

FLOW DATA 6201/11-1

Test no.	Perf. int. (mRKB)	Flow period #	Duration (min)	Choke diam. (mm)	Oil rate (Sm ³ /d)	Gas rate (1000 Sm ³ /d)	GOR (Sm ³ /Sm ³)	Water rate (Sm ³ /d)	Oil dens ₃ (kg/m ³)	Gas sp.g. (air=1)	WHP (kPa)	BHP (kPa)	Res. temp. ₀ (°C)	Res. press. (kPa)
1	2818-2832	1	1515	(bubble hose)	-	-	-	(2.4)	-	-	101	29168	104	42666
	& 2839-2852	2	142		-	-	-	(3.2)	-	-	101	29528		
2	2746.5-	1	711	6.35	-	-	-	(7.6)	-	-	122	27249	103	42465
	2771	2	100	6.35	-	-	-	(11.5)	-	-	134	28486		
3	2712.6-	1	270	15.9	128	79000	617	-	835	0.644	2706	10129	105	42021
	2716.7	2	813	10.3	91	72600	798	-	835	0.630	7023	14228		
		3	57	10.3	133	72500	545	-	835	0.653	12538	17297		
		4	89	7.9	74	56600	765	-	835	0.653	14521	22648		

Table 6.5

3.10 Drilling fluid summary

STATOIL, 6201/11-1

SYNOPSIS

OPERATOR: STATOIL
WELL: 6201/11-1
WELL TYPE: EXPLORATION
CONTRACTOR: ODFJELL DRILLING AND CONSULTING CO. A/S
RIG: DEEPSEA BERGEN

SPUD DATE: 13 AUGUST 1987
TD DATE: 12 OCTOBER 1987

MUD TYPES: BENTONITE SPUD MUD
GYPSUM POLYMER
GEL LIGNO LIGNITE

RKB TO SEABED : 381 METERS
36" HOLE; 30" SURFACE PIPE : 481 m; 479 m
26" HOLE; 20" CASING DEPTHS : 646 m; 646 m
17 1/2" HOLE; 13 3/8" CASING DEPTHS : 1808 m; 1735 m
12 1/4" HOLE; 9 5/8" CASING DEPTHS : 2620 m; 2595 m
8 1/2" HOLE, 7" LINER DEPTHS : 3384 m; 3383 m
6" HOLE DEPTH : 3850 m

STATOIL, 6201/11-1

MATERIAL CONSUMPTION BY INTERVAL

Hole Section: 36"
Casing: 30"
Mud Type: Spud Mud

RKB 404 m - 481 m
Set at 479 m

MATERIAL CONSUMPTION

PRODUCTS	UNIT SIZE	UNIT COST	COST
MAGCOGEL	15 MT	1972.50	29.587.50
CAUSTIC SODA	18 (25 kg/sx)	83.90	1.510.20
SODA ASH	7 (50 kg/sx)	150.60	1.054.20
TOTAL COST NOK			32.151.90

Made 374 m3

Cost per m3: NOK 85.96

Cost per meter drilled: NOK 417.56

STATOIL, 6201/11-1

MATERIAL CONSUMPTION BY INTERVAL

Hole Section: 26"

Casing: 20"

Mud Type: Spud Mud

Set at: 641 m

Meters Drilled: 481 m - 646 m

MATERIAL CONSUMPTION

PRODUCTS	UNIT SIZE	UNIT COST	COST
BARITE	105 MT	636.00	66780.00
MAGCOGEL	55 MT	1972.50	108487.50
CAUSTIC SODA	35 (25 kg/sx)	83.90	2936.50
SODA ASH	16 (50 kg/sx)	150.60	2409.60
LIME	10 (20 kg/sx)	36.20	362.00
TOTAL COST NOK			180975.60

Made 730 m3

Cost per m3: NOK 247.91

Cost per meter drilled: NOK 1.096.82

STATOIL, 6201/11-1

Interval: 646 m - 808 m

17 1/2" Hole, 1194 m

Mud Type: Gyp/Polymer

MATERIAL CONSUMPTION

PRODUCT	UNIT SIZE	UNITS	UNIT COST	COST
MAGCOBAR	MT	333	636,00	211788,00
MAGCOGEL	MT	7	1972,50	13807,50
CAUSTIC SODA	25 kg sxs	3	83,90	251,70
SODA ASH	50 kg sxs	-	150,60	-
LIME	20 kg sxs	25	36,20	905,00
ANTISOL FL 30000	25 kg sxs	175	586,90	102707,50
ANTISOL FL 100	25 kg sxs	157	586,90	92143,30
ANTISOL FL 30	25 kg sxs	182	586,90	106815,80
GYP	40 kg sxs	382	69,75	26644,50
GLUT ALDH	200 l	1	2785,00	2785,00
XC-POLYMER	25 kg sxs	5	1613,40	8067,00
DESCO	25 lb sxs	50	269,95	13497,50
BICARBONATE	50 kg sxs	17	209,50	3561,50
MAGCOGEL sxs	50 kg sxs	30	117,42	2348,40
ZnCO3	25 kg sxs	36	745,08	26822,88
BORREWELL C	25 kg sxs	9	89,40	804,60
TOTAL				<u>612950,18</u>

Made 1321 m3: NOK 464,00/m3

Cost per meter drilled: NOK 527,50 m3

STATOIL, 6201/11-1

Interval: 1808 m - 2620 m

12 1/4" Hole, 785 m

Mud Type: Gyp/Polymer

MATERIAL CONSUMPTION

PRODUCTS	UNIT SIZE	UNITS	UNIT COST	COST
MAGCOBAR	MT	286	636,00	181896,00
MAGCOGEL	MT	1	1972,50	1972,50
CAUSTIC SODA	25 kg sxs	-	83,90	-
SODA ASH	50 kg sxs	-	150,60	-
LIME	20 kg sxs	-	36,20	-
ANTISOL FL 30000	25 kg sxs	50	586,90	29345,00
ANTISOL FL 100	25 kg sxs	30	586,90	17607,00
ANTISOL FL 30	25 kg sxs	99	586,90	58103,10
GYP	40 kg sxs	282	69,75	19669,50
GLUT ALDH	200 l	1	2785,00	2785,00
XC-POLYMER	25 kg sxs	-	1613,40	-
DESCO	25 lbs sxs	1	269,95	269,95
BICARBONATE	50 kg sxs	6	209,50	1257,00
MAGCOGEL sxs	50 kg sxs	15	117,42	1761,30
ZnCO3	25 kg sxs	24	745,075	17881,80
BORREWELL C	25 kg sxs	-	89,40	-
TOTAL				332548,15

Made 486 m3: NOK 684,26 / m3

Cost per meter drilled: NOK 409,54

STATOIL, 6201/11-1

Interval: 2620 m - 3384 m

8 1/2" Hole: 764 m

Mud Type: Gyp/Poly - Gel/Ligno

PRODUCTS	UNIT SIZE	UNITS	UNIT COST	COST
MAGCOBAR	MT	695	636,00	442020,00
MAGCOGEL	MT	36	1972,50	71010,00
CAUSTIC SODA	25 kg sxs	39	83,90	3272,10
LIME	25 kg sxs	83	36,20	3004,60
ANTISOL FL 30000	25 kg sxs	-	586,90	-
ANTISOL FL 100	25 kg sxs	10	586,90	5869,00
ANTISOL FL 30	25 kg sxs	54	586,90	31692,60
XC-POLYMER	25 kg sxs	2	1613,40	3226,80
GYP	40 kg sxs	62	69,75	4324,50
GLUT ALDH	200 l	1	2785,00	2785,00
SOD BICARBONATE	50 kg sxs	18	209,50	3771,00
BORREWELL C	25 kg sxs	281	89,40	25121,40
XP-20	25 kg sxs	321	156,90	50364,90
RESINEX	25 kg sxs	180	386,90	69642,00
DESCO	25 lbs sxs	36	269,95	9718,20
TOTAL				<u>725822,10</u>

Made 764 m3: NOK 950,03

Cost per meter drilled: NOK 950,03

STATOIL, 6201/11-1

MATERIAL CONSUMPTION BY INTERVAL.

