Sedimentological Lithofacies, Internal Architecture and Evolution of Deep Marine Fans of the Tithonian Angel Formation, Northwestern Dampier Sub-basin, North West Shelf, Australia

Kerrie Elise Deller B.Sc (Hons)

Australian School of Petroleum The University of Adelaide

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APPENDIX A: Data Charts

A.1 Logged Core Lengths, Depths and Recoveries

A total of eleven cores were logged and interpreted totalling 547 metres. They are represented in Appendix B.

Well Name	No. of Core Intervals	Core Number	Top Depth (m)	Base Depth (m)	Recovered length (m)	Length (m)	Recovery %								
Angel-4		1	2698	2716.5	13.3	18.5	71.9								
Angel-4	4	2	2716.5	2744	27.5	27.5	100.0								
Angel-4	4	3	2744	2771	27	27	100.0								
Angel-4		4	2771.5	2799	26.8	27.5	97.5								
Cossack-1	2	1	2891	2909.6	18.4	18.6	98.9								
Cossack-1	2	2	2909.6	2928.7	19.1	19.1	100.0								
Egret-2	2	1	3246	3273.15	27.15	27.15	100.0								
Egret-2	2	2	3273.15	3301.25	28.1	28.1	100.0								
Lambert-2	3	1	3055	3082	25.6	27	94.8								
Lambert-2		2	3082	3109.5	27.4	27.5	99.6								
Lambert-2		3	3109.5	3137.3	27.8	27.8	100.0								
Montague-1	1	1	3219.5	3237.5	18	18	100.0								
Mutineer-1B	1	1	3121.5	3148.5	26.38	27	97.7								
Mutineer-3	2	1	3143	3146	1.9	3	63.3								
Mutineer-3	2	2	3145	3174	28	29	96.6								
Spica-1	1	1	3117.5	3157.8	39.03	40.3	96.8								
Wanaea-2A		1	2075	2077	0.9	2	45.0								
Wanaea-2A		2	2869	2886	16.8	17	98.8								
Wanaea-2A	4	3	2886	2907	20.7	21	98.6								
Wanaea-2A		4	2907	2934.5	23.1	27.5	84.0								
Wanaea-3		1	2208	2212.2	3.5	4.2	83.3								
Wanaea-3	5	2	2830	2854.8	24	24.8	96.8								
Wanaea-3		5	5	5	5	5	5	5	5	3	2854.8	2878.5	23.2	23.7	97.9
Wanaea-3		4	2878.5	2906.6	27.8	28.1	98.9								
Wanaea-3		5	2906.7	2933	26.3	26.3	100.0								

Table A-1: Logged core intervals.

A.2 Cores Viewed and Photographed

These cores were viewed and photographed for the analysis. They were not logged due to timeconstraints or short core intervals.

Well Name	No. of Core Intervals	Core Interval	Top Depth (m)	Base Depth (m)	Recovered length (m)	Length (m)	Recovery %								
Wanaea 5	2	1	2950	2977.9	No data	27.9	N/A								
Wanaea 5	2	2	2977.9	3004.3	No data	26.4	N/A								
Wanaea 4		1	2558	2566	No data	8	N/A								
Wanaea 4	5	5	2	2897	2924.5	No data	27.5	N/A							
Wanaea 4			5	5	5	5	5	5	5	3	2924.5	2939	No data	14.5	N/A
Wanaea 4			4	2939	2950	No data	11	N/A							
Wanaea 4		5	2950	2978	No data	28	N/A								
Lambert 1	1	1	3104	3109.6	5.6	5.6	100.0								

Table A-2: Viewed cores

A.3 Seismic Data

The seismic dataset available for interpretation is listed in Table A-3. They were loaded into the IESX 2D and 3D seismic interpretation module available in Geoframe.

Name	Line Prefix	Survey Type	Total Line Kilometres	Year
Marathon Angel 1982 M.S.S.	82MPA	2DREFL	3549	1982
Gumnut M.S.S.	90MPG	2DREFL	355.88	1990
Argo (1995) M.S.S.	95S	2DREFL	761.325	1995
Michelle M.S.S.	PG93	2DREFL	3100.5	1993
Angel/Wanaea/Goodwyn North M.S.S.	89	2DREFL	20138	1989
Mutiny 3D M.S.S.	97SM	3DREFL	32271.075	1997
Dampier East 3D M.S.S.		3DREFL	139963	1992

Table A-3: Seismic surveys incorporated into study

A.4 Available Well Logs with Associated Curves

Wells incorporated into the project are listed below. They were obtained from Santos and the Western Australian Government. Many logs were not incorporated into the study due to reservoir cementation issues (Figure 5-7).

