NL Baroid Norway a/s

MUD VOLUME DISTRIBUTION SUMMARY

OPERATOR **A/S NORSKE SHELL** WELL 7120/1-2 RIG Ross Rig

Hole Size	Spud Depth	INTERVAL TD Depth	Length	Built	Dumped	MUD/BRINE Sol. Ctrl. Formation	Equip	M³ Behind Casing	Salvage	Transfer To	Cuttings Volume Drilled	INTERVAL MUD TYPE
36	330	411	81	475	290	0	0	0	185	0	53.54	Seawater/Spud Mud
26	411	617	206	415	500	0	0	0	100	185	71.02	Seawater/Spud Mud
12.25	617	1554	937	664	61	324	129	75	188	100	71.71	KCl/Polymer
8.5	1554	2147	593	671	16	542	127	0	174	188	21.85	KCl/Polymer
5.875	2147	2630	483	210	45	0	146	0	193	174	8.50	KCl/Polymer
Testing	0	0	0	254	447	0	0	0	0	193	0.00	CaCl Brine & KCl/Polymer
		totals	2300	2689	1359	866	402	75	840		226.62	

Total Mud/Brine left in hole + behind casing 130 M³

Total Mud/Brine to sea 1761 M³

NL Baroid Norway a/s

Daily Material Usage

OPERATOR A/S NORSKE SHELL

WELL 7120/1-2

Date	Depth	Barite	Bent.	BARA DEFOAM	CaCl2	CaCl2 Brine cubic	Caustic Soda	EZ MUD	Lime	Mica	KCl	KCl Brine cubic	PAC L	PAC R	Soda Ash	Sod. Bicarb.	Wallnut	XCD Polymer	Cost Daily	Cost Cummulative
Unit		MT	MT	55 gal	50 kg	meter	25 kg	20 kg	25 kg	25 kg	50 kg	meter	25 kg	25 kg	25 kg	25 kg	25 kg	25 kg		
							36" Hole Interval													0.00
29-Dec-88			10				10												3,198.90	3,196.90
30-Dec-88			7																2,015.65	5,212.55
31-Dec-88		31									150		9						6,158.50	11,371.05
01-Jan-89							1							3				6	1,567.23	12,938.28
02-Jan-89	366		1				1												319.69	13,257.97
03-Jan-89	366	58	9				2								1				7,648.44	20,906.41
04-Mar-89	410		1				1								1				332.64	21,239.05
05-Jan-89	410		5				4								4				1,618.51	22,857.56
06-Jan-89	411		7				1								1				2,060.34	24,917.90
Totals		89	40	0	0	0	20	0	0	0	150	0	9	3	7	0	0	6	$24,917.90	

Cost per cubic meter		Cost per cubic meter	475	$52.46
Cost per meter		Cost per meter	81	$307.63

NL Baroid Norway a/s

Daily Material Usage

OPERATOR A/S NORSKE SHELL WELL 7120/1-2

Date	Depth	Barite	Bent.	BARA DEFOAM	CaCl2	CaCl2 Brine	Caustic Soda	EZ MUD	Lime	Mica	KCl	KCl Brine	PAC L	PAC R	Soda Ash	Sod. Bicarb.	Wallnut	XCD Polymer	Cost Daily	Cost Cummulative
Unit		MT	MT	55 gal	50 kg	cubic meter	25 kg	20 kg	25 kg	25 kg	50 kg	cubic meter	25 kg	25 kg	25 kg	25 kg	25 kg	25 kg		
							26" Hole Interval													24,917.90
07-Jan-89	617	19	12				6								6				5,355.07	30,272.97
08-Jan-89	617		6				4												1,854.66	32,127.63
09-Jan-89	617		7				3								3				2,149.72	34,277.35
10-Jan-89	617						1	2				24	5	5					4,068.56	38,345.91
Totals		19	25	0	0	0	14	2	0	0	0	24	5	5	9	0	0	0	$13,428.01	38,345.91

Cost per cubic meter		415	$32.36
Cost per meter		206	$65.18

NL Baroid Norway a/s

Daily Material Usage

OPERATOR **A/S NORSKE SHELL** WELL 7120/1-2

Date	Depth	Barite	Bent.	BARA DEFOAM	CaCl2 Brine	Caustic Soda	EZ MUD	Lime	Mica	KCl	KCl Brine	PAC L	PAC R	Soda Ash	Sod. Bicarb.	Wallnut	XCD Polymer	Cost Daily	Cost Cummulative
Unit		MT	MT	55 gal	50 kg	cubic meter	25 kg	20 kg	25 kg	25 kg	50 kg	cubic meter	25 kg	25 kg	25 kg	25 kg	25 kg	25 kg		
							12 1/4" Hole Interval												38,345.91
11-Jan-89	617	9					1	6				37	8	8				6	8,547.08	46,892.99
12-Jan-89	622							1				14	4	2				2	2,796.50	49,689.49
13-Jan-89	810							11			125	60	28	14				6	15,346.92	65,036.41
14-Jan-89	850						5	1				18	6						3,049.06	68,085.47
15-Jan-89	1021						6	2			110	14	10	2				1	5,342.83	73,428.30
16-Jan-89	1304	34					6	10		7	180	10	20	21			7	4	12,530.34	85,958.64
17-Jan-89	1470	23					7	7			80		25	18				9	10,179.08	96,137.72
18-Jan-89	1554	15						1		8				8	4		8	1	3,120.31	99,258.03
19-Jan-89	1554						1				2			3					289.09	99,547.12
20-Jan-89	1554							1			65		4	2					1,723.82	101,270.94
Totals		81	0	0	0	0	26	40	0	15	562	153	105	78	4	0	15	29	$62,925.03	101,270.94

Cost per cubic meter		Cost per cubic meter	664	$94.77
Cost per meter		Cost per meter	937	$67.16

NL Baroid Norway a/s

Daily Material Usage

OPERATOR **A/S NORSKE SHELL** WELL 7120/1-2

Date	Depth	Barite	Bent.	BARA DEFOAM	CaCl2	CaCl2 Brine cubic	Caustic Soda	EZ MUD	Lime	Mica	KCl	KCl Brine cubic	PAC L	PAC R	Soda Ash	Sod. Bicarb.	Wallnut	XCD Polymer	Cost Daily	Cost Cummulative
Unit		MT	MT	55 gal	50 kg	meter	25 kg	20 kg	25 kg	25 kg	50 kg	meter	25 kg	25 kg	25 kg	25 kg	25 kg	25 kg		
							8 1/2" Hole Interval													101,270.94
21-Jan-89	1554																		0.00	101,270.94
22-Jan-89	1559	7														9		1	1,235.91	102,506.85
23-Jan-89	1604												8						585.36	103,092.21
24-Jan-89	1674																	4	877.32	103,969.53
25-Jan-89	1740											10	10	2				2	2,648.00	106,617.53
26-Jan-89	1814							2				20	6	4				2	3,942.96	110,560.49
27-Jan-89	1825	26						3		22		22	12	6			22	3	9,195.13	119,755.62
28-Jan-89	1825																		0.00	119,755.62
29-Jan-89	1831							2				12	8	4				2	3,024.26	122,779.88
30-Jan-89	1872	6						2				12	6	3				2	3,571.19	126,351.07
31-Jan-89	1943	38					5	6	9	25		24	18	10				6	12,384.64	138,735.71
01-Feb-89	1969	25					1	1					3	2				1	3,865.42	142,601.13
02-Feb-89	1969						1	1			25		3	2				1	1,144.92	143,746.05
03-Feb-89	2024	18						3		5	15	12	9	6				3	6,181.07	149,927.12
04-Feb-89	2095	16						2		3	45	4	6	4				2	4,756.03	154,683.15
05-Feb-89	2102							2			36		3	2				2	1,595.63	156,278.78
06-Feb-89	2147							2		7	107		10	4				4	4,147.93	160,426.71
07-Feb-89	2147																		0.00	160,426.71
08-Feb-89	2147																		0.00	160,426.71
09-Feb-89	2147																		0.00	160,426.71
10-Feb-89	2084									14									223.58	160,650.29
11-Feb-89	2147						4	1			30		3	4				6	2,577.73	163,228.02
12-Feb-89	2147																		0.00	163,228.02
Totals		136	0	0	0	0	11	27	9	76	258	116	105	53	0	9	22	41	$61,957.08	163,228.02

Cost per cubic meter 671 $92.34
Cost per meter 593 $104.48

NL Baroid Norway a/s

Daily Material Usage

OPERATOR A/S NORSKE SHELL

WELL 7120/1-2

Date	Depth	Barite	Bent.	BARA DEFOAM	CaCl2	CaCl2 Brine cubic	Caustic Soda	EZ MUD	Lime	Mica	KCl	KCl Brine cubic	PAC L	PAC R	Soda Ash	Sod. Bicarb.	Wallnut	XCD Polymer	Cost Daily	Cost Cummulative
Unit		MT	MT	55 gal	50 kg	meter	25 kg	20 kg	25 kg	25 kg	50 kg	meter	25 kg	25 kg	25 kg	25 kg	25 kg	25 kg		
							5 7/8" Hole Interval												163,228.02
13-Feb-89	2147															10			136.00	163,364.02
14-Feb-89	2147	32						2			60		6	6		1		2	6,663.18	170,027.20
15-Feb-89	2150																		0.00	170,027.20
16-Feb-89	2155	10	1				1	1			30		3	2				1	2,804.87	172,832.07
17-Feb-89	2176	10	11															4	5,322.17	178,154.24
18-Feb-89	2244	11											12	12					3,161.22	181,315.46
19-Feb-89	2384																		0.00	181,315.46
20-Feb-89	2384						2							2					209.82	181,525.28
21-Feb-89	2440						2												63.48	181,588.76
22-Feb-89	2480	26					7	1			30		3	2				1	4,751.20	186,339.96
23-Feb-89	2537						1												31.74	186,371.70
24-Feb-89	2565													2					146.34	186,518.04
25-Feb-89	2565																		0.00	186,518.04
26-Feb-89	2583	2					1	1			30		3	2				1	1,495.00	188,013.04
27-Feb-89	2586																		0.00	188,013.04
28-Feb-89	2599	9					1	1			30		9					1	2,681.86	190,694.90
01-Mar-89	2624							1						5					420.85	191,115.75
02-Mar-89	2630						2								4				115.28	191,231.03
03-Mar-89	2630																		0.00	191,231.03
04-Mar-89	2630																		0.00	191,231.03
05-Mar-89	2630																		0.00	191,231.03
Totals		100	12	0	0	0	17	7	0	0	180	0	36	33	4	11	0	10	$28,003.01	191,231.03

Cost per cubic meter	210	$133.35
Cost per meter	483	$57.98

NL Baroid Norway a/s

Daily Material Usage

OPERATOR A/S NORSKE SHELL WELL 7120/1-2

Date	Depth	Barite	Bent.	BARA DEFOAM	CaCl2	CaCl2 Brine cubic	Caustic Soda	EZ MUD	Lime	Mica	KCl	KCl Brine cubic	PAC L	PAC R	Soda Ash	Sod. Bicarb.	Wallnut	XCD Polymer	Cost Daily	Cummulative
Unit		MT	MT	55 gal	50 kg	meter	25 kg	20 kg	25 kg	25 kg	50 kg	meter	25 kg	25 kg	25 kg	25 kg	25 kg	25 kg		
							Testing Interval													191,231.03
06-Mar-89	2630			1	402	100												1	23,588.47	214,819.50
07-Mar-89	2630																		0.00	214,819.50
08-Mar-89	2630																		0.00	214,819.50
09-Mar-89	2630				130									2					2,885.44	217,704.94
10-Mar-89	2630																		0.00	217,704.94
11-Mar-89	2630																		0.00	217,704.94
12-Mar-89	2630																		0.00	217,704.94
13-Mar-89	2630																		0.00	217,704.94
14-Mar-89	2630																		0.00	217,704.94
15-Mar-89	2630																		0.00	217,704.94
16-Mar-89	2630																		0.00	217,704.94
17-Mar-89	2630					41								2					6,144.64	223,849.58
18-Mar-89	2630					20													2,926.00	226,775.58
19-Mar-89	2630																		0.00	226,775.58
20-Mar-89	2630				85														1,790.95	228,566.53
21-Mar-89	2630																		0.00	228,566.53
22-Mar-89	2630																		0.00	228,566.53
23-Mar-89	2630																		0.00	228,566.53
24-Mar-89	2630	15	-8											12		12		3	1,311.73	229,878.26
25-Mar-89	2630																		0.00	229,878.26
Totals		15	-8	1	617	161	0	0	0	0	0	0	0	16	0	12	0	4	$38,647.23	229,878.26
													Cost per cubic meter					254	$152.15	

NL Baroid Norway a/s

A/S NORSKE SHELL
7120/1-2

TOTAL MATERIAL USAGE

PRODUCT	UNIT	AMOUNT
Barite	MT	440
Bentonite	MT	69
BARADEFOAM	55 gal	1
CaCl2	50 kg	617
CaCl2 Brine	cubic meter	161
Caustic Soda	25 kg	88
EZ MUD	20 kg	76
Lime	25 kg	9
Mica	25 kg	91
KCl	50 kg	1150
KCL Brine	cubic meter	293
PAC L	25 kg	260
PAC R	25 kg	188
Soda Ash	25 kg	24
Sodium Bicarbonate	25 kg	32
Wallnut	25 kg	37
XCD Polymer	25 kg	90

NL Baroid Norway a/s **MUD PROPERITY RECAP**

A/S NORSKE SHELL

Well No. 7120/1-2 Ross Rig

Date	Depth meters	Density SG	Visc-osity sec	Filtrate ml	Filtrate cake	pH	Rheology PV cp	Rheology YP lb/100 sq ft	Rheology 10"	Rheology 10'	Filtrate Analysis Cl mg/l	Filtrate Analysis Ca	Filtrate Analysis Pf	Filtrate Analysis Mf	Filtrate Analysis Pm	Retort Analysis Oil %	Retort Analysis Water %	Retort Analysis Solids %	MBT ppb Bent	KCl ppb	Sd %
29-Dec-88	Pit	1.04	150				Spud Mud														
30-Dec-88	Pit	1.04	150																		
31-Dec-88	Pit	1.04	150																		
31-Dec-88	Kill Mud	1.40	50																		
01-Jan-89		1.04	150																		
01-Jan-89	Kill Mud	1.40	100																		
02-Jan-89	366	1.04	150																		
02-Jan-89	Kill Mud	1.40	60																		
03-Jan-89	366	1.04	150																		
03-Jan-89	Kill Mud	1.40	47																		
04-Jan-89	410	1.04	150																		
04-Jan-89	Kill Mud	1.40	47																		
05-Jan-89	410	1.04	150																		
05-Jan-89	Kill Mud	1.40	46																		
06-Jan-89	411	1.03	150																		
06-Jan-89	Kill Mud	1.39	45	11.4	2	10.7	27	10	3	11	36,000	200	0.20	0.40			87	13	36	40	
07-Jan-89	617	1.03	150																		
07-Jan-89	Kill Mud	1.40	45	11.4	2	10.7	27	10	3	11	36,000	200	0.20	0.40			87	13	36	40	
08-Jan-89	617	1.03	150																		
08-Jan-89	Kill Mud	1.40	45	11.4	2	10.7	27	10	3	11	36,000	200	0.20	0.40			87	13	36	40	
09-Jan-89	617	1.03	150																		
09-Jan-89	Kill Mud	1.40	45	11.4	2	10.7	27	10	3	11	36,000	200	0.20	0.40			87	13	12.5	35	
10-Jan-89	Pit	1.20	44	9.0	1	11.3	14	18	2	4	44,000	60	0.30	0.50	0.30		94	6	5	40	
11-Jan-89	Pit	1.20	45	6.0	1	9.4	18	20	3	3	43,000	120	0.10	0.30			93	7	3	40	
12-Jan-89	622	1.20	45	6.2	1	10.3	15	20	2	3	44,000	120	0.20	0.40	0.30		93	7	3	40	
13-Jan-89	Pit	1.20	46	6.0	1	9.7	19	24	3	3	41,000	120	0.10	0.30	0.30		92	8	5	30	
13-Jan-89	810	1.20	48	6.0	1	9.2	18	26	3	3	52,000	120	0.10	0.20	0.10		93	7	4	39	