Interval: 3384 m - 3850 m
 6" Hole, 466 m
 Mud Type: Gel/Ligno

PRODUCTS	UNITS	UNIT SIZE	UNIT COST	COST
BARITE	44	MT	636.00	27.984,00
BENTONITE	6	MT	1972.50	11.835,00
CAUSTIC	3	25 kg sx	83.90	251.70
XC-POLYMER	8	25 kg sx	1613.40	12.907,20
BORREWELL C	128	25 kg sx	89.40	11.443,20
XP-20	168	50 lb sx	156.90	26.359,20
RESINEX	175	50 lb sx	386.90	67.707,50
ANTISOL FL 30000	3	25 kg sx	586.90	<u>1.760,70</u>
			<u>TOTAL</u>	<u>160.248,50</u>

Volume used: 164 m3 - cost per m3 = NOK 977.16
 Drilled: 466 m - cost per m = NOK 343.88

STATOIL, 6201/11-1

MATERIAL CONSUMPTION BY INTERVAL.

Interval: Testing Plug and Abandon.
 DST 1, 2 and 3

PRODUCT	UNITS	UNIT SIZE	UNIT COST	COST
BARITE	158	MT	636.00	100.488,00
BENTONITE	11	MT	1972.50	21.697,50
CAUSTIC	2	25 kg sx	83.90	167,80
LIME	2	20 kg sx	36.20	72,40
XC-POLYMER	4	25 kg sx	1613.40	6.453,60
BORREWELL C	31	25 kg sx	89.40	2.771,40
XP-20	15	50 lb sx	156.90	2.353,50
RESINEX	45	50 lb sx	386.90	17.410,50
DESCO	12	25 lb sx	269.95	<u>3.239,40</u>
			<u>TOTAL</u>	<u>154.654,10</u>

Volume used : 430 m3 - cost per m3 = 359,66

3/

BA-88-833-1
14 JUNI 1988

REGISTRERT



OLJEDIREKTORATET

Report no.

GEOLAB

Copy no.

No. of copies 10

SECTOR FOR PETROLEUM TECHNOLOGY

Geological laboratories

Grading

Title Geochemical evaluation and hydrocarbon characterisation study of the 6201/11-1 well, drilled offshore Norway.		
Requested by LET-B	Project	
Date March -88	No. of pages 174	No. of enclosures

Key words Geochemistry, source rock evaluation, hydrocarbon characterisation, maturation, 6201/11-1, Møre south.
--

--

Prepared by GEOCHEM, Chester
Text operator

Approved by

20/5-88

S. Ulvøen, GEOLAB

20/5-88

Sect. Manager T. Meyer

29/5-88

Dept. Manager, S. Olausen

TABLE 1
ORGANIC CARBON RESULTS AND GROSS LITHOLOGIC DESCRIPTIONS

GEOCHEM SAMPLE NUMBER	DEPTH	GROSS LITHOLOGIC DESCRIPTION	G S A Colour Code	TOTAL ORGANIC CARBON (Wt. % of Rock)
<u>Well 6201/11-1</u>				
1689-001	680-700m	A 95% SAND - coarse to very coarse grained, subrounded grains, white to medium grey		
		B 5% MUDSTONE - slightly silty, fine grained, blocky, mod soft, very calcareous, light grey	N7	
1689-002	700-750m	A 98% SAND - As 1689-001A Minor mudstone & shell fragments	N9-N5	
1689-003	750-800m	A 98% SAND - As 1689-001A Minor shell fragments	N9-N5	
1689-004	800-850m	A 98% SAND - As 1689-001A Minor shell fragments & mudstones (caved)	N9-N5	
1689-005	850-900m	A 98% SAND - Coarse to very coarse grained, subrounded grains, white to medium dark grey Minor shell fragments & mudstones	N9-N4	
1689-006	900-950m	A 98% SAND - As 1689-005A Minor shell fragments	N9-N4	
1689-008	1000-1050m	A 98% CLAYSTONE - Fine grained, blocky, mod soft, calcareous, slightly silty, medium olive grey	5Y5/1	
1689-009	1050-1100m	A 98% CLAYSTONE - As 1689-008A	5Y5/1	
1689-010	1100-1150m	A 98% CLAYSTONE - As 1689-008A Minor sand & shell fragments	5Y5/1	
1689-011	1150-1200m	A 98% CLAYSTONE - As 1689-008A Minor sand	5Y5/1	0.59
1689-012	1200-1250m	A 98% SILTY CLAYSTONE - Fine grained, blocky, mod soft, calcareous, light olive grey Minor sand	5Y6/1	0.71
1689-013	1250-1300m	A 40% SILTY CLAYSTONE - Fine grained, blocky to subplaty, mod soft, calcareous, occasionally glauconitic, medium yellowish grey	5Y7/1	1.13
		B 30% LIMESTONE - Fine grained, crystalline, blocky, hard, very calcareous, medium light grey	N6	0.18
		C 30% MUDSTONE - Fine grained, blocky to subplaty, mod soft, slightly calcareous, light olive grey	5Y6/1	0.77,0.74
1689-014	1300-1350m	A 98% MUDSTONE - Fine grained, blocky to subplaty, mod soft, occasionally very slightly calcareous, part pyritic, light olive grey to olive grey	5Y6/1- 5Y4/1	0.99

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

TABLE 1
ORGANIC CARBON RESULTS AND GROSS LITHOLOGIC DESCRIPTIONS

GEOCHEM SAMPLE NUMBER	DEPTH	GROSS LITHOLOGIC DESCRIPTION	G S A Colour Code	TOTAL ORGANIC CARBON (Wt. % of Rock)
1689-015	1350-1400m	A 98% MUDSTONE - Fine grained, blocky to subplaty, mod soft, non-calcareous, olive grey	5Y4/1	0.70
1689-016	1400-1450m	A 98% MUDSTONE - As 1689-015A	5Y4/1	0.81
1689-017	1450-1500m	A 98% MUDSTONE - As 1689-015A	5Y4/1	0.78
1689-018	1500-1550m	A 98% MUDSTONE - As 1689-015A	5Y4/1	0.64,0.65
1689-019	1550-1600m	A 98% MUDSTONE - Fine grained, blocky to subplaty, mod soft, occasionally very slightly calcareous, medium olive grey to olive grey Minor dark limestone	5Y5/1- 5Y4/1	0.63
1689-020	1600-1650m	A 98% MUDSTONE - As 1689-019A Minor light mudstone	5Y5/1- 5Y4/1	1.25
1689-021	1650-1700m	A 98% MUDSTONE - As 1689-019A Minor LCM?	5Y5/1- 5Y4/1	0.93
1689-022	1700-1750m	A 98% MUDSTONE - Fine grained, occasionally silty, blocky to subplaty, mod soft, mod calcareous, light olive grey to medium olive grey Minor LCM?	5Y6/1- 5Y5/1	0.61
1689-023	1750-1800m	A 98% MUDSTONE - As 1689-002A	5Y6/1- 5Y5/1	0.38
1689-170 SWC	1753m	A 98% MUDSTONE - Fine grained, blocky, mod soft, moderately calcareous, dark greenish grey	5GY4/1	0.76
1689-171 SWC	1767m	A 98% MUDSTONE - Fine grained, blocky, mod soft, very slightly calcareous, medium greenish grey	5GY4/2	0.85
1689-172 SWC	1776m	A 98% MUDSTONE - Fine grained, blocky, mod soft, non calcareous, olive	10Y5/2	
1689-173 SWC	1779m	A 98% MUDSTONE - As 1689-172A	10Y5/2	
1689-174 SWC	1794.5m	A 98% GREEN MUDSTONE - Fine grained, slightly silty, blocky, mod soft, mod calcareous, moderate olive grey	5Y4/2	1.12
1689-024	1800-1850m	A 98% MUDSTONE - Fine grained, occasionally silty, blocky, subplaty, mod soft, calcareous, medium olive grey Minor light mudstone and claystone	5Y5/1	0.60,0.59
1689-175 SWC	1804m	A 98% MUDSTONE - As 1689-174A	5Y4/2	

