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GEOCHEMICAL ANALYSIS REPORT

WELL NOCS 2/9-3

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INTRODUCTION

Geochemical analyses were performed on material (cuttings and side-wall cores) from well NOCS 2/9-3. The analyses were performed according to a program set up in agreement with AMOCO. Twenty-one rock samples were described from 3849 m to 4565 m. The analytical program was as follows:

Rock-Eval with TOC analyses	19 samples
GHM-analyses (Simultaneous thermal extraction and pyrolysis GC)	11 samples
Extraction, separation and asphaltene precipitation, saturated and aromatic GC	6 samples
Vitrinite reflectance microscopy	19 samples
Visual kerogen microscopy	8 samples

Tables listing in detail the samples analysed and the results are located in Appendix 1. Reflectance histograms are found in Appendix 2. Thermal extraction chromatograms and pyrograms from the GHM analysis are found in Appendix 3. Saturated and aromatic gas chromatograms are found in Appendix 4.

In an attempt to make the report more concise, it is written shorter and with more emphasis on figures and tables than is usual.

Table 1 : Lithology description for well NOCS 2/9-3

Depth unit of measure: m

Depth	Type			Trb	Sample
Int	Cvd	TOC%	% Lithology description		
3849.00					0001
	cvd		50 Sh/Clst: blk, calc		0001-1L
	cvd		30 Sh/Clst: lt gy to ol gy, calc		0001-2L
			10 Ca : w to lt gy		0001-3L
			10 Cont : prp		0001-4L
3855.00					0002
	cvd		70 Sh/Clst: blk, calc		0002-1L
	cvd		20 Sh/Clst: lt gy to ol gy, calc		0002-2L
			5 Ca : w to lt gy		0002-3L
			5 Cont : prp		0002-4L
3861.00					0003
	cvd	2.07	70 Sh/Clst: blk, calc		0003-1L
	cvd		20 Sh/Clst: lt gy to ol gy, calc		0003-2L
			5 Ca : w to lt gy		0003-3L
			5 Cont : prp		0003-4L
			tr Sh/Clst: red brn		0003-5L
3870.00					0004
	cvd	2.01	90 Sh/Clst: blk, calc		0004-1L
	cvd		10 Sh/Clst: lt gy to ol gy, calc		0004-2L
			tr Ca : w to lt gy		0004-3L
			tr Cont : prp		0004-4L
3873.00					0005
	cvd	1.93	90 Sh/Clst: blk, calc		0005-1L
			10 Sh/Clst: lt gy to ol gy, calc		0005-2L

Table 1 : Lithology description for well NOCS 2/9-3

Depth unit of measure: m

Depth	Type			Trb	Sample
Int	Cvd	TOC%	%	Lithology description	
3897.00					0007
		2.03	90	Sh/Clst: blk	0007-1L
			10	S/Sst : w	0007-2L
				tr Cont : prp	0007-3L
3955.00	swc				0014
		1.35	100	Ca : brn blk, cly, dol	0014-1L
4002.00					0008
		2.04	100	Sh/Clst: blk	0008-1L
				tr Cont : prp	0008-2L
4070.00	swc				0015
		1.43	100	Sltst : brn blk, calc, cly	0015-1L
4101.00					0009
		2.01	100	Sh/Clst: blk	0009-1L
				tr Cont : prp	0009-2L
4125.00	swc				0016
		3.12	100	Sh/Clst: blk, calc	0016-1L
4200.00					0010
		2.11	100	Sh/Clst: blk	0010-1L
				tr Cont : prp	0010-2L

Table 1 : Lithology description for well NOCS 2/9-3

Depth unit of measure: m

Depth	Type			Trb	Sample
Int Cvd	TOC%	%	Lithology description		
4299.00					0011
	2.69	100	Sh/Clst: blk tr Cont : prp		0011-1L 0011-2L
4395.00	swc				0017
	0.73	100	Sh/Clst: blk, calc		0017-1L
4401.00					0012
	2.64	100	Sh/Clst: blk tr Cont : prp		0012-1L 0012-2L
4420.00	swc				0018
	2.67	100	Sh/Clst: blk, calc		0018-1L
4455.00					0006
	2.81	100	Sh/Clst: blk tr Cont : prp		0006-1L 0006-2L
4460.00	swc				0019
	1.64	100	Sh/Clst: blk, calc		0019-1L
4500.00					0013
	2.16	100	Sh/Clst: blk tr Cont : prp		0013-1L 0013-2L

Table 1 : Lithology description for well NOCS 2/9-3

Depth unit of measure: m

Depth	Type				Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4510.00	swc					0020
		1.13	100	Sh/Clst: blk, calc		0020-1L
4565.00	swc					0021
		1.32	100	Sh/Clst: blk, calc		0021-1L

Table 2 : Rock-Eval table for well NOCS 2/9-3

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
3861.00	cut	Sh/Clst: blk	0.62	7.41	0.49	15.12	2.07	358	24	8.0	0.08	445	0003-1L
3870.00	cut	Sh/Clst: blk	0.58	5.80	0.79	7.34	2.01	289	39	6.4	0.09	443	0004-1L
3873.00	cut	Sh/Clst: blk	0.56	6.14	0.56	10.96	1.93	318	29	6.7	0.08	445	0005-1L
3897.00	cut	Sh/Clst: blk	0.74	7.62	0.43	17.72	2.03	375	21	8.4	0.09	441	0007-1L
3955.00	swc	Ca : brn blk	0.33	2.17	0.65	3.34	1.35	161	48	2.5	0.13	445	0014-1L
4002.00	cut	Sh/Clst: blk	0.86	6.80	0.28	24.29	2.04	333	14	7.7	0.11	441	0008-1L
4070.00	swc	Sltst : brn blk	0.80	2.18	1.01	2.16	1.43	152	71	3.0	0.27	442	0015-1L
4101.00	cut	Sh/Clst: blk	0.80	7.00	0.39	17.95	2.01	348	19	7.8	0.10	443	0009-1L
4125.00	swc	Sh/Clst: blk	1.85	9.57	0.36	26.58	3.12	307	12	11.4	0.16	447	0016-1L
4200.00	cut	Sh/Clst: blk	0.82	7.02	0.26	27.00	2.11	333	12	7.8	0.10	444	0010-1L
4299.00	cut	Sh/Clst: blk	1.36	11.49	0.62	18.53	2.69	427	23	12.8	0.11	444	0011-1L
4395.00	swc	Sh/Clst: blk	0.21	0.56	0.39	1.44	0.73	77	53	0.8	0.27	450	0017-1L
4401.00	cut	Sh/Clst: blk	1.30	9.37	0.47	19.94	2.64	355	18	10.7	0.12	446	0012-1L
4420.00	swc	Sh/Clst: blk	1.74	5.22	0.46	11.35	2.67	196	17	7.0	0.25	454	0018-1L
4455.00	cut	Sh/Clst: blk	1.59	11.55	0.42	27.50	2.81	411	15	13.1	0.12	446	0006-1L

Table 2 : Rock-Eval table for well NOCS 2/9-3

Depth unit of measure: m

Depth	Typ	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
4460.00	swc	Sh/Clst: blk	1.05	2.40	0.51	4.71	1.64	146	31	3.5	0.30	454	0019-1L
4500.00	cut	Sh/Clst: blk	0.98	6.21	0.41	15.15	2.16	288	19	7.2	0.14	448	0013-1L
4510.00	swc	Sh/Clst: blk	0.38	0.77	0.38	2.03	1.13	68	34	1.1	0.33	450	0020-1L
4565.00	swc	Sh/Clst: blk	0.59	1.83	0.32	5.72	1.32	139	24	2.4	0.24	454	0021-1L

Table 3 : Pyrolysis GC Data (S2 peak) as Percentage of Total Area for Well NOCS 2/9-3

Depth unit of measure: m

Depth	Typ	Lithology	C1	C2-C5	C6-C14	C15+	S2 from Rock-Eval	Sample
3861.00	cut	Sh/Clst: blk	2.49	14.16	32.79	50.56	7.41	0003-1L
3870.00	cut	Sh/Clst: blk	2.64	15.74	28.53	53.10	5.80	0004-1L
3873.00	cut	Sh/Clst: blk	2.76	15.02	37.48	44.74	6.14	0005-1L
3955.00	swc	Ca : brn blk	3.89	17.17	41.42	37.52	2.17	0014-1L
4070.00	swc	Sltst : brn blk	2.66	15.53	40.55	41.26	2.18	0015-1L
4125.00	swc	Sh/Clst: blk	2.96	13.72	34.13	49.19	9.57	0016-1L
4395.00	swc	Sh/Clst: blk	6.56	30.29	52.09	11.06	0.56	0017-1L
4420.00	swc	Sh/Clst: blk	4.28	17.35	37.22	41.16	5.22	0018-1L
4460.00	swc	Sh/Clst: blk	4.14	16.91	39.06	39.89	2.40	0019-1L
4510.00	swc	Sh/Clst: blk	6.09	27.08	45.88	20.94	0.77	0020-1L
4565.00	swc	Sh/Clst: blk	4.85	17.47	44.31	33.38	1.83	0021-1L

Table 4 a: Weight of EOM and Chromatographic Fraction for well NOCS 2/9-3

Depth unit of measure: m

Depth	Typ	Lithology	Rock Extracted (g)	EOM (mg)	Sat (mg)	Aro (mg)	Asph (mg)	NSO (mg)	HC (mg)	Non-HC (mg)	TOC(e) (%)	Sample
3955.00	swc	Ca : brn blk	8.5	8.5	3.0	2.4	1.7	1.4	5.4	3.1	1.68	0014-1L
4101.00	cut	Sh/Clst: blk	7.6	11.7	4.8	4.2	0.5	2.2	9.0	2.7	2.47	0009-1L
4299.00	cut	Sh/Clst: blk	7.2	13.6	5.7	4.9	0.7	2.3	10.6	3.0	2.63	0011-1L
4420.00	swc	Sh/Clst: blk	5.3	18.5	7.5	5.7	3.2	2.1	13.2	5.3	2.82	0018-1L
4460.00	swc	Sh/Clst: blk	10.2	23.4	10.1	8.1	3.1	2.1	18.2	5.2	1.78	0019-1L
4565.00	swc	Sh/Clst: blk	8.6	8.0	3.3	2.1	1.6	1.0	5.4	2.6	1.07	0021-1L

Table 4 b: Concentration of EOM and Chromatographic Fraction (wt ppm rock) for well NOCS 2/9-3

Depth unit of measure: m

Depth	Typ	Lithology	EOM	Sat	Aro	Asph	NSO	HC	Non-HC	Sample
3955.00	swc	Ca : brn blk	996	351	281	199	164	633	363	0014-1L
4101.00	cut	Sh/Clst: blk	1531	628	549	65	287	1178	353	0009-1L
4299.00	cut	Sh/Clst: blk	1881	788	677	96	318	1466	414	0011-1L
4420.00	swc	Sh/Clst: blk	3483	1412	1073	602	395	2485	998	0018-1L
4460.00	swc	Sh/Clst: blk	2289	988	792	303	205	1780	508	0019-1L
4565.00	swc	Sh/Clst: blk	932	384	244	186	116	629	303	0021-1L

Table 4 c: Concentration of EOM and Chromatographic Fraction (mg/g TOC(e)) for well NOCS 2/9-3