NL Baroid Norway a/s **MUD PROPERITY RECAP**

A/S NORSKE SHELL

Well No. 7120/1-2 Ross Rig

Date	Depth meters	Density SG	Visc-osity sec	Filtrate ml	cake	pH	Rheology PV cp	YP lb/100 sq ft	10"	10'	Filtrate Analysis Cl mg/l	Ca	Pf	Mf	Pm	Retort Analysis Oil %	Water %	Solids %	MBT ppb Bent	KCl ppb	Sd %
14-Jan-89	850	1.20	50	6.0	1	9.9	18	26	3	3	54,000	80	0.10	0.30	0.30		93	7	4	39	
14-Jan-89	850	1.20	48	5.4	1	9.6	19	24	3	3	57,000	120	0.10	0.30	0.30		93	7	4	43	
15-Jan-89	983	1.20	46	7.2	1	10.0	18	23	3	3	50,000	120	0.10	0.30	0.20		92	8	4	38	
15-Jan-89	1,021	1.20	42	5.1	1	9.9	17	20	2	3	58,000	160	0.10	0.30	0.20		92	8	5	44	
16-Jan-89	1,216	1.20	45	5.2	1	9.5	19	25	2	3	56,000	80	0.10	0.30	0.20		92	8	5	45	
16-Jan-89	1,304	1.20	43	4.8	1	9.5	17	19	2	3	52,000	120	0.10	0.30			92	8	5	40	
17-Jan-89	1,343	1.20	44	5.1	1	9.5	19	24	3	3	52,000	120	0.10	0.30			92	8	5	40	
17-Jan-89	1,470	1.20	54	4.8	1	9.9	22	34	4	5	54,000	80	0.30	0.50			92	8	4	40	
18-Jan-89	1,554	1.20	52	4.5	1	9.6	22	29	4	4	50,000	120	0.10	0.30			92	8	4	39	
18-Jan-89	1,554	1.20	51	4.5	1	9.6	20	28	4	4	50,000	120	0.10	0.30			92	8	4	39	
19-Jan-89	1,554	1.20	50	4.5	1	9.6	22	30	5	5	50,000	120	0.10	0.30			92	8	4	39	
19-Jan-89	1,554	1.20	50	4.5	1	9.6	22	30	5	6	50,000	120	0.10	0.30			92	8	4	39	
20-Jan-89	1,554	1.20	49	4.8	1	9.6	20	28	4	4	50,000	120	0.10	0.30			92	8	4	39	
20-Jan-89	1,554	1.20	49	4.8	1	9.6	22	29	4	4	50,000	140	0.10	0.30			92	8	4	39	
21-Jan-89	1,554	1.20	49	4.8	1	9.6	22	29	4	4	50,000	120	0.10	0.30			92	8	4	39	
21-Jan-89	1,554	1.20	48	4.9	1	9.6	22	29	4	5	50,000	120	0.10	0.30			92	8	4	39	
22-Jan-89	1,554	1.20	46	4.4	1	10.1	20	28	4	5	50,000	120	0.30	0.90			92	8	4	39	
22-Jan-89	1,559	1.20	47	4.4	1	10.2	20	28	4	4	50,000	120	0.30	1.00			92	8	4	39	
22-Jan-89	1,559	1.20	47	4.4	1	10.2	20	28	4	4	50,000	120	0.30	1.00			92	8	4	39	
23-Jan-89	1,569	1.20	48	5.2	1	12.1	21	26	5	5	48,000	160	0.60	1.60			92	8	4	35	
23-Jan-89	1,584	1.20	49	5.0	1	12.3	21	26	4	5	48,000	160	0.60	1.60			92	8	4	36	
23-Jan-89	1,600	1.20	48	5.0	1	12.3	21	25	4	4	48,000	160	0.60	1.60			92	8	4	36	
24-Jan-89	1,662	1.20	47	5.0	1	12.2	21	18	3	3	45,000	120	0.30	0.80			92	8	4	35	
24-Jan-89	1,665	1.20	49	5.0	1	12.2	21	20	4	5	45,000	120	0.30	0.80			92	8	4	35	
24-Jan-89	1,674	1.20	49	5.0	1	12.2	21	20	4	5	45,000	120	0.30	0.90			92	8	4	35	
25-Jan-89	1,690	1.20	49	6.0	1	12.1	22	21	5	6	42,000	120	0.40	1.40			92	8	4	35	
25-Jan-89	1,721	1.20	52	5.4	1	12.1	26	21	4	7	42,000	120	0.30	1.20			92	8	4	35	

NL Baroid Norway a/s

MUD PROPERITY RECAP

A/S NORSKE SHELL

Well No. 7120/1-2 Ross Rig

Date	Depth meters	Density SG	Visc-osity sec	Filtrate ml	cake	pH	Rheology PV cp	YP lb/100	10" sq ft	10'	Filtrate Analysis Cl mg/l	Ca	Pf	Mf	Pm	Retort Analysis Oil %	Water %	Solids %	MBT ppb Bent	KCl ppb	Sd %
25-Jan-89	1,740	1.20	52	5.2	1	12.1	26	21	5	7	42,000	120	0.30	1.10			92	8	4	35	
26-Jan-89	1,760	1.20	53	5.0	1	12.0	24	21	4	6	43,000	120	0.30	1.10			92	8	4	34	
26-Jan-89	1,778	1.20	51	5.0	1	12.1	24	21	5	6	43,000	120	0.30	1.00			92	8	4	34	
26-Jan-89	1,814	1.20	51	5.0	1	12.1	24	21	5	7	43,000	120	0.30	1.00			92	8	4	34	
27-Jan-89	1,814	1.20	53	5.0	1	12.1	24	21	5	7	43,000	120	0.30	1.00			92	8	4	33	
27-Jan-89	1,814	1.20	52	5.0	0	12.1	24	21	5	7	43,000	120	0.30	1.00	1.00		92	8	4	32	
27-Jan-89	1,825	1.20	52	5.0	1	12.0	24	22	6	7	42,000	120	0.30	0.90			92	8	4	32	
28-Jan-89	1,825	1.20	52	5.0	1	12.0	24	22	6	7	42,000	120	0.30	0.90			92	8	4	32	
29-Jan-89	1,826	1.18	48	5.0	1	11.6	20	21	4	5	42,000	120	0.40	1.20			92	8	4	32	
29-Jan-89	1,831	1.18	49	5.0	1	11.6	20	21	4	5	42,000	120	0.40	1.20			92	8	4	32	
30-Jan-89	1,858	1.19	48	4.5	1	11.4	21	22	5	6	38,000	120	0.30	0.90			92	8	4	32	
30-Jan-89	1,858	1.19	48	4.5	1	11.4	22	23	5	5	35,000	120	0.30	0.80			92	8	4	31	
30-Jan-89	1,872	1.20	49	4.5	1	11.4	22	23	5	6	35,000	120	0.30	0.80			92	8	4	30	
31-Jan-89	1,913	1.20	52	4.5	1	10.7	23	24	5	5	34,000	160	0.30	0.80			92	8	4	30	
31-Jan-89	1,921	1.20	53	4.5	1	10.8	21	26	5	5	34,000	40	0.10	0.90			92	8	4	30	
31-Jan-89	1,939	1.20	50	4.8	1	11.6	21	23	4	5	34,000	80	0.40	0.90			92	8	4	30	
01-Feb-89	1,957	1.20	48	4.8	1	12.3	21	21	4	5	25,000	80	0.80	1.40			92	8	4	21	
01-Feb-89	1,968	1.20	47	4.8	1	12.1	22	20	4	5	26,000	80	0.80	1.40			92	8	4	20	
01-Feb-89	1,969	1.20	47	4.8	1	12.1	22	20	4	5	25,000	80	0.80	1.40			92	8	4	20	
02-Feb-89	1,969	1.20	50	4.8	1	12.1	23	22	4	5	25,000	80	0.40	0.60			92	8	4	20	
03-Feb-89	1,989	1.18	47	5.4	1	12.0	22	23	4	4	22,000	120	0.60	0.90			93	7	3	18	
03-Feb-89	2,024	1.18	46	4.5	1	11.7	22	22	4	4	22,000	120	0.40	0.70			93	7	3	18	
04-Feb-89	2,060	1.18	48	5.4	1	11.7	22	22	4	4	22,000		0.30	0.50			93	7	3	18	0.25
04-Feb-89	2,090	1.18	47	5.2	1	11.7	21	21	4	4	22,000		0.40	0.70			93	7	3	18	0.25
05-Feb-89	2,102	1.18	48	5.0	2	11.6	22	22	4	4	22,000	80	0.40	0.70			93	7	3	18	0.25
06-Feb-89	2,102	1.18	47	5.0	1	11.4	22	22	4	4	23,000	80	0.40	0.60			93	7	3	18	0.25
06-Feb-89	2,147	1.18	46	5.2	1	10.6	20	23	4	5	24,000	60	0.15	0.40			93	7	3	20	

NL Baroid Norway a/s **MUD PROPERITY RECAP**

A/S NORSKE SHELL

Well No. 7120/1-2 Ross Rig

Date	Depth meters	Density SG	Visc-osity sec	Filtrate ml	cake	pH	Rheology PV cp	YP lb/100	10" sq ft	10'	Filtrate Analysis Cl mg/l	Ca	Pf	Mf	Pm	Retort Analysis Oil %	Water %	Solids %	MBT ppb Bent	KCl ppb	Sd %
07-Feb-89	2,147	1.18	47	5.0	1	10.5	21	21	4	4	24,000	60	0.10	0.40			93	7	3	20	
08-Feb-89	2,147	1.18	46	5.0	1	10.0	19	21	4	4	24,000	60	0.10	0.40			93	7	3	20	
09-Feb-89	2,147	1.18	47	5.0	1	10.0	19	21	4	4	24,000	80	0.10	0.40			93	7	3	20	
10-Feb-89	2,084	1.18	46	5.2	1	9.6	19	21	4	4	23,000	80	0.10	0.20			93	7	3	20	
11-Feb-89	2,147	1.18	47	5.0	1	10.0	23	22	4	4	20,000	120	0.20	0.30			93	7	3	18	
12-Feb-89	2,147	1.18	47	5.0	1	10.0	23	22	4	4	20,000	120	0.20	0.30			93	7	3	18	
13-Feb-89	2,147	1.18	46	6.0	1	12.0	19	22	4	4	21,000	360	0.30	0.50			93	7	3	18	
14-Feb-89	2,130	1.20	46	6.0	1	12.3	20	21	4	4	23,000	280	0.50	0.80			92	8	2	19	
15-Feb-89	2,150	1.20	46	6.0	1	12.2	20	21	4	4	23,000	280	0.50	0.80			92	8	2	19	
16-Feb-89	2,150	1.20	46	6.0	1	12.1	20	21	4	4	23,000	280	0.50	0.80			92	8	2	20	
16-Feb-89	2,150	1.20	45	6.0	1	12.1	20	21	4	4	23,000	280	0.50	0.80			92	8	2	20	
16-Feb-89	2,155	1.20	44	6.0	1	12.2	20	21	4	4	23,000	280	0.50	0.80			92	8	2	20	
17-Feb-89	2,164	1.20	43	6.2	1	12.0	19	19	3	4	23,000	260	0.40	0.80			92	8	5	20	
17-Feb-89	2,173	1.20	45	6.2	1	12.0	19	20	4	4	23,000	260	0.40	0.80			92	8	5	20	
18-Feb-89	2,203	1.20	47	6.2	1	12.0	20	21	4	8	23,000	260	0.40	0.80			92	8	5	20	
18-Feb-89	2,211	1.20	48	6.0	1	12.0	21	23	4	8	23,000	240	0.40	0.80			92	8	5	20	
18-Feb-89	2,240	1.20	50	5.5	1	12.0	21	23	4	8	23,000	240	0.40	0.80			92	8	5	20	
19-Feb-89	2,292	1.20	50	5.0	1	12.0	25	24	5	5	25,000	120	0.30	0.70			92	8	3	30	0.50
19-Feb-89	2,374	1.20	49	5.0	1	12.0	25	24	5	5	25,000	120	0.30	0.70			92	8	3	30	1.00
19-Feb-89	2,384	1.20	49	5.0	1	12.1	25	24	5	5	25,000	120	0.30	0.70			92	8	3	30	1.00
20-Feb-89	2,384	1.20	49	5.0	1	12.1	25	24	5	5	25,000	120	0.30	0.70			92	8	3	30	1.00
21-Feb-89	2,419	1.20	48	5.0	1	12.2	22	23	4	5	25,000	120	0.30	0.70			92	8	2	20	0.50
21-Feb-89	2,424	1.20	49	5.0	1	12.1	22	23	4	6	25,000	120	0.30	0.70			92	8	2	20	0.50
21-Feb-89	2,438	1.20	48	5.0	1	12.0	21	22	4	5	25,000	120	0.30	0.70			92	8	2	20	
22-Feb-89	2,462	1.20	48	4.8	1	12.1	22	21	4	5	23,000	120	0.50	1.00			92	8	2	19	
22-Feb-89	2,473	1.20	49	4.8	1	12.1	22	20	4	5	23,000	120	0.50	1.00			92	8	2	19	
22-Feb-89	2,476	1.20	50	4.8	1	12.0	22	22	4	5	23,000	120	0.50	0.90			92	8	2	19	

NL Baroid Norway a/s **MUD PROPERITY RECAP**

A/S NORSKE SHELL

Well No. 7120/1-2 Ross Rig

Date	Depth meters	Density SG	Visc-osity sec	Filtrate ml	Filtrate cake	pH	Rheology PV cp	Rheology YP lb/100 sq ft	Rheology 10"	Rheology 10'	Filtrate Analysis Cl mg/l	Filtrate Analysis Ca	Filtrate Analysis Pf	Filtrate Analysis Mf	Filtrate Analysis Pm	Retort Analysis Oil %	Retort Analysis Water %	Retort Analysis Solids %	MBT ppb Bent	KCl ppb	Sd %
23-Feb-89	2,503	1.20	49	4.8	1	12.0	22	22	4	7	23,000	120	0.40	1.10			92	8	2	19	
23-Feb-89	2,516	1.20	49	4.8	1	12.0	22	22	4	6	23,000	120	0.40	1.00			92	8	2	19	
23-Feb-89	2,533	1.20	48	4.8	1	11.9	22	20	4	6	23,000	120	0.40	1.00			92	8	2	19	
24-Feb-89	2,565	1.20	48	4.8	1	11.8	22	20	4	6	23,000	120	0.40	0.90			92	8	2	19	
24-Feb-89	2,565	1.20	48	4.8	1	11.7	21	21	4	6	23,000	120	0.40	0.90			92	8	2	19	
24-Feb-89	2,565	1.20	48	4.8	1	11.7	21	21	4	6	23,000	120	0.40	0.90			92	8	2	19	
25-Feb-89	2,565	1.20	48	4.8	1	11.7	21	21	4	6	23,000	120	0.40	0.90			92	8	2	19	
25-Feb-89	2,565	1.20	48	4.8	1	11.7	21	21	4	6	23,000	120	0.40	0.90			92	8	2	19	
26-Feb-89	2,581	1.20	49	4.9	1	11.6	22	22	4	7	23,000	120	0.40	0.80			92	8	2	19	
26-Feb-89	2,583	1.20	47	4.8	1	11.3	20	20	4	5	25,000	160	0.20	0.60			92	8	2	20	0.25
27-Feb-89	2,586	1.20	48	4.8	1	11.3	20	21	4	5	25,000	160	0.20	0.60			92	8	2	20	0.25
27-Feb-89	2,586	1.20	48	4.8	1	11.3	20	21	4	5	25,000	160	0.20	0.60			92	8	2	20	0.25
28-Feb-89	2,586	1.20	48	4.8	1	11.3	20	21	4	5	25,000	160	0.20	0.60			92	8	2	20	0.25
28-Feb-89	2,592	1.20	49	4.7	1	11.1	21	20	4	5	26,000	280	0.15	0.60			92	8	2	20	0.25
28-Feb-89	2,599	1.20	49	4.7	1	11.0	21	20	4	5	26,000	280	0.15	0.60			92	8	2	20	0.25
01-Mar-89	2,609	1.20	47	4.7	1	11.0	20	19	4	4	26,000	280	0.15	0.60			92	8	2	20	0.25
01-Mar-89	2,613	1.20	51	4.7	1	11.0	21	21	4	6	26,000	280	0.15	0.60			92	8	2	20	0.25
01-Mar-89	2,619	1.20	53	4.8	1	11.0	23	25	5	7	26,000	400	0.15	0.60			92	8	2	20	0.25
02-Mar-89	2,630	1.20	55	4.8	1	11.0	24	28	5	6	26,000	400	0.15	0.60			92	8	2	20	0.25
03-Mar-89	2,630	1.20	55	4.8	1	11.0	24	28	5	6	26,000	400	0.15	0.60			92	8	2	20	0.25
04-Mar-89	2,630	1.20	53	4.8	1	11.0	24	28	5	6	26,000	400	0.15	0.60			92	8	2	20	0.25
05-Mar-89	2,630	1.21	50	5.0	1	11.6	17	19	4	5	25,000	360	0.20	0.60			92	8	2	20	0.25
06-Mar-89	2,630	1.26					0				25,000	360	0.40	0.80			92	8	2	20	0.25
07-Mar-89	2,630						Seawater														
08-Mar-89	2,630																				
09-Mar-89	2,630	1.29					Calcium Chloride Brine														
10-Mar-89	2,630	1.29																			

NL Baroid Norway a/s

A/S NORSKE SHELL

MUD PROPERITY RECAP

Well No. 7120/1-2 Ross Rig

Date	Depth meters	Density SG	Visc-osity sec	Filtrate ml	cake	pH	Rheology PV cp	YP lb/100 sq ft	10"	10'	Filtrate Analysis Cl mg/l	Ca	Pf	Mf	Pm	Retort Analysis Oil %	Water %	Solids %	MBT ppb Bent	KCl ppb	Sd %
11-Mar-89	2,630	1.29																			
12-Mar-89	2,630	1.29																			
13-Mar-89	2,630						Seawater														
14-Mar-89	2,630																				
15-Mar-89	2,630	1.26					Calcium Chloride Brine														
16-Mar-89	2,630	1.20																			
17-Mar-89	2,630	1.20																			
18-Mar-89	2,630	1.20																			
19-Mar-89	2,630	1.20																			
20-Mar-89	2,630	1.20																			
21-Mar-89	2,630	1.20																			
22-Mar-89	2,630	1.20																			
23-Mar-89	2,630	1.20																			
24-Mar-89	2,630	1.16	38				KCl/Polymer Mud														
24-Mar-89	2,630	1.18	40																		
24-Mar-89	2,630	1.18	40																		
25-Mar-89	2,630	1.18	40																		
25-Mar-89	2,630	1.18	40																		
25-Mar-89	2,630	1.18	40																		

8. WIRELINE FORMATION TESTS

RFT (Repeat Formation Tester) surveys were carried out over the interval 1591 mAH to 2541 mAH. No reliable pressure data were obtained over the interval 1591 mAH to 1816 mAH and below 2400 mAH (because of tight zones and seal failures).