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

TABLE 1
ORGANIC CARBON RESULTS AND GROSS LITHOLOGIC DESCRIPTIONS

GEOCHEM SAMPLE NUMBER	DEPTH	GROSS LITHOLOGIC DESCRIPTION	G S A Colour Code	TOTAL ORGANIC CARBON (Wt. % of Rock)
1689-176 SWC	1809m	A 98% MUDSTONE - Fine grained, blocky, mod soft, calcareous, moderate olive grey	5Y4/2	0.17
1689-177 SWC	1831m	A 98% MUDSTONE - Fine grained, blocky, mod soft, non calcareous, olive grey	5Y3/2	0.65
1689-178 SWC	1840.1m	A 98% MUDSTONE - Fine grained, blocky, occasionally slightly silty, very slightly calcareous, moderate olive grey	5Y4/2- 5Y5/2	0.49
1689-025	1850-1900m	A 98% MUDSTONE - As 1689-024A	5Y5/1	0.52
1689-179 SWC	1867m	A 98% MUDSTONE - Fine grained, laminated, subfissile, mod soft, slightly silty, non calcareous, light olive grey - olive grey	5Y5/2- 5Y3/2	1.67,1.71
1689-180 SWC	1892.5m	A 98% MUDSTONE - Fine grained, blocky, slightly silty, non calcareous, dark olive grey	5Y2/2	0.27
1689-026	1900-1950m	A 98% MUDSTONE - As 1689-024A	5Y5/1	0.80
1689-181 SWC	1918.2m	A 98% MUDSTONE - Fine grained, blocky, occasionally slightly silty, slightly calcareous, moderate olive grey	5Y4/2	0.60
1689-182 SWC	1929m	A 98% SILTY MUDSTONE - Fine grained, blocky, mod soft, non calcareous, greenish grey	5GY6/1	0.75
1689-027	1950-2000m	A 98% MUDSTONE - As 1689-024A	5Y5/1	0.42
1689-183 SWC	1961m	A 90% LIMESTONE - Fine grained, crystalline, blocky, hard, highly calcareous, medium grey B 10% SILTY MUDSTONE - As 1689-182A	N5 5GY6/1	0.17
1689-184 SWC	1966m	A 98% SILTY MUDSTONE - Fine grained, blocky, mod soft, non calcareous, dusky yellow green	5GY5/2	0.44
1689-028	2000-2050m	A 98% MUDSTONE - Fine grained, often silty, blocky, mod soft - mod hard, mod calcareous, medium light grey - light olive grey	N6-5Y6/1	0.36
1689-185 SWC	2023.5m	A 98% MUDSTONE - Fine grained, blocky, mod soft, slightly calcareous, medium olive grey	5Y5/1	0.51

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

TABLE 1
ORGANIC CARBON RESULTS AND GROSS LITHOLOGIC DESCRIPTIONS

GEOCHEM SAMPLE NUMBER	DEPTH	GROSS LITHOLOGIC DESCRIPTION	G S A Colour Code	TOTAL ORGANIC CARBON (Wt. % of Rock)
1689-186 SWC	2028.5m	A 98% MUDSTONE - Fine grained, blocky, mod soft, non calcareous, moderate olive grey Minor calcite and light green mudstone	5Y4/2	0.52,0.52
1689-187 SWC	2034m	A 98% MUDSTONE - Fine grained, occasionally slightly silty, blocky, mod soft, very calcareous, light olive grey - yellowish grey	5Y6/1- 5Y8/1	1.01
1689-188 SWC	2044m	A 98% MUDSTONE - Fine grained, blocky, mod soft, very calcareous, medium olive grey	5Y5/1	0.85
1689-029	2050-2100m	A 98% MUDSTONE - As 1689-028A MINOR - Claystone	N6-5Y6/1	0.62
1689-189 SWC	2061m	A 98% MUDSTONE - Fine grained, blocky, mod soft, calcareous, medium olive grey	5Y5/1	0.72
1689-030	2100-2150m	A 98% MUDSTONE - As 1689-028A	N6-5Y6/1	1.11
1689-031	2150-2200m	A 98% MUDSTONE - As 1689-028A	N6-5Y6/1	0.96,1.00
1689-190 SWC	2154m	A 98% MUDSTONE - Fine grained, blocky, mod soft, calcareous, olive grey	5Y4/1	0.74
1689-032	2200-2250m	A 98% MUDSTONE - As 1689-028A	N6-5Y6/1	0.84
1689-033	2250-2300m	A 98% MUDSTONE - Fine grained, blocky - subplaty, mod soft, calcareous, medium grey - medium olive grey	N5-5Y5/1	0.76
1689-191 SWC	2252m	A 98% MUDSTONE - Fine grained, blocky - subfissile, mod soft, very slightly calcareous, medium olive grey	5Y5/1	0.63
1689-034	2300-2350m	A 98% SHALY MUDSTONE - Fine grained, subplaty - platy, mod soft, mod calcareous, medium light grey	N6	0.77
1689-035	2350-2400m	A 98% SHALY MUDSTONE - As 1689-034A	N6	0.78
1689-036	2400-2450m	A 98% SHALY MUDSTONE - As 1689-034A	N6	0.94
1689-192 SWC	2433m	A 98% MUDSTONE - Fine grained, blocky - mod soft, finely laminated with lighter slightly silty layers, slightly calcareous, medium olive grey - yellowish grey	5Y5/1- 5Y8/1	1.06
1689-037	2450-2500m	A 98% SHALY MUDSTONE - Fine grained, subfissile - fissile, mod soft, non calcareous, medium grey	N5	0.69

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



TABLE 1
ORGANIC CARBON RESULTS AND GROSS LITHOLOGIC DESCRIPTIONS

GEOCHEM SAMPLE NUMBER	DEPTH	GROSS LITHOLOGIC DESCRIPTION	G S A Colour Code	TOTAL ORGANIC CARBON (Wt. % of Rock)
1689-038	2500-2550m	A 98% SHALY MUDSTONE - As 1689-037A	N5	0.78,0.77
1689-193 SWC	2527m	A 98% MUDSTONE - Fine grained, blocky - subfissile, mod soft, calcareous, medium light grey	N6	0.70
1689-039	2550-2600m	A 98% SHALY MUDSTONE - As 1689-037A	N5	0.76
1689-040	2600-2650m	A 85% MUDSTONE - Fine grained, blocky - subfissile, mod soft, non calcareous, occasionally silty, very occasionally pyritic, medium light grey - medium grey Significant cavings B 15% LCM - metal Minor sand and silty mudstone	N6-N5	0.79
1689-194 SWC	2616m	A 98% MUDSTONE - Fine grained, blocky, mod soft, non calcareous, medium light grey	N6	0.87,0.87
1689-041	2650-2700m	A 50% MUDSTONE - As 1689-040A B 30% SANDSTONE? - Medium grained, well sorted, mod silty, calcareous, pinkish grey C 20% LCM - cement and metal	N6-N5 5YR8/1	0.99
1689-195 SWC	2655m	A 98% MUDSTONE - Fine grained, blocky, mod soft, non calcareous, medium dark grey	N4	0.64
1689-196 SWC	2665m	A 98% MUDSTONE - Fine grained, blocky, mod soft, non calcareous, part iron-stained, olive grey	5Y4/1	0.97
1689-197 SWC	2675m	A 98% MUDSTONE - Fine grained, blocky, mod soft, non calcareous, medium grey	N5	0.89
1689-042	2700-2709m	A 70% SHALY MUDSTONE - Fine grained, subfissile - fissile, mod soft, non calcareous, occasionally pyritic, medium grey B 10% LCM - metal and cement C 5% SANDSTONE? - As 1689-041B D 5% COAL - Fine grained, brittle, shiny, mod soft, greyish black E 5% SAND - Medium grained, subrounded - subangular grains, white	N5 5YR8/1 N2 N9	0.84 48.80
1689-198 CORE	2701.10m	A 98% DOLOMITE - Fine grained, crystalline, blocky, hard, some veining, olive grey	5Y4/1	0.10,0.12
1689-199 CORE	2701.50m	A 98% MUDSTONE - Fine grained, blocky - subfissile, mod hard, mod calcareous, slightly micaceous, olive grey	5Y4/1	0.39,0.37

