GEOLAB NOR

Table 2 : Lithology description for well NOCS 6406/2-4SR

Depth unit of measure: m

Depth		Type			Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4548.00						0001
		2.32	90	Sh/Clst: lt gy, slt		0001-1L
			5	Sh/Clst: drk gy		0001-2L
			5	Cont : dd, prp		0001-3L
4557.00						0002
		4.87	90	Sh/Clst: dsk y brn to brn blk, carb		0002-1L
			10	Cont : dd		0002-2L
4566.00						0003
		4.61	100	Sh/Clst: dsk y brn to brn blk, carb, slt		0003-1L
			tr	Cont : dd		0003-2L
4575.00						0004
		4.83	95	Sh/Clst: dsk y brn to brn blk, carb		0004-1L
			5	Cont : dd		0004-2L
4584.00						0005
		2.83	100	Sh/Clst: dsk y brn to brn blk, carb, slt		0005-1L
			tr	Cont : dd		0005-2L
4593.00						0006
		4.96	100	Sh/Clst: drk gy to brn blk, slt		0006-1L
			tr	Cont : dd		0006-2L
4602.00						0007
		3.71	100	Sh/Clst: drk gy to brn blk, slt		0007-1L
			tr	Cont : dd		0007-2L
			tr	S/Sst : w		0007-3L

GEOLAB NOR

Table 2 : Lithology description for well NOCS 6406/2-4SR

Depth unit of measure: m

Depth Int	Depth Cvd	Type TOC%	%	Lithology description	Trb	Sample
4611.00						0008
		3.71	80	Sh/Clst: drk gy to brn blk, slt		0008-1L
			20	S/Sst : w, crs, l, Mica-ad		0008-2L
4638.00						0009
		0.64	75	S/Sst : w to pl brn, crs, l, Mica-ad		0009-2L
			20	Cont : dd		0009-3L
			5	Sh/Clst: drk gy to brn blk, slt		0009-1L
4647.00						0010
		0.32	80	S/Sst : w to pl brn, crs, l, Mica-ad		0010-2L
			20	Cont : dd		0010-3L
			tr	Sh/Clst: drk gy to brn blk, slt		0010-1L
4656.00						0011
		0.40	75	S/Sst : w to pl brn, crs, l, Mica-ad		0011-2L
			20	Cont : dd		0011-3L
			5	Sh/Clst: drk gy to brn blk, slt		0011-1L
4665.00						0012
		3.37	100	Sh/Clst: drk gy to brn blk, slt		0012-1L
			tr	S/Sst : w, crs, l, Mica-ad		0012-2L
			tr	Cont : prp		0012-3L
4674.00						0037
			60	Sh/Clst: drk gy to brn blk, slt		0037-1L
		0.15	40	S/Sst : w to pl brn, crs, l, cem		0037-2L
			tr	Cont : prp		0037-3L
4683.00						0038
		0.15	65	S/Sst : w to pl brn, crs, l		0038-2L
			35	Sh/Clst: drk gy to brn blk, slt		0038-1L
			tr	Cont : prp, dd		0038-3L

GEOLAB NOR

Table 2 : Lithology description for well NOCS 6406/2-4SR

Depth unit of measure: m

Depth		Type			Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4692.00						0039
			65	S/Sst : w to pl brn, crs, l, cem, kln		0039-2L
		3.00	35	Sh/Clst: drk gy to brn blk, slt		0039-1L
			tr	Cont : prp		0039-3L
4701.00						0040
			60	S/Sst : w to pl brn, crs, l		0040-1L
			20	Sh/Clst: drk gy to brn blk, slt		0040-2L
			20	Cont : dd		0040-3L
		2.00		bulk		0040-0B
4710.00						0041
		1.18	80	S/Sst : w to pl brn, crs, l		0041-1L
			20	Cont : dd		0041-3L
			tr	Sh/Clst: drk gy to brn blk, slt		0041-2L
4728.00						0042
		0.88	70	S/Sst : w to m gy to pl brn, crs, l, cem, kln		0042-1L
			30	Sltst : m gy to drk gy to brn blk, s		0042-2L
			tr	Cont : prp		0042-3L
4737.00						0043
			85	S/Sst : w to m gy to pl brn, crs, l, cem, kln, slt		0043-1L
			15	Sltst : m gy to drk gy to brn blk, s		0043-2L
		0.97		bulk		0043-0B
			tr	Cont : prp		0043-3L
4746.00						0044
		0.70	75	S/Sst : w to m gy to pl brn, crs, l, cem, kln, slt		0044-1L
			25	Sltst : m gy to drk gy to brn blk, s		0044-2L
			tr	Cont : prp		0044-3L