A segregated RFT sample was recovered from 1888.5 mAH (within the Production Test #3A interval
). Both sample chambers were opened on the rig and found to contain oil, water and gas. A total of 0.0012 m^3 of 31°API (0.87 SG) oil was recovered along with 0.074 m^3 of gas. The recovered water had a Cl^- content between 22,000 and 24,000 ppm which corresponds to the Cl^- content of the mud filtrate of 24,000 ppm.

An RFT sample was also recovered from 2153.5 mAH (a 2-5 meter thick isolated sand). The lower sampling chamber from this interval was opened on the rig; it contained 0.0023 m^3 of 41°API (0.819 SG) oil and 0.3706 m^3 of gas. The Cl^- content of the recovered water was 22,000 ppm, similar to the Cl^- of the mud filtrate of ca. 23,000 ppm. A PVT analysis of the contents of the upper chamber was performed and the results are summarised in Table 9.1.

Table 9.1 Summary of PVT analysis of the RFT sample from 2153.5 mAH

Reservoir Oil Composition	
Component	Mole %
Nitrogen	0.04
Carbon Dioxide	0.36
Methane	41.29
Ethane	6.56
Propane	7.76
I-Butane	2.24
N-Butane	5.24
I-Pentane	1.72
N-Pentane	2.20
Hexanes	2.80
Heptanes Plus	29.79
Molecular Weight = 93.85	

Oil density, g/cc = 0.819 at 20 °C
Viscosity = 1.752 cP at 40 °C
Bubble Point Pressure = 152 bar at 16 °C
Flash GOR, m^3/m^3 = 155

HYDRO

Bergen

1357 V-599 .3

Rapport/Report

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Fordeling Distribution J.Augustson,HA(12) B.Martin/Arkiv E.Rygg/Arkiv A.Steen	SAT-biomarker distributions and GC-FID SAT/ARO-chromatograms of Well 7120/1-2 Arne Steen	

Resymé Konklusjon Anbefaling
Summary Conclusion Recommendation

The SAT-biomarker distribution of samples from the interval of 1819-2583m are detected by GC/SMIM-MS.
The results are presented as normalized bargraphs.
Samples 7120/1-2 (1888.5m), 7120/2-1 (DST4), AF, BF and CF are extracted by F-BG and SAT/ARO-fractions are analysed by GC-FID.

Emneord Key words	Emnekategori Subject category
Biomarkers, Metastable ion monitoring	Petroleum Geochemistry

Divisjon Seksjon Avdeling Division Section Dept	Kvadrant Blokk - Brønn Quadrant Block - Well	Dato Date
Geo-section Bas.Mod/Pet.Geochemistry	7120/1-2	12.10.89
		Side Pages - Appendix 9 + 5 App.

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EXPERIMENTAL

The SAT-fractions of extracted samples are analyzed by GC/MS. Additionally, SAT/ARO-fractions of samples 1888.5m and DST4 in well 7120/2-1 and DST-samples AF, BF, CF are analysed by GC-FID.

Standard lab procedures of selected metastable ion monitoring are used to detect pre-selected groups of SAT-biomarkers.

List of analyzed metastable transitions:

Group 1 (low molecular weight biomarkers):

a.	360 m/z	->	191 m/z	=>	C_{26}	tricyclic terpanes
b.	346	->	191	=>	C_{25}	-------"----------
c.	332	->	191	=>	C_{24}	-------"----------
d.	318	->	191	=>	C_{23}	-------"----------
e.	304	->	191	=>	C_{22}	-------"----------
f.	290	->	191	=>	C_{21}	-------"----------
g.	276	->	191	=>	C_{20}	-------"----------
h.	316	->	217	=>	C_{23}	steranes
i.	302	->	217	=>	C_{22}	----"---
j.	288	->	217	=>	C_{21}	----"---

Group 2:

k.	454 m/z	->	191 m/z	=>	C_{33}	pentacyclic triterpanes
l.	440	->	191	=>	C_{32}	----------"----------
m.	426	->	191	=>	C_{31}	----------"----------
n.	412	->	191	=>	C_{30}	----------"----------
o.	398	->	191	=>	C_{29}	----------"----------
p.	384	->	191	=>	C_{28}	----------"----------
q.	370	->	191	=>	C_{27}	----------"----------
r.	414	->	217	=>	C_{30}	steranes
s.	400	->	217	=>	C_{29}	---"----
t.	386	->	217	=>	C_{28}	---"----
u.	372	->	217	=>	C_{27}	---"----

Standardized identification of SAT-biomarkers:

Triterpanes:

Numbers from 18 to 35 correspond to the carbon number of the molecule, the subsequent capital letter identifies the stereochemistry and/or the number of rings.

A 17α(H)-hopanes (I) 22S
B 17α(H)-hopanes 22R
C 17β(H)-moretanes (II) 22S
D 17β(H)-moretanes 22R
E 17β(H)-hopanes (III)
F Neohopanes (IV)
G Gammacerane (V)
H Hopenes (VI)
I 25-norhopanes (VII)
L Lupane (VIII)
O 18α(H)-oleanane (IX)
X Tetracyclic terpanes (X)
Y Tricyclic terpanes (XI)
N Unidentified

Steranes:

Numbers from 20 to 30 correspond to the carbon number of the molecules, the subsequent small letter identifies the stereochemistry.

a 13β(H),17α(H)-diasteranes 20S (1)
b 13β(H),17α(H)-diasteranes 20R (2)
c 13α(H),17β(H)-diasteranes 20S (3)
d 13α(H),17β(H)-diasteranes 20R (4)
e 5α(H),14α(H),17α(H)-steranes 20S (5)
f 5α(H),14β(H),17β(H)-steranes 20R (6)
g 5α(H),14β(H),17β(H)-steranes 20S (7)
h 5α(H),14α(H),17α(H)-steranes 20R (8)
i 5β(H),14α(H),17α(H)-steranes (9)
k 4-methylsteranes (10)
n unidentified

Examples: 31B corresponds to 17α(H)-homohopane 22R
29e corresponds to ααα-ethylcholestane 20S

The relative distribution of the analysed SAT-biomarkers are presented in bargraphs,- measured as peak heights and normalized to the most abundant compound:
Data are listed in Appendix Ia.
Bargraphs are presented in Appendix Ib.

This semi-quantitative presentation is strictly related to the analytical method.
The concentration/response-ratio is not necessarily comparable between different type of compounds. A quantitative comparison of biomarker distributions are hence restricted to a narrow range of concentrations.

The analysed SAT-biomarkers, presented in the included bargraphs, are abbreviated accordingly:

Terpanes:

26Y:	C-26 Tri-cyclic terpanes
26YY:	C-26 Tri-cyclic terpanes
25Y:	C-25 Tri-cyclic terpanes
24Y:	C-24 Tri-cyclic terpanes
24XY:	C-24 Tetra-cyclic terpanes
23Y:	C-23 Tri-cyclic terpanes
22Y:	C-22 Tri-cyclic terpanes
21Y:	C-21 Tri-cyclic terpanes
20Y:	C-20 Tri-cyclic terpanes

Low molecular weight steranes:

23a:	C-23 Sterane
23k:	C-23 Sterane
22a:	C-22 Sterane
22k:	C-22 Sterane
21a:	C-21 Sterane
21k:	C-21 Sterane

Triterpanes:

33A: C-33 17α(H),21β(H)-trishomohopane-22S
33B: C-33 17α(H),21β(H)-trishomohopane-22R

32A: C-32 17α(H),21β(H)-bishomohopane-22S
32B: C-32 17α(H),21β(H)-bishomohopane-22R

31A: C-31 17α(H),21β(H)-homohopane-22S
31B: C-31 17α(H),21β(H)-homohopane-22R
31C: C-31 17β(H),21β(H)-homohopane-22S
31D: C-31 17β(H),21β(H)-homohopane-22R

30F: C-30 ?-hopane
30A: C-30 17α(H),21β(H)-hopane
30H: C-30 ?-hopene
30C: C-30 17β(H),21α(H)-moretane

29N: C-29 ?-30-norhopane
29A: C-29 17α(H),21β(H)-30-norhopane
29F: C-29 ?-30-norhopane
29C: C-29 17β(H),21α(H)-30-normoretane

28A: C-28 17α(H),21β(H)-28,30-bisnorhopane + βα-bisnormoretane
28N: C-28 ?-17β(H),21β(H)-28,30-bisnorhopane

27F: C-27 18α(H)-22,29,30-trisnorneohopane (Ts)
27A: C-27 17α(H)-22,29,30-trinorhopane (Tm)

Steranes:

30a: C-30 13β(H),17α(H)-diasterane-20S
b: C-30 13β(H),17α(H)-diasterane-20R
c: C-30 13α(H),17β(H)-diasterane-20S
d: C-30 13α(H),17β(H)-diasterane-20R
e: C-30 5α(H),14α(H),17α-sterane-20S
f: C-30 5α(H),14β(H),17β-sterane-20R
g: C-30 5α(H),14β(H),17β-sterane-20S
h: C-30 5α(H),14α(H),17α-sterane-20R

29a: C-29 13β(H),17α(H)-diasterane-20S
b: C-29 13β(H),17α(H)-diasterane-20R
c: C-29 13α(H),17β(H)-diasterane-20S
d: C-29 13α(H),17β(H)-diasterane-20R
e: C-29 5α(H),14α(H),17α-sterane-20S
f: C-29 5α(H),14β(H),17β-sterane-20R
g: C-29 5α(H),14β(H),17β-sterane-20S
h: C-29 5α(H),14α(H),17α-sterane-20R

28a: C-28 13β(H),17α(H)-diasterane-20S
28aa: C-28 ?-diasterane-20S
b: C-28 13β(H),17α(H)-diasterane-20R
28bb: C-28 ?-diasterane-20R
c: C-28 13α(H),17β(H)-diasterane-20S
d: C-28 13α(H),17β(H)-diasterane-20R
e: C-28 5α(H),14α(H),17α-sterane-20S
f: C-28 5α(H),14β(H),17β-sterane-20R
g: C-28 5α(H),14β(H),17β-sterane-20S
h: C-28 5α(H),14α(H),17α-sterane-20R

27a: C-27 13β(H),17α(H)-diasterane-20S
b: C-27 13β(H),17α(H)-diasterane-20R
c: C-27 13α(H),17β(H)-diasterane-20S
d: C-27 13α(H),17β(H)-diasterane-20R
e: C-27 5α(H),14α(H),17α-sterane-20S
f: C-27 5α(H),14β(H),17β-sterane-20R
g: C-27 5α(H),14β(H),17β-sterane-20S
h: C-27 5α(H),14α(H),17α-sterane-20R

RESULT:

Analysed samples and analytical information are listed below.
Samples labelled 'ST....' are representing an internal lab reference sample in order to document the analytical repeatability and quality.
The analytical quality are indicated on the list. Samples labelled 'N.D.' had not detectable amounts of SAT-biomakers.
SAT-biomarker distributions are listed in Appendix Ia and presented as normalized bargraphs in Appendix Ib.

Samples 7120/1-2 (1888.5m), 7120/2-1 (DST4), AF, BF and CF are extracted by F-BG and analysed by GC-FID.
Extraction data and % n-alkanes of all FID-peaks are listed in Appendix IIa.
SAT-chromatograms and peak information are listed in Appendix IIb.
ARO-chromatograms are included in Appendix IIc.

J712012 25R x 7C

0 Depth start int.	1 Depth end int.	2 Sample type	3 Lith.	4 Well	5 Geochem job #		6 MS-file	7
1 1819.35	1819.35	CORE	SST	7120/1-2		1987	AS04099	OK
2 1888.50	1888.50	RFT/GEOCHEM		7120/1-2	F-BG		AS06039	OK
3 1888.50	1888.50	RFT/CSEP		7120/1-2	F-BG		AS23029	OK
4 1888.50	1888.50	RFT/MPLC		7120/1-2	F-BG		AS23029	OK
5 1944.00	1971.00	DST3B	OIL	7120/1-2		1987	AS04099	OK
6 1958.80	1958.80	CORE	SST	7120/1-2		1987	AS04099	OK
7 1960.85	1960.85	CORE	SH	7120/1-2		1987	AS04099	OK
8 1961.75	1961.75	CORE	SST	7120/1-2		1987	AS04099	OK
9 1963.00	1963.00	CORE	SST	7120/1-2	F-BG		AS06039	OK
10 2150.00	2150.00	CORE	SH	7120/1-2		1987	AS04099	OK
11 2582.40	2582.40	CORE	SST	7120/1-2		1987	AS04099	OK
12 AF		DST			F-BG		AS02089	OK
13 BF		DST			F-BG		AS02089	OK
14 CF		DST			F-BG		AS27079	OK
15 DST4		DST4		7120/2-1	F-BG		AS27079	OK
16 HALTEN		DST			F-BG		AS23029	OK
17 ST02089A							AS02089	OK
18 ST04099A							AS04099	OK
19 ST04099B							AS04099	OK
20 ST06039A							AS06039	OK
21 ST06039B							AS06039	OK
22 ST23029A							AS23029	OK
23 ST23029B							AS23029	OK
24 ST27079A							AS27079	OK
25 ST27079B							AS27079	OK

APPENDIX Ia.

Listed SAT-biomarker distributions.

0	Depth start int.	1 Depth end int.	2 Sample type	3 Lith.	4 Well	5 Geochem job #	6 MS-file	7 26Y 360-191/2	8 26YY 360-191/2	9 25Y 346-191	10 24Y 332-191/1
1	1819.35	1819.35	CORE	SST	7120/1-2	1987	AS04099	1.82	1.79	3.19	6.05
2	1888.50	1888.50	RFT/GEOCHEM		7120/1-2	F-BG	AS06039	4.27	4.11	4.40	9.90
3	1888.50	1888.50	RFT/CSEP		7120/1-2	F-BG	AS23029	4.98	4.48	5.17	14.25
4	1888.50	1888.50	RFT/MPLC		7120/1-2	F-BG	AS23029	1.58	1.54	1.77	4.88
5	1944.00	1971.00	DST3B	OIL	7120/1-2	1987	AS04099	7.20	6.72	7.89	23.54
6	1958.80	1958.80	CORE	SST	7120/1-2	1987	AS04099	7.82	7.30	10.10	18.84
7	1960.85	1960.85	CORE	SH	7120/1-2	1987	AS04099	1.71	1.29	2.19	3.63
8	1961.75	1961.75	CORE	SST	7120/1-2	1987	AS04099	12.54	11.70	15.93	28.61
9	1963.00	1963.00	CORE	SST	7120/1-2	F-BG	AS06039	1.43	1.35	2.10	3.51
10	2150.00	2150.00	CORE	SH	7120/1-2	1987	AS04099	2.63	2.45	4.20	11.53
11	2582.40	2582.40	CORE	SST	7120/1-2	1987	AS04099	1.34	1.14	1.49	2.52
12	AF		DST			F-BG	AS02089	2.29	2.19	2.20	4.86
13	BF		DST			F-BG	AS02089	2.23	2.80	2.77	5.83
14	CF		DST			F-BG	AS27079	4.84	4.81	5.35	12.35
15	DST4		DST4		7120/2-1	F-BG	AS27079	5.62	5.71	5.79	12.22
16	HALTEN		DST			F-BG	AS23029	0.57	0.70	0.93	1.81
17	ST02089A						AS02089	1.87	1.77	2.19	3.77
18	ST04099A						AS04099	14.07	13.25	22.99	43.59
19	ST04099B						AS04099	2.41	2.58	4.45	9.54
20	ST06039A						AS06039	0.61	0.57	0.87	1.63
21	ST06039B						AS06039	1.76	1.74	2.55	4.86
22	ST23029A						AS23029	1.95	1.71	2.46	4.45
23	ST23029B						AS23029	0.73	0.65	0.78	1.14
24	ST27079A						AS27079	0.59	0.68	1.14	2.04
25	ST27079B						AS27079	6.39	6.13	7.47	11.23

