

((  
(ooo)  
HYDRO

FORMATION FLUID SAMPLING

Well : 30/9-12

Rig : Vildkat Explorer

Pretest No. : 4		Sample Depth : 2667m		Witnesses : Gundesoe	
Run No. : 2A	Sample No. : 1	1st Chamber	2nd Chamber	3rd Chamber	
Chamber volume (gals/litres)		2-3/4 gal	1 gal		
Chamber No.		-	RFS AB1225		
Filling time (mins.)		14.5	11.0		
Shut in press. (bar)/T deg C		HPG 282.1 / 83.7	HPG 282.1 /	/	
Chamber press. (surf bar)/T		120 / 5.3°C	/	/	
Gas volume (SCF/Sm <sup>3</sup> )		21 ft <sub>3</sub> / 0.595 m <sub>3</sub>			
Oil volume (litres)		5.0			
Oil gravity (API/gm/cc)		/ 0.87 g/cc			
Water / Filtrate (litres)		4.0			
Water / Filtrate PPM Cl-		49 000 ppm			
Water filtrate pH/pF/Ca++		7.1 / 0 / 300	/ /	/ /	
Mud filtrate PPM CL-		49 000			
Mud filtrate pH/pF/Ca++		8.4 / 0.15 / 220	/ /	/ /	
Gas composition %	C1	201.7 ppm			
	C2	23.3 ppm			
	C3	None recorded			
	IC4	2.3 ppm			
	NC4	4.8 ppm			
	H2S	-			
	CO2	-			

Remarks : Gas from 2-3/4 gal chamber collected at surface, unable to obtain sufficient sample injection pressure to give meaningful chromatograph readings. Oil density measured using mud balance, ambient air temperature 17°C

6.1 Mud report

36" hole section

This section was drilled with seawater and high viscosity pills and returns to the seabed. The string was pulled at 182 m due to low ROP and the bit was found to be balled up.

At TD the hole was displaced with 1.22 rd mud prior to running casing.

The 30" casing was run and cemented without problems.

17 1/2" hole section

As for the previous hole section this section was drilled with seawater and high viscosity pills and returns to the seabed.

At TD the hole was displaced with 1.20 rd prior to running casing.

The 13 3/8" casing was run and cemented without problems.

12 1/2" hole section

This section was drilled with a KCl/polymer mud system with a starting weight of 1.20 rd. The previous seawater was displaced while drilling the first 40 meters of the section.

The mudweight was increased to 1.36 rd at 1355 m and further to 1.40 rd at 1450 m. This weight was kept to total depth of the section at 1545 m.

The logging tool stopped at 2360 m, and a wipertrip was made. Tight spots were reamed in the following intervals: 2355 m - 2380 m, 2460 m - 2471 m and 2471 m to 2499 m.

8 1/2" hole section

This hole interval was drilled to TD at 2994 m. The mud weight was cut from 1.40 rd to 1.20 rd using centrifuges a mudweight of 1.20 rd to 1.22 rd was maintained while drilling the section. No hole problems were encountered.

The well was permanently plugged back to 950 m prior to sidetrack.