GEOLAB NOR

Table 2 : Lithology description for well NOCS 6406/2-4SR

Depth unit of measure: m

Depth Int	Depth Cvd	Type TOC%	%	Lithology description	Trb	Sample
4755.00						0045
		0.68	85	S/Sst : w to m gy to pl brn, crs, l, cem, kln, slt		0045-1L
			15	Sltst : m gy to drk gy to brn blk, s		0045-2L
			tr	Cont : prp		0045-3L
4764.00						0046
		0.36	85	S/Sst : w to pl brn, crs, cem, kln		0046-1L
			15	Sh/Clst: m gy to drk gy to brn blk, slt		0046-2L
			tr	Cont : prp		0046-3L
4773.00						0047
		1.46	65	Sltst : m gy to drk gy to brn blk, s		0047-2L
			35	S/Sst : w to pl brn, crs, cem, kln		0047-1L
			tr	Cont : prp		0047-3L
4782.00						0048
			50	S/Sst : w to pl brn, crs, cem, kln		0048-1L
		2.37	50	Sltst : m gy to drk gy to brn blk, s		0048-2L
			tr	Cont : prp		0048-3L
4800.00						0049
		0.42	80	S/Sst : w to pl brn, crs, cem, kln		0049-1L
			20	Cont : dd		0049-3L
			tr	Sltst : m gy to drk gy to brn blk, s		0049-2L
4809.00						0050
		2.54	75	Sltst : m gy to drk gy to brn blk, s		0050-2L
			20	Cont : dd		0050-3L
			5	S/Sst : w to pl brn, crs, cem, kln		0050-1L
4827.00						0051
		0.40	90	S/Sst : w to lt gy, crs, cem, kln		0051-1L
			10	Sltst : drk gy to brn blk		0051-2L

GEOLAB NOR

Table 2 : Lithology description for well NOCS 6406/2-4SR

Depth unit of measure: m

Depth		Type			Trb	Sample
Int	Cvd	TOC%	%	Lithology description		
4836.00						0052
		0.87	95	S/Sst : w to lt gy, crs, cem, kln		0052-1L
			5	Sltst : drk gy to brn blk		0052-2L
4845.00						0013
		0.50	85	S/Sst : w to lt gy, crs, cem, kln		0013-1L
			15	Sltst : drk gy to brn blk		0013-2L
4854.00						0014
		0.61	80	S/Sst : w to lt gy, crs, cem, kln		0014-1L
			10	Sltst : drk gy to brn blk		0014-2L
			10	Cont : dd		0014-3L
4863.00						0015
		0.47	75	Sltst : m gy to drk gy to brn blk, s		0015-2L
			25	S/Sst : w to lt gy, slt, cem, l, kln		0015-1L
4872.00						0016
		0.56	50	S/Sst : w to lt gy, slt, cem, kln		0016-1L
			50	Sltst : m gy to drk gy to brn blk, s		0016-2L
4881.00						0017
		0.69	75	S/Sst : w to lt gy, slt, cem, kln		0017-1L
			25	Sltst : m gy to drk gy to brn blk, s		0017-2L
4890.00						0018
		0.80	65	S/Sst : w to lt gy, slt, cem, kln		0018-1L
			25	Sltst : m gy to drk gy to brn blk, s		0018-2L
			10	Cont : dd		0018-3L
4899.00						0019
		0.57	65	S/Sst : w to pl brn, l		0019-1L
			25	Cont : dd		0019-3L
			10	Sltst : m gy to drk gy to brn blk, s		0019-2L

