



Well Summary Stoneyford-1 (W849)

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1 Folio No	2 Referred to	3 Date	4 Clearing Officer's Initials	1 Folio No	2 Referred to	3 Date	4 Clearing Officer's Initials				
<p>PEP 100</p> <p>Otway Basin</p>											
<p align="center"><b>FILE COVER INSTRUCTIONS FOR ACTION OFFICERS</b></p> <table> <tr> <td data-bbox="483 2211 1071 2300">           1 FOLIO NUMBERS: Each subject paper attached to a file is to be given a consecutive number by the attaching officer. Papers must not be removed from or attached to a file without approval.         </td> <td data-bbox="1092 2211 1680 2359">           3 BRING UP MARKINGS: When action on a file is required at a later date, the officer will initial Column (4) and, on the next vacant line, enter the relevant folio number in Column (1), then write "B/U" followed by the action officer's name in Column (2) and the date the file is required in Column (3).         </td> </tr> <tr> <td data-bbox="483 2300 1071 2448">           2 REFERRAL TO OTHER OFFICERS: When an Officer completes action on the file and further action is required by some other Officer, please initial Column (4) and on the next vacant line, enter the relevant folio number in Column (1), indicate to whom the file is to be forwarded in Column (2) and record the date in Column (3).         </td> <td data-bbox="1092 2359 1680 2448">           4 PUTAWAY MARKINGS: When ALL action on a file is completed the officer concerned will initial Column (4) and, on the next vacant line, write "P/A" in column (2).         </td> </tr> </table> <p align="center">REGISTRY MUST BE NOTIFIED OF ANY FILE MOVEMENTS BETWEEN OFFICERS</p>								1 FOLIO NUMBERS: Each subject paper attached to a file is to be given a consecutive number by the attaching officer. Papers must not be removed from or attached to a file without approval.	3 BRING UP MARKINGS: When action on a file is required at a later date, the officer will initial Column (4) and, on the next vacant line, enter the relevant folio number in Column (1), then write "B/U" followed by the action officer's name in Column (2) and the date the file is required in Column (3).	2 REFERRAL TO OTHER OFFICERS: When an Officer completes action on the file and further action is required by some other Officer, please initial Column (4) and on the next vacant line, enter the relevant folio number in Column (1), indicate to whom the file is to be forwarded in Column (2) and record the date in Column (3).	4 PUTAWAY MARKINGS: When ALL action on a file is completed the officer concerned will initial Column (4) and, on the next vacant line, write "P/A" in column (2).
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							<b>LOCATION</b>				

Well Summary; Stoneyford-1

# **Contents**

## **Well Summary Stoneyford-1 (W849)**

- 1.0 Well Completion Report**
- 2.0 Composite Well Log (sheet 2 of 2)**
- 3.0 Formation Evaluation Log (14 pages)**

1.0 Well Completion  
Report

APPENDIX V.

GEOCHEMICAL EVALUATION OF  
STONEYFORD - 1 CUTTINGS.

by

Analabs.

# ANALABS

A Division of Macdonald Hamilton & Co. Pty. Ltd.

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PT/fmh

19th March, 1984.

Dr. G. R. Pearson  
Exploration Manager  
Gas and Fuel Exploration N.L.  
171 Flinders Street  
MELBOURNE VIC 3000

Dear Dr. Pearson,

Please find enclosed the results of the organic geochemical analyses performed on eight (8) samples from the Stoneyford No. 1 well, drilled in the Otway Basin, Victoria. The purpose of this study has been to evaluate the hydrocarbon source potential of these eight samples.

Upon arrival at Analabs, the samples from this well were assigned the Analabs Job Number 31999, and then submitted to the following analytical program.

<u>Type of Analysis</u>	<u>Table</u>
% total organic carbon determination	1
Pyrolysis analysis	1
% inorganic carbon determination	2
Brief lithological description	3

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A description of these analyses is provided in the Theory and Methods section located at the back of this report.

### DISCUSSION OF THE RESULTS

#### A. Thermal Maturity Determination

Based on Tmax pyrolysis temperatures (Table 1), this sedimentary sequence has experienced a low to possible moderate thermal maturity history. This is based on the two Tmax temperatures obtained from the samples at 750m and 900m. These samples are the only samples which gave significant S<sub>2</sub> peak yields for accurate Tmax temperature measurements. Tmax temperatures are recorded at maximum S<sub>2</sub> peak generation, and for the temperatures to be regarded as reliable maturity indicators, a minimum of 1.0mg/g S<sub>2</sub> yield is required. The values obtained from these two samples (439°C and 441°C) are interpreted to correspond to moderately mature maturation levels, which places these sediments in the top portion of the oil window. The production index values for all of the samples submitted to pyrolysis analysis are considered low and tend to support the low geothermal history of these rocks, as determined by Tmax temperatures. These marginal/moderately mature sediments are in the early stage of hydrocarbon generation. It should be noted that using Tmax pyrolysis temperatures as the only data for evaluating the maturity of a well can be difficult and sometimes misleading. It is preferable to compliment this data with other maturity data, such as vitrinite reflectance and thermal alteration index.