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

TABLE 1
ORGANIC CARBON RESULTS AND GROSS LITHOLOGIC DESCRIPTIONS



GEOCHEM SAMPLE NUMBER	DEPTH	GROSS LITHOLOGIC DESCRIPTION	G S A Colour Code	TOTAL ORGANIC CARBON (Wt. % of Rock)
1689-200 CORE	2705.90m	A 98% SHALY MUDSTONE - Fine grained, subfissile - fissile, mod hard, slightly calcareous, dark olive grey	5Y3/1	0.74
1689-043	2709-2718m	A 50% COAL - As 1689-042D B 35% SANDSTONE - As 1689-042C C 10% SAND - As 1689-042E D 5% SHALY MUDSTONE - As 1689-042A	5YR8/1 N9 N5	48.20
1689-201 CPRE	2709.90m	A 98% MUDSTONE - fine grained, blocky - subfissile, mod hard, non calcareous, olive grey	5Y4/1	0.31
1689-213	2713-2717m	DST-3		
1689-045	2727-2736m	A 55% SHALY MUDSTONE - Fine grained, subfissile - fissile, mod soft, occasionally iron-spotted, non calcareous, medium grey B 30% SAND - Medium grained, subrounded - subangular, pinkish grey C 10% SILTY SANDSTONE - Medium grained, well sorted, mod soft, slightly calcareous, pinkish grey D 5% LCM - metal and cement Minor coal	N5 5YR8/1 5YR8/1	0.95,0.98
1689-202 CORE	2732.45m	A 98% SANDY SILTSTONE - Fine - medium grained, blocky, micaceous, slightly calcareous, gold F, slow blooming milky cut, yellowish grey	5Y7/2	0.12
1689-203 CORE	2750.80m	A 98% SILTY SANDSTONE - Medium - coarse grained, blocky, micaceous, slightly calcareous, yellow F, instant blooming milky cut, pinkish grey	5YR8/1	
1689-204 CORE	2751.30m	A 98% SILTY SANDSTONE - As 1689-203A	5YR8/1	0.49
1689-048	2754-2763m	A 85% SAND - As 1689-045B B 10% LCM - metal and cement and mica C 5% SHALY MUDSTONE - As 1689-045A Minor sandstone	5YR8/1 N5	0.96
1689-205 CORE	2769.50m	A 98% SANDY SILTSTONE - Fine - medium grained, blocky, micaceous, yellow F, instant blooming milky cut, pinkish brownish grey	5YR7/1	0.62,0.61

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

TABLE 1
ORGANIC CARBON RESULTS AND GROSS LITHOLOGIC DESCRIPTIONS



GEOCHEM SAMPLE NUMBER	DEPTH	GROSS LITHOLOGIC DESCRIPTION	G S A Colour Code	TOTAL ORGANIC CARBON (Wt. % of Rock)
1689-051	2781-2790m	A 40% SHALY MUDSTONE - Fine grained, subfissile - fissile, mod soft, very slightly calcareous, medium grey	N5	0.89
		B 30% MUDSTONE - Fine grained, blocky - subplaty, mod soft, part micaceous, non calcareous, greyish red	10R4/2	0.20
		C 20% LCM - metal and cement		
		D 10% SILTY SANDSTONE - Medium - fine grained, well sorted, mod hard, calcareous, yellowish grey Minor coal	5Y8/1	
1689-206 SWC	2793m	A 98% MUDSTONE - Fine grained, subfissile, slightly micaceous, mod soft, slightly calcareous, part iron-stained, medium grey	N5	0.44
1689-207 SWC	2806m	A 98% MUDSTONE - Fine grained, blocky - subfissile, mod soft, calcareous, much iron-staining, olive black - moderate brown	5Y4/1- 5YR4/4	0.19
1689-054	2808-2817m	A 50% MUDSTONE - As 1689-051B	10R4/2	0.29
		B 25% LCM - metal and cement		
		C 20% SHALY MUDSTONE - As 1689-051A	N5	0.64
		D 5% SILTY SANDSTONE - As 1689-051D	5Y8/1	
1689-208 SWC	2810m	A 98% MUDSTONE - Fine grained, subfissile - fissile, mod soft, calcareous, almost completely iron-stained, moderate brown	5YR4/4	0.50
1689-209 CORE	2823.50m	A 98% SILTY SANDSTONE - Medium - coarse grained, blocky, slightly micaceous, mod hard, calcareous, Dull yellow F. rapid blooming milky cut, pinkish grey	5YR8/1	0.37
1689-057	2835-2844m	A 45% SHALY MUDSTONE - Fine grained, subfissile, mod soft, frequently iron-spotted, non calcareous, medium grey	N5	0.93
		B 25% SAND - medium - coarse grained, subrounded - subangular, pinkish grey	5YR8/1	
		C 15% MUDSTONE - Fine grained, blocky - subplaty, mod soft, slightly calcareous, greyish red	10R4/2	0.27
		D 15% LCM - Metal and cement Minor sandstone		
1689-210 CORE	2857.80m	A 98% SILTY SANDSTONE - Medium - coarse grained, blocky, mod hard, non calcareous, Dull yellow F, instant streaming milky cut, medium yellowish brown	10YR5/2	0.58,0.57

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

TABLE 1
ORGANIC CARBON RESULTS AND GROSS LITHOLOGIC DESCRIPTIONS

GEOCHEM SAMPLE NUMBER	DEPTH	GROSS LITHOLOGIC DESCRIPTION	G S A Colour Code	TOTAL ORGANIC CARBON (Wt. % of Rock)
1689-060	2862-2871m	A 90% SAND - As 1689-057B B 5% SHALY MUDSTONE - As 1689-057A C 5% LCM - metal	5YR8/1 N5	0.90
1689-211 CORE	2866.60m	A 98% SILTY SANDSTONE - Medium - coarse grained, blocky, mod hard, mod calcareous, Pale yellow F, instant streaming milky cut, medium yellowish brown	10YR5/2	
1689-063	2889-2898m	A 85% SAND - As 1689-057B B 10% LCM - Metal and cement C 5% SHALY MUDSTONE - As 1689-057A Minor sandstone and red mudstone	5YR8/1 N5	
1689-067	2925-2934m	A 85% SAND - Medium - coarse grained, subrounded - subangular, pinkish grey B 5% SHALY MUDSTONE - Fine grained, subfissile, mod soft, very slightly calcareous, medium grey C 5% LCM - Metal and cement D 5% SILTY SANDSTONE - Medium - coarse grained, well sorted, calcareous cement, mod soft, greyish pink Minor coal	5YR8/1 N5 5R8/2	
1689-071	2961-2970m	A 95% SAND - As 1689-067A B 5% SILTY SANDSTONE - As 1689-067D Minor red mudstone and LCM	5YR8/1 5R8/2	
1689-212 CORE	2968m	A 98% MUDSTONE - Fine grained, blocky - subfissile, often micaceous, mod soft, extremely iron-stained, slightly calcareous, greyish red - dusky red	10R4/2- 10R3/4	0.17
1689-075	2997-3006m	A 85% SAND - Medium - coarse grained, subrounded - subangular, white - greyish pink B 10% SILTY SANDSTONE - As 1689-067D C 5% SILTY SANDSTONE - Medium - coarse grained, well sorted, calcareous cement, iron-stained to varying degrees, greyish orange pink - lightish brown	N9-5R8/2 5R8/2 5YR7/2- 5YR6/2	
1689-079	3033-3042m	A 90% SAND - As 1689-075A B 10% SILTY SANDSTONE - As 1689-075B Minor red mudstone, red silty sandstone, shaly mudstone and LCM-metal	N9-5R8/2 5R8/2	