GEOLAB NOR

Table 2 : Lithology description for well NOCS 6406/2-4SR

Depth unit of measure: m

Depth Int	Depth Cvd	Type TOC%	%	Lithology description	Trb	Sample
4908.00						0020
		0.72	80	S/Sst : w to pl brn, cem, l		0020-1L
			20	Cont : dd		0020-3L
			tr	Sltst : m gy to drk gy to brn blk, s		0020-2L
4917.00						0021
		0.77	90	S/Sst : w to pl brn, l		0021-1L
			10	Cont : dd		0021-3L
			tr	Sltst : m gy to drk gy to brn blk, s		0021-2L
4926.00						0022
		1.25	70	S/Sst : w to pl brn, l		0022-1L
			20	Cont : dd		0022-2L
			10	Sh/Clst: drk gy to brn blk, slt		0022-3L
4935.00						0023
		0.63	90	S/Sst : w to pl brn, cem, l, kln		0023-1L
			10	Sltst : drk gy to brn blk		0023-2L
4944.00						0024
		0.62	85	S/Sst : w to pl brn, cem, l, kln		0024-1L
			15	Sltst : drk gy to brn blk		0024-2L
4953.00						0025
		0.73	100	S/Sst : w to pl brn, cem, l, kln, slt		0025-1L
			tr	Sltst : drk gy to brn blk		0025-2L
4962.00						0026
		0.77	95	S/Sst : w to pl brn, cem, l, kln, slt		0026-1L
			5	Sltst : drk gy to brn blk		0026-2L

GEOLAB NOR

Table 2 : Lithology description for well NOCS 6406/2-4SR

Depth unit of measure: m

Depth Int	Cvd	Type TOC%	%	Lithology description	Trb	Sample
4971.00						0027
		0.75	100	S/Sst : w to pl brn, cem, l, kln, slt		0027-1L
			tr	Sltst : drk gy to brn blk		0027-2L
4998.00						0028
		1.28	100	S/Sst : w to pl brn, cem, l, kln, slt		0028-1L
			tr	Sltst : drk gy to brn blk		0028-2L
5007.00						0029
		1.63	95	S/Sst : w to pl brn, cem, l, kln, slt		0029-1L
			5	Sltst : drk gy to brn blk		0029-2L
5016.00						0030
		1.19	75	S/Sst : w to pl brn, cem, l, kln, slt		0030-1L
			15	Sltst : drk gy to brn blk		0030-2L
			10	Cont : dd		0030-3L
5034.00						0031
		1.39	75	S/Sst : w to pl brn, cem, l, kln, slt		0031-1L
			20	Cont : dd		0031-3L
			5	Sltst : drk gy to brn blk		0031-2L
5043.00						0032
		1.00	80	S/Sst : w to pl brn, cem, l, kln, slt		0032-1L
			10	Sltst : drk gy to brn blk		0032-2L
			10	Cont : dd		0032-3L
5052.00						0033
		0.31	90	S/Sst : w to pl brn, cem, l, kln, slt		0033-1L
			5	Sltst : drk gy to brn blk		0033-2L
			5	Cont : dd		0033-3L

GEOLAB NOR

Table 2 : Lithology description for well NOCS 6406/2-4SR

Depth unit of measure: m

Depth		Type				Trb	Sample
Int	Cvd	TOC%	%	Lithology description			
5061.00							0034
			50	S/Sst	: w to pl brn, cem, l, kln, slt		0034-1L
		2.94	50	Sh/Clst	: drk gy to brn blk, slt		0034-2L
			tr	Cont	: dd		0034-3L
5070.00							0035
		1.95	60	S/Sst	: w to pl brn, l		0035-1L
			30	Sh/Clst	: drk gy to brn blk, slt		0035-2L
			10	Cont	: dd		0035-3L
5079.00							0036
		1.65	80	S/Sst	: w to lt gy to pl brn, cem, l, kln		0036-3L
			15	Cont	: dd		0036-2L
			5	Sh/Clst	: drk gy to brn blk, slt		0036-1L