0	Depth start	int.	11 24X-Y 332-191/1	12 23Y 318-191	13 22Y 304-191	14 21Y 290-191	15 20Y 276-191	16 23a 316-217/1	17 23k 316-217/2	18 22a 302-217/1	19 22k 302-217/2
1	1819.35		2.69	12.48	1.70	5.63	3.71	3.05	0.88	5.78	5.82
2	1888.50		8.81	11.17	1.04	8.24	6.88	6.96	1.98	17.97	11.76
3	1888.50		6.00	16.56	1.20	10.03	8.49	9.81	2.61	27.82	20.47
4	1888.50		2.31	5.93	0.71	4.25	3.39	3.00	0.92	9.35	7.23
5	1944.00		10.54	29.63	8.51	25.46	19.38	18.85	5.61	48.85	36.37
6	1958.80		7.42	25.41	5.64	15.29	7.39	13.90	6.35	32.74	35.71
7	1960.85		4.62	7.46	1.66	7.51	5.69	3.31	1.38	6.64	4.33
8	1961.75		11.20	37.89	9.94	22.55	11.35	21.03	8.30	49.12	51.21
9	1963.00		2.01	5.13	0.39	3.27	2.28	2.44	0.82	6.96	5.73
10	2150.00		7.72	12.57	3.99	8.48	6.37	11.93	3.66	25.18	18.30
11	2582.40		1.52	2.84	0.71	1.39	1.05	1.39	0.47	1.66	1.46
12	AF		2.12	5.72	1.16	3.53	2.72	3.89	1.16	8.92	6.15
13	BF		2.69	6.05	1.62	4.21	3.30	4.08	1.52	9.33	6.64
14	CF		14.01	13.54	1.32	8.07	6.51	9.16	2.70	21.15	14.37
15	DST4		0.93	14.94	1.10	7.27	4.00	2.19	0.40	5.48	1.65
16	HALTEN		1.28	2.43	0.36	1.72	2.28	2.32	1.02	7.80	4.14
17	ST02089A		1.31	4.89	1.01	3.53	2.72	4.90	1.47	9.86	6.75
18	ST04099A		21.24	57.24	27.32	46.51	32.14	60.36	22.57	121.51	111.58
19	ST04099B		4.95	11.34	4.21	8.93	6.10	13.32	4.66	29.60	28.94
20	ST06039A		1.51	2.57	0.55	1.60	1.31	2.42	0.89	5.74	4.18
21	ST06039B		3.61	6.63	0.98	4.14	3.32	5.44	1.70	12.49	8.75
22	ST23029A		1.97	6.77	0.55	3.13	2.18	4.11	1.43	10.06	8.95
23	ST23029B		0.40	1.29	0.30	0.90	1.14	1.28	0.41	3.06	2.80
24	ST27079A		0.88	2.29	0.66	2.44	1.65	2.74	0.91	5.65	3.96
25	ST27079B		6.38	17.33	1.52	4.74	3.23	4.76	1.90	10.70	9.66

0	Depth start	int.	20 21a 288-217/1	21 21k 288-217/2	22 33A 454-191/1	23 33B 454-191/2	24 32A 440-191/1	25 32B 440-191/2	26 31A 426-191/1	27 31B 426-191/2
1	1819.35		6.28	17.50	2.79	1.70	6.29	4.09	14.08	9.42
2	1888.50		14.60	24.21	23.13	12.81	28.06	18.82	30.34	18.43
3	1888.50		20.96	46.72	27.01	14.87	35.36	24.90	39.23	23.41
4	1888.50		8.71	17.87	7.73	4.41	9.44	6.95	10.62	6.68
5	1944.00		52.82	97.66	27.05	17.18	40.59	29.20	49.55	32.92
6	1958.80		39.93	78.65	45.87	28.92	88.08	57.64	142.08	93.25
7	1960.85		9.92	14.13	22.66	14.05	51.53	32.47	92.59	61.17
8	1961.75		57.40	111.43	66.46	43.63	128.39	84.93	204.51	136.55
9	1963.00		9.09	11.41	8.87	5.38	18.18	10.92	36.25	20.36
10	2150.00		32.14	45.54	19.89	12.31	39.87	25.20	71.22	46.93
11	2582.40		1.75	3.13	1.72	0.98	4.85	2.73	7.98	4.95
12	AF		7.55	9.81	11.92	7.51	24.73	14.12	41.65	27.44
13	BF		7.98	10.76	13.77	8.83	27.49	16.56	46.67	31.15
14	CF		17.66	24.43	35.90	22.11	65.23	42.35	103.30	71.53
15	DST4		4.96	5.10	7.04	4.62	11.95	7.37	17.15	10.74
16	HALTEN		8.56	13.48	4.28	2.38	7.99	4.95	15.34	9.29
17	ST02089A		12.12	14.41	12.29	7.59	20.25	13.07	32.92	21.11
18	ST04099A		144.95	268.21	119.74	76.14	196.72	137.68	301.37	205.28
19	ST04099B		38.89	80.50	27.06	16.04	47.68	31.26	76.45	51.20
20	ST06039A		6.82	8.72	5.50	3.11	8.72	5.94	14.85	9.56
21	ST06039B		15.01	19.57	14.68	8.61	26.69	15.42	44.74	26.80
22	ST23029A		12.63	24.88	11.36	6.68	21.27	12.23	37.95	23.34
23	ST23029B		4.63	6.92	2.70	1.68	5.29	3.05	8.55	5.13
24	ST27079A		7.83	7.66	4.21	2.72	7.46	5.03	12.79	8.71
25	ST27079B		13.03	20.09	19.30	12.07	29.44	20.42	48.68	33.41

0 Depth start	int.	28 31C 426-191/3	29 31D 426-191/4	30 30F 412-191	31 30A 412-191	32 30H 412-191	33 30C 412-191	34 29N 398-191	35 29A 398-191	36 29F 398-191
1	1819.35	0.99	2.17	2.55	42.36	1.95	5.23	2.69	35.35	6.31
2	1888.50	5.47	3.82	15.79	82.62	10.33	10.92	140.89	68.99	57.62
3	1888.50	5.10	4.07	19.19	104.18	12.06	12.67	170.38	82.96	70.86
4	1888.50	1.82	1.62	5.80	37.45	3.63	3.86	73.34	30.66	23.07
5	1944.00	6.71	5.86	24.10	140.24	15.12	16.72	180.40	103.41	74.05
6	1958.80	9.06	13.88	26.18	430.77	21.06	35.10	17.68	201.08	75.01
7	1960.85	8.42	18.14	10.88	196.43	6.88	29.00	5.66	143.90	25.24
8	1961.75	13.32	21.08	41.60	592.52	31.83	50.39	23.88	275.31	110.03
9	1963.00	1.59	2.64	4.60	114.09	3.68	6.71	2.99	51.29	14.48
10	2150.00	2.93	3.45	12.43	153.55	9.49	6.91	1.51	99.66	25.13
11	2582.40	0.77	0.53	4.59	28.17	1.07	1.17	2.29	14.89	6.01
12	AF	2.80	2.69	11.39	136.27	4.34	6.79	5.43	74.86	27.98
13	BF	3.01	2.59	12.05	143.82	4.32	7.63	5.23	78.61	29.42
14	CF	11.85	7.05	27.25	278.78	12.04	17.79	9.92	152.65	63.96
15	DST4	1.64	1.16	15.92	63.58	3.37	3.12	1.74	15.94	21.21
16	HALTEN	1.44	0.98	5.46	64.76	1.53	2.51	4.92	21.48	7.78
17	ST02089A	2.34	2.69	7.45	97.88	4.49	5.99	7.49	40.10	15.39
18	ST04099A	26.16	27.67	78.20	797.48	46.13	63.09	94.10	357.05	175.49
19	ST04099B	6.41	5.63	17.98	227.01	9.86	13.82	22.91	97.99	43.63
20	ST06039A	1.47	1.29	3.14	58.25	1.59	2.44	4.11	20.25	8.18
21	ST06039B	3.42	3.07	8.62	128.63	4.84	6.77	9.95	53.24	20.45
22	ST23029A	2.12	2.63	6.41	111.61	4.23	5.74	11.72	50.69	17.06
23	ST23029B	0.87	0.55	2.08	33.66	1.32	1.70	1.54	10.39	4.16
24	ST27079A	1.41	1.10	3.46	51.68	2.32	2.99	3.83	18.93	8.30
25	ST27079B	5.19	4.17	9.84	124.84	6.58	9.32	26.23	64.75	24.66

0	Depth start	int.	37 29C 398-191	38 28A 384-191	39 28N 384-191	40 27F 370-191	41 27A 370-191	42 30a 414-217	43 30b 414-217	44 30c 414-217	45 30d 414-217	46 30e 414-217
1	1819.35		4.53	2.91	1.06	7.77	15.71	1.37	1.10	0.80	1.11	1.26
2	1888.50		9.81	9.38	58.18	48.60	55.85	7.31	5.53	3.01	2.81	4.53
3	1888.50		10.13	10.38	59.62	61.70	66.82	8.65	6.60	3.49	3.63	4.82
4	1888.50		3.93	3.25	21.92	19.48	22.49	2.77	2.07	1.15	1.32	1.77
5	1944.00		12.17	14.14	62.61	69.32	72.71	11.26	8.33	5.27	3.97	9.51
6	1958.80		14.64	16.51	6.41	71.24	69.58	18.96	13.53	8.55	8.23	32.42
7	1960.85		19.04	1.36	1.76	13.51	71.76	2.76	1.79	1.36	1.28	2.53
8	1961.75		23.86	22.45	8.58	101.90	88.99	29.82	19.94	13.05	12.36	46.85
9	1963.00		3.02	2.99	1.26	12.51	12.92	3.50	2.43	1.30	1.11	4.87
10	2150.00		5.81	0.70	0.90	19.26	65.71	5.46	3.27	2.19	1.63	2.45
11	2582.40		0.80	0.69	0.84	6.77	5.17	0.01	0.01	0.01	0.01	0.01
12	AF		5.03	4.88	2.29	30.47	20.89	4.85	3.32	2.19	1.94	2.77
13	BF		5.37	5.37	1.92	31.13	24.10	4.99	3.12	2.13	1.43	2.40
14	CF		11.34	11.44	4.16	63.35	47.86	10.98	7.36	3.59	2.80	6.05
15	DST4		2.41	0.39	0.51	27.03	2.43	3.48	2.32	1.45	0.80	0.90
16	HALTEN		2.86	8.80	1.76	11.04	6.30	2.71	2.14	1.17	1.04	1.59
17	ST02089A		6.41	19.94	2.99	17.70	12.35	4.32	3.47	2.32	2.13	2.79
18	ST04099A		72.97	216.72	36.87	186.43	132.05	51.63	35.77	21.71	18.91	35.19
19	ST04099B		16.20	56.42	8.34	48.31	34.38	9.98	6.27	3.72	2.36	6.08
20	ST06039A		2.65	10.36	1.94	8.96	6.59	2.12	1.21	0.82	0.63	1.08
21	ST06039B		7.76	28.37	4.82	23.31	15.31	5.02	3.47	1.81	1.17	3.10
22	ST23029A		6.17	21.70	4.06	18.80	14.07	3.61	2.28	1.36	1.20	2.05
23	ST23029B		1.85	5.72	0.76	4.80	2.76	1.21	1.11	0.81	0.76	0.97
24	ST27079A		3.31	9.96	1.74	8.96	6.57	1.88	1.21	0.71	0.41	1.17
25	ST27079B		9.50	27.15	11.78	27.32	22.26	4.58	3.02	1.78	1.72	3.70

0	Depth start	int.	47 30f 414-217	48 30g 414-217	49 30h 414-217	50 29a 400-217	51 29b 400-217	52 29c 400-217	53 29d 400-217	54 29e 400-217	55 29f 400-217	56 29g 400-217
1	1819.35		1.14	1.37	1.20	8.22	5.81	2.42	2.75	4.74	5.68	5.55
2	1888.50		5.41	6.77	4.55	56.75	42.05	16.88	11.90	19.75	27.90	28.50
3	1888.50		6.34	8.48	4.78	70.45	52.56	23.39	15.50	24.04	35.27	37.37
4	1888.50		2.21	2.69	1.61	22.80	14.98	6.08	4.48	7.38	9.77	10.46
5	1944.00		10.29	12.27	9.69	74.90	54.09	26.31	21.27	39.30	46.60	48.04
6	1958.80		24.83	30.87	38.85	101.88	74.72	38.03	42.99	119.93	106.44	109.97
7	1960.85		1.61	1.06	2.48	18.00	10.99	5.35	3.28	10.35	6.78	6.60
8	1961.75		38.70	45.94	55.26	144.62	106.88	56.57	64.30	168.45	150.54	160.30
9	1963.00		3.80	5.29	5.66	23.50	15.42	7.02	8.45	24.95	23.54	24.29
10	2150.00		2.55	2.18	1.78	32.76	19.23	10.01	5.80	9.43	13.70	13.66
11	2582.40		0.01	0.01	0.01	6.04	3.50	1.53	0.80	1.60	2.16	2.51
12	AF		4.66	5.09	3.28	36.32	25.07	10.06	8.27	14.69	22.06	22.68
13	BF		3.87	4.54	2.52	36.67	27.21	11.08	8.76	15.64	23.88	24.43
14	CF		9.10	10.11	6.59	73.22	53.39	25.74	20.00	36.74	48.18	50.97
15	DST4		0.98	1.65	1.13	23.89	14.90	6.65	3.29	4.51	7.36	6.88
16	HALTEN		1.93	2.35	1.01	22.34	13.04	4.93	3.67	5.87	8.81	8.90
17	ST02089A		3.46	4.21	3.20	27.91	18.36	8.44	4.96	8.26	10.02	10.47
18	ST04099A		41.04	49.19	35.22	269.04	200.16	100.93	74.15	103.15	127.77	138.78
19	ST04099B		7.38	9.84	5.90	71.92	49.62	24.24	17.29	24.41	32.73	34.03
20	ST06039A		1.14	1.63	1.09	14.26	10.27	4.68	3.60	3.84	5.65	6.55
21	ST06039B		3.42	4.56	2.68	39.49	25.09	10.78	7.42	10.14	13.05	15.07
22	ST23029A		2.92	3.73	1.99	31.30	20.28	8.19	7.64	8.90	13.67	14.83
23	ST23029B		1.30	1.05	0.85	8.43	5.62	2.21	1.82	2.31	3.15	3.48
24	ST27079A		1.23	1.65	0.89	11.84	8.51	3.65	2.49	2.99	4.15	4.79
25	ST27079B		3.75	5.26	3.95	32.90	25.24	11.92	10.81	17.37	22.22	23.19

0	Depth start	int.	57 29h 400-217	58 28a 386-217	59 28aa 386-217	60 28b 386-217	61 28bb 386-217	62 28c 386-217	63 28d 386-217	64 28e 386-217	65 28f 386-217	66 28g 386-217
1	1819.35		5.79	4.80	5.13	3.56	4.03	2.17	2.27	1.78	4.79	4.22
2	1888.50		14.80	20.88	22.69	15.07	17.42	7.50	7.14	6.05	19.52	15.01
3	1888.50		18.72	27.96	30.16	22.71	22.71	8.16	8.34	6.76	29.67	21.10
4	1888.50		5.67	7.91	8.28	6.48	6.48	2.58	2.50	2.27	7.67	5.79
5	1944.00		35.33	36.08	38.12	26.56	29.95	12.28	10.16	15.01	44.49	35.36
6	1958.80		127.41	71.14	74.74	52.01	57.99	25.75	24.99	67.09	135.19	111.21
7	1960.85		11.64	7.64	8.49	5.47	5.97	3.16	3.10	3.65	5.95	4.54
8	1961.75		170.18	105.07	110.37	76.62	85.71	38.69	38.14	90.98	194.20	161.06
9	1963.00		25.55	13.80	15.71	9.61	11.22	4.37	4.40	11.31	30.53	22.58
10	2150.00		7.63	15.91	16.95	10.03	11.35	6.02	5.64	4.54	12.36	10.12
11	2582.40		0.85	2.10	2.24	1.25	1.42	0.60	0.93	0.46	1.38	1.39
12	AF		11.84	11.96	13.22	8.76	9.68	4.14	3.52	4.15	12.71	11.04
13	BF		12.91	13.56	14.99	9.56	10.49	4.27	3.58	4.28	13.93	11.65
14	CF		29.63	28.55	32.68	22.03	25.20	9.15	8.25	9.24	31.66	28.06
15	DST4		3.52	7.07	7.83	4.73	5.22	2.28	2.19	1.37	4.45	3.49
16	HALTEN		3.27	8.93	9.99	6.75	6.75	2.72	2.55	2.23	7.55	6.00
17	ST02089A		8.58	12.56	13.59	8.89	9.95	4.58	4.31	3.43	9.27	7.49
18	ST04099A		100.77	142.77	157.33	107.03	117.65	55.04	55.66	42.98	128.96	105.32
19	ST04099B		22.99	37.75	40.59	26.02	29.49	13.12	11.73	8.85	32.79	26.89
20	ST06039A		3.10	7.16	7.48	5.17	6.20	2.07	2.47	1.84	5.77	4.52
21	ST06039B		9.41	17.17	18.52	11.54	13.52	6.18	6.10	4.39	12.83	10.24
22	ST23029A		7.87	14.60	12.80	11.07	11.07	4.01	4.19	2.91	12.79	10.75
23	ST23029B		2.21	4.31	4.51	2.75	2.75	1.45	1.43	1.09	2.98	2.31
24	ST27079A		2.29	5.71	6.33	4.28	5.19	2.10	2.08	1.73	4.70	3.67
25	ST27079B		15.88	17.44	19.49	13.05	14.60	6.53	6.09	7.02	22.05	17.77