Well				Wireline	e Data		
VVCII	GR	DT	RHOB	NPHI	Resistivity	PEF	Image
ALPHA NORTH 1	✓	✓	√	✓	✓	\checkmark	x
ANDROMEDA 1	✓	✓	√	✓	√	✓	x
ANGEL 1	✓	✓	×	x	✓	×	x
ANGEL 2	√	✓	×	×	✓	×	x
ANGEL 3	√	✓	×	×	✓	×	x
ANGEL 4	✓	✓	✓	✓	✓	✓	x
ATHENA 1	√	×	×	✓	✓	✓	×
AURORA 1	✓	✓	✓	✓	✓	✓	×
BANAMBU 1	✓	✓	\checkmark	✓	✓	✓	×
BLIGH 1	✓	×	×	×	✓	×	×
BOUNTY 1	✓	✓	✓	✓	✓	✓	×
BOUNTY 2	✓	×	×	×	✓	×	×
BOUNTY 3	✓	×	×	×	\checkmark	×	×
BRIGADIER 1	✓	✓	✓	✓	✓	×	×
CALYPSO 1	✓	✓	\checkmark	✓	✓	✓	×
CAPELLA 1	✓	×	✓	✓	×	✓	×
CARTERET 1	✓	×	×	×	×	×	×
CAVALIER 1	✓	×	\checkmark	×	×	✓	×
COSSACK 1	✓	✓	✓	✓	✓	✓	×
COSSACK 2	✓	✓	✓	✓	✓	✓	×
COSSACK 3	✓	\checkmark	✓	\checkmark	✓	\checkmark	×
COSSACK 4	✓	×	✓	✓	✓	✓	×
DEGREY 1	✓	✓	×	×	✓	×	×
EAGLEHAWK 1	✓	\checkmark	×	×	✓	×	×
EGRET 1	✓	✓	×	×	✓	×	×
EGRET 2	\checkmark	\checkmark	\checkmark	\checkmark	×	\checkmark	×
EGRET 3	×	×	×	×	×	x	×
EXETER 1	✓	\checkmark	\checkmark	×	\checkmark	×	×
EXETER 2	✓	✓	\checkmark	×	✓	×	×
EXETER 3	✓	\checkmark	\checkmark	✓	\checkmark	×	x
EXETER 5ST1	✓	×	×	\checkmark	×	×	×
EXETER 6	✓	×	×	×	×	×	×
FINUCANE 1	✓	\checkmark	\checkmark	✓	\checkmark	×	x
FORESTIER 1	✓	✓	✓	\checkmark	✓	\checkmark	×
GAEA 1	✓	×	×	×	×	\checkmark	×
GLATTON 1	✓	×	×	×	✓	×	×
GREY RABBIT 1	✓	×	×	×	×	×	×
HELLCAT 1	✓	×	×	×	×	×	×
LACERTA 1	✓	✓	×	×	✓	×	×
LAMBERT 1	✓	✓	×	×	✓	×	×
LAMBERT 2	✓	✓	✓	✓	✓	\checkmark	×
LAMBERT 3	✓	×	✓	✓	×	\checkmark	×

Table A-4: Wireline logs incorporated into study (continued next page).

	Wireline Data											
Well	GR	DT	RHOB	NPHI	Resistivity	PEF	Image					
LAMBERT 4	✓	×	×	✓	√	✓	×					
LAMBERT 5	✓	×	×	×	✓	×	×					
LAMBERT 5ST1	✓	×	×	√	✓	✓	×					
LAMBERT 6	✓	×	x	×	×	×	×					
LEGENDRE 1	\checkmark	\checkmark	\checkmark	\checkmark	✓	x	x					
MAIA 1	· ·	×	×	x	· · · · · · · · · · · · · · · · · · ·	x	x					
MONTAGUE 1	· ·	··· ✓	x	x	 ✓	x	×					
MUTINEER 10	\checkmark	×	×	×	\checkmark	×	x					
MUTINEER 11	✓	×	×	√	×	×	×					
MUTINEER 1B	 ✓ 	✓	✓	\checkmark	\checkmark	✓	✓					
MUTINEER 2	✓	✓	✓	×	✓	✓	x					
MUTINEER 3	✓	\checkmark	✓	\checkmark	\checkmark	×	×					
MUTINEER 7	✓	×	×	×	×	×	×					
MUTINEER 8	\checkmark	×	×	×	×	×	×					
MUTINEER 9	✓	×	×	×	×	×	×					
NELSON ROCKS 1	✓	×	✓	×	\checkmark	x	×					
NORFOLK 1	· ·	\checkmark		x	· · ·	···	X					
NORFOLK 2	· ·	×	×	~ X	×	×						
	1											
NORFOLK NORTH 1	~	×	×	×	×	×	×					
NORTH RANKIN 1	✓	\checkmark	×	×	✓	×	×					
PERSEUS 1	✓	\checkmark	✓	✓	✓	\checkmark	×					
PERSEUS 2	✓	\checkmark	✓	✓	✓	✓	×					
PERSEUS 3A	✓	×	✓	✓	✓	✓	×					
PITCAIRN 1	 ✓ 	\checkmark	✓	×	✓	✓	×					
PLYMOUTH 1	✓	\checkmark	×	×	✓	×	×					
POLARIS 1	✓	×	x	×	✓	×	x					
RONSARD 1	✓	\checkmark	✓	✓	✓	×	×					
SABLE 1	 ✓ 	 ✓ 	×	×	✓	×	×					
SERVAL 1	✓	✓	x	×	~	x	x					
SPICA 1	✓	\checkmark	✓	×	✓	\checkmark	\checkmark					
TALISMAN 1	 ✓ 	✓	 ✓ 	✓	✓	✓	×					
TALISMAN 2	✓	\checkmark	✓	✓	✓	✓	×					
TALISMAN 3	✓	\checkmark	 ✓ 	✓	✓	\checkmark	×					
TALISMAN 4	✓	 ✓ 	 ✓ 	v	✓	x	×					
TALISMAN 5	 ✓ 	 ✓ 	 ✓ 	✓	✓	✓	×					
TALISMAN 6	 ✓ 	 ✓ 	✓	✓	✓	✓	×					
TALISMAN 7	 ✓ 	\checkmark	×	\checkmark	✓	×	×					
TAYRA 1	 ✓ 	×	×	×	×	×	×					
TIGGER 1	 ✓ 	×	×	×	×	×	×					
WANAEA 1	 ✓ 	 ✓ 	 ✓ 	 ✓ 	✓	 ✓ 	×					
WANAEA 2A	 ✓ 	 ✓ 	 ✓ 	✓	✓	 ✓ 	×					
WANAEA 3	 ✓ 	\checkmark	 ✓ 	✓	✓	✓	×					
WANAEA 4	✓	 ✓ 	✓	✓	✓	✓	×					
WANAEA 5	✓	✓	✓	✓	✓	✓	×					
WANAEA 6	 ✓ 	\checkmark	 ✓ 	✓	✓	✓	×					
WANAEA 7ST1	\checkmark	\checkmark	✓	\checkmark	\checkmark	\checkmark	×					