#### B. Hydrocarbon Source Rock Characterisation

All eight (8) samples were analysed for % total organic carbon. These results along with an interpretation of the amount of T.O.C. is provided in the following:

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<u>Depth (m)</u>	<u>%T.O.C.</u>	<u>Interpretation</u>
200	0.46	Low
350	2.34	Very good
450-500	0.86	Moderate
600	0.54	Moderate
750	4.27	Very good
900	7.71	Excellent
1050	0.40	Low
1160	0.45	Low

The six (6) samples from 450m to 1160m, were submitted to II Run Rock Eval pyrolysis, as instructed in the letter dated 14th February 1984. The two samples with very good to excellent amounts of organic matter from 750m and 900m are the only samples found to have significant pyrolysis yields. The remaining four samples produced low yields ( $S_1+S_2$ ; Table 1) and are interpreted to have poor hydrocarbon source rock characteristics.

The samples from 750m and 900m have good potential yields ( $S_1+S_2$ ; Table 1), of which only 3% to 6% (PI; Table 1) is comprised of free hydrocarbon ( $S_1$ ; Table 1). This is probably due to the low degree of thermal maturity of these sediments. The sample at 900m gave very high free hydrocarbon yields ( $S_1 = 0.91\text{mg/g}$ ; Table 1), however this is probably mainly aromatic hydrocarbon, which is not a dominant constituent of liquid petroleum.

Based on the moderately high hydrogen index values, and the low oxygen index values (HI, OI, Table 1), the organic matter is interpreted to be comprised of a mixture of oil and gas prone organic matter types. These would probably correspond to exinite (oil-prone), vitrinite (gas-prone and inertinite (?gas-prone) maceral types.

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As a result, the sediments located at 750m and 900m in the Stoneyford No. 1 well have the potential to be good oil and gas source rocks at a high level of thermal alteration. Presently, these sediments would be capable of generating only immature hydrocarbon.

Should you have any questions concerning this data or interpretations, or if we may be of further assistance, please do not hesitate to contact us.

Yours faithfully,

A handwritten signature in cursive script that reads "Paul Tybor". The signature is written in dark ink and is positioned above the typed name.

PAUL TYBOR



TABLE 1

ROCK-EVAL PYROLYSIS DATA (two run)

NAME = STONEYFORD #1

DATE OF JOB = FEBRUARY 1984

DEPTH(m)	TMAX	S1	S2	S3	S1+S2	S2/S3	PI	PC	TOC	HI	OI
200.0	nd	nd	nd	nd	nd	nd	nd	nd	0.46	nd	nd
350.0	nd	nd	nd	nd	nd	nd	nd	nd	2.34	nd	nd
450.0- 500.0	433	0.02	0.58	0.19	0.60	3.05	0.03	0.05	0.86	67	22
600.0	437	0.04	0.32	0.18	0.36	1.78	0.11	0.03	0.54	59	33
750.0	439	0.17	6.00	1.04	6.17	5.77	0.03	0.51	4.27	140	24
900.0	441	0.91	13.31	1.99	14.22	6.69	0.06	1.18	7.71	172	25
1050.0	448	0.02	0.17	0.15	0.19	1.13	0.11	0.02	0.40	42	37
1160.0	434	0.05	0.29	0.05	0.34	5.80	0.15	0.03	0.45	64	11

TMAX = Max. temperature  
 S1+S2 = Potential yield  
 PC = Pyrolysable carbon  
 OI = Oxygen Index

S1 = Volatile hydrocarbons (HC)  
 S3 = Organic carbon dioxide  
 TOC = Total organic carbon  
 nd = no data

S2 = HC generating potential  
 PI = Production index  
 HI = Hydrogen index

# STONEYFORD 1

## VITRINITE REFLECTANCE

DEPTH (m)	RV	RANGE	NUMBER SAMPLES
200	0.28	0.23-0.35	3
350	0.36	0.32-0.41	5
450	0.53	0.34-0.64	28
600	0.64	0.48-0.84	37
750	0.65	0.56-0.73	40
900	0.75	0.62-0.82	46
1050	0.82	0.67-1.06	27
1160	0.84	0.68-1.04	9

## BIOSTRATIGRAPHY

450 -600m *D. speciosus*

700-1155.5 *C. hughesi*