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GEOCHEMICAL REPORT
TRITON-1 AND TRITON-1 (SIDETRACK)
OTWAY BASIN, VICTORIA

by

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Geochemical Report

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CONTENTS

LIST OF TABLES

1. C₁₋₄ Headspace Cuttings Gas Data, Triton-1
2. " " " " " , Triton-1 (Sidetrack)
3. Vitrinite Reflectance Report, Triton-1
4. Total Organic Carbon Report, Triton-1
5. " " " " , Triton-1 (Sidetrack)
6. Kerogen Elemental Analysis Report, Triton-1 (Sidetrack)
7. Kerogen Elemental Atomic Ratios Report, Triton-1 (Sidetrack)
8. C₁₅₊ Liquid Chromatography Results, Triton-1 (Sidetrack)

LIST OF FIGURES

1. C₁₋₄ Headspace Cuttings Gas Log, Triton-1
2. " " " " " Triton-1 (Sidetrack)
3. C₄₋₇ Gasoline Range Geochemical Log, Triton (Sidetrack)
4. Vitrinite Reflectance Vs. Depth
5. Atomic H/C Vs Atomic O/C - Modified Van Krevelen Plot
6. Principal Products of Kerogen Evolution.
7. C₁₅₊ Saturate Chromatogram, Triton-1 (Sidetrack), 1760 - 1785m
8. " " " " " , 2060 - 2085m
9. " " " " " , 2400 - 2415m
10. " " " " " , 2700 - 2715m
11. " " " " " , 3060 - 3075m
12. " " " " " , 3360 - 3375m

APPENDICES:

1. C₄₋₇ Detailed Data Sheets, Triton-1 (Sidetrack)
2. Vitrinite Reflectance Data - by A.C. Cook.

TRITON-1 (TRITON-1 SIDETRACK)

INTRODUCTION

Geochemical analyses were performed on samples of canned cuttings (composited over 15-metre intervals) collected during drilling of Triton-1, and canned cuttings and sidewall cores collected during drilling of the sidetracked hole, Triton-1 (Sidetrack). Due to the bad caving problem in the original Triton-1 hole, analysis of light hydrocarbon (C_{1-4}) headspace gases from canned cuttings (from alternate 15-metre intervals) was suspended at 1800m, and resumed using more reliable material (again alternate 15-metre intervals) from the sidetracked hole, between 1470m and 3545m (T.D.). All other geochemical analyses were performed on samples from the sidetracked hole.

Succeeding alternate 15-metre intervals between 1605m and 3404m were analysed for C_{4-7} gasoline range hydrocarbons. Selected samples were hand picked for more detailed analyses, such as Total Organic Carbon (T.O.C.), kerogen isolation and elemental analysis and C_{15+} liquid and gas chromatography. Vitrinite reflectance (R_o) measurements were carried out by Dr. A.C. Cook of Wollongong.

DISCUSSION OF RESULTS

The headspace C_{1-4} hydrocarbon gas analyses for the Triton-1 and Triton-1 (Sidetrack) canned cuttings are listed in Tables 1 and 2 respectively, and have been plotted in Figures 1 and 2 respectively. The entire section is generally lean of C_{1-4} cuttings gas, apart from two moderately rich zones, one in the Upper part of the Belfast Mudstone Formation between approximately 1900m and 2205m

and the other in the Waarre Formation from 3400 metres to T.D. The percentage wet (C_{2+}) gas ranges from about 25-45% down to 2700m indicating a present day source potential for gas. From 2700 - 3200 metres the 'wet' fraction reaches over 50% indicating a top of maturation at about 2700m but the low 'total gas' indicates only a poor source rating. The Waarre Formation, from about 3400 m to Total Depth, shows an increase in total gas but it is predominantly methane with only minor ethane and has no indication of liquid hydrocarbons (either source or reservoir).

The detailed C_{4-7} gasoline range hydrocarbon data are presented in Appendix-1 and plotted in Figure 3. Values are moderately rich between 1800m and 2700m and rich between 2700m and 3404m. The significant increase in C_{4-7} , and in particular the C_{6-7} compounds below 2700m, again substantiates that these sediments have probably reached organic maturity. Based on C_{4-7} gasoline range hydrocarbon data, the Belfast Formation sediments between 1800m and 2700m have a fair-good hydrocarbon source potential, and those between 2700m and 3406m would be rated as having good hydrocarbon source potential. (No gasoline data is available for the interval 3400m-T.D.)

Vitrinite Reflectance (R_o max) information has been summarized in Table 3 and plotted against depth in Figure 4. The detailed data is included in Appendix-2. The straight line gradient shown in figure 4 indicates that there are no major breaks in the kerogen maturation profile. Taking the organic maturity window for significant hydrocarbon generation to be between $R_o = 0.65$ and $R_o = 1.3$, then the sediments below approximately 2900m are presently mature (Table 3), which agrees fairly well with the C_{1-4} cuttings gas and C_{4-7} gasoline range hydrocarbon data.