Daily mud properties															Date								
System : BORE															27/8-1991								
Well: 30/9-12															14.								
Mud Contractor: BAROID																							
Hydro Data: "Mid depth" from table 3, otherwise from table 14.																							
Date	Mid. depth	Mud (SG)	PV (cp)	YP (Pa)	GEL (Pa)	GEL (Pa)	100 psi (cc)	HP/HT (cc)	Cl- (mg/l)	Alkalinity (Pf)	Ca++ (Pm)	Oil (Mf)	Sol (mg/l)	H2O (%)	V.G. meter at 115 gr. F.						Type		
	m,MD													rpm	rpm	rpm	rpm	rpm	rpm				
:910407:	182:	1.22:	0:	0:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	SPUD:		
:910408:	216:	1.05:	0:	0:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	SPUD:		
:910410:	1016:	1.05:	0:	0:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	SPUD:		
:910411:	1016:	1.20:	0:	0:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	KCL:		
:910412:	1016:	1.20:	0:	0:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	KCL:		
:910413:	1061:	1.20:	15:	8:	1:	1:	8.1:	7.0:	30000/30000:	0.09:	0.01:	1.30:	240/240:	0:	9:	91:	46:	31:	25:	17:	4:	3:	KCL:
:910414:	1675:	1.40:	19:	11:	2:	2:	8.4:	5.0:	50000/50000:	0.09:	0.20:	0.40:	380/380:	0:	14:	86:	59:	40:	31:	19:	3:	3:	KCL:
:910415:	2276:	1.40:	22:	9:	2:	4:	8.0:	6.3:	62000/62000:	0.05:	:	1.50:	800/800:	0:	16:	84:	62:	40:	30:	21:	5:	4:	KCL:
:910416:	2302:	1.42:	23:	10:	2:	3:	8.3:	6.1:	60000/60000:	1.20:	0.10:	1.10:	560/560:	0:	18:	82:	66:	43:	35:	22:	8:	7:	KCL:
:910417:	2405:	1.41:	22:	10:	3:	12:	8.0:	5.8:	69000/69000:	0.10:	:	1.20:	500/500:	0:	18:	82:	64:	42:	31:	21:	7:	6:	KCL:
:910418:	2464:	1.39:	20:	10:	3:	12:	8.2:	5.5:	62000/62000:	0.30:	0.10:	2.00:	500/500:	0:	18:	82:	60:	40:	29:	20:	7:	6:	KCL:
:910419:	2545:	1.39:	21:	9:	4:	11:	8.2:	4.8:	62000/62000:	0.10:	0.10:	2.00:	300/300:	0:	18:	82:	59:	38:	31:	20:	7:	6:	KCL:
:910420:	2545:	1.40:	20:	8:	4:	10:	8.2:	5.5:	62000/62000:	0.10:	0.10:	2.00:	300/300:	0:	18:	82:	56:	36:	29:	19:	6:	5:	KCL:
:910421:	2545:	1.40:	20:	8:	5:	10:	8.2:	5.8:	62000/62000:	0.10:	0.10:	1.70:	300/300:	0:	18:	82:	56:	36:	30:	21:	6:	5:	KCL:
:910422:	2545:	1.40:	20:	9:	5:	19:	8.9:	6.2:	59000/59000:	0.20:	0.30:	1.10:	480/480:	0:	18:	82:	58:	38:	31:	22:	8:	7:	KCL:
:910423:	2548:	1.40:	17:	6:	3:	12:	8.3:	6.0:	59000/59000:	0.20:	:	1.80:	360/360:	0:	18:	82:	46:	29:	23:	16:	5:	4:	KCL:
:910424:	2622:	1.21:	12:	7:	1:	3:	8.5:	5.0:	9.5:59000/59000:	0.20:	:	1.30:	280/280:	0:	11:	89:	38:	26:	19:	15:	4:	3:	KCL:
:910425:	2664:	1.20:	13:	7:	2:	3:	8.5:	4.8:	9.3:59000/59000:	0.10:	:	1.10:	220/220:	0:	11:	89:	40:	27:	21:	15:	5:	4:	KCL:
:910426:	2691:	1.22:	13:	7:	2:	6:	8.4:	5.0:	9.4:54000/54000:	0.10:	:	1.00:	220/220:	0:	11:	89:	40:	27:	22:	16:	5:	4:	KCL:
:910427:	2704:	1.20:	13:	7:	2:	6:	8.4:	5.0:	9.4:54000/54000:	0.10:	:	1.00:	220/220:	0:	11:	89:	40:	27:	21:	16:	5:	3:	KCL:
:910428:	2727:	1.20:	12:	6:	2:	5:	8.4:	5.1:	9.5:54000/54000:	0.10:	:	1.80:	220/220:	0:	11:	89:	36:	24:	19:	13:	4:	3:	KCL:
:910429:	2738:	1.20:	13:	8:	2:	6:	8.5:	5.2:	9.6:53000/53000:	0.20:	:	1.10:	220/220:	0:	11:	89:	41:	28:	23:	16:	5:	4:	KCL:
:910430:	2759:	1.20:	12:	6:	2:	6:	8.5:	5.3:	9.5:53000/53000:	0.10:	:	1.10:	220/220:	0:	11:	89:	36:	24:	19:	14:	4:	3:	KCL:
:910501:	2788:	1.20:	14:	8:	3:	10:	8.4:	4.9:	9.3:53000/53000:	0.10:	:	1.70:	280/280:	0:	11:	89:	44:	30:	24:	17:	6:	5:	KCL:
:910502:	2805:	1.20:	14:	7:	3:	9:	8.4:	5.4:	9.7:54000/54000:	0.10:	:	1.70:	220/220:	0:	11:	89:	42:	28:	23:	16:	5:	4:	KCL:
:910503:	2805:	1.21:	14:	7:	3:	9:	8.4:	5.6:	10.0:54000/54000:	0.10:	:	1.70:	220/220:	0:	11:	89:	42:	28:	23:	16:	5:	4:	KCL:
:910504:	2994:	1.21:	13:	7:	2:	5:	8.2:	5.0:	9.0:55000/55000:	0.10:	:	1.60:	240/240:	0:	12:	88:	39:	26:	21:	15:	4:	3:	KCL:
:910505:	2994:	1.22:	13:	7:	2:	5:	8.2:	5.0:	9.0:59000/59000:	0.10:	:	1.70:	240/240:	0:	12:	88:	39:	26:	21:	15:	4:	3:	KCL:
:910506:	2994:	1.22:	13:	7:	2:	5:	8.2:	5.0:	9.4:59000/59000:	0.10:	:	1.70:	260/260:	0:	12:	88:	39:	26:	21:	15:	4:	3:	KCL:
:910507:	2400:	1.22:	12:	7:	2:	7:	8.1:	5.2:	57000/57000:	0.10:	:	1.70:	500/500:	0:	10:	90:	38:	26:	27:	16:	5:	4:	KCL:
:910508:	2400:	1.26:	20:	12:	4:	10:	8.5:	4.9:	57000/57000:	0.10:	0.10:	0.80:	480/480:	0:	12:	88:	63:	43:	33:	21:	8:	7:	KCL:

Table B-11

Mud consumption		Date
(((		27/8-1991
(ooo)	System : BORE	
Well: 30/9-12		
Norsk : Mud company: BAROID		
Hydro :		13:
	Actual used	

Drilling of 36 " hole

BARITE	Kg	13000
BENTONITE	Kg	19000
CAUSTIC	Kg	350
LIME	Kg	125
SODA ASH	Kg	325
XCD-POLYMER	Kg	50

Drilling of 17 1/2" hole

BARITE	Kg	20000
BENTONITE	Kg	8000
CAUSITC	Kg	75
SODA ASH	Kg	75

Drilling of 12 1/4" hole

BARASCAV-D	Kg	1600
BARITE	Kg	244000
BENTONITE	Kg	1000
CAUSTIC	Kg	25
CITRIC ACID	Kg	200
EZ-MUD	Kg	720
KCL	Kg	20000
LIME	Kg	325
PAC-L	Kg	1850
PAC-R	Kg	1500
POT HYDROXIDE	Kg	25
SOD BICARB	Kg	1600
SODA ASH	Kg	775
THERMATHIN	Kg	175
XCD-POLYMER	Kg	1175
KCL BRINE	l	113000
KCL-BRINE	l	82000

Drilling of 8 1/2" hole

BARASCAV-D	Kg	200
BARITE	Kg	9000
CITRIC ACID	Kg	150
EZ-MUD	Kg	100
KCL	Kg	2000
PAC-L	Kg	1075
PAC-R	Kg	150
SOD BICARB	Kg	450
SODA ASH	Kg	125
THERMA THIN	Kg	75
THERMATHIN	Kg	150
XCD-POLYMER	Kg	550
KCL-BRINE	l	43000

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:      :      M u d   c o n s u m p t i o n      Date      :
:  ((  :      -----                               27/8-1991 :
: (ooo) :      System : BORE                               :
:-----: Well: 30/9-12                                   :
: Norsk : Mud company: BAROID                           :
: Hydro :                                             13:
=====
:
:                                             Actual
:                                             used
:-----:

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Plug and Abandon

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BARASCAV-D      Kg      150
BARITE          Kg      38000
CITRIC ACID     Kg       50
PAC-L           Kg      375
PAC-R           Kg      250
SOD BICARB      Kg      100
SODA ASH        Kg       50
XCD-POLYMER     Kg      275
KCL-BRINE       l       35000

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HYDRO

FORMATION FLUID SAMPLING

Well : 30/9-12A

Rig : Vildkat Explorer

Pretest No. : 23		Sample Depth : 2776.6m		Witnesses : Waldum / Holsen	
Run No. :2A	Sample No. : 1	1st Chamber	2nd Chamber	3rd Chamber	
Chamber volume (gals)		2-3/4	Not filled		
Chamber No.		-			
Filling time (mins.)		40			
Shut in press. (bar)/T deg C		HPG 275.75 / 88.9	/	/	
Chamber press. (surf bar)/T		60 / 7.8	/	/	
Gas volume (SCF/Sm3)		4.2 / 0.119			
Oil volume (litres)		1.5			
Oil gravity (API/gm/cc)		Not measured			
Water / Filtrate (litres)		6.75			
Water / Filtrate PPM CL-		51 000			
Water filtrate pH/pF/Ca++		7.6 / 0 / 360	/ /	/ /	
Mud filtrate PPM CL-		53 700			
Mud filtrate pH/pF/Ca++		8.4 / 0.1 / 340	/ /	/ /	
Gas composition ppm C1		13514			
C2		2642			
C3		761			
IC4		151			
NC4		115			
H2S					
CO2					

Remarks : Probe (4 x 0.020") plugging. 2-3/4 gal chamber not completely filled. No attempt made to fill 1 gal chamber.

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HYDRO

FORMATION FLUID SAMPLING

Well : 30/9-12

Rig : Vildkat Explorer

Pretest No. : 1		Sample Depth : 2776.3m		Witnesses : Waldum / Holsen	
Run No. :2B	Sample No. : 2	1st Chamber	2nd Chamber	3rd Chamber	
Chamber volume (gals)		2-3/4	1		
Chamber No.			1197RFS-AB		
Filling time (mins.)		43	9		
Shut in press. (bar)/T deg C		HPG 275.86 / 84.4	HPG 275.83 / 84.4	/	
Chamber press. (surf bar)/T		95 / 7.4	Sealed	/	
Gas volume (SCF/Sm3)		12.5 / 0.354			
Oil volume (litres)		4.0			
Oil gravity (API/gm/cc)		Not measured			
Water / Filtrate (litres)		5.0			
Water / Filtrate PPM CL-		56 000			
Water filtrate pH/pF/Ca++		8.0 / 0 / 420	/ /	/ /	
Mud filtrate PPM CL-		53 700			
Mud filtrate pH/pF/Ca++		8.4 / 0.1 / 340	/ /	/ /	
Gas composition ppm C1		99309			
C2		38145			
C3		9308			
IC4		1693			
NC4		2640			
H2S					
CO2					

Remarks :



