6 Pages

BASIC

OIL and GAS DIVISION

18 JUN 1982

GEOCHEMICAL STUDY.

PYROLYSIS / T.O.C. PROFILE

VOLUTA — 1 WELL,

OTWAY BASIN, AUSTRALIA

7080' — 12960'

BY

BROWN & RUTH LABORATORIES

22 - 12 - 1981.

CONTRACT SERVICE REPORT

Pyrolysis/T.O.C. Profile

Voluta No. 1 Well
Otway Basin, Australia
(7,080' - 12,960')

BROWN & RUTH LABORATORIES, INC.

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December 22, 1981

Chevron Overseas Petroleum, Inc.
575 Market Street
San Francisco, CA. 94105

Attention: Gerard J. Demaison

Gentlemen:

This report presents the results of our geochemical analysis of ninety-one (91) samples from the Voluta No. 1 Well, Otway Basin, Australia. The work was authorized by your Service Order S03456 of March 23, 1981.

All unused sample material is being returned under separate cover.

We are pleased to have been of service to Chevron. If you have any questions regarding the work, then please contact us.

Very truly yours,

Brown & Ruth Laboratories, Inc.

Gary W. Ruth

Gary W. Ruth

GWR/ab
Enclosure

10[illegible] SHADOW WOOD DRIVE, SUITE 130, HOUSTON, TEXAS 77043 (713) 464-3284

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CONTRACT SERVICE REPORT - 225

CLIENT: Chevron Overseas Petroleum, Inc.
575 Market Street
San Francisco, California 94105

WELL: Voluta No. 1, Otway Basin, Australia

AUTHORIZATION: G. J. Demaison - Service Order S03456

SAMPLE DESCRIPTION

A total of seventy-nine (79) cuttings samples and twelve (12) cores were anlayzed from the well interval 7089 feet to 12,960 feet. The sample quality was generally good, although some were contaminated with metal shavings and lost circulation material, mainly plastic fiber and walnut shell.

SAMPLE PREPARATION

Instructions submitted with the samples directed that Rock-Eval pyrolysis and Total Organic Carbon (T.O.C.) determinations be carried out on each sample.

Prior to analysis, each sample was visually examined using a binocular microscope and lost circulation material was removed. The samples were then ground to a fine powder and analyzed.

ANALYTICAL DETERMINATIONS

A fraction of the ground sample material was used for pyrolysis in a Rock-Eval analyzer. A separate fraction of the same ground sample material was acidified then analyzed for organic carbon content by combustion in a Leco Carbon Analyzer.