Table 3: Rock-Eval table for well NOCS 6406/2-4SR

Depth unit of measure: m

Depth	Typ	Form	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
4548.00	cut		Sh/Clst: lt gy	17.75	3.82	-	-	2.32	165	-	21.6	0.82	439	0001-1L
4557.00	cut		Sh/Clst: dsk y brn to brn blk	35.49	6.43	-	-	4.87	132	-	41.9	0.85	419	0002-1L
4566.00	cut		Sh/Clst: dsk y brn to brn blk	15.46	4.54	-	-	4.61	98	-	20.0	0.77	461	0003-1L
4575.00	cut		Sh/Clst: dsk y brn to brn blk	33.57	6.43	-	-	4.83	133	-	40.0	0.84	418	0004-1L
4584.00	cut		Sh/Clst: dsk y brn to brn blk	9.05	2.59	-	-	2.83	92	-	11.6	0.78	460	0005-1L
4593.00	cut		Sh/Clst: drk gy to brn blk	15.67	4.67	-	-	4.96	94	-	20.3	0.77	450	0006-1L
4602.00	cut		Sh/Clst: drk gy to brn blk	6.87	3.17	-	-	3.71	85	-	10.0	0.68	465	0007-1L
4611.00	cut		Sh/Clst: drk gy to brn blk	9.40	3.34	-	-	3.71	90	-	12.7	0.74	457	0008-1L
4665.00	cut		Sh/Clst: drk gy to brn blk	23.77	7.81	-	-	3.37	232	-	31.6	0.75	453	0012-1L
4692.00	cut		Sh/Clst: drk gy to brn blk	3.77	2.36	-	-	3.00	79	-	6.1	0.62	468	0039-1L
4701.00	cut		bulk	9.30	2.11	-	-	2.00	105	-	11.4	0.82	453	0040-0B
4710.00	cut		S/Sst : w to pl brn	20.13	5.43	-	-	1.18	460	-	25.6	0.79	436	0041-1L
4728.00	cut		S/Sst : w to m gy to pl brn	9.02	1.64	-	-	0.88	186	-	10.7	0.85	447	0042-1L
4737.00	cut		bulk	23.09	4.07	-	-	0.97	420	-	27.2	0.85	440	0043-0B
4746.00	cut		S/Sst : w to m gy to pl brn	10.83	1.56	-	-	0.70	223	-	12.4	0.87	441	0044-1L
4755.00	cut		S/Sst : w to m gy to pl brn	12.80	1.45	-	-	0.68	213	-	14.3	0.90	420	0045-1L

Table 3: Rock-Eval table for well NOCS 6406/2-4SR

Depth unit of measure: m

Depth	Typ	Form	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
4773.00	cut		Sltst : m gy to drk gy to brn blk	9.43	1.57	-	-	1.46	108	-	11.0	0.86	439	0047-2L
4782.00	cut		Sltst : m gy to drk gy to brn blk	10.89	3.19	-	-	2.37	135	-	14.1	0.77	461	0048-2L
4809.00	cut		Sltst : m gy to drk gy to brn blk	10.27	2.35	-	-	2.54	93	-	12.6	0.81	461	0050-2L
4836.00	cut		S/Sst : w to lt gy	10.85	1.54	-	-	0.87	177	-	12.4	0.88	438	0052-1L
4863.00	cut		Sltst : m gy to drk gy to brn blk	14.58	1.36	-	-	0.47	289	-	15.9	0.91	432	0015-2L
4917.00	cut		S/Sst : w to pl brn	27.03	3.48	-	-	0.77	452	-	30.5	0.89	427	0021-1L
4926.00	cut		S/Sst : w to pl brn	30.52	3.68	-	-	1.25	294	-	34.2	0.89	431	0022-1L
4998.00	cut		S/Sst : w to pl brn	28.39	4.12	-	-	1.28	322	-	32.5	0.87	436	0028-1L
5007.00	cut		S/Sst : w to pl brn	24.86	3.52	-	-	1.63	216	-	28.4	0.88	436	0029-1L
5016.00	cut		S/Sst : w to pl brn	22.86	3.91	-	-	1.19	329	-	26.8	0.85	437	0030-1L
5034.00	cut		S/Sst : w to pl brn	36.09	6.08	-	-	1.39	437	-	42.2	0.86	441	0031-1L
5043.00	cut		S/Sst : w to pl brn	28.60	5.11	-	-	1.00	511	-	33.7	0.85	441	0032-1L
5061.00	cut		Sh/Clst: drk gy to brn blk	4.78	2.42	-	-	2.94	82	-	7.2	0.66	466	0034-2L
5070.00	cut		S/Sst : w to pl brn	23.51	4.77	-	-	1.95	245	-	28.3	0.83	437	0035-1L
5079.00	cut		S/Sst : w to lt gy to pl brn	19.67	3.52	-	-	1.65	213	-	23.2	0.85	431	0036-3L