116'45'0'E

9"15'0"S

Mutineer 1B

Mutineer 3

eter 5ST

Spica

• Lambert

o Coss

APPENDIX B: Core Logs

Core logging was completed at the Western Australian Core Library in Carlisle, Western Australia and at the Santos Core Shed in Port Adelaide, South Australia during May 2005, November 2005, June 2006 and March 2007. Cores were logged at a high resolution centimetre scale of 1:25 allowing detailed logging of smaller scaled features. The logs were drafted in CorelDraw 12 on a template created for this research.

Logged sections available include:

- Mutineer-1B;
- Mutineer-3;
- Exeter-5ST1;
- Angel-4;
- Spica-1;
- Lambert-2;
- Egret-2;
- Montague-1;
- Cossack-1;
- Wanaea-2A, and;
- Wanaea-3

Figure B-1: Map of wells with interpreted cored intervals.

116"30'0"E

Lambert 2

Wanaea 3

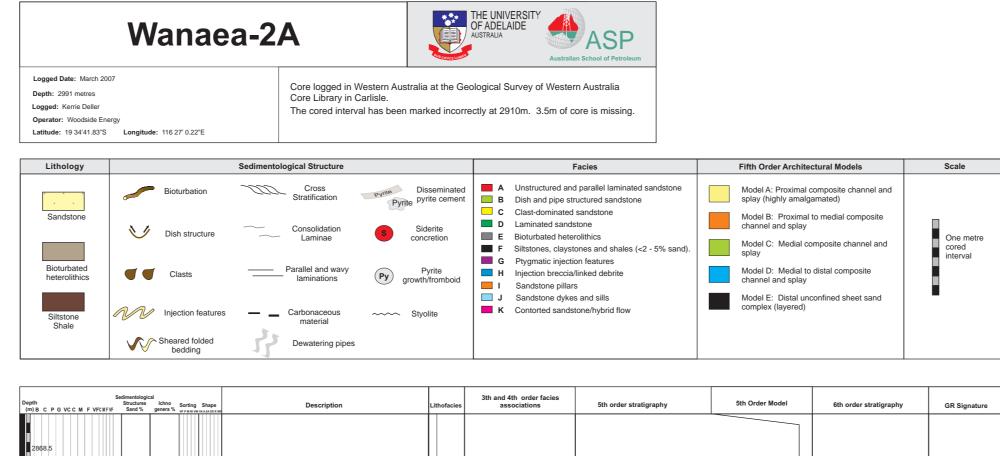
Nanaea 2

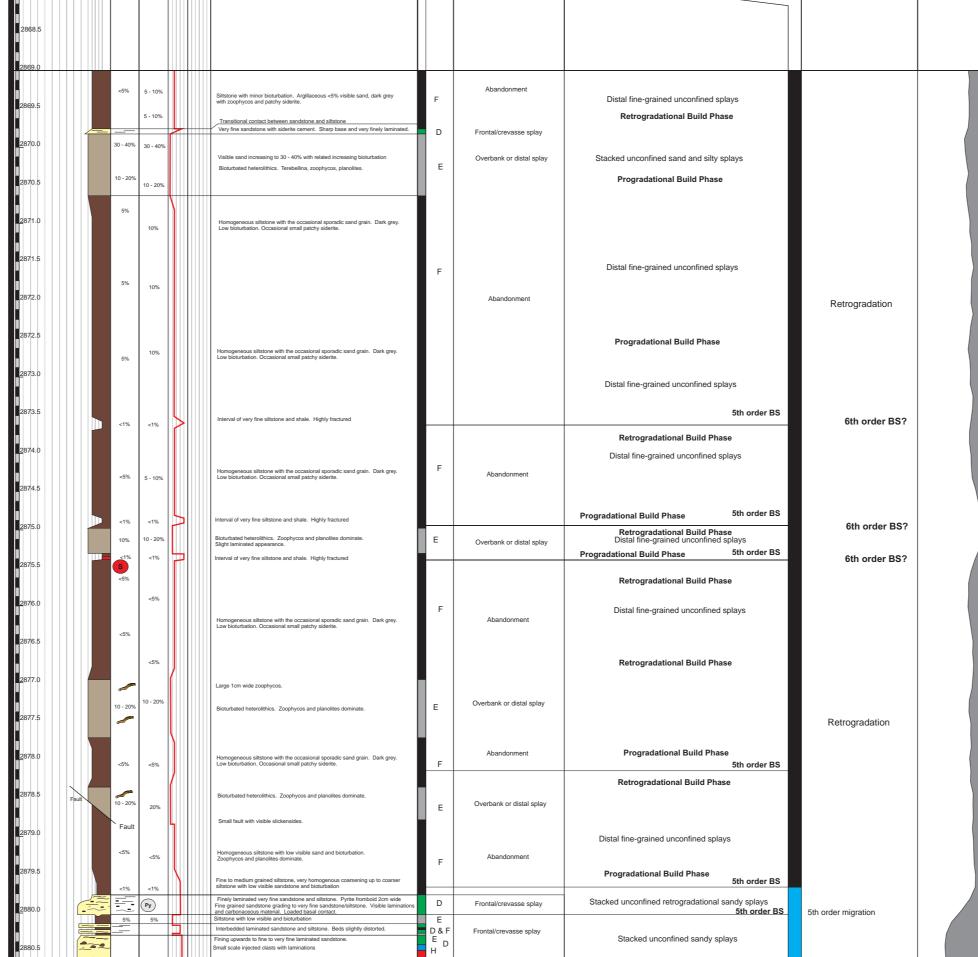
• Egret 2

Montague

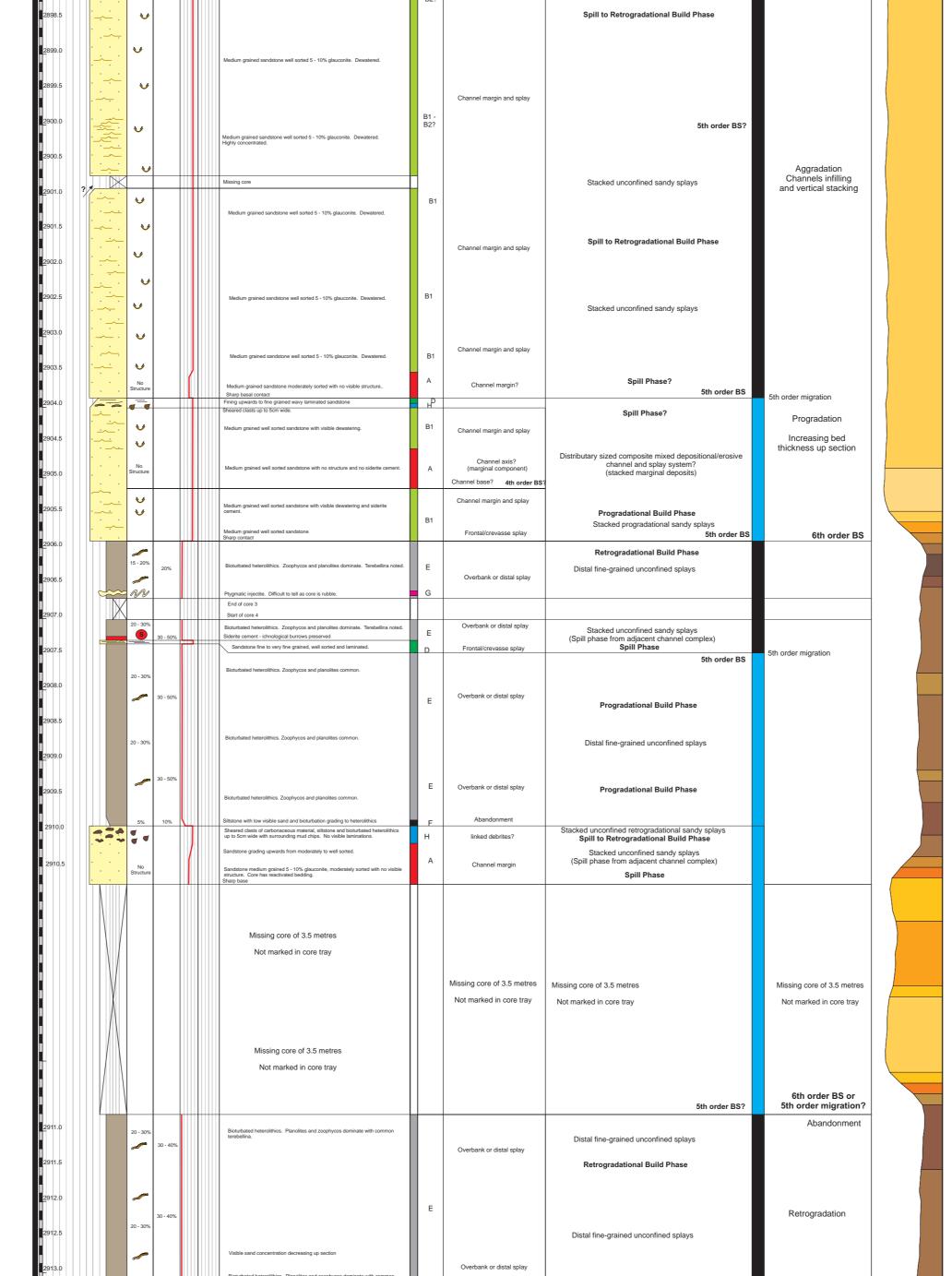
Wanaea 4

They are located on the attached DVD in an Adobe postscript (pdf) format.