Total Organic Carbon (T.O.C.) analyses performed on cuttings samples from the original hole, and on both cuttings and sidewall core samples from the sidetracked hole are presented in Tables 4 and 5 respectively. Samples from the Belfast Formation have moderately rich T.O.C. values (average T.O.C. is 1.31% and 1.29% from the original and sidetracked holes respectively) and might be expected to have some hydrocarbon source rock potential. However, elemental analysis of isolated kerogens (Tables 6 and 7) shows that the organic matter type in the Belfast Formation sediments is quite hydrogen-poor, with most samples only rating as gas prone.

The atomic ratios are described as "approximate", as the percentage oxygen was determined by difference and the amount of natural organic sulphur (usually only a few percent) was not determined.

Sediments from the other formations penetrated have low T.O.C. values (Table 5) and again contain organic matter with low hydrogen content (Tables 6 and 7) and would be considered as having poor source rock potential.

The atomic H/C and O/C ratios have been plotted against each other in Figure 5 on a modified Van Krevelen plot, delineating the basic kerogen types. Comparison of Figure 5 with Figure 6, a similar plot showing the "Principal Products of Kerogen Evolution" clearly indicates the generally poor quality (low hydrogen content) of the organic matter, although there are a few indications of oil and gas potential, particularly from samples at depths where maturity has been reached (i.e. below about 2800m)

The C_{15+} liquid chromatography results from selected canned cuttings are listed in Table 8. All the samples are from the Late Cretaceous Belfast Formation and have fairly rich total extract values. The C_{15+} chromatograms for all the samples are given in Figures 7 - 12, and exhibit typical features of dominantly terrestrial/non-marine organic matter becoming more mature with increasing depth. This is indicated by the gradual reduction in the amount of odd-over-even predominance in the high molecular weight (C_{22+}) n-alkanes, the movement of the n-alkanes maxima from n- C_{29} (Fig.7) through n- C_{23} (Fig.10) to n- C_{19} or n- C_{20} (Fig.12), and the reduction of sterane/triterpane compounds from the high molecular weight region. Maturation is also indicated by the corresponding enhanced definition of a slight naphthene hump in the lower molecular region, with increasing sample depth, and, the increasing n- C_{17} /pristane (a) ratio, with increasing sample depth.

Comparison of figure 10 with figures 11 and 12 shows that maturity is reached in the interval between 2715m and 3075m which also agrees with previous determinations of the top of organic maturity. The relatively high non-hydrocarbon (N.S.O. and Asphaltenes) contents in the samples from the mature zone (Table 8) confirms the poor oil-prone nature of the Belfast Formation organic matter, discussed previously.

CONCLUSIONS:

1. The Belfast Mudstone Formation particularly between 2700-3406m, has a good hydrocarbon source potential, but the nature of the organic matter in these sediments is gas-prone rather than oil-prone.

2. The top of organic maturity in Triton-1 (Sidetrack) occurs at about 2900m, and by T.D. (3545m) the sediments have reached the peak hydrocarbon generation zone.

3. The Waarre Formation sediments have a fair-poor hydrocarbon source potential.

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PAGE 2

TABLE 1 Cont'd: C1-C4 HYDROCARBON ANALYSES
 REPORT A - HEADSPACE GAS

BASIN - OTWAY
 WELL - TRITON 1

SAMPLE NO.	DEPTH	GAS CONCENTRATION (VOLUME GAS PER MILLION VOLUMES CUTTINGS)						WET C2-C4	TOTAL C1-C4	WET/TOTAL PERCENT	GAS COMPOSITION (PERCENT)					WET GAS			
		METHANE C1	ETHANE C2	PROPANE C3	IBUTANE IC4	NBUTANE C4					M	E	P	IB	NB	E	P	IB	NB
72369 P	1710.00	362	63	66	17	6	152	514	29.57	70.	12.	13.	3.	1.	41.	43.	11.	4.	
72369 R	1740.00	3811	532	223	72	17	844	4655	18.13	82.	11.	5.	2.	0.	63.	26.	9.	2.	
72369 T	1770.00	374	73	43	27	6	149	523	28.49	72.	14.	8.	5.	1.	49.	29.	18.	4.	
72369 V	1800.00	397	65	50	25	7	147	544	27.02	73.	12.	9.	5.	1.	44.	34.	17.	5.	