0	Depth start	int.	67 28h 386-217	68 27a 372-217	69 27b 372-217	70 27c 372-217	71 27d 372-217	72 27e 372-217	73 27f 372-217	74 27g 372-217	75 27h 372-217	76
1	1819.35		3.24	14.96	9.65	2.41	3.27	7.47	6.63	5.88	12.96	
2	1888.50		8.61	65.24	46.62	9.38	13.08	12.24	17.32	13.91	11.21	
3	1888.50		10.13	85.96	61.11	11.35	16.70	15.30	25.42	19.76	13.81	
4	1888.50		3.14	30.52	19.42	3.46	5.13	4.14	7.05	6.20	3.98	
5	1944.00		21.94	99.11	71.09	17.60	23.99	31.35	40.32	33.61	32.66	
6	1958.80		110.65	156.63	110.39	29.98	40.58	111.05	104.23	88.38	141.84	
7	1960.85		6.40	22.07	13.31	3.44	4.98	8.44	4.91	4.46	10.88	
8	1961.75		149.08	228.13	161.82	44.40	59.12	149.85	151.35	131.13	190.25	
9	1963.00		24.06	41.87	26.58	5.57	7.79	20.64	24.14	16.73	28.10	
10	2150.00		5.43	54.64	35.40	9.79	12.21	10.17	17.09	14.48	10.60	
11	2582.40		1.18	7.02	4.55	1.35	1.55	1.23	1.39	1.46	2.20	
12	AF		5.13	37.49	26.18	5.17	6.75	8.09	15.29	12.19	8.28	
13	BF		4.98	40.29	28.39	5.65	7.29	8.90	16.53	13.01	9.13	
14	CF		12.03	84.04	57.87	12.04	16.49	20.47	35.54	28.75	21.94	
15	DST4		1.40	25.02	14.19	3.47	5.02	2.56	4.64	4.01	3.02	
16	HALTEN		2.62	29.93	17.76	3.33	4.70	4.15	7.20	6.04	3.42	
17	ST02089A		4.25	38.59	24.85	5.71	7.80	6.18	8.10	6.81	6.17	
18	ST04099A		54.21	350.94	254.50	72.13	92.77	81.93	116.04	95.78	81.83	
19	ST04099B		10.98	98.48	66.96	17.25	23.29	19.61	30.08	24.05	18.84	
20	ST06039A		2.01	20.10	12.34	2.97	4.09	2.84	4.82	3.87	2.64	
21	ST06039B		5.45	53.36	34.99	7.47	9.92	8.23	11.41	9.48	8.13	
22	ST23029A		4.37	45.60	28.57	5.69	8.20	7.50	12.53	10.46	7.21	
23	ST23029B		1.38	12.24	7.44	1.38	2.11	1.58	2.82	2.33	1.53	
24	ST27079A		1.53	17.42	10.85	2.74	3.22	2.84	4.14	3.63	2.48	
25	ST27079B		8.54	47.37	33.26	7.85	10.33	14.41	20.47	16.84	15.81	

0	Depth start	int.	77 24X 330-191	78	79 D-MIX DATE	80 D4-C21 292-221	81 D2-C29 400-193	82 D4-C27 376-221	83	84 %-NORM TRI-CYCL.	85 %-NORM L.M.STE.	86 %-NORM PENTA-CYCL.
1	1819.35		5.91	OK						9.8	9.9	42.7
2	1888.50		13.24	OK	DMIX19019	7.92	2.22	20.71		4.1	5.4	49.5
3	1888.50		16.58	OK						3.9	7.1	47.1
4	1888.50		5.89	OK	DMIX19019	5.19	1.03	7.38		4.4	7.8	49.5
5	1944.00		23.53	OK						5.7	10.7	40.9
6	1958.80		17.27	OK						2.5	4.9	35.0
7	1960.85		10.69	OK						3.2	3.6	74.0
8	1961.75		24.79	OK						2.7	5.0	34.6
9	1963.00		3.10	OK	DMIX19019	3.90	0.70	6.43		2.4	4.1	37.5
10	2150.00		16.63	OK						4.9	11.2	51.2
11	2582.40		2.95	OK						8.1	5.7	55.9
12	AF		7.54	OK	DMIX19019	10.16	2.64	20.45		2.9	4.1	50.9
13	BF		8.50	OK	DMIX19019	12.12	3.31	24.70		3.2	4.1	51.1
14	CF		16.25	OK	DMIX19019	24.34	4.79	48.09		3.4	4.3	50.5
15	DST4		1.89	OK	DMIX19019	28.74	5.70	63.78		11.9	4.1	45.5
16	HALTEN		2.77	OK	DMIX19019	5.69	1.27	9.52		2.7	8.2	41.1
17	ST02089A		4.13	OK						3.2	6.8	48.1
18	ST04099A		51.01	OK						3.5	9.3	42.5
19	ST04099B		10.54	OK						2.8	9.9	43.5
20	ST06039A		2.11	OK						3.0	7.6	47.2
21	ST06039B		5.55	OK						3.1	6.6	47.8
22	ST23029A		4.33	OK						3.1	7.5	47.4
23	ST23029B		0.99	OK						3.4	8.7	45.1
24	ST27079A		2.50	OK						3.6	8.4	48.5
25	ST27079B		7.46	OK						5.6	5.2	46.8

0	Depth start	int.	87 %-NORM STERANES	88 GROUP SUM
1	1819.35		37.6	397.85
2	1888.50		41.0	1433.50
3	1888.50		41.9	1815.65
4	1888.50		38.3	601.80
5	1944.00		42.7	2429.19
6	1958.80		57.6	4187.98
7	1960.85		19.2	1116.64
8	1961.75		57.7	5980.14
9	1963.00		56.0	892.34
10	2150.00		32.6	1216.01
11	2582.40		30.4	173.60
12	AF		42.0	910.59
13	BF		41.6	976.91
14	CF		41.9	2098.57
15	DST4		38.5	482.35
16	HALTEN		48.0	452.64
17	ST02089A		41.9	728.44
18	ST04099A		44.7	7871.15
19	ST04099B		43.8	1974.53
20	ST06039A		42.2	378.92
21	ST06039B		42.5	952.66
22	ST23029A		42.0	823.21
23	ST23029B		42.8	218.67
24	ST27079A		39.4	341.10
25	ST27079B		42.4	1147.68

APPENDIX IIa

Extraction data and % n-alkanes of total SAT-FID peaks.

0 Well	1 Sample	2 %-Asph. of EOM	3 %-SAT of EOM	4 %-ARO of EOM	5 %-NSO of EOM
1	AF-DST	1	63	30	6
2	BF-DST	1	61	31	7
3	CF-DST	1	61	33	5
4 7120/2-1	DST-4	1	64	27	8
5 7120/1-2	RFT	1	60	27	12

0 Well	6 % N-alk. of tot. SAT
1	36
2	39
3	47
4 7120/2-1	28
5 7120/1-2	22

APPENDIX IIb.

GC-FID chromatograms and calculated peak ratios of SAT-fractions.

Reported on 26-JUL-1989 at 15:52

Injection Report

Acquired on 26-JUL-1989 at 14:27

PEAK INFORMATION

Peak	RT mins	RT Corr	Hght uV	Area uVs	Area %	Peak name	Width
1	5.475	5.449	2400	28351	0.08	N-C10	12.0
7	8.064	8.026	2822	32910	0.09	N-C11	12.5
12	10.093	10.046	42757	441994	1.22	N-C12	9.4
21	13.288	13.226	79043	731675	2.03	N-C13	9.0
30	16.499	16.421	106785	972909	2.70	N-C14	9.4
36	18.453	18.367	66025	541498	1.50	I-C16	8.2
40	19.597	19.505	117250	1100176	3.05	N-C15	9.1
50	22.576	22.470	111185	1193651	3.31	N-C16	9.4
55	24.008	23.902	60546	324567	0.90	I-C18	2.6A
59	25.451	25.344	108222	1160986	3.22	N-C17	9.9
60	25.707	25.600	101813	898906	2.49	PRISTANE	8.6
67	28.160	28.053	107736	1143211	3.17	N-C18	8.8
68	28.461	28.354	74968	675460	1.87	PHYTANE	8.0
74	30.765	30.658	112296	1328019	3.68	N-C19	9.3
79	33.237	33.129	108842	1141291	3.16	N-C20	8.8
84	35.613	35.504	109639	1088661	3.02	N-C21	9.0
88	37.891	37.781	108658	1199259	3.32	N-C22	9.6
91	40.083	39.972	110192	1206183	3.34	N-C23	9.8
93	42.184	42.072	107897	1349659	3.74	N-C24	10.6
96	44.203	44.090	109141	1419150	3.93	N-C25	10.4
98	46.133	46.020	104375	1119492	3.10	N-C26	9.9
100	48.003	47.866	101944	1101925	3.05	N-C27	9.6
101	49.776	49.617	91322	859388	2.38	N-C28	8.8
102	51.509	51.328	86305	862959	2.39	N-C29	8.3
104	53.149	52.947	67813	558108	1.55	N-C30	8.2
107	54.733	54.511	57729	432278	1.20	N-C31	6.2
110	56.259	56.017	40116	279993	0.78	N-C32	5.4
113	57.771	57.510	37875	333652	0.92	N-C33	6.6
118	59.219	58.940	23944	264717	0.73	N-C34	10.7
124	60.675	60.377	11557	59110	0.16	N-C35	4.6
Residual			1416458	12241056	33.92		
			2371199	23850136	100.00		

C.P.I. 1	: 1.17
C.P.I. 2	: 1.11
Pristan/N-C17	: 0.77
Phytan/N-C18	: 0.59
Pristan/Phytan	: 1.33
N-C17/N-C27	: 1.05

Injection Report

Acquired on 26-JUL-1989 at 02:24

NORSK HYDRO F-BERGEN, PETROLEUM GEOCHEMISTRY

Analyst Name : ARNE
Lims Id :
Comment : Heia Braaan!
Method Title : SATURATED HYDROCARBONS 4 DEG/MIN.
Sample Name :
Sample Id :
Sample Type : Sample Amount=1.00000
Bottle No : 8

PEAK INFORMATION

Peak	RT mins	RT Corr	Hght uV	Area uVs	Area %	Peak name	Width
1	5.504	5.467	2358	24379	0.07	N-C10	10.9
7	8.101	8.047	4681	55847	0.16	N-C11	12.5
13	10.149	10.081	62979	658466	1.90	N-C12	9.6
20	13.344	13.255	109008	1009705	2.91	N-C13	8.8
30	16.552	16.441	122057	1116879	3.22	N-C14	9.4
38	18.493	18.370	76776	591797	1.71	I-C16	7.7
42	19.648	19.517	127692	1199558	3.46	N-C15	9.0
56	22.621	22.470	119885	1244208	3.59	N-C16	9.0
62	24.043	23.892	63730	374634	1.08	I-C18	2.9A
68	25.485	25.336	110948	1138378	3.28	N-C17	9.4
69	25.749	25.600	103689	900688	2.60	PRISTANE	8.3
81	28.197	28.049	108970	1057926	3.05	N-C18	8.6
82	28.504	28.356	75682	624701	1.80	PHYTANE	7.2
94	30.800	30.653	110015	978184	2.82	N-C19	8.6
109	33.275	33.129	107475	985249	2.84	N-C20	8.6
122	35.645	35.501	103490	875773	2.52	N-C21	8.6
134	37.925	37.783	99911	934279	2.69	N-C22	9.1
146	40.109	39.968	99394	880849	2.54	N-C23	9.1
158	42.211	42.071	99094	1024305	2.95	N-C24	9.6
166	44.229	44.091	99733	1054390	3.04	N-C25	9.6
174	46.157	46.020	94962	818707	2.36	N-C26	9.1
183	48.027	47.869	89404	777381	2.24	N-C27	8.6
191	49.803	49.626	80224	636385	1.83	N-C28	7.7
199	51.525	51.330	69394	535727	1.54	N-C29	6.9
207	53.160	52.947	51681	362226	1.04	N-C30	7.2
216	54.755	54.525	49086	269971	0.78	N-C31	5.3
224	56.277	56.031	33496	166321	0.48	N-C32	4.5
230	57.795	57.532	31931	224398	0.65	N-C33	5.8
236	59.245	58.967	20358	197684	0.57	N-C34	10.2
242	60.693	60.399	8581	34579	0.10	N-C35	3.8
Residual			2119547	13947697	40.19		
			2336683	20753574	100.00		

C.P.I. 1 : 1.13
C.P.I. 2 : 1.07
Pristan/N-C17 : 0.79
Phytan/N-C18 : 0.59
Pristan/Phytan : 1.44
N-C17/N-C27 : 1.46

Reported on 26-JUL-1989 at 05:27

Injection Report

Acquired on 26-JUL-1989 at 04:04

NORSK HYDRO F-BERGEN, PETROLEUM GEOCHEMISTRY

Analyst Name : ARNE
Lims Id :
Comment : Heia Braaan!
Method Title : SATURATED HYDROCARBONS 4 DEG/MIN.
Sample Name :
Sample Id :
Sample Type : Sample Amount=1.00000
Bottle No : 9

PEAK INFORMATION

Peak	RT mins	RT Corr	Hght uV	Area uVs	Area %	Peak name	Width
1	5.485	5.467	2567	15995	0.07	N-C10	5.8A
8	8.072	8.046	2603	28620	0.12	N-C11	11.8
14	10.101	10.068	40237	341278	1.39	N-C12	7.4
23	13.261	13.218	80572	620019	2.53	N-C13	7.0
36	16.469	16.415	99465	756098	3.08	N-C14	7.7
44	18.419	18.358	63143	402439	1.64	I-C16	6.4
49	19.571	19.506	109325	838868	3.42	N-C15	7.5
66	22.544	22.470	104246	814647	3.32	N-C16	7.8
73	23.976	23.904	53129	308549	1.26	I-C18	2.2A
80	25.405	25.336	93691	832283	3.39	N-C17	8.3
81	25.672	25.603	85687	669253	2.73	PRISTANE	7.7
96	28.117	28.052	92592	757375	3.09	N-C18	7.5
97	28.429	28.364	62980	445503	1.82	PHYTANE	6.9
110	30.717	30.656	94715	836156	3.41	N-C19	7.7
123	33.187	33.129	91929	727296	2.96	N-C20	7.5
136	35.552	35.501	87254	673042	2.74	N-C21	7.5
148	37.829	37.785	85353	696088	2.84	N-C22	7.5
159	40.011	39.973	86940	676515	2.76	N-C23	7.8
170	42.104	42.072	84867	681200	2.78	N-C24	8.0
181	44.115	44.089	79478	709312	2.89	N-C25	8.0
191	46.040	46.020	73785	538341	2.19	N-C26	7.4
201	47.899	47.858	68391	478600	1.95	N-C27	6.9
209	49.677	49.617	61228	391197	1.59	N-C28	6.1
218	51.397	51.318	51031	323787	1.32	N-C29	5.8
227	53.045	52.947	37858	212105	0.86	N-C30	5.8
237	54.637	54.521	32017	148057	0.60	N-C31	4.3
248	56.173	56.040	20307	81957	0.33	N-C32	3.8
256	57.699	57.549	19957	125494	0.51	N-C33	5.1
262	59.171	59.004	12361	62058	0.25	N-C34	5.8A
268	60.632	60.449	6030	28080	0.11	N-C35	4.3
Residual			1688895	10311334	42.03		
			1883736	14220212	100.00		

C.P.I. 1 : 1.13
C.P.I. 2 : 1.03
Pristan/N-C17 : 0.80
Phytan/N-C18 : 0.59
Pristan/Phytan : 1.50
N-C17/N-C27 : 1.74

Injection Report

Acquired on 25-JUL-1989 at 23:02

NORSK HYDRO F-BERGEN, PETROLEUM GEOCHEMISTRY

Analyst Name : ARNE
Lims Id :
Comment : Heia Braaan!
Method Title : SATURATED HYDROCARBONS 4 DEG/MIN.
Sample Name : 7120/2-1 DST-4 HYDRO-89
Sample Id :
Sample Type : Sample Amount=1.00000
Bottle No : 6

PEAK INFORMATION

Peak	RT mins	RT Corr	Hght uV	Area uVs	Area %	Peak name	Width
6	10.112	10.040	36444	370844	1.43	N-C12	9.1
12	13.325	13.230	94090	932772	3.60	N-C13	9.3
21	16.555	16.436	124205	1189700	4.59	N-C14	10.1
26	18.504	18.372	85182	690891	2.67	I-C16	7.8
30	19.664	19.523	136304	1346006	5.19	N-C15	9.4
42	22.632	22.470	123253	1171778	4.52	N-C16	9.0
48	24.069	23.914	74643	503821	1.94	I-C18	2.6A
55	25.496	25.348	108033	1121136	4.32	N-C17	9.8
56	25.757	25.610	108777	973598	3.76	PRISTANE	8.8
68	28.192	28.057	103691	942083	3.63	N-C18	8.3
69	28.512	28.378	80256	663883	2.56	PHYTANE	7.8
84	30.787	30.664	101850	1012800	3.91	N-C19	8.5
98	33.240	33.129	93682	805168	3.11	N-C20	7.8
111	35.589	35.508	84649	628549	2.42	N-C21	7.2
123	37.837	37.784	74471	542463	2.09	N-C22	6.9
135	39.992	39.966	64772	408279	1.57	N-C23	6.6
147	42.061	42.061	57231	365803	1.41	N-C24	6.2
158	44.059	44.084	50410	397254	1.53	N-C25	6.2
170	45.971	46.020	44780	246368	0.95	N-C26	5.4
181	47.824	47.849	38451	205000	0.79	N-C27	5.1
190	49.600	49.602	34400	164762	0.64	N-C28	4.5
202	51.325	51.305	28001	141259	0.54	N-C29	4.3
210	52.989	52.947	22882	106406	0.41	N-C30	4.6
219	54.603	54.539	19236	78145	0.30	N-C31	3.8
229	56.155	56.071	13453	51103	0.20	N-C32	3.7
238	57.677	57.574	10752	44409	0.17	N-C33	3.7
245	59.149	59.027	8294	42090	0.16	N-C34	4.2
251	60.635	60.493	5412	28777	0.11	N-C35	4.0
Residual			1679050	10747362	41.46		
			1827605	15175147	100.00		