TABLE I

Results of Organic Carbon Analysis and Rock-Eval Pyrolysis

Sample Number	Well Depth*	T.O.C. (%)	S1 (mg/g)	S2 (mg/g)	S3 (mg/g)	Tmax (°C)	PI	S2/S3	HI	OI
225-001c	7089	5.31	0.13	2.63	3.62	435	0.05	0.73	50	68
225-002c	7114	2.33	<0.10	0.48	1.47	421	--	0.33	21	63
225-003c	7597	1.74	0.12	0.86	2.08	436	0.12	0.41	49	120
225-004c	7605	N O D A T A								
225-005	7640-7650	0.94	<0.10	0.55	2.04	439	--	0.27	59	217
225-006	7710-7720	1.81	0.12	0.65	2.45	437	0.15	0.27	36	135
225-007	7770-7780	1.94;1.94	0.10	0.56	1.77	436	0.15	0.32	29	91
225-008	7890-7900	1.55	0.11	0.51	1.30	442	0.17	0.40	33	84
225-009	7950-7960	1.01	0.10	0.50	1.35	435	--	0.37	50	134
225-010	8010-8020	1.66	<0.10	0.39	1.06	436	--	0.36	23	64
225-011	8060-8070	1.03	<0.10	0.39	1.39	436	--	0.28	39	135
225-012c	8074	1.03	<0.10	0.38	0.74	432	--	0.51	37	72
225-013c	8097	1.59	<0.10	0.46	1.31	435	--	0.35	29	82
225-014	8130-8140	1.33	<0.10	0.36	1.22	439	--	0.30	27	92
225-015	8210-8220	1.04;1.05	<0.10	0.37	1.17	440	--	0.31	36	113
225-016	8280-8290	1.49	<0.10	0.33	1.15	442	--	0.28	22	77
225-017	8330-8340	1.44	<0.10	0.39	1.25	444	--	0.31	27	87
225-018	8410-8425	1.31	<0.10	0.33	0.98	446	--	0.34	25	75
225-019	8460-8470	1.13	<0.10	0.17	1.30	438	--	0.13	15	115
225-020	8560-8570	1.44	<0.10	0.33	0.79	438	--	0.41	23	55
225-021c	8620	1.36	<0.10	0.40	0.74	437	--	0.54	29	54
225-022	8660-8670	0.95	<0.10	0.22	0.93	434	--	0.24	24	98
225-023	8730-8745	1.40	<0.10	0.30	0.90	438	--	0.34	21	64
225-024c	8775	1.27	<0.10	0.24	0.50	433	--	0.49	39	98
225-025	8780-8795	1.36	<0.10	0.13	0.78	434	--	0.17	10	57
225-026	8840-8850	1.35;1.36	<0.10	0.26	0.89	442	--	0.29	19	66
225-027	8890-8900	0.97	<0.10	0.14	0.82	433	--	0.17	14	85
225-028	8950-8960	1.24	<0.10	0.22	0.83	446	--	0.27	18	67
225-029	9020-9030	1.27	<0.10	0.41	0.86	437	--	0.48	32	68
225-030	9090-9100	1.38	<0.10	0.17	0.58	437	--	0.29	12	42
225-031	9140-9150	1.36	<0.10	0.39	0.61	439	--	0.64	29	45
225-032	9200-9210	1.40	<0.10	0.20	0.36	437	--	0.55	14	26
225-033	9270-9280	1.26	<0.10	0.41	0.57	440	--	0.71	33	45
225-034	9330-9340	1.35	<0.10	0.28	0.64	435	--	0.43	21	47
225-035	9390-9400	1.19	<0.10	0.38	0.45	444	--	0.85	32	38

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TABLE I

Results of Organic Carbon Analysis and Rock-Eval Pyrolysis

Sample Number	Well Depth*	T.O.C. (%)	S1 (mg/g)	S2 (mg/g)	S3 (mg/g)	Tmax (°C)	PI	S2/S3	HI	OI
225-036	9440-9450	1.50	<0.10	0.24	0.38	436	--	0.63	16	25
225-037	9500-9510	2.56	<0.10	0.30	0.51	449	--	0.58	12	20
225-038	9560-9570	1.50	<0.10	0.15	0.53	435	--	0.28	10	35
225-039	9620-9630	1.22	<0.10	0.29	0.42	440	--	0.69	24	34
225-040	9680-9690	1.50	<0.10	0.19	0.46	438	--	0.41	13	31
225-041	9750-9760	1.26	<0.10	0.42	0.72	446	--	0.58	33	57
225-042	9820-9830	1.24	<0.10	0.38	0.45	442	--	0.84	31	36
225-043	9880-9890	1.47	<0.10	0.15	0.32	435	--	0.45	10	22
225-044	9954-9960	1.26	<0.10	0.39	0.45	442	--	0.88	31	36
225-045c	9960	1.42	<0.10	0.26	0.41	437	--	0.65	19	29
225-046	10010-10020	1.26;1.25	<0.10	0.37	0.54	443	--	0.70	29	43
225-047	10080-10090	1.42	<0.10	0.19	0.51	436	--	0.38	14	36
225-048	10130-10140	1.32	<0.10	0.40	0.41	446	--	0.97	30	31
225-049	10180-10190	1.84	<0.10	0.30	0.47	436	--	0.64	16	26
225-050	10240-10250	1.28	<0.10	0.40	0.43	443	--	0.93	31	34
225-051	10290-10300	1.38	<0.10	0.25	0.49	438	--	0.51	18	36
225-052	10350-10360	1.39	<0.10	0.41	0.40	449	--	1.04	29	29
225-053	10410-10420	1.38	<0.10	0.27	0.41	439	--	0.67	20	30
225-054c	10475	1.28	<0.10	0.50	0.30	440	--	1.70	39	23
225-055	10480-10490	1.37	<0.10	0.44	0.36	446	--	1.23	32	26
225-056	10540-10550	1.23	<0.10	0.29	0.31	440	--	0.95	24	25
225-057	10600-10610	1.40	<0.10	0.43	0.32	446	--	1.37	31	23
225-058	10670-10680	1.17	<0.10	0.32	0.47	437	--	0.68	27	40
225-059	10730-10740	1.36	<0.10	0.42	0.43	442	--	0.98	31	32
225-060	10790-10800	1.46	<0.10	0.25	0.28	439	--	0.90	17	19
225-061	10840-10850	1.15	<0.10	0.37	0.34	452	--	1.08	32	30
225-062	10890-10900	1.31;1.29	<0.10	0.19	0.39	438	--	0.49	15	30
225-063c	10907	1.38	<0.10	0.18	<0.10	441	--	--	13	--
225-064	10940-10950	1.30	<0.10	0.42	0.29	444	--	1.45	32	22
225-065	10990-11000	1.35	<0.10	0.24	0.20	441	--	1.21	18	15
225-066	11040-11050	1.23	<0.10	0.37	0.37	444	--	1.00	30	30
225-067	11100-11110	S A M P L E C O N T A M I N A T E D								
225-068	11200-11210	1.02	<0.10	0.51	0.46	443	--	1.11	50	45
225-069	11240-11250	1.47	<0.10	0.33	0.32	440	--	1.04	23	22
225-070	11300-11310	0.87	<0.10	0.44	0.33	443	--	1.33	51	38