Depth unit of measure: m

Depth	Typ	Lithology	EOM	Sat	Aro	Asph	NSO	HC	Non-HC	Sample
3955.00	swc	Ca : brn blk	59.31	20.93	16.75	11.86	9.77	37.68	21.63	0014-1L
4101.00	cut	Sh/Clst: blk	62.00	25.44	22.26	2.65	11.66	47.69	14.31	0009-1L
4299.00	cut	Sh/Clst: blk	71.52	29.98	25.77	3.68	12.10	55.75	15.78	0011-1L
4420.00	swc	Sh/Clst: blk	123.55	50.09	38.07	21.37	14.02	88.15	35.39	0018-1L
4460.00	swc	Sh/Clst: blk	128.63	55.52	44.53	17.04	11.54	100.05	28.58	0019-1L
4565.00	swc	Sh/Clst: blk	87.14	35.95	22.87	17.43	10.89	58.82	28.32	0021-1L

Table 4 d: Composition of material extracted from the rock (%) for well NOCS 2/9-3

Depth unit of measure: m

Depth	Typ	Lithology	Sat	Aro	Asph	NSO	HC	Non-HC	Sat	HC	Sample
			EOM	EOM	EOM	EOM	EOM	EOM	EOM	Aro	
3955.00	swc	Ca : brn blk	35.29	28.24	20.00	16.47	63.53	36.47	125.00	174.19	0014-1L
4101.00	cut	Sh/Clst: blk	41.03	35.90	4.27	18.80	76.92	23.08	114.29	333.33	0009-1L
4299.00	cut	Sh/Clst: blk	41.91	36.03	5.15	16.91	77.94	22.06	116.33	353.33	0011-1L
4420.00	swc	Sh/Clst: blk	40.54	30.81	17.30	11.35	71.35	28.65	131.58	249.06	0018-1L
4460.00	swc	Sh/Clst: blk	43.16	34.62	13.25	8.97	77.78	22.22	124.69	350.00	0019-1L
4565.00	swc	Sh/Clst: blk	41.25	26.25	20.00	12.50	67.50	32.50	157.14	207.69	0021-1L

Table 5 : Saturated Hydrocarbon Ratios for well NOCS 2/9-3

Depth unit of measure: m

Depth	Typ	Lithology	Pristane	Pristane	Pristane + Phytane	Phytane	CPI	Sample
			nC17	Phytane	nC17 + nC18	nC18		
3955.00	swc Ca	: brn blk	0.74	1.85	0.65	0.53	1.07	0014-1L
4101.00	cut Sh/Clst:	blk	0.81	1.65	0.73	0.63	1.00	0009-1L
4299.00	cut Sh/Clst:	blk	0.77	1.59	0.70	0.62	1.00	0011-1L
4420.00	swc Sh/Clst:	blk	0.55	2.65	0.43	0.27	0.99	0018-1L
4460.00	swc Sh/Clst:	blk	0.43	3.10	0.32	0.17	1.03	0019-1L
4565.00	swc Sh/Clst:	blk	0.48	2.77	0.35	0.20	1.05	0021-1L

Table 6 : Aromatic Hydrocarbon Ratios for well NOCS 2/9-3

Depth unit of measure: m

Depth	Typ	Lithology	MNR	DMNR	BPhR	2/1MP	MPI1	MPI2	Rc	DBT/P	4/1MDBT	(3+2) /1MDBT	Sample
3955.00	swc	Ca : brn blk	0.89	1.86	0.07	0.80	0.59	0.61	0.75	0.33	1.00	0.63	0014-1L
4101.00	cut	Sh/Clst: blk	0.92	1.66	0.09	0.71	0.47	0.48	0.68	0.23	1.28	0.44	0009-1L
4299.00	cut	Sh/Clst: blk	0.86	1.66	0.07	0.72	0.53	0.56	0.72	0.25	1.62	0.37	0011-1L
4420.00	swc	Sh/Clst: blk	0.60	1.60	0.05	0.57	0.51	0.54	0.71	0.13	5.97	1.19	0018-1L
4460.00	swc	Sh/Clst: blk	1.02	1.59	0.12	0.68	0.61	0.65	0.77	0.22	7.12	0.98	0019-1L
4565.00	swc	Sh/Clst: blk	0.90	1.89	0.03	0.68	0.55	0.60	0.73	0.16	3.84	1.63	0021-1L

Table 7 : Thermal Maturity Data for well NOCS 2/9-3

Depth unit of measure: m

Depth	Typ	Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation	Spore Fluorescence Colour	SCI	T _{max} (°C)	Sample
3849.00	cut	Sh/Clst: blk	0.26	5	0.01	3+4	6.0	-	0001-1L
3855.00	cut	Sh/Clst: blk	0.33	3	0.04	3	6.0-6.5	-	0002-1L
3870.00	cut	Sh/Clst: blk	0.73	14	0.10	NDP	4.5-5.0	443	0004-1L
3897.00	cut	Sh/Clst: blk	0.35	20	0.06	3-4	-	441	0007-1L
3955.00	swc	Ca : brn blk	0.41	19	0.05	4-5	5.5-6.5	445	0014-1L
4002.00	cut	Sh/Clst: blk	0.38	20	0.04	3-4	-	441	0008-1L
4070.00	swc	Sltst : brn blk	0.46	1	0.00	4-5	-	442	0015-1L
4101.00	cut	Sh/Clst: blk	0.35	21	0.04	4	-	443	0009-1L
4125.00	swc	Sh/Clst: blk	0.43	6	0.05	4+5	-	447	0016-1L
4200.00	cut	Sh/Clst: blk	0.36	20	0.04	4	-	444	0010-1L
4299.00	cut	Sh/Clst: blk	0.34	20	0.04	3-4	-	444	0011-1L
4395.00	swc	Sh/Clst: blk	0.48	10	0.05	4-5	-	450	0017-1L
4401.00	cut	Sh/Clst: blk	0.40	14	0.06	4-5	-	446	0012-1L
4420.00	swc	Sh/Clst: blk	0.76	12	0.11	6	7.0	454	0018-1L

Table 7 : Thermal Maturity Data for well NOCS 2/9-3

Depth unit of measure: m

Depth	Typ	Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation	Spore Fluorescence Colour	SCI	T _{max} (°C)	Sample
4455.00	cut	Sh/Clst: blk	0.34	20	0.04	4+5	-	446	0006-1L
4460.00	swc	Sh/Clst: blk	0.50	12	0.03	5+6	7.0	454	0019-1L
4500.00	cut	Sh/Clst: blk	0.41	12	0.05	4+5	-	448	0013-1L
4510.00	swc	Sh/Clst: blk	0.53	10	0.04	6	-	450	0020-1L
4565.00	swc	Sh/Clst: blk	0.44	11	0.03	5	7.0	454	0021-1L

Table 8 : Visual Kerogen Composition Data for well NOCS 2/9-3

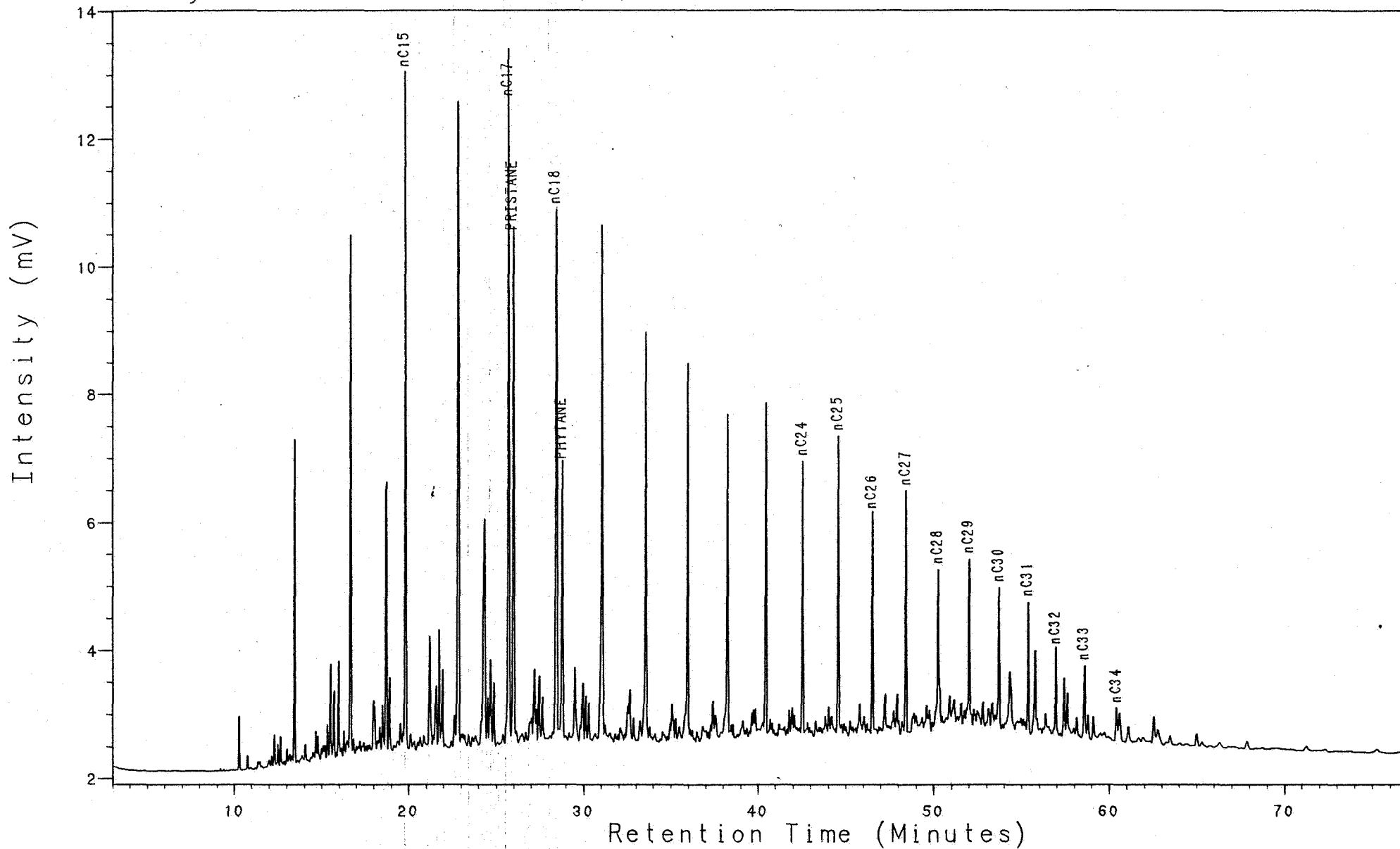
Depth unit of measure: m

Depth	Typ	Lithology	LIP	AL	SL	CL	UR	AL	DI	AB	IN	FUS	SEM	INT	MS	SC	BIT	VIT	TEL	COL	VIT	AV	Sample		
%			%	L	t	l	l	n	e	l	t	L	%	n	s	t	n	o	I	%	n	n	t	V	V
3849.00	cut	Sh/Clst: blk	55	**	*	?	**	*	*	*	5	*						40	**	*			0001-1L		
3855.00	cut	Sh/Clst: blk	45	**	*	?	**	*	*	*	10	*	*					45	**	*			0002-1L		
3870.00	cut	Sh/Clst: blk	40	*	**	*	*	**		*	30	*	*					30	*	**	*		0004-1L		
3955.00	swc	Ca : brn blk	NDP								NDP							NDP					0014-1L		
4125.00	swc	Sh/Clst: blk	85	**	*	*	*	*	*	*	10	*	**					5	*	**			0016-1L		
4420.00	swc	Sh/Clst: blk	90	**	*	**	*	*			5		*					5	*	**			0018-1L		
4460.00	swc	Sh/Clst: blk	90	**	*	**	*	*			5		*					5	*	**			0019-1L		
4565.00	swc	Sh/Clst: blk	NDP								NDP							NDP					0021-1L		