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



TABLE 1
ORGANIC CARBON RESULTS AND GROSS LITHOLOGIC DESCRIPTIONS

GEOCHEM SAMPLE NUMBER	DEPTH	GROSS LITHOLOGIC DESCRIPTION	G S A Colour Code	TOTAL ORGANIC CARBON (Wt. % of Rock)
1689-083	3069-3078m	A 98% SAND - Coarse - very coarse grained, subrounded - subangular grains, white - greyish orange pink Minor sandstone, shaly mudstone and red mudstone	N9-5YR7/2	
1689-087	3105-3114m	A 95% SAND - Coarse - very coarse grained, subrounded - subangular, white - pale brown B 5% SHALY MUDSTONE - Fine grained, subfissile, mod soft, very slightly calcareous, medium grey Minor red mudstone, red sandstone and coal and sandstone	N9-5YR5/2 N5	
1689-091	3141-3150m	A 70% SAND - As 1689-087A B 20% SILTY SANDSTONE - Medium grained, frequently iron-stained, well sorted, mod soft, calcareous, greyish pink - medium red C 10% SHALY MUDSTONE - As 1689-087B Minor red mudstone and coal	N9-5YR5/2 5R8/2- 5R5/2 N5	
1689-095	3177-3186m	A 98% SAND - Coarse - very coarse grained, subangular - subrounded grains, greyish pink - pale red Minor shaly mudstone and silty sandstone	5R8/2- 5R6/2	
1689-099	3213-3222m	A 98% SAND - Coarse - very coarse grained, subrounded grains, greyish pink - pale red Minor mudstone	5R8/2- 5R6/2	
1689-103	3249-3258m	A 98% SAND - As 1689-099A Minor mudstone and LCM metal	5R8/2- 5R6/2	
1689-107	3285-3294m	A 98% SAND - Coarse - very coarse grained, subrounded grains, greyish pink - pale red Minor mudstone	5R8/2- 5R6/2	
1689-111	3321-3330m	A 98% SAND - As 1689-107A	5R8/2- 5R6/2	
1689-115	3357-3366m	A 98% SAND - Coarse - very coarse grained, subrounded - subangular, greyish pink - greyish red	5R8/2- 5R7/2	
1689-119	3402m	A 98% SAND - As 1689-115A	5R8/2- 5R7/2	
1689-123	3438m	A 98% SAND - Coarse - very coarse grained, subrounded - subangular, greyish pink - pale red Minor coal	5R8/2- 5R6/2	

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



TABLE 1
ORGANIC CARBON RESULTS AND GROSS LITHOLOGIC DESCRIPTIONS

GEOCHEM SAMPLE NUMBER	DEPTH	GROSS LITHOLOGIC DESCRIPTION	G S A Colour Code	TOTAL ORGANIC CARBON (Wt. % of Rock)
1689-127	3474m	A 98% SAND - As 1689-123A Minor LCM-metal	5R8/2- 5R6/2	
1689-131	3510m	A 98% SAND - Coarse - very coarse grained, subrounded, greyish red - pale red	5R8/2- 5R6/2	
1689-135	3546m	A 98% SAND - Coarse - very coarse grained, subrounded - rounded, greyish red - medium red Minor coal	5R7/2- 5R5/2	
1689-139	3582m	A 98% SAND - As 1689-135A	5R7/2- 5R5/2	
1689-144	3627m	A 98% SAND - Coarse - very coarse grained, subrounded - rounded, greyish red - medium red	5R7/2- 5R5/2	
1689-147	3654m	A 98% SAND - As 1689-144A	5R7/2- 5R5/2	
1689-151	3690m	A 98% SAND - Coarse - very coarse grained, subrounded - subangular, greyish pink - reddish orange brown Minor red mudstone	5R8/2- 10R5/6	
1689-155	3726m	A 98% SAND - As 1689-151A	5R8/2- 10R5/6	
1689-159	3762m	A 98% SAND - Coarse - very coarse grained, subrounded - subangular, greyish pink - reddish orange brown Minor coal	5R8/2- 10R5/6	
1689-163	3798m	A 98% SAND - As 1689-159A	5R8/2- 10R5/6	
1689-166	3825m	A 98% SAND - Coarse - very coarse grained, subrounded - subangular, greyish pink - reddish orange brown	5R8/2- 10R5/6	
1689-169	3850m	A 98% SAND - As 1689-166A	5R8/2- 10R5/6	

S47

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

TABLE 2A
CONCENTRATION (μ L GAS/KG ROCK) OF C₁ - C₇ HYDROCARBONS IN HEAD SPACE GAS

GEOCHEM SAMPLE NUMBER	DEPTH	C ₁ Methane	C ₂ Ethane	C ₃ Propane	iC ₄ Isobutane	nC ₄ Butane	TOTAL C ₁ - C ₄	TOTAL C ₂ - C ₄	% GAS WETNESS	TOTAL C ₅ - C ₇	$\frac{iC_4}{nC_4}$
1689-001	680-700	1084733	3062	1303	322	842	1090262	5529	0.5	1251	0.38
1689-002	700-750	172193	294	113	85	179	172864	671	0.4	373	0.47
1689-003	750-800	123440	1207	320	103	150	125220	1780	1.4	232	0.69
1689-004	800-850	349375	1025	270	106	208	350984	1609	0.5	392	0.51
1689-005	850-900	4830	42	34	7	9	4922	92	1.9	245	0.78
1689-006	900-950	205070	464	155	31	26	205746	676	0.3	312	1.19
1689-007	950-1000	4231	94	14	3	12	4354	123	2.8	355	0.25
1689-008	1000-1050	44357	134	49	7	7	44554	197	0.4	31	1.00
1689-009	1050-1100	133556	784	237	41	30	134648	1092	0.8	115	1.37
1689-010	1100-1150	156323	707	227	41	19	157317	994	0.6	90	2.16
1689-011	1150-1200	9698	39	39	17	15	9808	110	1.1	118	1.13
1689-012	1200-1250	5198	80	82	32	32	5424	226	4.2	133	1.00
1689-013	1250-1300	3432	68	41	6	34	3581	149	4.2	73	0.18
1689-014	1300-1350	32478	3339	661	422	182	37082	4604	12.4	1885	2.32
1689-015	1350-1400	28577	2968	330	157	86	32118	3541	11.0	893	1.83
1689-016	1400-1450	77122	14348	2434	1373	641	95918	18796	19.6	2152	2.14
1689-017	1450-1500	2301	74	20	16	11	2422	121	5.0	205	1.45
1689-018	1500-1550	6294	160	97	76	63	6690	396	5.9	596	1.21
1689-019	1550-1600	4184	150	64	42	35	4475	291	6.5	256	1.20
1689-020	1600-1650	33018	1117	338	194	207	34874	1856	5.3	1273	0.94
1689-021	1650-1700	4972	106	27	17	22	5144	172	3.3	330	0.77
1689-022	1700-1750	4033	110	35	20	24	4222	189	4.5	354	0.83
1689-023	1750-1800	2815	88	38	21	25	2987	172	5.8	388	0.84
1689-024	1800-1850	1789	78	35	18	19	1939	150	7.7	439	0.95
1689-025	1850-1900	33613	3088	4016	414	2091	43222	9609	22.2	2757	0.20
1689-026	1900-1950	34537	3725	2578	565	863	42268	7731	18.3	2628	0.65
1689-027	1950-2000	65320	7376	6949	1725	2411	83781	18461	22.0	6595	0.72
1689-028	2000-2050	113327	6602	6407	1579	2168	130083	16756	12.9	6620	0.73
1689-029	2050-2100	63284	14618	18075	3531	5206	104714	41430	39.6	15017	0.68
1689-030	2100-2150	243792	85298	84251	14324	23015	450680	206888	45.9	45076	0.62