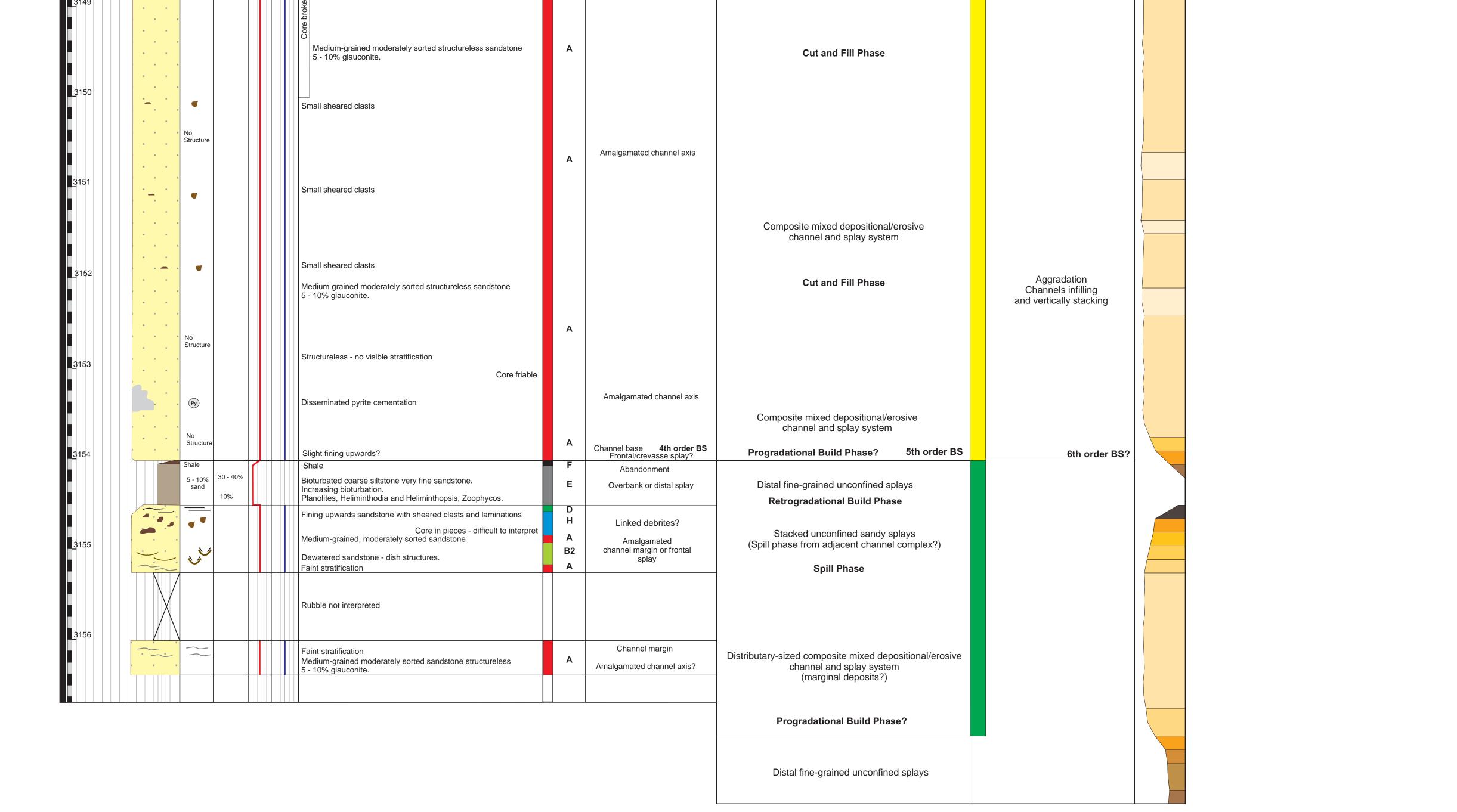


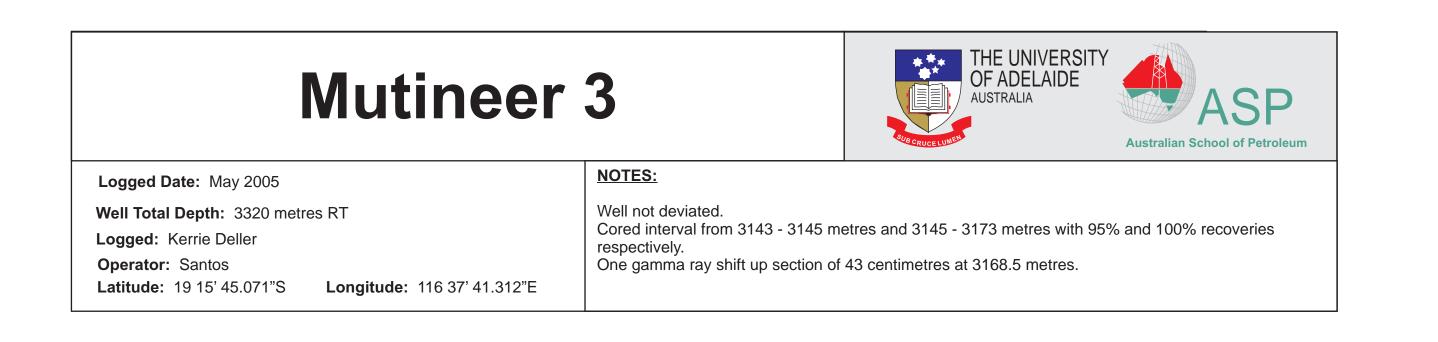
80.5		-				Fining upwards to fine to very fine laminated sandstone. Small scale injected clasts with laminations	E D H		Stacked unconfined sandy splays		
81.0				1		Reactivated bedding Medium grained sandstone, moderately sorted grading up to fine sandstone, well sorted with clasts and chips and laminations	А	Channel margin and splay?	Brogradational Build or Saill Bhoos 5th order BS		
01.0	Fault	5%	5%	ſ		Sharp base Small fault with slickensides		Abandonment	Progradational Build or Spill Phase Stri order BS Retrogradational Build Phase		
81.5		20 - 25%	30%	Ĺ		Siltstone with low visible sand and bioturbation	F		Distal fine-grained unconfined splays		
82.0	~~~~	w	30%	L		Visible sand increasing with planolites and zoophycos. Ptygmatic injection feature with medium grained sandstone, moderately to well	E G	Overbank or distal splay Abandonment	Progradational Build Phase 5th order BS	6th order BS	
	Fault	5%	5%			sorted. Siltstone with low visible sand and bioturbation	F		Stri order BS		
82.5	Fault	AN S		2		Sandstone injectite within fault zone. Visible slickensides. The sandstone is medium grained with moderate sorting.	J	Fault bound injectite			
83.0		5%	5 - 10%			Siltstone with low visible sand and bioturbation. Zoophycos and planolites dominate. Patchy siderite throughout			Retrogradational Build Phase		
83.5							F	Abandonment			
00.0		5%							Distal fine-grained unconfined splays		
84.0	Fault		5 - 10%			Siltstone with low visible sand and bioturbation. Zoophycos and planolites dominate. Patchy siderite throughout					
84.5	Fault Fault	w		Ļ		Sandstone injectite within fault zone. Visible slickensides. The sandstone is	J	Fault bound injectite			
		5%				fine grained with moderate sorting.		Paul bound injectite			
85.0			5 - 10%			Siltstone with low visible sand and bioturbation. Zoophycos and planolites dominate. Patchy siderite throughout					
85.5		5%						Abandonment			
		5 - 10%	5 - 10%	(High concentration of siderite cement. Ichnological burrows preserved.	F				
86.0									Retrogradational Build Phase		
86.5	Fault	5%	5 - 10%			Sitistone with low visible sand and bioturbation. Zoophycos and planolites dominate. Patchy siderite throughout					
87.0	Fault	w		ļ		Sandstone injectite within fault zone. Visible slickensides. The sandstone is medium grained with moderate sorting.	J	Fault bound injectite	Distal fine-grained unconfined splays		
Gr.U		Py 5%				Pyritic fromboids present within sandstone.					
87.5		- 10	5%			Siltstone with low visible sand and bioturbation. Zoophycos and planolites		Abandonment			
88.0		5%				dominate. Patchy siderite throughout	F		Progradational Build or Spill Phase		
		S 	Ру			Siderite cementation Sandstone fine grained, moderately sorted. Laminated at base and top of bed with internal consolidation lamination? Pyrite fromboid 2cm wide	D&/	A Frontal/crevasse splay	Stacked unconfined sandy splays 5th order BS	6th order BS?	
88.5		5	5 - 10%			Siderite cementation with small cemented fracture 4cm long				D. to a bit of	