Analysis SA6483955

5, 1, 1

2/9-3 3955m SAT



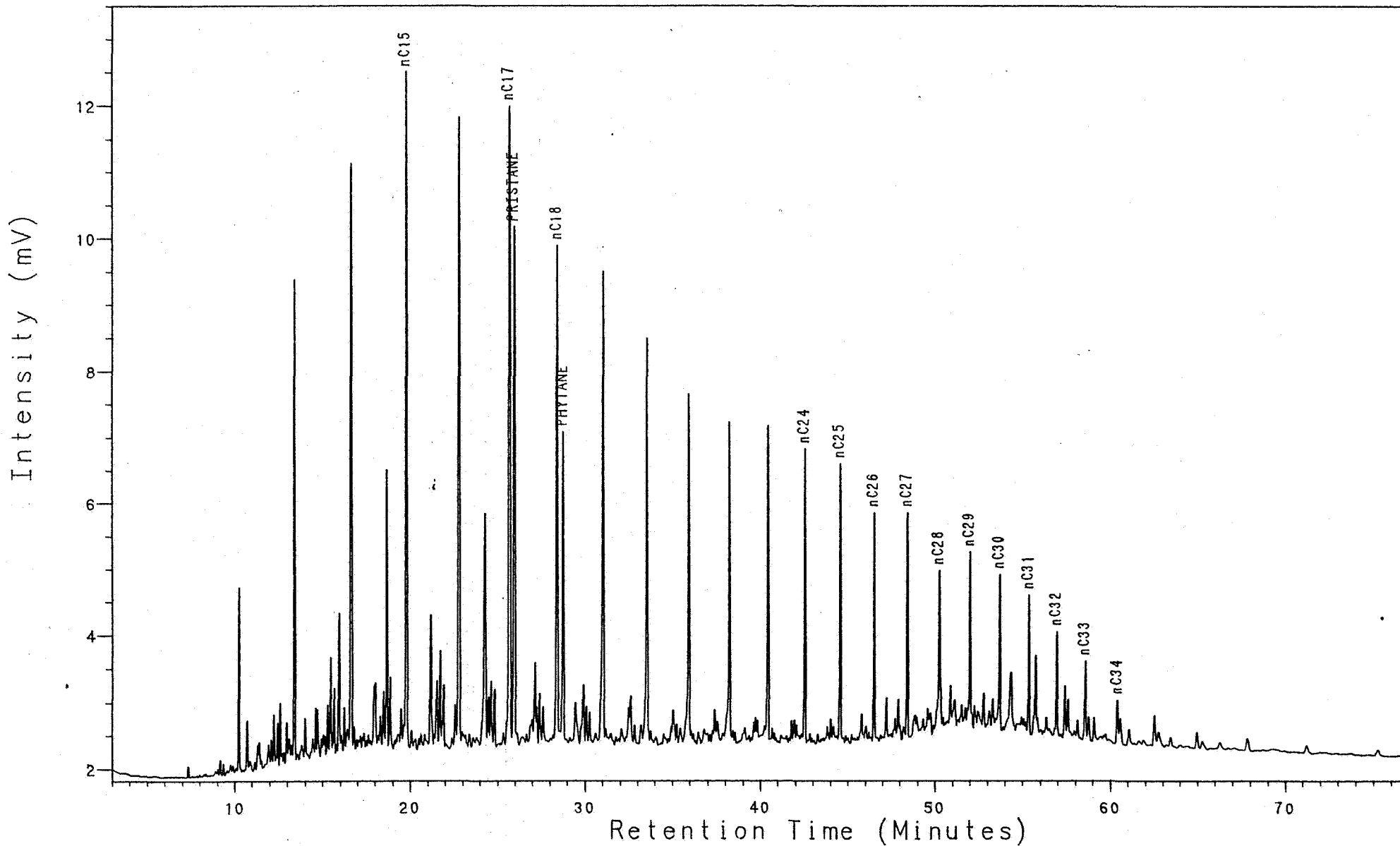
WELL NOCS 2/9-3
SATURATED GC
Ca: brn blk

3955.00m swc

Analysis SA6484101

5, 1, 1

2/9-3 4101m SAT



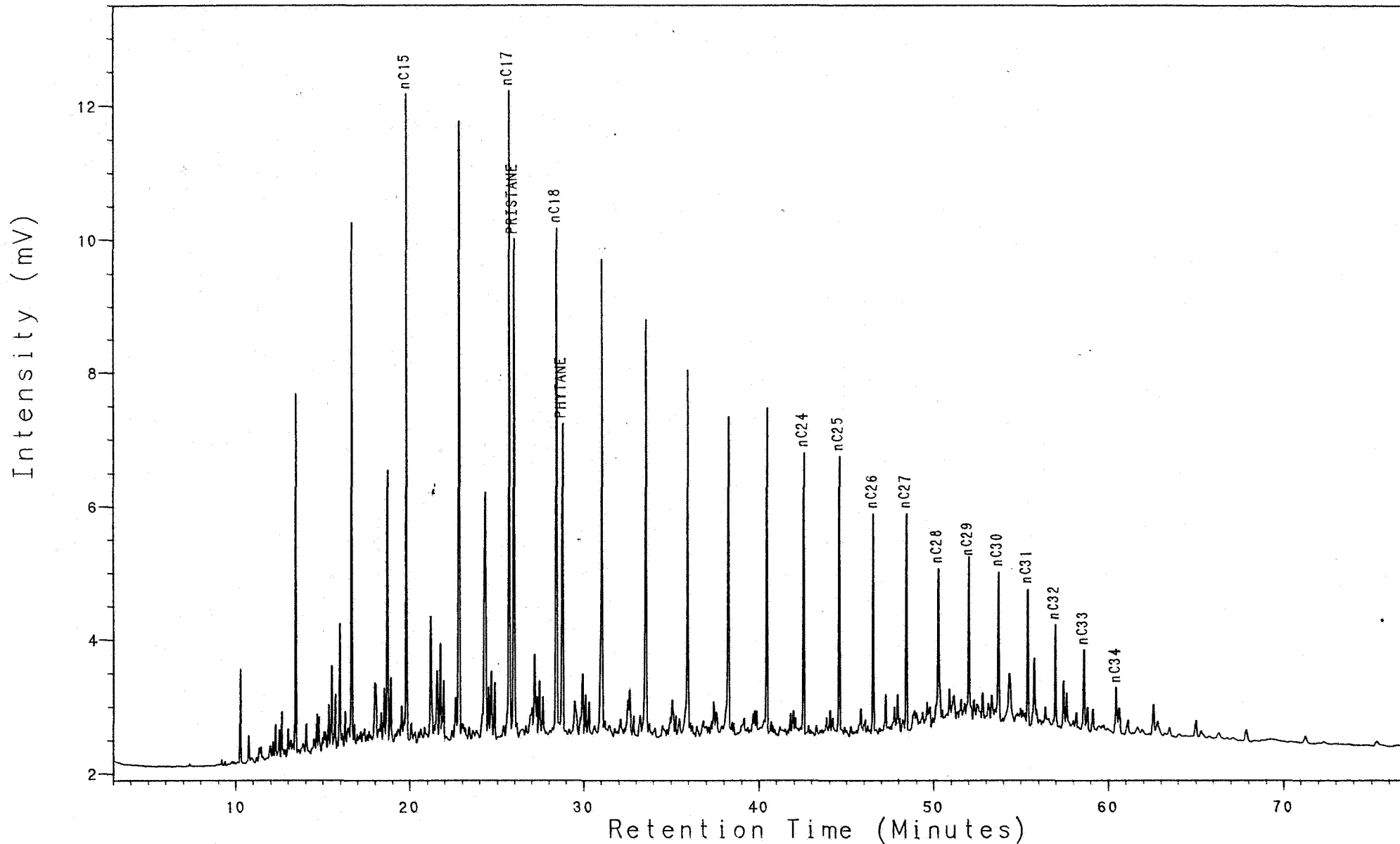
WELL NOCS 2/9-3
SATURATED GC
Sh/Clst: blk

4101.00m cut

Analysis SA6484299

5, 1, 1

2/9-3 4299m SAT



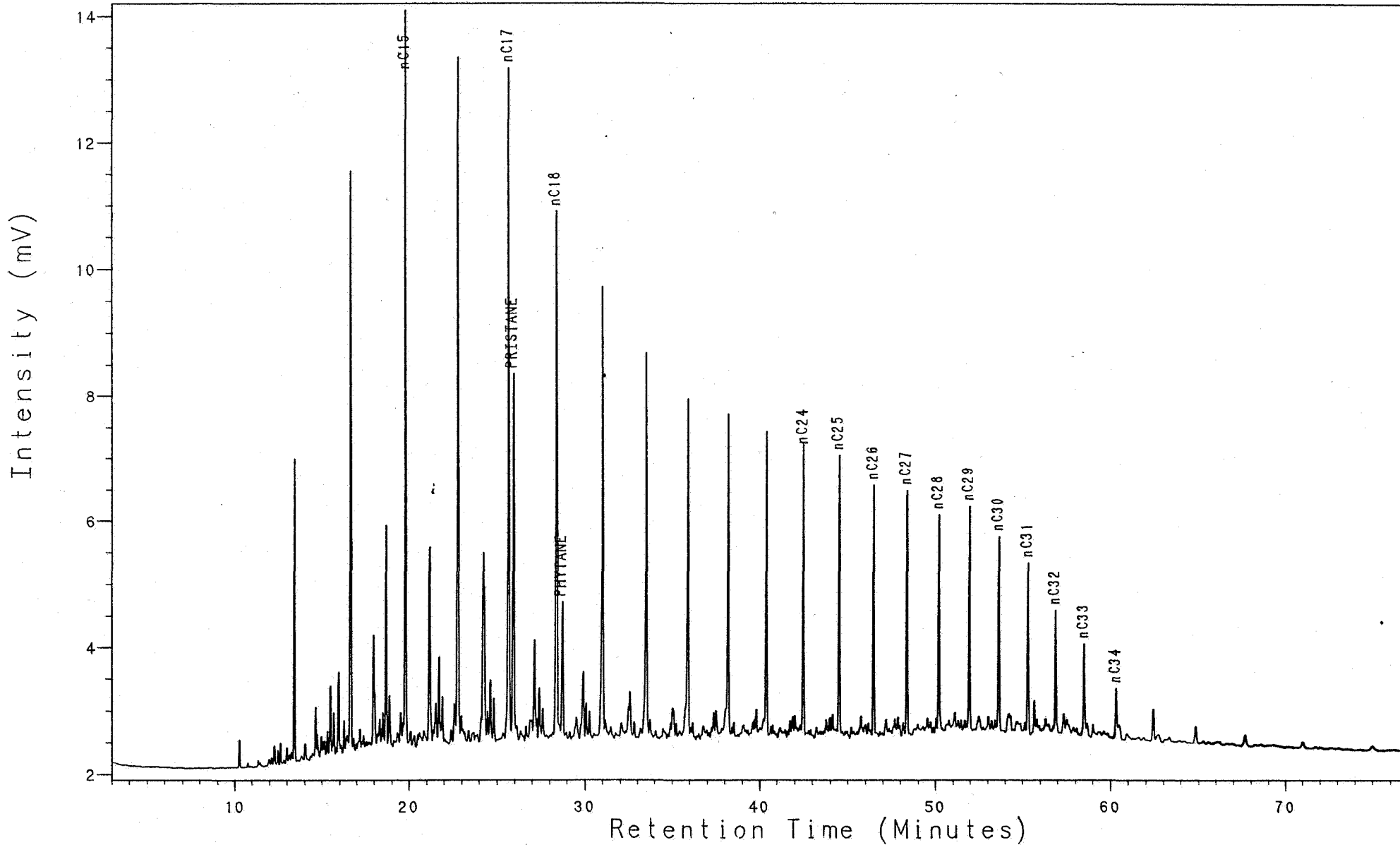
WELL NOCS 2/9-3
SATURATED GC
Sh/Clst: blk