Daily mud properties															Date									
															2/7-1991									
System : BORE																								
Well: 30/9-12A																								
Mud Contractor: BAROID																								
Hydro : Data: "Mid depth" from table 3, otherwise from table 14.															14.									
Date	Mid. depth	Mud Dens.	PV	YP	GEL	GEL	:100	HP/HT	Cl-	Alkalinity	Ca++	Oil	Sol	H2O	V.G.	meter at 115 gr. F:	F:							
	m,MD	(SG)	cp	Pa	Pa	Pa	pH	(cc)	(cc)	mg/l	Pf	Pm	Mf	mg/l	%	%	%	rpm	rpm	rpm	rpm	rpm	rpm	Type
:910509:	1017:	1.26:	20:	12:	4:	11:	8.5:	5.0:		57000/57000:	0.10:	0.10:	0.80:	550/550:	12:		63:	43:	32:	21:	8:	7:	KCL	
:910510:	1474:	1.39:	19:	12:	3:	9:	8.5:	4.0:		62000/62000:	0.30:	0.10:	0.20:	320/320:	18:		63:	44:	34:	22:	6:	4:	KCL	
:910511:	2100:	1.40:	20:	11:	3:	14:	8.0:	4.9:		57000/57000:	0.20:		1.60:	600/600:	18:		62:	42:	31:	21:	6:	5:	KCL	
:910512:	2372:	1.40:	22:	10:	4:	18:	8.3:	5.4:		55000/55000:	0.10:	0.10:	0.20:	320/320:	17:		64:	42:	32:	22:	7:	7:	KCL	
:910513:	2419:	1.42:	21:	10:	5:	22:	8.0:	5.1:		56000/56000:	0.10:		0.90:	420/420:	18:		62:	41:	32:	22:	8:	8:	KCL	
:910514:	2482:	1.40:	20:	14:	8:	35:	8.1:	5.6:		58000/58000:	0.20:		0.80:	320/320:	20:		67:	47:	38:	28:	15:	15:	KCL	
:910515:	2549:	1.40:	20:	13:	9:	25:	8.1:	6.0:		57000/57000:	0.10:		0.30:	400/400:	20:		66:	46:	36:	25:	12:	11:	KCL	
:910516:	2617:	1.40:	20:	8:	3:	17:	8.6:	5.0:		65000/65000:	0.05:		0.55:	320/320:	18:		39:	27:	22:	16:	72:	7:	KCL	
:910517:	2658:	1.40:	19:	11:	5:	25:	8.0:	5.5:		65000/65000:	0.05:		0.75:	300/300:	18:		60:	41:	32:	24:	12:	11:	KCL	
:910518:	2658:	1.40:	22:	10:	7:	23:	8.8:	5.6:		65000/65000:	0.18:		0.55:	440/440:	15:		64:	42:	35:	26:	13:	12:	KCL	
:910519:	2681:	1.41:	12:	13:	6:	20:	8.0:	5.2:		58000/58000:	0.20:		1.10:	320/320:	15:		59:	42:	36:	27:	18:	14:	KCL	
:910520:	2709:	1.40:	19:	7:	4:	18:	8.0:	4.8:		62000/62000:	0.20:		0.90:	320/320:	17:		52:	33:	28:	20:	10:	8:	KCL	
:910521:	2750:	1.39:	18:	9:	5:	20:	8.1:	6.0:		61000/61000:	0.30:		1.10:	260/260:	18:		53:	35:	28:	21:	8:	7:	KCL	
:910522:	2750:	1.40:	18:	6:	3:	18:	8.0:	5.5:		58000/58000:	0.20:		0.90:	280/280:	18:		47:	29:	23:	16:	6:	5:	KCL	
:910523:	2750:	1.40:	21:	8:	5:	18:	8.0:	5.6:		61000/61000:	0.20:		0.80:	280/280:	18:		57:	36:	28:	23:	11:	9:	KCL	
:910524:	2824:	1.20:	12:	6:	1:	2:	9.5:	5.6:		53000/53000:	0.20:	0.80:	1.00:	380/380:	10:		36:	24:	19:	14:	3:	2:	KCL	
:910525:	2877:	1.20:	12:	7:	2:	7:	8.4:	5.2:	9.4:	56000/56000:	0.10:	0.30:	1.80:	380/380:	12:		38:	26:	20:	13:	4:	3:	KCL	
:910526:	2894:	1.20:	12:	6:	2:	5:	8.2:	5.0:	9.2:	58000/58000:	0.10:	0.20:	0.90:		12:		36:	24:	18:	13:	4:	3:	KCL	
:910527:	2907:	1.20:	12:	6:	2:	9:	8.4:	5.9:	10.0:	58000/58000:	0.20:	0.30:	2.00:	360/360:	12:		36:	24:	18:	13:	4:	3:	KCL	
:910528:	2919:	1.20:	13:	6:	2:	9:	8.3:	5.4:	10.0:	58000/58000:	0.10:	0.10:	1.80:	320/320:	12:		38:	25:	20:	14:	5:	4:	KCL	
:910529:	2919:	1.20:	13:	6:	2:	8:	8.4:	5.4:	10.0:	58000/58000:	0.10:	0.10:	1.00:	300/300:	11:		38:	25:	20:	14:	5:	4:	KCL	
:910530:	3001:	1.20:	13:	6:	2:	7:	8.2:	5.6:	10.0:	58000/58000:	0.10:		1.20:	320/320:	12:		38:	25:	20:	14:	5:	4:	KCL	
:910531:	3061:	1.20:	13:	7:	2:	9:	8.3:	5.2:	9.0:	58000/58000:	0.10:		1.40:	240/240:	12:		40:	27:	21:	15:	5:	4:	KCL	
:910601:	3061:	1.20:	13:	7:	3:	9:	8.2:	5.2:	9.3:	58000/58000:	0.10:		1.40:	240/240:	12:		40:	27:	21:	15:	5:	4:	KCL	
:910604:	0:	1.20:	13:	7:	2:	8:	8.2:	5.3:		58000/58000:			1.20:	260/260:	12:		40:	27:	21:	15:	4:	3:	KCL	