C.P.I. 1 : 1.19
C.P.I. 2 : 1.00
Pristan/N-C17 : 0.87
Phytan/N-C18 : 0.70
Pristan/Phytan : 1.47
N-C17/N-C27 : 5.47

Injection Report

Acquired on 5-OCT-1989 at 17:05

NORSK HYDRO F-BERGEN, PETROLEUM GEOCHEMISTRY

Analyst Name : ARNE
Lims Id :
Comment : Heia Braaan!
Method Title : SATURATED HYDROCARBONS 4 DEG/MIN.
Sample Name : 7120/1-2_RFT1888.5
Sample Id :
Sample Type : Sample Amount=0.00000
Bottle No : 2

PEAK INFORMATION

Peak	GRP	RT mins	RT Corr	Hght uV	Area uVs	Area %	Peak name	Width
2		6.272	6.272	7548	95139	4.36	N-C11	8.8
7		8.763	8.762	10083	90046	4.13	N-C12	7.4
14		11.677	11.677	13629	99014	4.54	N-C13	5.9
26		14.763	14.762	16541	103152	4.73	N-C14	5.6
37		16.640	16.639	9752	60324	2.77	I-C16	5.9
41		17.821	17.821	18124	91804	4.21	N-C15	5.3
51		20.768	20.767	16854	91106	4.18	N-C16	5.3
56		22.149	22.153	8552	58486	2.68	I-C18	5.6
63		23.616	23.624	14156	72286	3.32	N-C17	5.1
64		23.803	23.811	13386	73764	3.38	PRISTANE	5.6
79		26.328	26.344	14222	67305	3.09	N-C18	4.6
80		26.576	26.593	8506	47568	2.18	PHYTANE	5.8
91		28.931	28.954	13158	56657	2.60	N-C19	4.3
105		31.411	31.442	11453	49366	2.26	N-C20	4.2
119		33.784	33.820	10177	46060	2.11	N-C21	4.5
132		36.064	36.105	10301	46492	2.13	N-C22	4.3
144		38.248	38.294	8834	36679	1.68	N-C23	4.3
154		40.355	40.405	8282	39247	1.80	N-C24	4.5
163		42.376	42.430	7169	33277	1.53	N-C25	4.2
173		44.328	44.386	6264	25976	1.19	N-C26	3.8
183		46.208	46.258	5546	23020	1.06	N-C27	3.8
190		48.029	48.071	4572	18712	0.86	N-C28	3.7
198		49.789	49.824	4090	16308	0.75	N-C29	3.8
203		51.493	51.520	3443	16822	0.77	N-C30	4.0
208		53.136	53.155	2538	8974	0.41	N-C31	3.4
215		54.733	54.746	2004	7564	0.35	N-C32	3.7
220		56.285	56.291	1575	6039	0.28	N-C33	3.8
221		57.800	57.799	1594	10869	0.50	N-C34	6.2
224		59.277	59.270	1134	6646	0.30	N-C35	4.6

Totals			
Unknowns	152677	781310	35.84
Quantified	253483	1398702	64.16

Sample : 1, Injection : 1

C.P.I. 1	: 1.00
C.P.I. 2	: 1.03
Pristan/N-C17	: 1.02
Phytan/N-C18	: 0.71
Pristan/Phytan	: 1.55
N-C17/N-C27	: 3.14

Prepared for

PL 109

GEOCHEMICAL DATA

WELL 7120/1-2

June 1989

TABLE 1
ORGANIC CARBON RESULTS AND GROSS LITHOLOGIC DESCRIPTIONS

JOB 1987 GEOCHEM SAMPLE NUMBER	DEPTH/ IDENTITY	GROSS LITHOLOGIC DESCRIPTION	G S A COLOUR CODE	TOTAL ORGANIC CARBON (Wt. %)
WELL: 7120/1-2 (CORES)				
1987-001	1888.50m	A100% OIL,RFT 9.		
1987-002	1815.65m	A100% SILTSTONE - medium grained, blocky, mod hard to mod soft, very sl calc, occasional carbonaceous material, slow blooming milky cut, light grey	N7	
1987-003	1816.65m	A100% SILTSTONE - as 1987-002A, rapid blooming milky cut, light grey.	N7	
1987-004	1817.35m	A100% SILTSTONE - as 1987-002A, rapid blooming milky cut, light grey.	N7	
1987-005	1819.35m	A100% SILTSTONE - as 1987-002A, slow blooming milky cut, light grey	N7	
1987-006	1821.50m	A100% SILTSTONE - medium grained, blocky, mod hard to mod soft, non-calc, occasional carbonaceous material, slow blooming milky cut, light grey	N7	
1987-007	1823.65m	A100% SILTSTONE - medium grained, blocky with frequent carbonaceous patches, non to v sl calc, mod hard to mod soft, slow blooming milky cut, very light grey.	N8	
1987-008	1824.65m	A100% SILTSTONE - medium grained, blocky, mod hard to mod soft, occasional carbonaceous material, non calc, slow blooming milky cut, light grey.	N7	
1987-009	1957.65m	A100% CRYSTALLINE SANDSTONE - mod silty, blocky with occ bituminous patches, calcareous, occ fossiliferous, slow blooming milky cut, very light grey	N8	
1987-010	1958.35m	A100% SILTSTONE - medium grained, blocky, mod shelly, mod hard to mod soft, mod calc, yellow F, instant blooming milky cut, very light grey to pale yellowish brown.	N8 - 10YR6/2	
1987-011	1958.80m	A100% SILTSTONE - medium grained, blocky, mod hard to mod soft, sl micaceous, non-calc, occ coaly laminae, dull yellow F, inst streaming milky cut, light olive grey to light grey.	5Y6/1 - N7	

Abbreviations = arenaceous, argillaceous, calcareous, Cut, dolomite, Fluorescence, foraminifera fossiliferous, Lost Circulation Material, moderately, occasionally, slightly, very

TABLE 1
ORGANIC CARBON RESULTS AND GROSS LITHOLOGIC DESCRIPTIONS

JOB 1987 GEOCHEM SAMPLE NUMBER	DEPTH/ IDENTITY	GROSS LITHOLOGIC DESCRIPTION	G S A COLOUR CODE	TOTAL ORGANIC CARBON (Wt. %)
1987-012	1959.45m	A100% SILTSTONE - medium grained, blocky, mod hard to mod soft, calcareous, slow blooming milky cut, very light grey.	N8	
1987-013	1959.80m	A100% SILTSTONE - medium grained, blocky, mod hard, occ fine micaceous laminae, non-calc, slow blooming milky cut, very light grey to light olive grey.	N8 - 5Y6/1	
1987-014	1960.85m	A100% SHALE - subfissile, mod soft, non-calc, sl micaceous, occ yellow F, slow streaming milky cut, dark grey	N3	1.32
1987-015	1961.10m	A100% SILTSTONE - medium grained, blocky with fine carbonaceous laminae, mod hard to mod soft, non calc, pale yellow F, rapid blooming milky cut, light olive grey to dark grey.	5Y6/1 - N3	
1987-016	1961.75m	A100% SILTY SANDSTONE - medium to coarse grained, blocky, mod hard, non-calc, pale yellow F, rapid blooming milky cut, yellowish grey to light olive grey.	5Y8/1 - 5Y6/1	
1987-017	1961.85m	A100% SILTY SANDSTONE - as 1987-016A, slow blooming milky cut, yellowish grey to light olive grey.	5Y8/1 - 5Y6/1	
1987-018	1962.75m	A100% SILTSTONE - medium grained, blocky with dark carb laminae, mod hard to mod soft, non calc, occ yellow F, rapid streaming milky cut, light grey.	N7	
1987-019	1964.35m	A100% SILTSTONE - as 1987-018A, occasional yellow F, streaming milky cut, light grey.	N7	
1987-020	1966.20m	A100% SILTY SANDSTONE - medium to coarse grained, blocky, moderately micaceous, non-calc, mod hard, slow blooming milky cut, very light grey	N8	
1987-021	1967.95m	A100% SANDY SILTSTONE - medium, occ coarse grained, blocky with fine carbonaceous laminae, mod hard, very light grey.	N8	

Abbreviations = arenaceous, argillaceous, calcareous, Cut, dolomite, Fluorescence, foraminifera fossiliferous, Lost Circulation Material, moderately, occasionally, slightly, very

TABLE 1
ORGANIC CARBON RESULTS AND GROSS LITHOLOGIC DESCRIPTIONS

JOB 1987 GEOCHEM SAMPLE NUMBER	DEPTH/ IDENTITY	GROSS LITHOLOGIC DESCRIPTION	G S A COLOUR CODE	TOTAL ORGANIC CARBON (Wt. %)
1987-022	2150.00m	A100% SHALY MUDSTONE - subfissile to fissile, mod soft, non calcareous, olive black.	5Y2/1	10.30
1987-023	2581.35m	A100% SILTSTONE - medium grained, blocky, finely laminated with carb material mod hard, non-calc, very light grey	N8	
1987-024	2582.40m	A100% SILTSTONE - medium grained, blocky, occ carb patches, mod hard, non-calc, light grey.	N7	
1987-025	2584.50m	A100% SILTSTONE - fine to medium grained, blocky, mod hard, non-calc, sl micaceous, light grey.	N7	
1987-026	2584.85m	A100% SILTSTONE - as 1987-025A, light grey.	N7	
1987-027		A100% OIL,DST-3B.		
1987-028		A100% LAB STANDARD - core sample, crushed.		

Abbreviations = arenaceous, argillaceous, calcareous, Cut, dolomite, Fluorescence, foraminifera fossiliferous, Lost Circulation Material, moderately, occasionally, slightly, very

TABLE 2
STANDARD PYROLYSIS DATA

JOB 1987 GEOCHEM SAMPLE NUMBER	DEPTH/ IDENTITY	ORGANIC CARBON (%)	S0 (mg/g)	S1 (mg/g)	S2 (mg/g)	PRODN INDEX	HYDGN INDEX	TMAX (°C)
WELL: 7120/1-2 (CORES)								
1987-014A	1960.85m	1.32	0.04	0.75	2.28	0.24	172.7	437
1987-022A	2150.00m	10.30	0.05	6.93	29.91	0.19	290.4	434
1987-022A	2150.00m	10.30	0.11	5.59	29.03	0.16	281.8	435

UNEXTRACTED SAMPLES

TABLE 3
STANDARD PYROLYSIS DATA

JOB 1987 GEOCHEM SAMPLE NUMBER	DEPTH/ IDENTITY	ORGANIC CARBON (%)	S0 (mg/g)	S1 (mg/g)	S2 (mg/g)	PRODN INDEX	HYDGN INDEX	TMAX (°C)
WELL: 7120/1-2 (CORES)								
1987-014A	1960.85m	1.32	0.03	0.06	2.02	0.03	153.0	425
1987-022A	2150.00m	9.08	0.11	0.40	22.88	0.02	252.0	436
1987-022A	2150.00m	9.08	0.08	0.40	21.47	0.02	236.5	436

EXTRACTED SAMPLES

TABLE 4
ROCKEVAL PYROLYSIS DATA

⁻OB 1987 GEOCHEM SAMPLE NUMBER	DEPTH/ IDENTITY	TOC (%)	S1 (mg/g)	S2 (mg/g)	S3 (mg/g)	PRODUCTION INDEX	HYDROGEN INDEX	OXYGEN INDEX	TMAX (°C)
WELL: 7120/1-2 (CORES)									
1987-014A	1960.85m	1.32	0.62	2.19	2.62	0.22	165.9	198.5	436
1987-022A	2150.00m	10.30	5.88	31.34	1.35	0.16	304.3	13.1	432

UNEXTRACTED SAMPLES

TABLE 5
ROCKEVAL PYROLYSIS DATA

⁻DB 1987 GEOCHEM SAMPLE NUMBER	DEPTH/ IDENTITY	TOC (%)	S1 (mg/g)	S2 (mg/g)	S3 (mg/g)	PRODUCTION INDEX	HYDROGEN INDEX	OXYGEN INDEX	TMAX (°C)
WELL: 7120/1-2 (CORES)									
1987-014A	1960.85m	1.32	0.12	1.92	0.78	0.06	145.5	59.1	436
1987-022A	2150.00m	9.08	0.60	22.41	3.12	0.03	246.8	34.4	435

EXTRACTED SAMPLES

TABLE 6a
PYROLYSIS-GC GAS-OIL INDICES

JOB 1987							INDICES		
GEOCHEM SAMPLE NUMBER	DEPTH/ IDENTITY	% C1	% C2-C5	% C6-C14	% C15+	% nC17	TOLUENE / nC8	% PHENOL	% C1-C5
WELL: 7120/1-2 (CORES)									
1987-014A	1960.85m	10.64	52.78	34.05	2.35	0.19	2.66	0.21	63.42
1987-022A	2150.00m	11.61	25.05	53.51	9.41	0.42	2.22	0.25	36.66

EXTRACTED SAMPLES

TABLE 6b
PYROLYSIS-GC GAS-OIL INDICES

JOB 1987							INDICES		
GEOCHEM SAMPLE NUMBER	DEPTH/ IDENTITY	% C1	% C2-C6	% C7-C14	% C15+	% nC17	TOLUENE / nC8	% PHENOL	% C1-C6
WELL: 7120/1-2 (CORES)									
1987-014A	1960.85m	10.64	54.87	31.96	2.35	0.19	2.66	0.21	65.51
1987-022A	2150.00m	11.61	32.84	45.72	9.41	0.42	2.22	0.25	44.45

EXTRACTED SAMPLES

TABLE 7
KEROGEN TYPE AND MATURATION

JOB 1987 GEOCHEM SAMPLE NUMBER	DEPTH/ IDENTITY	ORGANIC MATTER DESCRIPTION					THERMAL MATURATION	
		TYPES >35%;10-35%;<10%	REMARKS	RE-WORKED (%)	PARTICLE SIZE	PRESERV-ATION	THERMAL ALTERATION INDEX	1-10 SCALE
WELL: 7120/1-2 (CORES)								
1987-014A	1960.85m	-;W-Am*-Al*-H*-I;-	widespread sapropelisation, differentiation frequently difficult, * includes material passing to amorphous.		F-M/C	F-G	2- to 2	3.5
1987-022A	2150.00m	Am;Al*;W-I-H	*passing to amorphous		F-M	F	2- to 2/2(?)	3.8?