4299.00m cut

Analysis SA6484420

5, 1, 1

2/9-3 4420m SAT



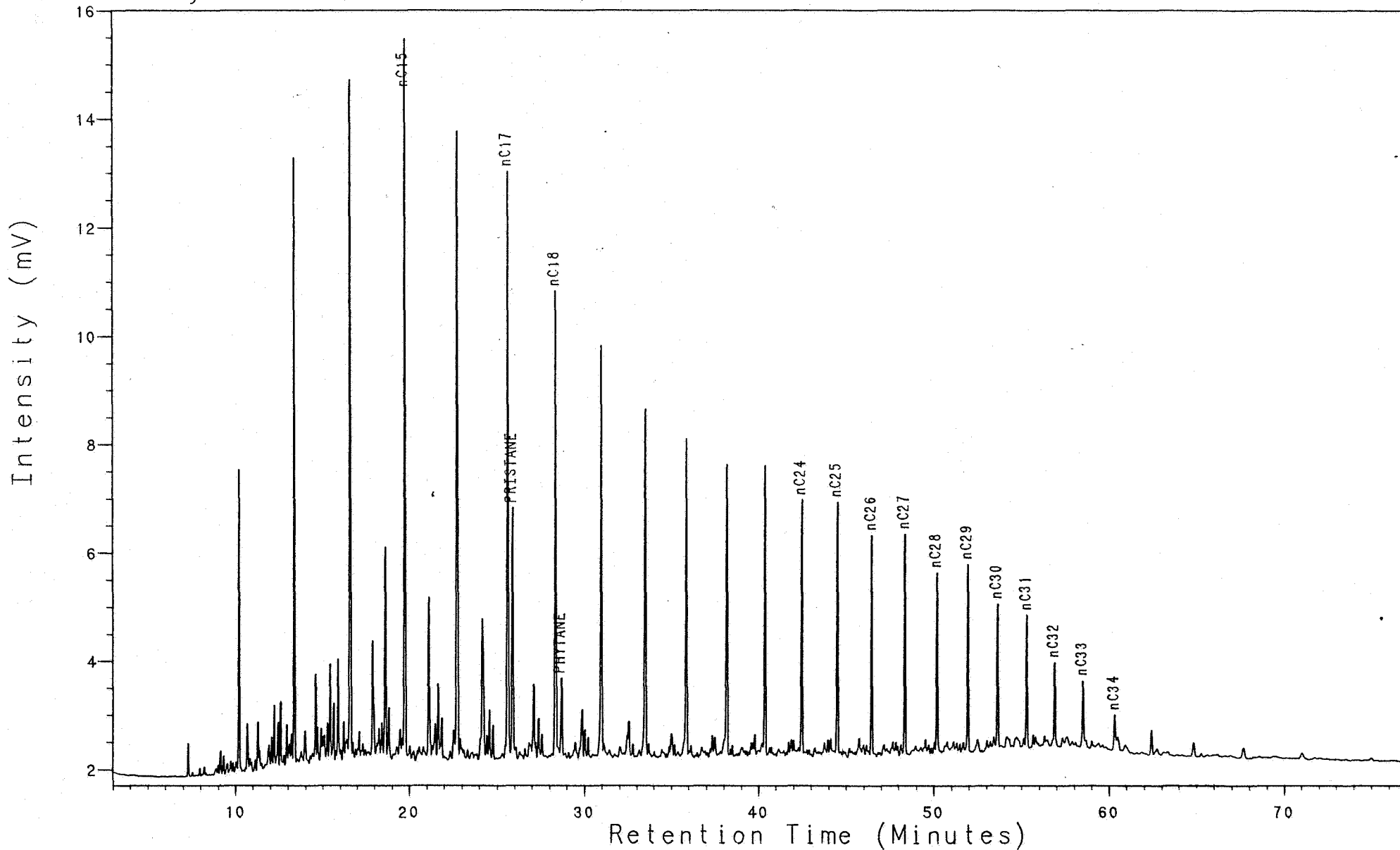
WELL NOCS 2/9-3
SATURATED GC
Sh/Clst: blk

4420.00m swc

Analysis SA6484460

5, 1, 1

2/9-3 4460m SAT



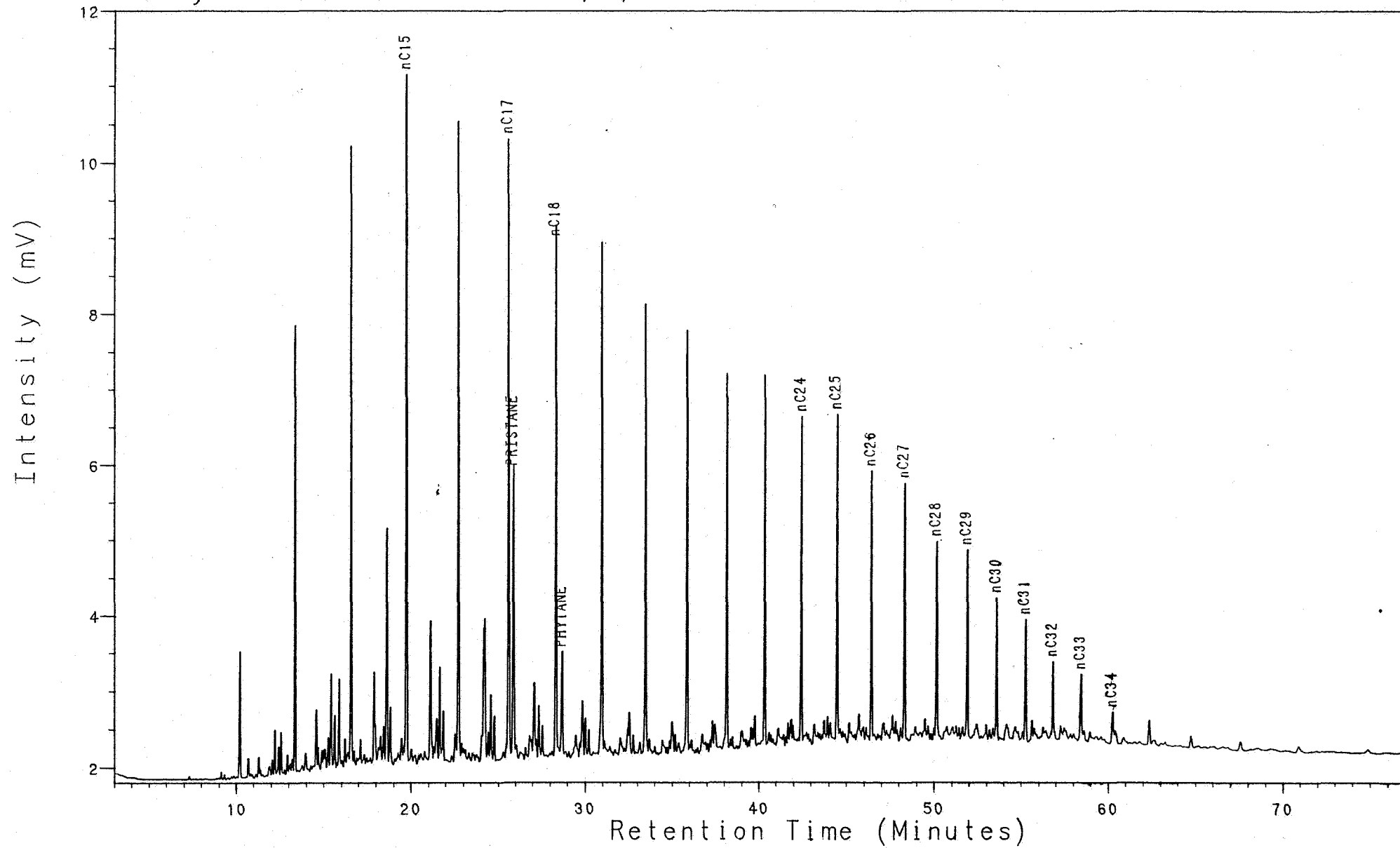
WELL NOCS 2/9-3
SATURATED GC
Sh/Clst: blk

4460.00m swc

Analysis SA6484565

5, 1, 1

2/9-3 4565m SAT



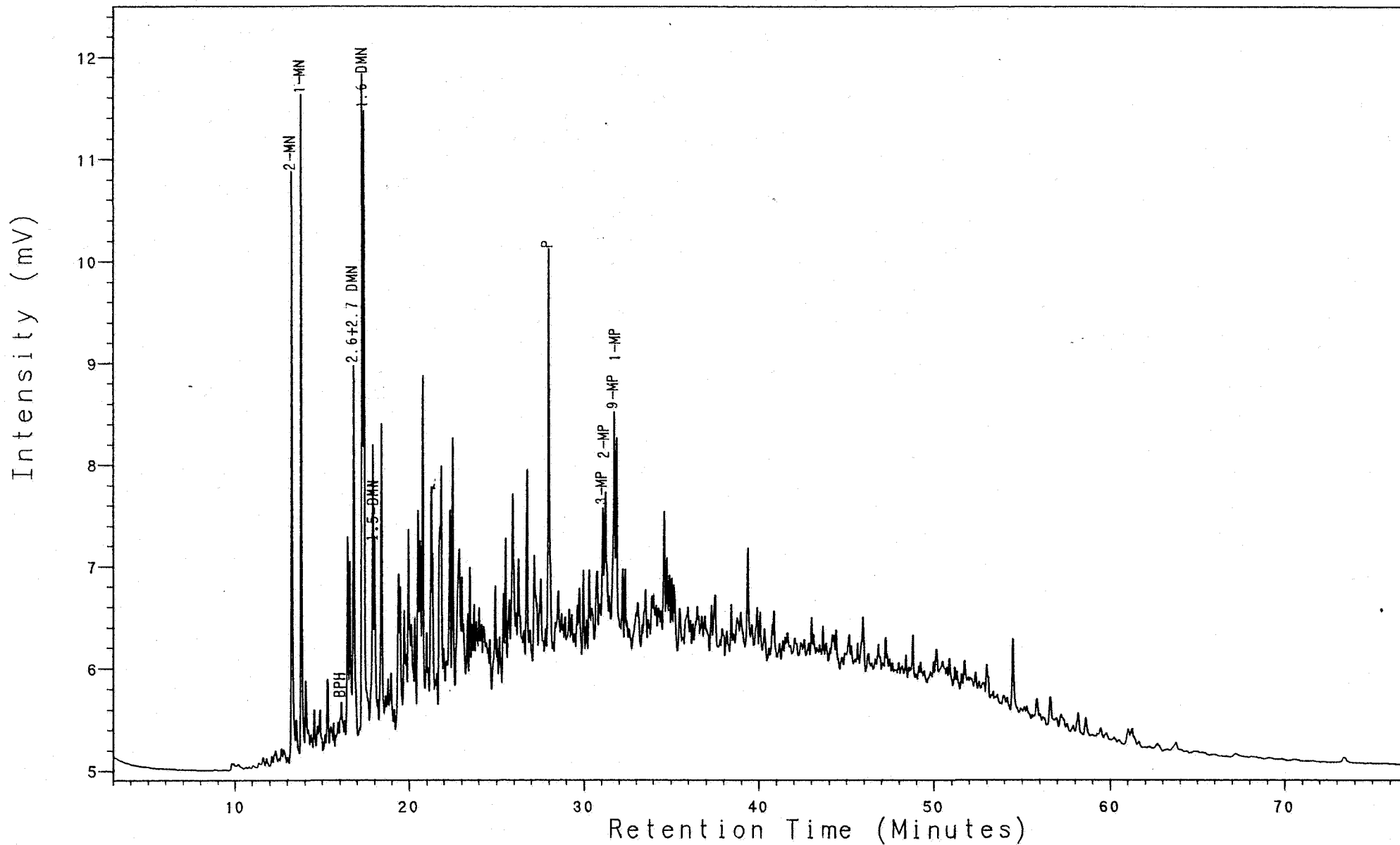
WELL NOCS 2/9-3
SATURATED GC
Sh/Clst: blk