Table B-10

Table B-11

Mud consumption		Date
(((		27/8-1991
(ooo)	System : BORE	
Well: 30/9-12A		
Norsk	Mud company: BAROID	
Hydro		13:
	Actual used	

Drilling of 12 1/4" hole

BARASCAV-D	Kg	1500
BARITE	Kg	391000
BENTONITE	Kg	2000
BORREWELL C	Kg	600
CITRIC ACID	Kg	725
EZ-MUD DP	Kg	1130
KCL	Kg	51000
PAC-L	Kg	3819
PAC-R	Kg	1250
POT HYDROX	Kg	25
SOD BICARB	Kg	1825
SODA ASH	Kg	1075
THERMATHIN	Kg	250
WALNUT F	Kg	75
XCD-POLYMER	Kg	500
KCL-BRINE	l	37000

Drilling of 8 1/2" hole

BARASCAV-D	Kg	200
BARITE	Kg	3000
CITRIC ACID	Kg	600
EZ-MUD DP	Kg	400
KCL	Kg	2000
PAC-L	Kg	1625
PAC-R	Kg	386
SOD BICARB	Kg	1650
SODA ASH	Kg	225
XCD-POLYMER	Kg	725
KCL-BRINE	l	60000



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**TABLE 1.1** List of fluid samples analysed

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WELL	ID	DEPTH
30/9-10	DST # 1A	2757-2776 mRKB
30/9-10	DST # 1B	2757-2825 mRKB
30/9-12	RFT # 2A	2667.0 mRKB
30/9-12A	RFT # 2A	2776.6 mRKB

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The stable isotopic composition of the 4 oils was measured by GeolabNor, Trondheim, Norway. All other geochemical analyses together with the compilation and interpretation presented in this report were undertaken by Norsk Hydro Research Centre, Bergen, Norway.

All reported depths are in meters relative to rotary kelly bushing (m MD RKB), driller's depth, unless otherwise is stated.

**OIL-ANALYSES 30/9-12,12A**

## 2. RESULTS AND DISCUSSION

The two oils were analysed by Iatroscan group type separation, gas chromatography of whole oils and the saturated hydrocarbon fractions, gas chromatography-mass spectrometry (GC-MS) of the saturated hydrocarbon fractions and isotope ratio mass spectrometry.

### 2.1 Iatroscan group type separation

The group type composition data are listed in Table 2.1. It should be noted that the oils have been analysed using a chromatographic (Iatroscan) method. The results obtained with Iatroscan are considerably different from the data acquired with the formerly used gravimetric method. Oils from wells 30/9-1, 30/9-2, 30/9-6, 30/9-7 and 30/9-8 have been reanalysed to enable comparison. The data reported are therefore different from previously reported results.