Algal,Amorphous,Herbaceous,Inertinite,Resin,Wood
preservation = Poor,Fair,Good size = Fine,Medium,Coarse

TAI SCALE	1	1+ to 2-	2-	2	2 TO 2+	2+ TO 3-	3	3+	4	5
1-10 SCALE	1	2	3	4	5	6	7	8	9	10

TABLE 8

KEROGEN COMPOSITION

WELL: 7120/1-2

GEOCHEM SAMPLE NUMBER	DEPTH (m)	VISUAL ESTIMATE Am	AI	H	W	I
1987-014A	1960.85	25	20	15	30	10
1987-022A	2150.00	70	10	<5	<10	<10

TABLE 9
VITRINITE REFLECTANCE DATA

JOB 1987 GEOCHEM SAMPLE NUMBER	DEPTH/ IDENTITY	SAMPLE TYPE	AVERAGE REFLECTIVITY Ro (%), (NUMBER OF PARTICLES)			REMARKS
			1	2	3	
WELL: 7120/1-2 (CORES)						
1987-014A	1960.85m	KC	0.34(1)	0.51(24)		

TABLE 10
CONCENTRATION (PPM) OF EXTRACTED C_{15+} MATERIAL IN ROCK

JOB 1987	L I T H O			HYDROCARBONS			NON HYDROCARBONS			
GEOCHEM SAMPLE NUMBER		DEPTH/ IDENTITY	TOTAL EXTRACT	Saturates	Aromatics	TOTAL	Preciptd. Asphaltenes	Eluted NSO's	Non-Eluted NSO's	TOTAL
WELL: 7120/1-2										
1987-001		1888.50m								
1987-002A		1815.65m	110	46	4	50	43	16	1	60
1987-003A		1816.65m	98	34	3	37	42	17	1	60
1987-004A		1817.35m	117	46	4	50	45	22	1	67
1987-005A		1819.35m	168	45	5	50	74	44	1	118
1987-006A		1821.50m	159	56	5	61	49	48	1	98
1987-007A		1823.65m	200	37	9	46	96	56	1	154
1987-008A		1824.65m	93	26	3	29	37	25	1	64
1987-009A		1957.65m	181	64	7	71	46	63	1	110
1987-010A		1958.35m	762	438	79	517	156	88	1	245
1987-011A		1958.80m	3952	2364	580	2945	325	678	4	1007
1987-012A		1959.45m	202	70	23	93	100	8	1	109
1987-013A		1959.80m	305	36	5	41	237	27	1	264
1987-014A		1960.85m	1393	511	230	741	355	295	3	652
1987-015A		1961.10m	1865	1115	216	1331	265	267	2	534
1987-016A		1961.75m	2478	1673	310	1983	196	294	5	495
1987-017A		1961.85m	2115	1443	227	1670	162	277	6	446
1987-018A		1962.75m	2387	1480	294	1774	260	349	5	613
1987-019A		1964.35m	1647	959	194	1153	261	231	2	494
1987-020A		1966.20m	921	586	116	702	53	165	1	219
1987-021A		1967.95m	1034	496	126	622	249	161	1	411
1987-022A		2150.00m	16677	2044	1913	3957	10426	2281	13	12720
1987-023A		2581.35m	169	62	9	72	50	46	1	97
1987-024A		2582.40m	248	156	17	173	21	52	1	75
1987-025A		2584.50m	126	27	4	30	42	52	1	96
1987-026A		2584.85m	159	47	5	52	46	60	1	107
1987-027		DST 3B								
1987-028A		STD	9220	6690	602	7293	609	1308	10	1927

TABLE 11

COMPOSITION (NORMALISED %) OF C_{15+} MATERIAL

?OB 1987 GEOCHEM SAMPLE NUMBER	LITHO	DEPTH/ IDENTITY	HYDROCARBONS		NON HYDROCARBONS		
			Saturates	Aromatics	Preciptd. Asphaltenes	Eluted NSO's	Non-Eluted NSO's
WELL: 7120/1-2							
1987-001		1888.50m	79.83	11.71	2.40	5.85	0.21
1987-002A		1815.65m	41.70	3.53	38.87	14.84	1.06
1987-003A		1816.65m	34.52	3.57	42.86	17.26	1.19
1987-004A		1817.35m	38.93	3.57	38.21	18.57	0.71
1987-005A		1819.35m	26.90	2.86	43.81	25.95	0.48
1987-006A		1821.50m	34.93	3.31	30.88	30.15	0.74
1987-007A		1823.65m	18.72	4.50	48.10	28.20	0.47
1987-008A		1824.65m	28.32	3.10	40.27	27.43	0.89
1987-009A		1957.65m	35.51	3.92	25.27	34.64	0.65
1987-010A		1958.35m	57.52	10.34	20.45	11.54	0.16
1987-011A		1958.80m	59.83	14.68	8.22	17.16	0.10
1987-012A		1959.45m	34.60	11.43	49.21	4.13	0.63
87-013A		1959.80m	11.68	1.73	77.46	8.90	0.23
1987-014A		1960.85m	36.67	16.52	25.46	21.16	0.19
1987-015A		1961.10m	59.78	11.58	14.22	14.31	0.12
1987-016A		1961.75m	67.51	12.51	7.90	11.87	0.22
1987-017A		1961.85m	68.22	10.71	7.67	13.11	0.29
1987-018A		1962.75m	62.00	12.30	10.88	14.61	0.19
1987-019A		1964.35m	58.22	11.77	15.85	14.03	0.13
1987-020A		1966.20m	63.57	12.59	5.79	17.86	0.15
1987-021A		1967.95m	48.01	12.20	24.09	15.54	0.12
1987-022A		2150.00m	12.26	11.47	62.52	13.68	0.08
1987-023A		2581.35m	36.84	5.51	29.82	27.07	0.75
1987-024A		2582.40m	62.87	6.90	8.58	21.08	0.56
1987-025A		2584.50m	21.03	3.08	33.33	41.54	1.03
1987-026A		2584.85m	29.57	3.04	29.13	37.83	0.43
1987-027		DST 3B	80.03	10.79	1.92	7.16	0.10
1987-028A		STD	72.56	6.53	6.61	14.19	0.11

TABLE 12
SIGNIFICANT C_{15+} RATIOS

JOB 1987 GEOCHEM SAMPLE NUMBER	LITHO	DEPTH/ IDENTITY	TOC (%)	mg/g TOC						HYDROCARBONS % TOTAL EXTRACT	SATURATES / AROMATICS
				TOTAL EXTRACT	SATURATES	AROMATICS	TOTAL HYDROCARBONS	ELUTED NSO's	ASPHALTENES		
WELL: 7120/1-2											
1987-001		1888.50m								91.53	6.82
1987-002A		1815.65m	0.10	110.42	46.04	3.90	49.94	16.39	42.92	45.23	11.80
1987-003A		1816.65m	0.07	139.37	48.12	4.98	53.09	24.06	59.73	38.10	9.67
1987-004A		1817.35m	0.06	195.34	76.04	6.98	83.02	36.28	74.65	42.50	10.90
1987-005A		1819.35m	0.05	336.54	90.54	9.62	100.16	87.34	147.44	29.76	9.42
1987-006A		1821.50m	0.08	199.06	69.53	6.59	76.11	60.01	61.48	38.24	10.56
1987-007A		1823.65m	0.26	77.00	14.41	3.47	17.88	21.71	37.04	23.22	4.16
1987-008A		1824.65m	0.06	154.56	43.77	4.79	48.56	42.40	62.24	31.42	9.14
1987-009A		1957.65m	0.06	301.54	107.08	11.83	118.91	104.45	76.21	39.43	9.06
1987-010A		1958.35m	0.08	952.27	547.73	98.49	646.21	109.85	194.70	67.86	5.56
1987-011A		1958.80m	0.63	627.25	375.31	92.09	467.40	107.63	51.55	74.52	4.08
1987-012A		1959.45m	0.23	88.02	30.46	10.06	40.52	3.63	43.31	46.03	3.03
1987-013A		1959.80m	0.05	610.88	71.33	10.59	81.92	54.38	473.16	13.41	6.73
1987-014A		1960.85m	1.32	105.49	38.69	17.43	56.12	22.32	26.86	53.20	2.22
1987-015A		1961.10m	0.37	503.96	301.26	58.35	359.60	72.10	71.65	71.36	5.16
1987-016A		1961.75m	0.02	12392.38	8365.72	1550.48	9916.19	1470.48	979.05	80.02	5.40
1987-017A		1961.85m	0.04	5288.39	3607.72	566.27	4173.99	693.28	405.85	78.93	6.37
1987-018A		1962.75m	0.25	954.95	592.10	117.42	709.52	139.53	103.86	74.30	5.04
1987-019A		1964.35m	0.44	374.31	217.94	44.05	261.99	52.51	59.32	69.99	4.95
1987-020A		1966.20m	0.05	1842.98	1171.49	232.09	1403.58	329.20	106.75	76.16	5.05
1987-021A		1967.95m	0.34	304.03	145.97	37.10	183.07	47.25	73.23	60.21	3.93
1987-022A		2150.00m	9.08	183.67	22.51	21.07	43.58	25.13	114.82	23.73	1.07
1987-023A		2581.35m	0.20	84.57	31.16	4.66	35.82	22.89	25.22	42.36	6.68
1987-024A		2582.40m	0.08	310.62	195.30	21.44	216.74	65.49	26.66	69.78	9.11
1987-025A		2584.50m	0.08	157.56	33.13	4.85	37.98	65.45	52.52	24.10	6.83
1987-026A		2584.85m	0.07	227.23	67.18	6.92	74.10	85.95	66.19	32.61	9.71
1987-027		DST 3B								90.82	7.42
1987-028A		STD	0.06	15366.90	11150.46	1003.98	12154.44	2180.03	1015.36	79.09	11.11

TABLE 13

COMPOSITION (NORMALISED %) OF C_{15+} SATURATE (PARAFFIN - NAPHTHENE) HYDROCARBONS

GEOCHEM SAMPLE NUMBER	001A	002A	003A	004A	005A	006A
DEPTH	1888.5m	1815.65m	1816.65m	1817.35m	1819.35m	1821.5m
SAMPLE TYPE	RFT 9					
nC15	10.75	21.80	9.51	5.16	10.90	7.76
nC16	10.48	18.71	8.61	7.68	13.83	15.43
nC17	9.43	12.47	7.17	9.71	12.18	17.16
nC18	7.90	6.45	6.48	11.12	10.92	13.86
nC19	7.73	2.94	5.72	8.80	8.19	10.52
nC20	6.55	3.04	5.65	8.70	7.38	5.68
nC21	5.93	2.73	6.20	6.95	5.33	3.72
nC22	5.85	3.14	6.89	6.77	4.18	3.40
nC23	5.43	2.94	6.06	5.18	2.85	3.05
nC24	4.70	2.94	5.31	5.28	2.01	2.82
nC25	4.15	3.25	4.96	4.42	1.79	2.44
nC26	3.90	2.73	4.76	3.74	1.74	1.96
nC27	3.25	2.78	4.62	3.41	1.88	2.31
nC28	2.98	2.46	4.41	2.65	2.42	2.15
nC29	2.58	2.52	3.86	2.73	2.32	1.96
nC30	2.00	1.94	2.41	2.02	1.72	1.28
nC31	1.55	1.94	2.48	1.64	2.35	1.38
nC32	1.15	1.36	1.38	1.09	1.68	0.87
nC33	1.43	1.57	1.31	1.14	2.45	0.87
nC34	1.25	1.10	1.17	0.91	1.97	0.67
nC35	1.03	1.21	1.03	0.88	1.91	0.71
Paraffin	13.23	18.42	19.89	11.72	12.35	12.20
Isoprenoid	3.18	7.58	3.61	3.81	7.30	5.42
Naphthene	83.59	74.00	76.50	84.47	80.35	82.38
CPI 1 Index	0.98	1.01	0.99	0.95	0.96	0.97
CPI 2 Index	1.00	1.14	1.09	1.09	1.08	1.14
CPI 3 Index	0.94	1.07	1.01	1.07	0.90	1.12
Prist/Phytane	1.37	2.09	1.50	1.37	1.53	1.61
Prist/nC17	0.80	1.25	0.98	1.23	1.51	0.98
Phytane/nC18	0.69	1.15	0.72	0.78	1.10	0.75

Job Number : 1987

$$C.P.I.\ 1 = \frac{1}{2}\left(\frac{C21 + C23 + C25 + C27}{C20 + C22 + C24 + C26} + \frac{C21 + C23 + C25 + C27}{C22 + C24 + C26 + C28}\right)$$

$$C.P.I.\ 2 = \frac{1}{2}\left(\frac{C25 + C27 + C29 + C31}{C24 + C26 + C28 + C30} + \frac{C25 + C27 + C29 + C31}{C26 + C28 + C30 + C32}\right)$$

$$.P.I.\ 3 = \frac{2x\ (C27)}{C26 + C28}$$

CT - ditch cuttings CO - core SWC - sidewall core

TABLE 13

COMPOSITION (NORMALISED %) OF C_{15+} SATURATE (PARAFFIN - NAPHTHENE) HYDROCARBONS

GEOCHEM SAMPLE NUMBER	007A	008A	009A	010A	011A	012A
DEPTH	1823.65m	1824.65m	1957.65m	1958.35m	1958.8m	1959.45m
SAMPLE TYPE						
nC15	15.65	14.04	10.27	4.15	5.59	17.32
nC16	12.07	12.05	11.68	5.59	6.31	18.23
nC17	10.37	10.49	9.83	5.72	5.79	14.89
nC18	9.18	8.46	7.63	6.75	6.08	10.91
nC19	5.73	5.77	6.06	6.98	7.02	6.77
nC20	5.44	5.19	6.65	6.39	6.28	4.57
nC21	4.20	4.25	5.55	6.22	5.69	3.64
nC22	3.74	4.13	5.90	6.33	5.79	3.48
nC23	3.57	4.02	5.43	6.11	5.65	3.25
nC24	3.40	3.74	5.50	5.62	5.37	2.66
nC25	3.17	3.90	4.54	5.47	5.22	2.04
nC26	2.95	3.20	4.24	5.35	4.62	2.04
nC27	3.34	3.31	3.65	4.55	4.50	1.71
nC28	2.78	3.20	2.86	4.19	4.33	2.08
nC29	3.29	4.17	2.81	4.50	4.20	1.56
nC30	2.32	2.34	1.85	3.40	3.83	0.99
nC31	2.55	2.46	1.69	3.22	3.43	1.21
nC32	1.64	1.52	1.05	2.84	3.22	0.76
nC33	1.81	1.52	1.10	2.53	2.79	0.78
nC34	1.42	1.17	0.98	2.36	2.59	0.66
nC35	1.36	1.09	0.75	1.74	1.70	0.47
Paraffin	13.95	11.37	13.96	15.89	15.71	15.53
Isoprenoid	3.47	2.78	5.91	3.27	3.20	8.40
Naphthene	82.58	85.85	80.13	80.84	81.09	76.07
CPI 1 Index	1.01	1.02	0.95	0.99	1.00	0.94
CPI 2 Index	1.18	1.23	1.07	1.04	1.02	0.97
CPI 3 Index	1.17	1.03	1.03	0.95	1.01	0.83
Prist/Phytane	1.49	1.43	1.51	1.21	1.28	1.65
Prist/nC17	0.78	0.78	1.43	1.42	1.33	1.22
Phytane/nC18	0.59	0.68	1.22	1.00	0.99	1.01

Job Number : 1987

$$C.P.I.\ 1 = \frac{1}{2}\left(\frac{C21 + C23 + C25 + C27}{C20 + C22 + C24 + C26} + \frac{C21 + C23 + C25 + C27}{C22 + C24 + C26 + C28}\right)$$

$$C.P.I.\ 2 = \frac{1}{2}\left(\frac{C25 + C27 + C29 + C31}{C24 + C26 + C28 + C30} + \frac{C25 + C27 + C29 + C31}{C26 + C28 + C30 + C32}\right)$$

$$C.P.I.\ 3 = \frac{2x\ (C27)}{C26 + C28}$$

CT - ditch cuttings CO - core SWC - sidewall core

TABLE 13

COMPOSITION (NORMALISED %) OF C_{15+} SATURATE (PARAFFIN - NAPHTHENE) HYDROCARBONS

GEOCHEM SAMPLE NUMBER	013A	014A	015A	016A	017A	018A
DEPTH	1959.8m	1960.85m	1961.1m	1961.75m	1961.85m	1962.75m
SAMPLE TYPE						
nC15	19.74	21.88	8.82	3.69	4.96	4.49
nC16	18.93	18.48	9.71	6.17	6.55	4.58
nC17	14.16	12.03	9.02	5.19	6.95	4.97
nC18	10.72	8.83	8.39	6.65	7.15	5.62
nC19	6.61	6.48	7.12	6.93	6.90	6.36
nC20	4.44	4.62	6.35	6.87	6.48	6.75
nC21	2.66	3.17	5.99	6.72	6.34	6.06
nC22	3.22	2.85	5.98	6.17	6.15	6.73
nC23	2.50	3.13	5.36	5.79	5.98	5.96
nC24	2.31	2.46	5.00	5.72	5.08	6.63
nC25	2.04	2.62	4.60	6.06	5.67	5.98
nC26	1.88	1.84	4.61	5.22	4.79	5.63
nC27	1.86	2.33	3.59	4.59	4.13	4.69
nC28	1.76	1.74	2.71	4.40	3.70	4.38
nC29	1.90	2.30	2.89	4.36	3.72	4.49
nC30	1.26	1.24	2.46	3.99	3.54	3.63
nC31	1.49	1.19	2.13	3.15	3.04	3.64
nC32	0.74	0.70	1.52	2.43	2.44	2.87
nC33	0.83	0.83	1.42	2.15	2.58	2.31
nC34	0.60	0.73	1.31	2.18	2.13	2.45
nC35	0.35	0.54	1.01	1.57	1.70	1.77
Paraffin	12.05	18.06	14.98	16.54	14.93	15.63
Isoprenoid	7.00	6.49	4.21	3.07	2.93	2.70
Naphthene	80.95	75.45	80.81	80.39	82.14	81.67
CPI 1 Index	0.88	1.11	0.98	1.02	1.05	0.93
CPI 2 Index	1.15	1.34	1.03	1.04	1.06	1.03
CPI 3 Index	1.02	1.30	0.98	0.95	0.97	0.94
Prist/Phytane	1.71	1.97	1.62	1.21	1.29	1.14
Prist/nC17	1.48	1.33	1.20	1.38	1.07	1.45
Phytane/nC18	1.14	0.92	0.80	0.89	0.81	1.12