4565.00m swc

Analysis AR6483955

8, 1, 1

2/9-3 3955m ARO



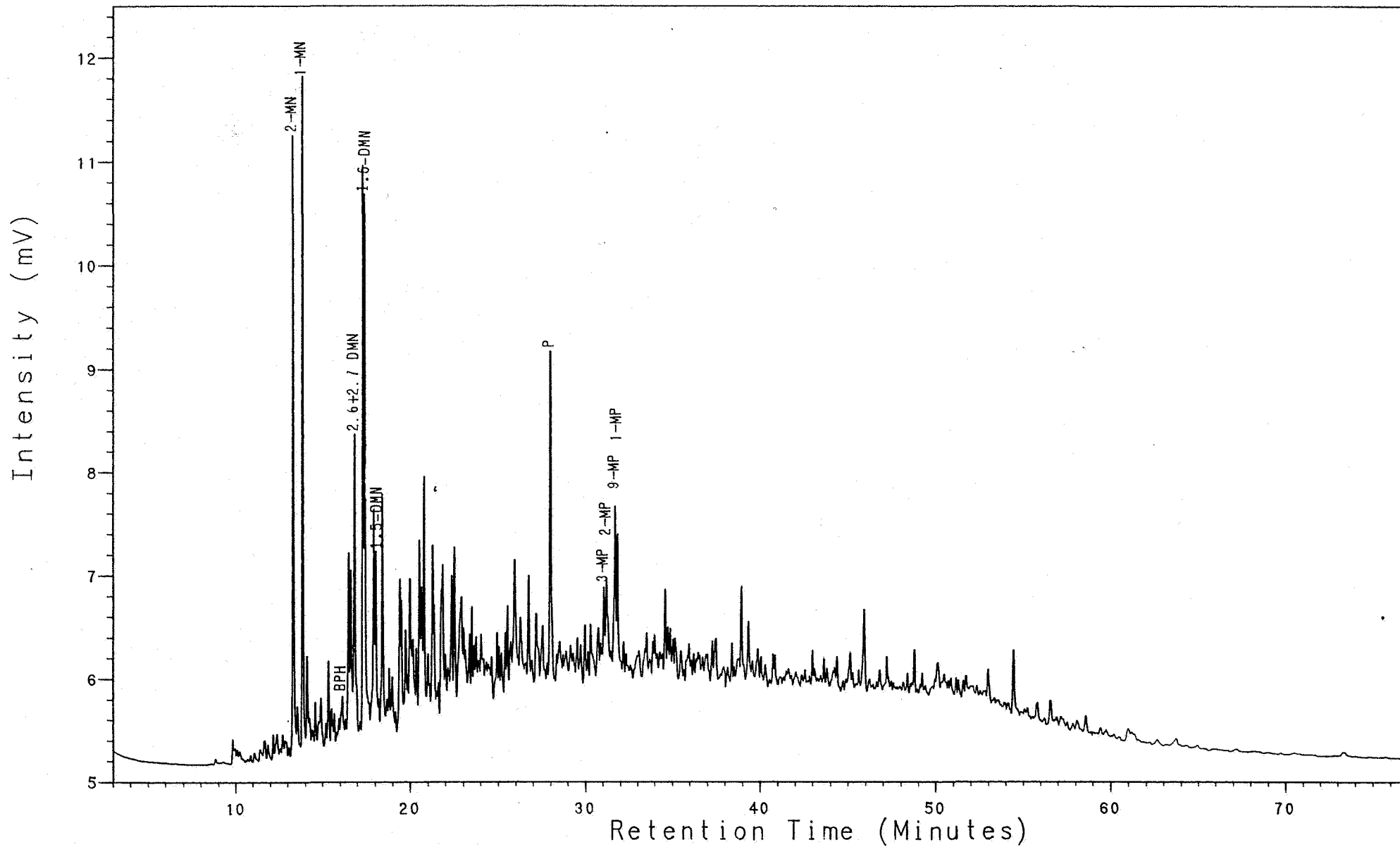
WELL NOCS 2/9-3
AROMATIC GC (FID)
Ca: brn blk

3955.00m swc

Analysis AR6484101

8, 1, 1

2/9-3 4101m ARO



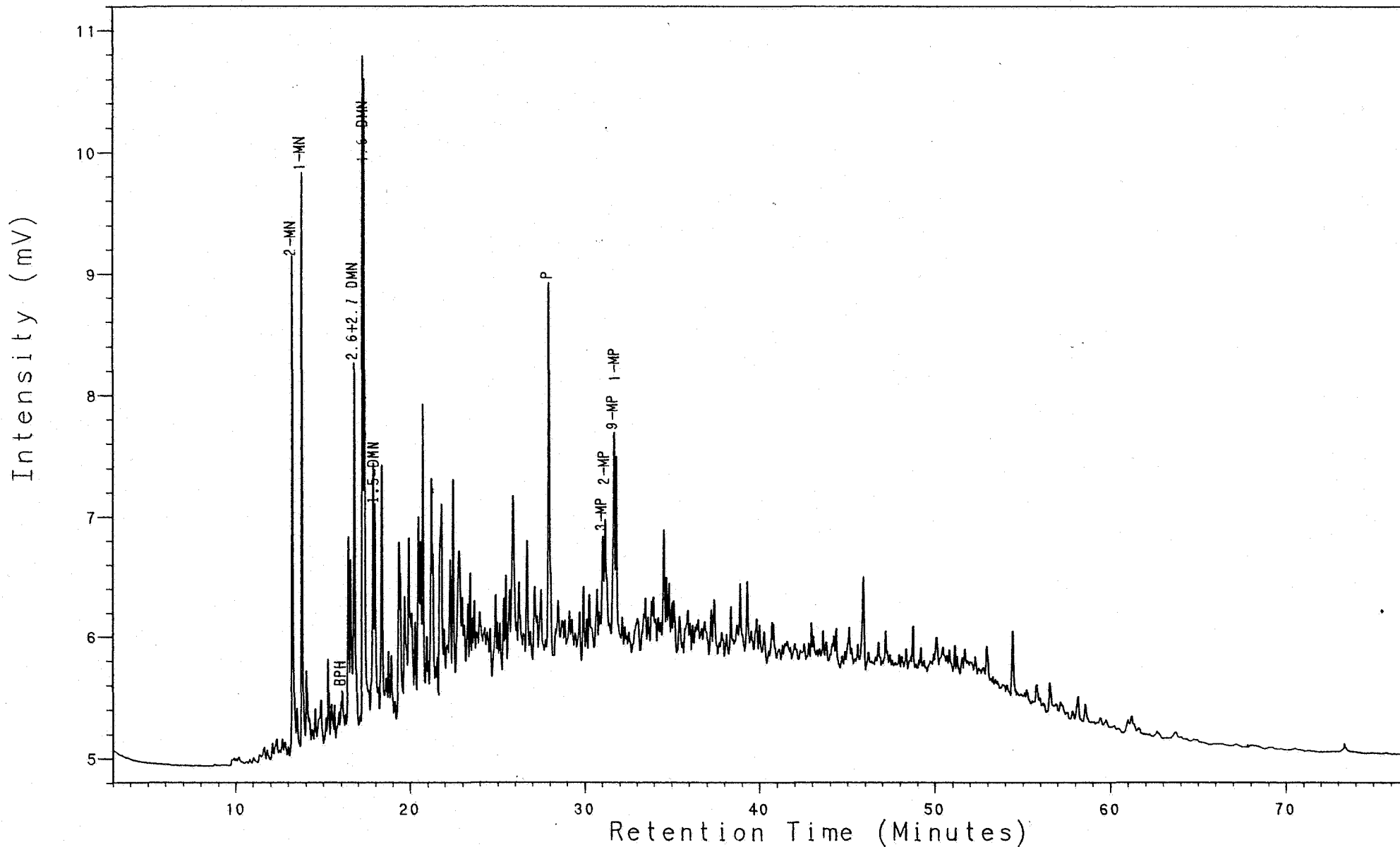
WELL NOCS 2/9-3
AROMATIC GC (FID)
Sh/Clst: blk