TABLE 2: C1-C4 HYDROCARBON ANALYSES
REPORT A - HEADSPACE GAS

BASIN - OTWAY
WELL - TRITON 1 SIDETRACK

GAS CONCENTRATION (VOLUME GAS PER MILLION VOLUMES CUTTINGS)

GAS COMPOSITION (PERCENT)

SAMPLE NO.	DEPTH	METHANE C1	ETHANE C2	PROPANE C3	IBUTANE IC4	NBUTANE C4	NET C2-C4	TOTAL C1-C4	WET/TOTAL PERCENT	TOTAL GAS					WET GAS					
										M	E	P	IB	NB	E	P	IB	NB		
72338A	1485.00	0	0	0	0	0	0	0	.00	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
72338C	1515.00	49	0	0	0	0	16	65	24.62	75.	5.	8.	0.	0.	0.	0.	0.	0.	0.	0.
72338E	1545.00	59	0	0	0	0	18	77	23.38	77.	6.	9.	0.	0.	0.	0.	0.	0.	0.	0.
72338G	1575.00	232	11	13	12	8	44	276	15.94	84.	4.	5.	5.	5.	3.	3.	25.	30.	27.	18.
72338H	1605.00	119	10	11	8	4	33	152	21.71	78.	7.	7.	3.	3.	3.	3.	34.	33.	24.	12.
72338K	1635.00	240	30	22	30	7	89	329	27.05	73.	9.	7.	7.	9.	9.	9.	41.	34.	17.	8.
72338M	1665.00	164	29	24	12	6	71	235	30.21	70.	12.	10.	5.	5.	5.	5.	41.	34.	17.	8.
72338O	1695.00	164	29	24	9	4	71	235	30.21	70.	12.	10.	5.	5.	5.	5.	41.	34.	17.	8.
72338Q	1725.00	24	61	99	32	14	206	430	47.91	52.	14.	23.	7.	7.	7.	7.	30.	48.	16.	7.
72338S	1755.00	220	177	105	34	8	324	844	38.39	62.	21.	12.	4.	4.	4.	4.	55.	32.	10.	5.
72338U	1800.00	465	79	49	40	9	177	642	27.57	72.	12.	8.	6.	6.	6.	6.	45.	28.	23.	5.
72338W	1860.00	525	91	55	27	8	181	706	25.64	74.	13.	8.	4.	4.	4.	4.	50.	30.	15.	4.
72338Y	1990.00	32	77	45	21	6	149	681	21.88	78.	11.	7.	3.	3.	3.	3.	52.	30.	14.	4.
72338AA	1920.00	1489	156	85	40	11	292	1781	16.40	84.	9.	5.	3.	3.	3.	3.	53.	29.	14.	4.
72338AC	1950.00	443	157	67	34	9	267	2710	9.85	90.	8.	3.	2.	2.	2.	2.	59.	25.	13.	3.
72338AD	1980.00	493	306	153	56	17	595	4688	12.69	87.	8.	3.	3.	3.	3.	3.	62.	28.	9.	3.
72338AE	1995.00	82	337	115	39	13	474	3556	13.33	87.	9.	3.	3.	3.	3.	3.	65.	24.	8.	3.
72338AF	2007.00	42	84	84	28	20	416	2258	18.42	82.	13.	4.	1.	1.	1.	1.	68.	20.	7.	5.
72338AG	2070.00	1064	73	73	23	8	341	1405	24.27	76.	17.	5.	5.	5.	5.	5.	70.	21.	7.	5.
72338AH	2130.00	896	88	142	37	17	484	1380	35.07	65.	21.	10.	3.	3.	3.	3.	60.	24.	8.	4.
72338AI	2160.00	255	84	404	80	30	1498	4754	14.51	68.	21.	8.	2.	2.	2.	2.	66.	27.	5.	2.
72338AJ	2190.00	55	114	447	92	36	1720	4375	31.31	61.	26.	10.	2.	2.	2.	2.	67.	26.	5.	2.
72338AK	2200.00	33	176	326	59	33	1183	2966	39.89	60.	26.	11.	2.	2.	2.	2.	65.	28.	5.	2.
72338AL	2250.00	540	224	99	21	10	350	890	39.33	61.	25.	11.	2.	2.	2.	2.	64.	27.	6.	3.
72338AM	2280.00	23	185	61	11	5	262	785	33.38	67.	24.	8.	1.	1.	1.	1.	71.	23.	4.	2.
72338AN	2300.00	1	45	16	4	1	66	248	26.61	73.	18.	6.	0.	0.	0.	0.	68.	24.	6.	2.
72338AO	2310.00	35	29	116	24	12	448	1433	31.26	69.	21.	3.	1.	1.	1.	1.	66.	26.	5.	3.
72338AP	2340.00	61	177	61	11	5	254	834	30.46	70.	21.	7.	1.	1.	1.	1.	66.	24.	4.	2.
72338AQ	2370.00	1368	517	272	53	29	871	2239	38.90	61.	23.	12.	2.	2.	2.	2.	59.	31.	6.	3.
72338AR	2400.00	843	315	182	34	17	548	1591	39.40	61.	23.	13.	2.	2.	2.	2.	57.	33.	6.	3.
72338AS	2430.00	859	251	159	26	17	453	1312	34.53	65.	19.	12.	2.	2.	2.	2.	55.	35.	6.	4.
72338AT	2460.00	19	7	5	1	0	13	32	40.63	59.	22.	16.	3.	3.	3.	3.	54.	38.	8.	0.
72338AU	2490.00	320	89	66	12	6	173	493	35.09	65.	15.	13.	1.	1.	1.	1.	51.	38.	7.	3.
72338AV	2520.00	176	47	36	6	3	92	268	34.33	66.	18.	13.	2.	2.	2.	2.	51.	39.	7.	3.
72338AW	2550.00	630	186	152	20	5	363	993	36.56	63.	19.	15.	1.	1.	1.	1.	51.	42.	6.	1.
72338AX	2580.00	495	187	177	26	15	405	900	45.00	55.	19.	20.	3.	3.	3.	3.	46.	44.	4.	4.
72338AY	2610.00	111	39	35	6	3	83	194	42.78	57.	20.	18.	3.	3.	3.	3.	47.	42.	7.	4.
72338AZ	2640.00	49	13	9	2	1	25	74	33.78	66.	18.	12.	2.	2.	2.	2.	52.	36.	8.	4.
72338BA	2670.00	402	155	156	22	15	348	750	46.40	54.	21.	21.	2.	2.	2.	2.	45.	45.	6.	4.
72338BB	2700.00	234	98	119	16	15	248	482	51.45	49.	20.	25.	3.	3.	3.	3.	40.	48.	6.	6.
72338BC	2730.00	186	58	73	15	11	157	343	45.77	54.	17.	21.	4.	4.	4.	4.	37.	46.	10.	7.
72338BD	2760.00	207	92	101	23	16	232	434	52.85	47.	21.	23.	3.	3.	3.	3.	40.	44.	10.	7.
72338BE	2790.00	197	92	122	27	25	266	463	57.45	43.	20.	26.	5.	5.	5.	5.	35.	46.	10.	9.
72338BF	2820.00	150	53	69	17	14	150	300	50.00	50.	18.	26.	6.	6.	6.	6.	35.	44.	11.	9.
72338BG	2850.00	434	279	381	81	73	817	1301	62.80	37.	21.	30.	6.	6.	6.	6.	34.	47.	10.	9.
72338BH	2880.00	355	229	362	71	76	738	1093	67.52	32.	21.	33.	6.	6.	6.	6.	31.	49.	10.	10.
72338BI	2910.00	653	410	430	84	86	1010	1663	60.73	39.	25.	36.	6.	6.	6.	6.	41.	43.	8.	9.

