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PALYNOLOGY REPORT

ON LOY YANG-1A

GIPPSLAND BASIN

FOR

CAPITAL ENERGY N.L.

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FILE LOYANGRA.DOC

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CONTENTS

I SUMMARY

A summary of the biostratigraphic and environmental subdivision for Loy Yang-1A is given below.

DEPTH (m)	PALYNOLOGICAL ZONE	AGE	ENVIRONMENT OF DEPOSITION
805 DC	*C. hughesi* (?Upper *C. hughesi* - Dettmann)	Early Aptian	Non-marine
907 DC	Indeterminate	Indeterminate	Non-marine
1006 DC, 1100 DC,	Upper *F. wonthagiensis* (?Mid *C. hughesi* - Dettmann)	Barremian	Non-marine
1210-1216 DC	Upper *F. wonthagiensis* (Lower *C. hughesi* - Dettmann)	Barremian	Non-marine
1378 DC	Indeterminate		Non-marine
1453 DC, 1489 DC, 1534 DC	mid *F. wonthagiensis* (Lower *C. hughesi* -Dettmann)	Hauterivian - Valanginian	Non-marine

II INTRODUCTION

A suite of 9 cuttings samples from Loy Yang-1A was submitted by Capital Energy NL for biostratigraphic analysis. A list of the samples examined is shown in Table 1.

III PALYNOLOGY

The palynological analyses were undertaken by D.P.C. Hos. The palynological zonation scheme used in this study follows that of Helby et al. (1987) and the scheme of Dettmann (1986) has also been applied. As the samples are all cuttings samples, the presence or possibility of cavings makes it difficult to assess the value of first (stratigraphic) appearances of key species. There are also some differences between the two schemes which have not yet been fully resolved (Burger, 1982). The palynomorphs recorded in the samples are shown in Figure 1.

The palynological preparation method used follows the standard maceration and heavy liquid separation techniques to concentrate the kerogen. A kerogen slide, a filtered kerogen slide and two oxidised and filtered (10 micron mesh) slides were prepared for each sample where there was sufficient residue.

DEPTH	ZONE	AGE	ENVIRONMENT OF DEPOSITION
805m DC	***C. hughesi*** **Zone (?Upper** ***C. hughesi*** **Zone - Dettmann)**	**Early Aptian**	**Non-marine**
	The presence of *Cyclosporites hughesi* and *Foraminisporis assymetricus* suggests a probable correlation with the zones.		The presence of fresh water algal cysts and an absence of any marine indicators suggests a non-marine environment.
907m DC	**Indeterminate**	**Indeterminate**	**Non-marine**
	The sample was too lean and poorly preserved to enable an assignment.		No marine indicators are present.
1006m DC	**Upper** ***F. wonthagiensis*** **Zone (?Mid** ***C. hughesi*** **Zone - Dettmann)**	**Barremian**	**Non-marine**
	The presence *Cyclosporites hughesi*, *Dictyotosporites speciosus* and *Pilosisporites notensis* with an apparent absence of *Foraminisporis assymetricus* suggests a possible correlation to the mid *C. hughesi* Zone of Dettmann and this is probably equivalent to the upper part of the *F. wonthagiensis* Zone of Helby et al.		No marine indicators are present.

1100m DC	**Upper *F. wonthagiensis* Zone (?Mid *C. hughesi* Zone - Dettmann)**	**Barremian**	**Non-marine**
	Cyclosporites hughesi is apparently absent as is *Foraminisporis assymetricus* and indicates a possible correlation to the lower *C. hughesi* Zone of Dettmann which is probably equivalent to the upper part of the *F. wonthagiensis* Zone of Helby et al. However, the older species observed in the underlying sample are not present at this level thus a probable mid *C. hughesi* Zone (Dettmann) is suggested.		Only non-marine palynomorph species are present.
1210-1216m DC	**Upper *F. wonthagiensis* Zone (Lower *C. hughesi* Zone - Dettmann)**	**Barremian**	**Non-marine**
	The presence of several new species (a '*Murospora florida* Assemblage') is taken to indicate a probable lower *C. hughesi* Zone (Dettmann) assignment. These species include *Contignisporites cooksoniae*, *C. multi-muratus*, *Cooksonites variabilis*, *Podosporites castel-lanosii* and *Staplinisporites caminus*. In this well, the sample appears to record the last (uphole) appearance of *Foraminisporis wonthagiensis*. Whether there is a recycling event resulting in the presence of *Polycingulatisporites crenulatus* and *Cadargasporites baculatus* is uncertain.		Only non-marine palynomorph species are present.
1378m DC	**Indeterminate**		**Non-marine**
	The sample was very inertinitic, with a poor, degraded and oxidised yield. Insufficient age diagnostic species were present.		Only non-marine palynomorph species are present.
1453m DC, 1489m DC, 1534m DC	**mid *F. wonthagiensis* Zone (Lower *C. hughesi* Zone - Dettmann)**	**Hauterivian - Valanginian**	**Non-marine**
	The assemblages are similar to the sample at 1216m with the continued presence of *Pilosisporites notensis*, *Dictyotosporites speciosus* and *Foraminisporis wonthagiensis* suggesting a probable lower *C. hughesi* Zone (Dettmann) assignment and a correlation to the mid *F. wonthagiensis* Zone of Helby et al. (1987).		Only non-marine palynomorph species are present.

