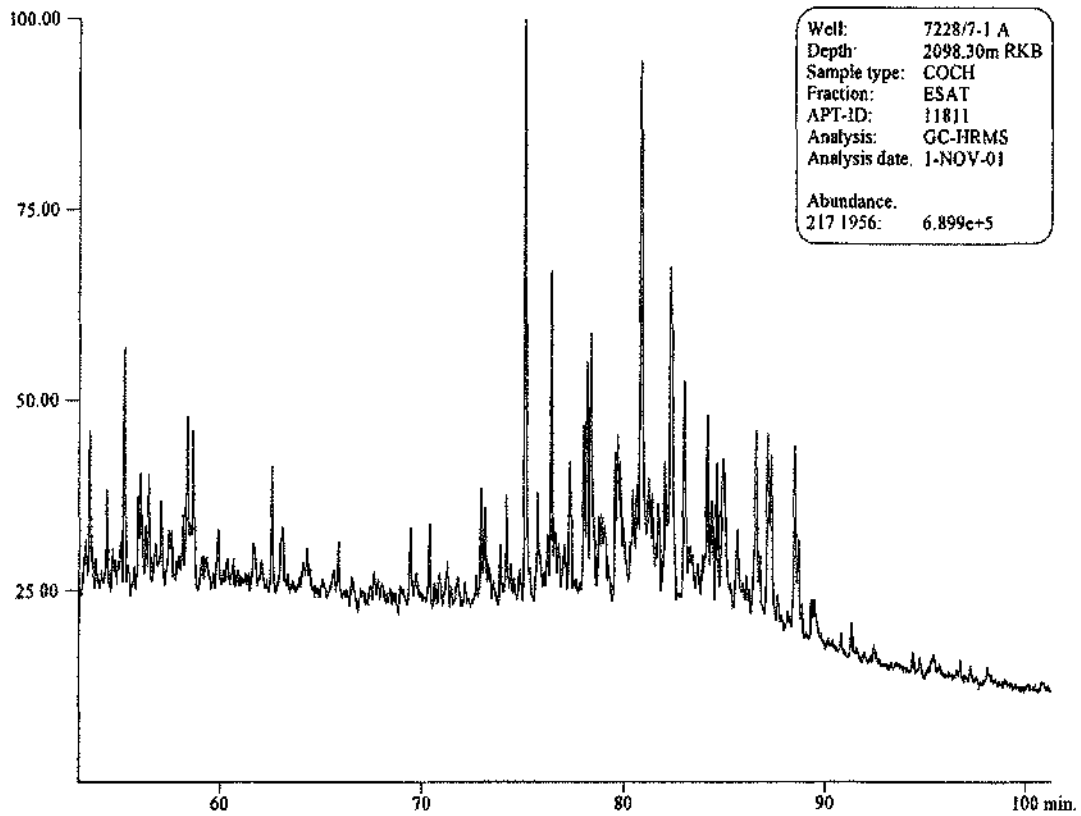
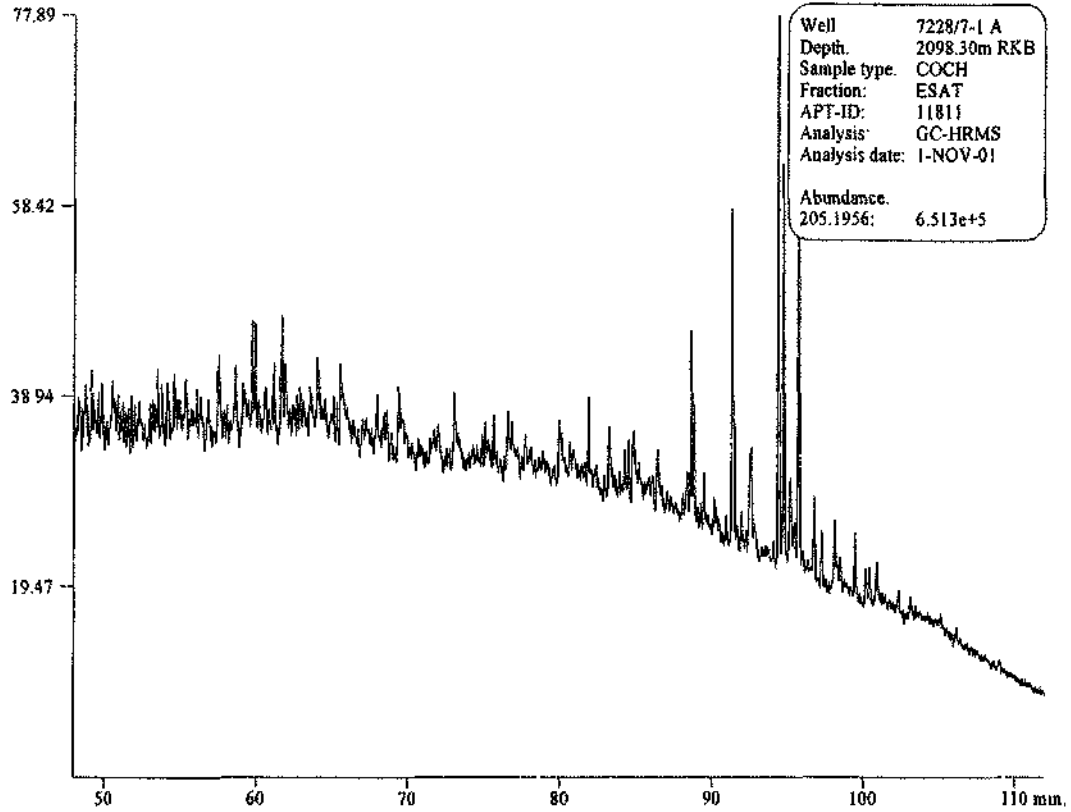


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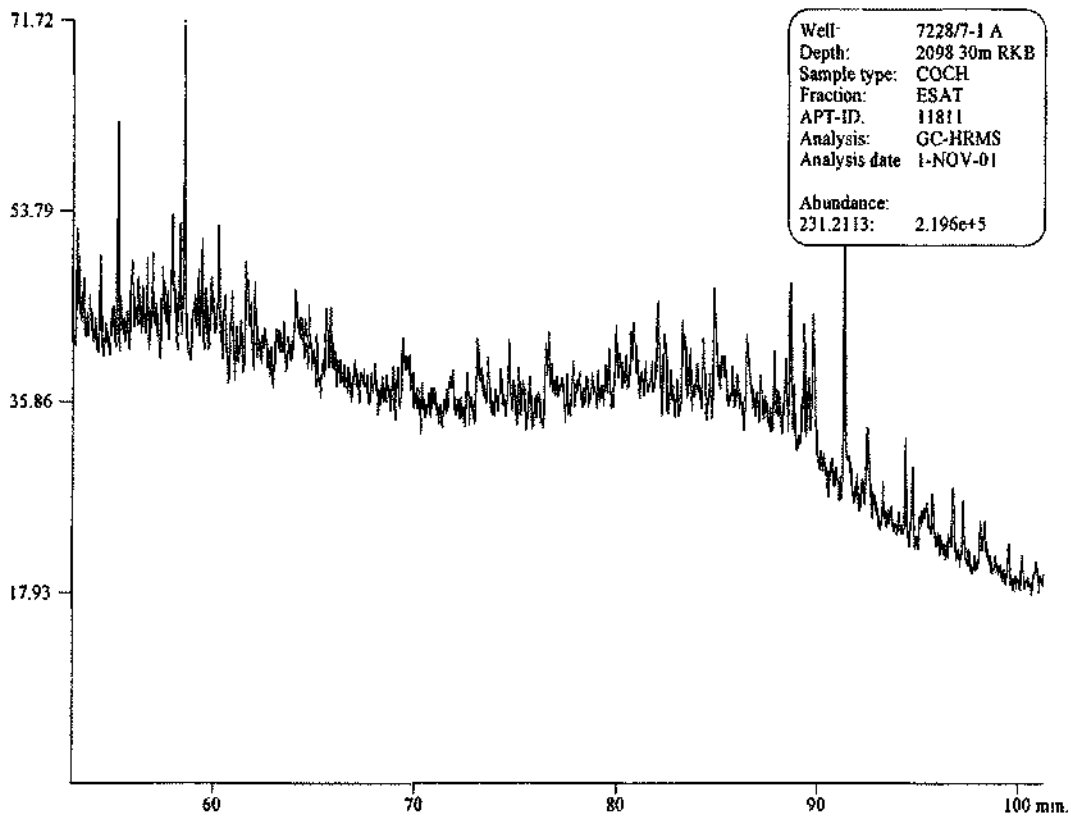
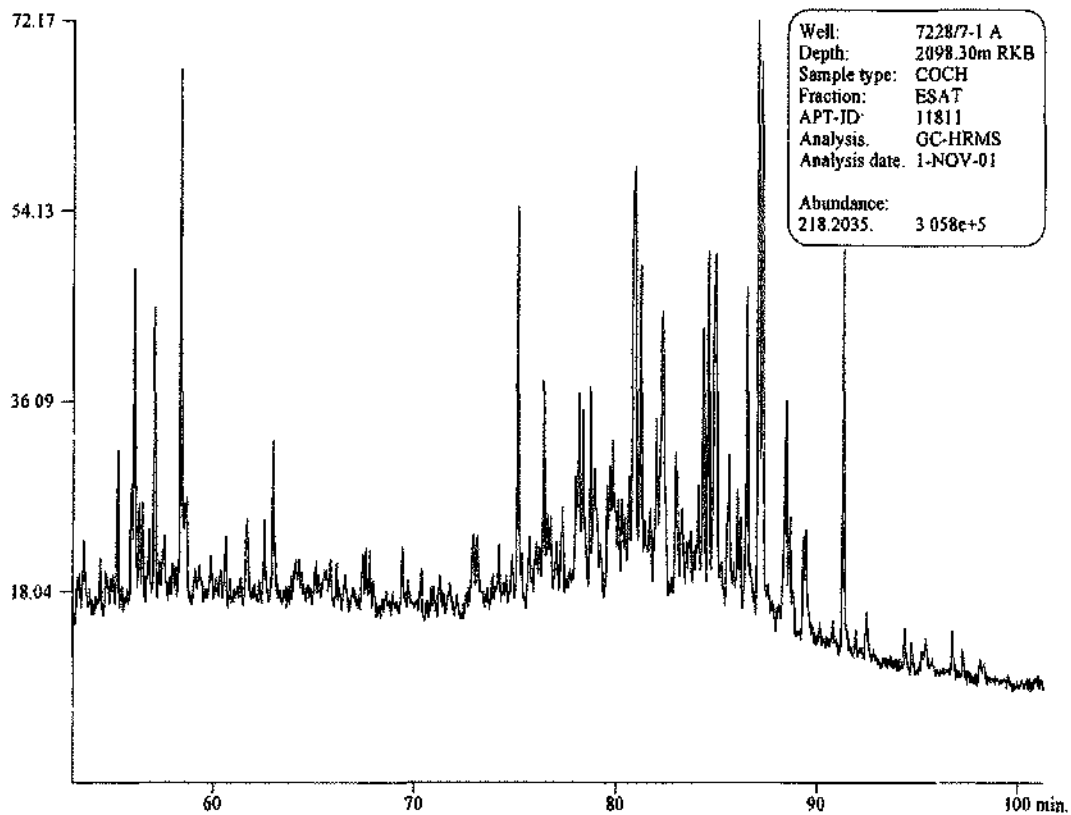


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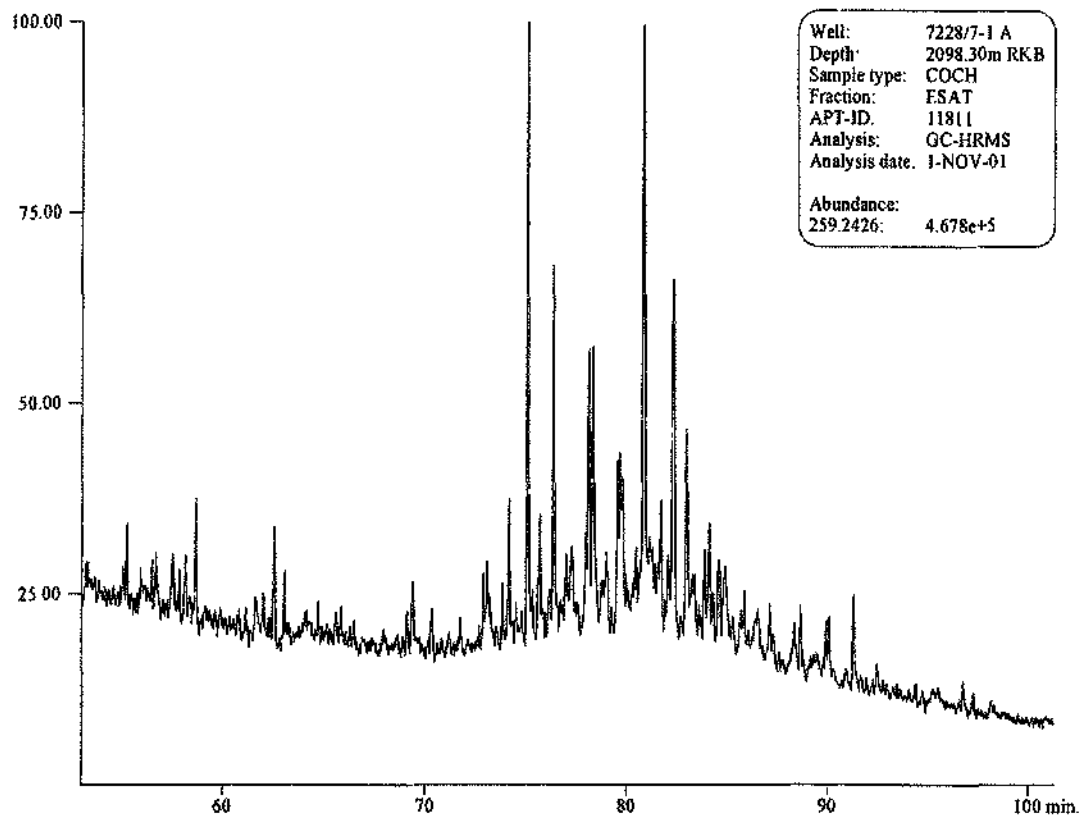
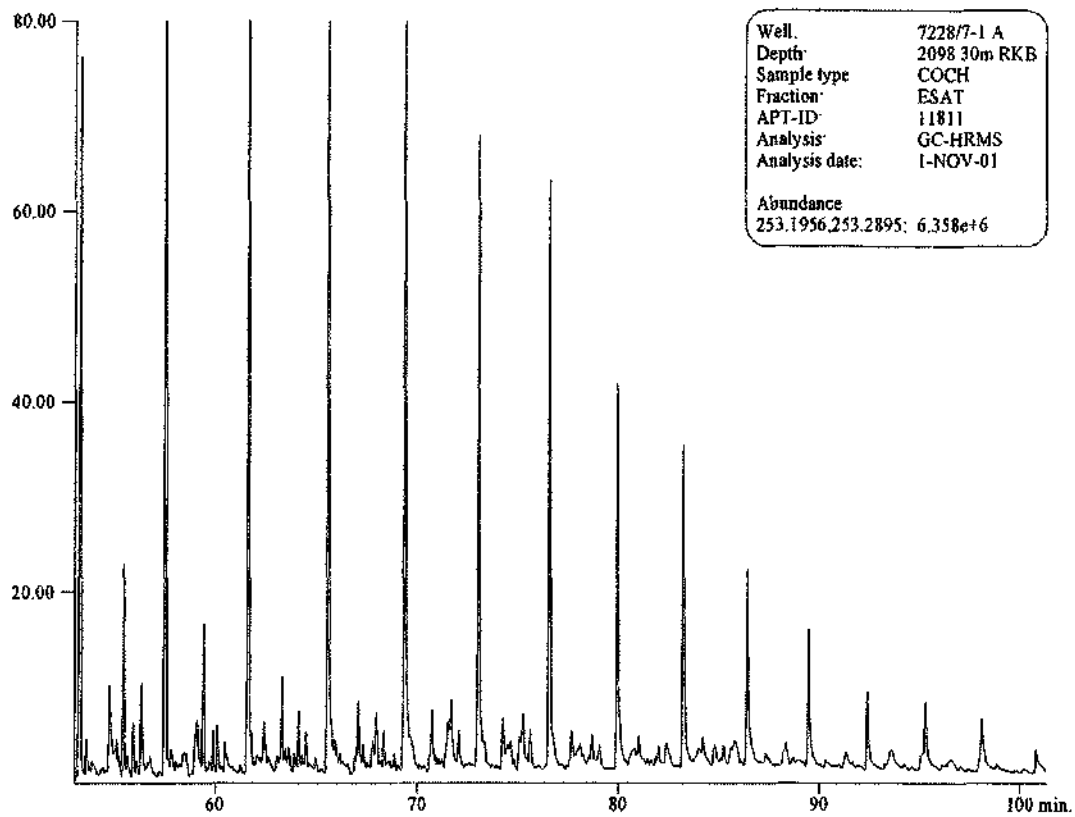


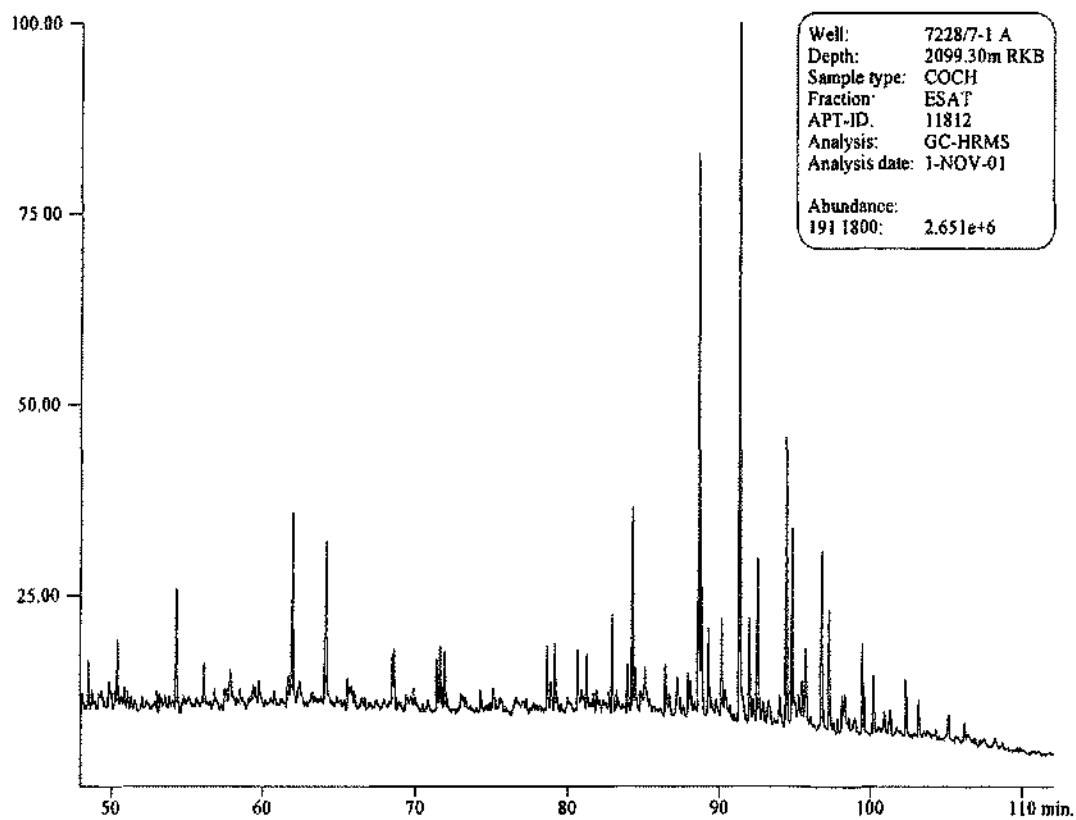
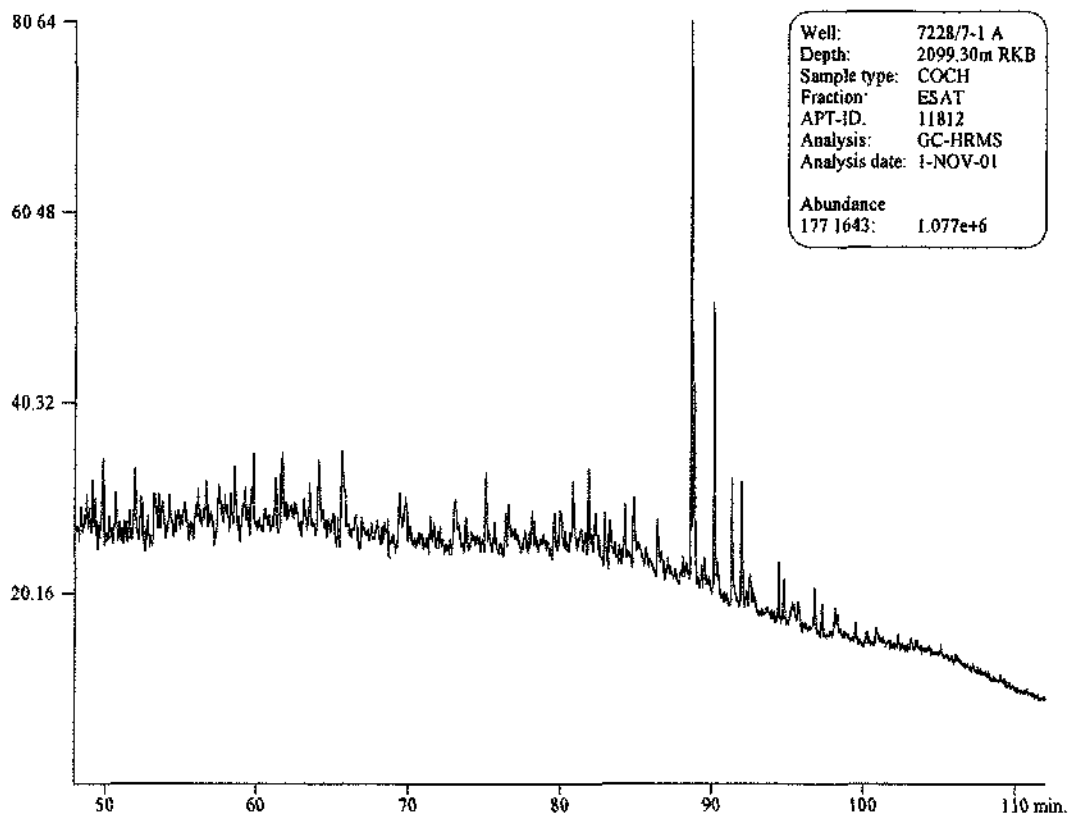
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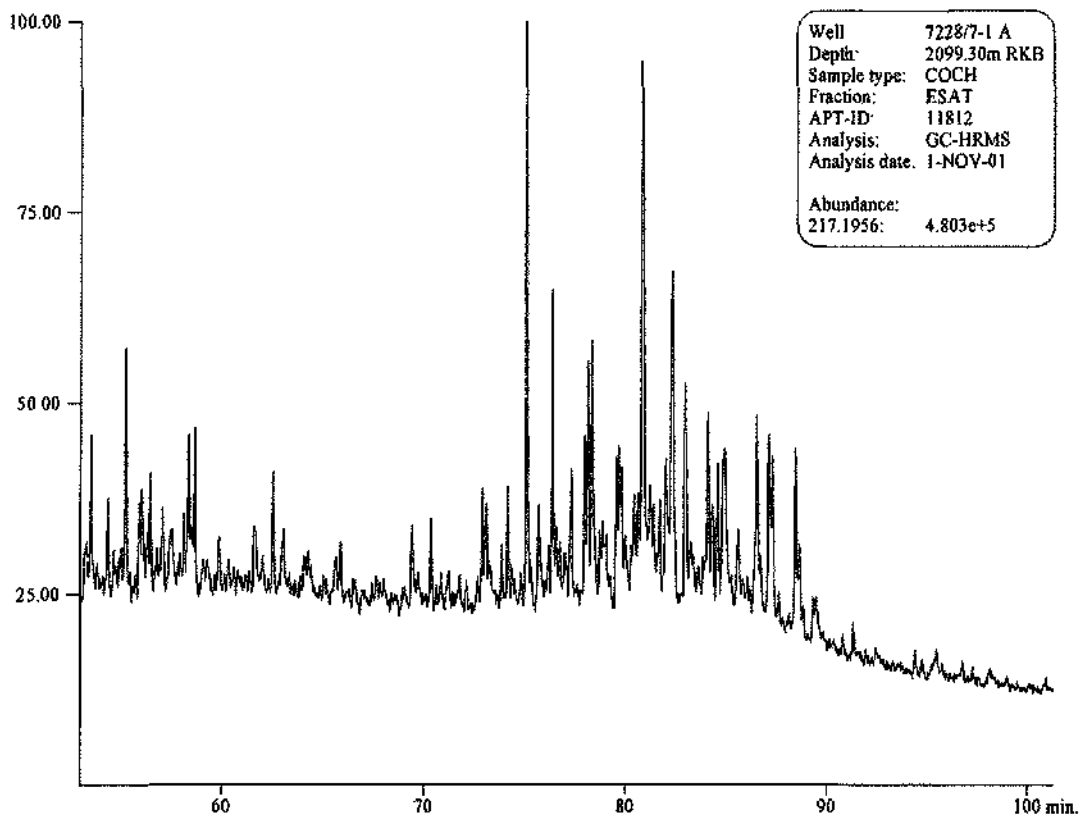
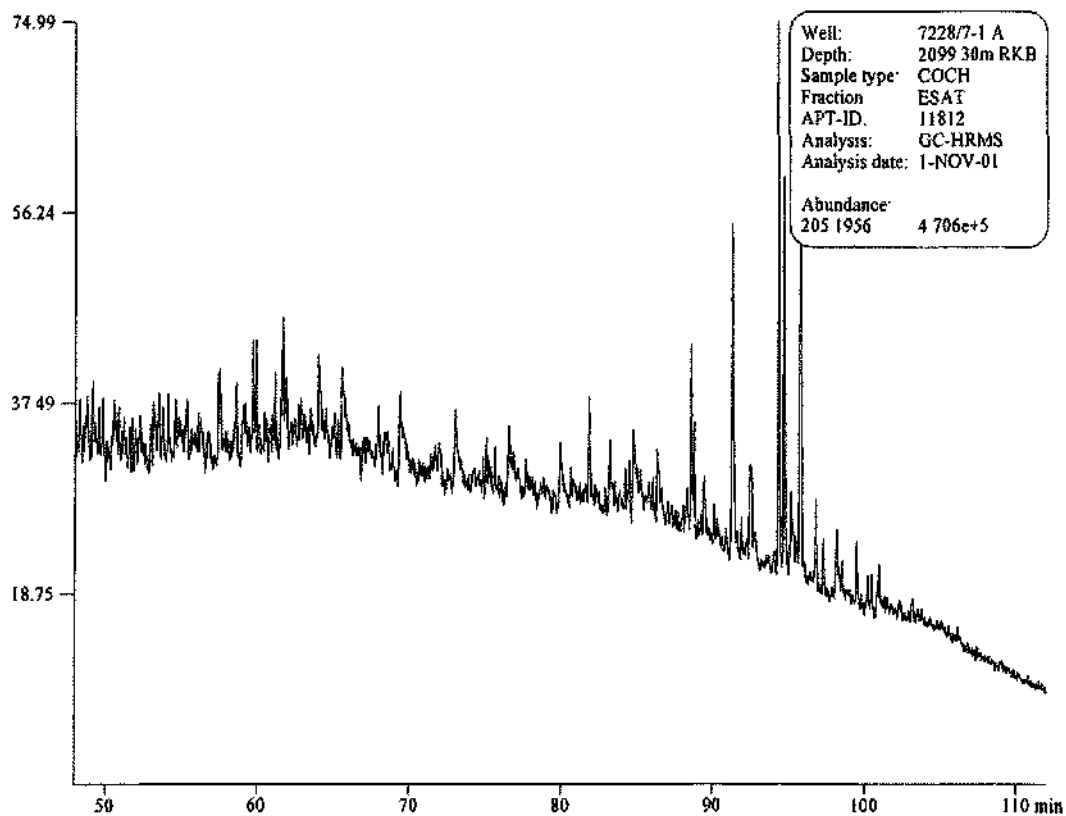
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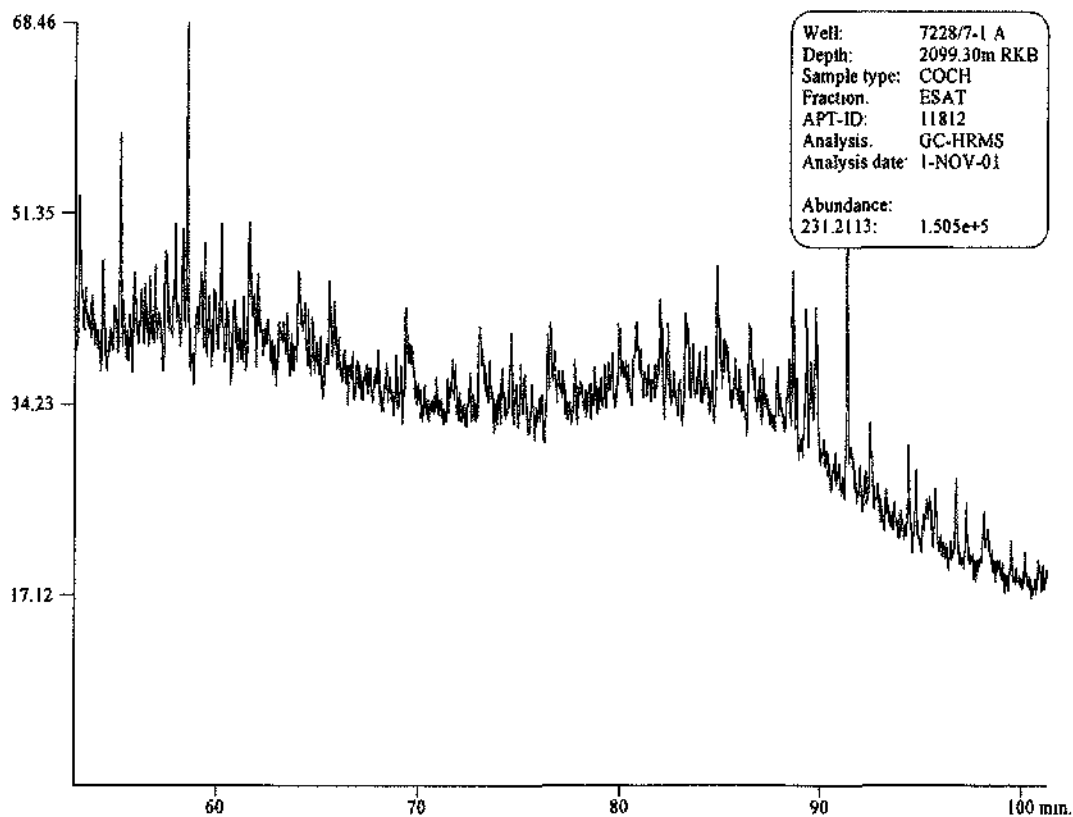
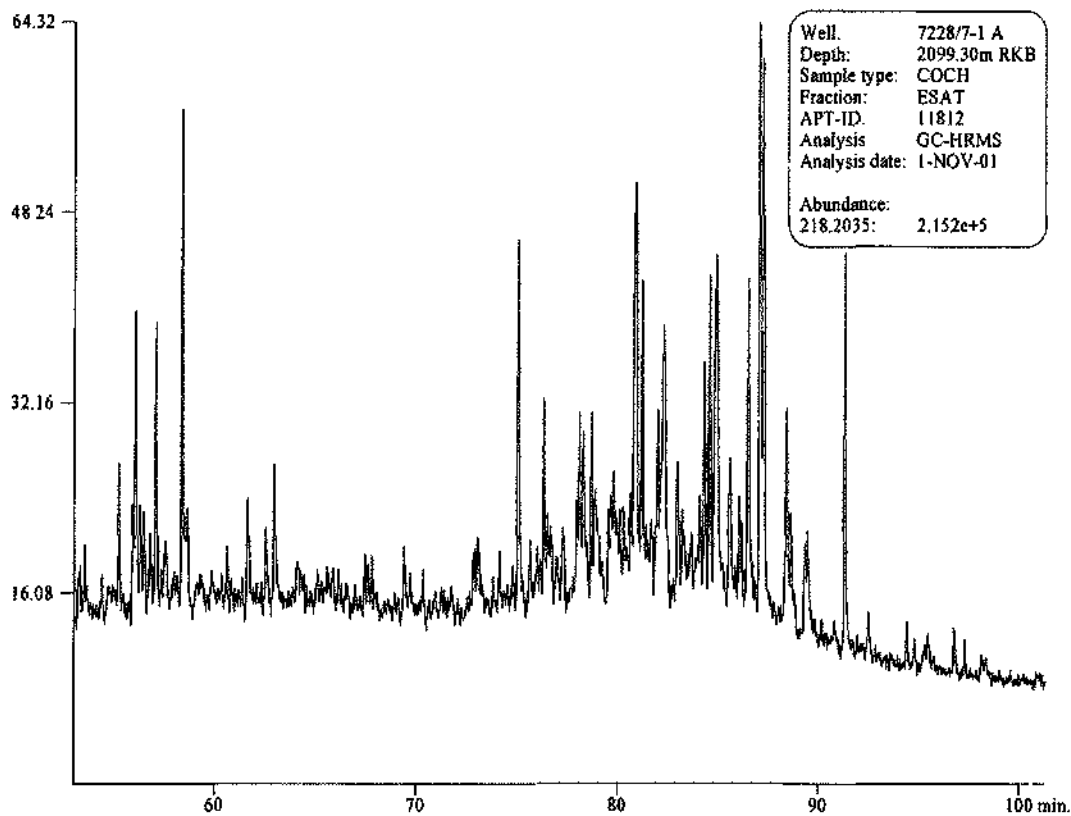


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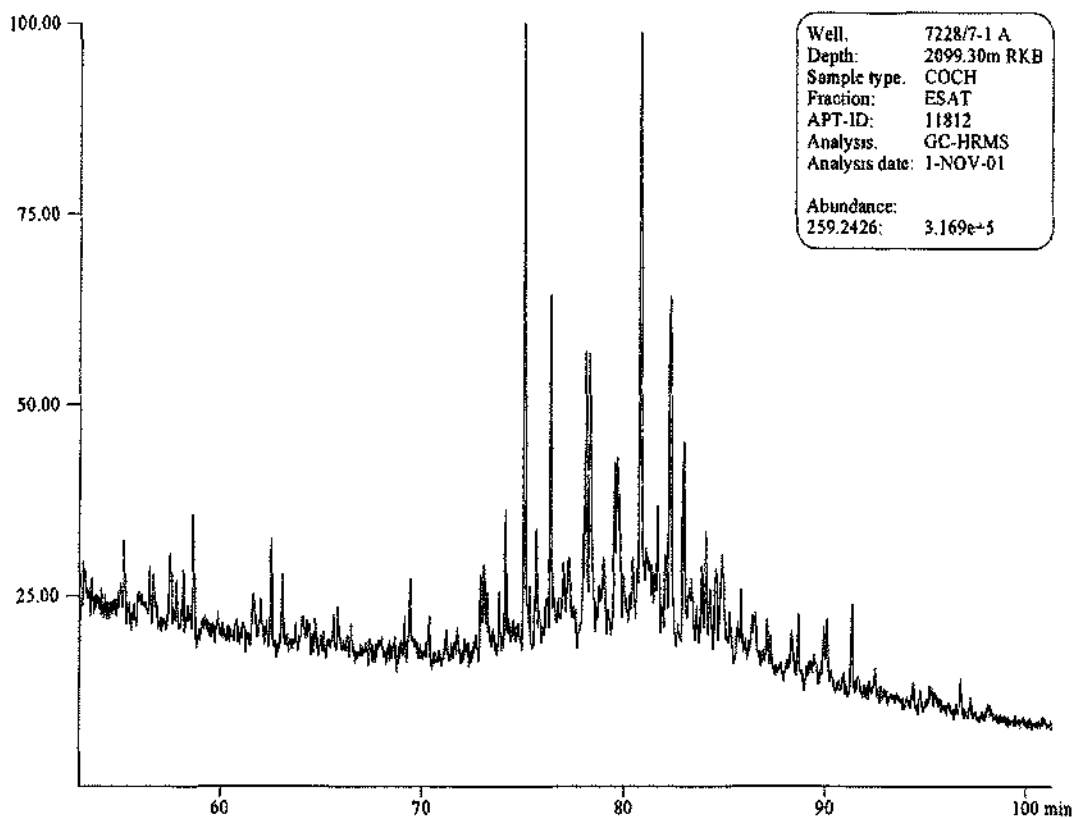
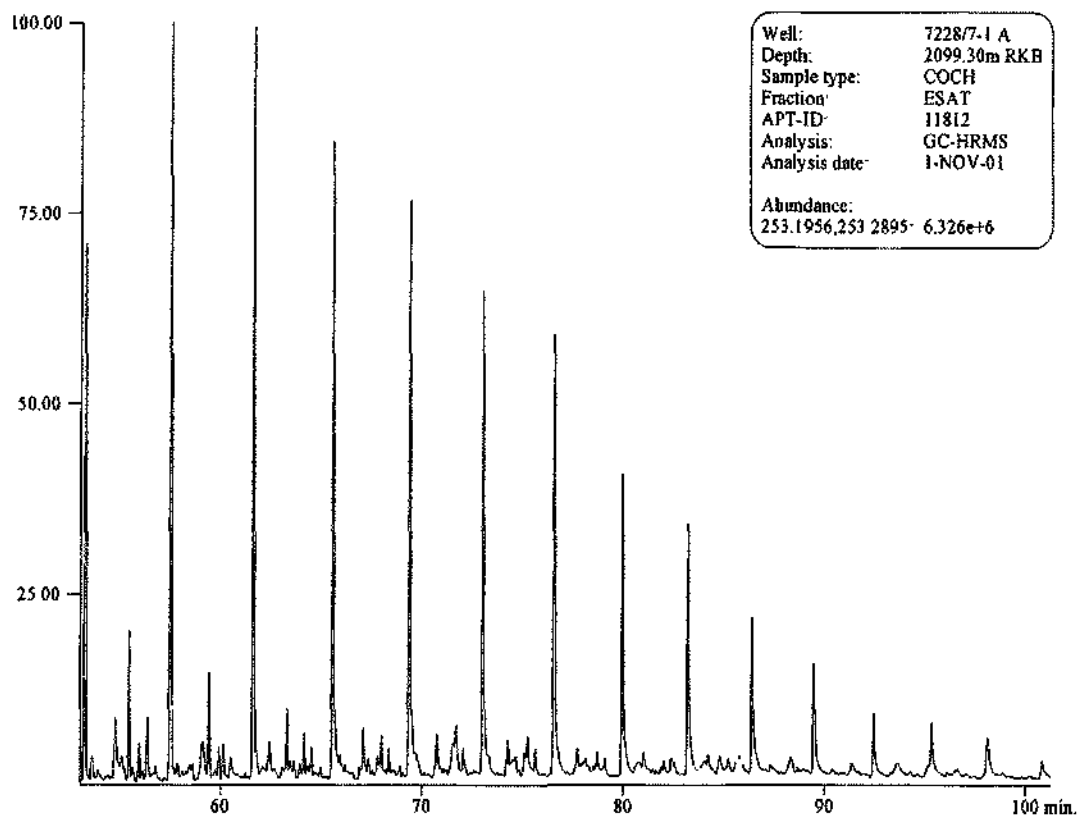


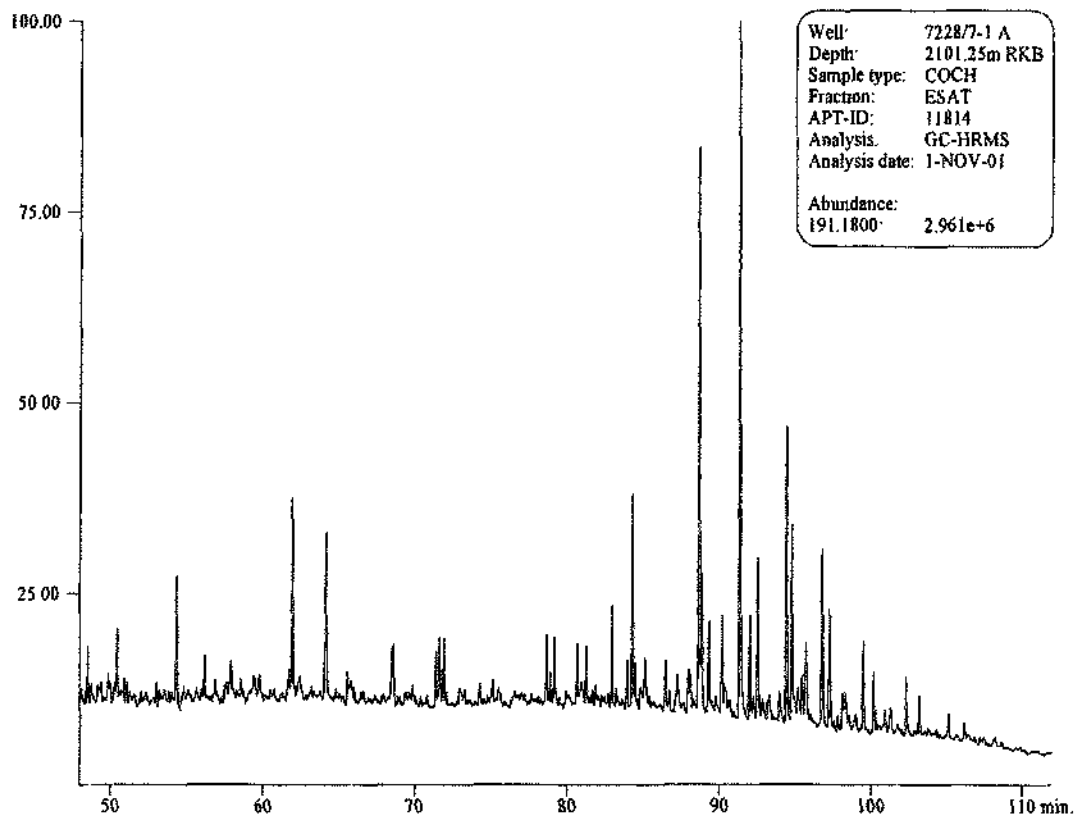
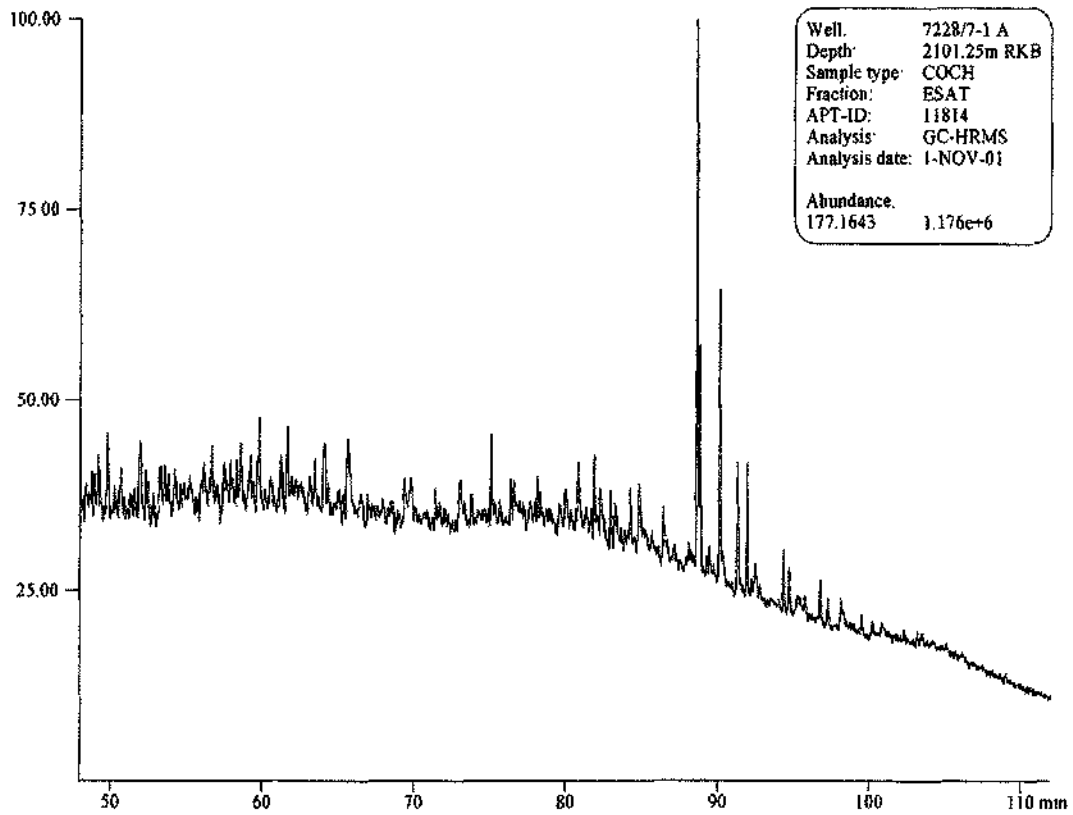
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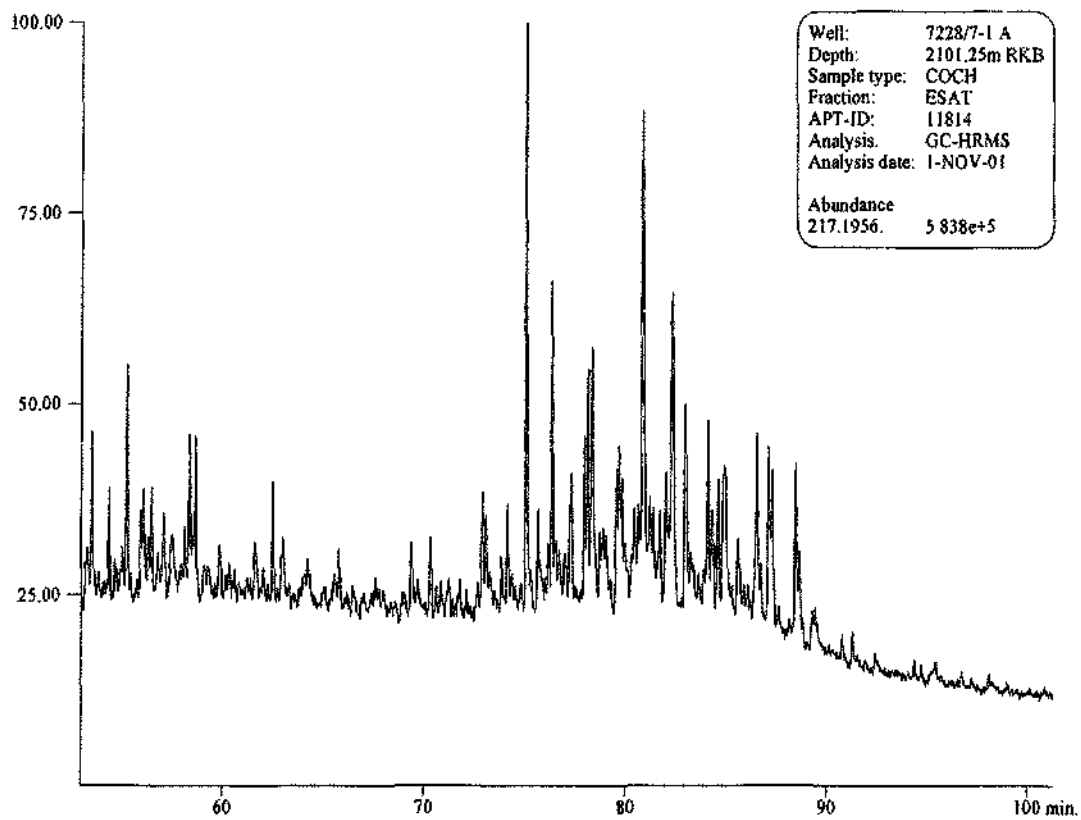
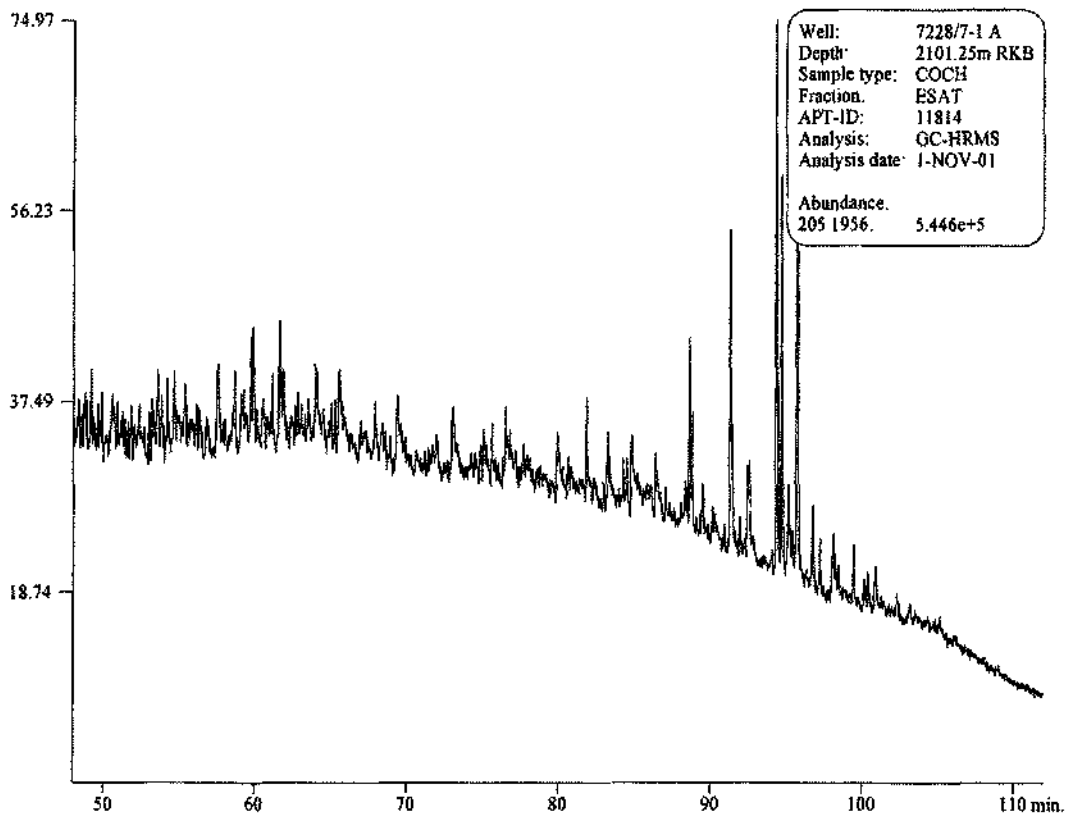
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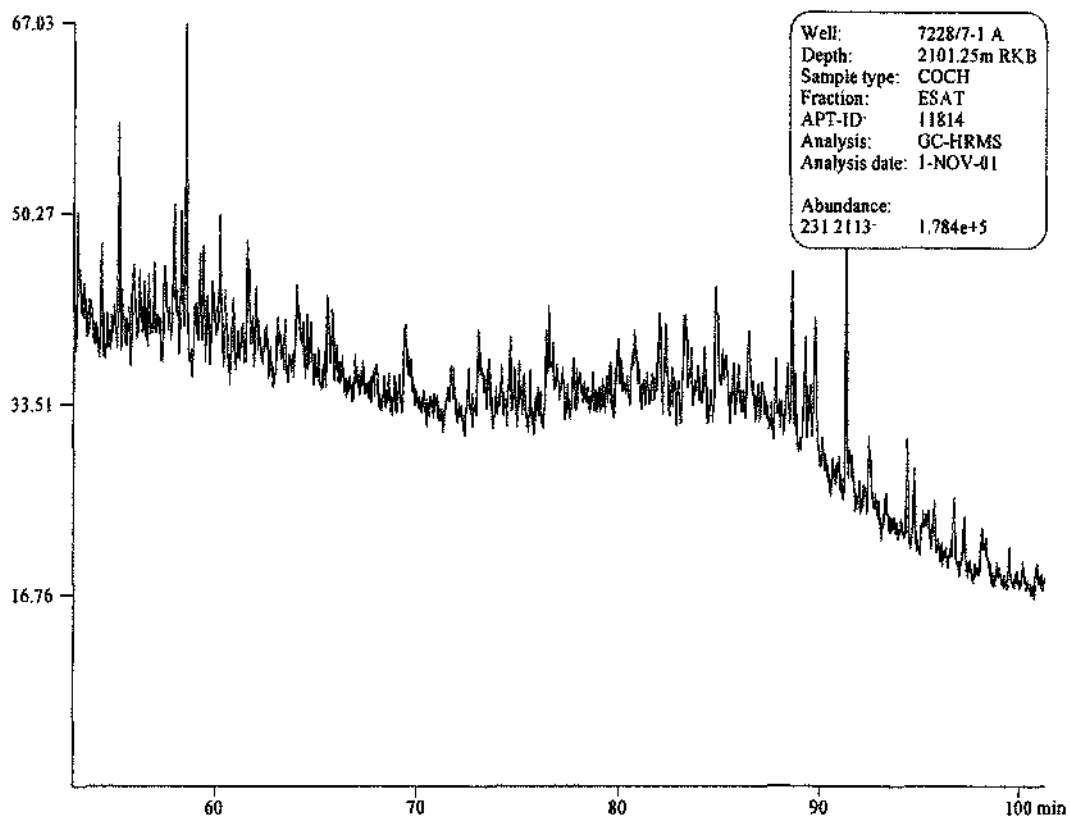
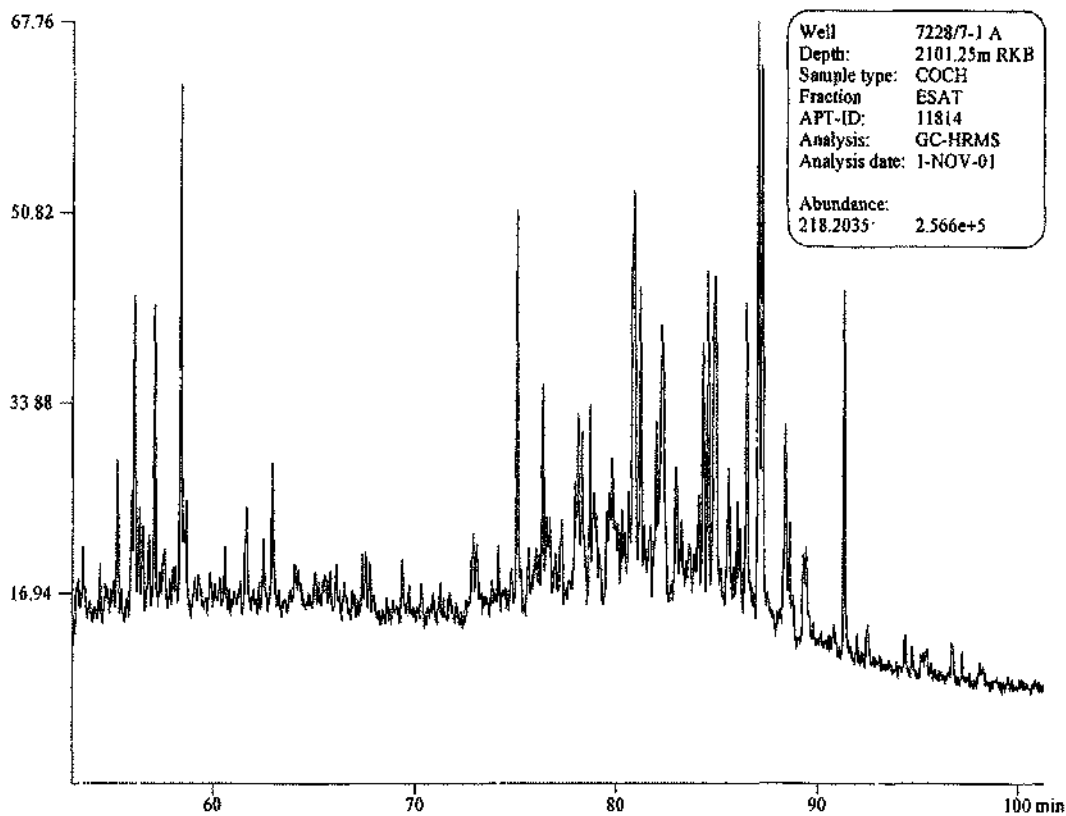