TABLE 3: VITRINITE REFLECTANCE REPORT

BASIN - OTWAY
WELL - TRITON 1 SIDETRACK

SAMPLE NO.	DEPTH	AGE	FORMATION	AN	MAX. RO	FLUOR. COLOUR	NO.CNTS.	MACERAL TYPE		
72382 D	1530.00	LATE	OLIGOCENE	GELLIBRAND	MARL EQUIVALENT	5	.33	YELL	4	I>V>E, RARE LIPTODETRINIT
72383 M	1995.00	LATE	CRETACEOUS	BELFAST		5	.48	OR, GN-YELL	4	I>E>V, SPARSE EXINITE
72384 P	2325.00	LATE	CRETACEOUS	BELFAST		5	.52	YELL-OR	5	I>E=V, RARE EXINITE
72385 H	2505.00	LATE	CRETACEOUS	BELFAST		5	.59	YELL-OR	4	I>E>>V, INERTINITE COMMON
72386 L	2865.00	LATE	CRETACEOUS	BELFAST		5	.55	OR	4	I>?V>E, RARE LIPTODET.
72380 H	3028.00	LATE	CRETACEOUS	BELFAST		5	.71	OR?	18	I>V, SOME OXIDISED V.
72380 G	3125.00	LATE	CRETACEOUS	BELFAST		5	.93	NONE	7	OXIDISED V>I>V, RARE V
72380 C	3520.00	LATE	CRETACEOUS	WAARRE		5	.93	NONE	6	OXIDISED V>I>V
72380 B	3527.00	LATE	CRETACEOUS	WAARRE		5	.99	NONE	5	OXIDISED V>I>V

TABLE 4: TOTAL ORGANIC CARBON REPORT

BASIN - OTWAY
WELL - TRITON 1

SAMPLE NO. *****	DEPTH *****	AGE ***	FORMATION *****	AN *****	TOC% *****	AN *****	TOC% *****	AN *****	TOC% *****	DESCRIPTION *****
72369 W	1935.00	LATE CRETACEOUS	BELFAST	1	1.37	1	1.32	1	.57	DKGRYSH LTGRYSH LTBRLMST
72369 X	2025.00	LATE CRETACEOUS	BELFAST	1	1.53					MD-DK GRY SH
72369 Y	2145.00	LATE CRETACEOUS	BELFAST	1	1.52					DK GRY SH
===> DEPTH : 1934.00 TO 2145.00 METRES. <=== I ===> AVERAGE TOC : 1.26 % EXCLUDING VALUES GREATER THAN 10.00 % <===										