4101.00m cut

Analysis AR6484299

8, 1, 1

2/9-3 4299m ARO



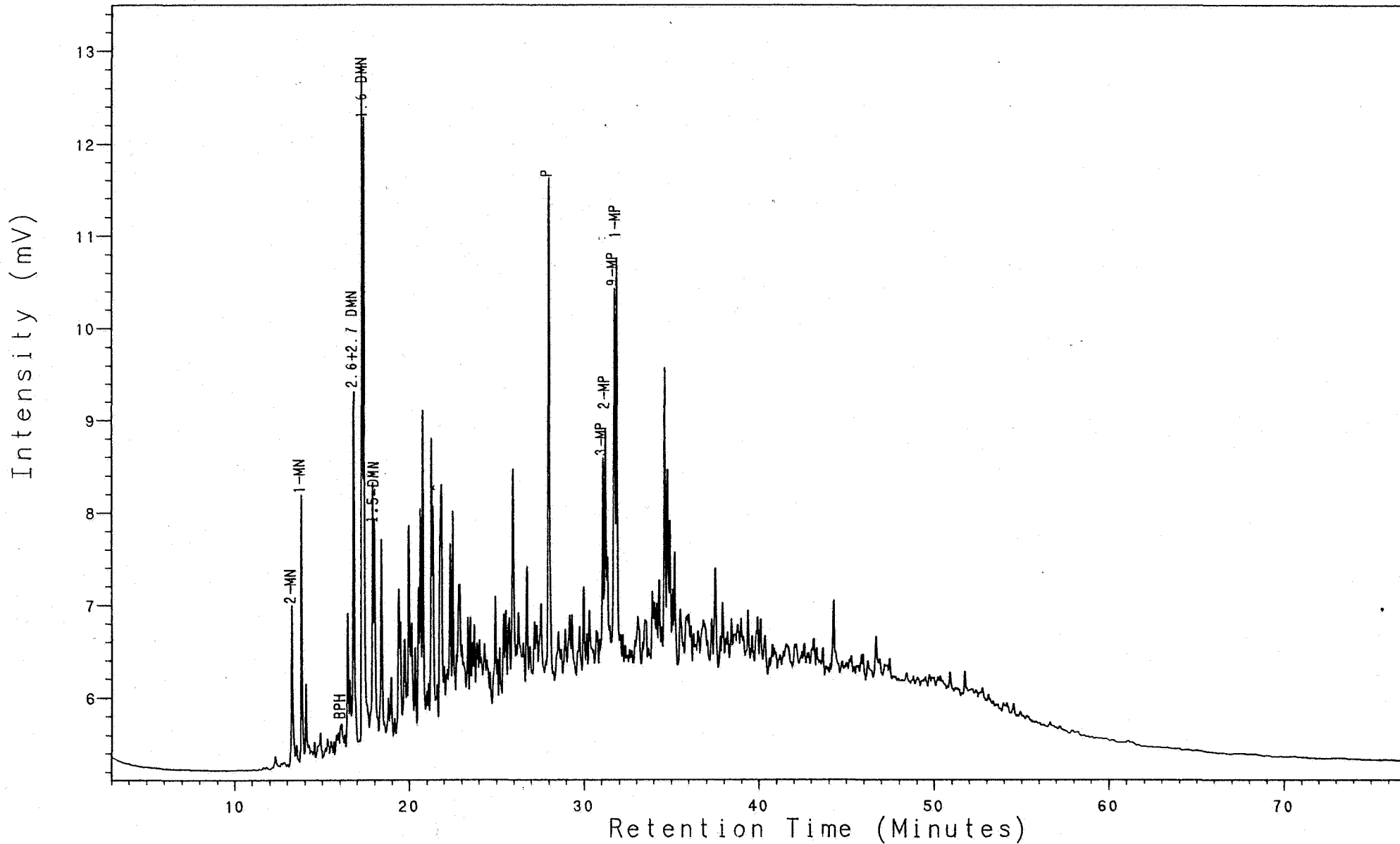
WELL NOCS 2/9-3
AROMATIC GC (FID)
Sh/Clst: blk

4299.00m cut

Analysis AR6484420

8, 1, 1

2/9-3 4420m ARO



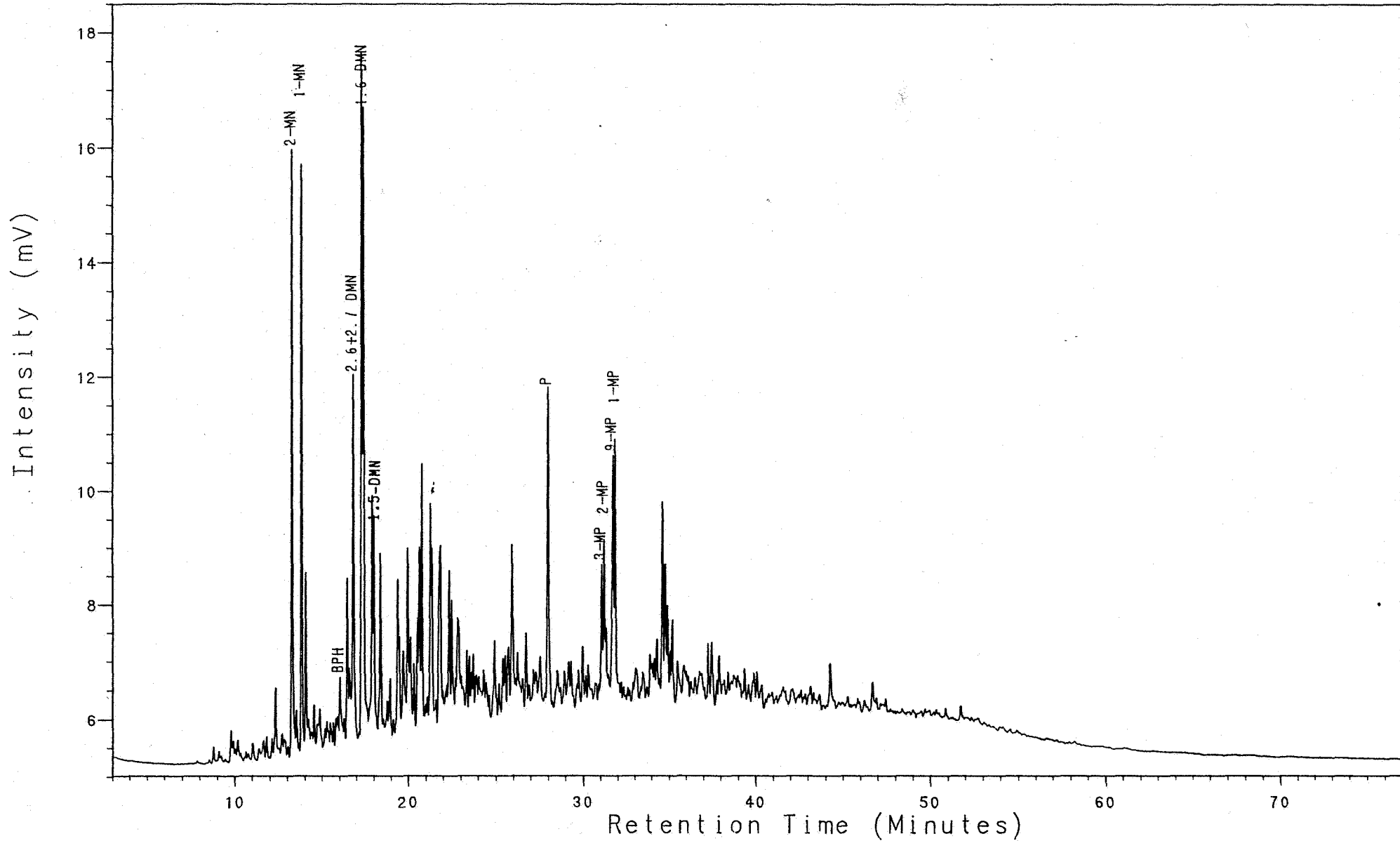
WELL NOCS 2/9-3
AROMATIC GC (FID)
Sh/Clst: blk

4420.00m swc

Analysis AR6484460

8, 1, 1

2/9-3 4460m ARO



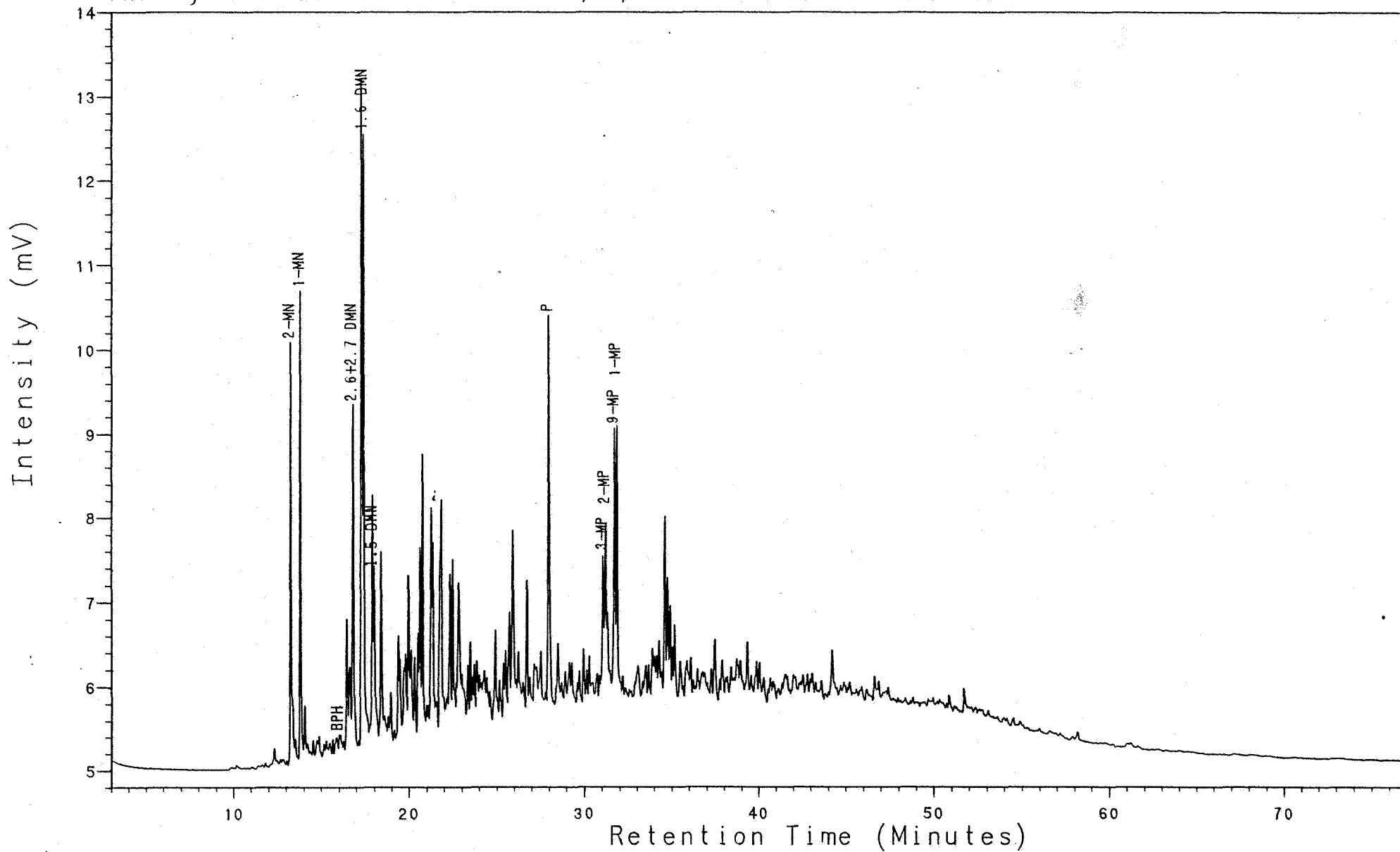
WELL NOCS 2/9-3
AROMATIC GC (FID)
Sh/Clst: blk