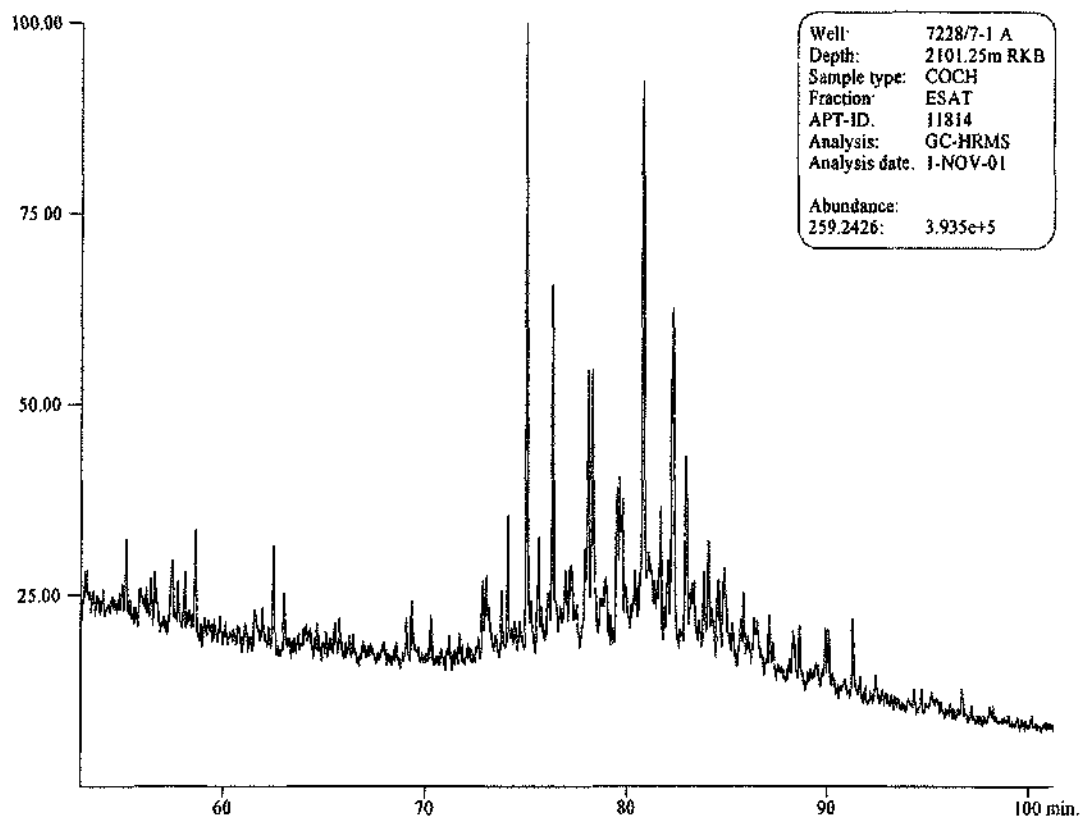
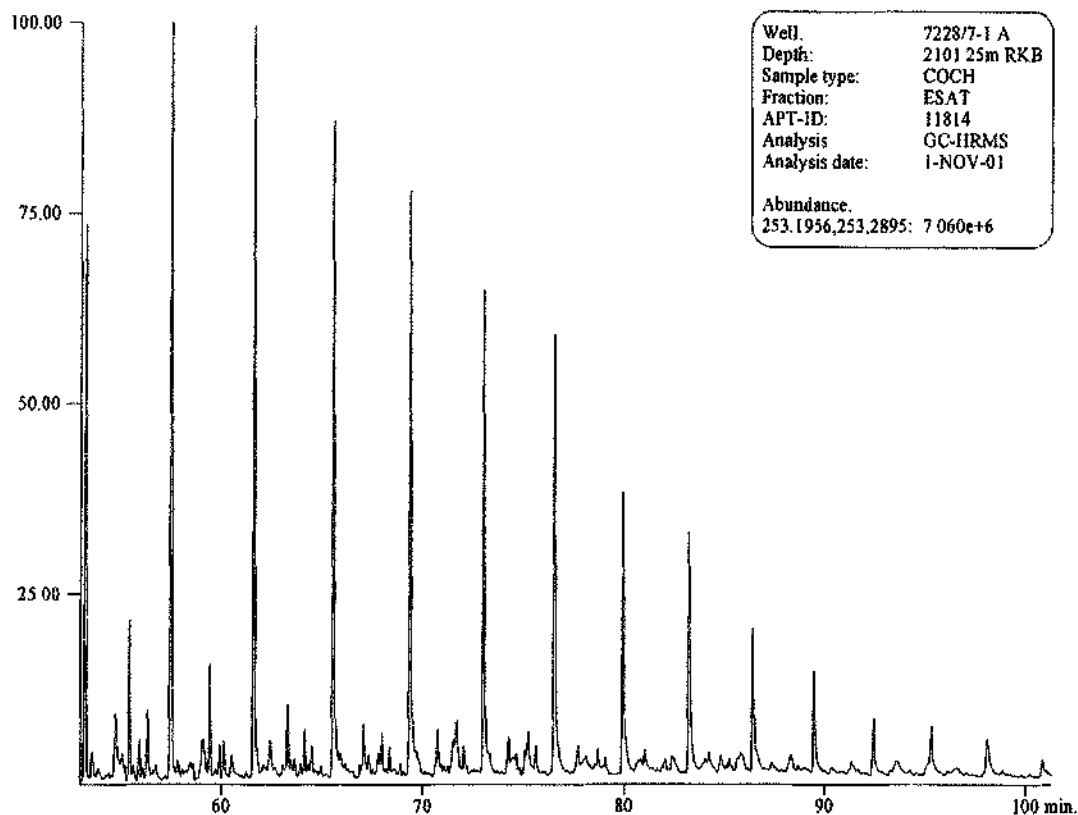
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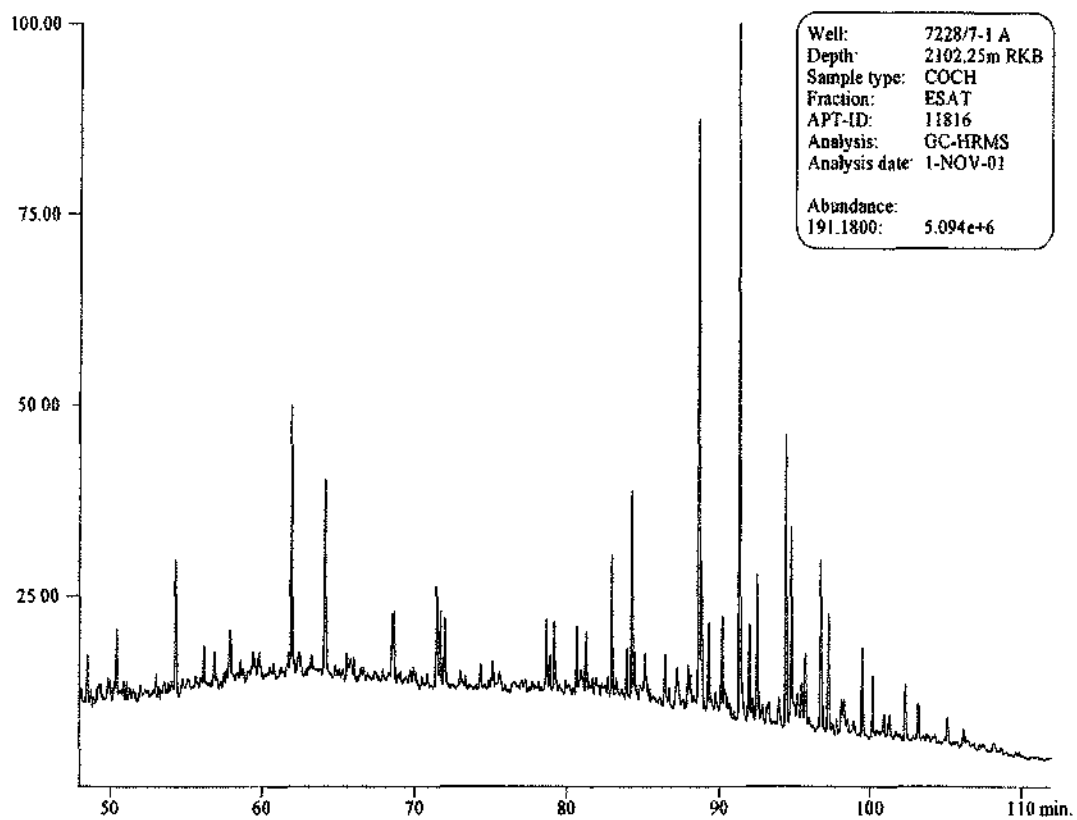
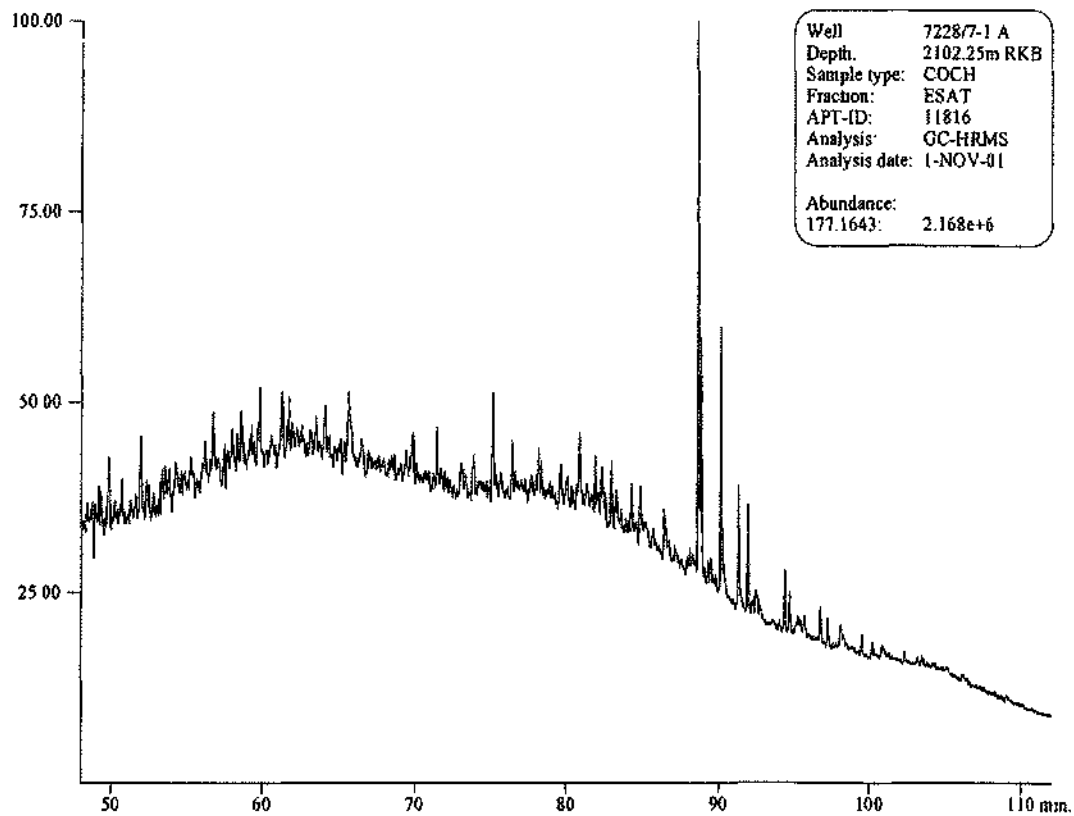






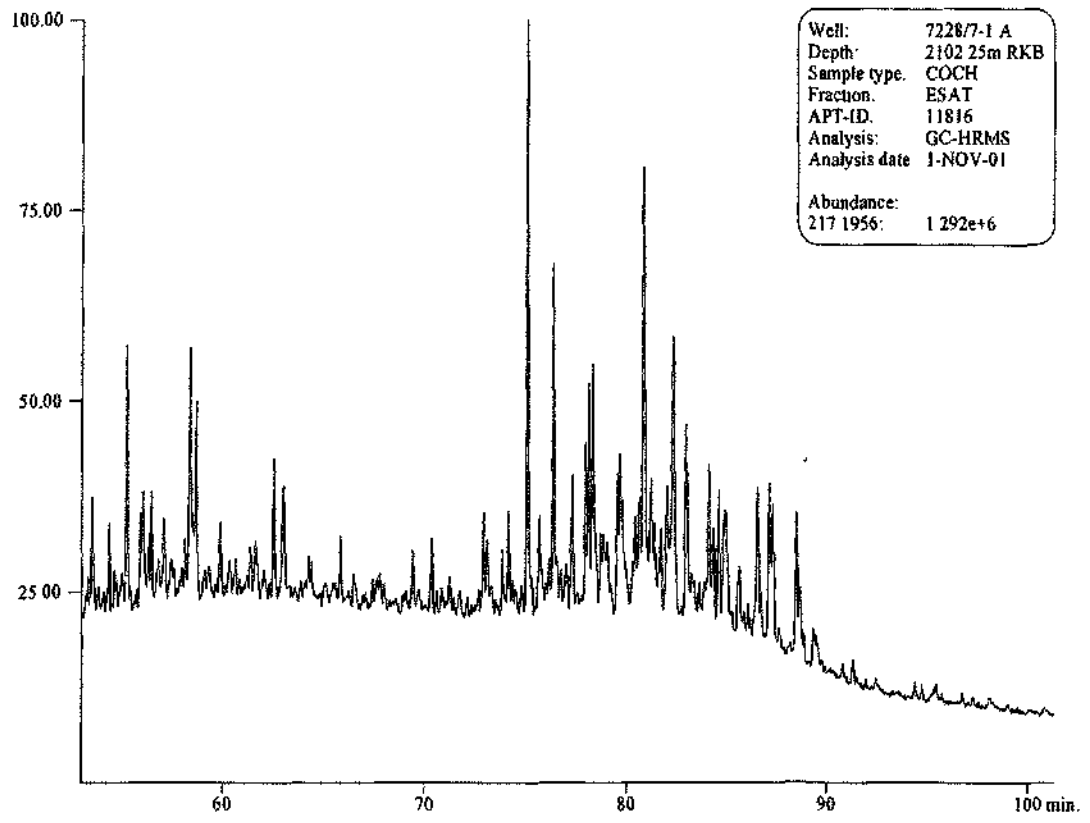
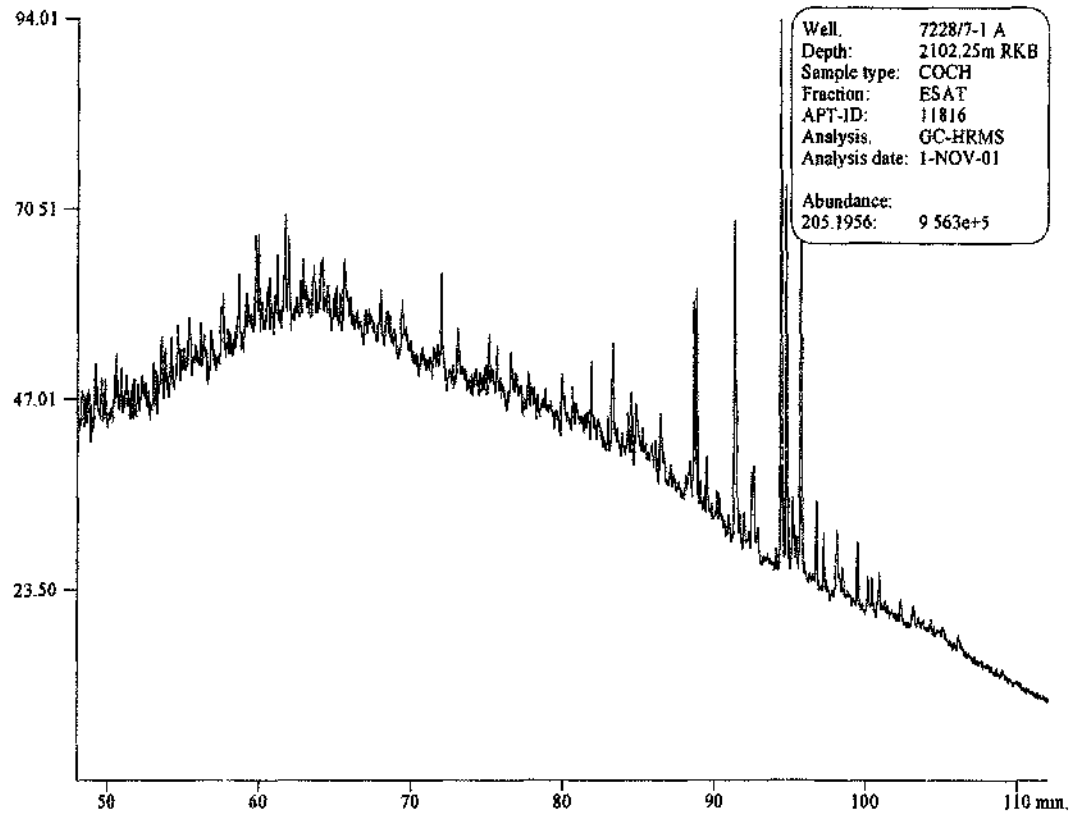
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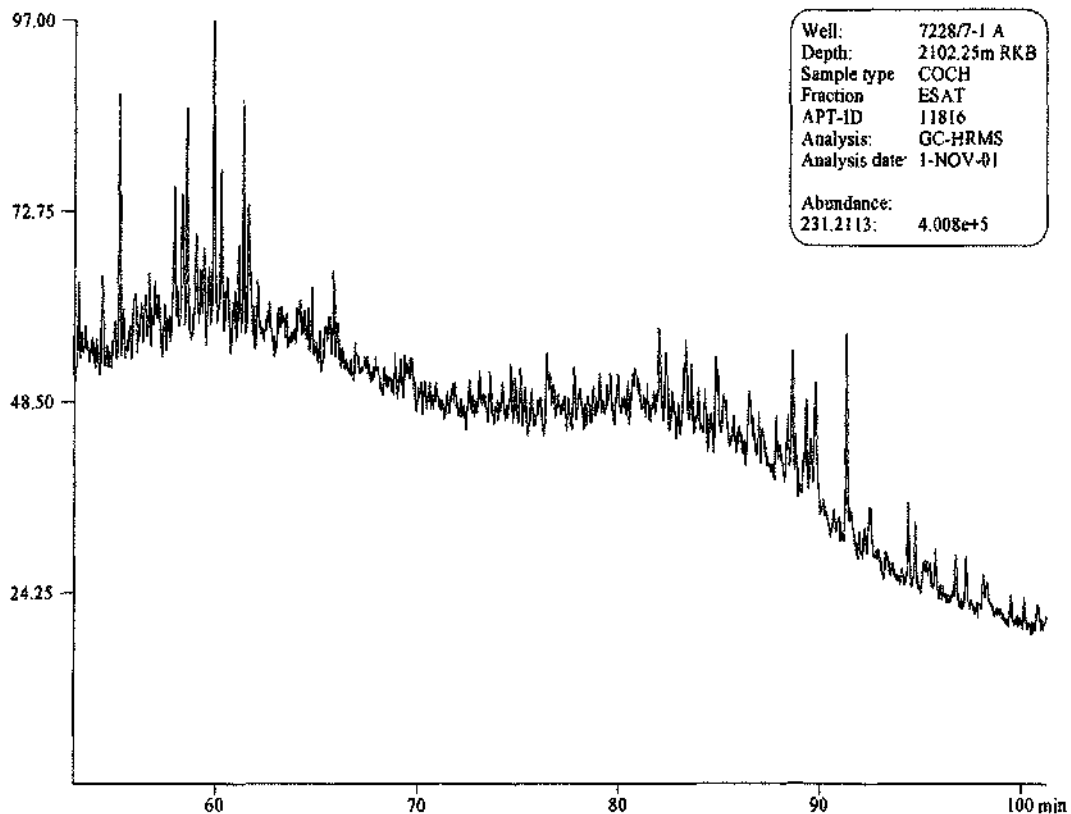
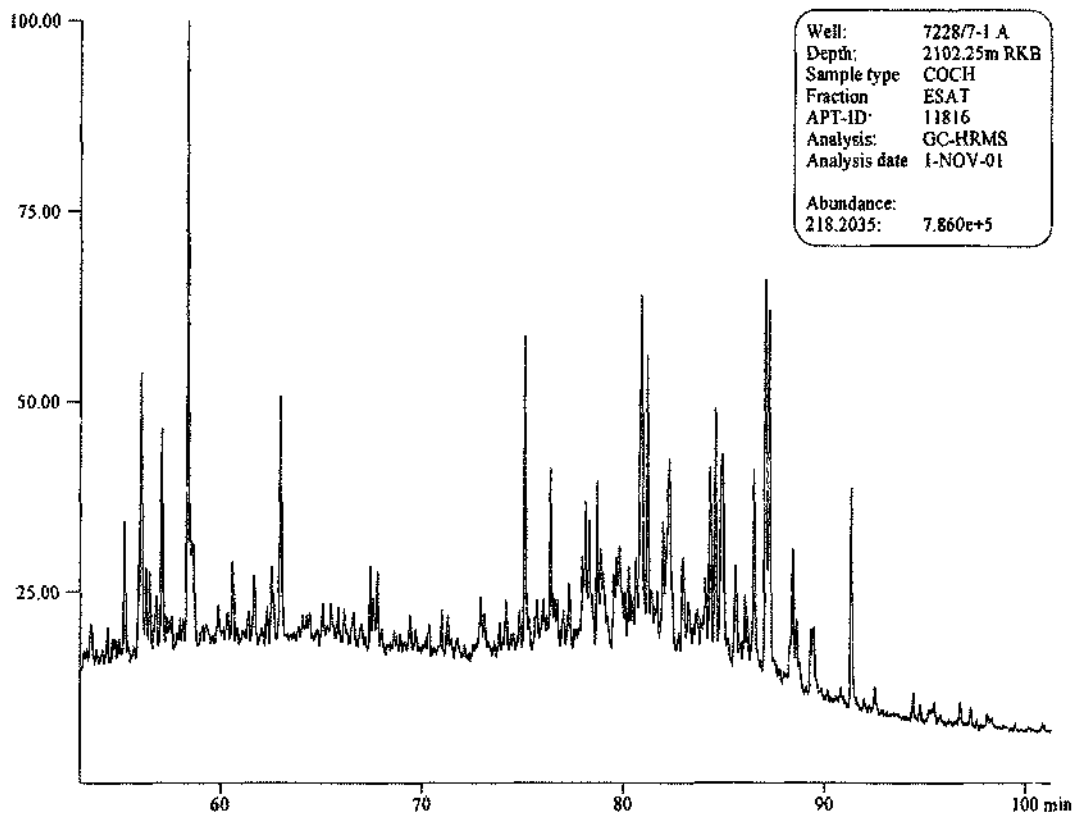






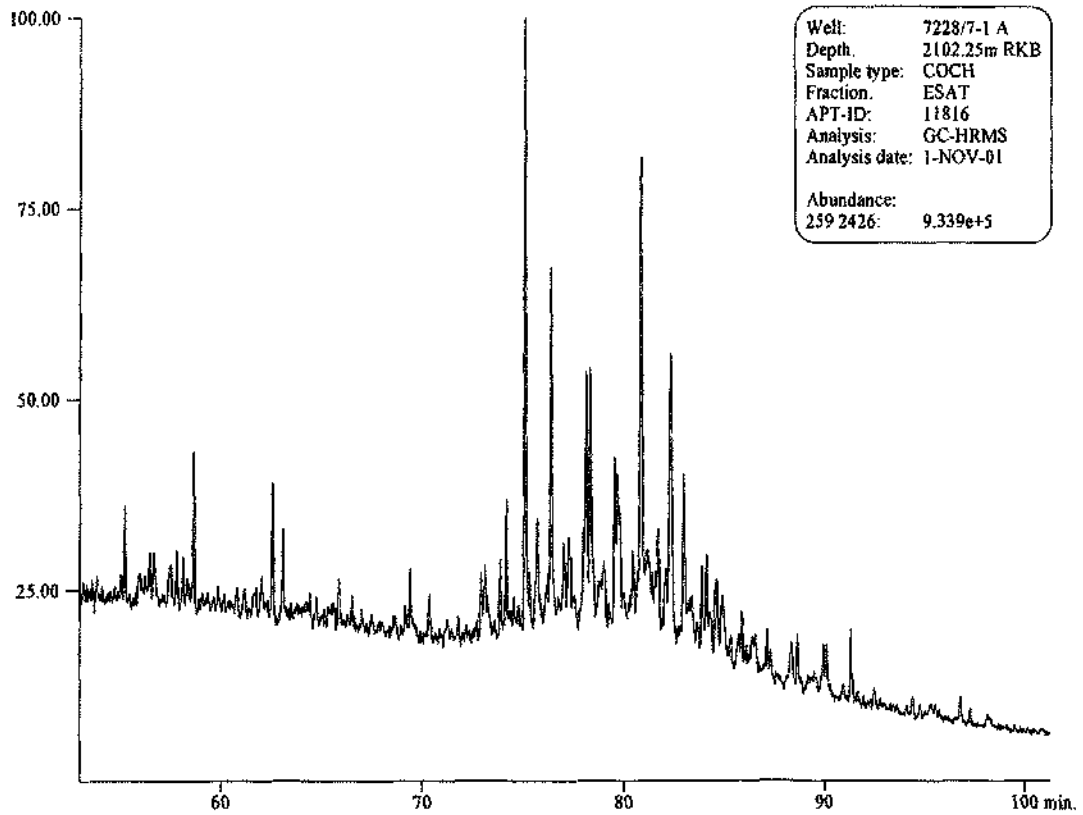
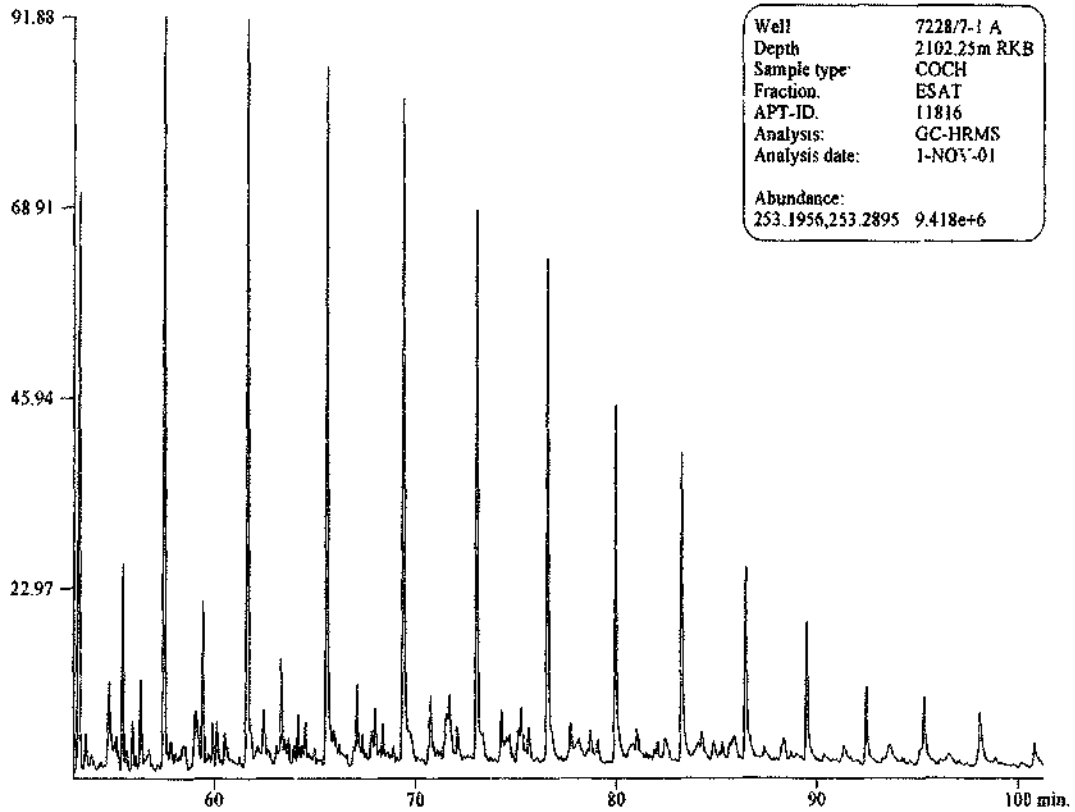
Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3





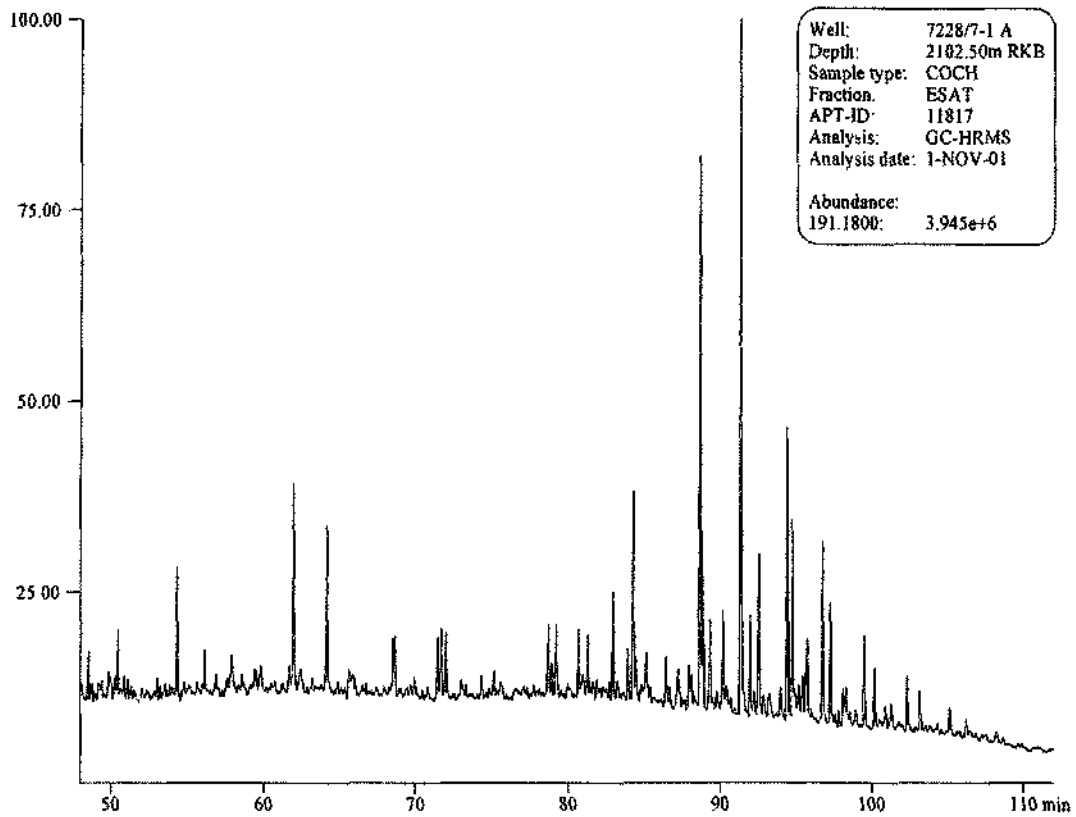
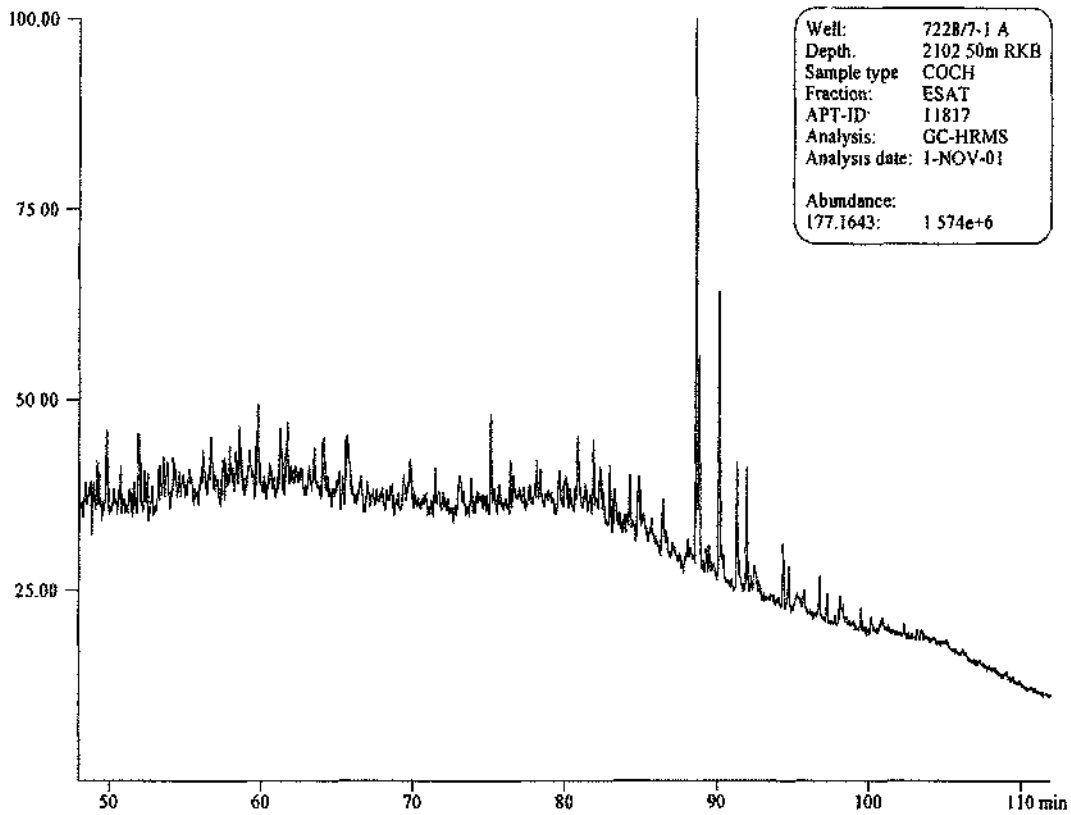


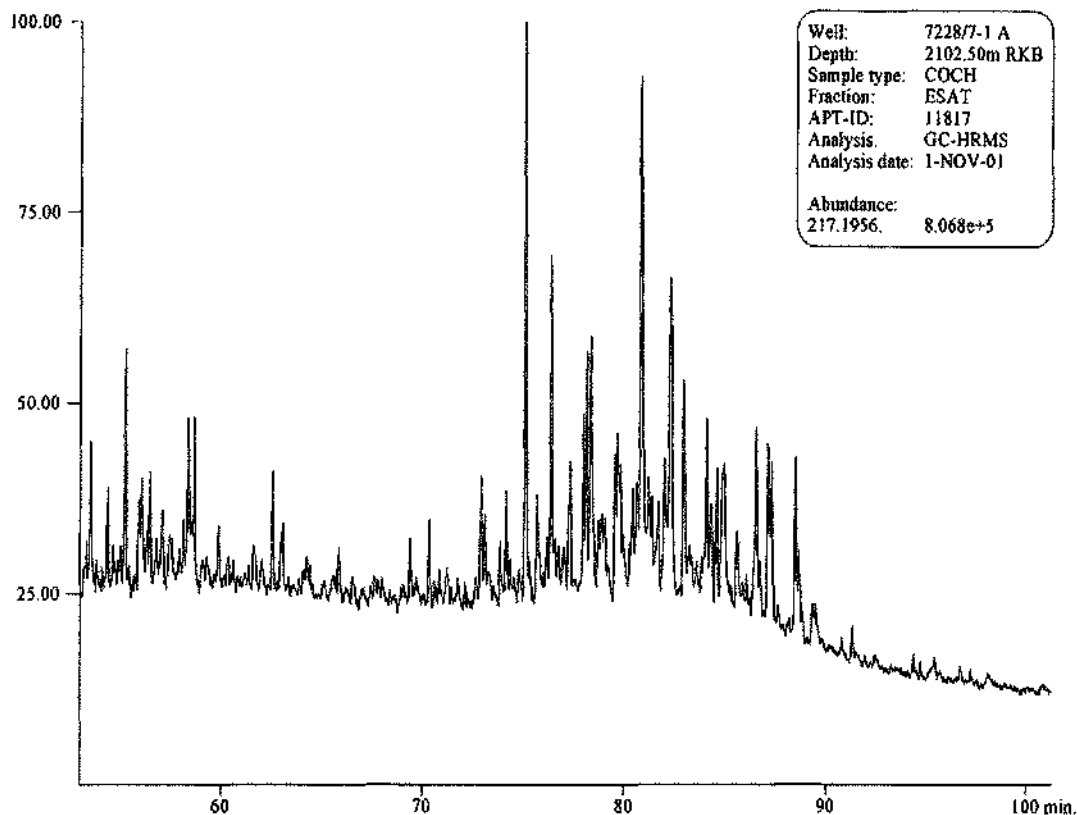
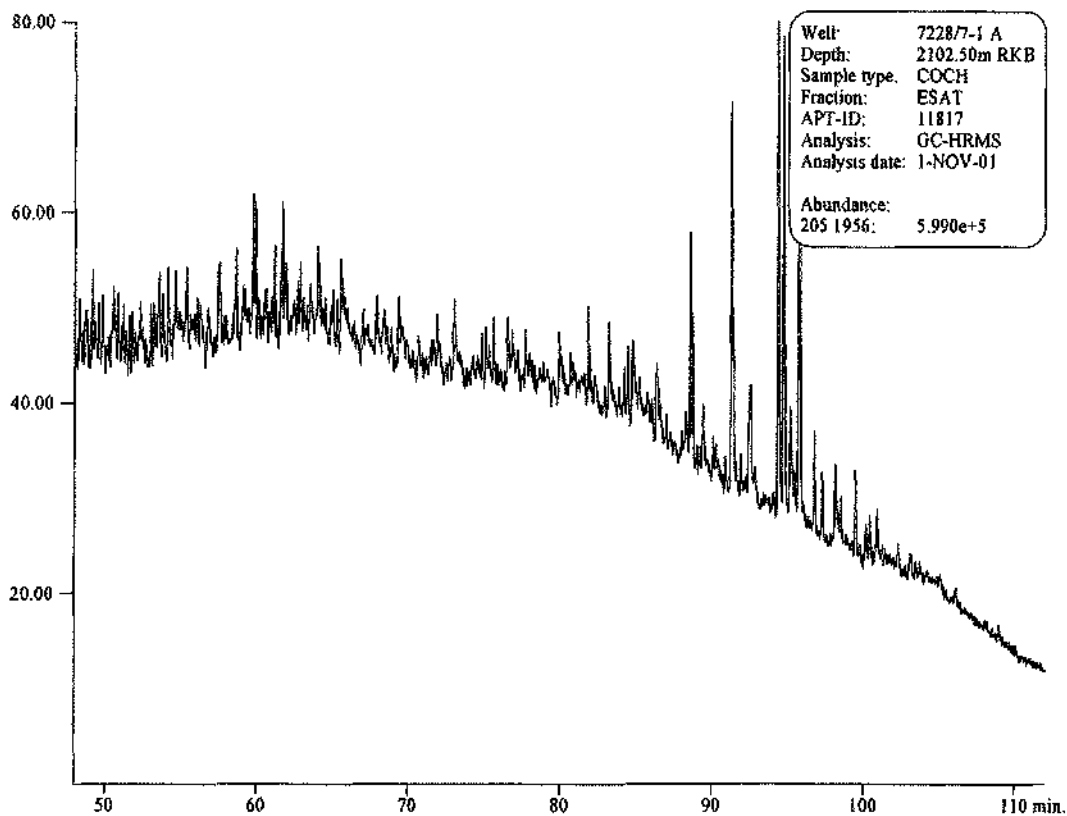
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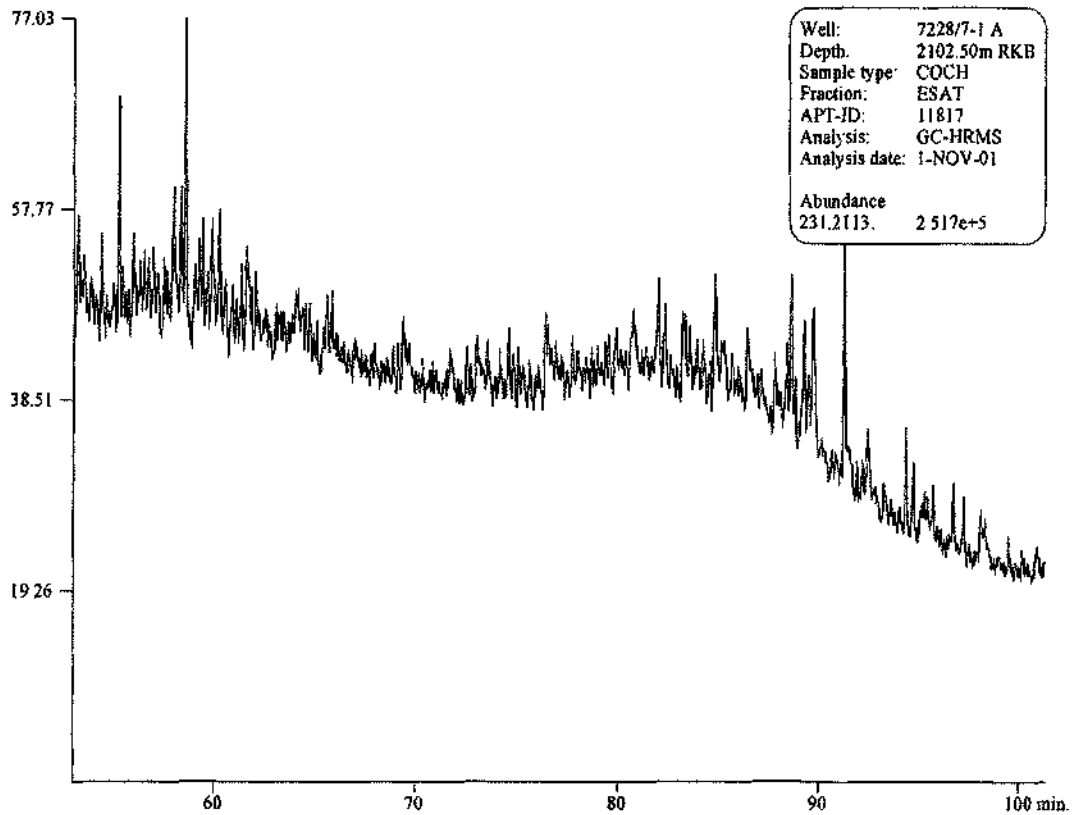
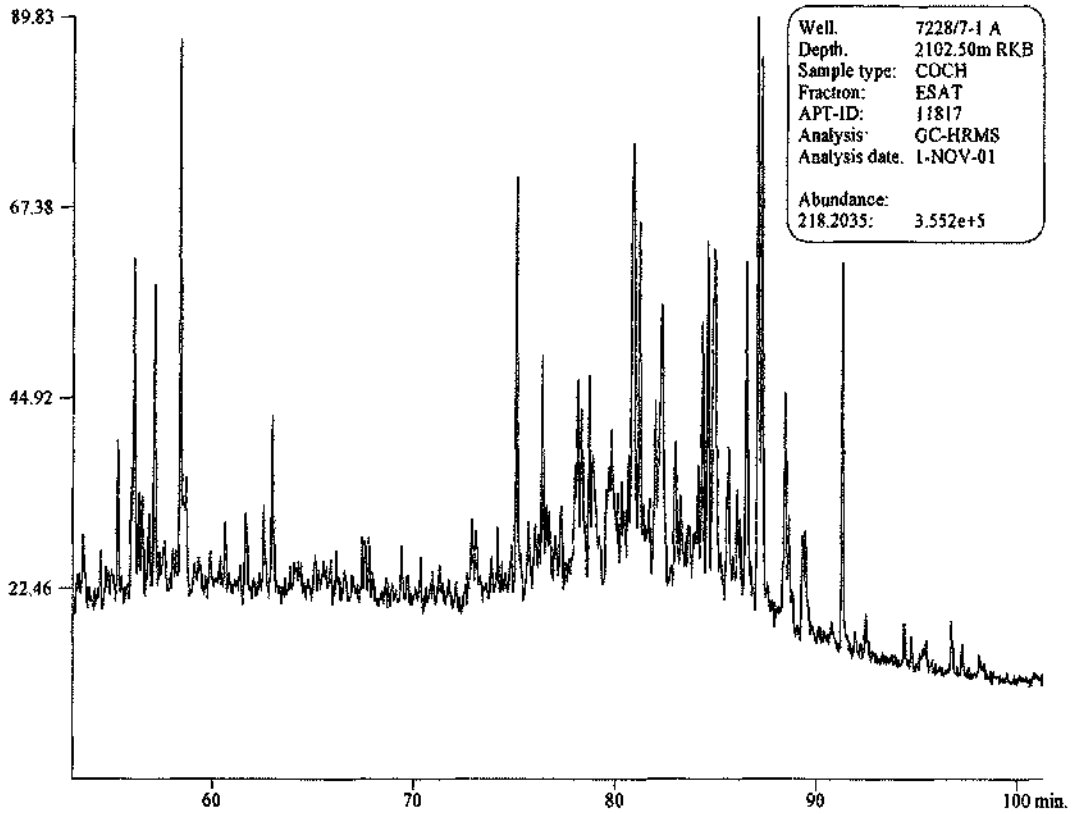




Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3

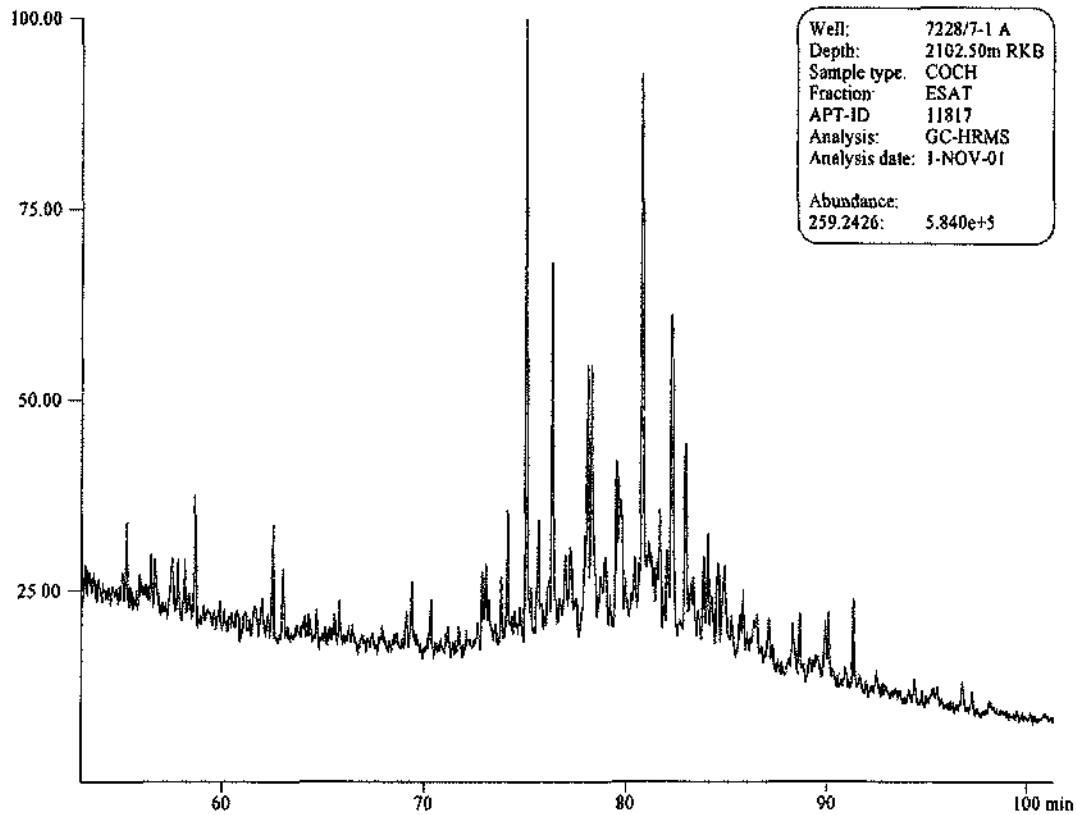
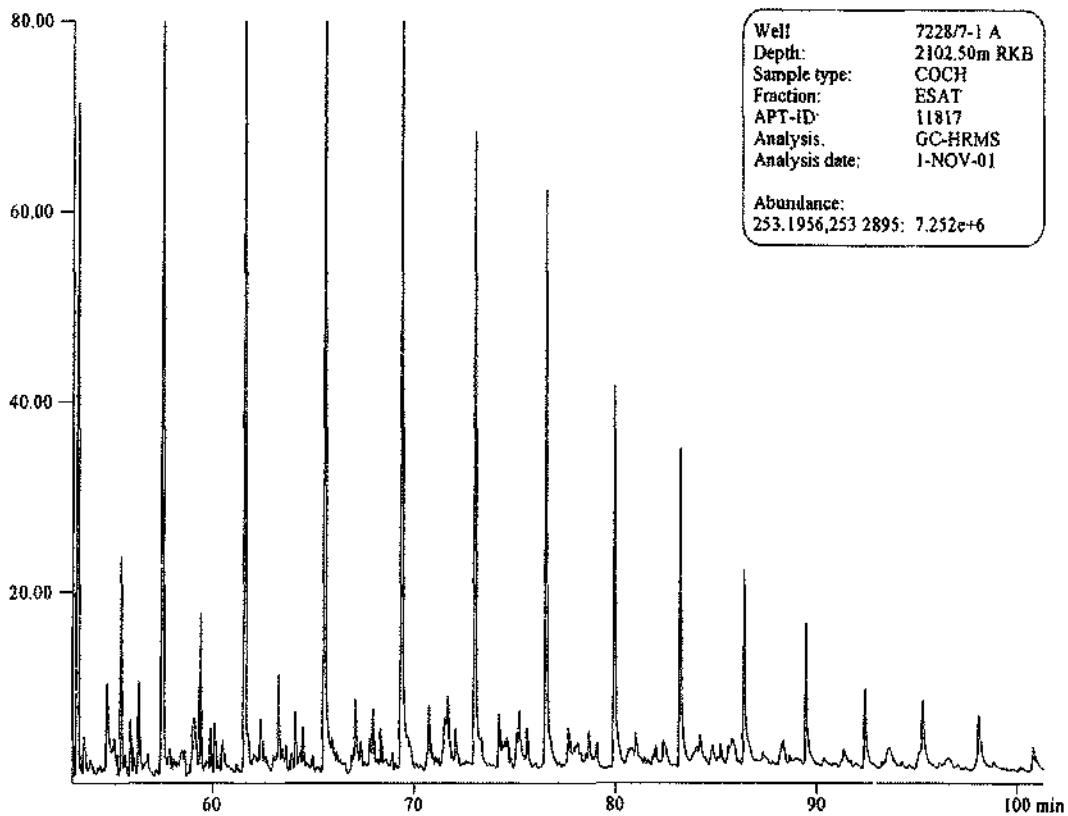


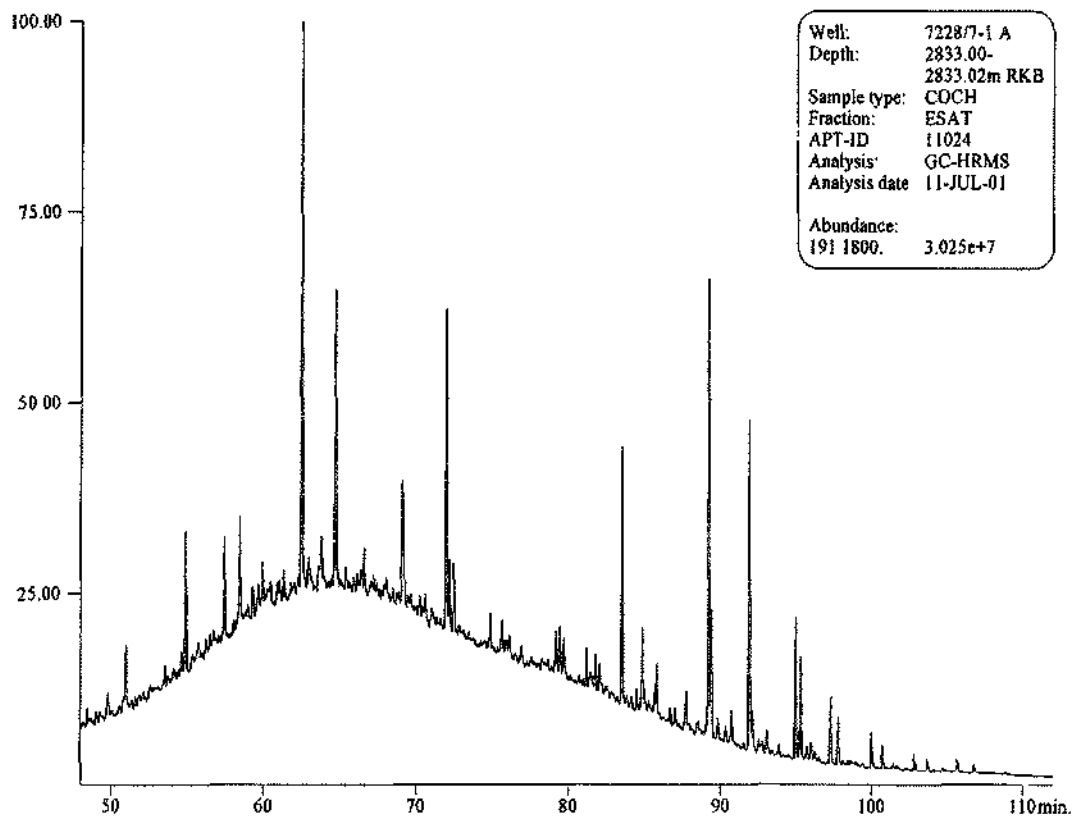
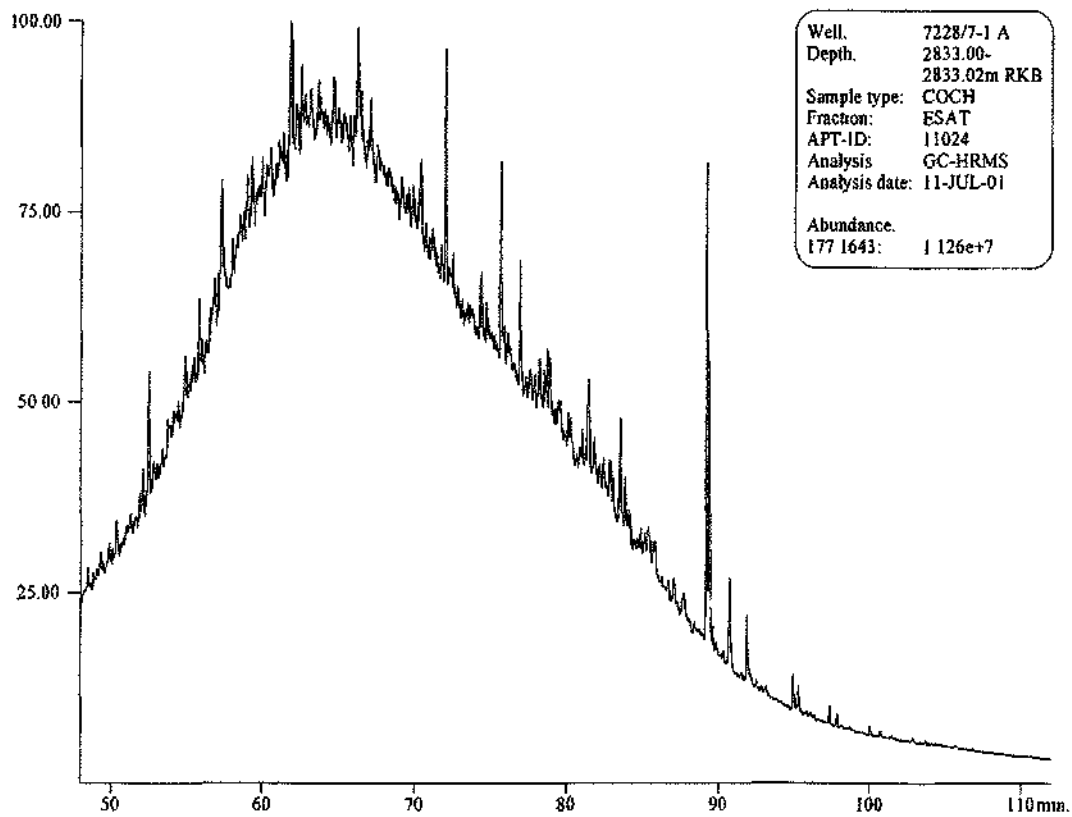






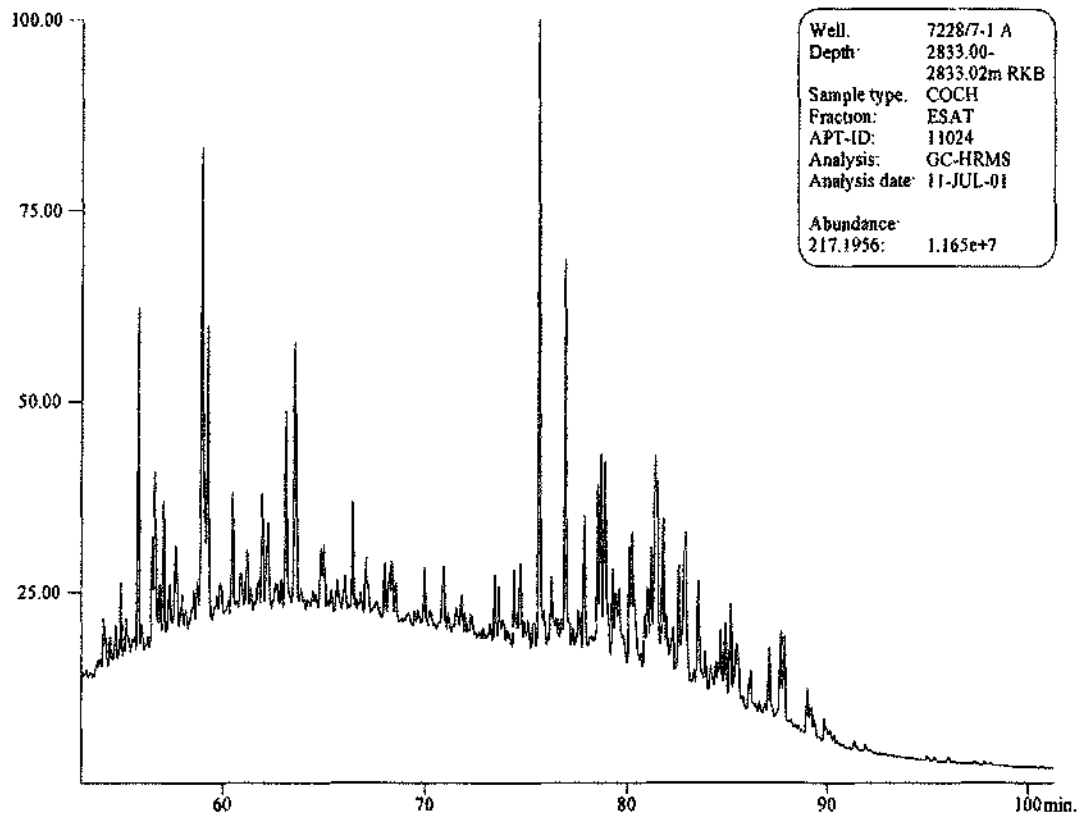
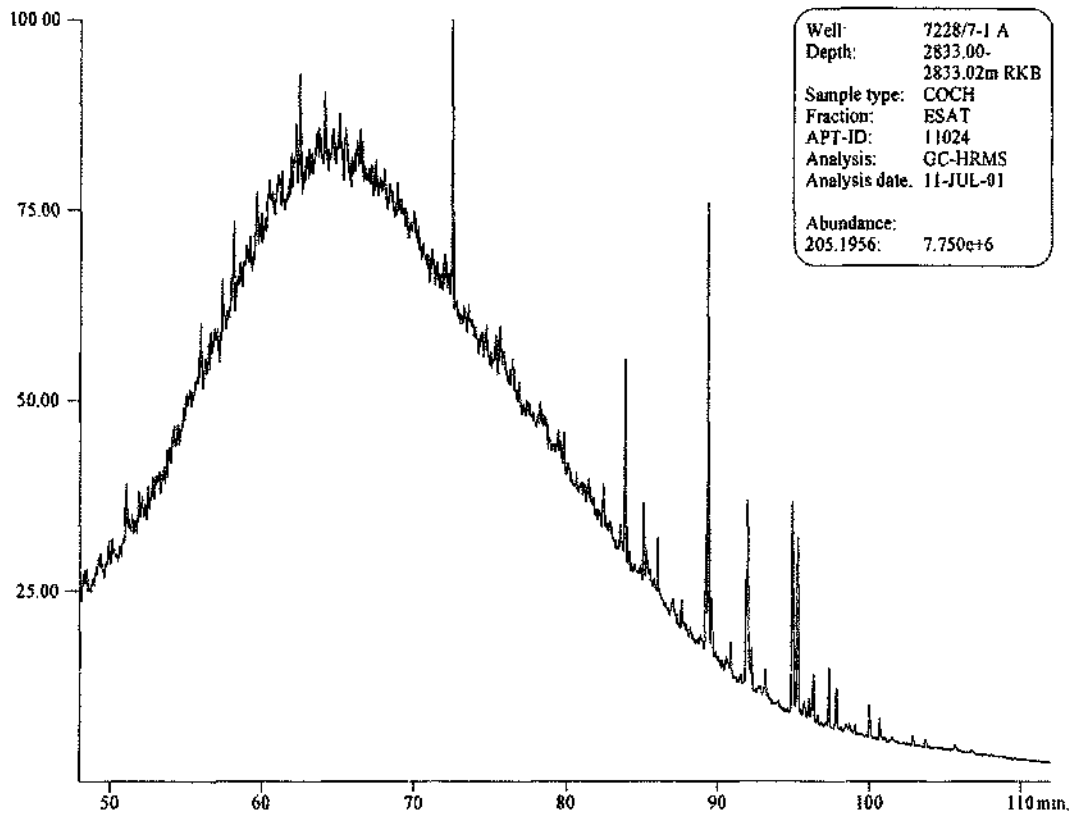
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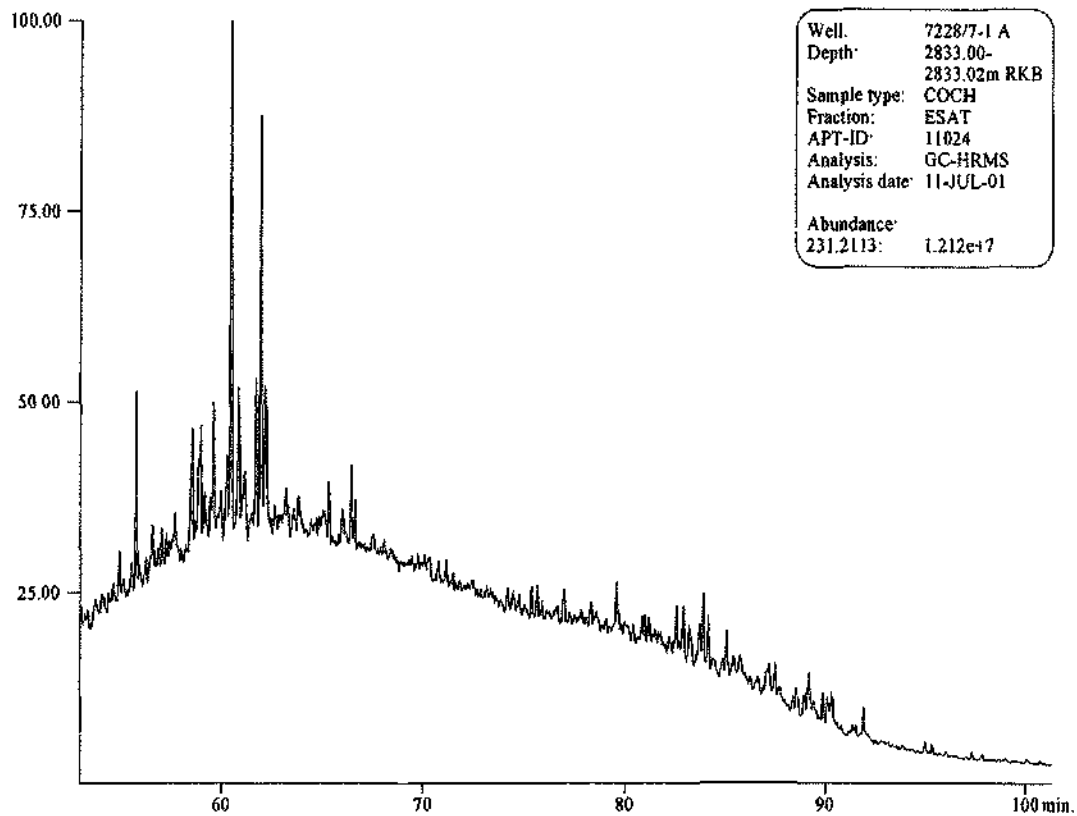
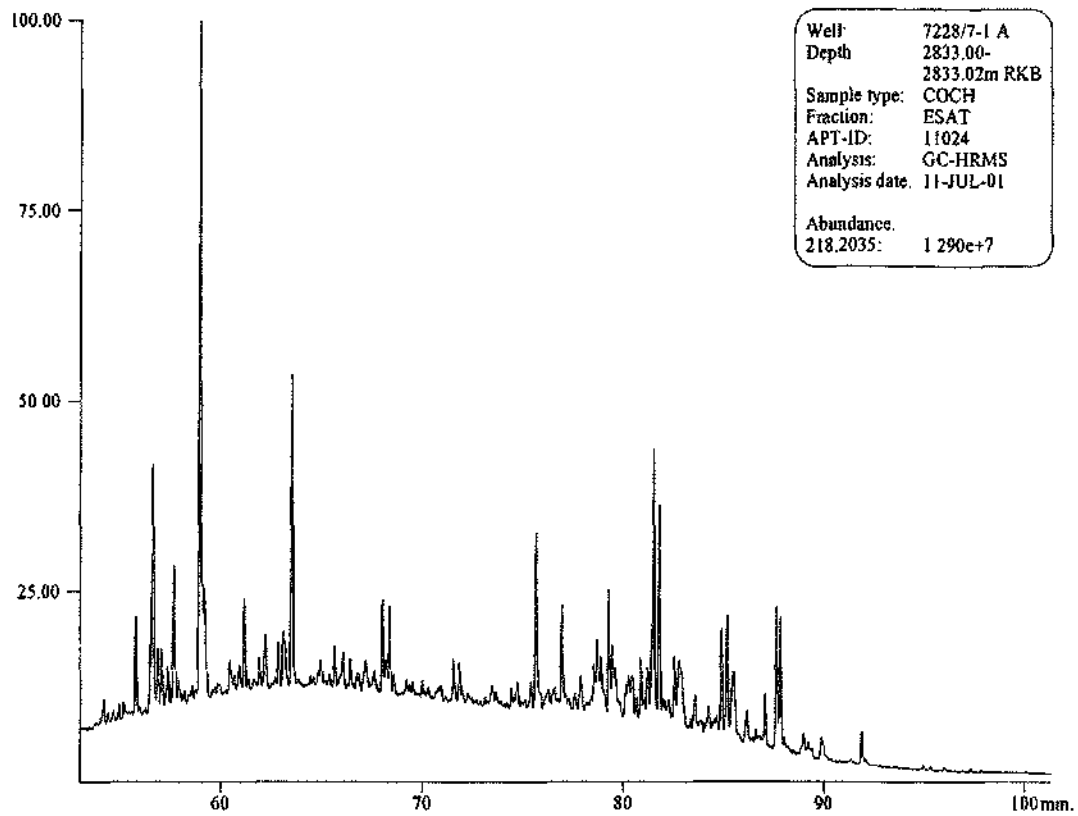


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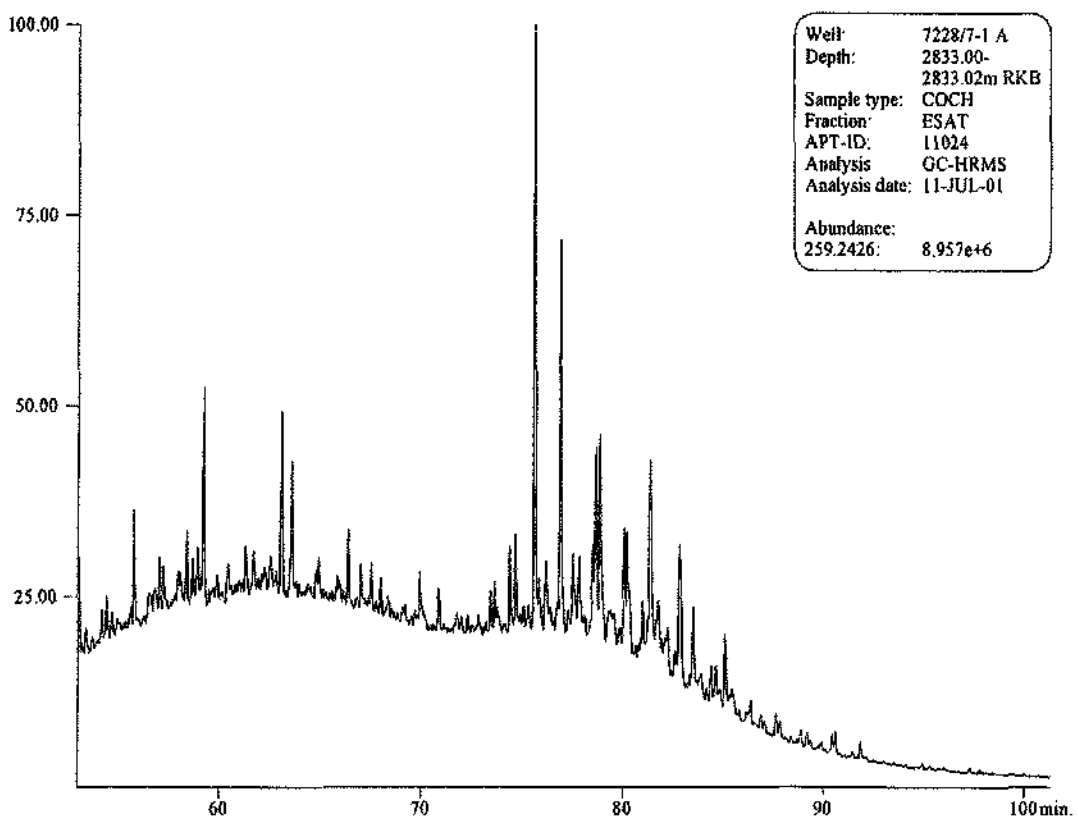
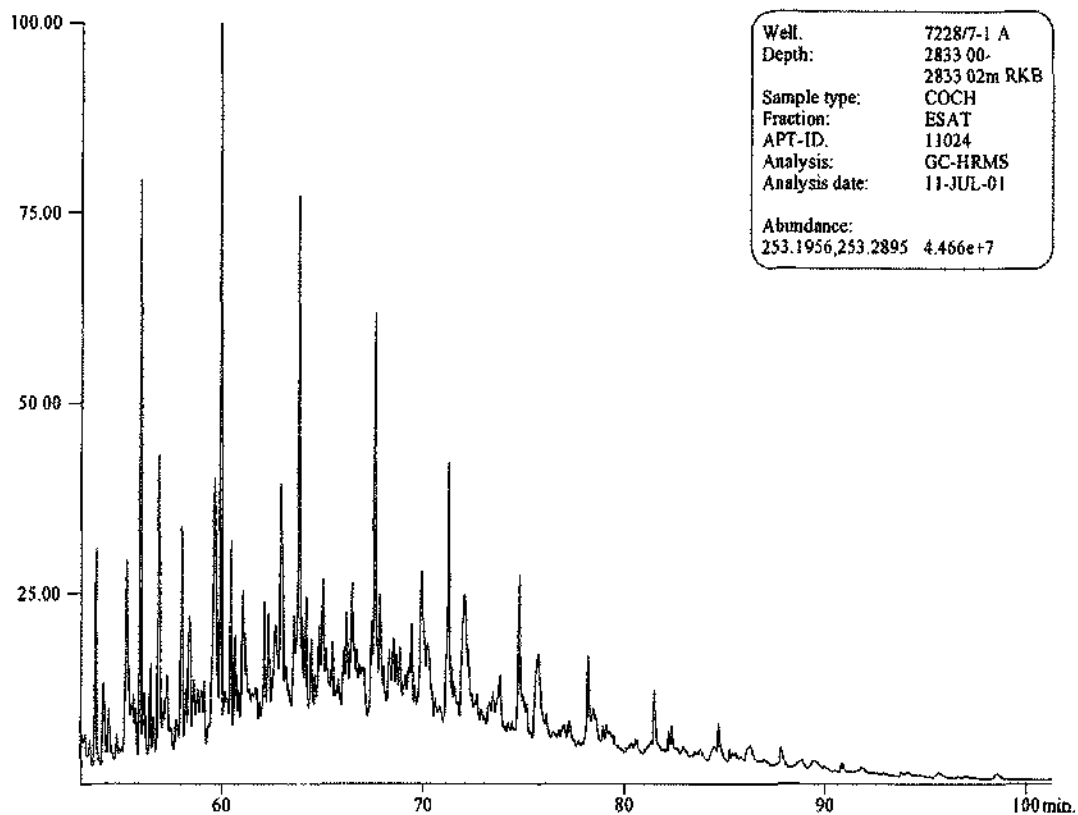


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3





Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3

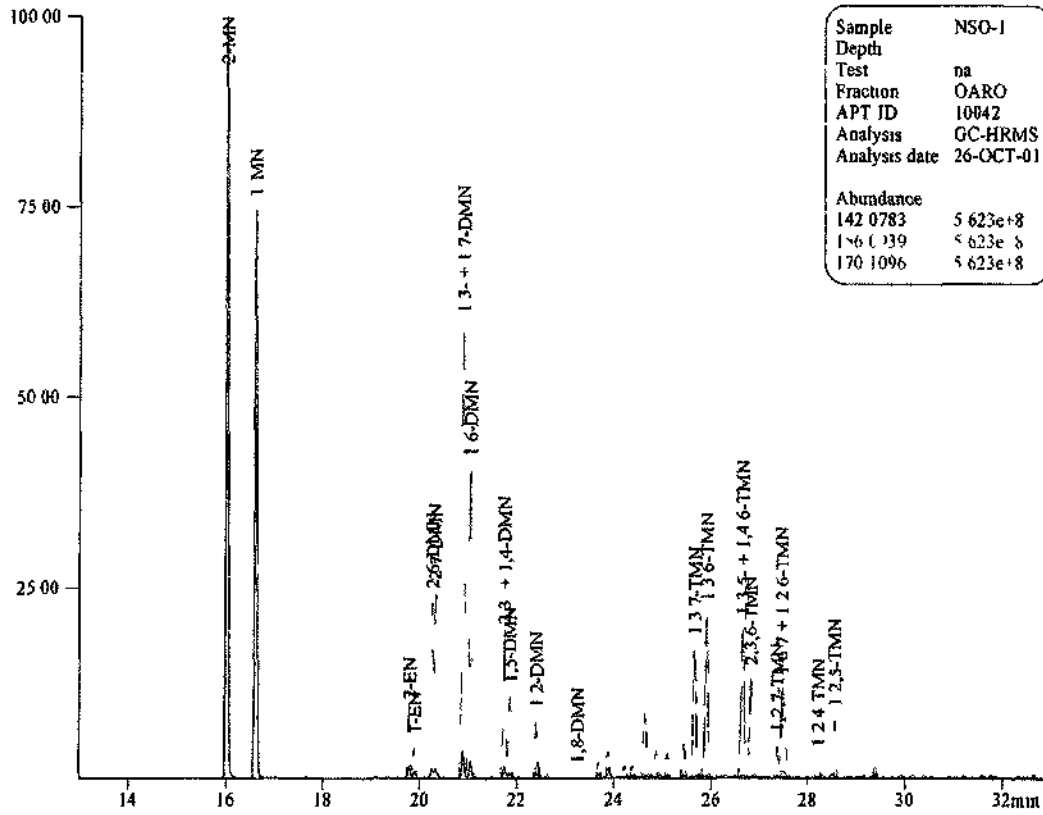




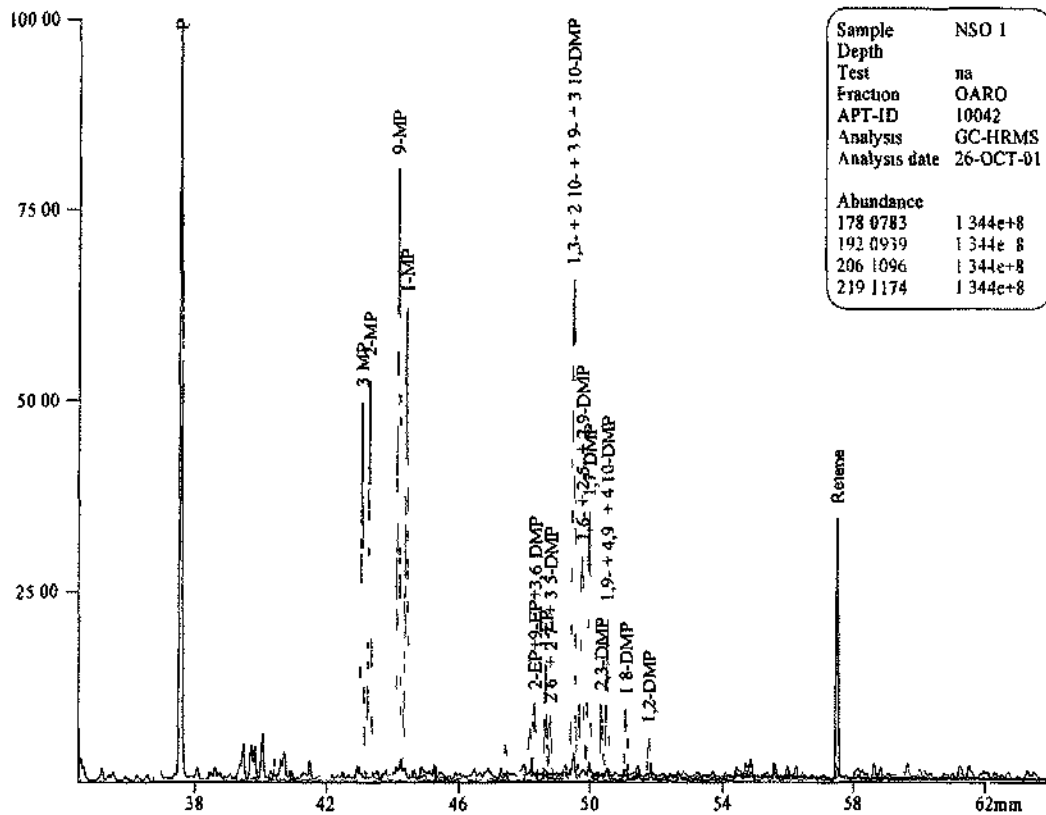
GC-MS Chromatograms of Aromatic Hydrocarbons



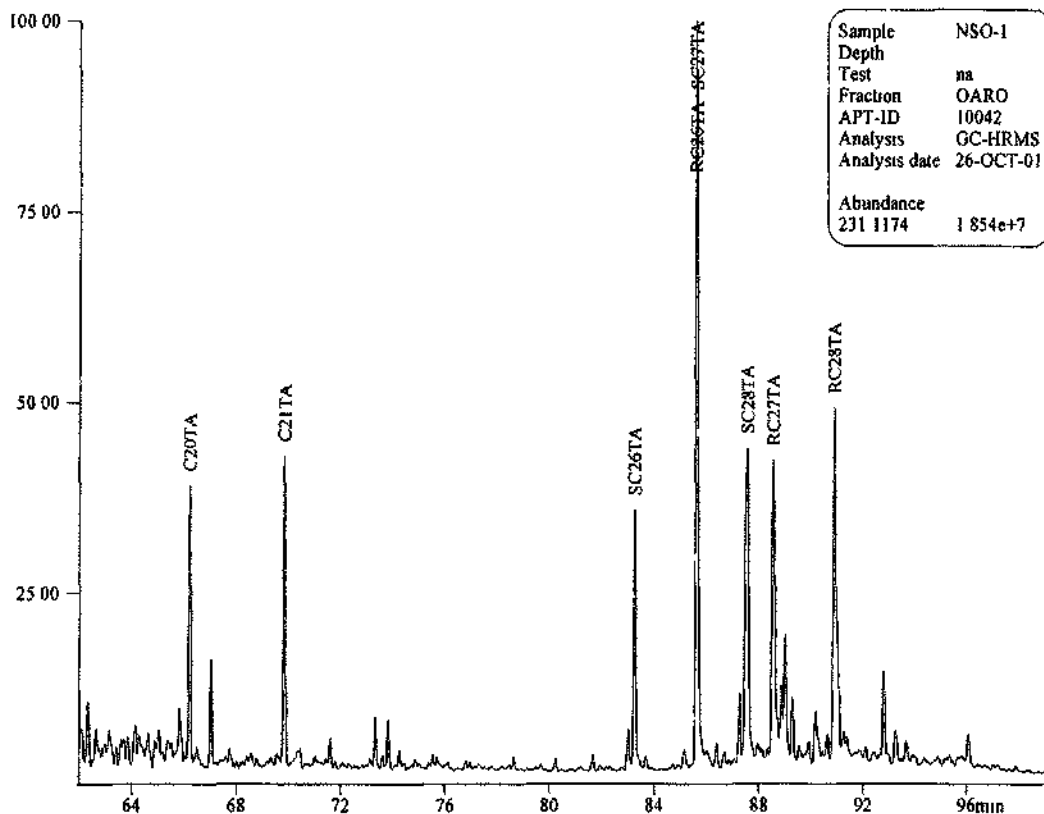
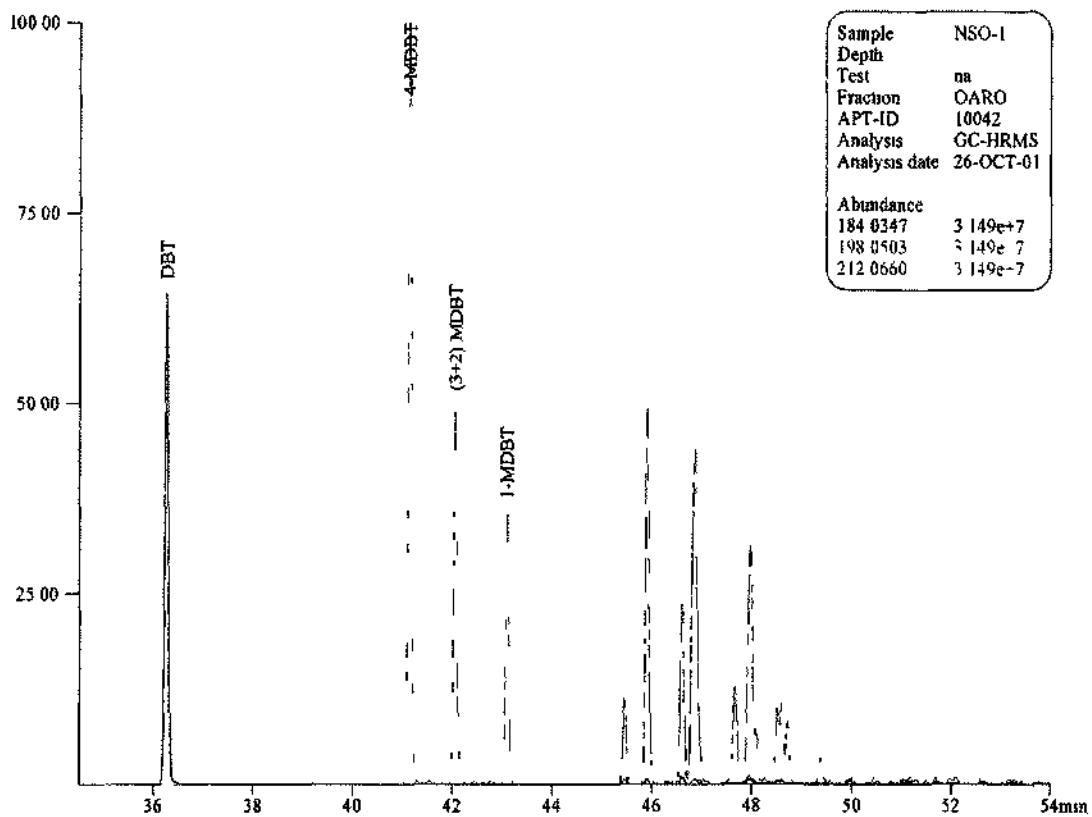
Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3

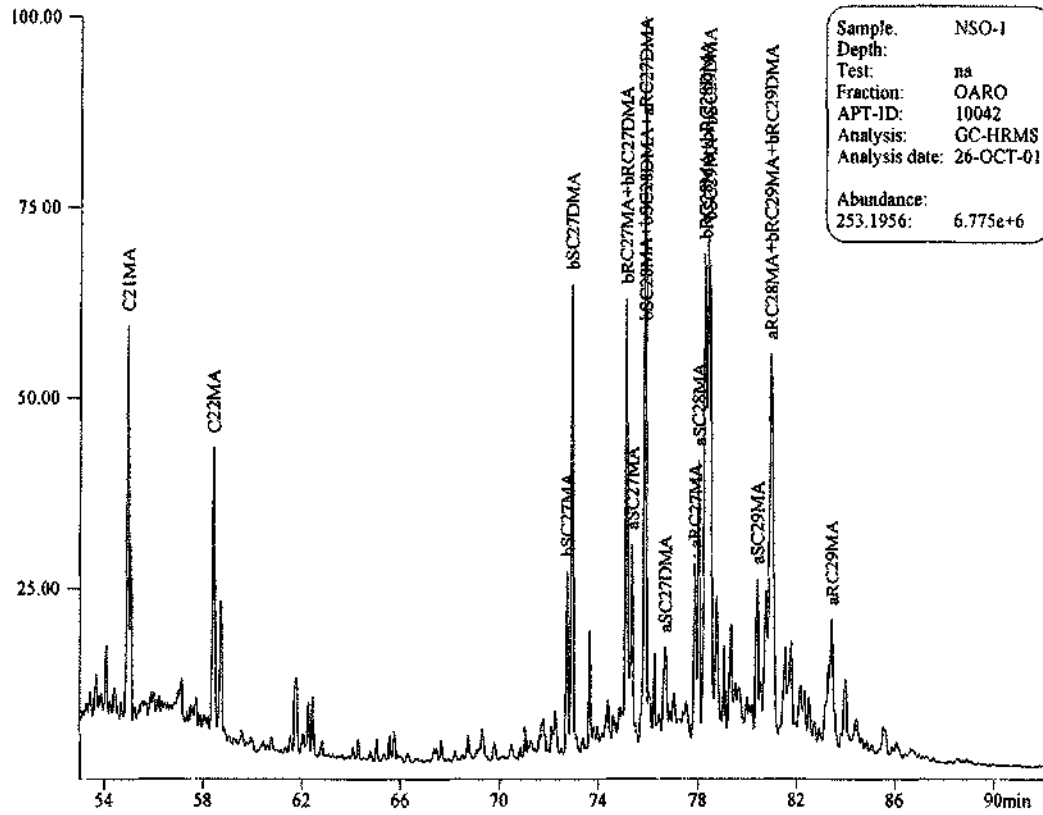


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Depth	
Test	na
Fraction	OARO
APT ID	10042
Analysis	GC-HRMS
Analysis date	26-OCT-01
Abundance	
142.0783	5.623e+8
176.0139	5.623e+8
170.1096	5.623e+8



Sample	NSO 1
Depth	
Test	na
Fraction	OARO
APT-ID	10042
Analysis	GC-HRMS
Analysis date	26-OCT-01
Abundance	
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206.1096	1.344e+8
219.1174	1.344e+8

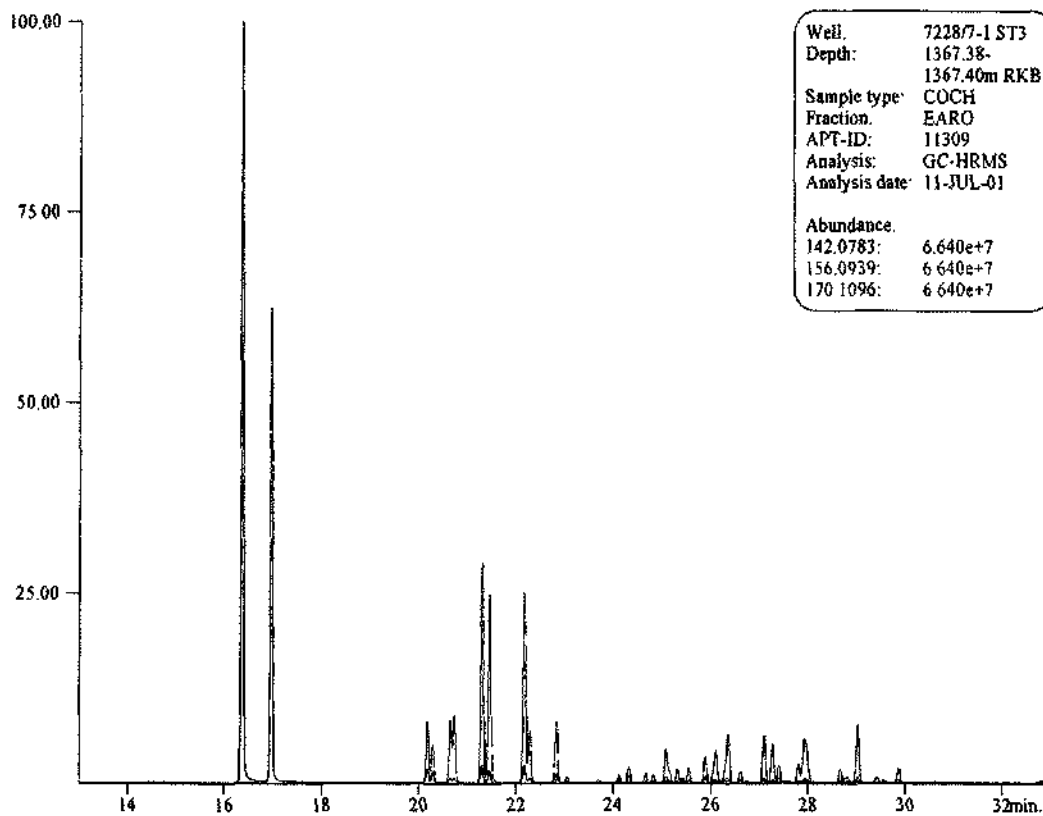




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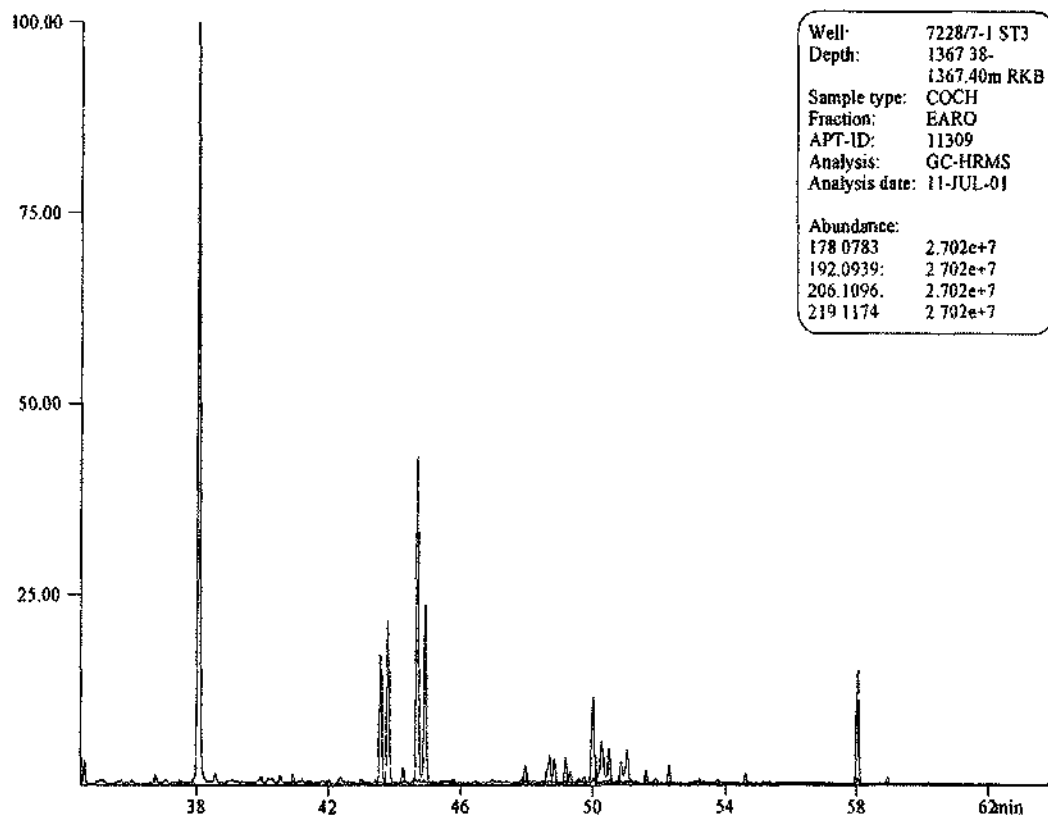


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



Well: 7228/7-1 ST3
Depth: 1367.38-1367.40m RKB
Sample type: COCH
Fraction: EARO
APT-ID: 11309
Analysis: GC-HRMS
Analysis date: 11-JUL-01

Abundance:
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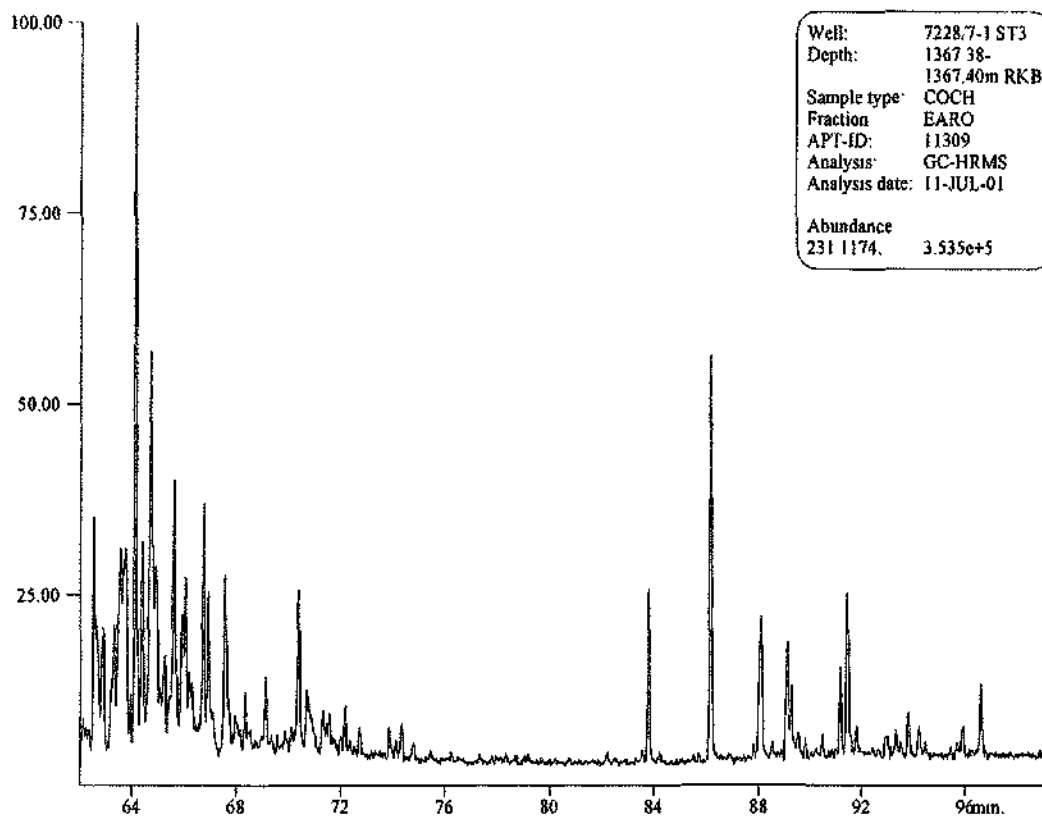
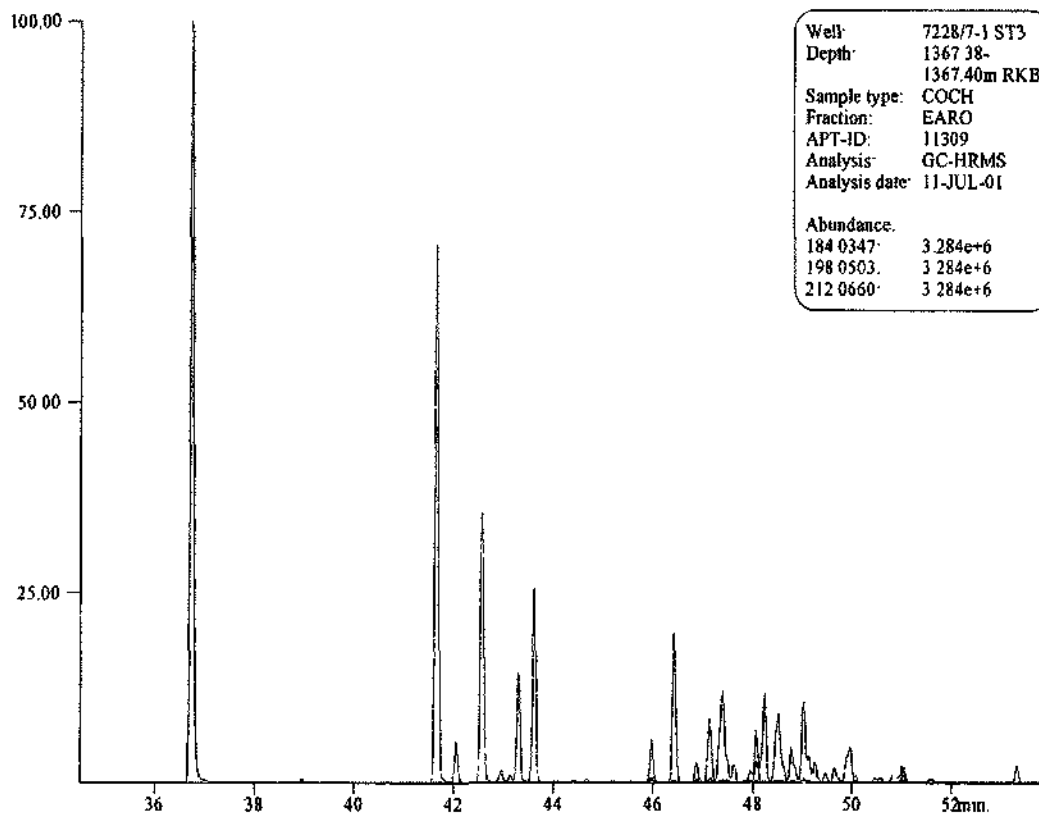