TABLE 5: TOTAL ORGANIC CARBON REPORT

BASIN - OTWAY
WELL - TRITON 1 SIDETRACK

SAMPLE NO. *****	DEPTH *****	AGE ***	FORMATION *****	AN *****	TOC% *****	AN *****	TOC% *****	AN *****	TOC% *****	DESCRIPTION *****
72382 J	1620.00	OLIGOCENE	GELLIBRAND MARL EQUIVALENT	2	.35					
72382 I	1640.00	OLIGOCENE	GELLIBRAND MARL EQUIVALENT	2	.39					
72382 M	1680.00	EARLY OLIGOCENE	GELLIBRAND MARL EQUIVALENT	2	.54					
72382 P	1710.00	EARLY OLIGOCENE	GELLIBRAND MARL EQUIVALENT	2	.41					
====> DEPTH : .00 TO 1711.00 METRES. <=== I ===> AVERAGE TOC : .42 % EXCLUDING VALUES GREATER THAN 10.00 % <===										
72382 R	1740.00	EARLY OLIGOCENE	UN NAMED SANDS/SILTS	2	1.66					
====> DEPTH : 1739.00 TO 1741.00 METRES. <=== I ===> AVERAGE TOC : 1.66 % EXCLUDING VALUES GREATER THAN 10.00 % <===										
72382 T	1785.00	LATE CRETACEOUS	BELFAST	2	1.06					
72383 B	1815.00	LATE CRETACEOUS	BELFAST	2	1.41					
72383 C	1845.00	LATE CRETACEOUS	BELFAST	2	1.44					
72383 F	1875.00	LATE CRETACEOUS	BELFAST	2	1.39					
72383 H	1905.00	LATE CRETACEOUS	BELFAST	2	1.30					
72383 G	1935.00	LATE CRETACEOUS	BELFAST	2	1.40					
72383 L	1975.00	LATE CRETACEOUS	BELFAST	2	1.44					
72383 N	1995.00	LATE CRETACEOUS	BELFAST	2	1.53					
72383 P	2025.00	LATE CRETACEOUS	BELFAST	2	1.72					
72383 R	2055.00	LATE CRETACEOUS	BELFAST	2	1.59					
72383 S	2085.00	LATE CRETACEOUS	BELFAST	2	1.55					
72384 E	2115.00	LATE CRETACEOUS	BELFAST	2	1.40					
72384 D	2145.00	LATE CRETACEOUS	BELFAST	2	1.32					
72384 F	2175.00	LATE CRETACEOUS	BELFAST	2	1.43					
72384 H	2205.00	LATE CRETACEOUS	BELFAST	2	1.35					
72384 I	2220.00	LATE CRETACEOUS	BELFAST	1	1.63					DK GRY SLTST.
72384 G	2235.00	LATE CRETACEOUS	BELFAST	2	1.53					
72384 L	2255.00	LATE CRETACEOUS	BELFAST	2	1.33					
72384 M	2265.00	LATE CRETACEOUS	BELFAST	2	1.39					
72384 P	2325.00	LATE CRETACEOUS	BELFAST	2	1.38					
72384 Q	2340.00	LATE CRETACEOUS	BELFAST	1	1.45					DK GRY SLST.MINOR RUST.
72384 R	2355.00	LATE CRETACEOUS	BELFAST	2	1.40					
72384 T	2385.00	LATE CRETACEOUS	BELFAST	2	1.40					
72385 A	2400.00	LATE CRETACEOUS	BELFAST	1	1.71					DK GRY SLTST.
72385 B	2415.00	LATE CRETACEOUS	BELFAST	2	1.52					
72385 D	2445.00	LATE CRETACEOUS	BELFAST	2	1.45					
72385 E	2460.00	LATE CRETACEOUS	BELFAST	1	1.49					DK GRY SLST.MINOR DOL.
72385 F	2475.00	LATE CRETACEOUS	BELFAST	2	1.35					
72385 J	2505.00	LATE CRETACEOUS	BELFAST	2	1.41					
72385 H	2505.00	LATE CRETACEOUS	BELFAST	2	1.33					
72385 I	2520.00	LATE CRETACEOUS	BELFAST	2	1.52					DK GRY SLST.MINOR DOL.
72385 L	2535.00	LATE CRETACEOUS	BELFAST	2	1.41					