TABLE 2A
CONCENTRATION (μ L GAS/KG ROCK) OF C₁ - C₇ HYDROCARBONS IN HEAD SPACE GAS

GEOCHEM SAMPLE NUMBER	DEPTH	C ₁ Methane	C ₂ Ethane	C ₃ Propane	iC ₄ Isobutane	nC ₄ Butane	TOTAL C ₁ - C ₄	TOTAL C ₂ - C ₄	% GAS WETNESS	TOTAL C ₅ - C ₇	$\frac{iC_4}{nC_4}$
1689-031	2150-2200	137673	54693	57755	10330	16649	277100	139427	50.3	28343	0.62
1689-032	2200-2250	197035	24523	27097	4851	7427	260933	63898	24.5	17770	0.65
1689-033	2250-2300	51133	20986	23042	4790	5970	105921	54788	51.7	8646	0.80
1689-034	2300-2350	142138	59071	68073	13097	18796	301175	159037	52.8	22842	0.70
1689-035	2350-2400	290374	99898	114658	18407	31093	554430	264056	47.6	52243	0.59
1689-036	2400-2450	67180	8278	10098	1664	2697	89917	22737	25.3	6390	0.62
1689-037	2450-2500	31932	16213	19430	6328	9020	82923	50991	61.5	10203	0.70
1689-038	2500-2550	79012	31931	42466	9155	12039	174603	95591	54.7	13362	0.76
1689-039	2550-2600	1946	798	2553	1010	1914	8221	6275	76.3	5309	0.53
1689-040	2600-2650	1080	689	1784	367	799	4719	3639	77.1	2644	0.46
1689-041	2650-2700	127488	35677	92330	20902	32985	309382	181894	58.8	43676	0.63
1689-042	2700-2709	3836	1379	1846	257	411	7729	3893	50.4	710	0.63
1689-043	2709-2718	13060	6651	10698	1681	2984	35074	22014	62.8	3885	0.56
1689-045	2727-2736	3970	1980	3177	514	866	10507	6537	62.2	1248	0.59
1689-048	2754-2763	100163	18463	22400	4197	8156	153379	53216	34.7	15481	0.51
1689-051	2781-2790	37679	6895	8447	1461	3188	57670	19991	34.7	5901	0.46
1689-054	2808-2817	8398	2208	2144	433	1057	14240	5842	41.0	4977	0.41
1689-057	2835-2844	25148	6807	8200	1238	2803	44196	19048	43.1	5486	0.44
1689-060	2862-2871	19121	3716	4425	723	1629	29614	10493	35.4	5129	0.44
1689-063	2889-2898	93802	24844	25690	4555	18816	167707	73905	44.1	30537	0.24
1689-067	2925-2934	11	167	26	1	65	270	259	95.9	684	0.02
1689-071	2961-2970	134	744	231	182	469	1760	1626	92.4	3245	0.39
1689-075	2997-3006	689	90	83	3	177	1042	353	33.9	2081	0.02
1689-079	3033-3042	10266	1321	2659	583	2085	16914	6648	39.3	4378	0.28
1689-083	3069-3078	3025	254	357	48	279	3963	938	23.7	808	0.17
1689-087	3105-3114	1551	114	172	1	59	1897	346	18.2	488	0.02
1689-091	3141-3150	6860	3727	9030	1831	6068	27516	20656	75.1	6376	0.30
1689-095	3177-3186	1744	877	2360	562	1695	7238	5494	75.9	1863	0.33
1689-099	3213-3222	53	9	13	9	37	121	68	56.2	149	0.24



TABLE 2A
CONCENTRATION (μ L GAS/KG ROCK) OF C₁ - C₇ HYDROCARBONS IN HEAD SPACE GAS

GEOCHEM SAMPLE NUMBER	DEPTH	C ₁ Methane	C ₂ Ethane	C ₃ Propane	iC ₄ Isobutane	nC ₄ Butane	TOTAL C ₁ - C ₄	TOTAL C ₂ - C ₄	% GAS WETNESS	TOTAL C ₅ - C ₇	$\frac{iC_4}{nC_4}$
1689-103	3249-3258	6628	26	27	5	15	6701	73	1.1	88	0.33
1689-107	3285-3294	580	55	91	17	52	795	215	27.0	578	0.33
1689-111	3321-3330	1016	145	161	35	105	1462	446	30.5	1460	0.33
1689-115	3357-3366	1809	92	86	23	138	2148	339	15.8	2555	0.17
1689-119	3402	259	26	20	3	15	323	64	19.8	332	0.20
1689-123	3438	3002	130	103	1	48	3284	282	8.6	886	0.02
1689-127	3474	3912	84	38	0	28	4062	150	3.7	481	0.00
1689-131	3510	511	28	14	0	10	563	52	9.2	2075	0.00
1689-135	3546	476	32	17	0	25	550	74	13.5	508	0.00
1689-139	3582	2078	71	24	1	27	2201	123	5.6	4056	0.04
1689-144	3627	1491	71	51	2	26	1641	150	9.1	6	0.08
1689-147	3654	854	30	14	0	7	905	51	5.6	45	0.00
1689-151	3690	5880	236	135	2	26	6279	399	6.4	168	0.08
1689-155	3726	92	4	4	3	0	103	11	10.7	19	0.00
1689-159	3762	605	54	39	11	1	710	105	14.8	96	*. **
1689-163	3798	495	20	11	0	5	531	36	6.8	60	0.00
1689-166	3825	479	27	13	0	5	524	45	8.6	178	0.00
1689-169	3850	626	28	19	1	142	816	190	23.3	61	0.01



TABLE 2B
CONCENTRATION (μ L GAS/KG ROCK) OF C₁ - C₇ HYDROCARBONS IN CUTTINGS GAS

GEOCHEM SAMPLE NUMBER	DEPTH	C ₁ Methane	C ₂ Ethane	C ₃ Propane	iC ₄ Isobutane	nC ₄ Butane	TOTAL C ₁ - C ₄	TOTAL C ₂ - C ₄	% GAS WETNESS	TOTAL C ₅ - C ₇	$\frac{iC_4}{nC_4}$
1689-001	680-700	238190	3087	1681	514	1321	244793	6603	2.7	2555	0.39
1689-002	700-750	32505	430	153	30	65	33183	678	2.0	394	0.46
1689-003	750-800	117749	425	124	35	67	118400	651	0.5	244	0.52
1689-004	800-850	13217	165	79	36	39	13536	319	2.4	315	0.92
1689-005	850-900	525328	735	233	27	76	526399	1071	0.2	767	0.36
1689-006	900-950	140811	970	147	14	57	141999	1188	0.8	754	0.25
1689-007	950-1000	484370	1080	340	56	74	485920	1550	0.3	466	0.76
1689-008	1000-1050	29871	149	77	12	10	30119	248	0.8	269	1.20
1689-009	1050-1100	131721	845	245	26	17	132854	1133	0.9	261	1.53
1689-010	1100-1150	36667	303	161	91	83	37305	638	1.7	1793	1.10
1689-011	1150-1200	17049	1654	994	489	1318	21504	4455	20.7	1188	0.37
1689-012	1200-1250	10181	1964	970	819	582	14516	4335	29.9	785	1.41
1689-013	1250-1300	216166	9394	1867	1206	460	229093	12927	5.6	5241	2.62
1689-014	1300-1350	41355	804	234	160	96	42649	1294	3.0	4068	1.67
1689-015	1350-1400	86751	2590	549	282	155	90327	3576	4.0	2536	1.82
1689-016	1400-1450	48543	1456	366	213	156	50734	2191	4.3	2529	1.37
1689-017	1450-1500	7901	690	478	188	222	9479	1578	16.6	2121	0.85
1689-018	1500-1550	3193	162	90	79	90	3614	421	11.6	2966	0.88
1689-019	1550-1600	26784	1131	599	470	685	29669	2885	9.7	9842	0.69
1689-020	1600-1650	22547	1042	465	327	629	25010	2463	9.8	9310	0.52
1689-021	1650-1700	19245	712	317	284	458	21016	1771	8.4	11891	0.62
1689-022	1700-1750	7734	290	150	128	204	8506	772	9.1	7907	0.63
1689-023	1750-1800	5119	218	185	212	266	6000	881	14.7	3428	0.80
1689-024	1800-1850	4373	248	255	317	372	5565	1192	21.4	4013	0.85
1689-025	1850-1900	28944	2940	3436	795	2017	38132	9188	24.1	8689	0.39
1689-026	1900-1950	11240	1657	2668	846	1931	18342	7102	38.7	8112	0.44
1689-027	1950-2000	22199	2494	5609	2916	5012	38230	16031	41.9	27140	0.58
1689-028	2000-2050	7056	1000	2979	2002	3859	16896	9840	58.2	29842	0.52
1689-029	2050-2100	328134	57651	72526	18784	29932	507027	178893	35.3	94107	0.63
1689-030	2100-2150	70585	13931	41370	16887	32395	175168	104583	59.7	127276	0.52