39.0							F	Abandonment	Retrogradational Build Phase	Retrogradation	
		5%	5 109/			Siltstone with low visible sand and bioturbation. Zoophycos and planolites dominate. Patchy siderite throughout					
89.5	Fault		5 - 10%						Distal fine-grained unconfined splays		
90.0	Fault	w				Sandstone injectite within fault zone. Visible slickensides. The sandstone is medium grained with moderate sorting.	J	Fault bound injectite			
90.5		10 - 15%	20%			Distuisated kelosolikita 7					
		20 - 25%	30%			Bioturbated heterolithics. Zoophycos and planolites dominate. Terebellina noted. Coarsening upwards Siderite cemented zone. Ichnological burrows preserved	E	Overbank or distal splay			
91.0	Fault	5 - 10%	10%			Silterne cemened zone. Crincogical currows preserved Siltstone with low visible sand and bioturbation. Zoophycos and planolites dominate.	F		Progradational Build Phase 5th order BS	6th order BS?	
91.5	Fault	w		ļ		Sandstone injectite within fault zone. Visible slickensides. The sandstone is medium grained with moderate sorting. Ptygmatic injectite	F	Fault bound injectite			
		40 - 50%	50%				G		Retrogradational Build Phase Distal fine-grained unconfined splays		
92.0			50 - 60%			Bioturbated heterolithics. Zoophycos and planolites dominate. Terebellina noted.	E	Overbank or distal splay			
92.5		40 - 50%								Retrogradation	
93.0	Fault	an -				Sandstone injectite within fault zone. Visible slickensides. The sandstone is medium grained with moderate sorting. Upper fault contact not identifiable.	J	Fault bound injectite			
		10 - 15%						Overbank or distal splay			
93.5		20%				Bioturbated heterolithics. Zoophycos and planolites dominate. Terebellina noted.	E		Diata for and a final state		
94.0		20%							Distal fine-grained unconfined splays		
		5 - 10%				Siltstone with low visible sand and bioturbation. Zoophycos noted Band of concentrated carbonaceous material Thin bedded sandstones, carbonaceous lenses and siltstones affected by injectic	- F	Abandonment	Progradational Build Phase 5th order BS		
94.5		÷	S			Siderite clast Medium sandstone fining upwards to fine grained sandstone with fine wavy laminations Sheared clast almost entire width of core	D H	Frontal/crevasse splay	Retrogradational Build Phase Stacked unconfined retrogradational sandy splays	Retrogradation Backstepping of	
95.0	· · · · ·					Medium grained sandstone well sorted 5 - 10% glauconite. No visible structure.	A		Stacked unconfined sandy splays	depositional system Decreasing bed	
95.5	·						B1	Channel margin and splay		thickness up section	
						Medium grained sandstone well sorted 5 - 10% glauconite. Dewatered.					
96.0	<u> </u>	V							Spill to Retrogradational Build Phase		
96.5											
		ľ				Medium grained sandstone well sorted 5 - 10% glauconite. Dewatered.				Aggradation Channels infilling	
97.0	· · ·	V					B1	Channel margin and splay		and vertical stacking	
97.5		V							Stacked unconfined sandy splays		
						Medium grained sandstone well sorted 5 - 10% glauconite. Dewatered. Occasional very small pipes.			Gracited uncomment samuy spidys		
98.0		V					B1 - B2?				
08.5					Ш				Spill to Retrogradational Build Phase		