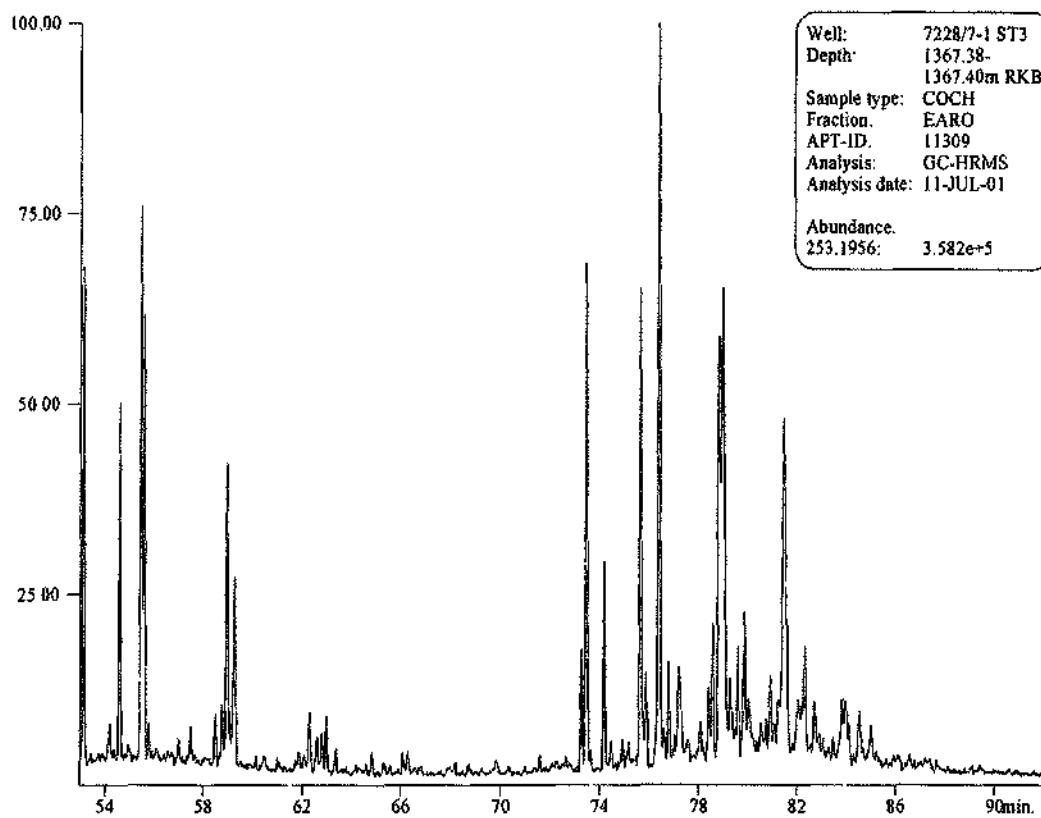
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Analysis: GC-HRMS
Analysis date: 11-JUL-01

Abundance:
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219.1174: 2.702e+7



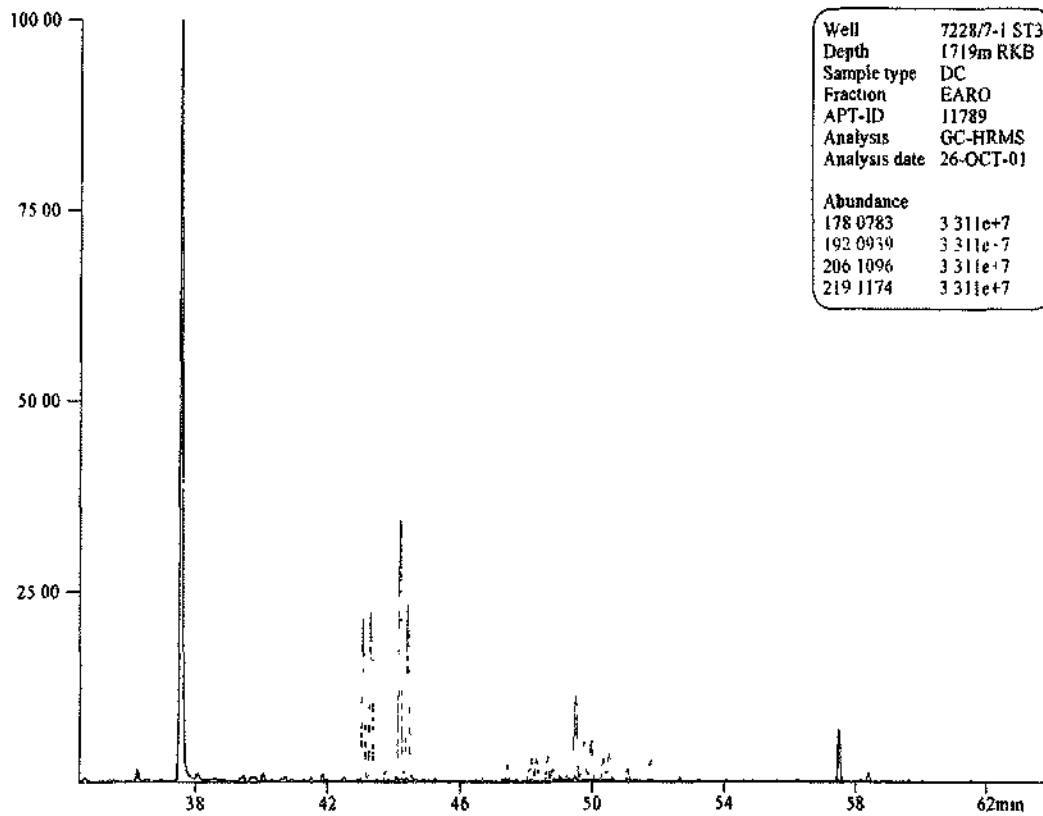
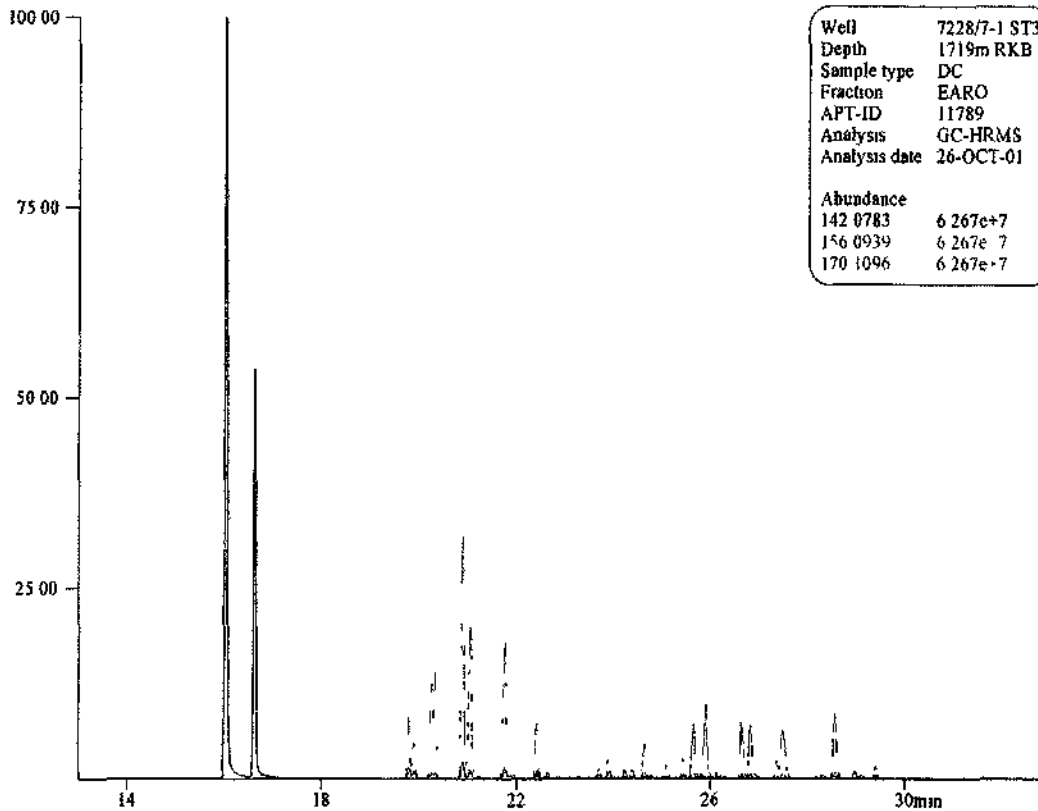
Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3





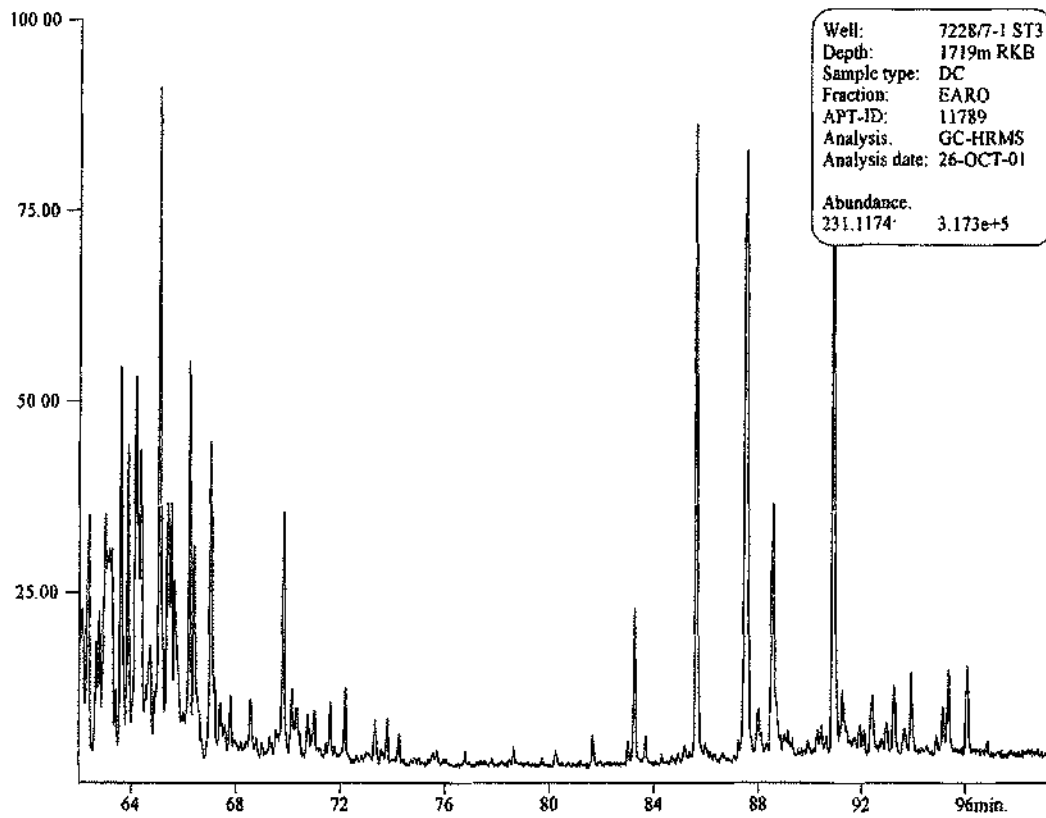
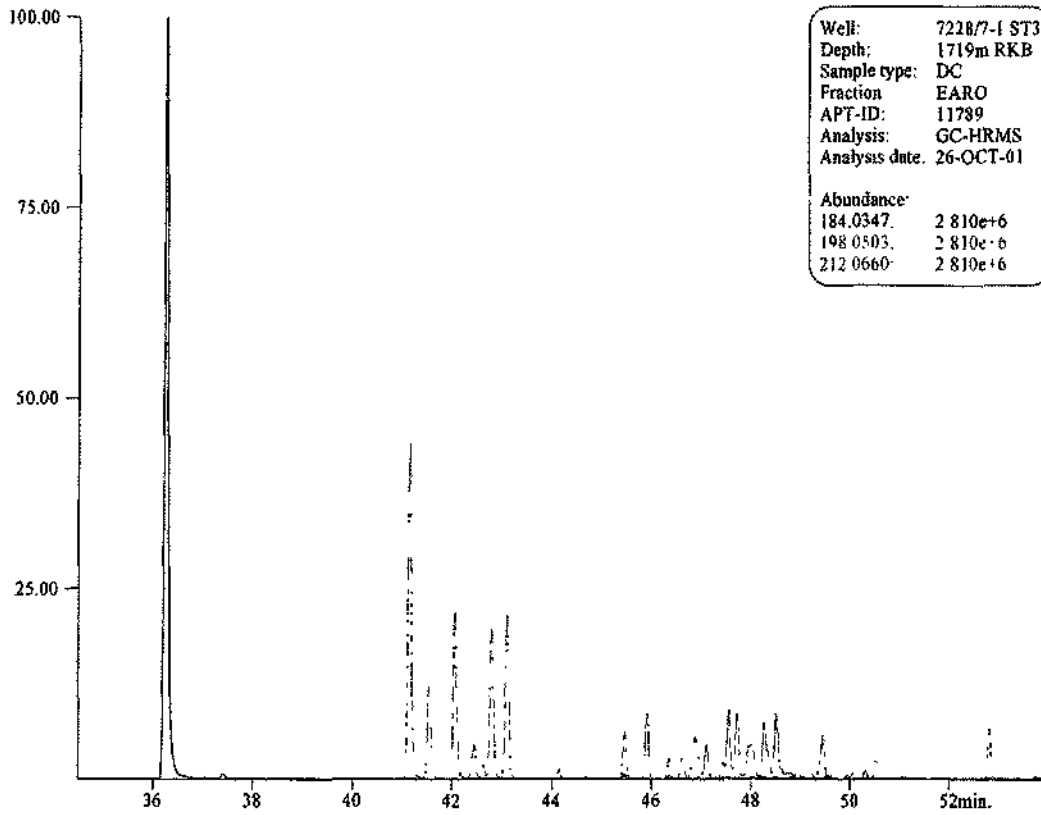


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



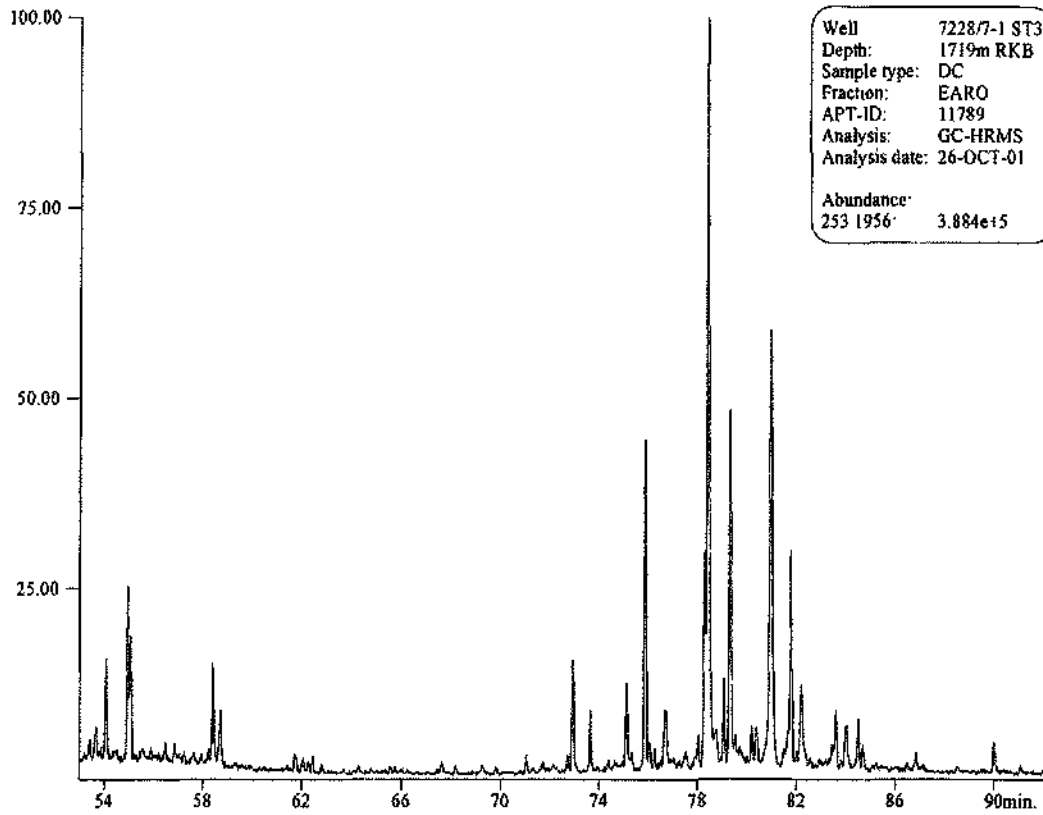


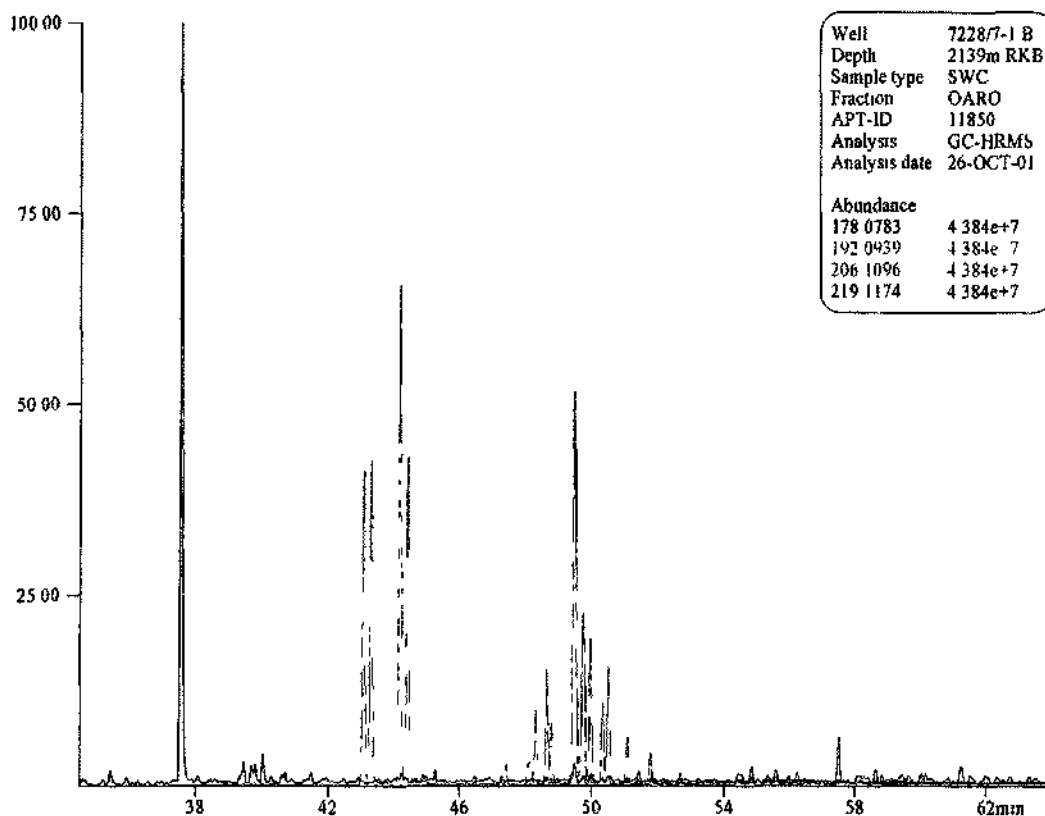
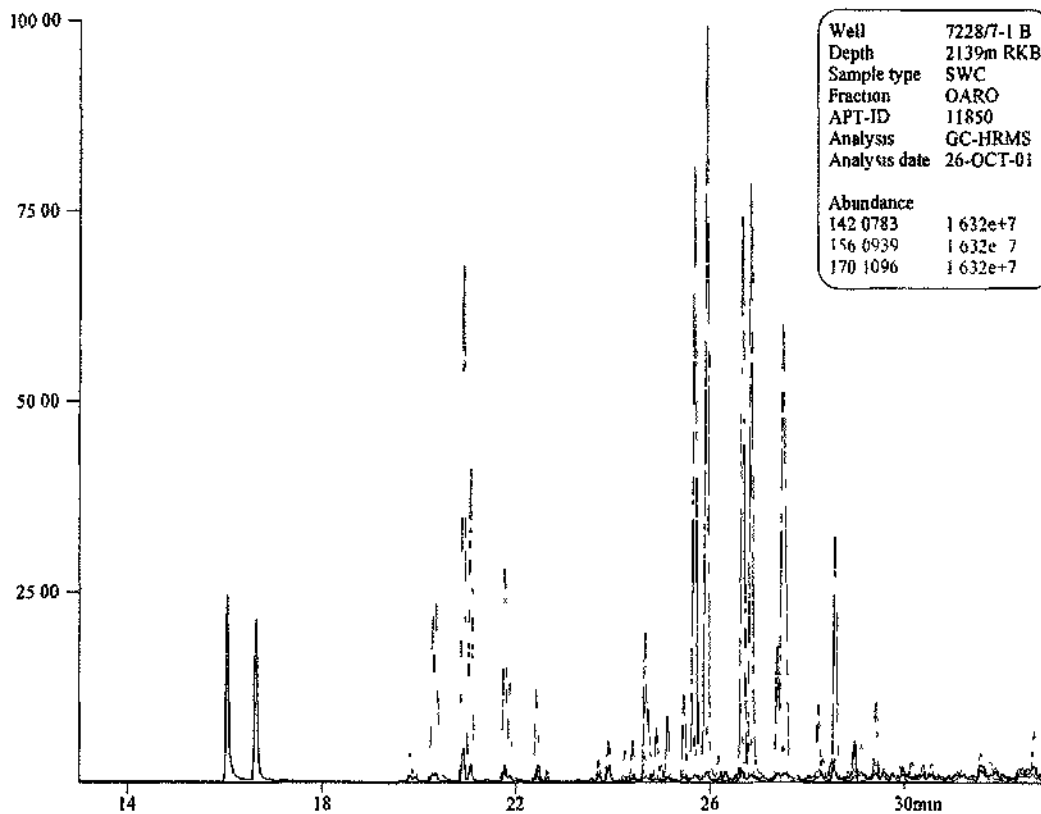
Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3





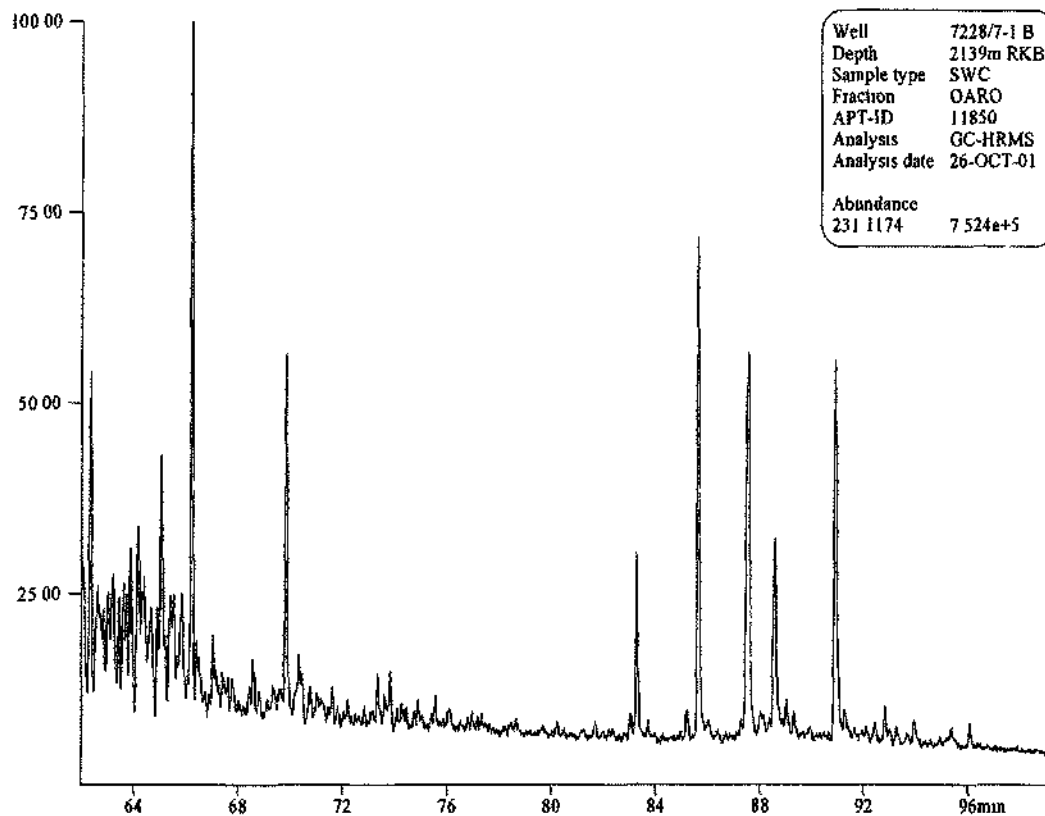
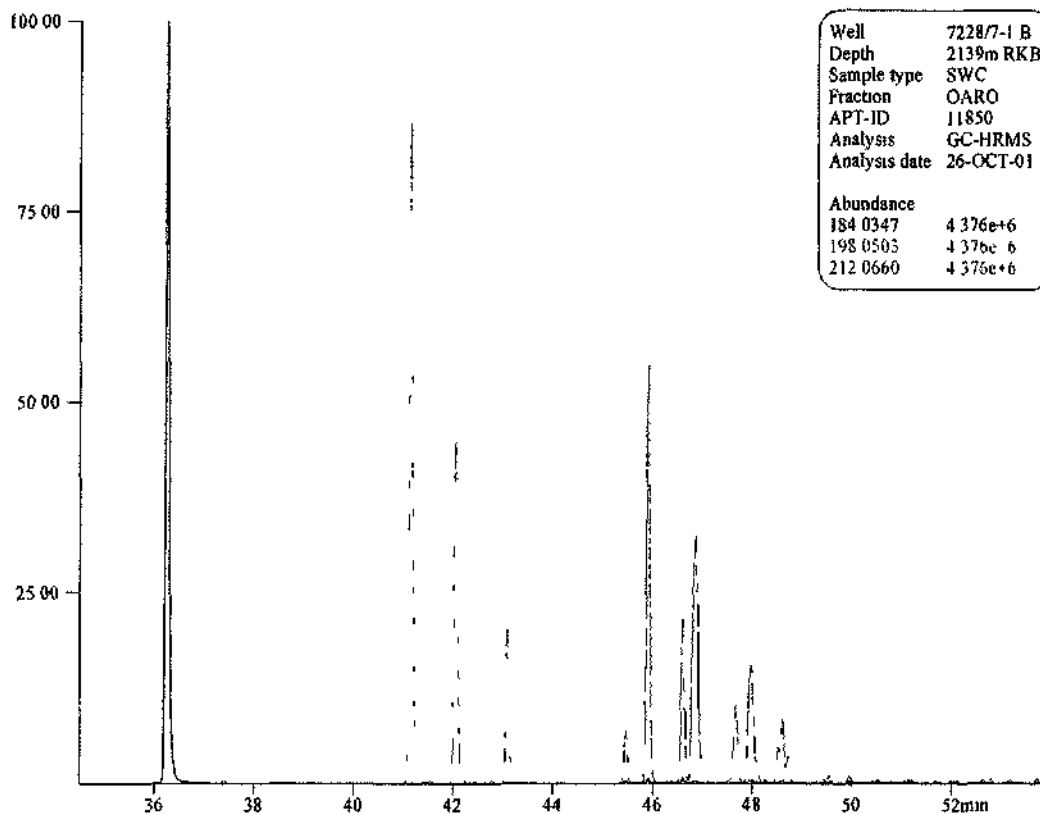
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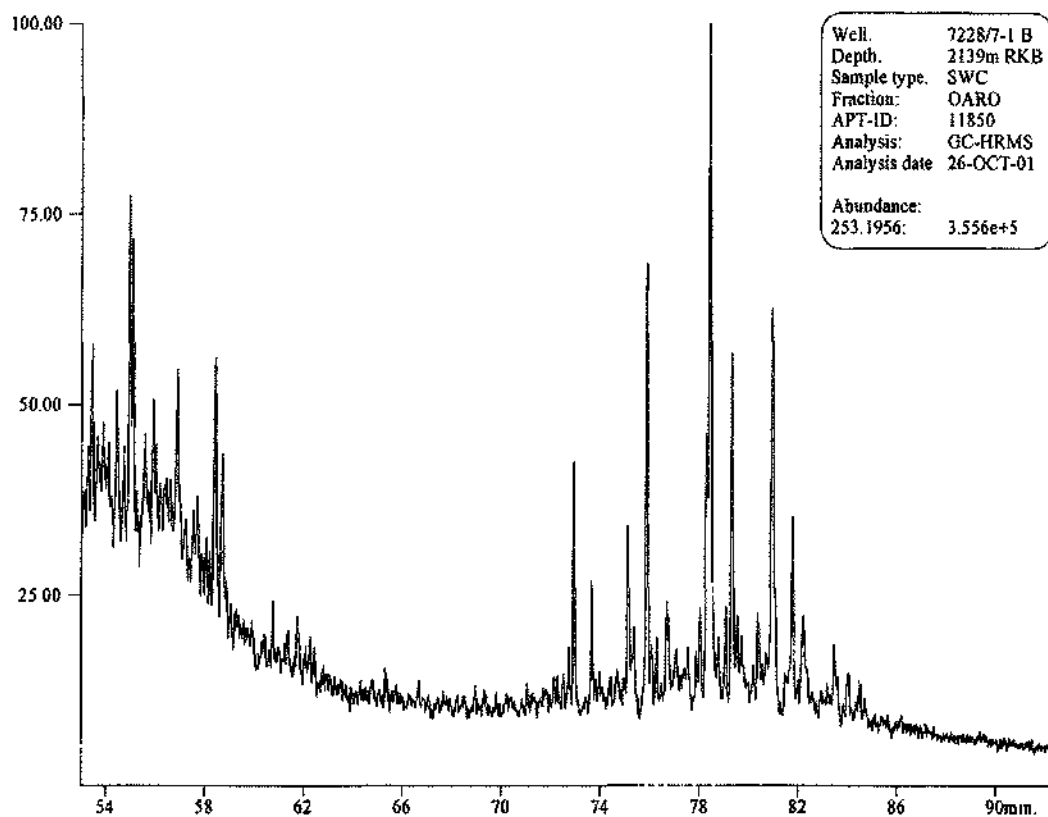


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



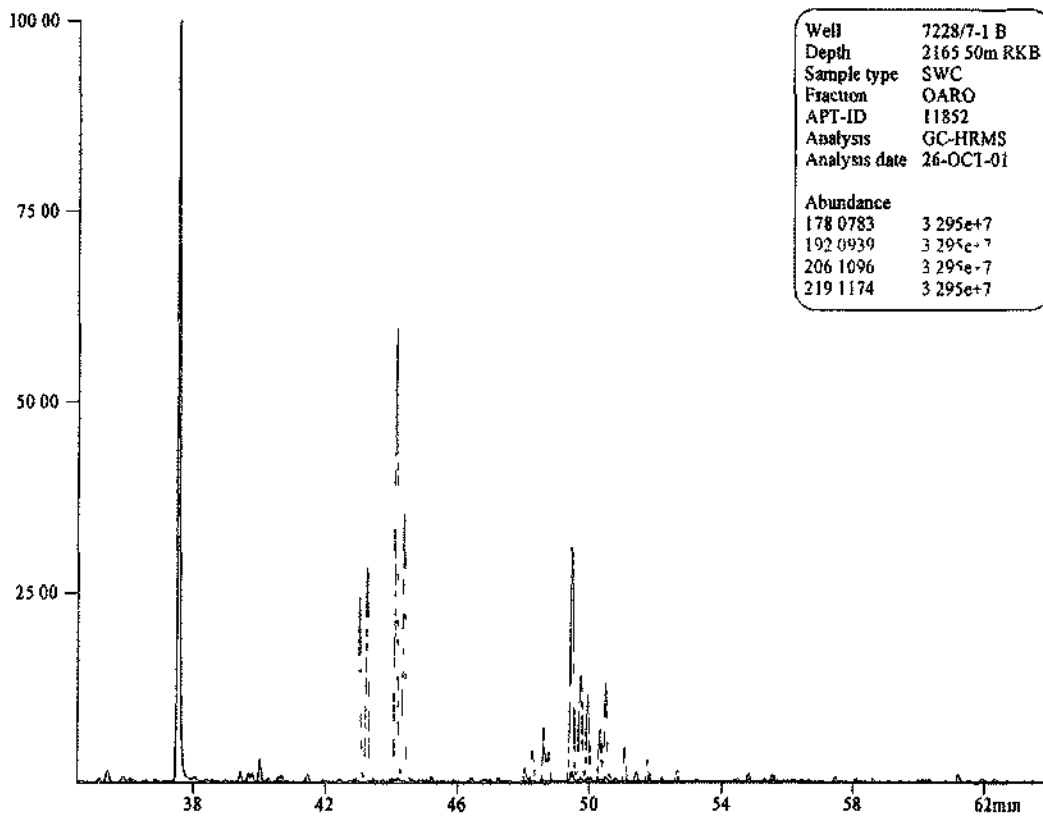
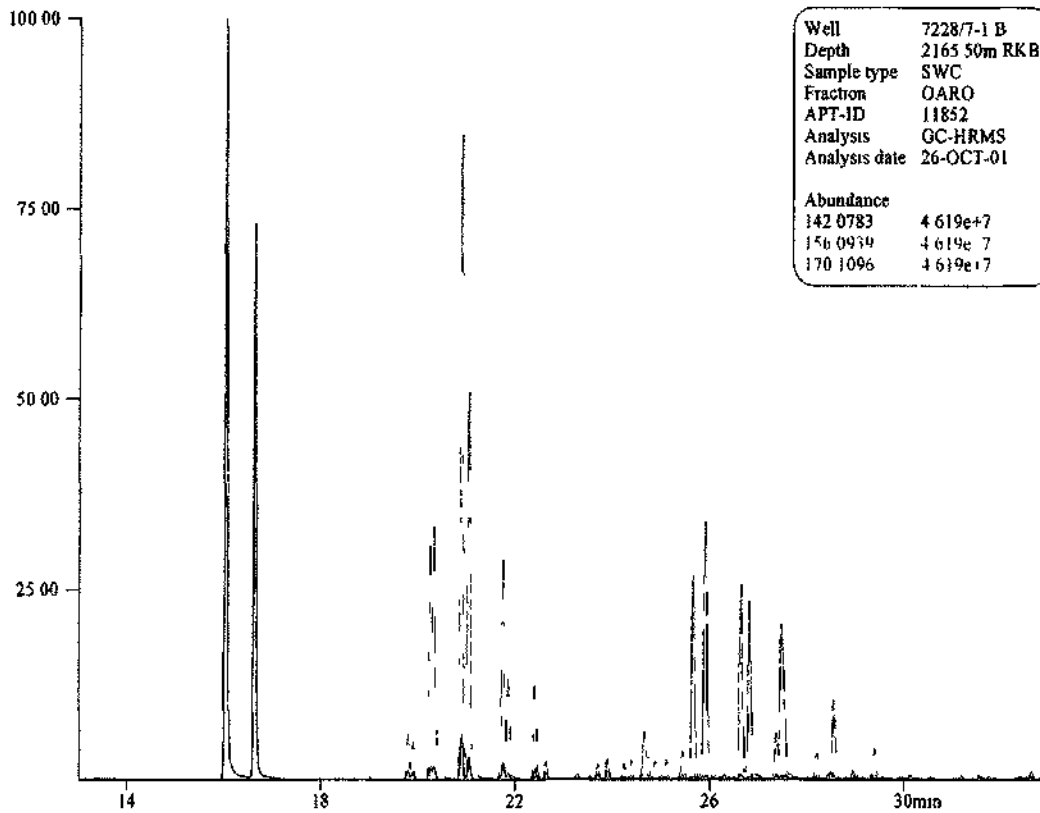


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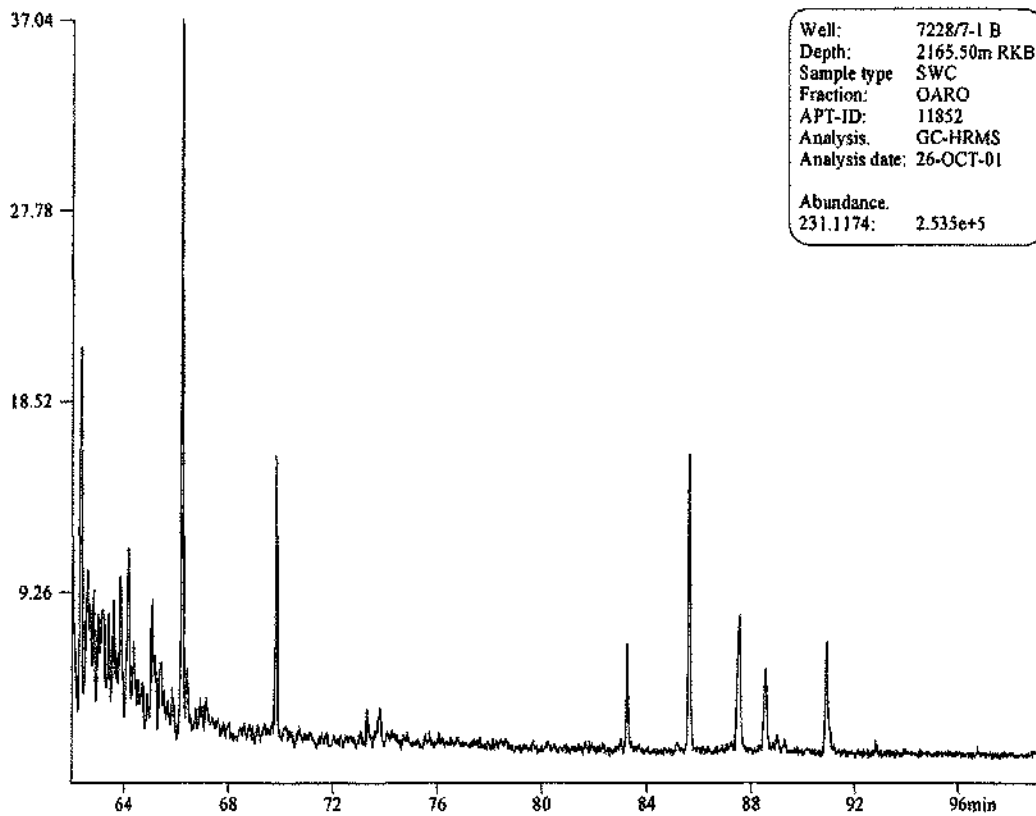
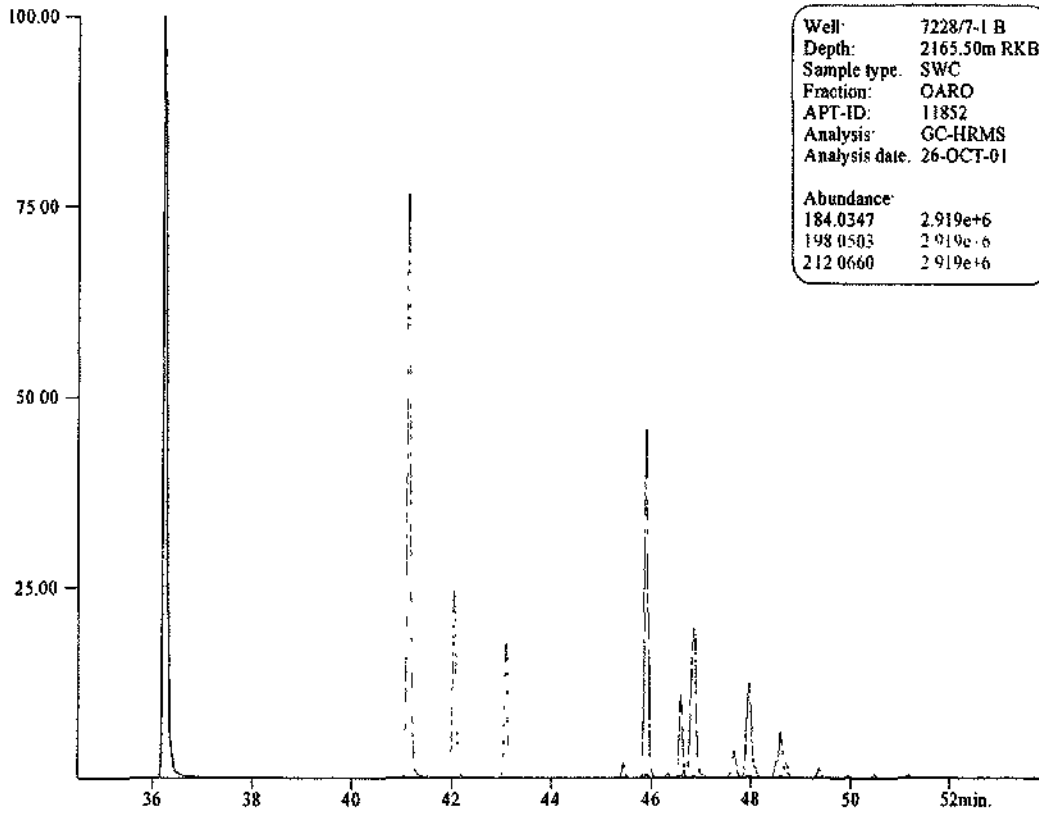