TABLE 5 Cont'd: TOTAL ORGANIC CARBON REPORT

BASIN - OTWAY
WELL - TRITON 1 SIDETRACK

SAMPLE NO. *****	DEPTH *****	AGE ***	FORMATION *****	AN *****	TOC% *****	AN *****	TOC% *****	AN *****	TOC% *****	DESCRIPTION *****
72385 L	2565.00	LATE	CRETACEOUS	BELFAST	2	1.37				
72385 M	2590.00	LATE	CRETACEOUS	BELFAST	1	1.41				
72385 N	2595.00	LATE	CRETACEOUS	BELFAST	1	1.29				DK GRY SLST.SL BUFF SLST
72385 P	2625.00	LATE	CRETACEOUS	BELFAST	1	1.29				
72385 Q	2655.00	LATE	CRETACEOUS	BELFAST	1	1.37				
72385 R	2685.00	LATE	CRETACEOUS	BELFAST	1	1.39				
72386 A	2715.00	LATE	CRETACEOUS	BELFAST	1	1.23				
72386 B	2730.00	LATE	CRETACEOUS	BELFAST	1	1.15				DK GRY SLTST.MINOR DOL.
72386 C	2745.00	LATE	CRETACEOUS	BELFAST	1	1.26				
72386 D	2775.00	LATE	CRETACEOUS	BELFAST	1	1.18				
72386 E	2805.00	LATE	CRETACEOUS	BELFAST	1	1.29				
72386 F	2835.00	LATE	CRETACEOUS	BELFAST	1	1.02				
72386 G	2850.00	LATE	CRETACEOUS	BELFAST	1	1.04				DKGRY SLST.METAL FRAGS.
72386 H	2855.00	LATE	CRETACEOUS	BELFAST	1	1.01				
72386 I	2895.00	LATE	CRETACEOUS	BELFAST	1	.99				
72386 J	2910.00	LATE	CRETACEOUS	BELFAST	1	1.16				DKGRY SLST.DRIL-BIT METL
72386 K	2925.00	LATE	CRETACEOUS	BELFAST	1	1.14				
72386 L	2955.00	LATE	CRETACEOUS	BELFAST	1	1.04				
72386 M	2985.00	LATE	CRETACEOUS	BELFAST	1	1.13				
72387 A	3015.00	LATE	CRETACEOUS	BELFAST	1	1.03				
72387 B	3028.00	LATE	CRETACEOUS	BELFAST	1	1.09				DK GRY SLTST.
72387 C	3045.00	LATE	CRETACEOUS	BELFAST	1	.89				
72387 D	3075.00	LATE	CRETACEOUS	BELFAST	1	.89				
72387 E	3105.00	LATE	CRETACEOUS	BELFAST	1	1.02				
72387 F	3125.00	LATE	CRETACEOUS	BELFAST	1	.91				
72380 G	3125.00	LATE	CRETACEOUS	BELFAST	1	.75				LT OLGRY VVF SST.
====> DEPTH : 1784.00 TO 3125.00 METRES. <==== I ====> AVERAGE TOC : 1.30 % EXCLUDING VALUES GREATER THAN 10.00 % <====										
72380 F	3408.00	LATE	CRETACEOUS	WAARRE	1	.75				M GRY SLTST.
72380 E	3472.00	LATE	CRETACEOUS	WAARRE	1	.37				LT GRY F SST
72380 D	3515.00	LATE	CRETACEOUS	WAARRE	1	.90				M-DK GRY SDY SLTST.
72380 C	3520.00	LATE	CRETACEOUS	WAARRE	1	.64				OLGRY SLTST,MDY SAMPLE.
72380 B	3527.00	LATE	CRETACEOUS	WAARRE	1	.47				M GRY SDY SLTST
72380 A	3533.50	LATE	CRETACEOUS	WAARRE	1	.59				M GRY VF SST,MICA,CALC.
====> DEPTH : 3407.00 TO 3533.50 METRES. <==== I ====> AVERAGE TOC : .62 % EXCLUDING VALUES GREATER THAN 10.00 % <====										