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**TABLE 2.1** Iatrosan group type composition results
 

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WELL	ID	%SAT	%ARO	%NSO	%ASP
30/9-1	DST # 2	34.8	43.2	11.4	10.6
30/9-2	DST # 4	39.5	48.8	10.6	1.1
30/9-2	DST # 3	37.8	48.6	11.8	1.8
30/9-2	DST # 2	35.9	47.0	12.4	4.7
30/9-2	DST # 1	39.3	24.5	22.5	13.7
30/9-6	DST # 2	39.0	52.3	7.1	1.6
30/9-6	DST # 1	40.3	47.9	9.9	1.9
30/9-7	DST # 1	41.0	48.4	8.1	2.5
30/9-8	DST # 2A	49.7	44.5	5.2	0.6
30/9-8	DST # 2B	37.3	52.8	7.6	2.3
30/9-10	DST # 1A	36.0	55.0	6.9	2.1
30/9-10	DST # 1B	35.2	55.1	7.0	2.7
30/9-12	RFT # 2A	42.2	43.4	7.9	6.5
30/9-12A	RFT # 2A	42.7	50.7	6.0	0.6
30/9-B-40		40.5	50.5	6.5	2.5

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OIL-ANALYSES 30/9-12,12A

## 2.2 Gas chromatography of oils

The results from gas chromatography of the saturated hydrocarbon fraction are included in Appendix I. Molecular ratios from the analyses have been calculated and are listed in Table 2.2.

**TABLE 2.2** Molecular ratios, saturated fraction

WELL	ID	Pris/nC <sub>17</sub>	Pris/Phyt	CPI
30/9-10	DST # 1A	0.64	1.54	1.0
30/9-10	DST # 1B	0.72	1.88	1.0
30/9-12	RFT # 2A	0.59	1.55	1.0
30/9-12A	RFT # 2A	0.61	1.67	1.0

**OIL-ANALYSES 30/9-12,12A**



### 2.3 Biological markers

The saturated fractions of the oils were analysed by gas chromatography-mass spectrometry (GC-MS) using selected metastable ion monitoring (SMIM). An overview of experimental setup, compound identifications and biomarker abundances presented as bargraphs are found in Appendix II. Selected biomarker ratios were calculated and are listed in Tables 2.3 and 2.4.

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**TABLE 2.3 Sterane biomarker ratios**

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WELL	ID	%20S	% $\alpha\beta\beta$	%27	%28	%29	Dia/Reg
30/9-10	DST # 1A	48	58	45	18	37	3.8
30/9-10	DST # 1B	49	58	45	19	36	3.8
30/9-12	RFT # 2A	50	58	45	19	36	3.5
30/9-12A	RFT # 2A	49	60	45	19	36	3.9

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**OIL-ANALYSES 30/9-12,12A**

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**TABLE 2.4** Triterpane biomarker ratios

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WELL	ID	$T_s/T_m$	29/30	28/29	25-Nor/29	24/23
30/9-10	DST # 1A	1.27	0.30	0.43	0.29	0.95
30/9-10	DST # 1B	1.26	0.31	0.44	0.30	0.98
30/9-12	RFT # 2A	1.40	0.30	0.42	0.24	0.91
30/9-12A	RFT # 2A	1.44	0.30	0.42	0.23	0.89

---

**OIL-ANALYSES 30/9-12,12A**

## 2.4 Carbon isotope data

$^{13}\text{C}/^{12}\text{C}$  isotope ratios were measured by GeolabNor (Table 2.5).  
The results are plotted in Figure 2.1.

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**TABLE 2.5** Carbon isotopic composition

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WELL	ID	$\delta^{13}\text{C}_{\text{SAT}}$	$\delta^{13}\text{C}_{\text{ARO}}$	$\delta^{13}\text{C}_{\text{NSO}}$	$\delta^{13}\text{C}_{\text{ASP}}$
30/9-10	DST # 1A	-28.86	-28.16	-27.76	-27.77
30/9-10	DST # 1B	-28.82	-28.12	-27.66	-27.74
30/9-12	RFT # 2A	-28.84	-27.91	-27.51	-27.77
30/9-12A	RFT # 2A	-28.80	-28.06	-27.86	-28.20

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OIL-ANALYSES 30/9-12,12A