IV REFERENCES

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Table 1. List of samples examined in Loy Yang-1A

DEPTH (m)	SERVICE		
805 DC	P		
907 DC	P		
1006 DC	P		
1100 DC	P		
1210–1216 DC	P		
1378 DC	P		
1453 DC	P		
1489 DC	P		
1534 DC	P		
	P		

Total Number of Palynology = 9

FIGURE 1. Palynology distribution chart for Loy Yang-1A

SPECIES \ DEPTH (m)	805	907	1006	1100	1216	1378	1453	1489	1534
Acanthotriletes sp.								+	+
Aequitriradites acusus					+	+	+	+	+
Aequitriradites hispidus	cf		cf	+					
Aequitriradites sp.				+	+			+	
Alisporites grandis		+			+			+	+
Alisporites similus						+		+	+
Araucariacites australis				+					
Biretisporites spectabilis						+			
Cadargasporites baculatus					+				
Callialasporites dampieri							+		
Camarozonosporites clivosus				+					
Ceratosporites equalis	+		+	+	+		+		
Cicatricosisporites australiensis	+		+	+	+	+	+	+	+
Classopollis torosus	+				+		+		
Concavissimisporites sp.		+							
Concavissimisporites penolaensis			?						+
Contignisporites cooksonieae					+	+	+	+	+
Contignisporites multimuratus					c	+	+	+	+
Cooksonites variabilis			cf		+		?	+	+
Couperisporites tabulatus	cf								
Crybelosporites sp.				?					
Cyathidites australis	+	+	+	+	+	+	+	+	+
Cyathidites minor	+		+	+	+	+	+	+	
Cycadopites follicularis	+		+	+	+	+			
Cyclosporites hughesi	+		+						+
Dictyophyllidites harrisii				+					
Dicyotosporites speciosus		+	+	+	+		+	+	+
Foraminisporis asymetricus	+								
Foraminisporis daylii	+						+		
Foraminisporis wonthagiensis					+		+	+	+
Klukisporites scaberis	+	+	+	+	?		+	+	+
Leptolepidites major						+	+		
Leptolepidites verrucatus	+	+	+	+	+		+	+	+
Microcachryidites antarcticus	+	+		+		+			+
Neoraistrickia truncata							+		+
Osmundacidites wellmanii	+	+		+	+		+	+	+
Perinopollenites sp.				+					
Pilosisporites notensis	+		+		2		+	+	+
Pilosisporites parvispinosus	+								
Pinuspollenites parvisaccatus		+	+	+	+		+		
Podosporites castellanosii					+				
Polycinulatisporites crenulatus					+				
Polypodiidites sp.		+					+		
Retitriletes austroclavatidites	+		+	+			+		
Retitriletes circolumenus		+							+
Retitriletes eminulus	+		+				+		
Retitriletes facetus			+						+
Retitriletes nodosus	+					+	+		
Retitriletes reticulumsporites	+	+	+		+		+	+	+
Retitriletes semimuris							cf		+
Semiretisporites denmeadii			?^	?					?
Staplinisporites caminus					+				
Stereisporites antiquasporites			+	+			+		
Trilobosporites trioreticulosus				?!					
MICROPLANKTON									
Leiosphaeridia sp.	c			+	+				
Schizosporis reticulatus	+	+	+	cf					

Key: + = present, ? = uncertain, =cf = compared with, ^ = recycled, r = rare, c = common, ! = caved.

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