TABLE 6: KEROGEN ELEMENTAL ANALYSIS REPORT

BASIN - OTWAY
WELL - TRITON 1 SIDETRACK

SAMPLE NO.	DEPTH	SAMPLE TYPE	ELEMENTAL % (ASH FREE)					COMMENTS	
			N%	C%	H%	S%	O%		ASH%
72380 J	1730.00	KEROGEN	2.25	64.41	3.64	.00	29.69	4.21	
72400 A	1750.00	KEROGEN	2.45	64.41	3.64	.00	29.49	4.21	
72380 O	1845.00	KEROGEN	2.70	75.69	4.41	.00	17.20	5.65	
72380 P	1895.00	KEROGEN	2.83	69.90	3.95	.00	23.32	5.55	
72380 Q	1945.00	KEROGEN	2.81	74.19	4.30	.00	18.70	3.92	
72380 R	1995.00	KEROGEN	2.61	75.84	4.32	.00	17.23	4.92	
72380 S	2095.00	KEROGEN	2.39	73.77	3.86	.00	19.98	4.87	
72380 U	2295.00	KEROGEN	2.56	80.30	4.54	.00	12.60	3.35	
72380 V	2395.00	KEROGEN	2.36	71.82	3.13	.00	22.69	2.56	
72380 W	2495.00	KEROGEN	2.43	81.49	4.50	.00	11.54	3.26	
72380 Y	2595.00	KEROGEN	2.01	83.50	4.55	.00	9.94	2.48	
72399 N	2795.00	KEROGEN	2.01	78.54	4.20	.00	15.25	6.43	
72380 Z	2895.00	KEROGEN	2.18	72.15	2.97	.00	22.70	2.11	
72399 P	2910.00	KEROGEN	1.87	72.31	5.09	.00	13.73	2.57	
72349 R	2995.00	KEROGEN	1.87	83.70	4.46	.00	9.97	2.22	
72349 S	3095.00	KEROGEN	1.79	78.47	3.98	.00	15.75	17.42	HIGH ASH
72349 T	3260.00	KEROGEN	1.76	72.80	2.80	.00	22.63	3.11	
72349 U	3280.00	KEROGEN	2.01	81.78	4.63	.00	11.58	2.42	
72349 F	3305.00	KEROGEN	1.89	80.50	3.55	.00	14.05	3.21	
72399 V	3325.00	KEROGEN	1.97	77.74	3.29	.00	17.01	2.34	
72399 X	3375.00	KEROGEN	2.18	85.95	4.42	.00	7.45	15.30	HIGH ASH
72380 F	3408.00	KEROGEN	1.87	82.15	5.14	.00	10.84	5.42	
72380 D	3515.00	KEROGEN	1.60	87.54	4.35	.00	6.50	2.37	
72380 A	3533.50	KEROGEN	2.20	83.78	4.48	.00	9.54	7.63	
72399 Y	4000.00	KEROGEN	1.85	76.05	2.93	.00	19.17	2.47	

TABLE 7: KERODEN ELEMENTAL ANALYSIS REPORT

BASIN - OTWAY
WELL - TRITON 1 SIDETRACK

SAMPLE NO.	DEPTH	SAMPLE TYPE	AGE	FORMATION	ATOMIC RATIOS			COMMENTS
					H/C	O/C	N/C	
72380 J	1730.00	KEROGEN	EARLY OLIGOCENE	UN-NAMED SANDS AND SILTS	.68	.35	.03	
72400 A	1750.00	KEROGEN	LATE CRETACEOUS	BELFAST FORMATION	.68	.34	.03	
72380 O	1845.00	KEROGEN	LATE CRETACEOUS	BELFAST FORMATION	.70	.17	.03	
72380 P	1895.00	KEROGEN	LATE CRETACEOUS	BELFAST FORMATION	.68	.25	.03	
72380 Q	1945.00	KEROGEN	LATE CRETACEOUS	BELFAST FORMATION	.70	.19	.03	
72380 R	1995.00	KEROGEN	LATE CRETACEOUS	BELFAST FORMATION	.68	.17	.03	
72380 S	2095.00	KEROGEN	LATE CRETACEOUS	BELFAST FORMATION	.63	.20	.03	
72380 U	2295.00	KEROGEN	LATE CRETACEOUS	BELFAST FORMATION	.68	.12	.03	
72380 V	2395.00	KEROGEN	LATE CRETACEOUS	BELFAST FORMATION	.52	.24	.03	
72380 W	2495.00	KEROGEN	LATE CRETACEOUS	BELFAST FORMATION	.66	.11	.03	
72380 Y	2695.00	KEROGEN	LATE CRETACEOUS	BELFAST FORMATION	.65	.09	.02	
72399 N	2795.00	KEROGEN	LATE CRETACEOUS	BELFAST FORMATION	.64	.15	.02	
72380 Z	2895.00	KEROGEN	LATE CRETACEOUS	BELFAST FORMATION	.49	.24	.03	
72399 P	2910.00	KEROGEN	LATE CRETACEOUS	BELFAST FORMATION	.77	.13	.02	
72399 B	2995.00	KEROGEN	LATE CRETACEOUS	BELFAST FORMATION	.64	.09	.02	
72399 C	3095.00	KEROGEN	LATE CRETACEOUS	BELFAST FORMATION	.61	.15	.02	HIGH ASH
72399 T	3280.00	KEROGEN	LATE CRETACEOUS	BELFAST FORMATION	.46	.23	.02	
72399 F	3280.00	KEROGEN	LATE CRETACEOUS	BELFAST FORMATION	.68	.11	.02	
72399 F	3305.00	KEROGEN	LATE CRETACEOUS	BELFAST FORMATION	.53	.13	.02	
72399 V	3320.00	KEROGEN	LATE CRETACEOUS	BELFAST FORMATION	.51	.16	.02	
72399 Y	3375.00	KEROGEN	LATE CRETACEOUS	BELFAST FORMATION	.62	.07	.02	HIGH ASH
72380 F	3408.00	KEROGEN	LATE CRETACEOUS	WAARRE	.75	.10	.02	
72380 D	3515.00	KEROGEN	LATE CRETACEOUS	WAARRE	.60	.06	.02	
72380 A	3733.50	KEROGEN	LATE CRETACEOUS	WAARRE	.64	.09	.02	
72399 Y	4000.00	KEROGEN	LATE CRETACEOUS	WAARRE	.46	.19	.02	