TABLE 2B
CONCENTRATION (μ L GAS/KG ROCK) OF C₁ - C₇ HYDROCARBONS IN CUTTINGS GAS

GEOCHEM SAMPLE NUMBER	DEPTH	C ₁ Methane	C ₂ Ethane	C ₃ Propane	iC ₄ Isobutane	nC ₄ Butane	TOTAL C ₁ - C ₄	TOTAL C ₂ - C ₄	% GAS WETNESS	TOTAL C ₅ - C ₇	$\frac{iC_4}{nC_4}$
1689-031	2150-2200	77963	17364	53349	22078	40888	211642	133679	63.2	142262	0.54
1689-032	2200-2250	36345	9628	39025	19870	33937	138805	102460	73.8	113076	0.59
1689-033	2250-2300	344050	54361	96006	24875	43972	563264	219214	38.9	108153	0.57
1689-034	2300-2350	46095	12850	42256	19282	34696	155179	109084	70.3	124068	0.56
1689-035	2350-2400	70584	12586	26095	7956	14765	131986	61402	46.5	44287	0.54
1689-036	2400-2450	25403	10903	49069	20450	42065	147890	122487	82.8	127858	0.49
1689-037	2450-2500	65359	13546	29471	9437	16584	134397	69038	51.4	38598	0.57
1689-038	2500-2550	22485	10167	44212	20333	40066	137263	114778	83.6	101430	0.51
1689-039	2550-2600	16617	8948	35027	13985	28001	102578	85961	83.8	77286	0.50
1689-040	2600-2650	10825	6823	29272	11416	25859	84195	73370	87.1	76549	0.44
1689-041	2650-2700	12899	5610	14718	7869	14637	55733	42834	76.9	82123	0.54
1689-042	2700-2709	3756	1709	3995	1337	2658	13455	9699	72.1	14138	0.50
1689-043	2709-2718	10471	4548	12014	2543	6525	36101	25630	71.0	18673	0.39
1689-045	2727-2736	2302	1249	3607	886	1843	9887	7585	76.7	5706	0.48
1689-048	2754-2763	5111	1528	3514	1033	2437	13623	8512	62.5	9177	0.42
1689-051	2781-2790	2408	928	2352	724	1857	8269	5861	70.9	7593	0.39
1689-054	2808-2817	43875	12623	15424	2479	5343	79744	35869	45.0	13376	0.46
1689-057	2835-2844	2040	702	1178	257	735	4912	2872	58.5	4338	0.35
1689-060	2862-2871	4257	1486	1687	335	758	8523	4266	50.1	3325	0.44
1689-063	2889-2898	4833	1622	2114	592	2805	11966	7133	59.6	15849	0.21
1689-067	2925-2934	370	96	129	22	153	770	400	51.9	1049	0.14
1689-071	2961-2970	920	140	79	10	162	1311	391	29.8	1919	0.06
1689-075	2997-3006	4553	516	926	218	722	6935	2382	34.3	3846	0.30
1689-079	3033-3042	1198	242	459	36	484	2419	1221	50.5	3206	0.07
1689-083	3069-3078	715	40	58	2	27	842	127	15.1	687	0.07
1689-087	3105-3114	618	60	127	34	170	1009	391	38.8	907	0.20
1689-091	3141-3150	1230	443	1123	338	1227	4361	3131	71.8	2557	0.28
1689-095	3177-3186	546	97	373	130	602	1748	1202	68.8	132	0.22
1689-099	3213-3222	687	188	207	78	289	1449	762	52.6	2112	0.27



TABLE 2B
CONCENTRATION (VOL. PPM OF ROCK) OF C₁ - C₇ HYDROCARBONS IN CUTTING GAS

GEOCHEM SAMPLE NUMBER	DEPTH	C ₁ Methane	C ₂ Ethane	C ₃ Propane	iC ₄ Isobutane	nC ₄ Butane	TOTAL C ₁ - C ₄	TOTAL C ₂ - C ₄	% GAS WETNESS	TOTAL C ₅ - C ₇	$\frac{iC_4}{nC_4}$
1689-103	3249-3258	1333	97	100	29	75	1634	301	18.4	810	0.39
1689-107	3285-3294	956	95	123	45	206	1425	469	32.9	1932	0.22
1689-111	3321-3330	919	58	51	10	70	1108	189	17.1	1162	0.14
1689-115	3357-3366	596	41	14	0	2	653	57	8.7	947	0.00
1689-119	3402	1244	544	562	56	175	2581	1337	51.8	600	0.32
1689-123	3438	5775	181	81	1	45	6083	308	5.1	1331	0.02
1689-127	3474	2264	92	38	0	50	2444	180	7.4	1901	0.00
1689-131	3510	2062	137	82	6	101	2388	326	13.7	3210	0.06
1689-135	3546	3860	110	36	3	73	4082	222	5.4	1076	0.04
1689-139	3582	990	32	22	1	16	1061	71	6.7	1356	0.06
1689-144	3627	1425	45	14	1	11	1496	71	4.7	1545	0.09
1689-147	3654	2817	129	52	6	19	3023	206	6.8	1609	0.32
1689-151	3690	3298	64	8	0	0	3370	72	2.1	224	0.00
1689-155	3726	2138	50	18	6	1	2213	75	3.4	22	6.00
1689-159	3762	562	109	137	4	61	873	311	35.6	961	0.07
1689-163	3798	1176	56	23	1	16	1272	96	7.5	371	0.06
1689-166	3825	2724	65	34	1	81	2905	181	6.2	2117	0.01
1689-169	3850	3981	95	50	1	118	4245	264	6.2	3094	0.01

TABLE 2C
TOTAL CONCENTRATION (μ L GAS/KG ROCK) OF C₁ - C₇ HYDROCARBONS (A + B)