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



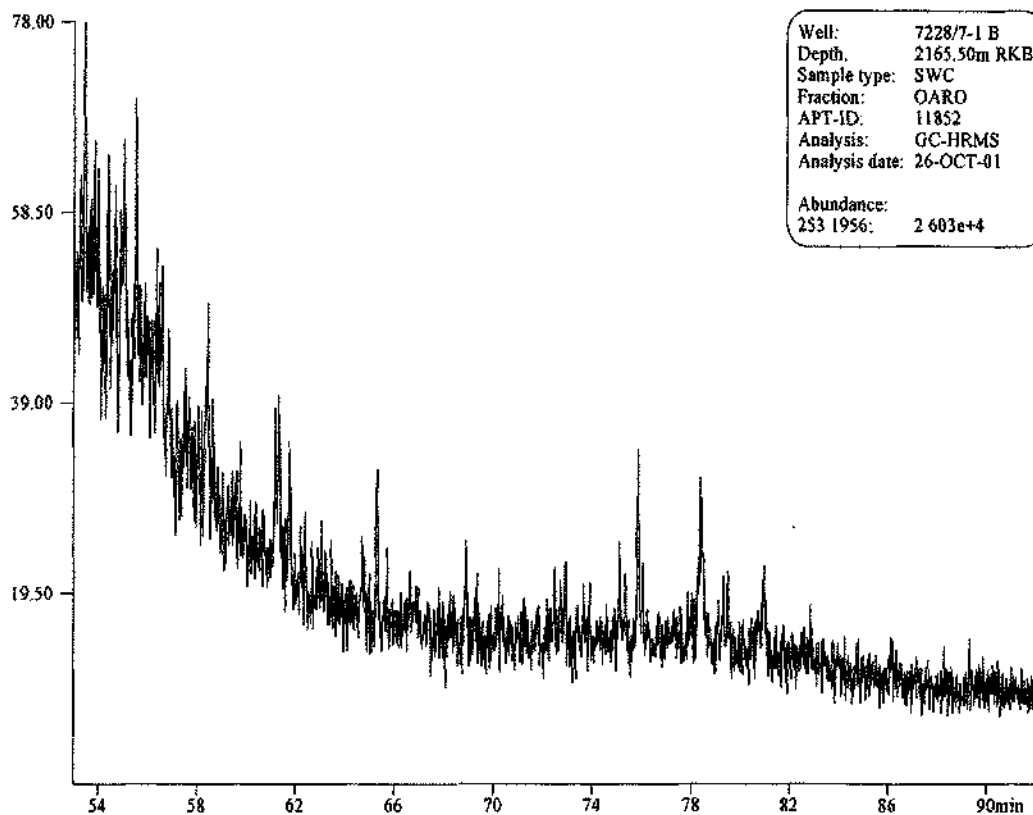


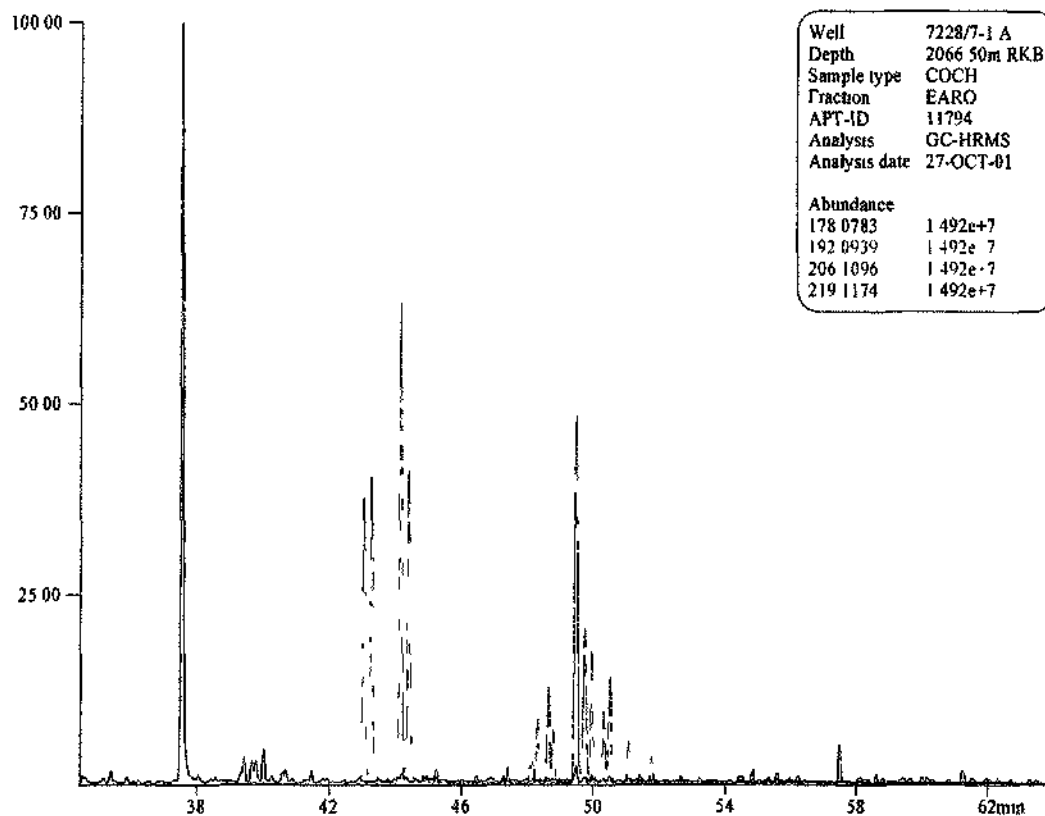
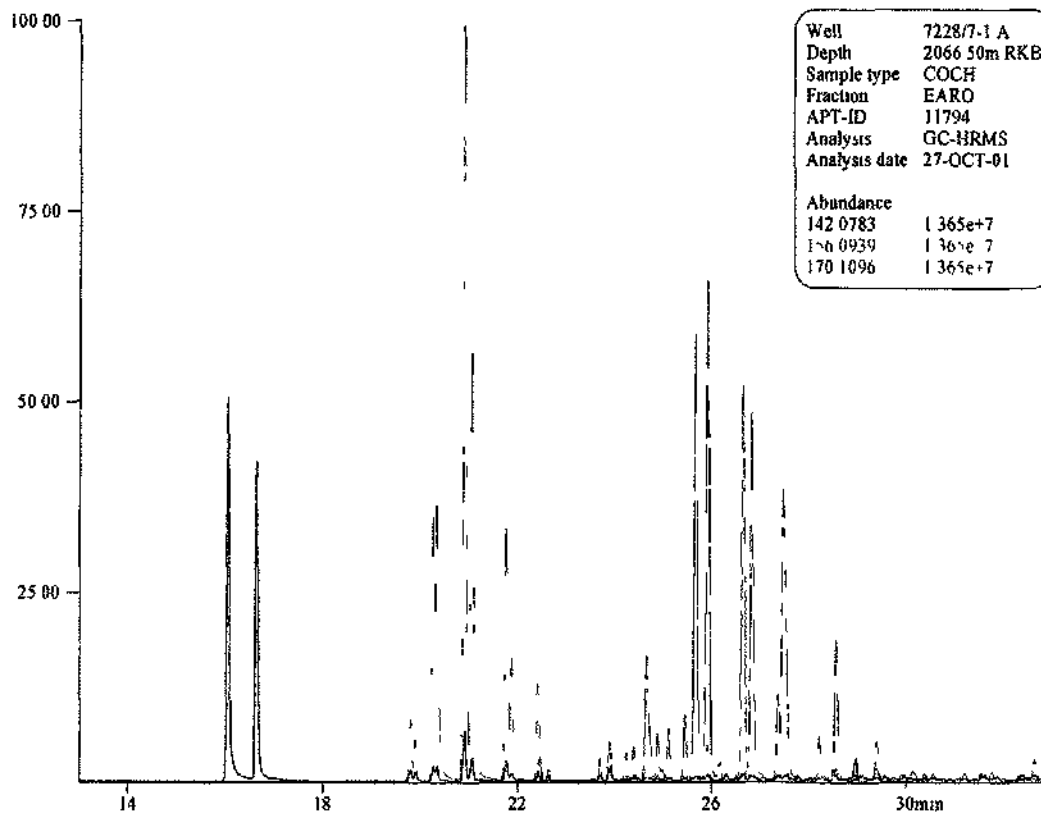
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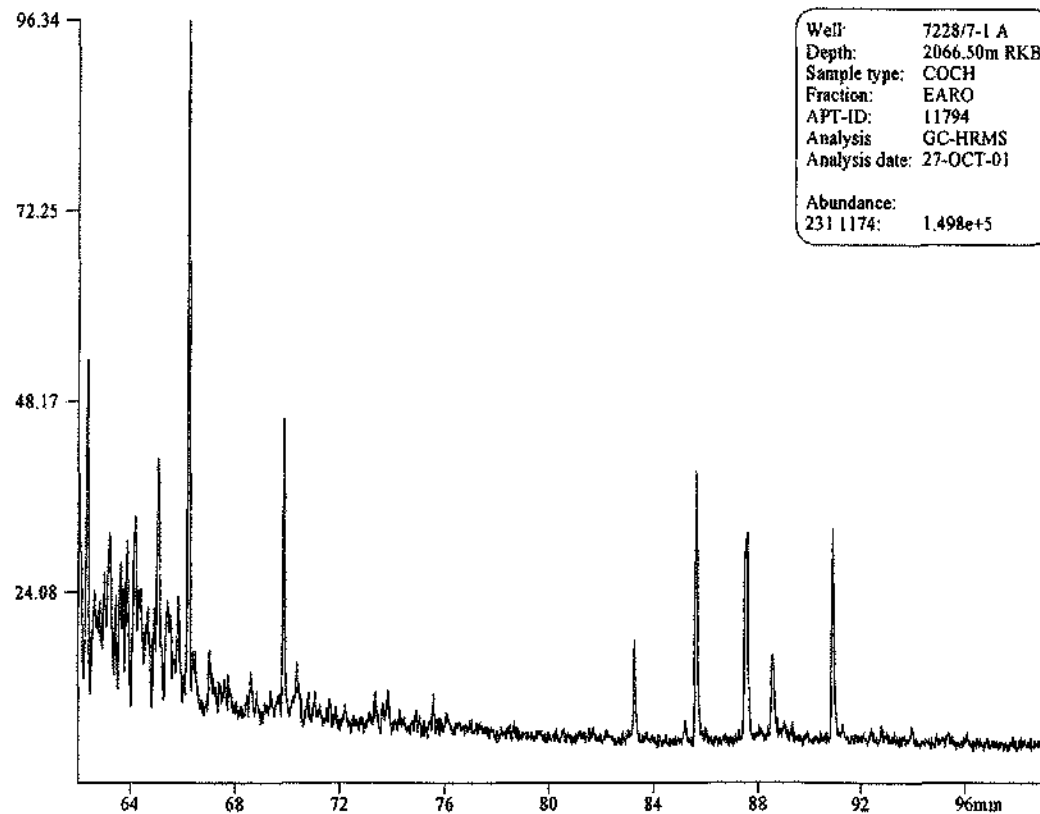
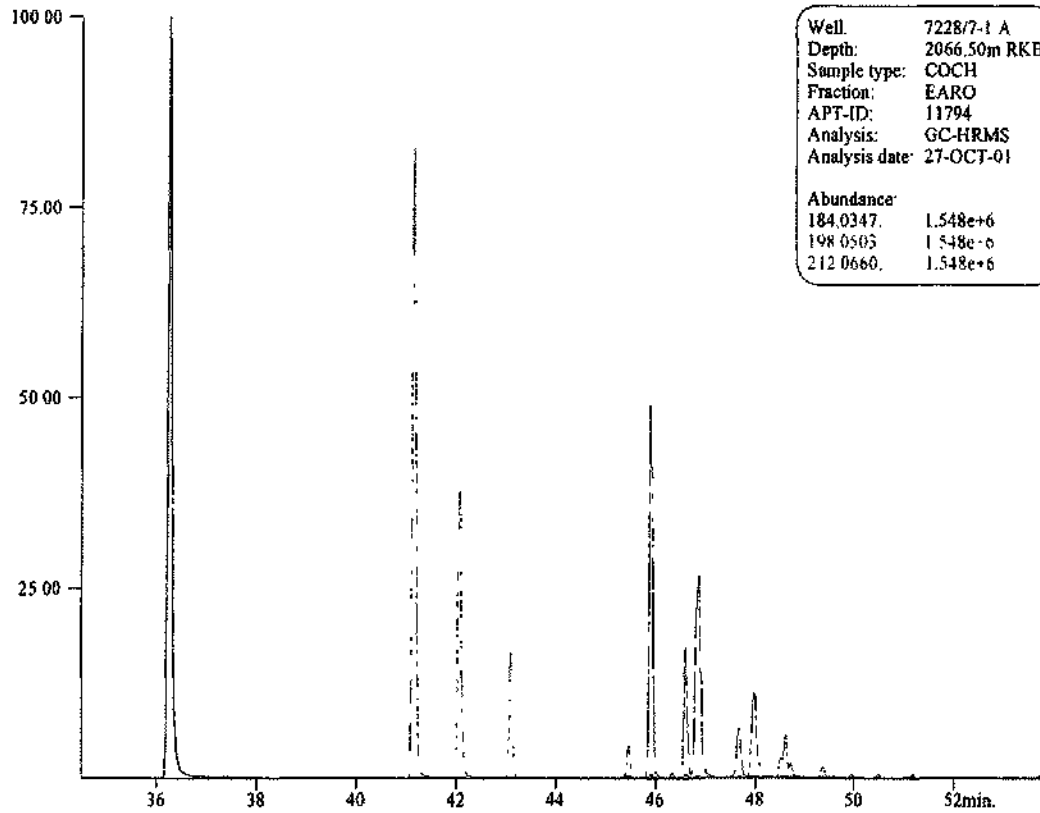
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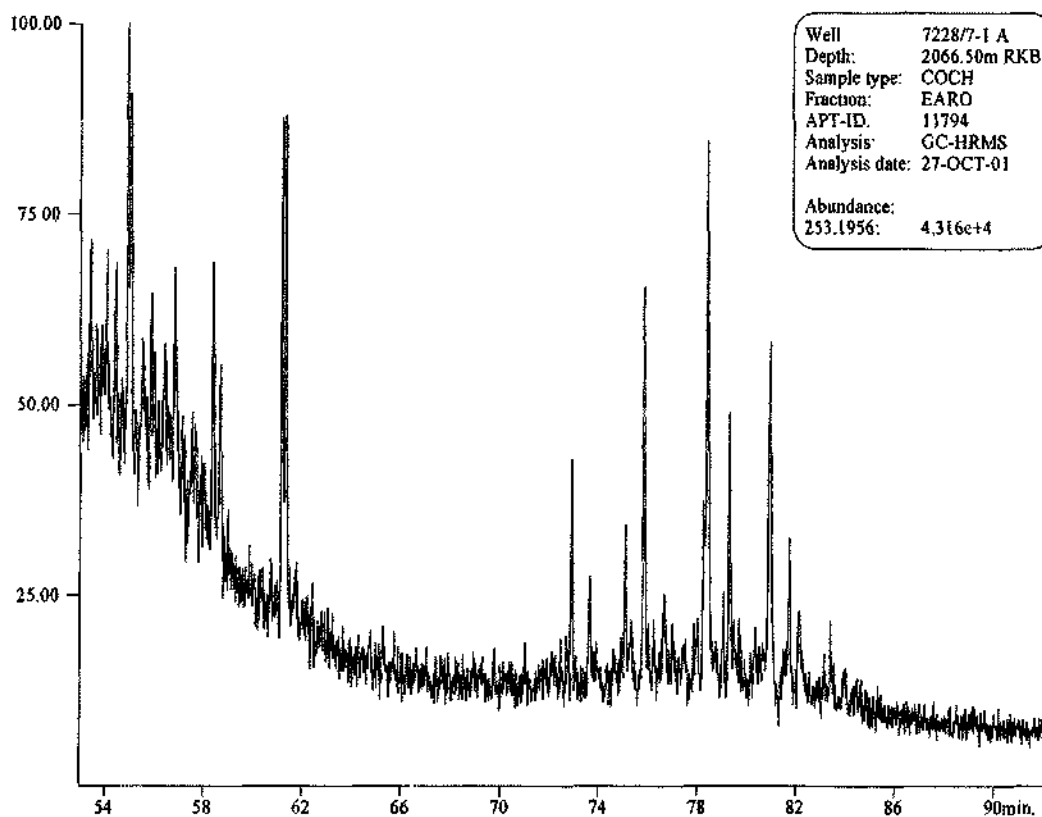






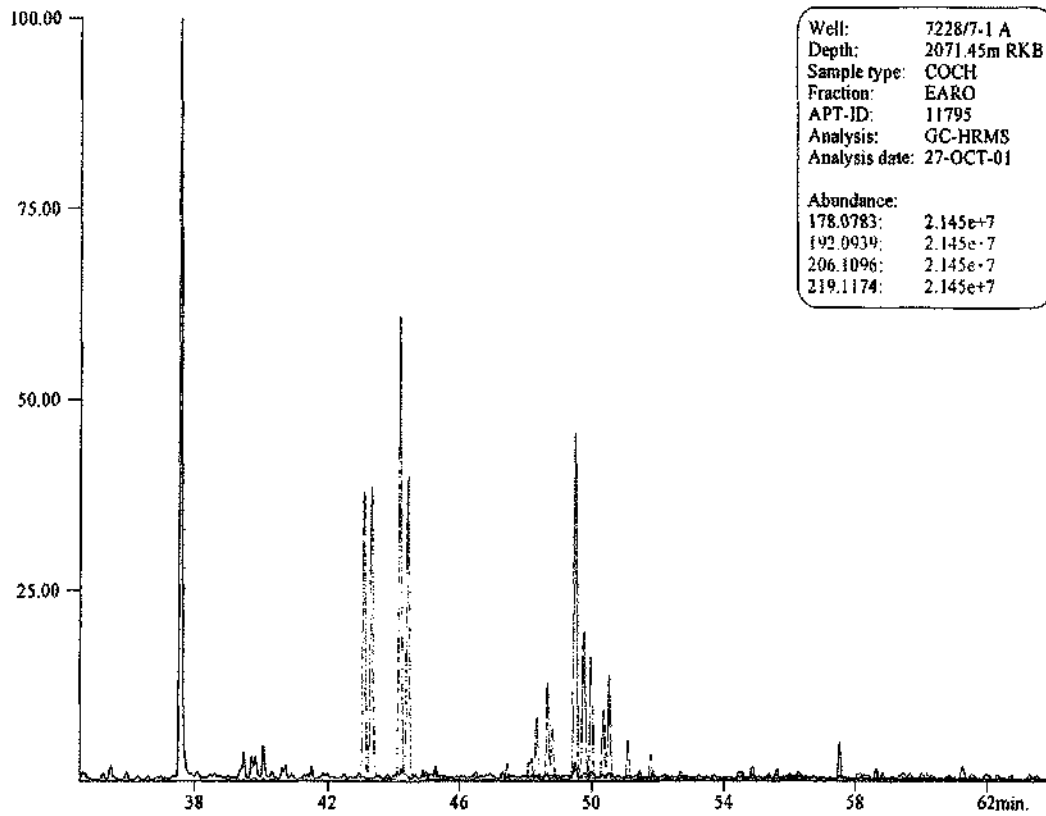
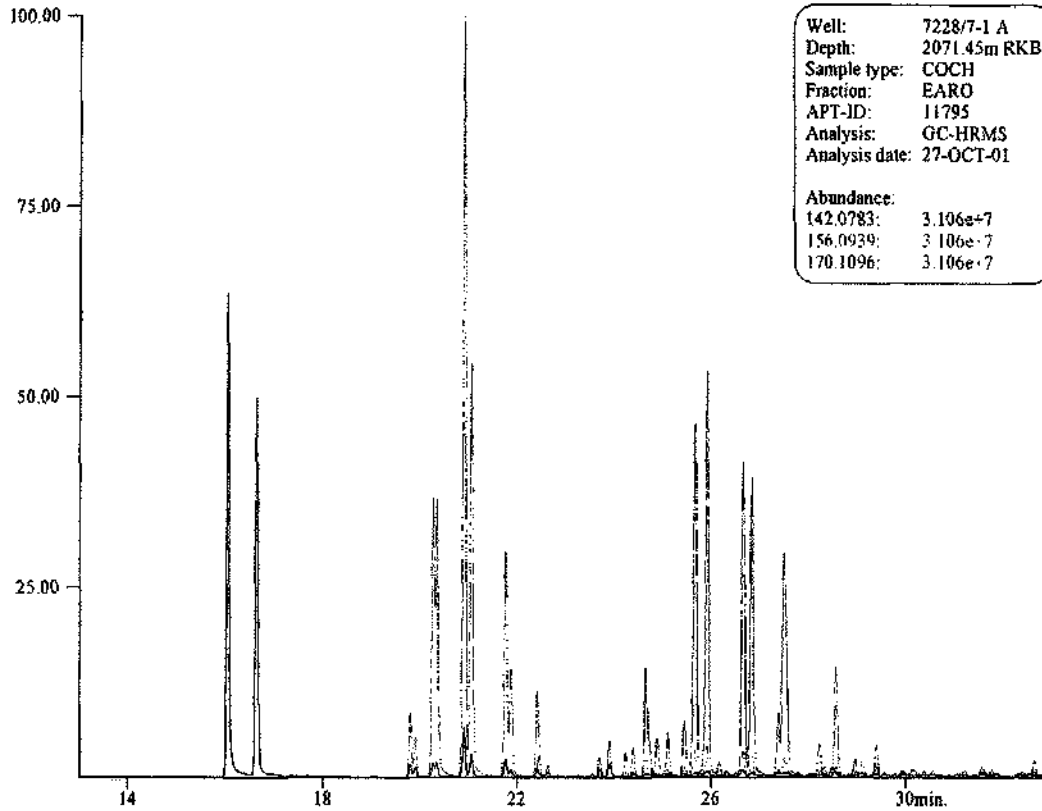
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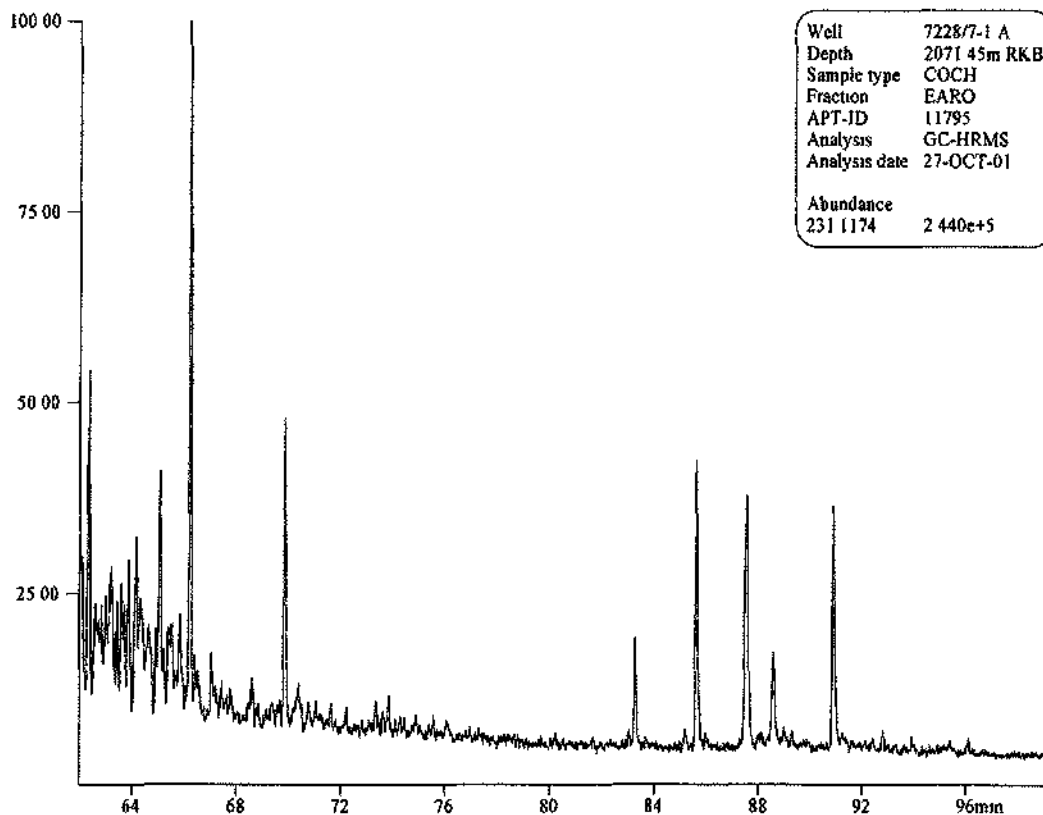
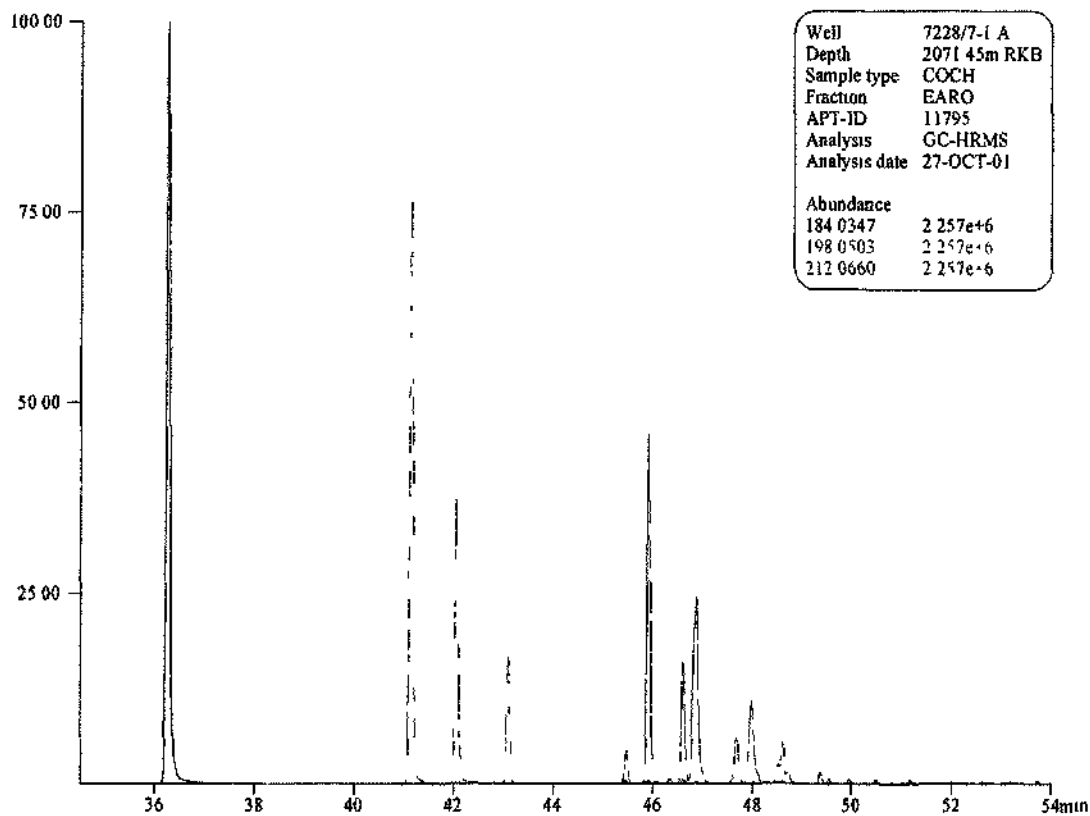


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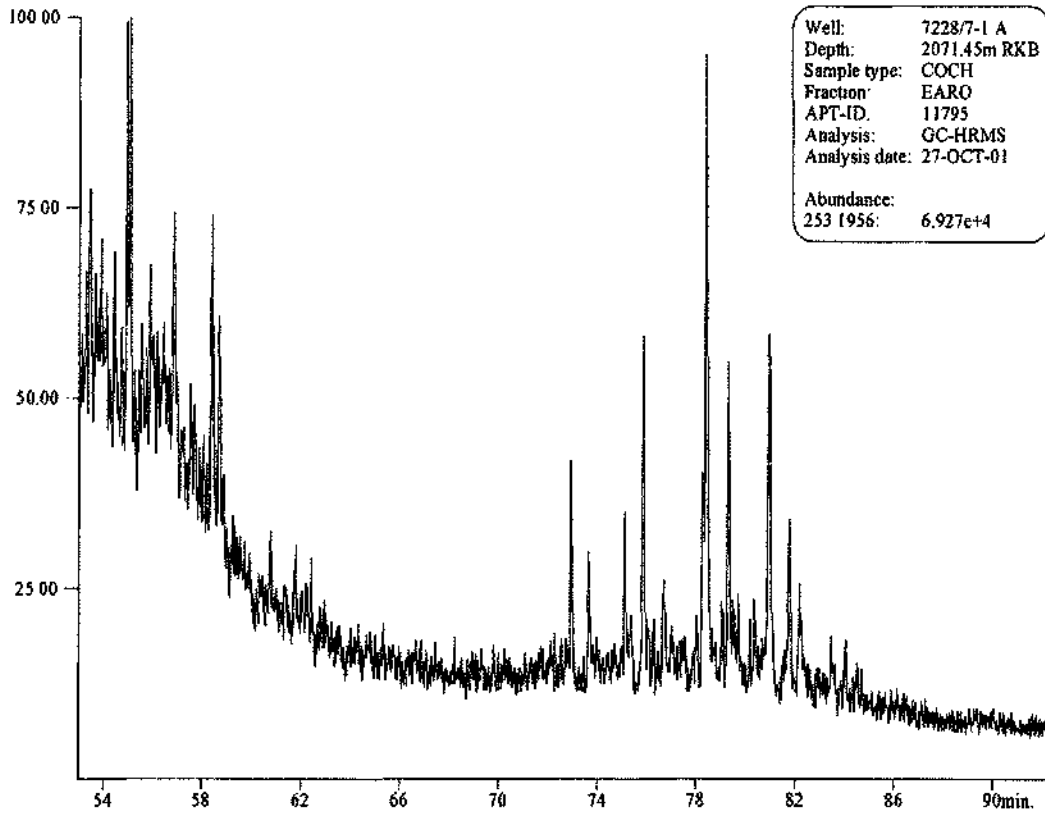


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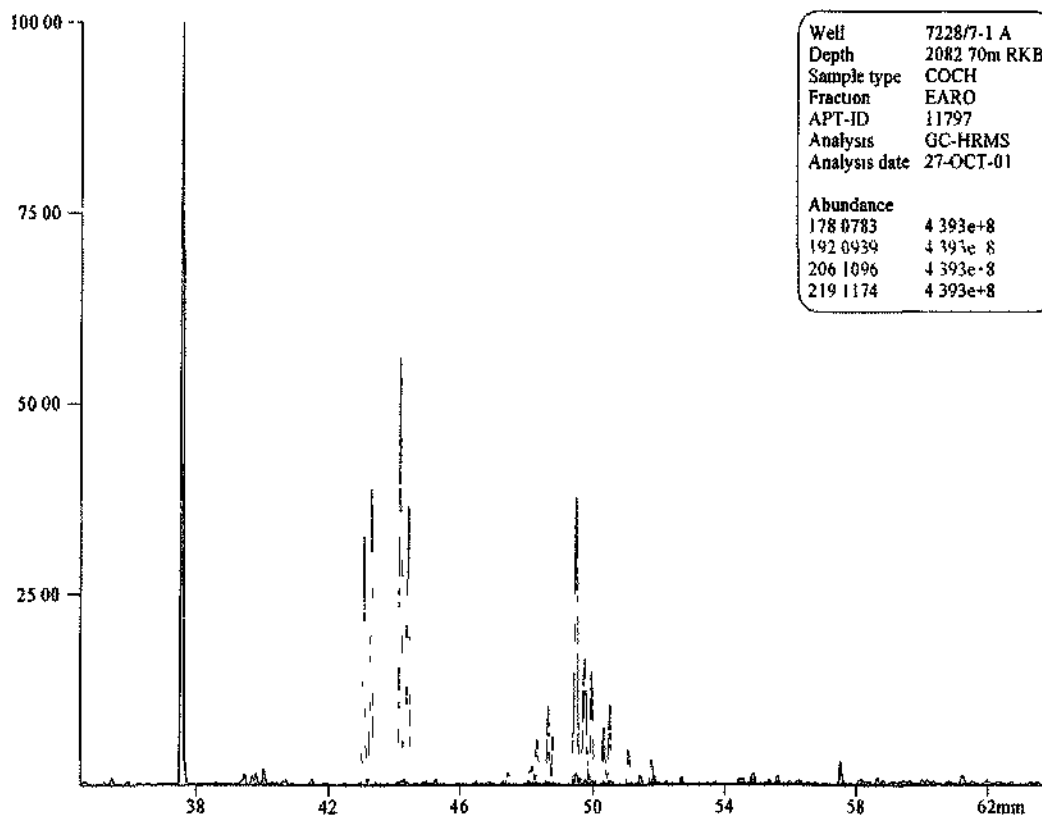
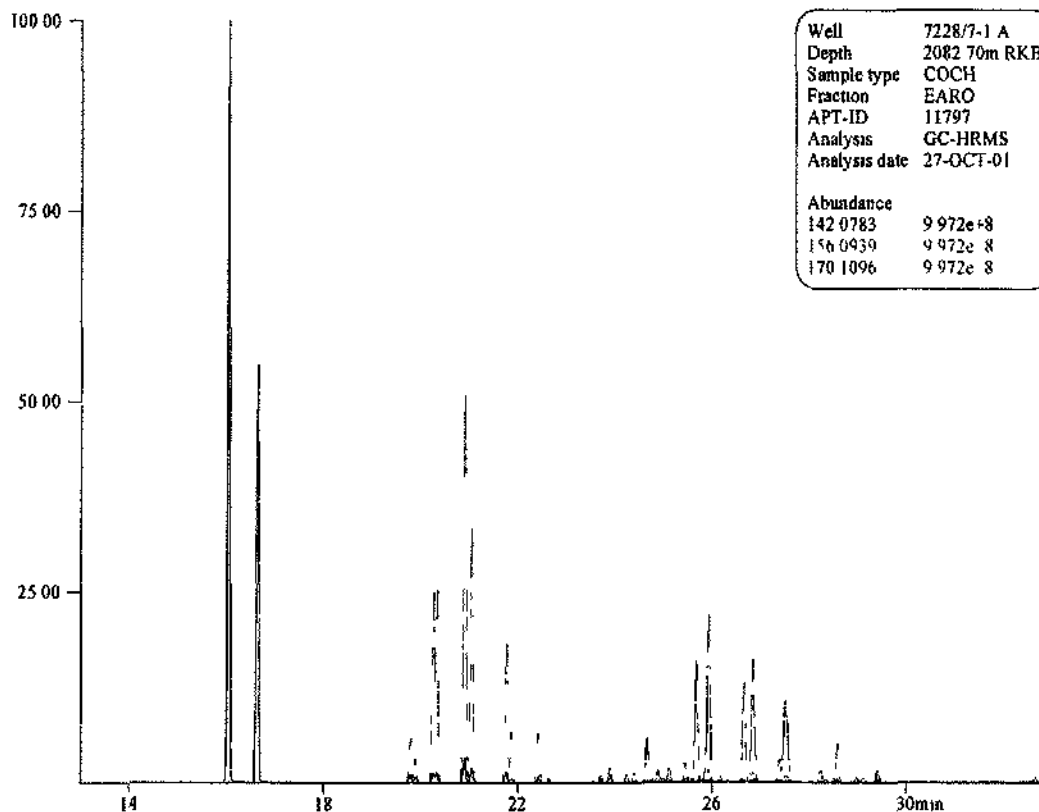


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



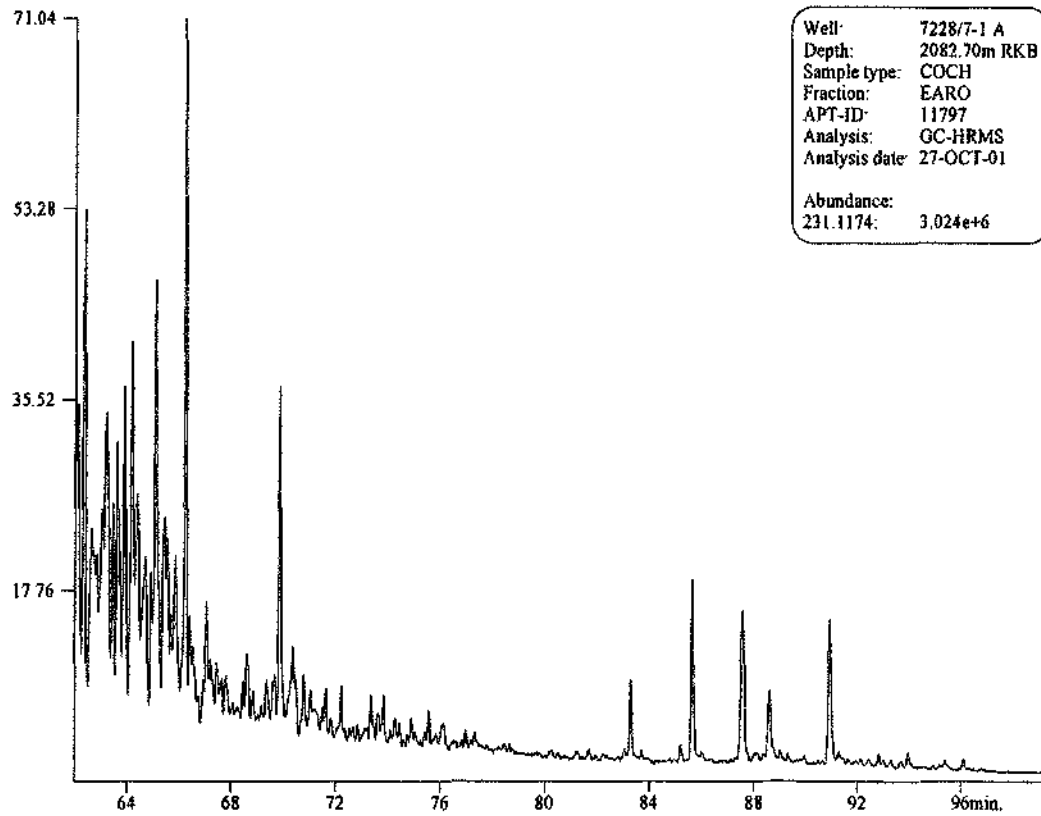
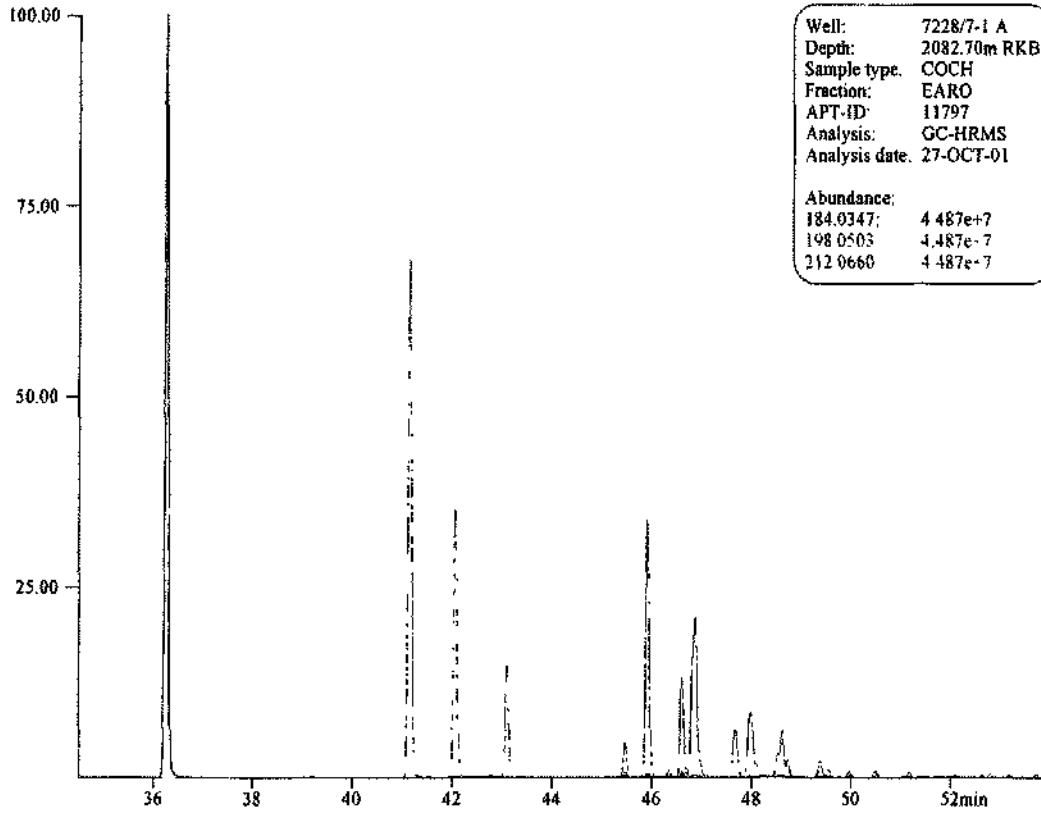


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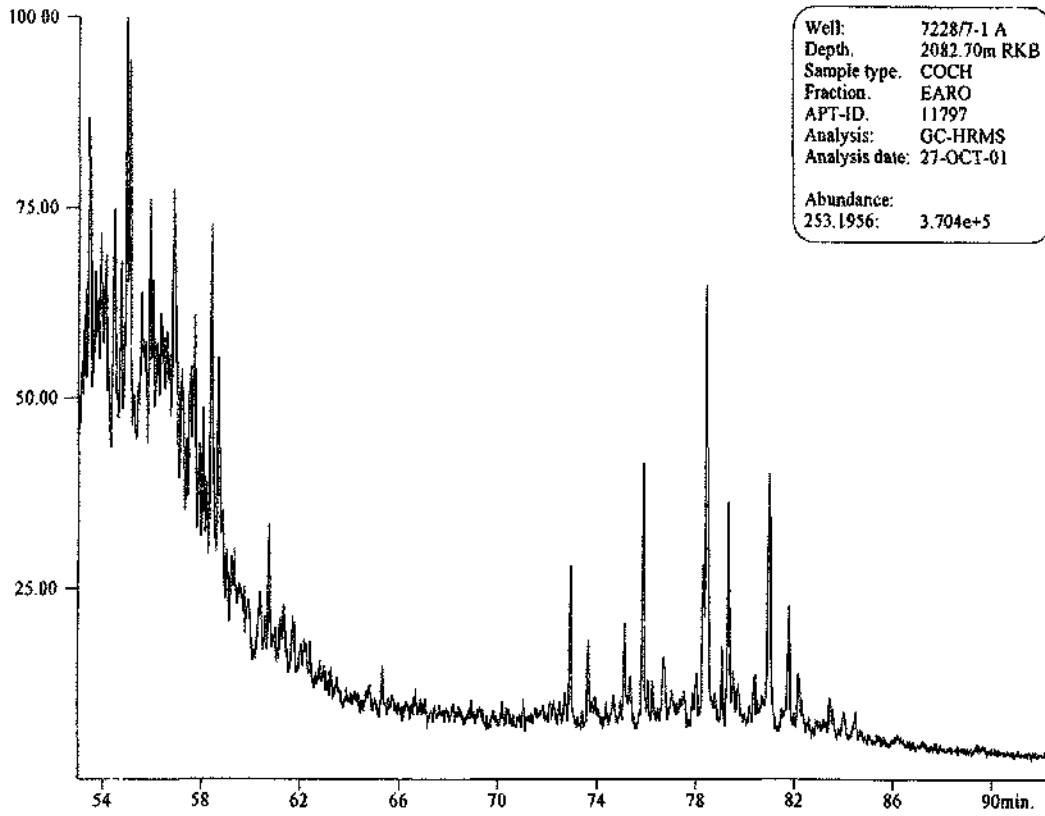


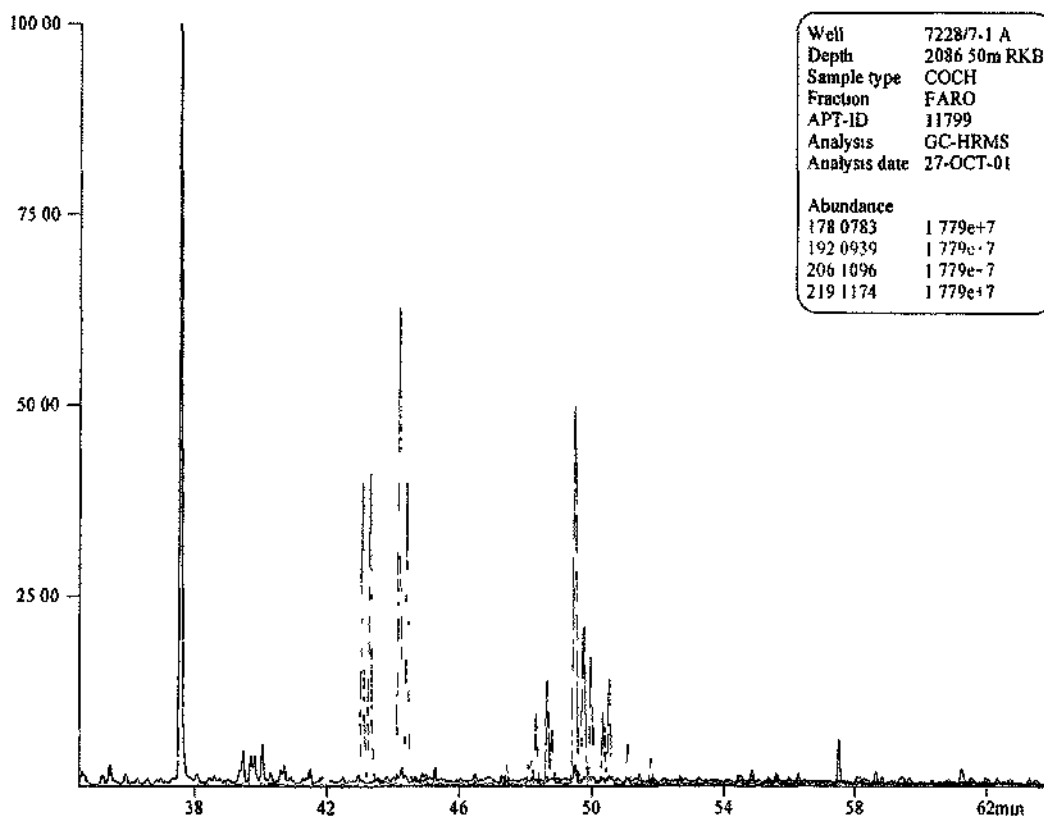
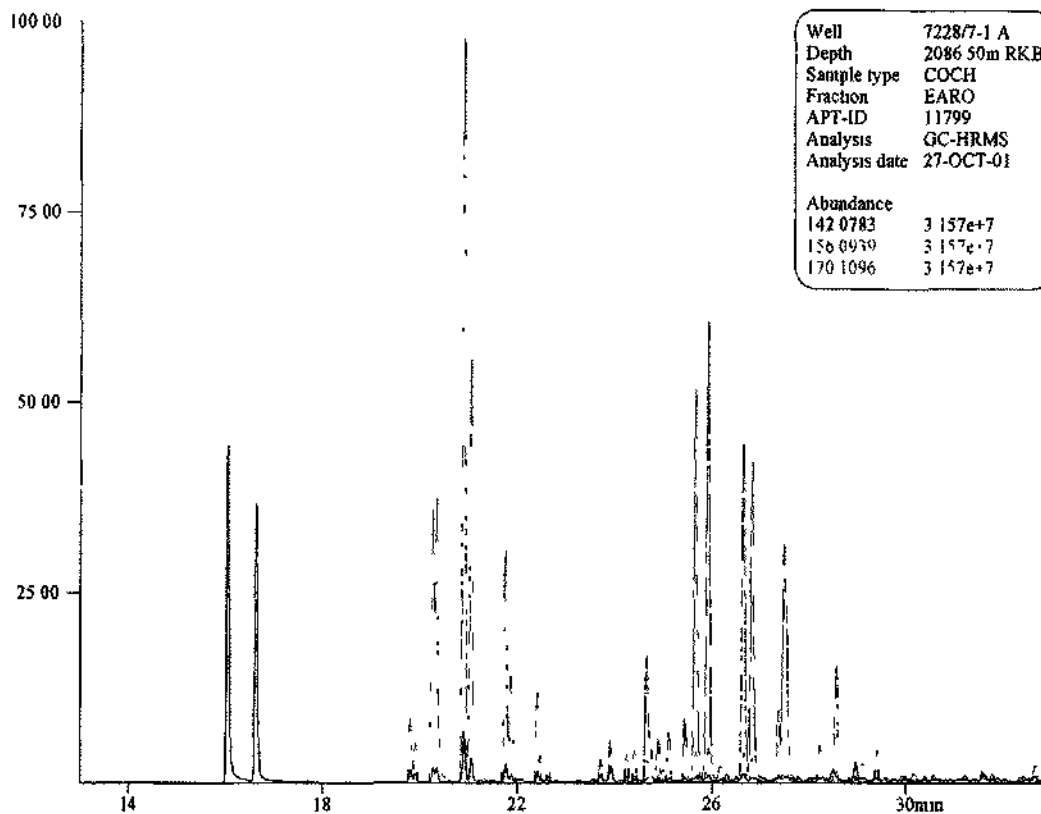
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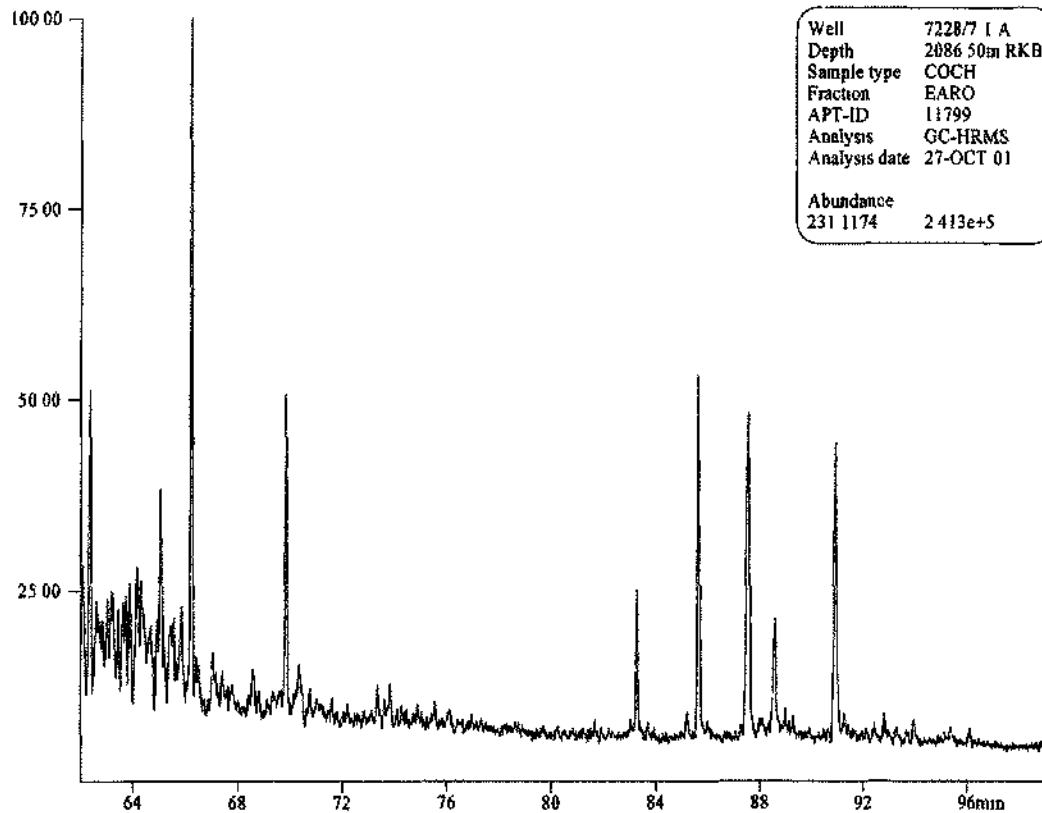
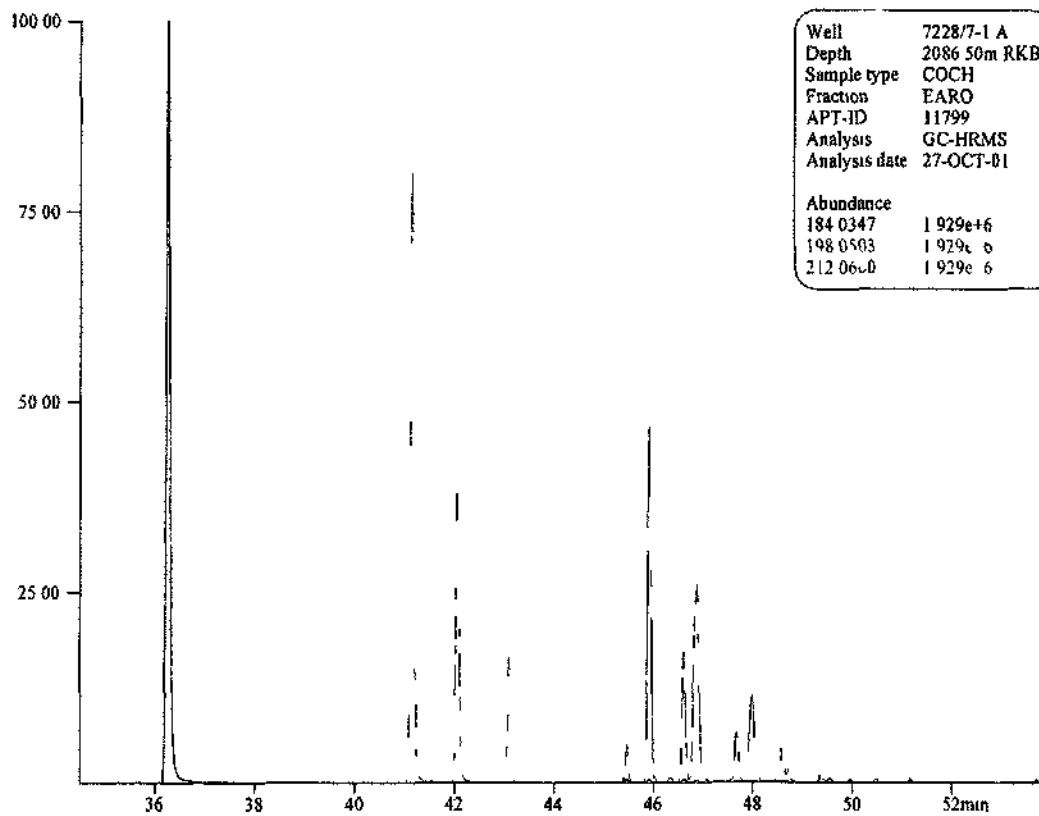
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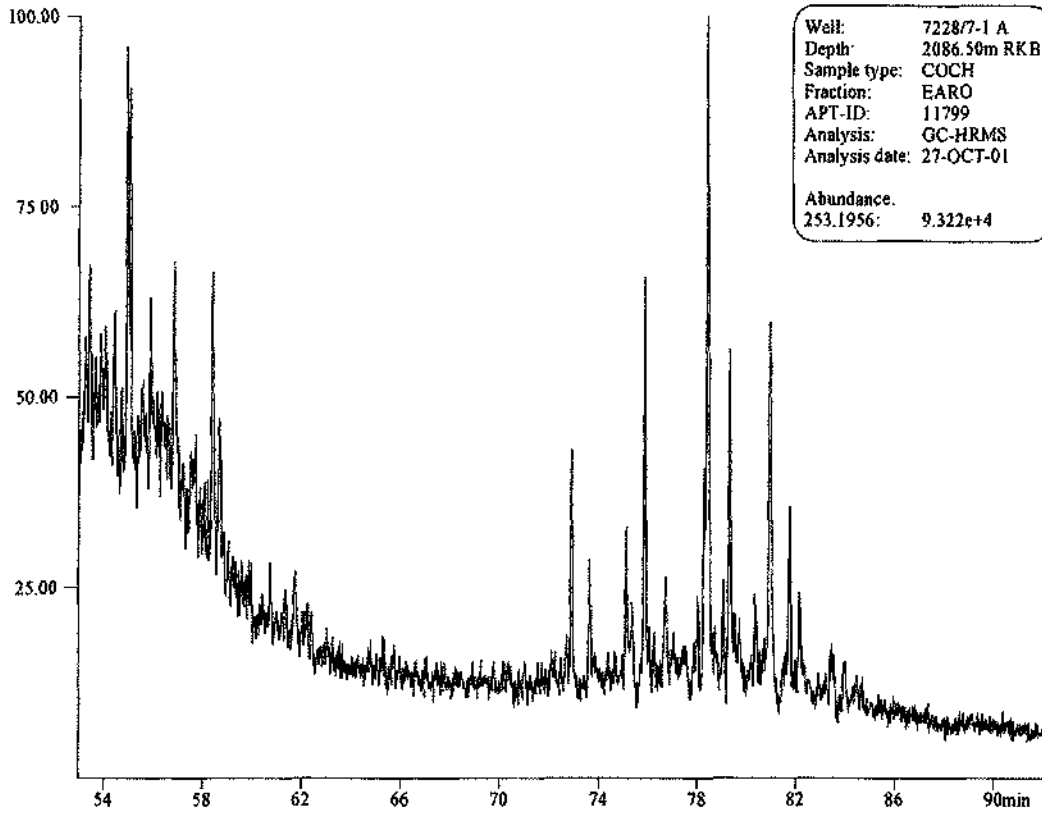