4460.00m swc

Analysis AR6484565

8, 1, 1

2/9-3 4565m ARO



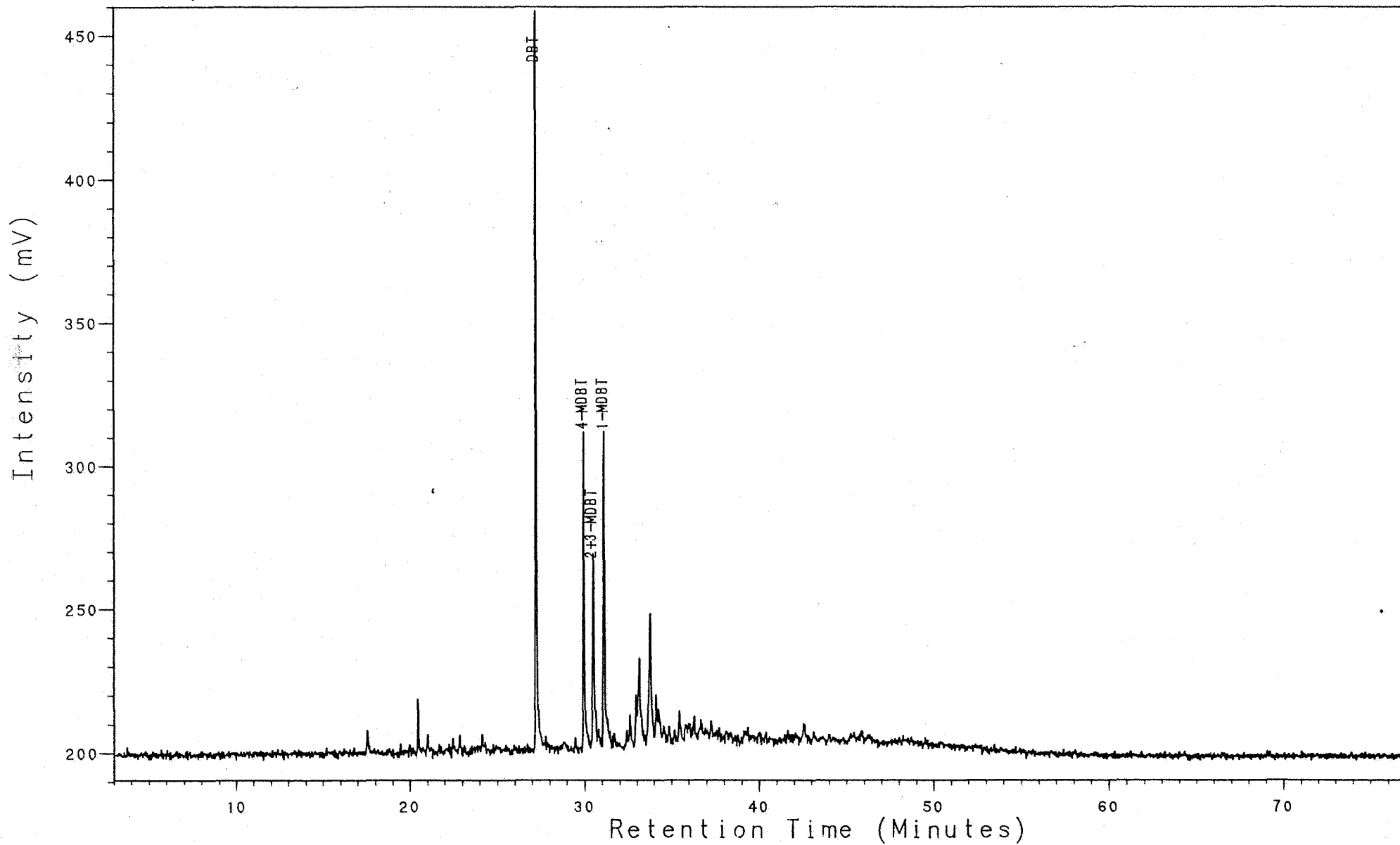
WELL NOCS 2/9-3
AROMATIC GC (FID)
Sh/Clst: blk

4565.00m swc

Analysis AR6483955

7, 1, 1

2/9-3 3955m ARO



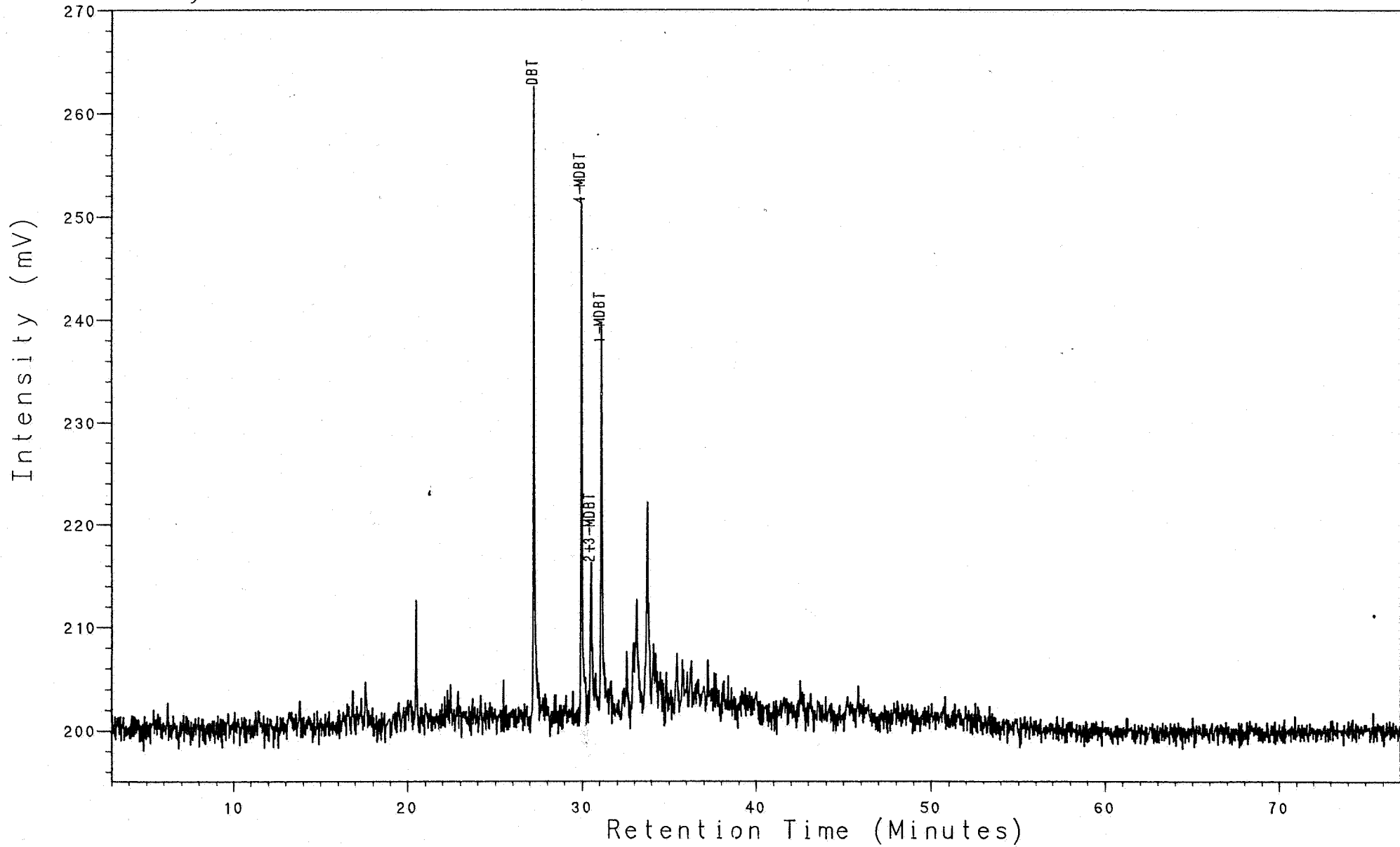
WELL NOCS 2/9-3
AROMATIC GC (FPD)
Ca: brn blk

3955.00m swc

Analysis AR6484101

7, 1, 1

2/9-3 4101m ARO



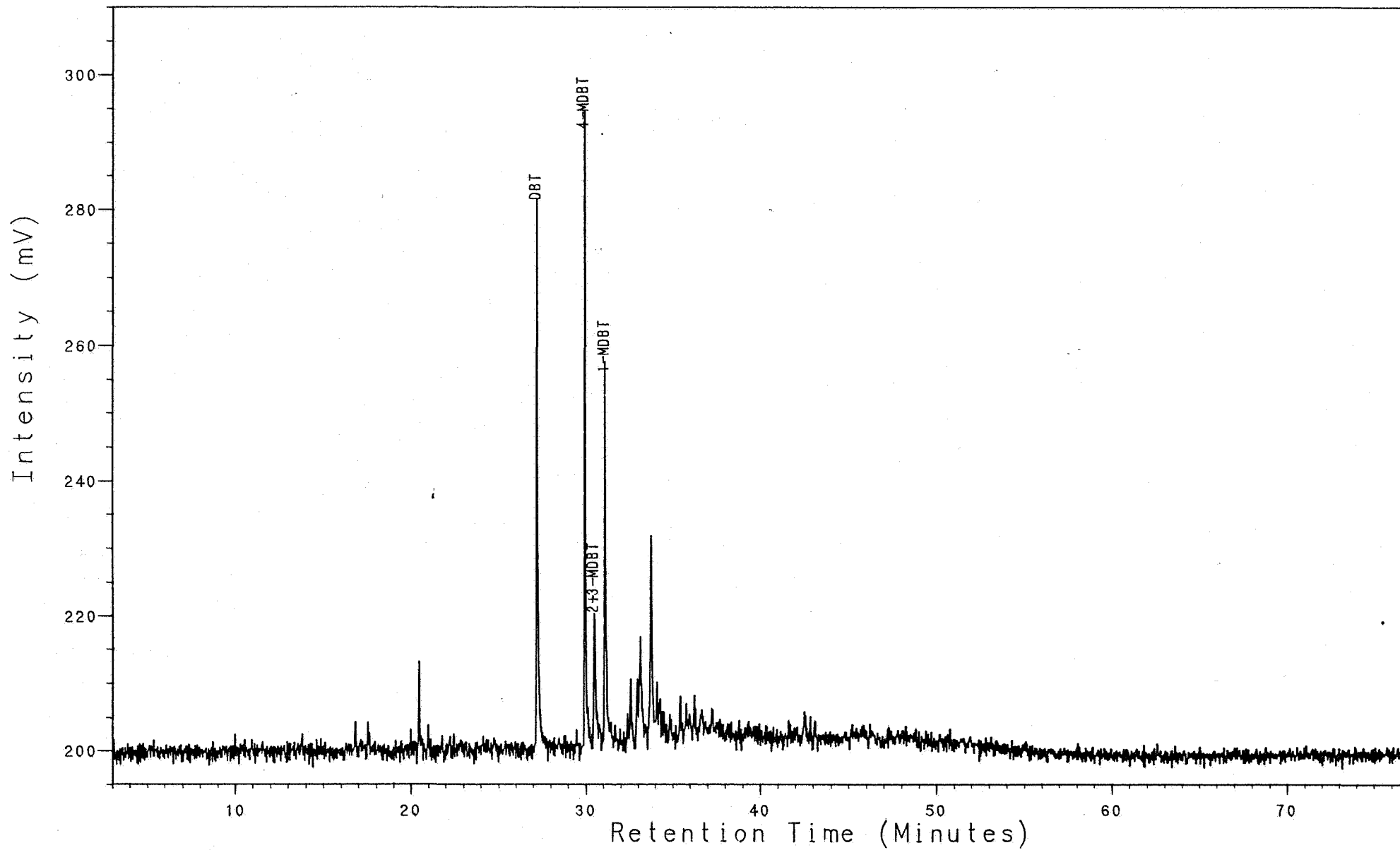
WELL NOCS 2/9-3
AROMATIC GC (FPD)
Sh/Clst: blk