GEOCHEM SAMPLE NUMBER	DEPTH	C ₁ Methane	C ₂ Ethane	C ₃ Propane	iC ₄ Isobutane	nC ₄ Butane	TOTAL C ₁ - C ₄	TOTAL C ₂ - C ₄	% GAS WETNESS	TOTAL C ₅ - C ₇	$\frac{iC_4}{nC_4}$
1689-001	680-700	1322923	6149	2984	836	2163	1335055	12132	0.9	3806	0.39
1689-002	700-750	204698	724	266	115	244	206047	1349	0.7	767	0.47
1689-003	750-800	241189	1632	444	138	217	243620	2431	1.0	475	0.64
1689-004	800-850	362592	1190	349	142	247	364520	1928	0.5	707	0.57
1689-005	850-900	530158	777	267	34	85	531321	1163	0.2	1012	0.40
1689-006	900-950	345881	1434	302	45	83	347745	1864	0.5	1066	0.54
1689-007	950-1000	488601	1174	354	59	86	490274	1673	0.3	821	0.69
1689-008	1000-1050	74228	283	126	19	17	74673	445	0.6	300	1.12
1689-009	1050-1100	265277	1629	482	67	47	267502	2225	0.8	375	1.43
1689-010	1100-1150	192990	1010	388	132	102	194622	1632	0.8	1883	1.29
1689-011	1150-1200	26747	1693	1033	506	1333	31312	4565	14.6	1306	0.38
1689-012	1200-1250	15379	2044	1052	851	614	19940	4561	22.9	917	1.39
1689-013	1250-1300	219598	9462	1908	1212	494	232674	13076	5.6	5314	2.45
1689-014	1300-1350	73833	4143	895	582	278	79731	5898	7.4	5953	2.09
1689-015	1350-1400	115328	5558	879	439	241	122445	7117	5.8	3429	1.82
1689-016	1400-1450	125665	15804	2800	1586	797	146652	20987	14.3	4681	1.99
1689-017	1450-1500	10202	764	498	204	233	11901	1699	14.3	2326	0.88
1689-018	1500-1550	9487	322	187	155	153	10304	817	7.9	3563	1.01
1689-019	1550-1600	30968	1281	663	512	720	34144	3176	9.3	10098	0.71
1689-020	1600-1650	55565	2159	803	521	836	59884	4319	7.2	10583	0.62
1689-021	1650-1700	24217	818	344	301	480	26160	1943	7.4	12221	0.63
1689-022	1700-1750	11767	400	185	148	228	12728	961	7.6	8261	0.65
1689-023	1750-1800	7934	306	223	233	291	8987	1053	11.7	3816	0.80
1689-024	1800-1850	6162	326	290	335	391	7504	1342	17.9	4452	0.86
1689-025	1850-1900	62557	6028	7452	1209	4108	81354	18797	23.1	11445	0.29
1689-026	1900-1950	45777	5382	5246	1411	2794	60610	14833	24.5	10740	0.51
1689-027	1950-2000	87519	9870	12558	4641	7423	122011	34492	28.3	33735	0.63
1689-028	2000-2050	120383	7602	9386	3581	6027	146979	26596	18.1	36461	0.59
1689-029	2050-2100	391418	72269	90601	22315	35138	611741	220323	36.0	109123	0.64
1689-030	2100-2150	314377	99229	125621	31211	55410	625848	311471	49.8	172352	0.56



TABLE 2C
TOTAL CONCENTRATION (μ L GAS/KG ROCK) OF C₁ - C₇ HYDROCARBONS (A + B)

GEOCHEM SAMPLE NUMBER	DEPTH	C ₁ Methane	C ₂ Ethane	C ₃ Propane	iC ₄ Isobutane	nC ₄ Butane	TOTAL C ₁ - C ₄	TOTAL C ₂ - C ₄	% GAS WETNESS	TOTAL C ₅ - C ₇	$\frac{iC_4}{nC_4}$
1689-031	2150-2200	215636	72057	111104	32408	57537	488742	273106	55.9	170604	0.56
1689-032	2200-2250	233380	34151	66122	24721	41364	399738	166358	41.6	130845	0.60
1689-033	2250-2300	395183	75347	119048	29665	49942	669185	274002	40.9	116799	0.59
1689-034	2300-2350	188233	71921	110329	32379	53492	456354	268121	58.8	146910	0.61
1689-035	2350-2400	360958	112484	140753	26363	45858	686416	325458	47.4	96530	0.57
1689-036	2400-2450	92583	19181	59167	22114	44762	237807	145224	61.1	134249	0.49
1689-037	2450-2500	97291	29759	48901	15765	25604	217320	120029	55.2	48801	0.62
1689-038	2500-2550	101497	42098	86678	29488	52105	311866	210369	67.5	114792	0.57
1689-039	2550-2600	18563	9746	37580	14995	29915	110799	92236	83.2	82595	0.50
1689-040	2600-2650	11905	7512	31056	11783	26658	88914	77009	86.6	79193	0.44
1689-041	2650-2700	140387	41287	107048	28771	47622	365115	224728	61.5	125800	0.60
1689-042	2700-2709	7592	3088	5841	1594	3069	21184	13592	64.2	14848	0.52
1689-043	2709-2718	23531	11199	22712	4224	9509	71175	47644	66.9	22558	0.44
1689-045	2727-2736	6272	3229	6784	1400	2709	20394	14122	69.2	6953	0.52
1689-048	2754-2763	105274	19991	25914	5230	10593	167002	61728	37.0	24658	0.49
1689-051	2781-2790	40087	7823	10799	2185	5045	65939	25852	39.2	13495	0.43
1689-054	2808-2817	52273	14831	17568	2912	6400	93984	41711	44.4	18352	0.45
1689-057	2835-2844	27188	7509	9378	1495	3538	49108	21920	44.6	9824	0.42
1689-060	2862-2871	23378	5202	6112	1058	2387	38137	14759	38.7	8455	0.44
1689-063	2889-2898	98635	26466	27804	5147	21621	179673	81038	45.1	46385	0.24
1689-067	2925-2934	381	263	155	23	218	1040	659	63.4	1734	0.11
1689-071	2961-2970	1054	884	310	192	631	3071	2017	65.7	5165	0.30
1689-075	2997-3006	5242	606	1009	221	899	7977	2735	34.3	5927	0.25
1689-079	3033-3042	11464	1563	3118	619	2569	19333	7869	40.7	7584	0.24
1689-083	3069-3078	3740	294	415	50	306	4805	1065	22.2	1495	0.16
1689-087	3105-3114	2169	174	299	35	229	2906	737	25.4	1395	0.15
1689-091	3141-3150	8090	4170	10153	2169	7295	31877	23787	74.6	8933	0.30
1689-095	3177-3186	2290	974	2733	692	2297	8986	6696	74.5	1995	0.30
1689-099	3213-3222	740	197	220	87	326	1570	830	52.9	2261	0.27



TABLE 2 C
TOTAL CONCENTRATION (VOL. PPM OF ROCK) OF C₁ - C₇ HYDROCARBONS (2A + 2B)

GEOCHEM SAMPLE NUMBER	DEPTH	C ₁ Methane	C ₂ Ethane	C ₃ Propane	iC ₄ Isobutane	nC ₄ Butane	TOTAL C ₁ - C ₄	TOTAL C ₂ - C ₄	% GAS WETNESS	TOTAL C ₅ - C ₇	$\frac{iC_4}{nC_4}$
1689-103	3249-3258	7961	123	127	34	90	8335	374	4.5	898	0.38
1689-107	3285-3294	1536	150	214	62	258	2220	684	30.8	2511	0.24
1689-111	3321-3330	1935	203	212	45	175	2570	635	24.7	2622	0.26
1689-115	3357-3366	2405	133	100	23	140	2801	396	14.1	3502	0.16
1689-119	3402	1503	570	582	59	190	2904	1401	48.2	932	0.31
1689-123	3438	8777	311	184	2	93	9367	590	6.3	2217	0.02
1689-127	3474	6176	176	76	0	78	6506	330	5.1	2382	0.00
1689-131	3510	2573	165	96	6	111	2951	378	12.8	5286	0.05
1689-135	3546	4336	142	53	3	98	4632	296	6.4	1585	0.03
1689-139	3582	3068	103	46	2	43	3262	194	5.9	5411	0.05
1689-144	3627	2916	116	65	3	37	3137	221	7.0	1550	0.08
1689-147	3654	3671	159	66	6	26	3928	257	6.5	1654	0.23
1689-151	3690	9178	300	143	2	26	9649	471	4.9	392	0.08
1689-155	3726	2230	54	22	9	1	2316	86	3.7	41	9.00
1689-159	3762	1167	163	176	15	62	1583	416	26.3	1057	0.24
1689-163	3798	1671	76	34	1	21	1803	132	7.3	431	0.05
1689-166	3825	3203	92	47	1	86	3429	226	6.6	2295	0.01
1689-169	3850	4607	123	69	2	260	5061	454	9.0	3155	0.01