Job Number : 1987

$$C.P.I.\ 1 = \frac{1}{2}\left(\frac{C21 + C23 + C25 + C27}{C20 + C22 + C24 + C26} + \frac{C21 + C23 + C25 + C27}{C22 + C24 + C26 + C28}\right)$$

$$C.P.I.\ 2 = \frac{1}{2}\left(\frac{C25 + C27 + C29 + C31}{C24 + C26 + C28 + C30} + \frac{C25 + C27 + C29 + C31}{C26 + C28 + C30 + C32}\right)$$

$$.P.I.\ 3 = \frac{2x\ (C27)}{C26 + C28}$$

CT - ditch cuttings CO - core SWC - sidewall core

TABLE 13

COMPOSITION (NORMALISED %) OF C_{15+} SATURATE (PARAFFIN - NAPHTHENE) HYDROCARBONS

GEOCHEM SAMPLE NUMBER	019A	020A	021A	022A	023A	024A
DEPTH	1964.35m	1966.2m	1967.95m	2150m	2581.35m	2582.4m
SAMPLE TYPE						
nC15	8.17	2.62	7.80	11.91	8.20	2.12
nC16	8.01	3.74	8.06	10.37	11.32	3.70
nC17	7.06	4.45	6.67	8.30	12.67	4.68
nC18	6.74	5.17	6.22	7.26	10.69	5.10
nC19	6.45	6.34	6.58	7.26	8.80	7.07
nC20	6.20	7.42	5.69	6.18	6.82	8.04
nC21	5.56	6.82	5.17	5.39	5.23	8.92
nC22	5.98	7.28	5.49	5.62	5.23	9.86
nC23	5.88	7.15	4.77	5.06	4.16	8.76
nC24	5.17	6.50	5.03	5.19	4.22	7.34
nC25	5.07	5.65	4.71	4.52	3.06	6.59
nC26	4.60	5.50	4.50	3.91	3.34	5.21
nC27	4.28	4.70	3.68	3.76	2.89	4.57
nC28	4.01	4.04	3.56	2.91	2.46	3.49
nC29	3.63	4.64	4.19	2.96	2.55	3.18
nC30	2.89	3.95	3.73	2.37	1.81	2.77
nC31	2.90	3.91	2.97	1.94	1.98	2.61
nC32	2.27	3.00	2.81	1.43	1.27	1.89
nC33	1.86	2.62	2.74	1.51	1.27	1.73
nC34	1.81	2.46	2.70	1.25	1.10	1.21
nC35	1.45	2.03	2.94	0.89	0.93	1.15
Paraffin	16.71	17.83	16.53	12.84	13.60	17.46
Isoprenoid	4.66	2.68	4.03	5.53	5.11	2.09
Naphthene	78.63	79.49	79.44	81.63	81.29	80.45
CPI 1 Index	1.00	0.98	0.94	0.98	0.89	1.03
CPI 2 Index	1.05	1.05	0.99	1.08	1.03	1.08
CPI 3 Index	0.99	0.99	0.91	1.10	1.00	1.05
Prist/Phytane	1.44	1.19	1.52	1.55	1.38	1.11
Prist/nC17	1.36	1.49	1.40	1.31	1.16	1.01
Phytane/nC18	0.99	1.07	0.99	0.96	1.00	0.84

Job Number : 1987

$$C.P.I.\ 1 = \frac{1}{2}\left[\frac{C21 + C23 + C25 + C27}{C20 + C22 + C24 + C26} + \frac{C21 + C23 + C25 + C27}{C22 + C24 + C26 + C28}\right]$$

$$C.P.I.\ 2 = \frac{1}{2}\left[\frac{C25 + C27 + C29 + C31}{C24 + C26 + C28 + C30} + \frac{C25 + C27 + C29 + C31}{C26 + C28 + C30 + C32}\right]$$

$$C.P.I.\ 3 = \frac{2x\ (C27)}{C26 + C28}$$

CT - ditch cuttings CO - core SWC - sidewall core

TABLE 13

COMPOSITION (NORMALISED %) OF C_{15+} SATURATE (PARAFFIN - NAPHTHENE) HYDROCARBONS

GEOCHEM SAMPLE NUMBER	025A	026A	027	028A
DEPTH	2584.5m	2584.85m	DST 3B	STD
SAMPLE TYPE	DST			
nC15	11.99	7.59	14.14	0.81
nC16	14.83	15.03	13.57	2.65
nC17	14.61	18.20	12.91	4.04
nC18	11.99	14.78	10.14	4.50
nC19	7.70	6.99	8.74	5.51
nC20	5.96	6.20	7.30	5.84
nC21	4.80	4.37	5.98	5.91
nC22	4.80	4.37	5.28	6.43
nC23	4.07	3.22	4.04	6.99
nC24	3.20	2.98	3.38	6.76
nC25	2.69	2.48	2.76	7.14
nC26	2.33	2.18	2.23	6.27
nC27	2.03	1.88	2.06	6.51
nC28	1.89	3.72	1.77	5.46
nC29	1.67	1.44	1.65	5.75
nC30	1.16	0.89	1.07	4.60
nC31	1.31	1.19	0.87	3.83
nC32	0.80	0.69	0.58	2.87
nC33	0.87	0.74	0.58	3.20
nC34	0.65	0.60	0.58	3.04
nC35	0.65	0.45	0.37	1.89
Paraffin	14.46	13.18	17.76	22.35
Isoprenoid	5.38	6.46	4.51	1.59
Naphthene	80.16	80.36	77.73	76.06
CPI 1 Index	0.97	0.83	0.99	1.06
CPI 2 Index	1.07	0.83	1.08	1.11
CPI 3 Index	0.96	0.64	1.03	1.11
Prist/Phytane	1.80	1.58	1.53	1.17
Prist/nC17	1.10	1.08	0.61	1.00
Phytane/nC18	0.75	0.84	0.50	0.77

Job Number : 1987

$$C.P.I.\ 1 = \frac{1}{2}\left(\frac{C21 + C23 + C25 + C27}{C20 + C22 + C24 + C26} + \frac{C21 + C23 + C25 + C27}{C22 + C24 + C26 + C28}\right)$$

$$C.P.I.\ 2 = \frac{1}{2}\left(\frac{C25 + C27 + C29 + C31}{C24 + C26 + C28 + C30} + \frac{C25 + C27 + C29 + C31}{C26 + C28 + C30 + C32}\right)$$

$$C.P.I.\ 3 = \frac{2x\ (C27)}{C26 + C28}$$

CT - ditch cuttings CO - core SWC - sidewall core

TABLE 14
METHYLPHENANTHRENE INDICES (MPI)

TOB 1987 GEOCHEM SAMPLE NUMBER	DEPTH/ IDENTITY	SAMPLE TYPE	MPI 1		Rcalc		MPI 2	
			AREA	HEIGHT	AREA	HEIGHT	AREA	HEIGHT
WELL: 7120/1-2 (CORES)								
1987-011A	1958.80m		0.60	0.66			0.69	0.81
1987-014A	1960.85m		0.59	0.70	0.76	0.82	0.73	0.82
1987-015A	1961.10m		0.64	0.73			0.79	0.89
1987-016A	1961.75m		0.68	0.77			0.85	0.85
1987-017A	1961.85m		0.68	0.83			0.75	1.04
1987-018A	1962.75m		0.58	0.76			0.66	0.93
1987-019A	1964.35m		0.52	0.72			0.66	0.90
1987-020A	1966.20m		0.58	0.68			0.62	0.76
1987-022A	2150.00m		0.73	0.65			0.79	0.70
1987-027	DST 3B		0.71	0.73			0.95	0.96
1987-028A	STD		0.68	0.78			0.75	0.92

TABLE 15
CARBON ISOTOPE COMPOSITIONS (‰,PDB)

JOB 1987. GEOCHEM SAMPLE NUMBER	DEPTH/ IDENTITY	TOTAL EXTRACT WHOLE OIL	SATURATES	AROMATICS	NSO	ASPHALTENES	KEROGEN	PYROLYSATE (S2)
WELL: 7120/1-2								
1987-005A	1819.35m	-28.39	-29.13		-28.88	-29.46		
1987-007A	1823.65m	-28.30	-29.53		-29.20	-27.70		
1987-011A	1958.80m	-29.86	-30.45	-29.28	-28.87	-28.31		
1987-014A	1960.85m	-28.65	-29.69	-28.42	-27.98	-27.37	-27.42	
1987-016A	1961.75m	-30.34	-30.67	-29.38	-29.46	-29.35		
1987-017A	1961.85m	-30.32	-30.68	-29.64	-29.64	-29.50		
1987-022A	2150.00m	-28.29	-29.14	-28.22	-28.15	-27.87	-27.27	
1987-024A	2582.40m	-29.56	-30.39	-29.24	-28.17	-28.09		
1987-027	DST 3B	-29.99	-30.19	-29.42	-29.44	-29.22		
1987-028A	STD	-29.27	-29.61	-28.31	-28.62	-28.52		

USE OF CARBAZOLES TO EVALUATE MIGRATION

-PHILLIPS DATASET-

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MARCH, 1997

Table 1 **Nitrogen compound concentrations**

Barents Sea Oils from Phillips

Analysis of nitrogen compounds by GCMS-sim

Quantitative Data

	ug/g oil	ug/g oil	ug/g oil	ug/g oil	ug/g oil	ug/g oil	ug/g oil
Sample	carbazole	1-me	3-me	2-me	4-me	1,8-dmc	1-eth dmc
7119/12-13 dst1	0.68	0.52	0.10	0.14	0.25	0.17	0.041
7120/1-2 dst3B	0.82	2.54	0.45	0.55	0.92	2.75	0.47
7120/6-1 dst2	2.23	5.77	1.92	2.14	1.75	4.52	0.69
7120/6-1 dst4	0.33	0.71	0.22	0.26	0.23	0.66	0.12
7120/7-1 dst2	0.23	0.38	0.07	0.14	0.18	0.31	0.10
7120/9-1 dst2A	nd	nd	nd	nd	nd	0.11	0.03
7121/4-1 dst2	0.42	1.04	0.26	0.30	0.22	0.94	0.18
7122/6-1 dst2	nd	nd	nd	nd	nd	0.21	0.07

Table 1 **continued**

	ug/g oil	ug/g oil	ug/g oil	ug/g oil	ug/g oil	ug/g oil	ug/g oil
Sample	1,3 dmc	1,6-dmc	1,7-dmc	1,4+1,5-dmc	2,7-dmc	benzo[a]	benzo[c]
7119/12-13 dst1	0.06	0.09	0.09	0.27	0.07	0.03	0.01
7120/1-2 dst3B	1.46	1.45	1.86	4.47	1.17	0.07	0.06
7120/6-1 dst2	4.30	3.41	4.27	7.22	2.87	1.73	0.86
7120/6-1 dst4	0.44	0.38	0.39	0.77	0.28	0.02	0.01
7120/7-1 dst2	0.15	0.14	0.17	0.45	0.13	0.01	0.01
7120/9-1 dst2A	0.04	0.06	0.05	0.08	0.03		
7121/4-1 dst2	0.73	0.60	0.70	1.06	0.41	0.05	0.03
7122/6-1 dst2	0.14	0.11	0.07	0.17	0.10		

STATOIL

SEKTOR FOR PETROLEUMSTEKNOLOGI

Geologisk laboratorium

Rapport nr. GEOLAB	90.25
Kopi nr.	
Antall kopier	

Gradering

Tittel GEOKJEMISK STUDIE AV PRØVAR FRÅ 2150 - 2519 mRKB I HULL 7120/1-2.

Oppdragsgiver	Prosjekt	
Ørjan Birkeland, STNN LET	13. Konsesjonsrunde	
Dato 13. JULI. 1990	**Antall sider**	**Antall vedlegg**

Stikkord

Geokjemiske analysar
7120/1-2
Ekstraksjonar
Pyrolyse
Biomarkørar

Sammendrag

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6.02.13

1 INNLEIING

Prøvar av sandstein frå intervallet 2213 til 2519 mRKB er ekstrahert for å undersøkja om det er spor etter hydrokarbonar. Alle prøvane er sandstein frå borekaks. I tillegg er ein kjerne teke opp frå Junk Basket på 2150 mRKB og analysert for å undersøkja kva for kvalitet den har som kildebergart. Fylgjande analyser er utført:

	PRØVE TYPE	
Analyser	BOREKAKS	KJERNE
TOC		1
Pyrolyse		1
Ekstraksjon	6	1
Gruppe separering	2	1
GC total ekstrakt	4	
GC metta	2	1
GC aromat		1
GS-MS	2	1
Kerogen utgreing		1

TABELL 1. TABULERING AV PYROLYSE DATA AV PRØVE FUNNE I JUNK BASKET FRÅ OMKRING 2150 mRKB I HULL 7120/1-2.

DJUP mRKB	PRØVE NR.	S1	S2	TOC	HI	PP	PI	TMAX
2150	S3457	7.65	32.16	10.7	301	38.8	0.19	433

TABELL 2. KONSENTRASJONEN AV EKSTRAHERBART ORGANISK MATERIALE (EOM i mg HK/kg bergart) OG KROMATOGRAFISKE FRAKSJONAR I %, HULL 7120/1-2.

						HYDROKARBONAR			IKKJE HYDROKARBONAR		
DJUP mRKB	PRØVE NR.	PRØVE TYPE	LITHO.	BERGART INNVEGD (g)	EOM (mg/kg rock)	SAT EOM %	ARO EOM %	HC EOM %	ASPH EOM %	NSO EOM %	Non HC EOM %
2150	S3457	core	skifer	7,73	26934	7,9	27,0	34,9	52,3	12,7	65,1
2213,0	S4541	cutt	sandst.	12,09	3342	24,4	12,6	37,1	52,5	10,4	62,9
2270,0	S4542	cutt	sandst.	8,70	713						
2285,0	S4543	cutt	sandst.	7,78	424						
2357,0	S4544	cutt	sandst.	18,35	305						
2474,0	S4545	cutt	sandst.	5,03	815						
2519,0	S4546	cutt	sandst.	5,26	2700	42,7	25,7	68,4	13,4	18,2	31,6

TABELL 3. KONSENTRASJONEN AV EKSTRAHERBART ORGANISK MATERIALE (EOM) OG KROMATOGRAFISKE FRAKSJONAR I PPM (mg HKC/kg bergart).

DJUP	PRØVE	TOT	HYDROKARBONAR			IKKJE HYDROKARBONAR		
mRKB	NR.	EOM	SAT	ARO	TOT	ASPH	NSO	TOT
2150	S3457	26934	2141	7269	9410	14095	3429	17524
2213,0	S4541	3342	817	422	1239	1754	349	2103
2270,0	S4542	713						
2285,0	S4543	424						
2357,0	S4544	305						
2474,0	S4545	815						
2519,0	S4546	2700	1152	695	1847	361	492	853

TABELL 4. GASSKROMATOGRAFISKE DATA AV METTA FRAKSJON.

DJUP	PRØVE	$\frac{Pr}{Fy}$	A= $\frac{Pr}{nC_{17}}$	B= $\frac{Fy}{nC_{18}}$	$\frac{A}{B}$
mRKB	NR.				
2150	S3457	1,04	2,32	2,39	0,97
2213,0	S4541	0,70	0,77	0,55	1,40
2519,0	S4546	0,85	0,99	0,64	1,54

TABELL 5. MOLEKYLFORHOLD FRÅ STERAN OG TERPAN MASSEKROMATOGRAM. KARAKTERISTISKE FORHOLD FOR MODNING OG KILDE.

DYP	PRØVE	% Ts[1]	29A/30A[2]	%27[3]	%28	%29	δ 22S[4]
mRKB	NR.			f+g	f+g	f+g	
2150,0	S3457	23,00	0,61	44,3	24,4	31,3	1,36
2213,0	S4541	53,24	0,88	32,7	34,3	33,0	1,67
2519,0	S4546	61,38	0,65	33,1	30,4	36,5	1,78

1) 100*27B/(27B+27A) i m/z 191.
2) 29A/30A i m/z 191.
3) Vekt % fordeling av C27, C28 og C29 steraner i m/z 218 (27f+27g, 28f+28g, 29f+29g).
4) [(31A/32A)+(32A/33A)+(33A/34A)]/3 i m/z 191.

TABELL 6. MOLEKYLFORHOLD FRÅ STERAN OG TERPAN MASSEKROMATOGRAM. KARAKTERISTISKE FORHOLD FOR MODNING.

DYP mRKB	PRØVE NR.	$\alpha\beta/\alpha\beta+\beta\alpha$[a]	% 22S[b]	% $\beta\beta$[c]	% 20S[d]	Ttx[e]
2150,0	S3457	94,04	60,04	57,84	53,49	67,74
2213,0	S4541	88,21	58,97	61,15	48,65	56,14
2519,0	S4546	88,43	60,26	82,26	45,45	64,91

a) 100*30A/(30A+30B) i m/z 191.
b) 100*[{31A/(31A+31B)}+{32A/(32A+32B)}+{33A/(33A+33B)}]/3 i m/z 191.
c) 100*(29f+29g)/(29f+29g+29e+29h) i m/z 217.
d) 100*29e/(29e+29h) i m/z 217:
e) 100*X/(X+29B) i m/z 191.

TABELL 7. VISELL KEROGEN UTGREIING AV PRØVE FRÅ JUNK BASKET I HULL 7120/1-2.

DJUP mRKB	PRØVE NR.	Liptinitt	Vitrinitt	Inertinitt	Amorphous Liptinitisk	Humisk
2150,0	S3457	< 1 %	6 %	< 1 %	51 %	42 %

TABELL 8. TABULERING AV AREALET AV TRITERPANER FRÅ ION m/z 191.

DJUP	PRØVE NR	27A	27B	29A	X	29B	30A	30B	31A	31B	32A	32B	33A	33B	34A
2213,0	S4541	74	65	177	32	25	202	27	78	61	51	34	31	20	17
2519,0	S4546	89	56	125	37	20	191	25	83	64	49	32	30	17	15

TABELL 9. TABULERING AV AREALET AV STERANER FRÅ ION m/z 217.

DJUP	PRØVE NR	29e	29f	29g	29h
2213,0	S4541	72	127	106	76
2519,0	S4546	30	173	133	36

TABELL 10. TABULERING AV AREALET AV STERANER FRÅ ION m/z 218.

DJUP	PRØVE NR	27f	27g	28f	28g	29f	29g
2213,0	S4541	170	162	189	159	159	176
2519,0	S4546	144	131	126	126	182	121