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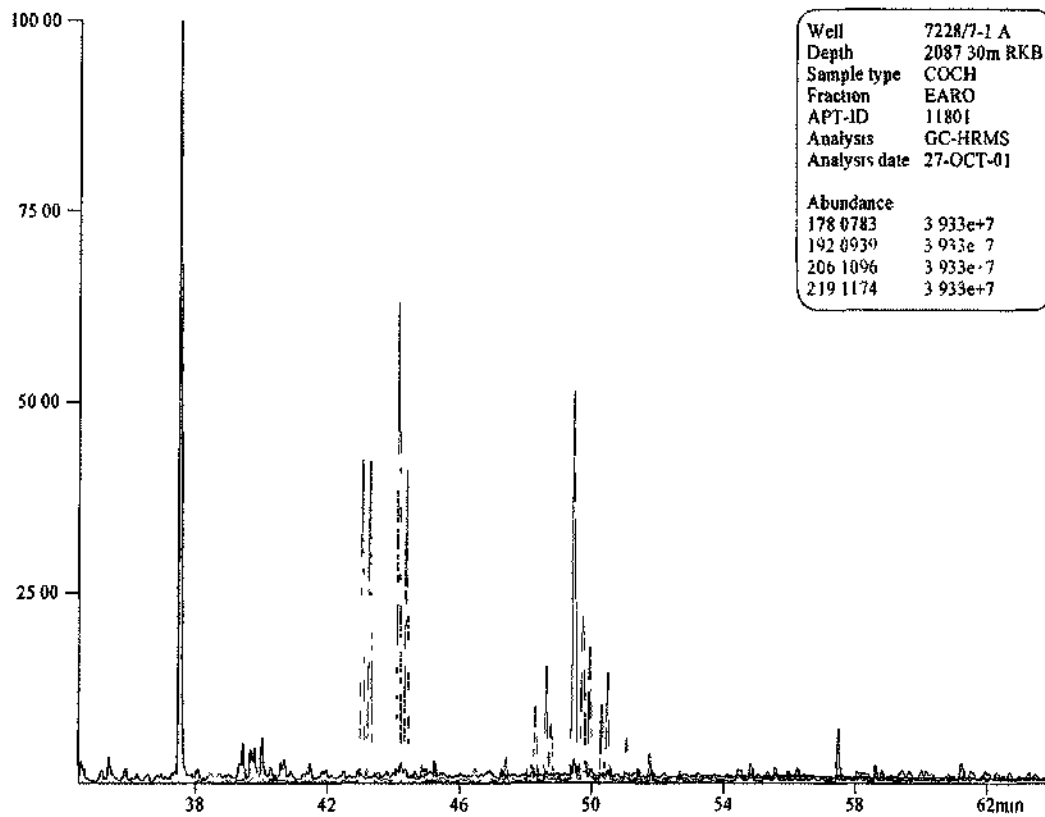
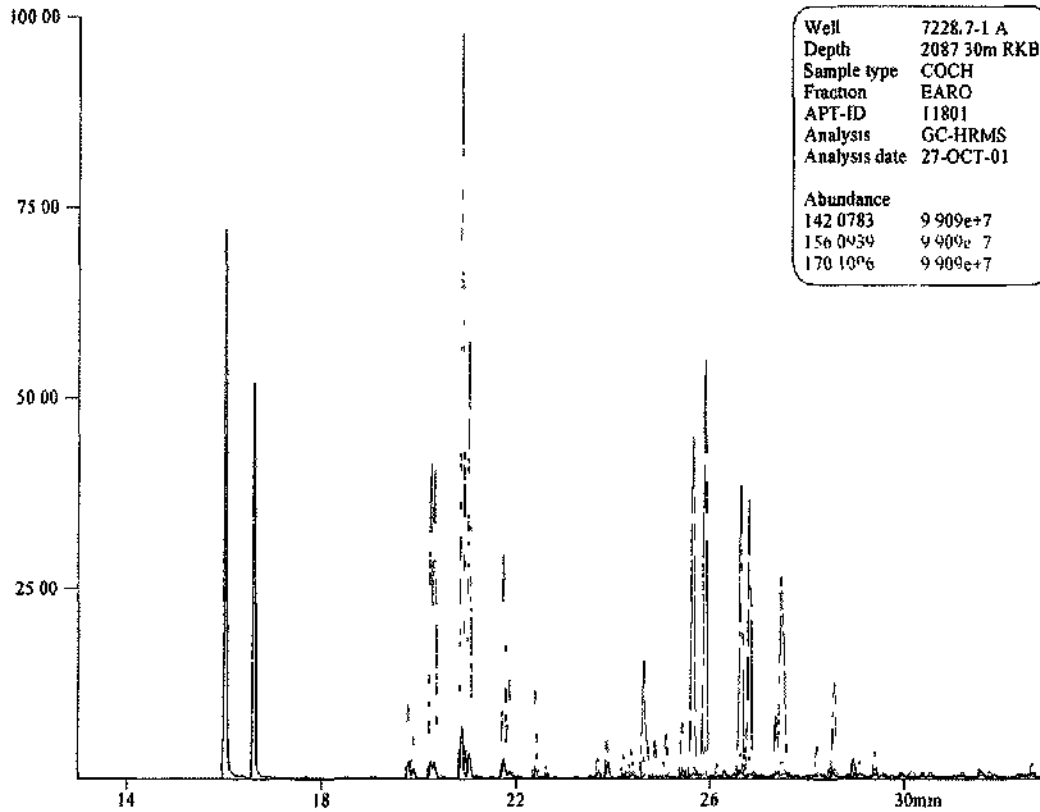


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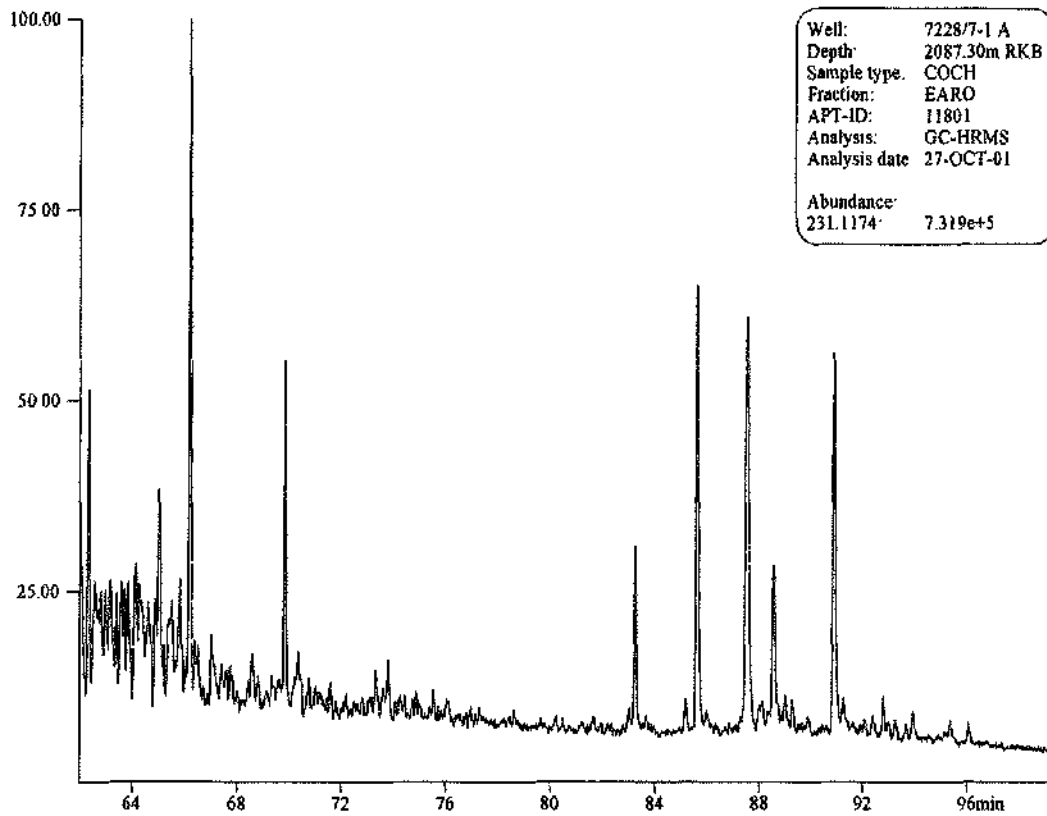
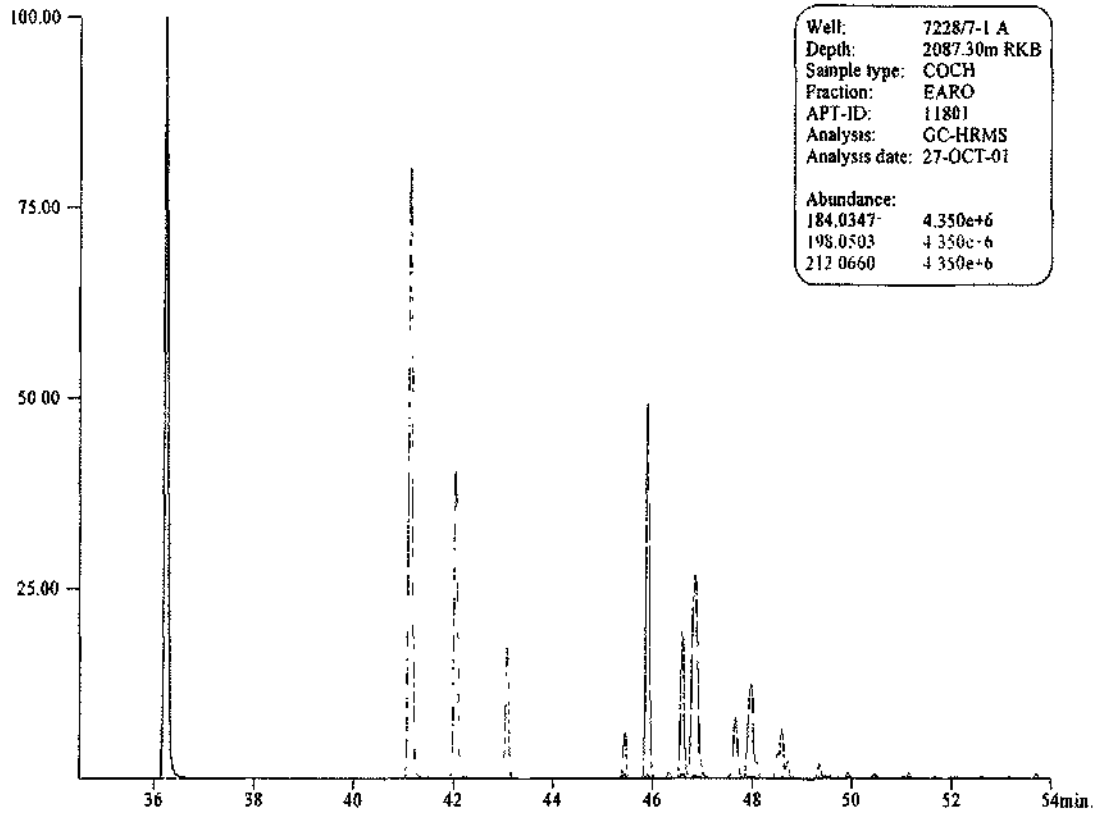


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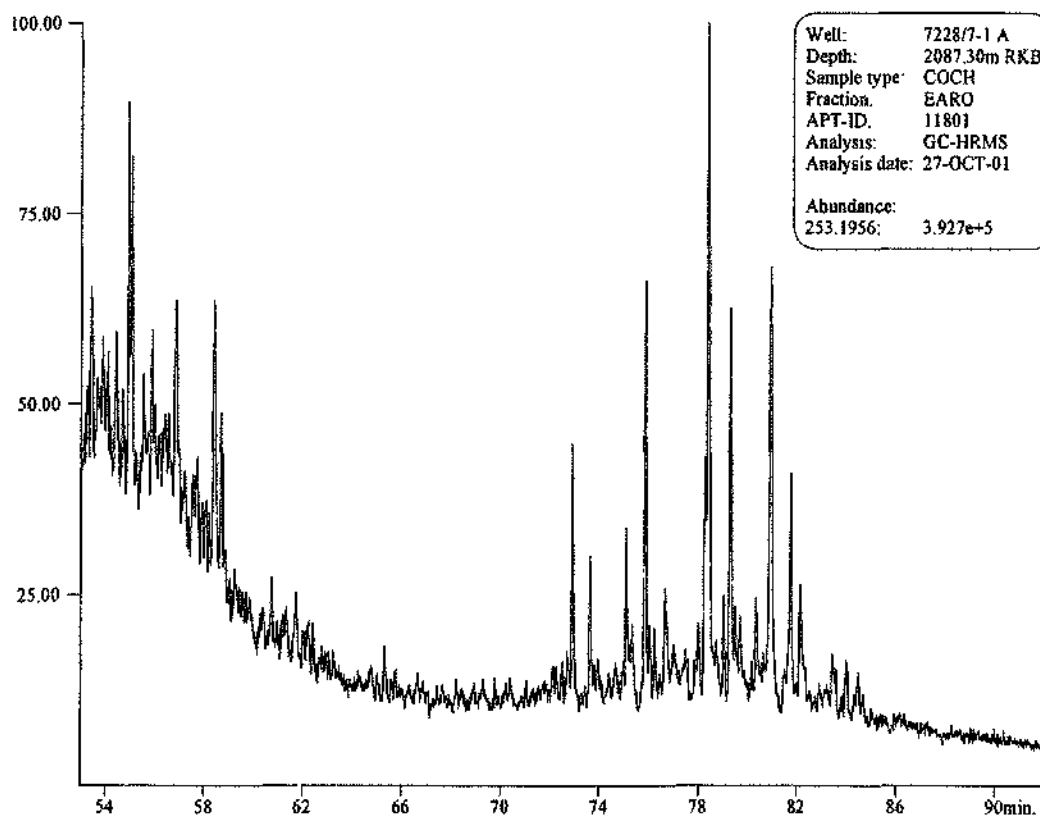


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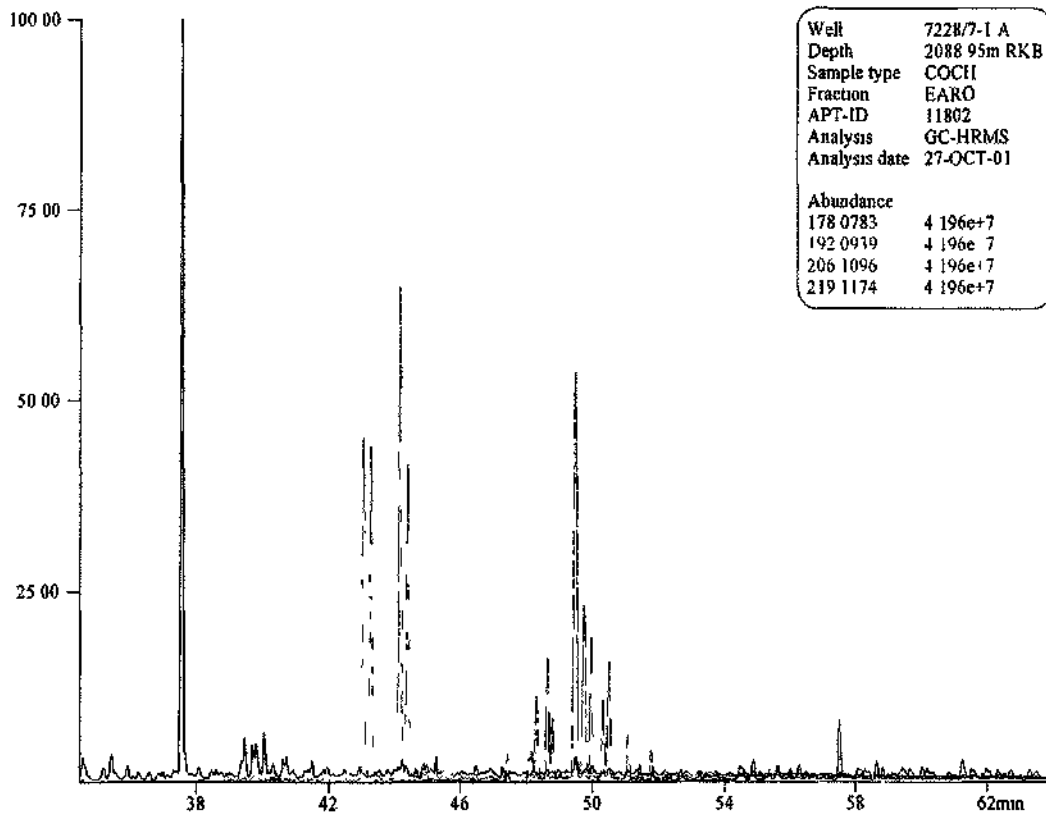
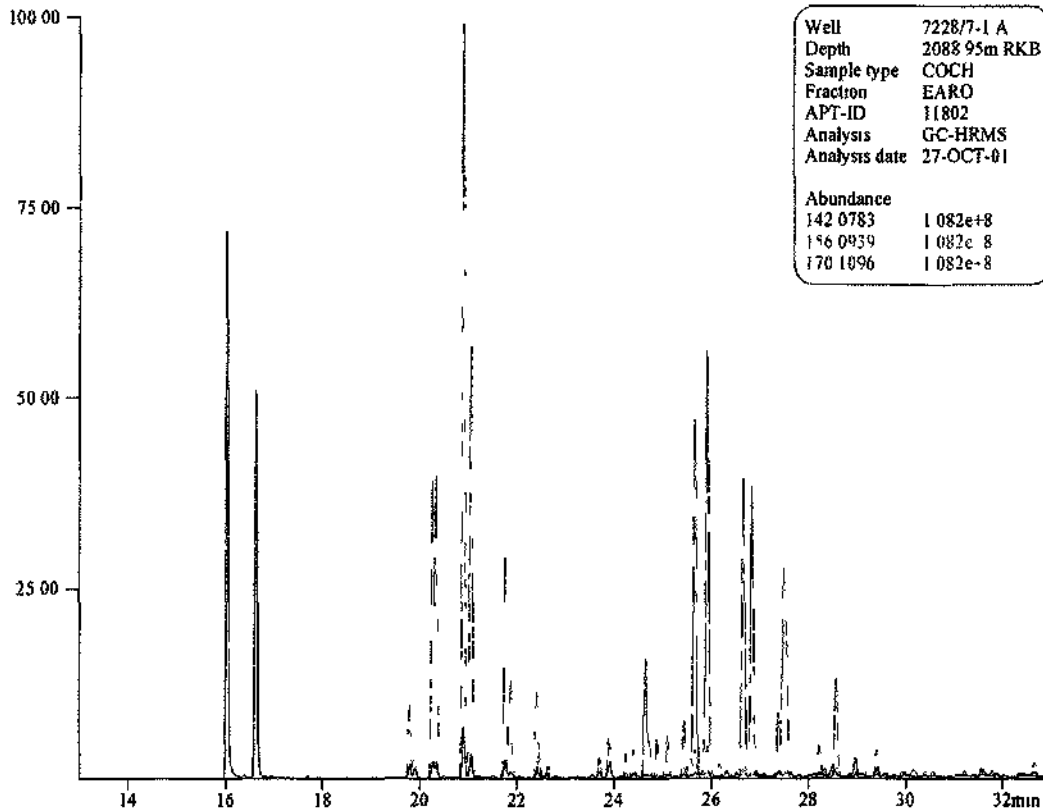


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



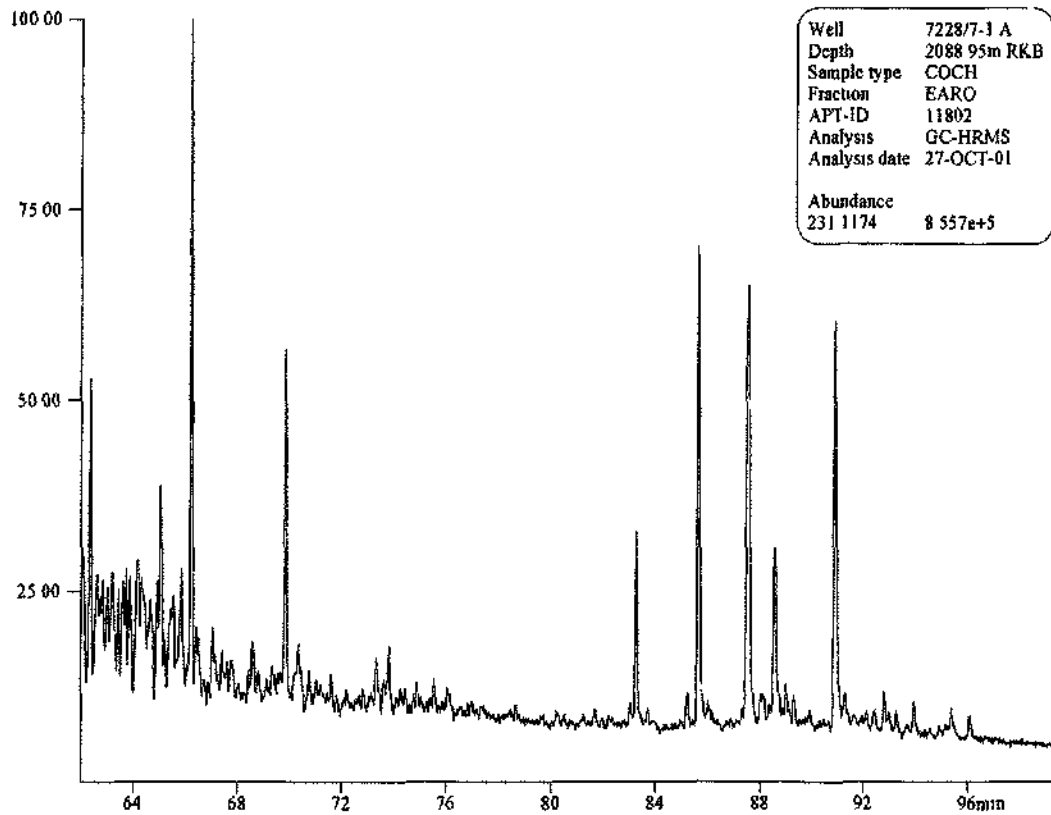
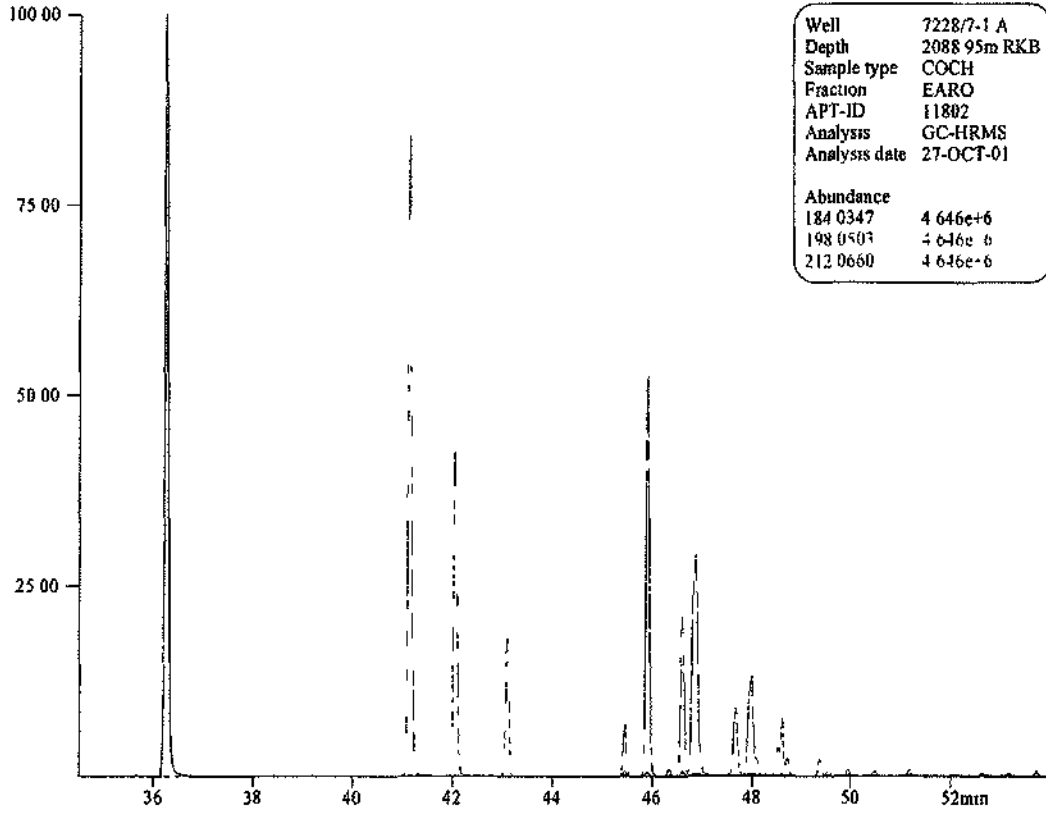


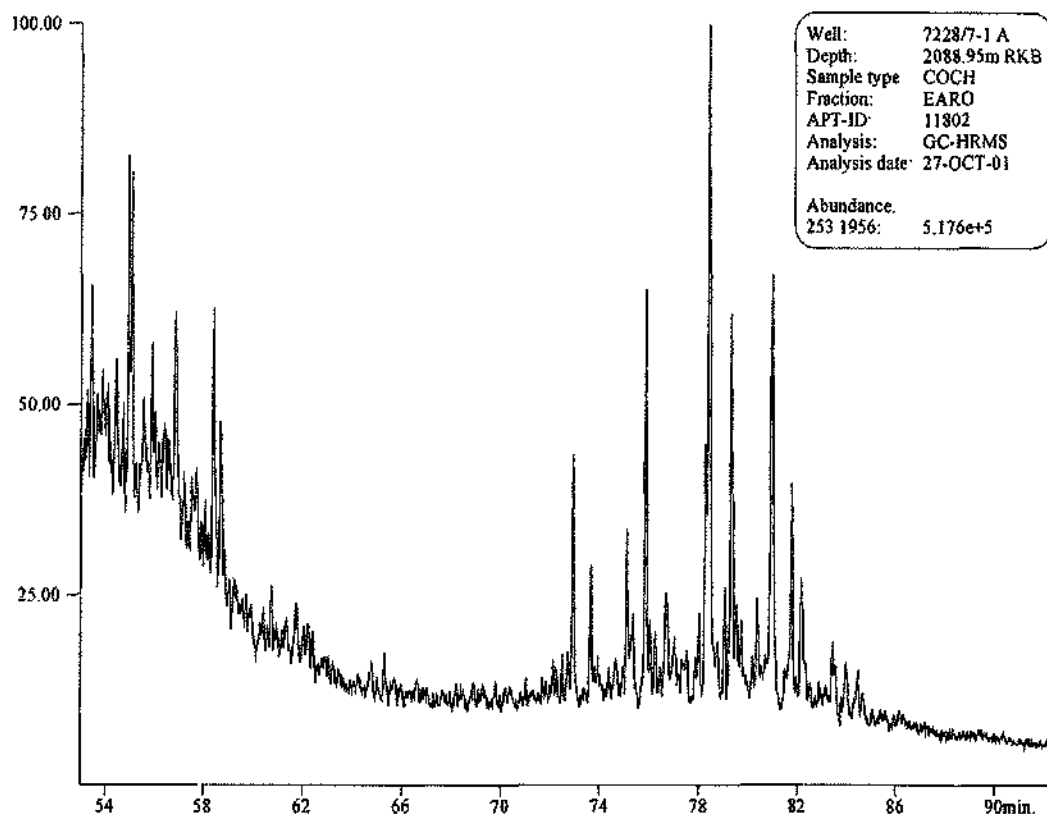
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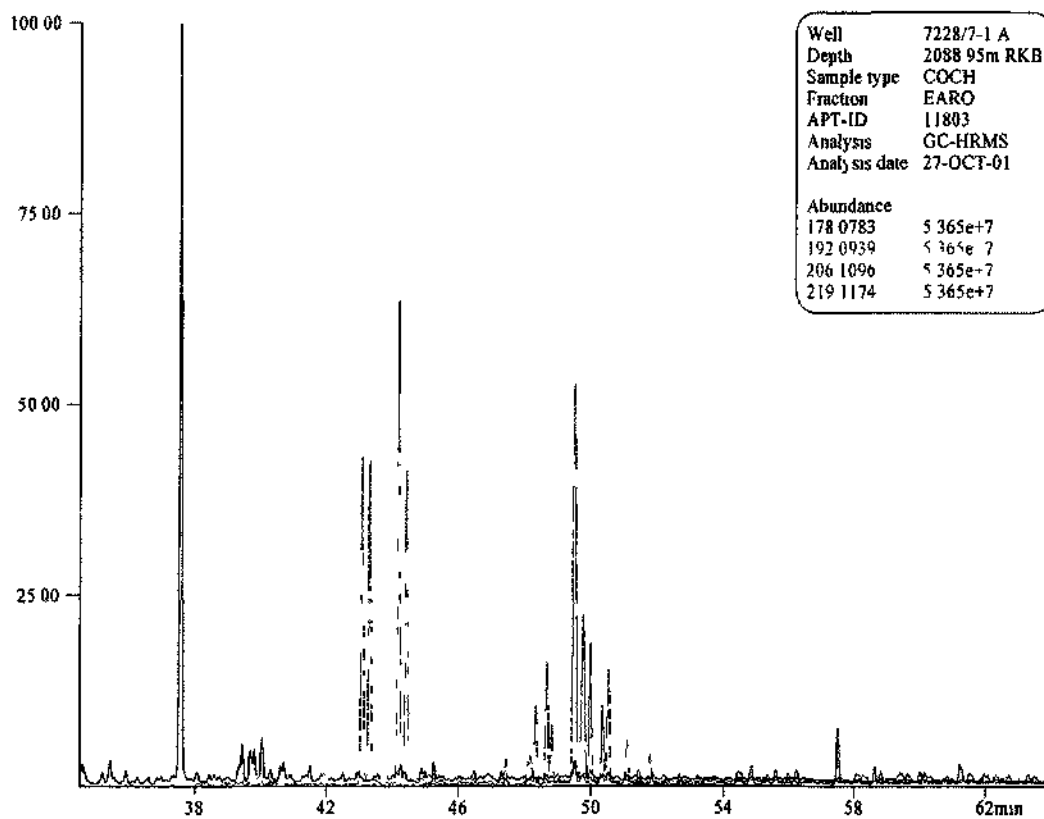
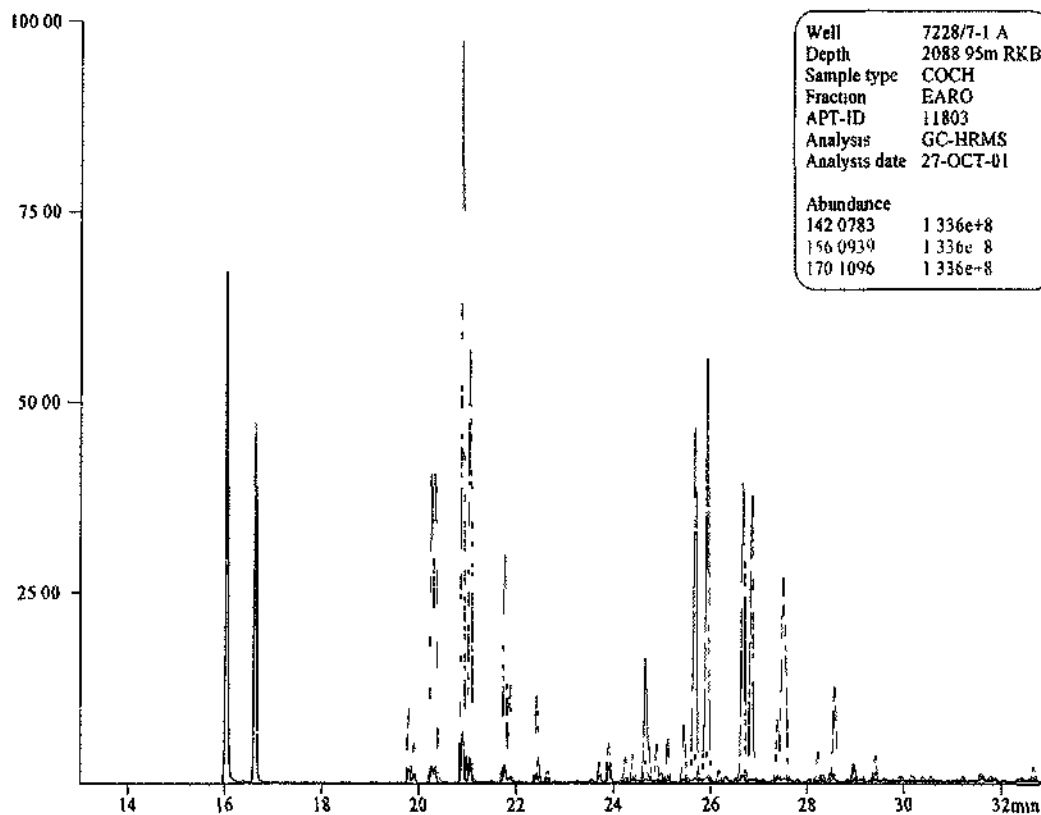
Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3





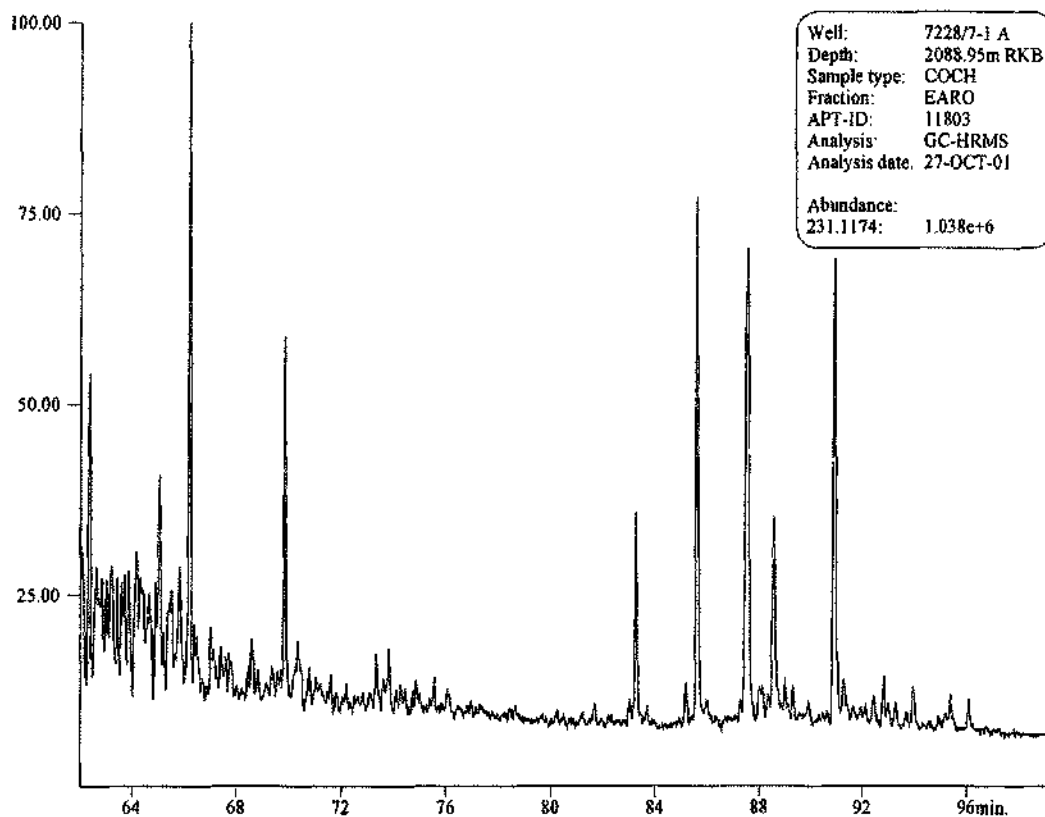
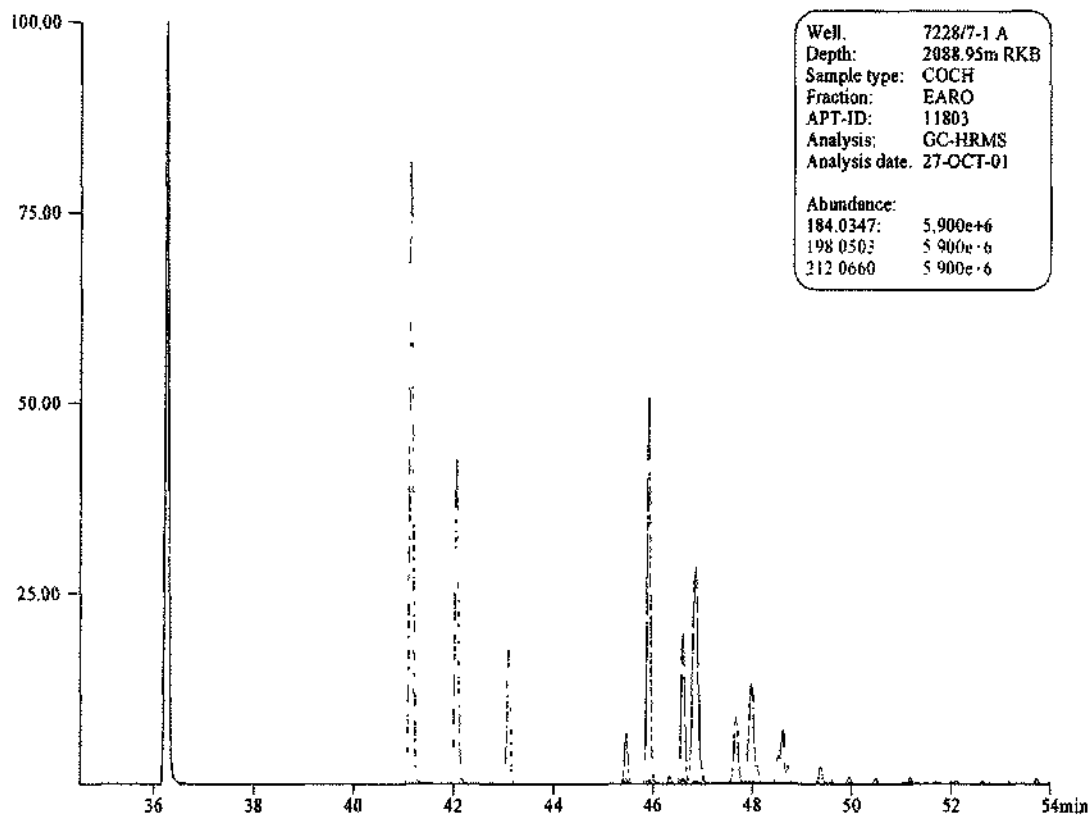


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



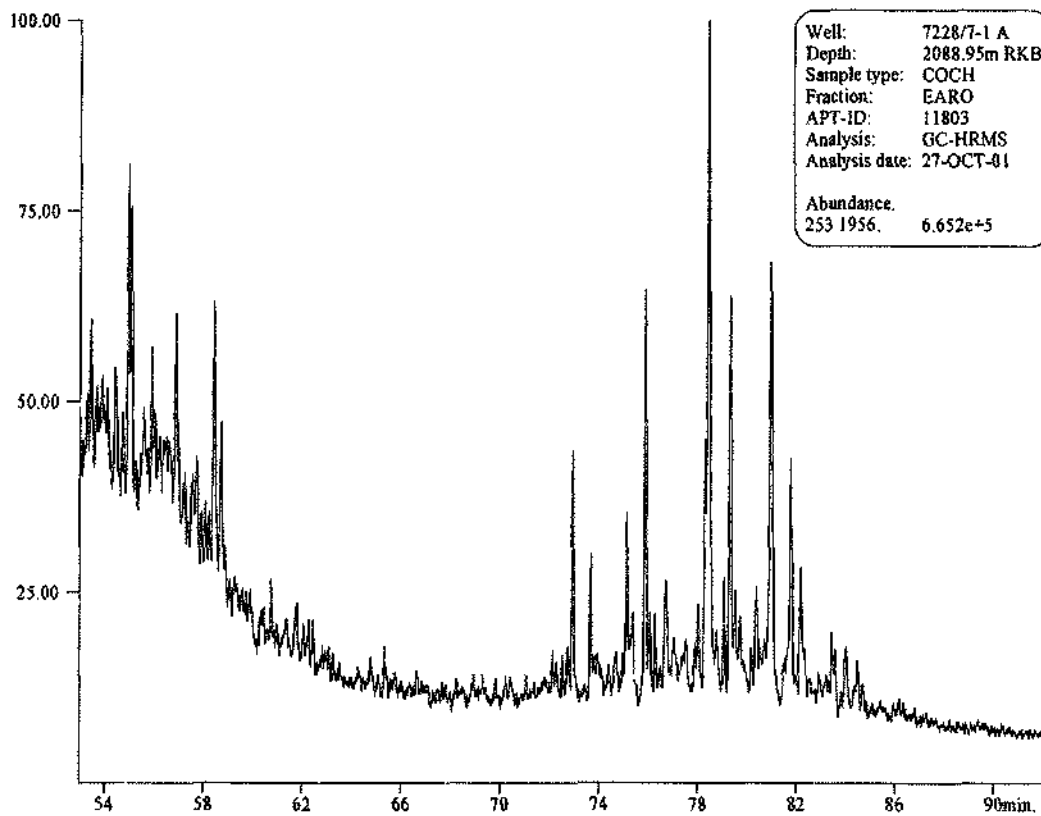


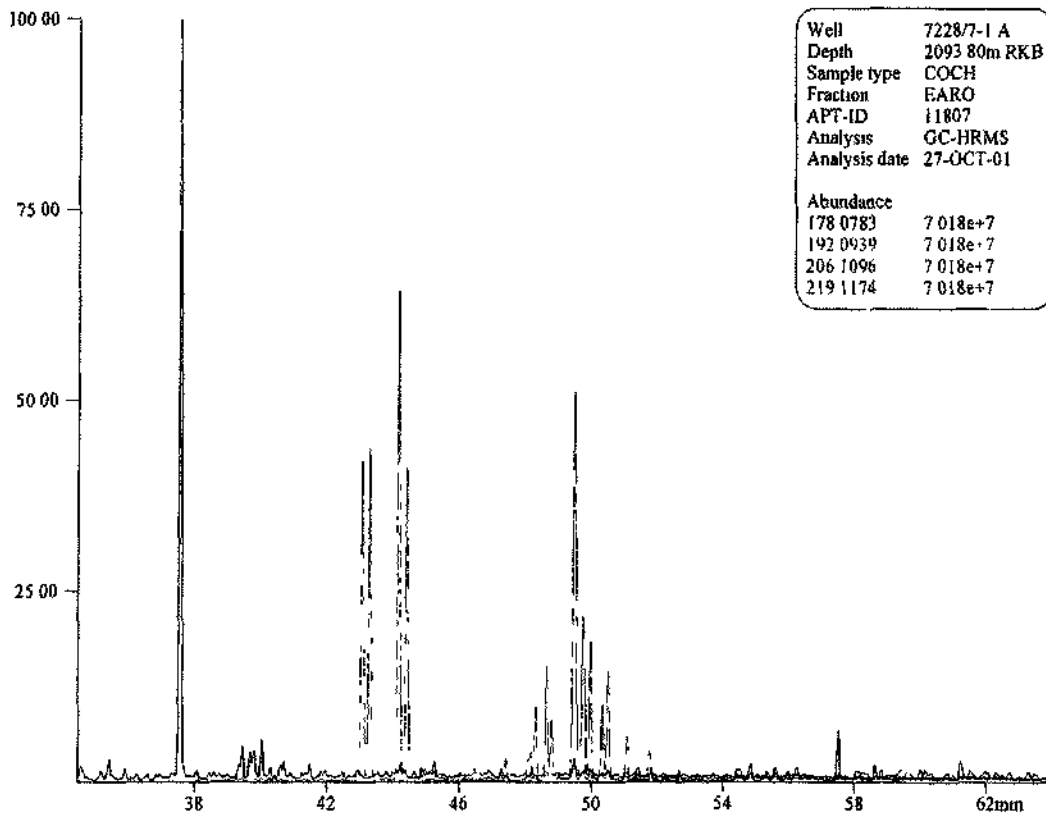
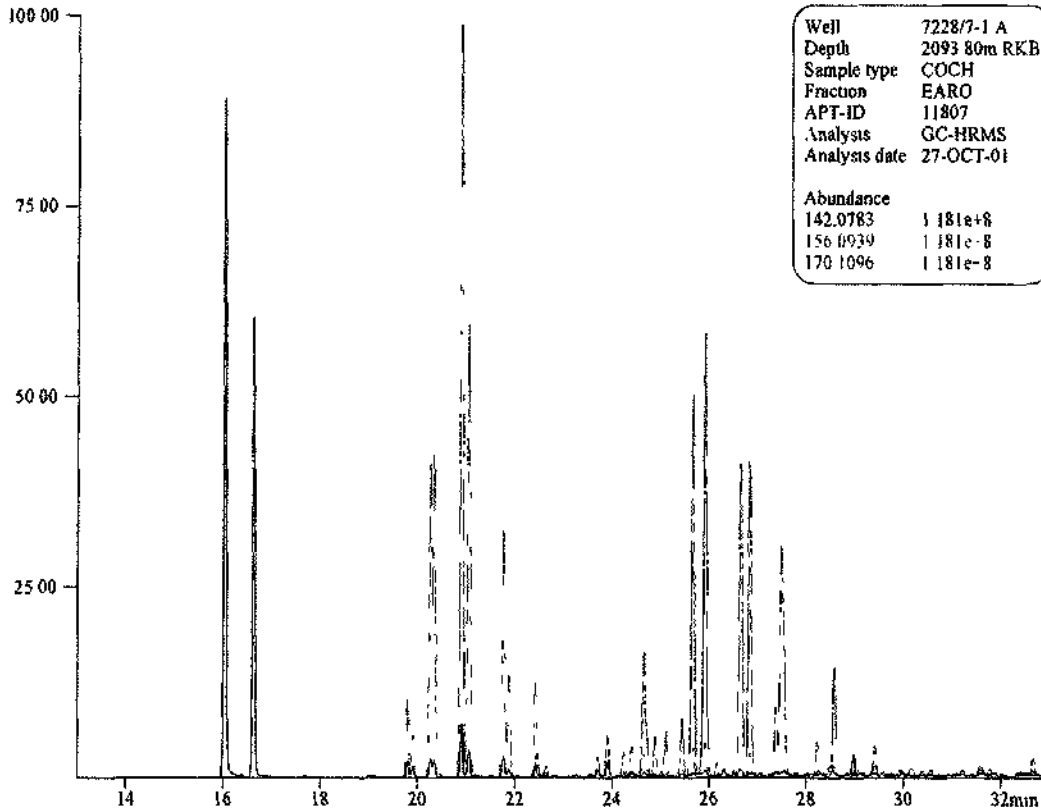
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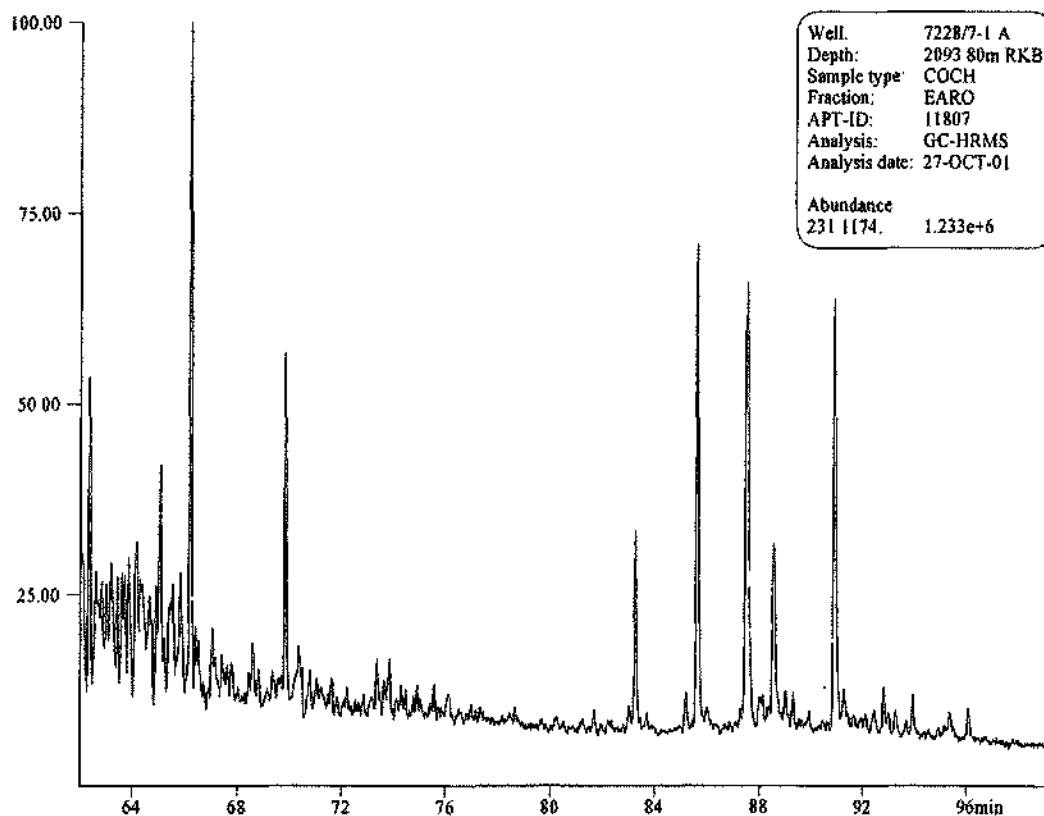
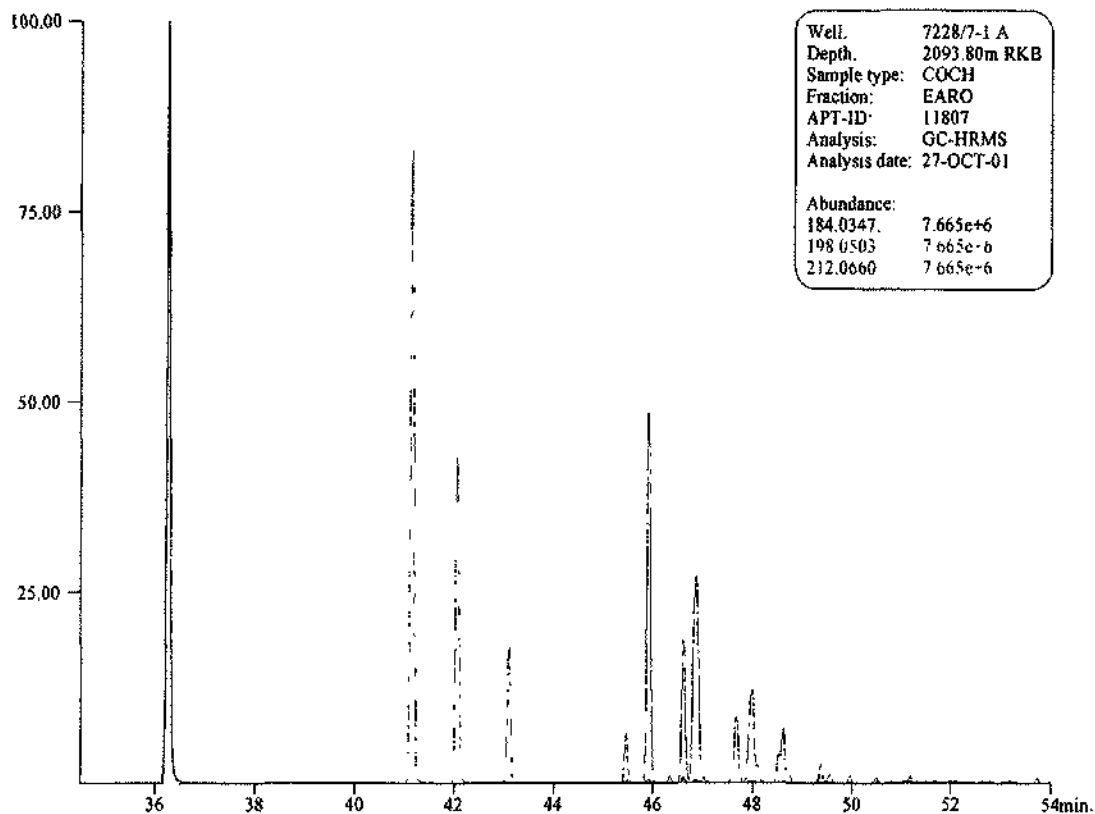
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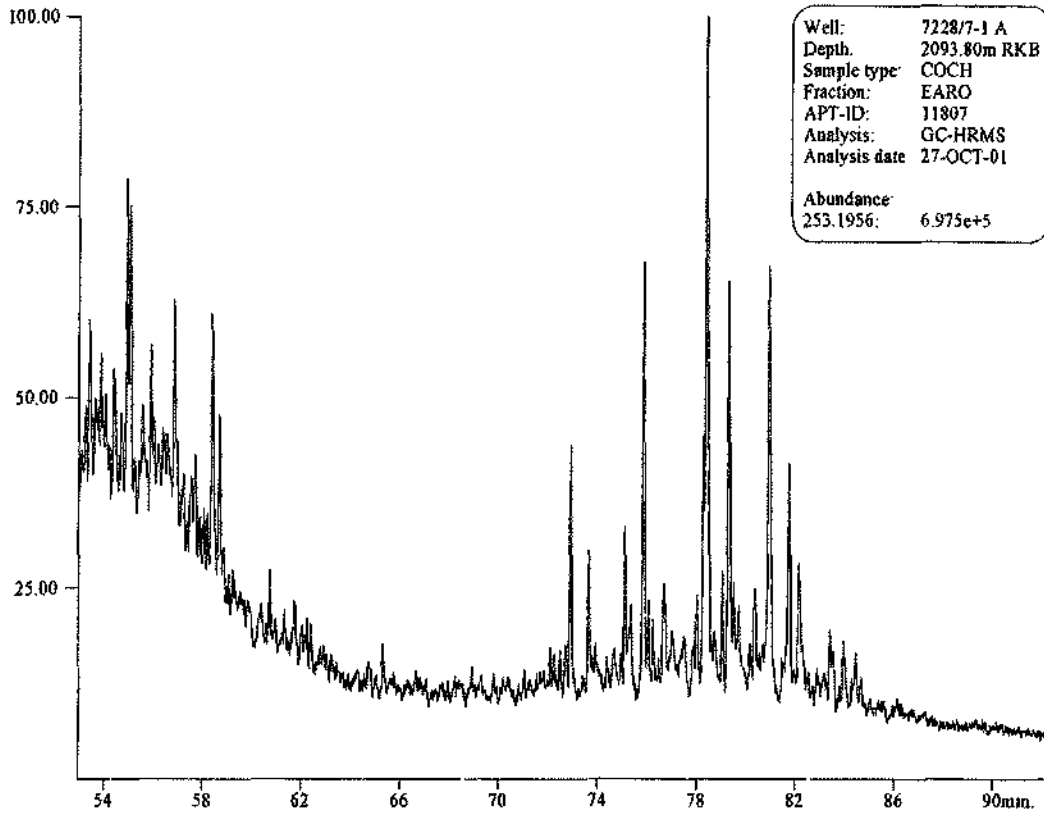