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TABLE I

Results of Organic Carbon Analysis and Rock-Eval Pyrolysis

Sample Number	Well Depth*	T.O.C. (%)	S1 (mg/g)	S2 (mg/g)	S3 (mg/g)	Tmax (°C)	PI	S2/S3	HI	OI
225-071	11400-11415	S A M P L E	C O N T A M I N A T E D							
225-072c	11514	0.75	<0.10	0.36	0.31	445	--	1.16	48	41
225-073	11620-11630	1.11	0.11	0.47	0.45	441	0.19	1.04	42	41
225-074	11700-11710	0.97	0.10	0.40	0.45	446	0.20	0.89	41	46
225-075	11800-11810	1.03	0.11	0.43	0.53	445	0.20	0.81	42	51
225-076	11870-11880	1.48	<0.10	0.26	1.01	444	--	0.26	18	68
225-077	11920-11930	0.94	0.13	0.54	1.39	448	0.19	0.39	57	148
225-078c	11991	0.92	0.13	0.46	0.40	454	0.22	1.15	50	43
225-079	12100-12110	0.99	<0.10	0.33	0.49	449	--	0.67	33	49
225-080	12160-12170	1.27	0.11	0.45	0.38	448	0.20	1.21	35	30
225-081	12210-12220	0.99	<0.10	0.39	0.49	454	--	0.80	39	49
225-082	12260-12270	1.44	0.10	0.44	0.38	450	0.19	1.16	31	26
225-083	12330-12340	0.93;0.95	<0.10	0.34	0.58	451	--	0.59	37	62
225-084	12370-12380	1.47	0.12	0.48	0.39	453	0.20	1.23	33	27
225-085	12470-12480	0.94	0.11	0.36	1.04	450	0.23	0.35	38	111
225-086	12550-12560	0.95	<0.10	0.32	0.64	459	--	0.50	34	67
225-087	12600-12610	1.46	0.13	0.51	0.41	452	0.21	1.24	35	28
225-088	12640-12650	0.90	0.10	0.32	0.47	453	0.24	0.68	36	53
225-089	12690-12700	1.34	0.13	0.48	0.87	454	0.21	0.55	36	65
225-090	12740-12750	1.14	0.14	0.48	0.73	458	0.22	0.66	42	64
225-091	12790-12800	1.63	0.12	0.46	0.41	453	0.21	1.10	28	25
225-092	12840-12850	0.92	0.13	0.46	0.49	456	0.22	0.94	50	53
225-093	12890-12900	1.82	0.12	0.44	0.47	454	0.21	0.92	24	26
225-094	12950-12960	0.90	<0.10	0.36	0.43	462	0.20	0.85	40	48

* Well depth in feet
** Unable to determine due to insufficient S2 yield, multiple peaks, etc.
T.O.C. = Total Organic Carbon; S1 = Free Hydrocarbons; S2 = Hydrocarbon yield from pyrolysis;
S3 = CO_2 produced during pyrolysis stage; Tmax = Temperature at maximum hydrocarbon generation during pyrolysis;
PI = Production Index; HI = Hydrogen Index; OI = Oxygen Index
c = Core sample

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