4101.00m cut

Analysis AR6484299

7, 1, 1

2/9-3 4299m ARO



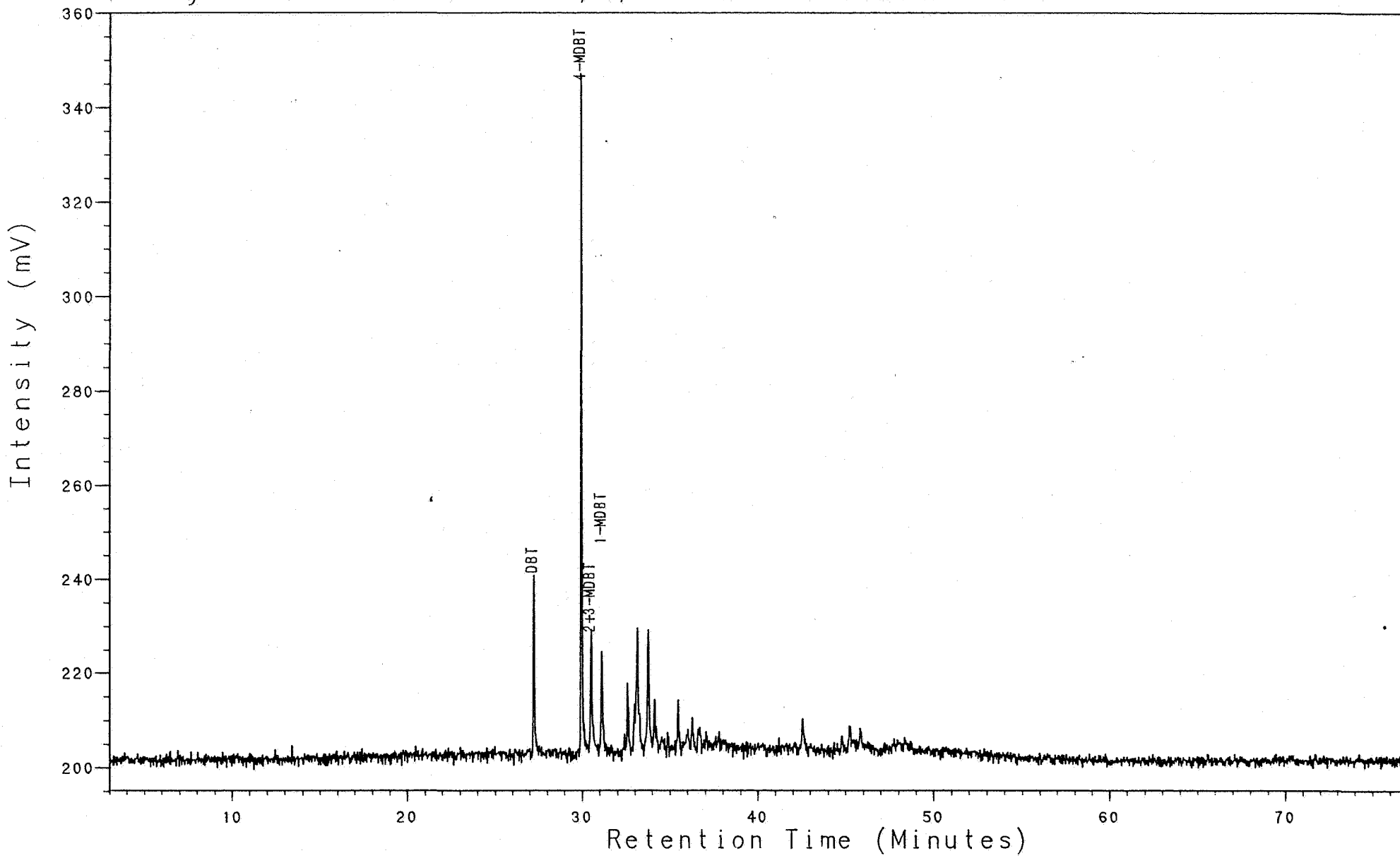
WELL NOCS 2/9-3
AROMATIC GC (FPD)
Sh/Clst: blk

4299.00m cut

Analysis AR6484420

7, 1, 1

2/9-3 4420m ARO



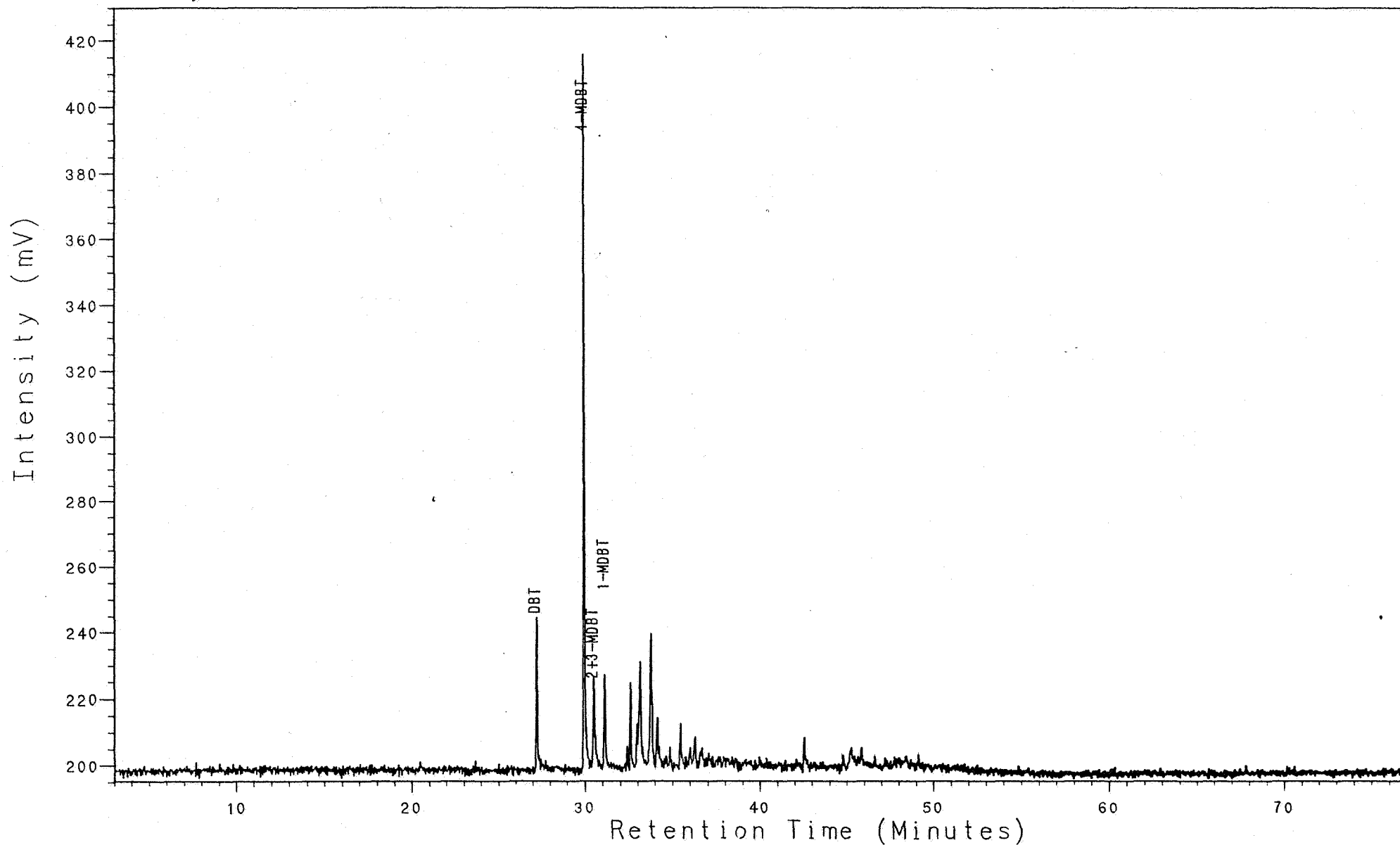
WELL NOCS 2/9-3
AROMATIC GC (FPD)
Sh/Clst: blk

4420.00m swc

Analysis AR6484460

7, 1, 1

2/9-3 4460m ARO



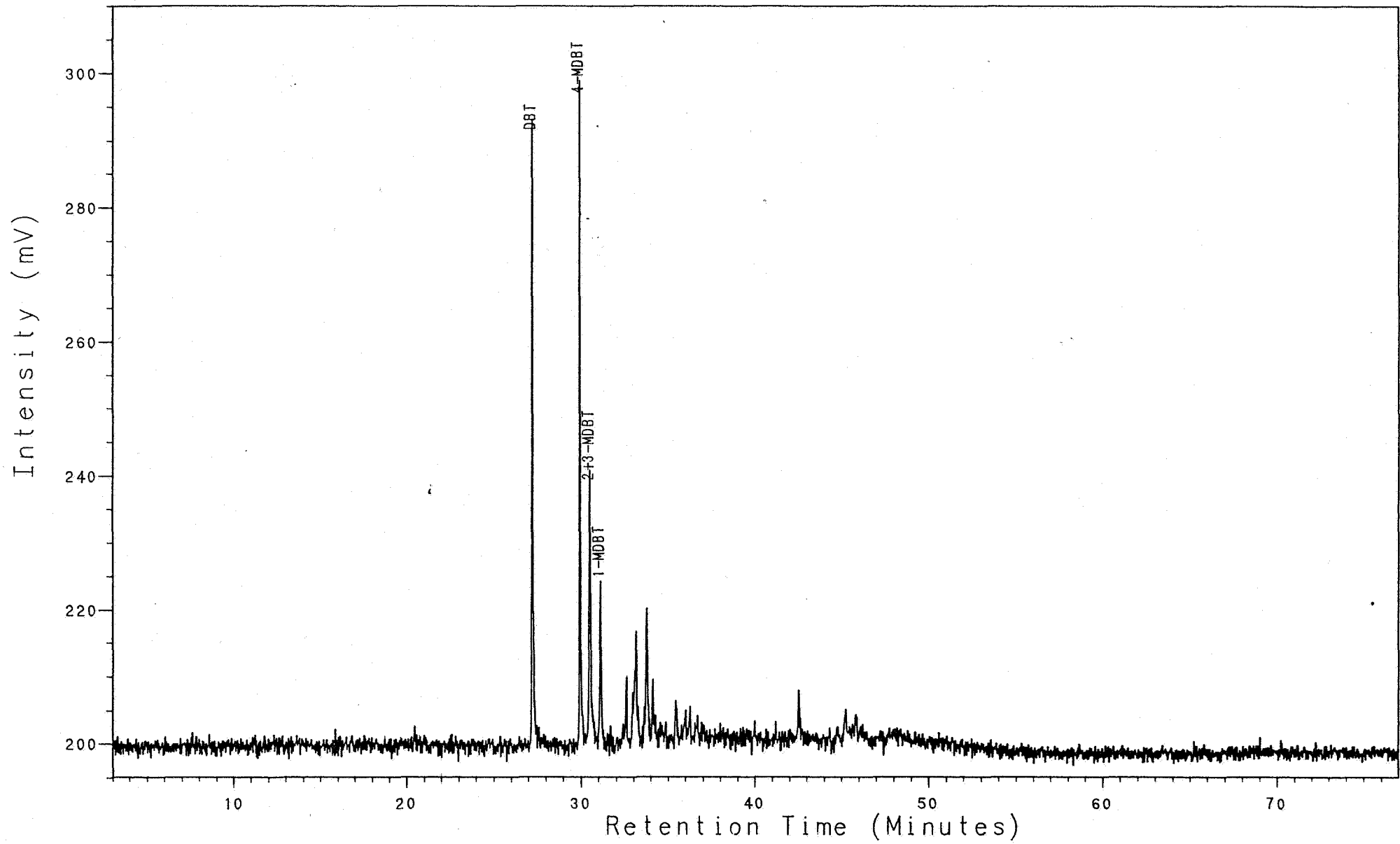
WELL NOCS 2/9-3
AROMATIC GC (FPD)
Sh/Clst: blk

4460.00m swc

Analysis AR6484565

7, 1, 1

2/9-3 4565m ARO



WELL NOCS 2/9-3
AROMATIC GC (FPD)
Sh/Clst: blk

4565.00m swc