Table 4A: Volume Composition of Gas Samples from well NOCS 6406/2-4SR

Depth unit of measure: m

Depth	Typ	Lithology	C1	C2	C3	iC4	nC4	iC5	nC5	CO2	sum C1-C5	wet-ness	iC4/nC4	Sample
4548.00	cut	bulk	-	-	-	-	-	-	-	-	-	-	-	0001-0B
4557.00	cut	bulk	-	-	-	-	-	-	-	-	-	-	-	0002-0B
4638.00	cut	bulk	-	-	-	-	-	-	-	-	-	-	-	0009-0B
4674.00	cut	bulk	-	-	-	-	-	-	-	-	-	-	-	0037-0B
4728.00	cut	bulk	-	-	-	-	-	-	-	-	-	-	-	0042-0B
4782.00	cut	bulk	-	-	-	-	-	-	-	-	-	-	-	0048-0B
4872.00	cut	bulk	-	-	-	-	-	-	-	-	-	-	-	0016-0B
4917.00	cut	bulk	-	-	-	-	-	-	-	-	-	-	-	0021-0B
5043.00	cut	bulk	-	-	-	-	-	-	-	-	-	-	-	0032-0B
5070.00	cut	bulk	-	-	-	-	-	-	-	-	-	-	-	0035-0B

Table 4B: Isotopic Composition of Gas Samples from well NOCS 6406/2-4SR

Depth unit of measure: m

Depth	Typ	Lithology	C1 d13C	C1 * dD	C2 d13C	C3 d13C	iC4 d13C	nC4 d13C	CO2 d13C	CO2 d18O	Sample
4548.00	cut	bulk	-53.1	-	-32.4	-27.0	-	-	-11.1	-	0001-0B
4557.00	cut	bulk	-44.2	-	-27.9	-23.9	-	-	-15.1	-	0002-0B
4638.00	cut	bulk	-48.8	-	-33.7	-32.2	-	-	-6.9	-	0009-0B
4674.00	cut	bulk	-43.8	-	-29.8	-	-	-	-9.1	-	0037-0B
4728.00	cut	bulk	-54.1	-	-31.3	-27.4	-	-	-11.9	-	0042-0B
4782.00	cut	bulk	-49.4	-	-32.7	-29.4	-	-	-16.3	-	0048-0B
4872.00	cut	bulk	-33.6	-	-27.9	-26.3	-	-	-18.1	-	0016-0B
4917.00	cut	bulk	-	-	-	-	-	-	-19.5	-	0021-0B
5043.00	cut	bulk	-45.8	-	-29.3	-	-	-	-20.0	-	0032-0B
5070.00	cut	bulk	-58.3	-	-34.1	-	-	-	-16.6	-	0035-0B

* N.B. Although δD analyses were ordered and performed by Ife the sample amounts were insufficient for reliable data.

Institutt for energiteknikk
Institute for Energy Technology

B400-255-1

IFE/KR/F-99/038

DATAREPORT ON STABLE ISOTOPES, GAS SAMPLES FROM WELL 6406/2-4SR AND WELL 30/9-19A

Institutt for energiteknikk
Institute for Energy Technology

	KJELLER	HALDEN
Address	N-2007 Kjeller, Norway	N-1751 Halden, Norway
Telephone	+47 63 80 60 00	+47 69 21 22 00
Telex	76 361 isotp n	76 335 energ n
Telefax	+47 63 81 11 68	+47 69 21 22 01

Availability
In Confidence

Report type
IFE/KR/F-99/038

Report title
DATAREPORT ON STABLE ISOTOPES, GAS SAMPLES FROM WELL 6406/2-4SR AND WELL 30/9-19A
(ref. IFE no 2.3.029.99)

Client
Saga Petroleum ASA

Client reference

Date
1999-03-09

Date of last revision

Revision number

Number of pages
5

Number of issues
15

Summary

One gas sample from well 6406/2-4SR, test 1 and one sample from well 30/9-19A, test 1 are analysed for gas and isotopic composition.