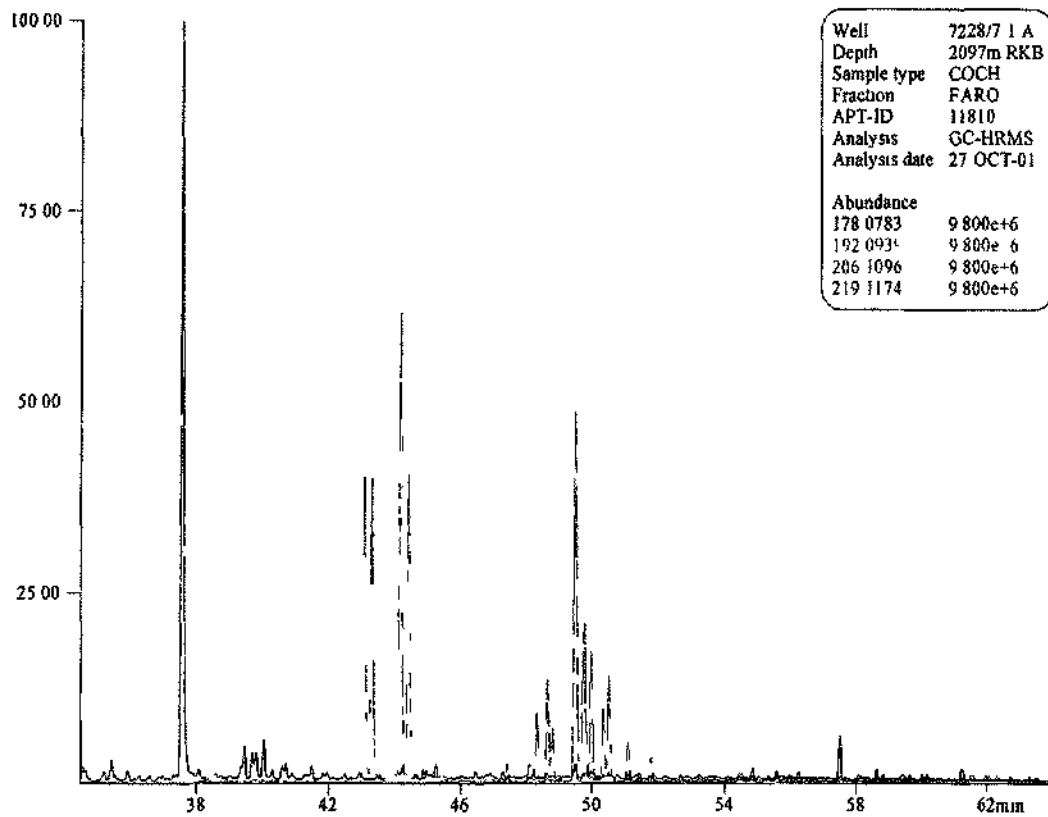
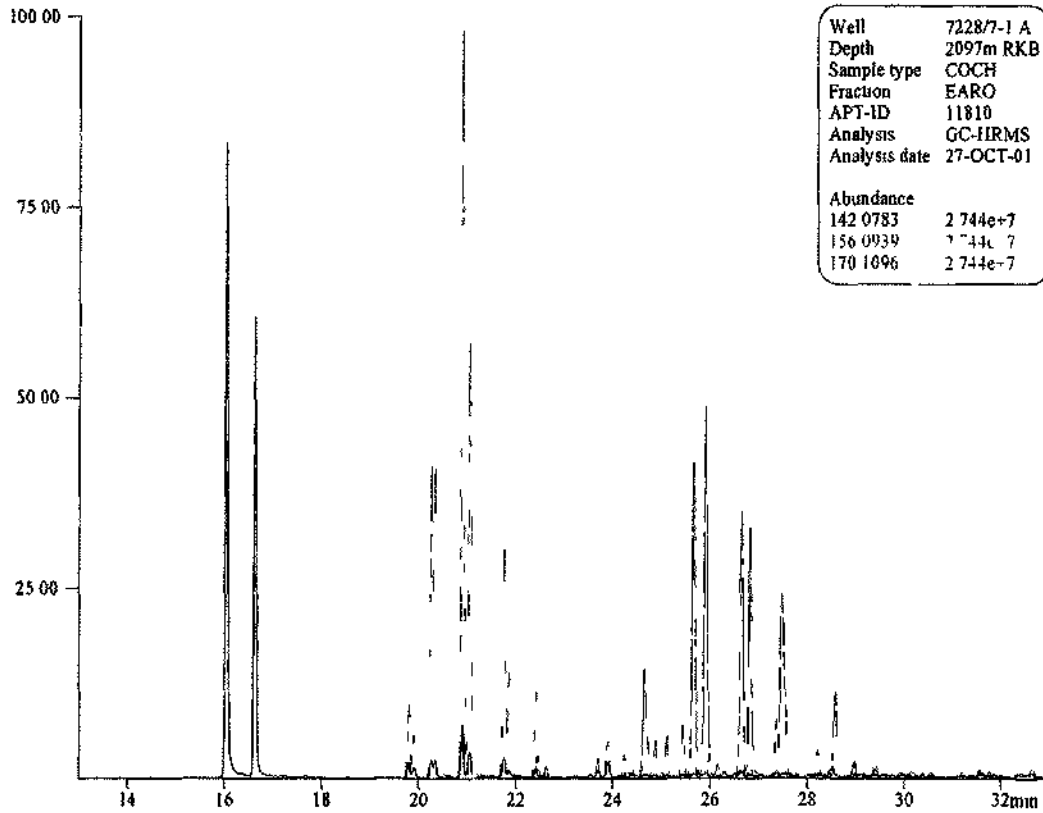
Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3





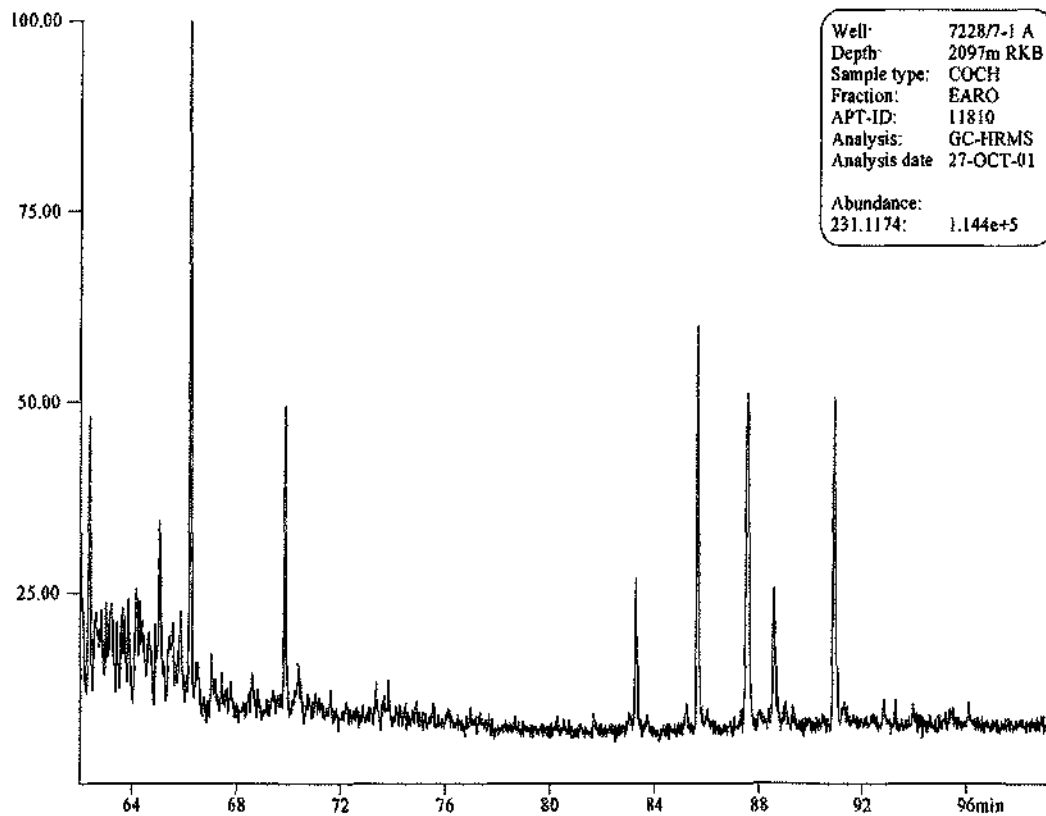
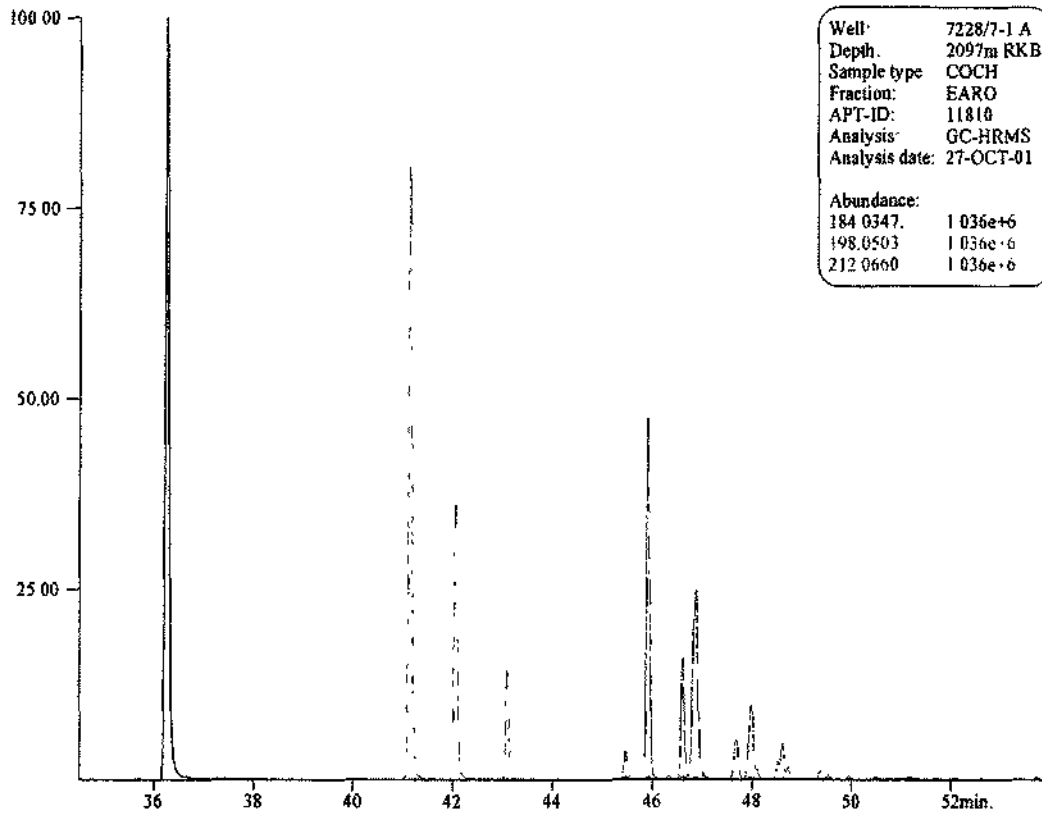


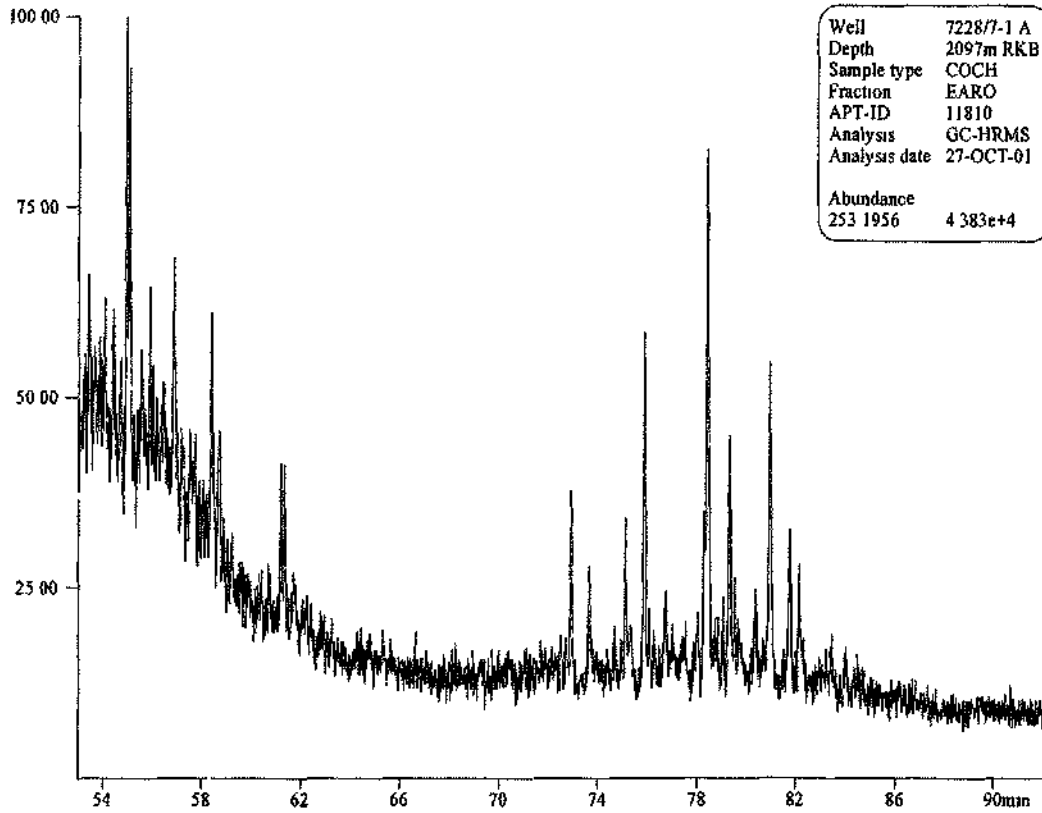
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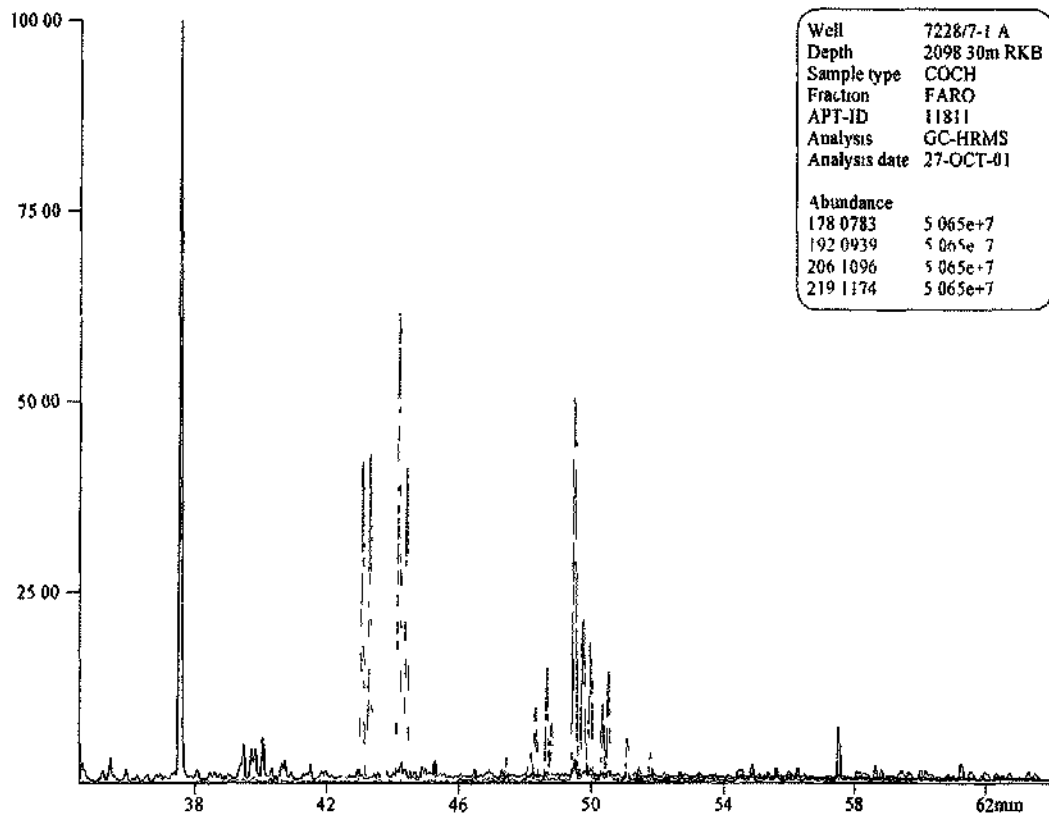
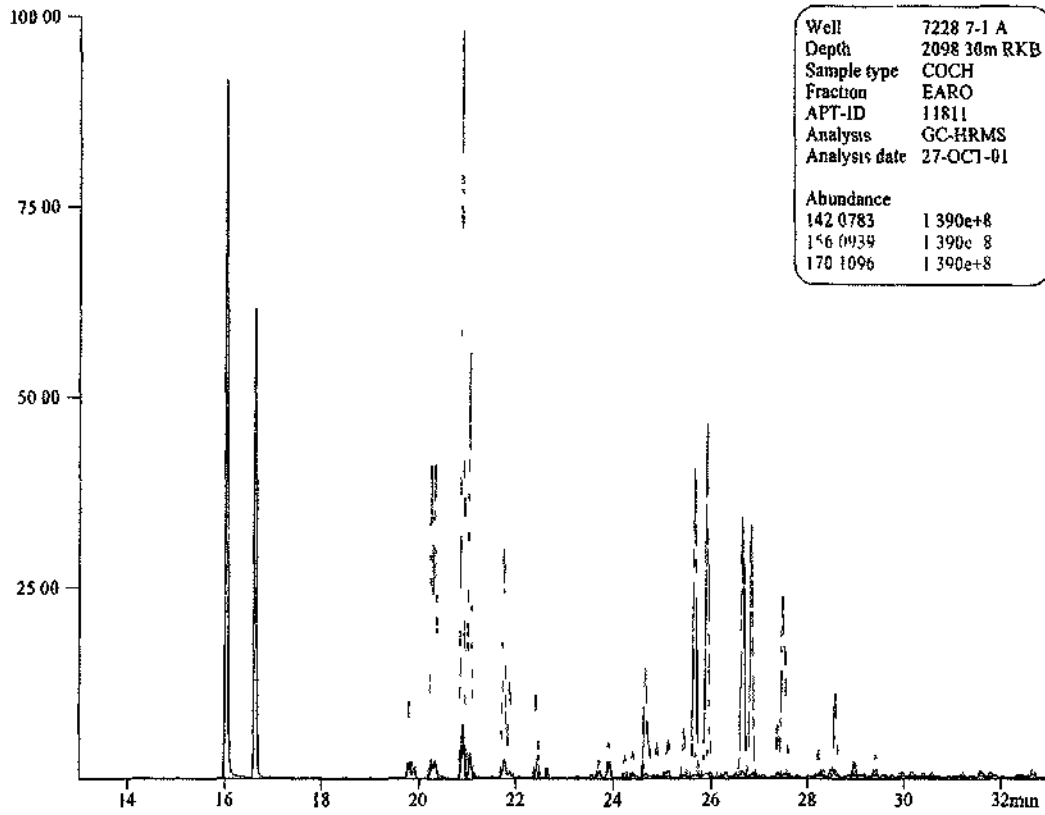
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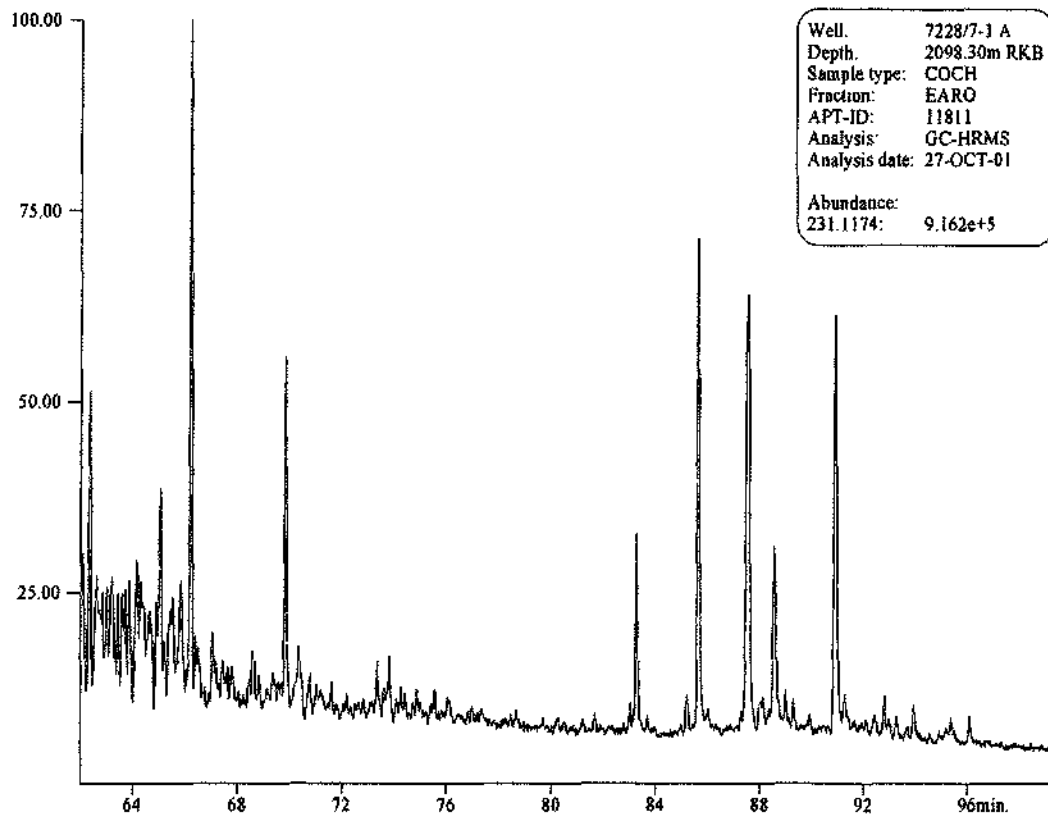
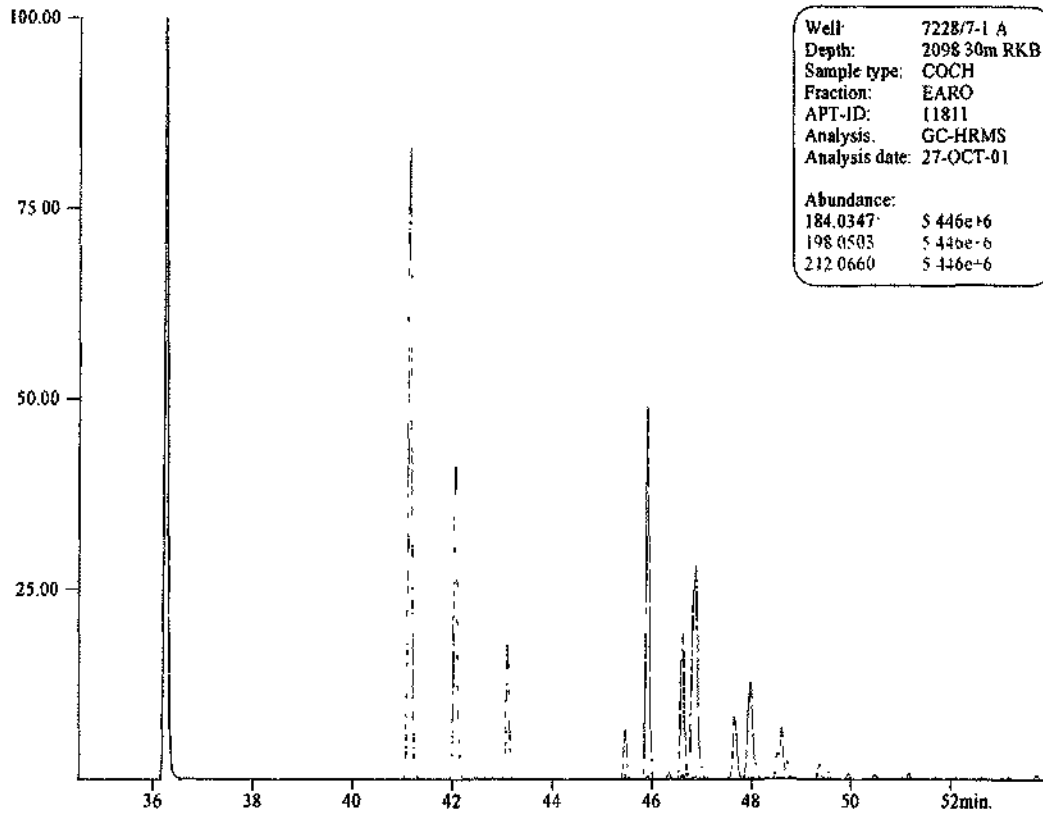


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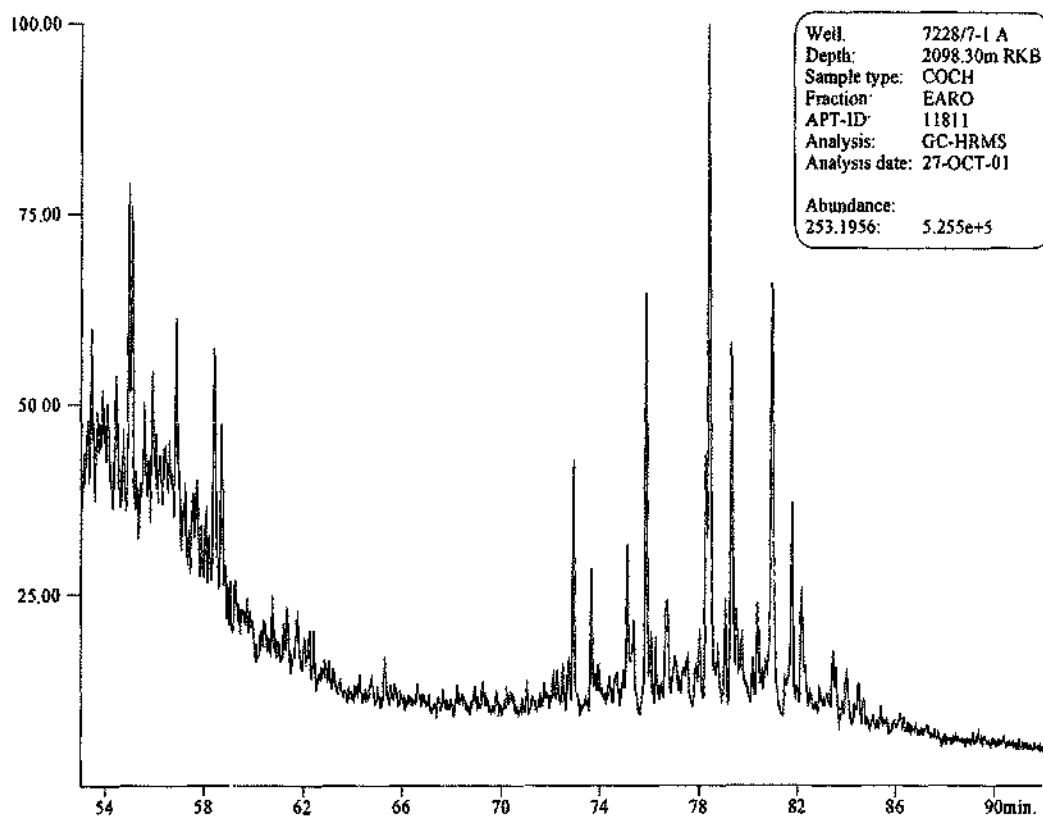


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



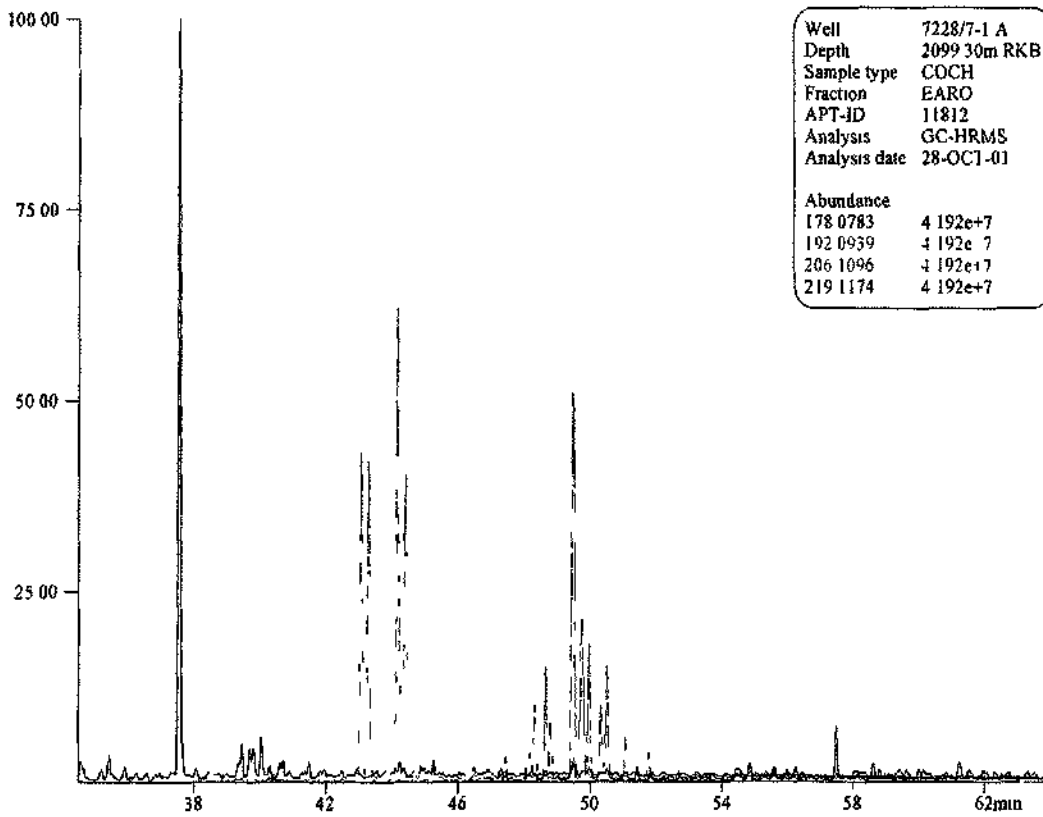
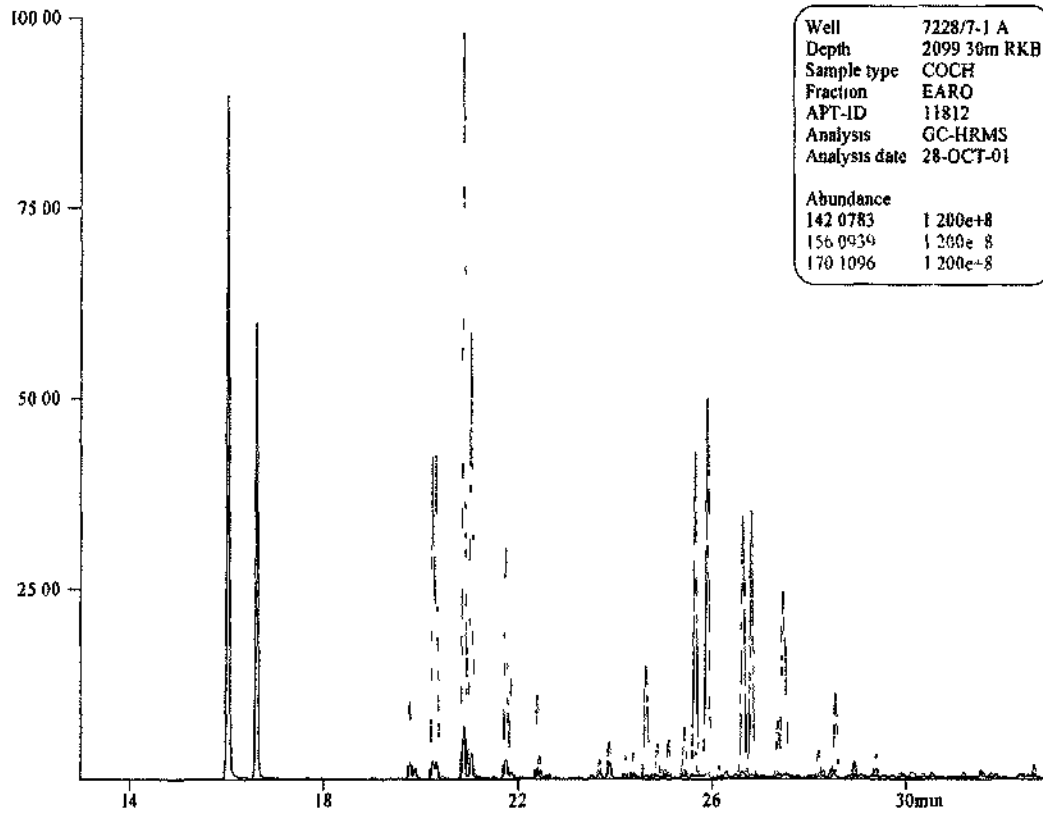


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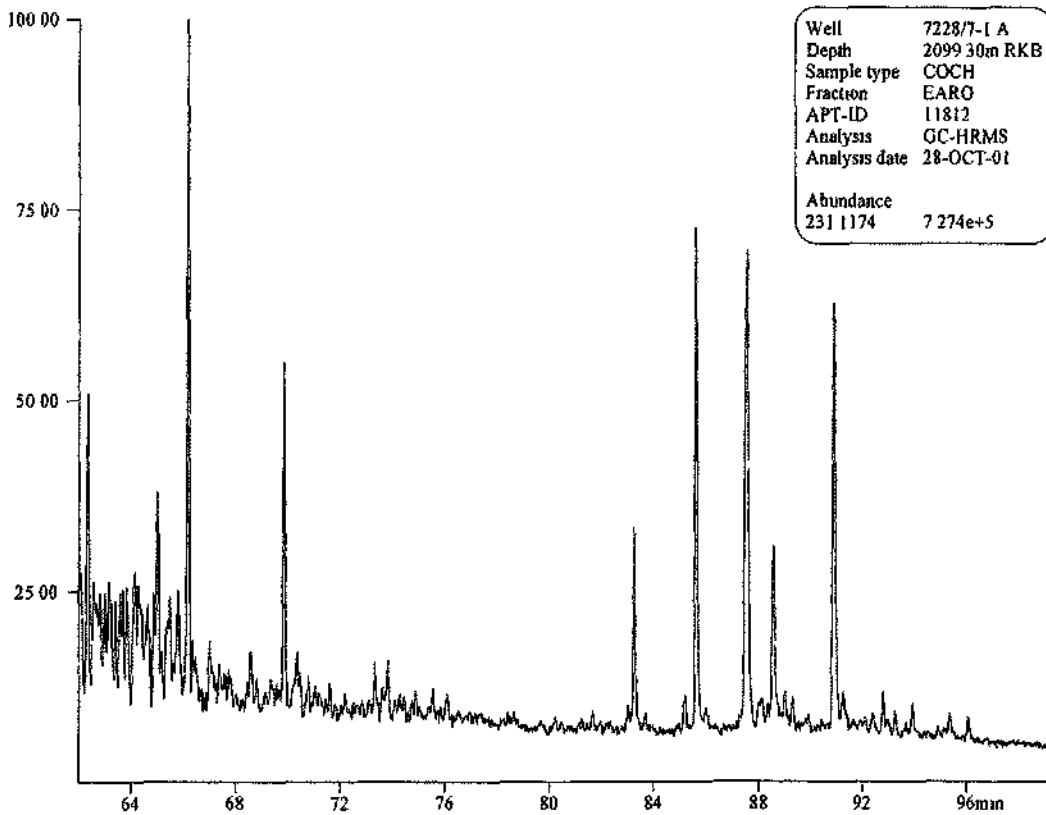
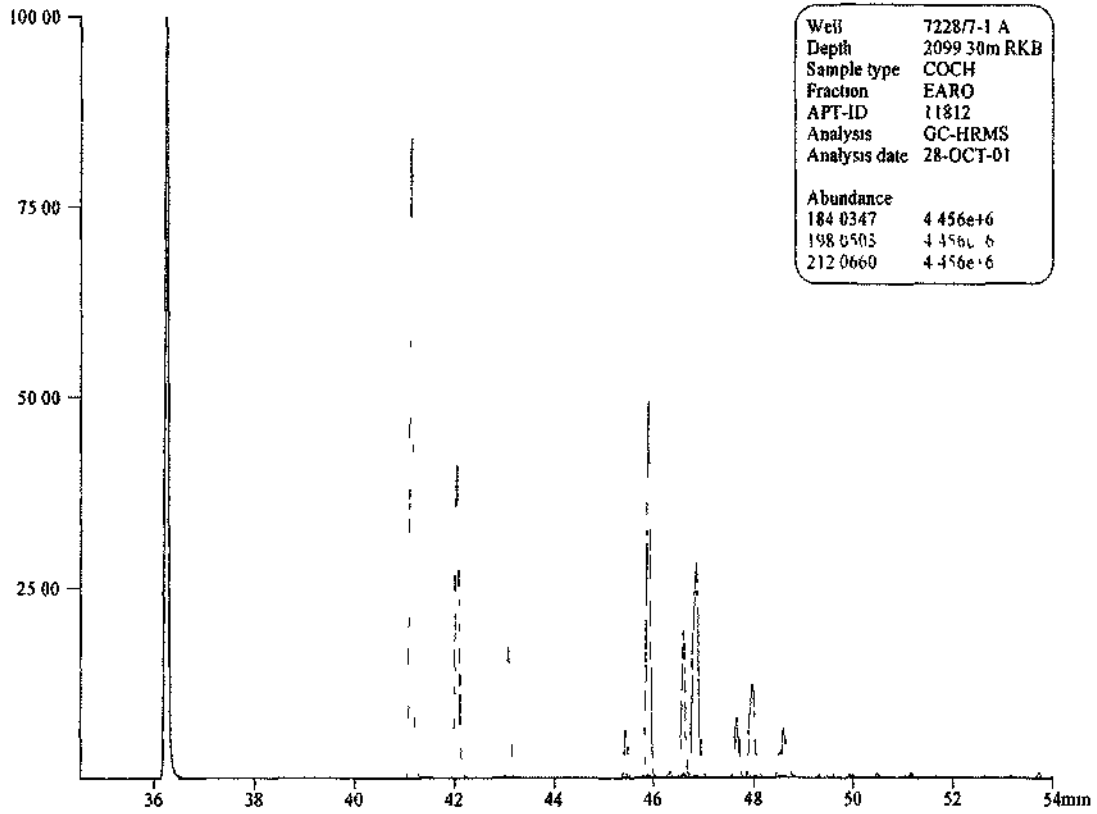


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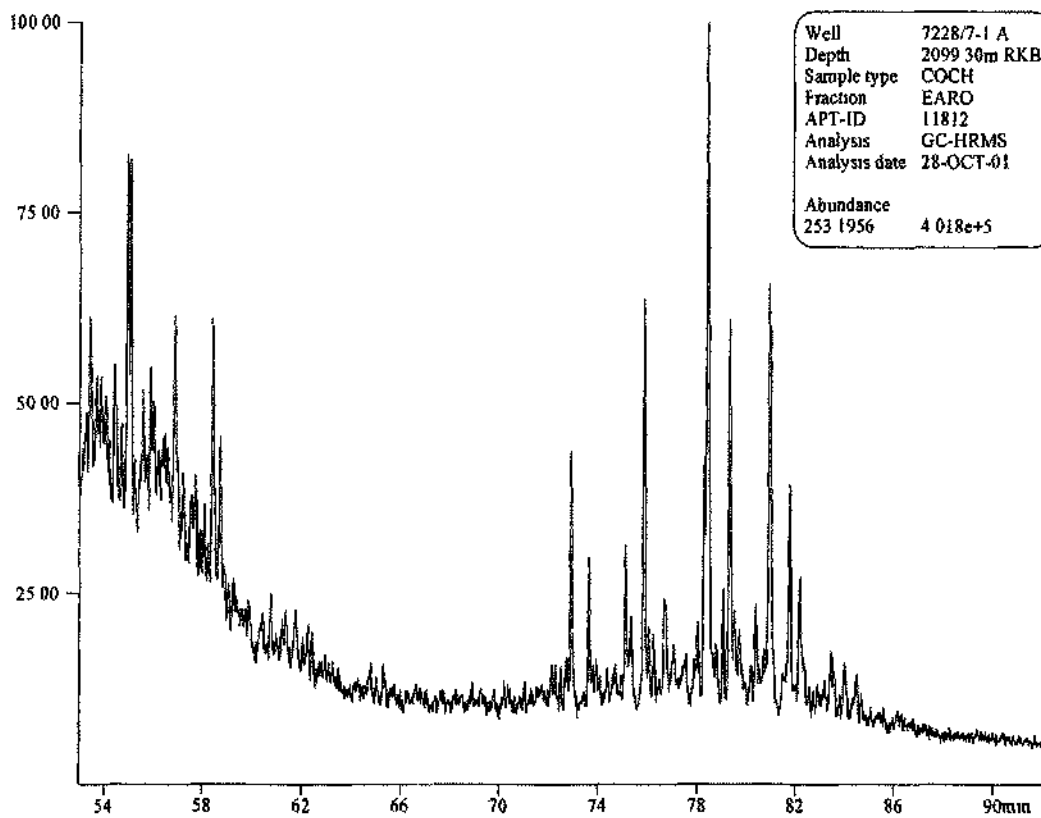


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



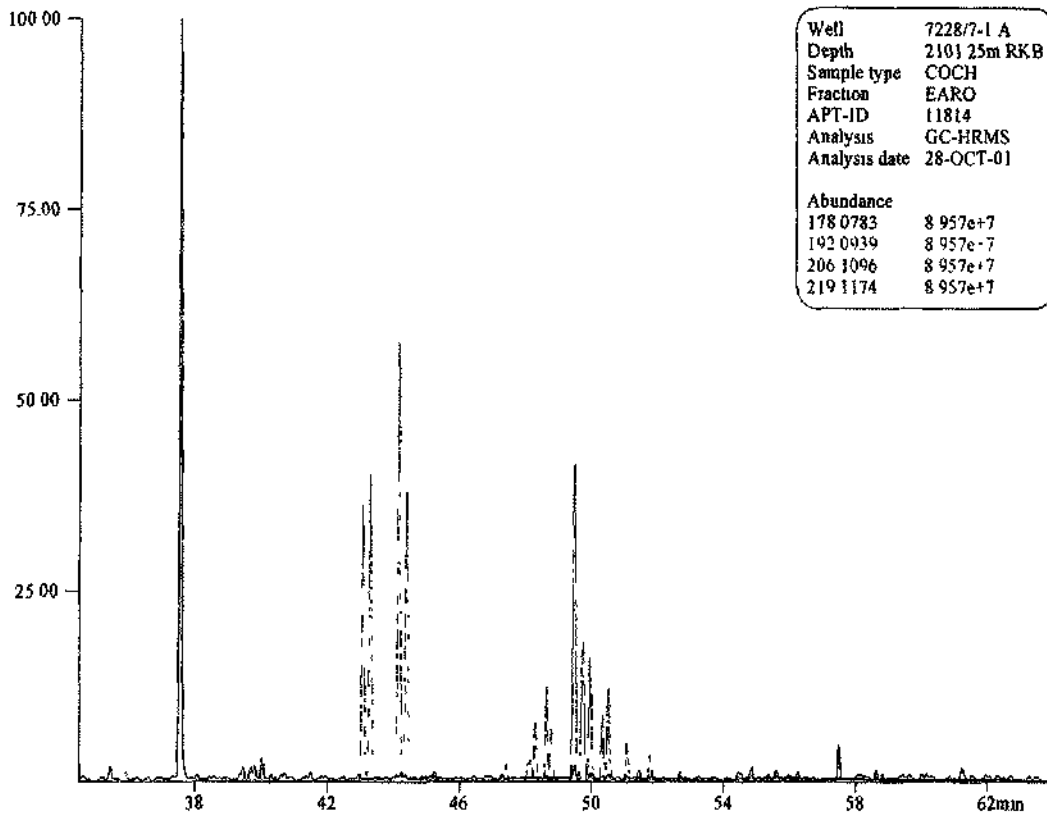
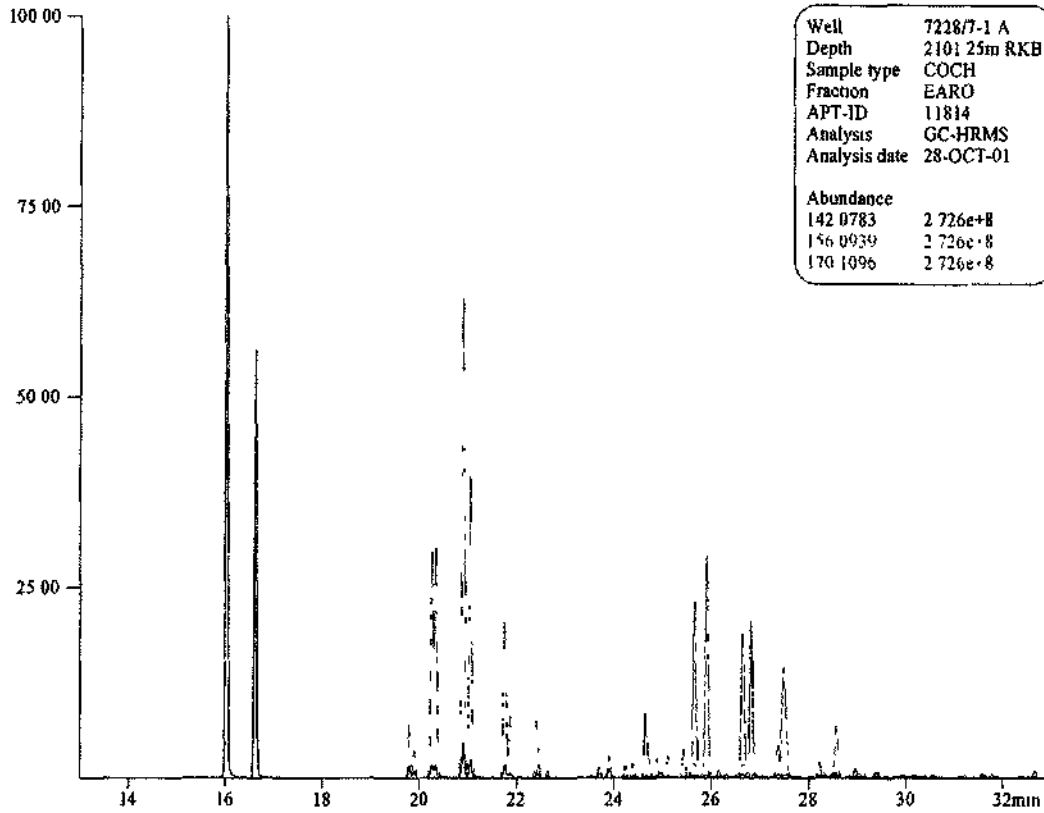