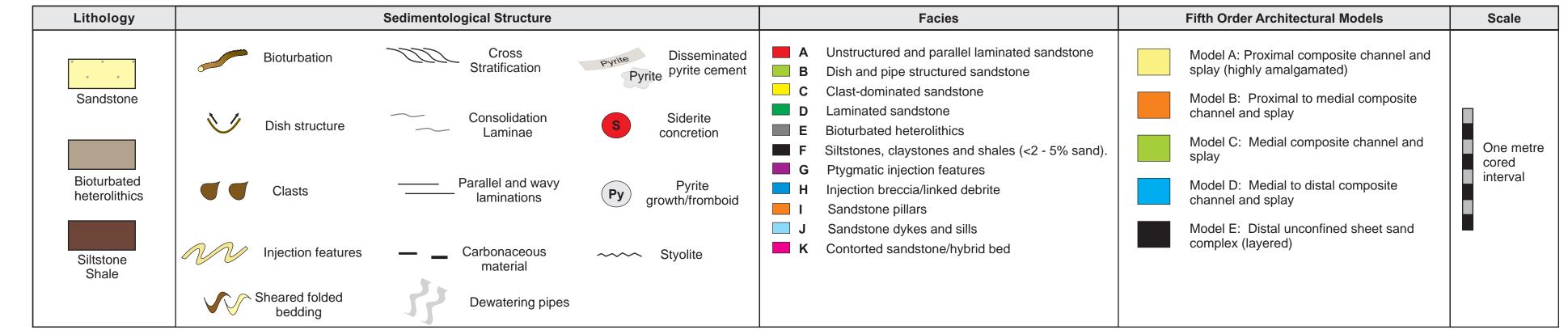


	30 - 409	6 50	1%		Bioturbated heterolithics. Planolites and zoophycos dominate with common terebellina. Zoophycos within wide lamination within sandstone.			Retrogradational Build Phase	
	 S		- <u>Zoo</u>		Fine grading to very fine well sorted sandstone with laminations and carbonaceou material Siderite correntation Medium to fine well sorted sandstone with an unstructured base grading upwards to sheared dominantly heterolithic clasts us to 6cm iona. High diauconite 20% and	D H	Frontal/crevasse splay	Stacked unconfined retrogradational sandy splays	
	No Struct 50 - 709	ture	50%	ſ	heavy siderite cement Bioturbated heterolithics very sand dominanted. Grading to fine grained sandstone	E	Overbank or distal splay	5th order BS	5th order migration
		-			Medium to fine grained sandstone grading to moderately sorted. Faintly bedded Reactivated bedding	A	Channel margin or splay	Stacked unconfined sandy splays (Spill phase from adjacent channel complex) Spill Phase	Aggradation to Retrogradation Backstepping of system
	30 - 409	~			 Medium to fine grained sandstone moderate to well sorted. Faintly bedded Sharp base Bioturbated heterolithics. Planolites and zoophycos dominate with common terebellina.			5th order BS	
		40	- 50%		veneuconna.	E		Distal fine-grained unconfined splays	
	30 - 40%				Bioturbated heterolithics. Planolites and zoophycos dominate with common terebellina.		Overbank or distal splay	Progradational Build Phase	
	5%		- 50% 0%		Siltstone with low sand and bioturbation grading to bioturbated heterolithics	F.	Abandonment	5th order BS	6th order BS or 5th order migration?
	No Structur	re		$\left(\right)$	Top 5cm of unit laminated. Sandstone grading to moderately sorted then to well sorted. Reactivated bedding Sandstone fine to medium grained well to moderately sorted with no visible	D A	Frontal/crevasse splay	Retrogradational Build Phase Stacked unconfined sandy splays Progradational Build Phase 5th order BS	
	20, 200	~			structure Bioturbated heterolithics. Planolites and zoophycos dominate with occasional terebellina.	E			5th order migration Aggradation to Retrogradation
~~~	20 - 309	20	- 40%		terecentral. Ptygmatic injectite 2cm thick containing fine sandstone.	G		Distal fine-grained unconfined splays	Backstepping of system
	20 - 309	20	- 40%			E	Overbank or distal splay		
	n	,			Ptygmatic injectite nest containing fine to medium grained sandstone. Carbonaceous material concentrated at 2918.7	G	Injected overbank or splays		
n h		,				G		Spill Phase	Aggradation to Retrogradation
	No Structure	e			Inclined top contact (injected)	A			Channels infilling and vertical stacking
~ ~ ~ · ~	No	-			Sandstone medium grained moderately to well sorted with very faint bedding	A	Channel margin Amalgamated channel fill		
ð. <u> </u>	Structur	re 			Very small sheared clasts and laminations	D	Channel base 4th order BS Frontal/crevasse splay	Distributary sized composite mixed depositional/erosive channel and splay system (marginal)	
	No Structur	re			Sandstone medium grained moderately to well sorted with no visible structure	A	Amalgamated channel fill	Cut and Fill Phase	
 					Sandstone medium grained moderately to well sorted with dish structures. High concentrations of carbonaceous material. Occasional very small	B1	Channel base 4th order BS Channel margin or splay		
	=			ł	 Fig: Collection and is a calculated as material. Occasional very small sheared class present. Sandstone fine to medium grained well to very well sorted with laminations. Sharp contact?	D	Frontal/crevasse splay	Stacked progradational sandy splays Progradational Build Phase 5th order BS Stacked unconfined sandy splays	- 5th order migration
 =	No Structur				Sandstone medium grained, moderately to well sorted with no visible structure. Occasional small fleck of carbonaceous matter. Clasts up to 2 cm long. No bedding.	A C	4 clasts sub-rounded and separated over 20cm interval - Depositional.	Glacked ancommed series sprays	Aggradation to