The work is done in accordance with «The Norwegian Industry Guide to Organic Geochemical Analyses», third edition 1993.

Distribution

Saga (8)
Andresen, B.
Johansen, H.
Johansen, I.
Sieglé, S.
File (3)

Keywords:

	Name	Date	Signature
Prepared by	Bjørg Andresen Ingar Johansen Sylviane Sieglé	1999-03-09	Bjørg Andresen Sylviane Sieglé
Reviewed by	Harald Johansen	1999-03-09	Harald Johansen
Approved by	Bjørg Andresen	1999-03-09	Bjørg Andresen

1 Introduction

One gas sample from well 6406/2-4SR, test 1 and one sample from well 30/9-19A, test 1 are analysed for gas and isotopic composition.

On the samples C_1 - C_5 and CO_2 are quantified and the $\delta^{13}C$ value is measured on methane, ethane, propane, the butanes and CO_2. In addition the δD value is measured on methane.

2 Analytical procedures

Aliquots of 0.2 ml are sampled with a syringe for analysis on a Poraplot Q column connected with flame ionisation (FID) and thermal conductivity (TCD) detectors. The detection limit for the hydrocarbon gas components is 0.01 µl/ml and for H_2S and for CO_2 0.2 µl/ml.

Two different approaches are used for the isotopic determination. For the isotope analysis of methane and carbon dioxide 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. Methane is oxidised in a CuO-oven. The combustion products CO_2 and H_2O are frozen into collection vessels and separated. Carbon dioxide is collected directly after the chromatographic separation.

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

For the carbon isotopic determination of the wet gas components aliquots are sampled with a syringe and analysed on a VG Isochrom connected on line to a VG Optima Mass spectrometer. A HP 5890 II with a Poraplot Q column is used for the separation and helium is used as a carrier gas. The injections are performed in splitless mode.

Both analytical methods are tested with the same laboratory gas mixture. Based on repeated analysis of a the gas mixture, the reproducibility in the $\delta^{13}C$ value is better than 0.5‰ PDB in both methods. The reproducibility in the δD value is likewise better than 10‰.

3 Results

The normalised volume composition of the gas samples is shown in Table 1. No H_2S is detected in the samples. The stable isotope composition is shown in Table 2.

The molecular composition related to the carbon isotope variation in methane from the samples are plotted in Figure 1 (Schoell, 1983), the carbon and hydrogen variation in methane are plotted in Figure 2 (Schoell, 1983) and the carbon isotope variation in ethane related to the carbon isotope variation in methane in Figure 3 (Schoell, 1983).

Table 1 Volume composition of gas samples (normalised values) from well 6406/2-4SR and well 30/9-19A

Sample	IFE no GEO	C_1 %	C_2 %	C_3 %	iC_4 %	nC_4 %	iC_5 %	nC_5 %	CO_2 %	ΣC_1- C_5 %	Wet-ness	iC_4/ nC_4/
6406/2-4SR, Test 1	990599	70.8	12.0	5.7	0.95	1.8	0.47	0.50	7.9	92.1	0.23	0.54
30/9-19A, Test 1	990600	80.3	9.2	5.0	0.63	1.5	0.29	0.35	2.8	97.2	0.17	0.43

Table 2 Isotopic composition of gas samples from well 6406/2-4SR and well 30/9-19A

Sample	IFE no GEO	C_1 $\delta^{13}C$ ‰ PDB	C_1 δD ‰ SMOW	C_2 $\delta^{13}C$ ‰ PDB	C_3 $\delta^{13}C$ ‰ PDB	iC_4 $\delta^{13}C$ ‰ PDB	nC_4 $\delta^{13}C$ ‰ PDB	CO_2 $\delta^{13}C$ ‰ PDB	CO_2 $\delta^{18}O$ ‰ PDB
6406/2-4SR, Test 1	990599	-44.3	-241	-30.6	-27.8	-28.8	-26.1	-10.5	-11.7
30/9-19A, Test 1	990600	-42.3	-212	-28.2	-27.6	-28.7	-27.5	-9.5	-12.9

4 Literature

Schoell, M. (1983). Genetic characterisation of natural gases. *The American Association of Petroleum Geologists Bulletin*, **67**,2225-2238.