TABLE: 8 - TRITON-1 (Sidetrack)

C₁₅+ LIQUID CHROMATOGRAPHY DATA

TRTN 1-15/PE901819/P 103

DEPTH IN METRES	FORMATION/EQUIVALENT	AGE	TOTAL EXTRACT (ppm)	HC's (ppm)	NON HC's (ppm)	SULPHUR (ppm)	EXTRACT COMPOSITION %				
							SATS.	AROM.	N.S.O	ASPH.	SULPHUR
1785	Belfast Formation	Late Cretaceous	547	74	473	-	5.3	8.2	14.5	72.0	-
2085	Belfast Formation	Late Cretaceous	1030	129	901	-	3.9	8.6	15.0	72.5	-
2415	Belfast Formation	Late Cretaceous	682	92	590	-	3.8	9.7	11.4	75.1	-
2715	Belfast Formation	Late Cretaceous	517	103	414	5	5.6	14.3	12.6	66.5	1.0
3075	Belfast Formation	Late Cretaceous	734	167	567	-	8.6	14.3	13.3	63.9	-
3375	Belfast Formation	late Cretaceous	553	114	439	5	5.6	15.0	14.5	64.0	0.9

PE600595

This is an enclosure indicator page.
The enclosure PE600595 is enclosed within the
container PE901819 at this location in this
document.

The enclosure PE600595 has the following characteristics:

- ITEM-BARCODE = PE600595
- CONTAINER_BARCODE = PE901819
- NAME = FIGURE 1. C 1-4 CUTTINGS GAS LOG
TRITON-1
- BASIN = OTWAY
- PERMIT = VIC/P15
- TYPE = WELL
- SUBTYPE = WELL-LOG
- DESCRIPTION = FIGURE 1. C 1-4 CUTTINGS GAS LOG
TRITON-1
- REMARKS =
- DATE-CREATED =
- DATE-RECEIVED = 28/10/82
- W_NO = W766
- WELL-NAME = TRITON-1
- CONTRACTOR = ESSO
- CLIENT_OP_CO = ESSO AUSTRALIA LTD

(Inserted by DNRE - Vic Govt Mines Dept)

PE600596

This is an enclosure indicator page.
The enclosure PE600596 is enclosed within the
container PE901819 at this location in this
document.

The enclosure PE600596 has the following characteristics:

ITEM-BARCODE = PE600596
CONTAINER_BARCODE = PE901819
NAME = FIGURE 2. C 1-4 CUTTINGS GAS LOG
TRITON-1 (SIDETRACK)
BASIN = OTWAY
PERMIT = VIC/P15
TYPE = WELL
SUBTYPE = WELL-LOG
DESCRIPTION = FIGURE 2. C 1-4 CUTTINGS GAS LOG
TRITON-1 (SIDETRACK)
REMARKS =
DATE-CREATED' =
DATE-RECEIVED = 28/10/82
W_NO = W766
WELL-NAME = Triton 1 sidetrack
CONTRACTOR = ESSO
CLIENT_OP_CO = ESSO AUSTRALIA LTD

(Inserted by DNRE - Vic Govt Mines Dept)

PE600597

This is an enclosure indicator page.
The enclosure PE600597 is enclosed within the
container PE901819 at this location in this
document.

The enclosure PE600597 has the following characteristics:

ITEM-BARCODE = PE600597
CONTAINER_BARCODE = PE901819
NAME = FIGURE 3. C 4-7 GEOCHEMICAL LOG
TRITON-1 (SIDETRACK)
BASIN = OTWAY
PERMIT = VIC/P15
TYPE = WELL
SUBTYPE = WELL-LOG
DESCRIPTION = FIGURE 3. C 4-7 GEOCHEMICAL LOG
TRITON-1 (SIDETRACK)
REMARKS =
DATE-CREATED =
DATE-RECEIVED = 28/10/82
W_NO = W766
WELL-NAME = Triton 1 sidetrack
CONTRACTOR = ESSO
CLIENT_OP_CO = ESSO AUSTRALIA LTD

(Inserted by DNRE - Vic Govt Mines Dept)

APPENDIX 8

GEOCHEMICAL REPORT

TRITON#1 AND TRITON#1 SIDETRACK

OTWAY BASIN