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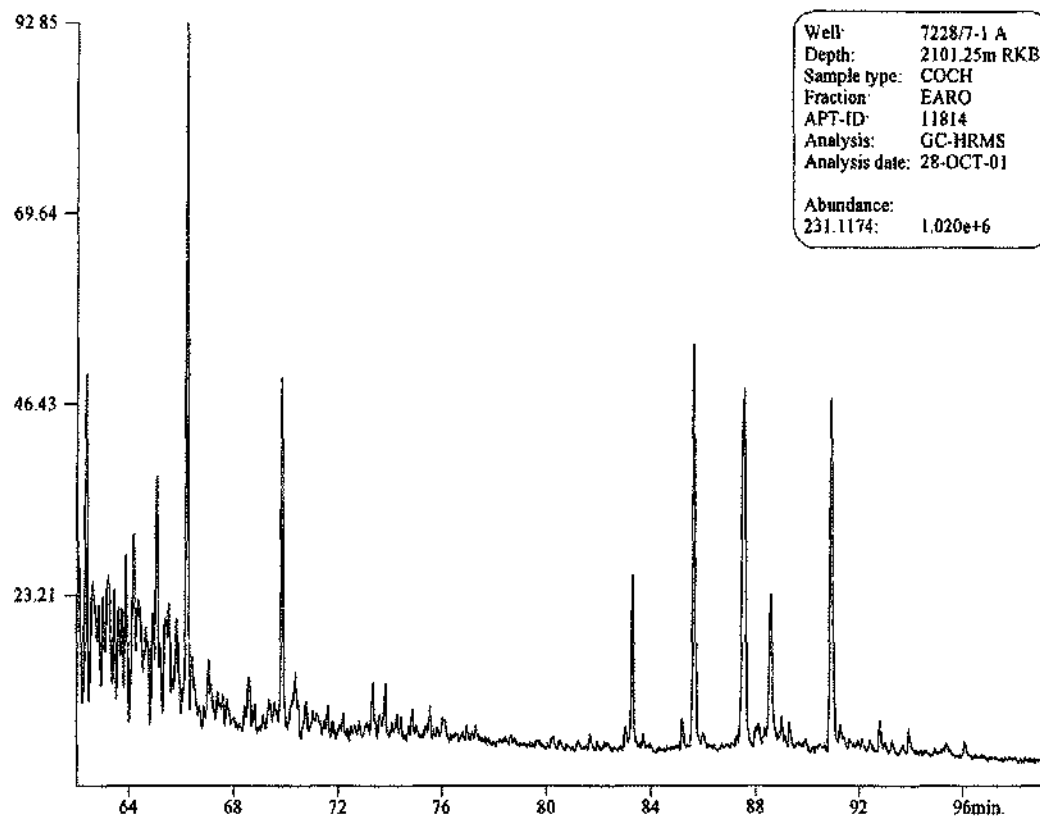
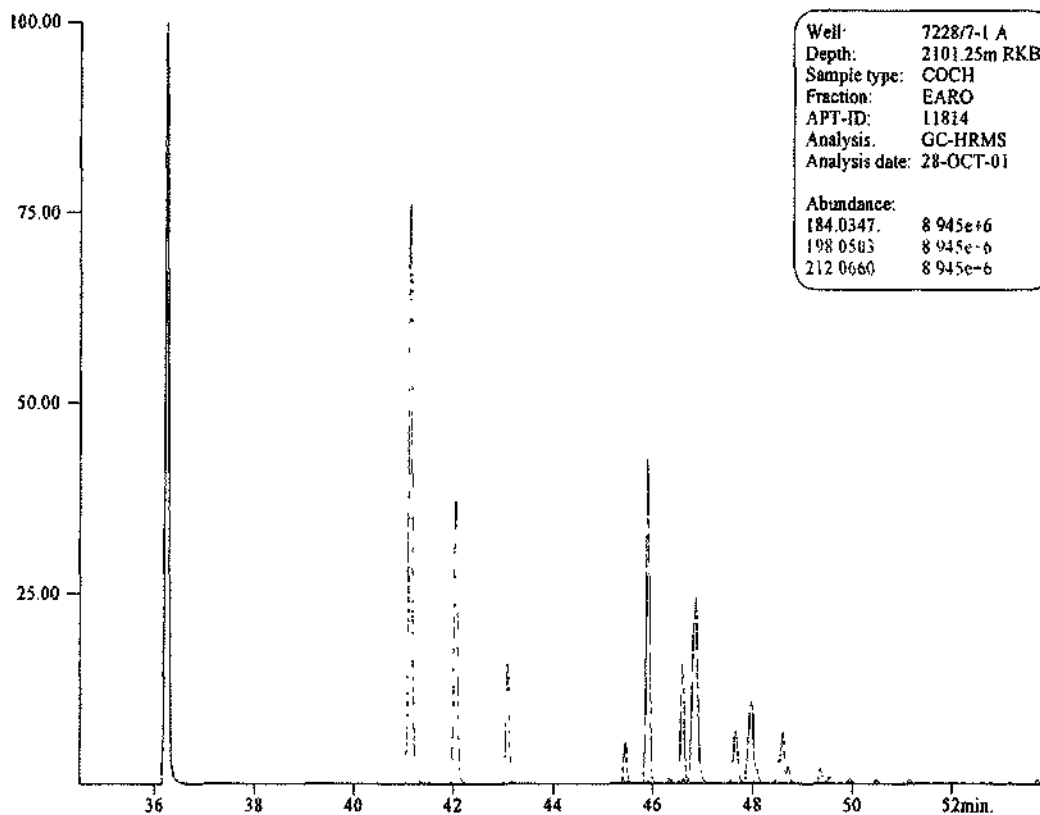


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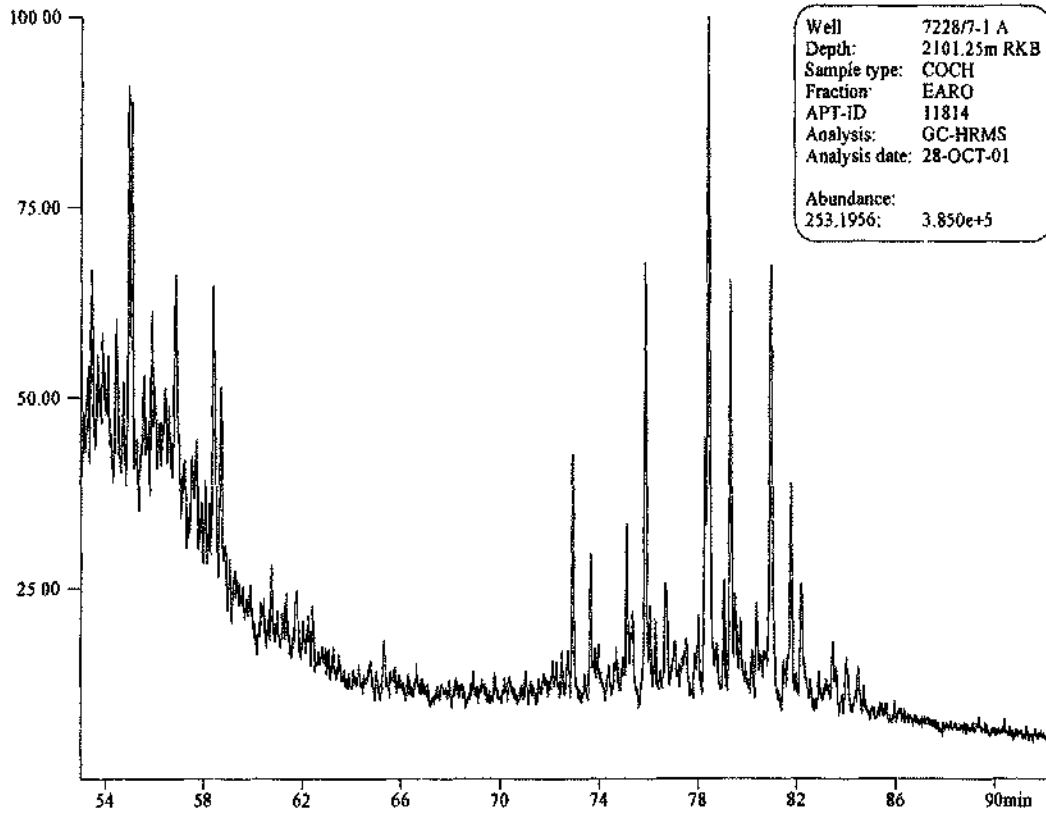


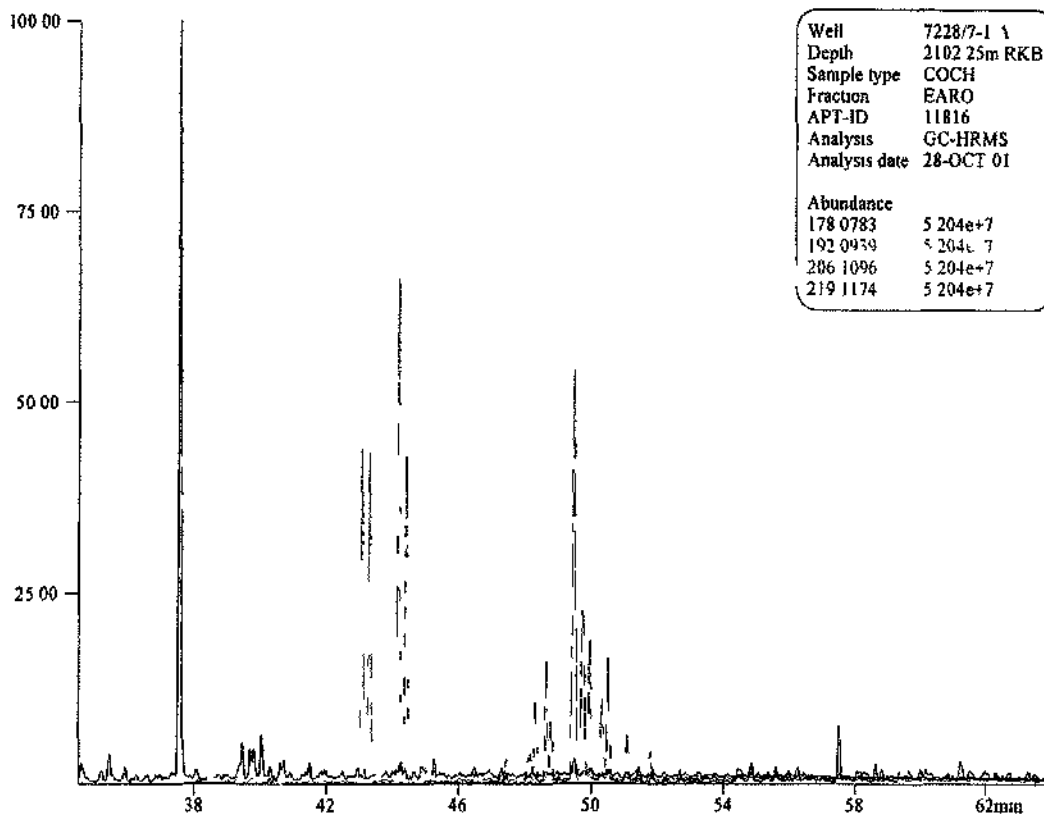
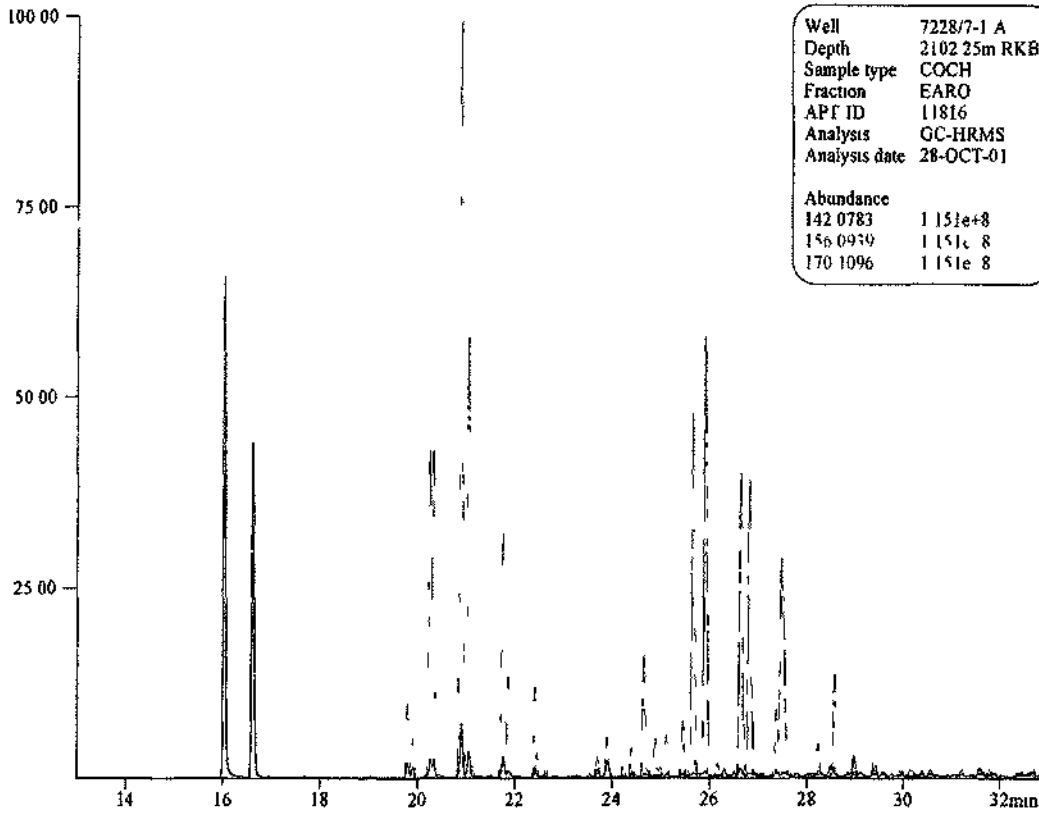
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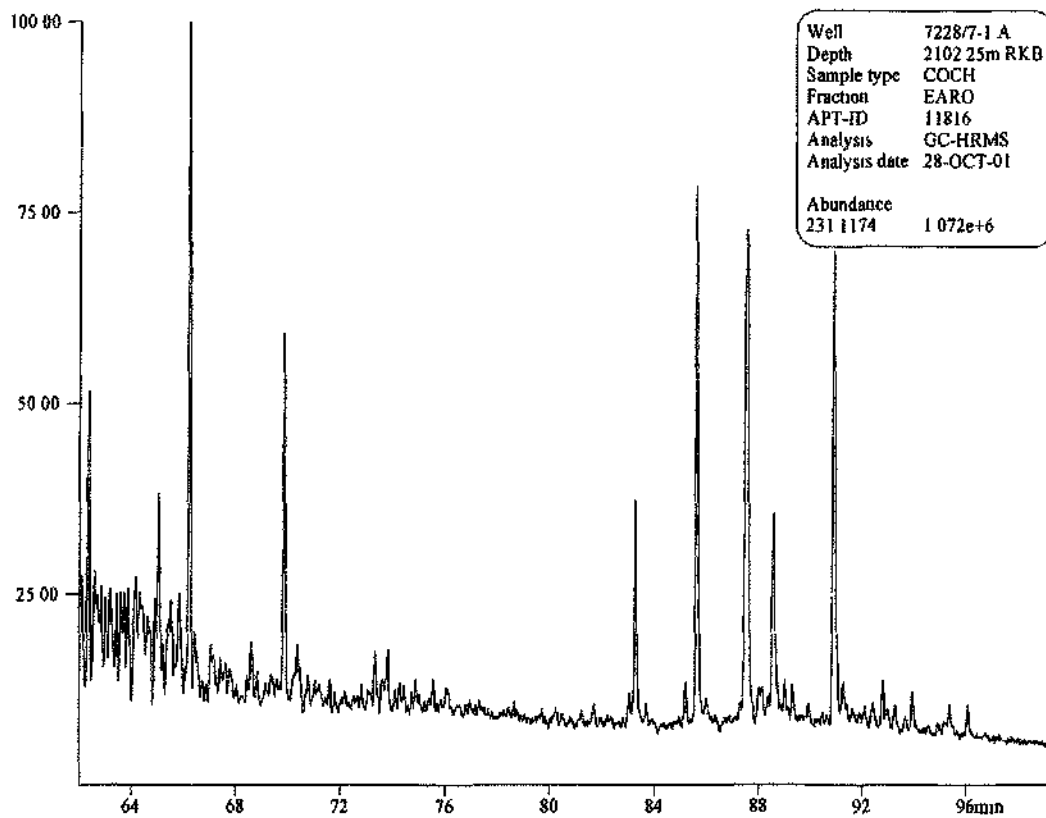
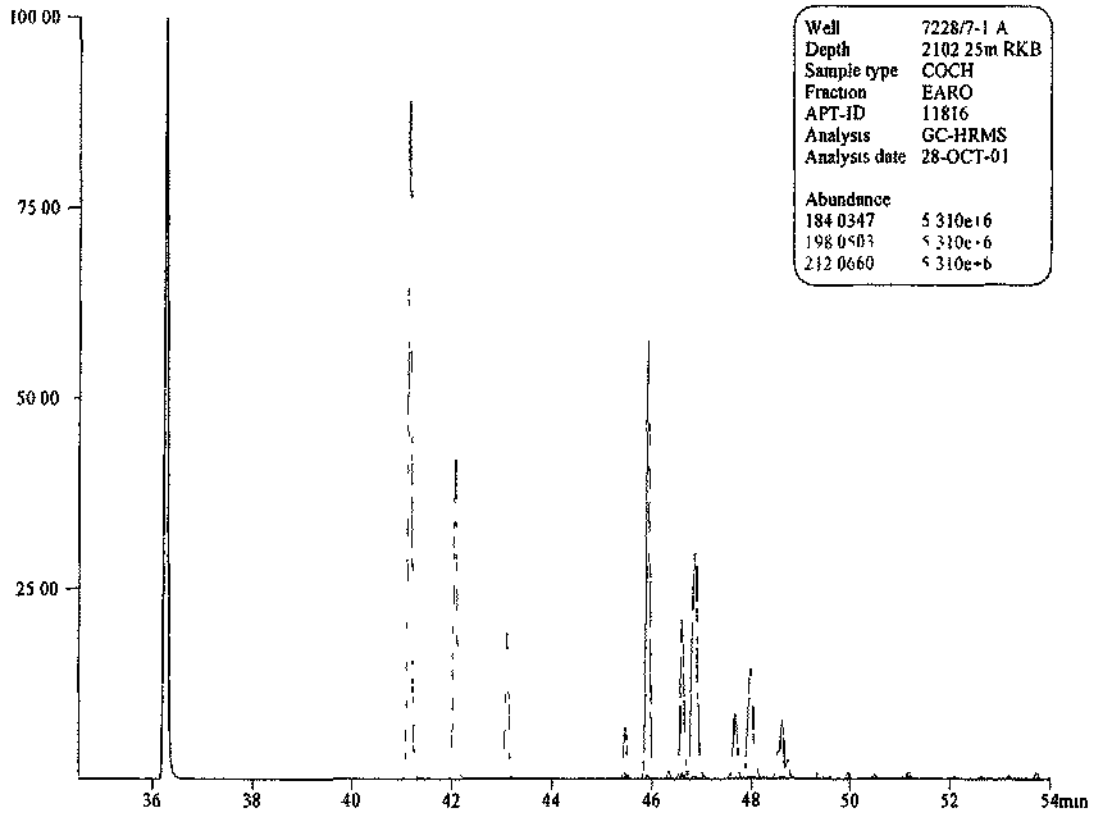
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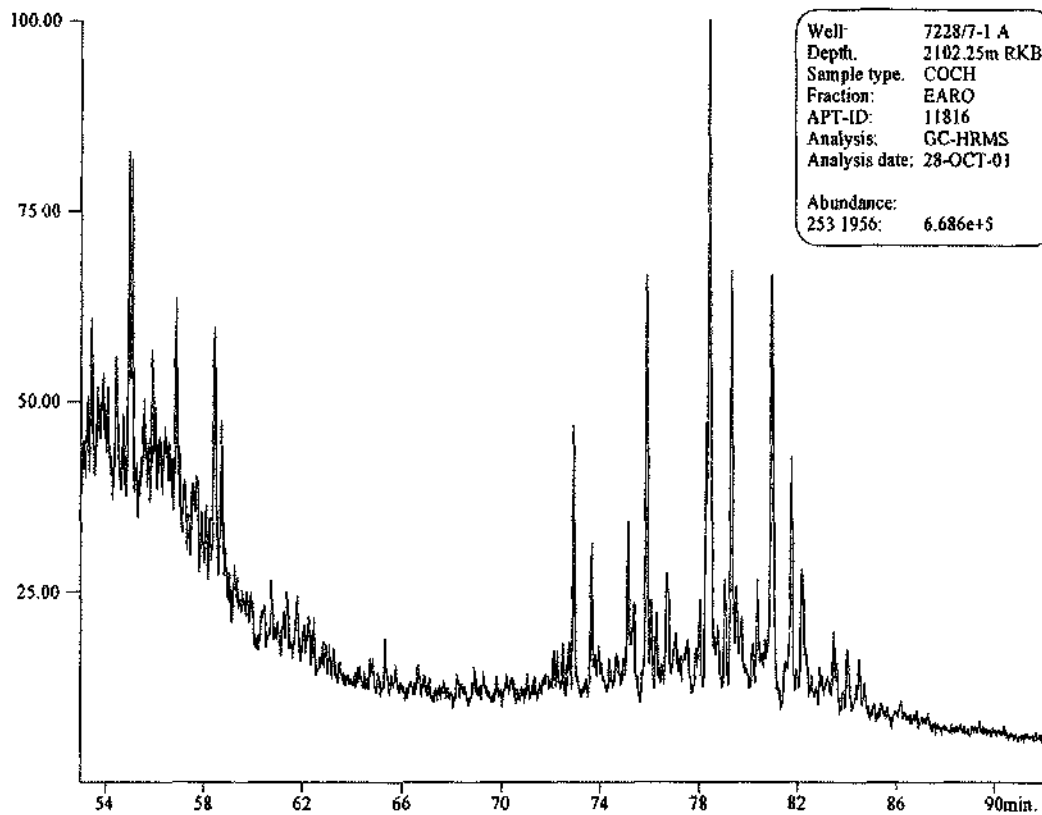


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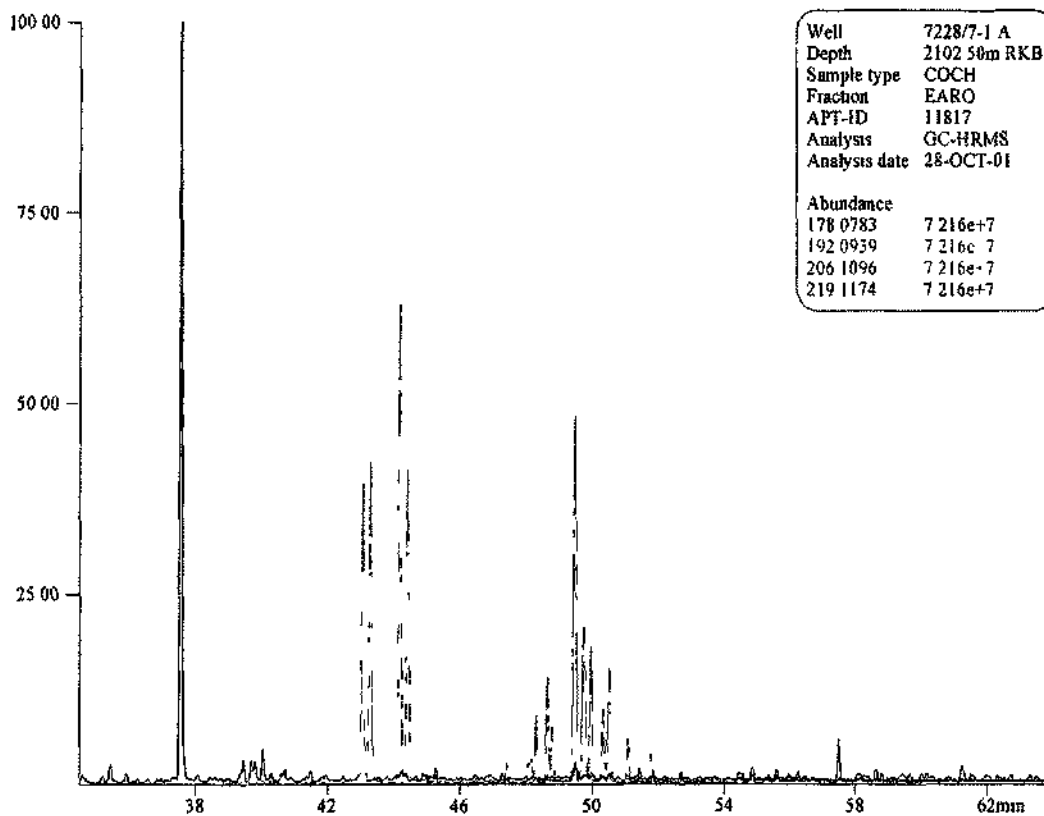
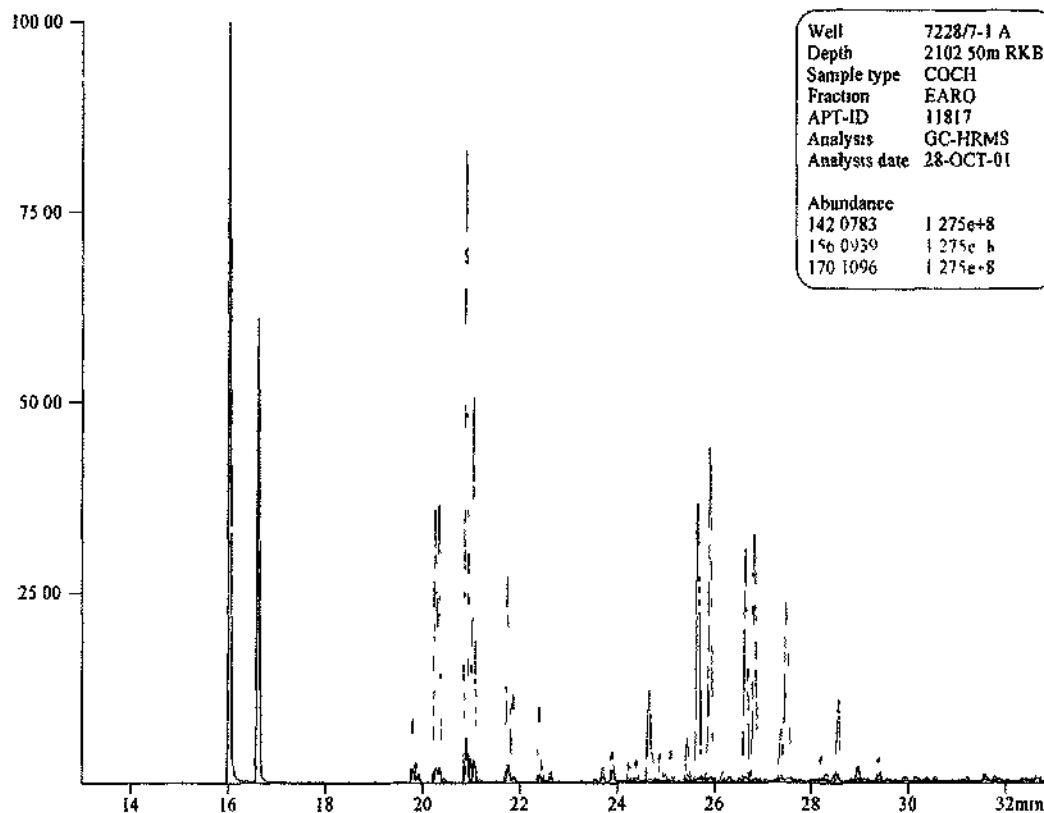


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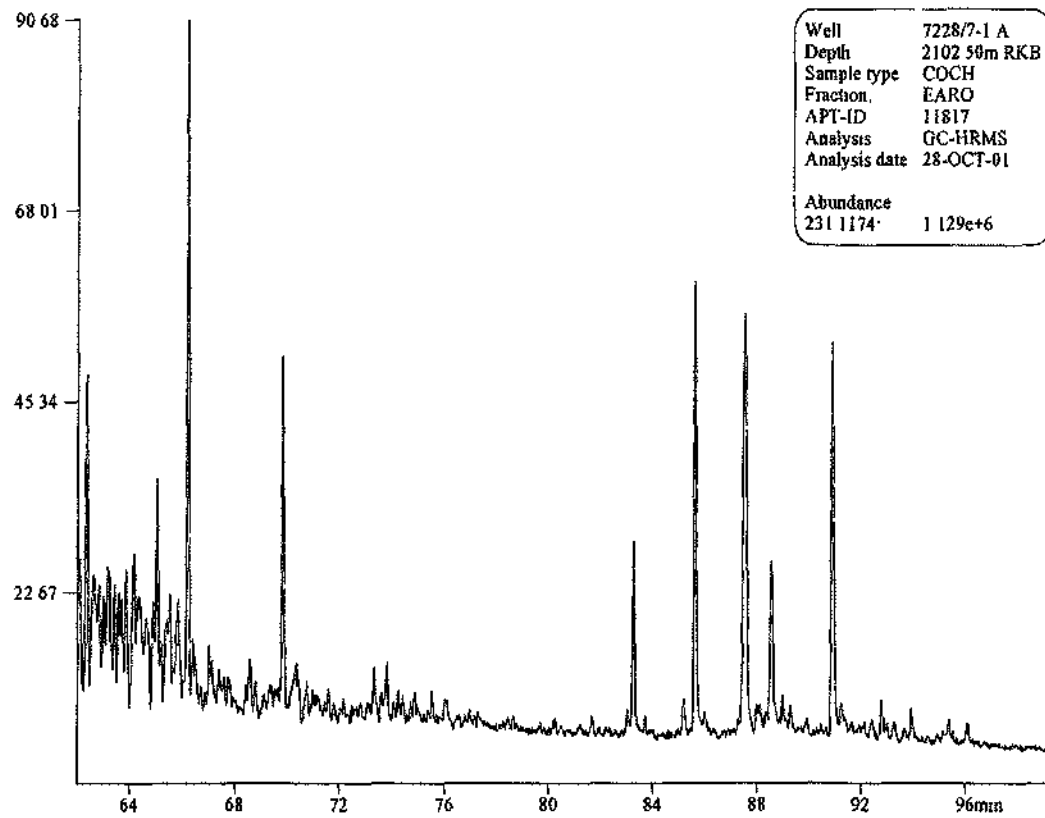
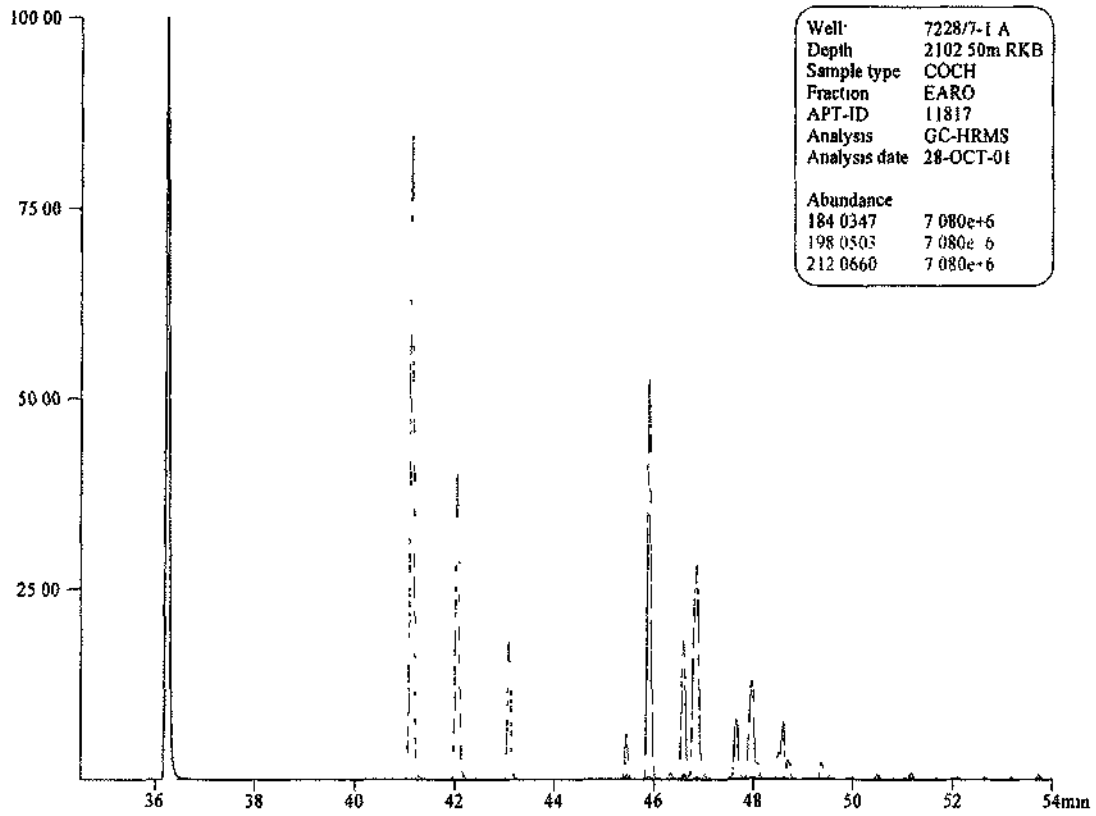


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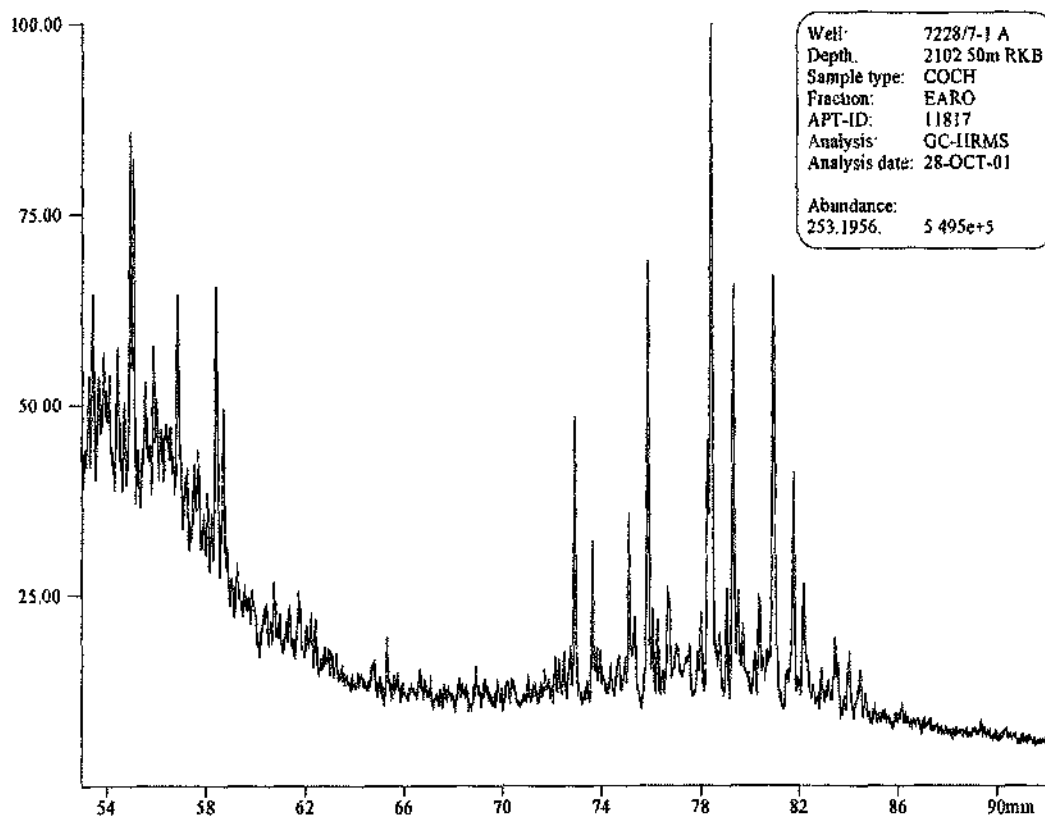


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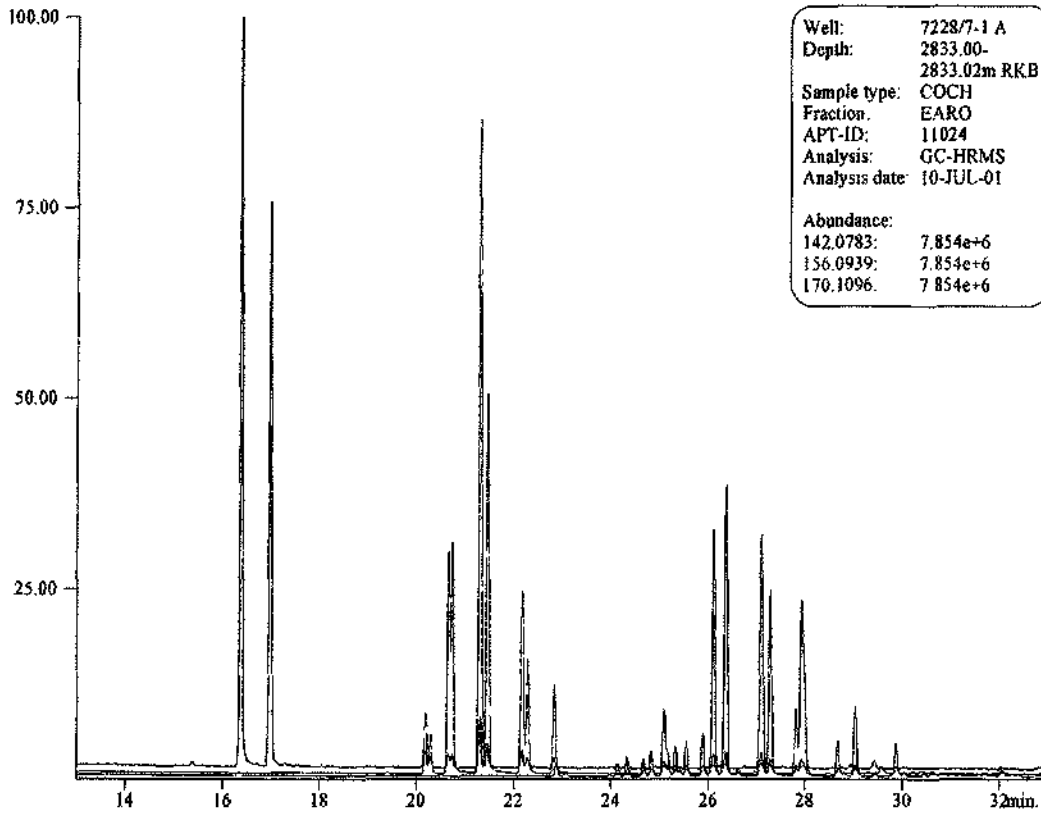


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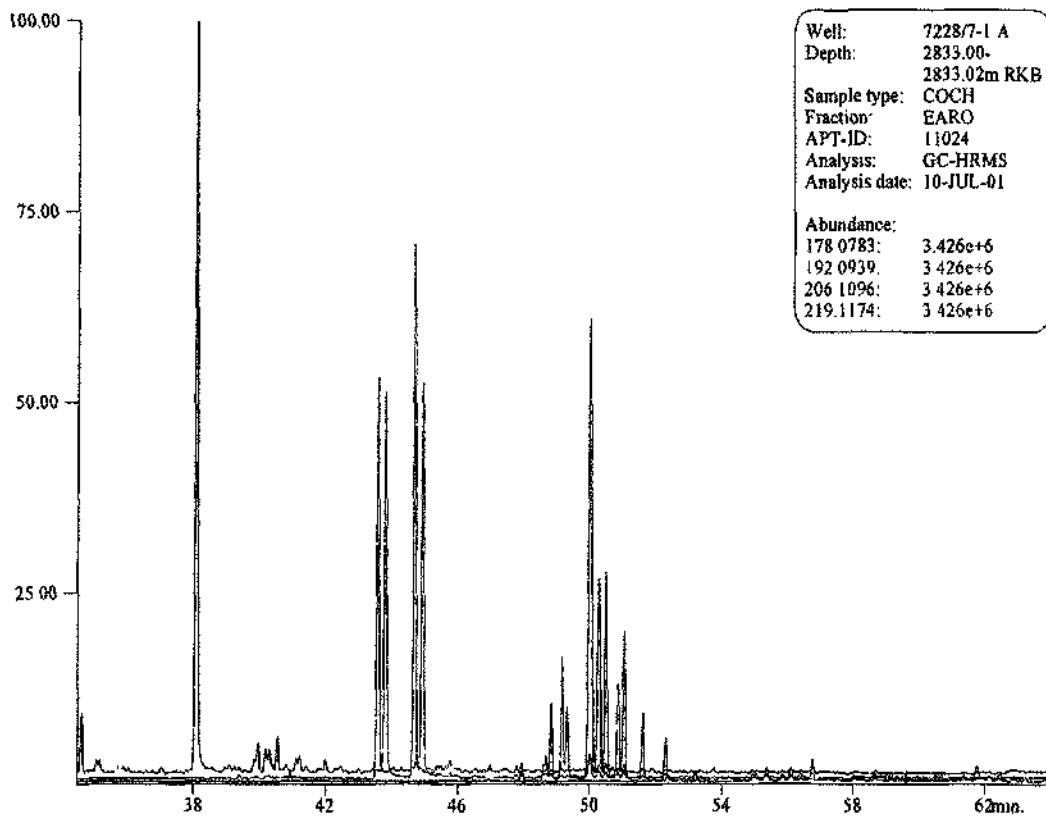


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Well: 7228/7-1 A
Depth: 2833.00-2833.02m RKB
Sample type: COCH
Fraction: EARO
APT-ID: 11024
Analysis: GC-HRMS
Analysis date: 10-JUL-01

Abundance:
142.0783: 7.854e+6
156.0939: 7.854e+6
170.1096: 7.854e+6

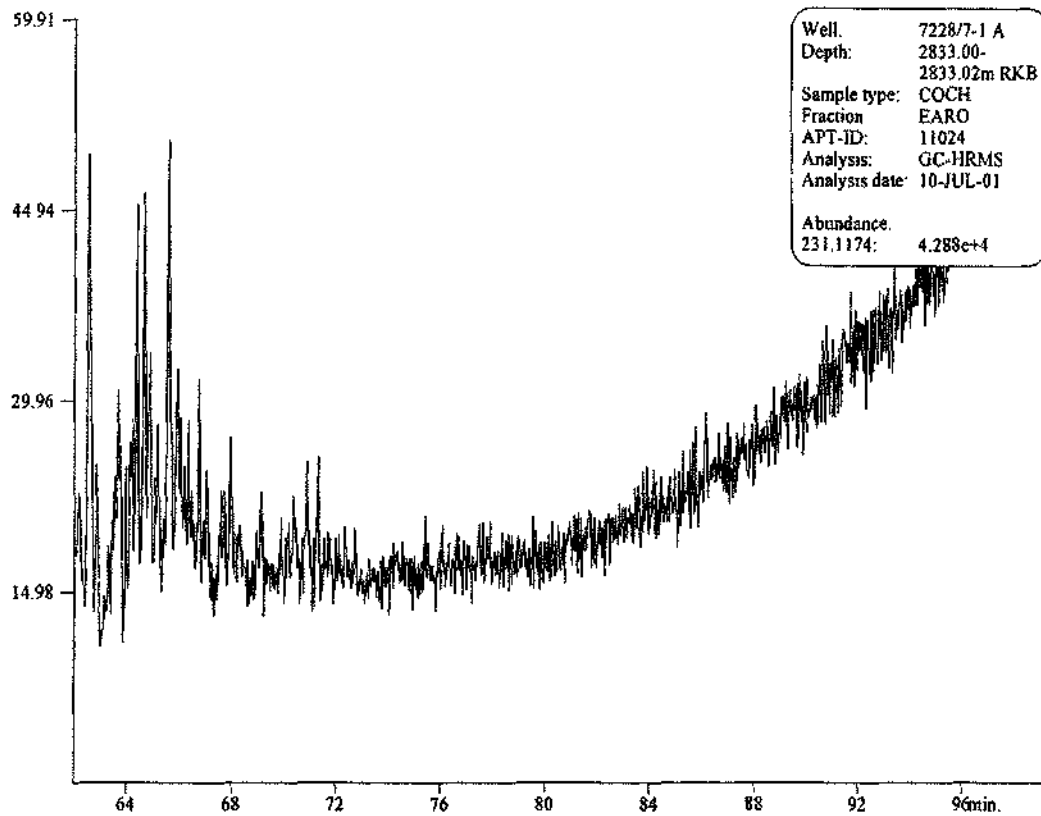
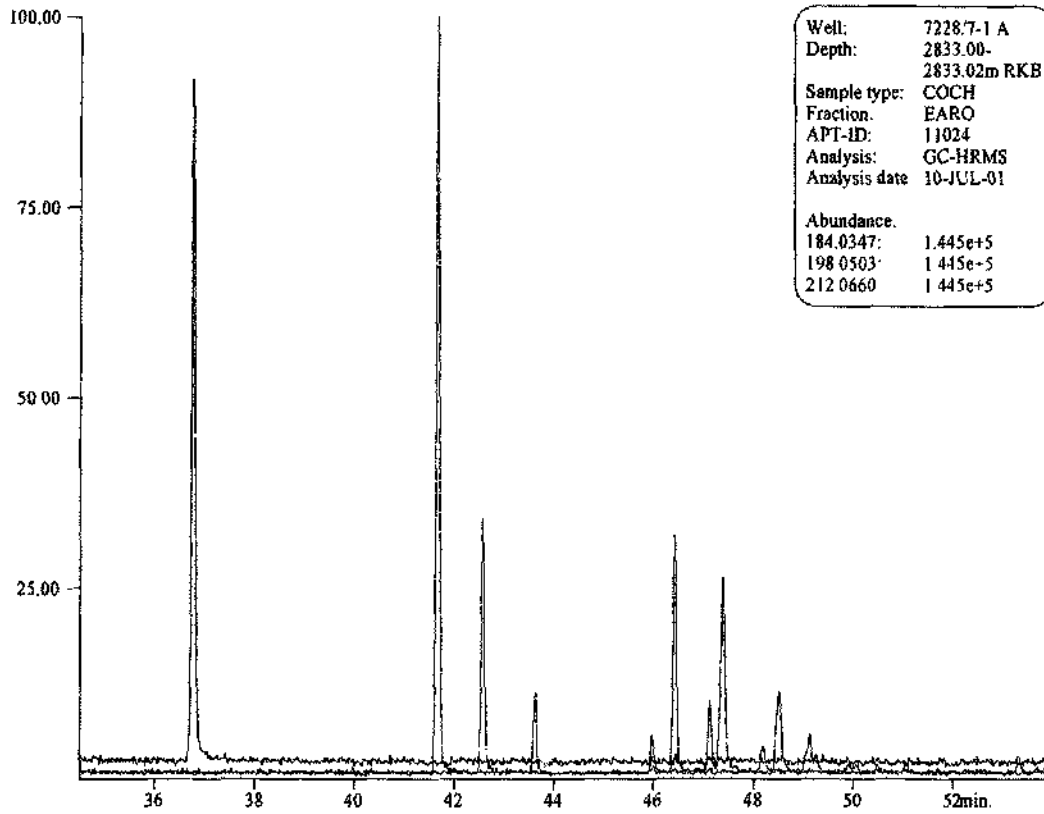


Well: 7228/7-1 A
Depth: 2833.00-2833.02m RKB
Sample type: COCH
Fraction: EARO
APT-ID: 11024
Analysis: GC-HRMS
Analysis date: 10-JUL-01

Abundance:
178.0783: 3.426e+6
192.0939: 3.426e+6
206.1096: 3.426e+6
219.1174: 3.426e+6

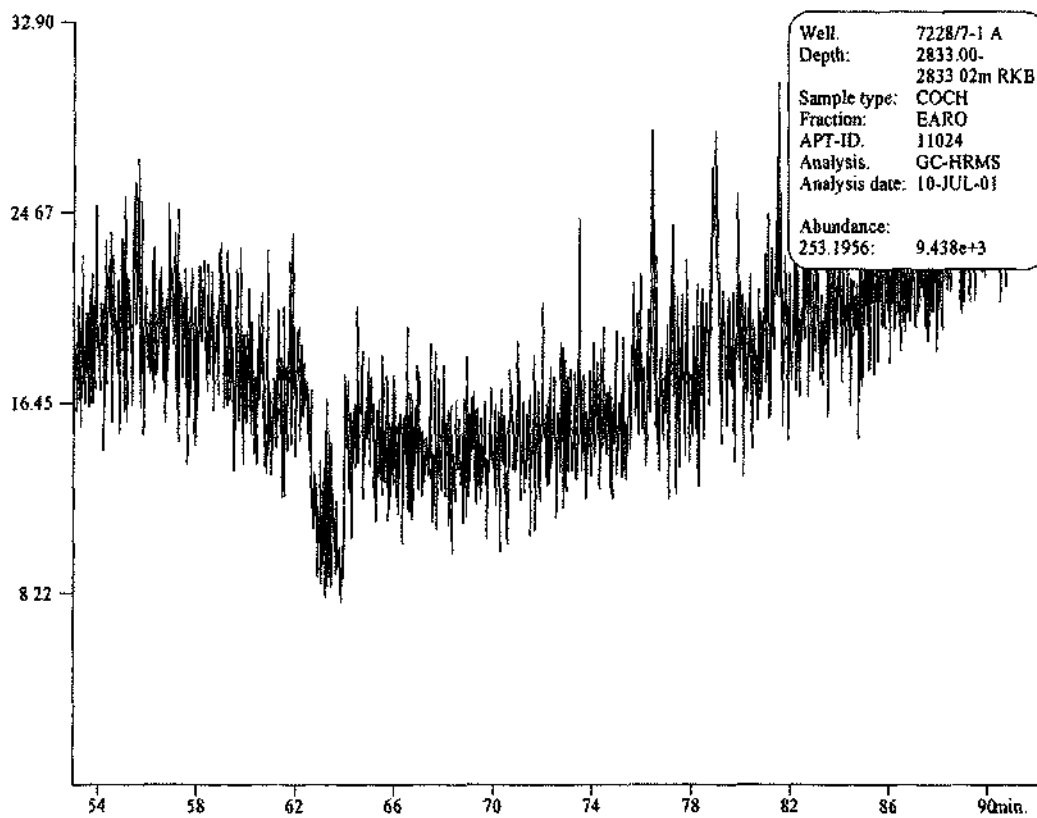


Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3





Petroleum Geochemistry Data Report - Reservoir Study 7228/7-1 A, 7228/7-1 B and 7228/7-1 ST3



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.