· · · ·						A		Distributary sized composite mixed depositional/erosive	Retrogradation Channels infilling and vertical stacking
· · ·	No Structur	re			Sandstone medium grained, moderately to well sorted with no visible structure. Occasional small fleck of carbonaceous matter.		Amalgamated channel fill	Channel and splay system	
· · ·						A	Channel base 4th order BS		
· ~ ·	~	-			Sandstone medium grained, moderately to well sorted with faint bedding highlighted by siderite cementation. No dewatering - consolidation laminae.	А	Channel margin		
· · ·	No Structur	re			Sandstone medium grained, moderately to well sorted with no visible structure. No sidente cement.		Amalgamated channel fill Channel base 4th order BS	Cut and Fill Phase 5th order BS?	5th order migration
					Sandstone medium grained well to moderately sorted with faint dewatering highlighted by siderite cementation.	B1	Channel margin or splay		
*	•				Clast 1 - 2cm long.	с	Single clast - depositional.	Distributary sized composite mixed depositional/erosive channel and splay system (marginal)	
)  		-			Consolidation laminations.		Channel margin		
· · ·	No Structur	re				A	Amalgamated		
· · ·					Sandstone medium grained moderately sorted with no visible structure. Occasional carbonaceous flecks.		channel fill		
· · · ·								Cut and Fill Phase	Aggradation Channels infilling and vertical stacking
· · · ·					Sandstone medium grained moderately sorted with no visible structure.				
	No				Occasional carbonaceous flecks.				
· · · · · · · · · · · · · · · · · · ·	Structure	5				А		Composite mixed depositional/erosive channel and splay system	
· · ·					Sandstone medium grained poorly sorted with no visible structure. Strongly cemented with siderite.		Amalgamated channel fill		
· · ·	20 - 25		0%		Contact unknown due to rubble state Biourbrated heterofilhics zoophycos and planolites dominate.	E	Channel base 4th order BS Overbank or distal splay	Cut and Fill Phase Progradational Build Phase Distal fine-grained unconfined splays 5th order BS	Progradation?
	5% 30%		5% - 40%		Siltstone with low visible sand and bioturbation. Bioturbated heterolithics zoophycos and planolites dominate.	F	Abandonment Overbank or distal splay	Distal fine-grained unconfined splays 5th order BS Distal fine-grained unconfined splays	6th order BS?

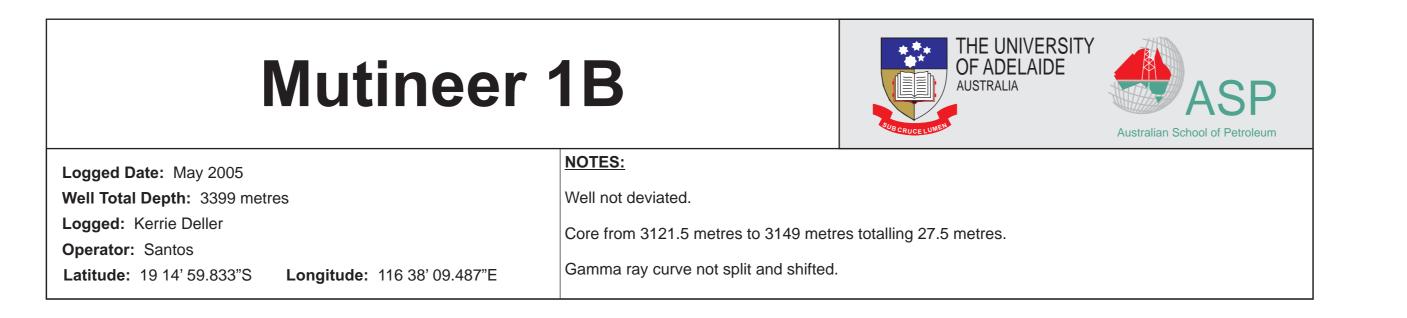
Lithology				Sedimentological Structure			Facies			•
Sandstone   Sandstone   Bioturbated heterolithics   Siltstone Shale   Siltstone Shale     Model   Clasts   Model   Dish structure   Model   Clasts   Siltstone Shale		sh struct lasts ection fe	n Cross Stratification Pyrite Pyrite Faint stratification S of Parallel and wavy laminations Py gro eatures — Carbonaceous material	Disseminated pyrite cement Siderite concretion Pyrite wth/fromboid	A Unstructured and B Dish and pipe st C Clast-dominated D Laminated sand E Bioturbated hete F Siltstones, clays G Ptygmatic inject H Injection breccia I Sandstone pillar J Sandstone dyke	<ul> <li>B Dish and pipe structured sandstone</li> <li>C Clast-dominated sandstone</li> <li>D Laminated sandstone</li> <li>E Bioturbated heterolithics</li> <li>F Siltstones, claystones and shales (&lt;2 - 5% sand).</li> <li>G Ptygmatic injection features</li> <li>H Injection breccia/linked debrites</li> <li>I Sandstone pillars</li> </ul>		edial composite channel and edial to distal composite splay stal unconfined sheet sand		
SI PGVCCMFVFCMFVF	edimentolog Structures Sand %	ical Ichno	Sorting S	Description	Lithofacies	3th and 4th Order facies associations	5th order stratigraphy	5th Order Model	6th order stratigraphy	SGR Signature
	5 - 10% sand	10 - 15%		Bioturbated siltstone with some very fine sand. Traces include planolites and chondrites.	Е	Abandonment	Distal fine-grained unconfined s	splays	Abandonment	
	Shale 5% sand	Ch - 15%	,	Pyritic lenses through core. Sandstone fine grained laminated and fining up with carbonaced flecks and pyrite Fining upward to shale Planolites	DUS D	Frontal/crevasse splay Abandonment	Stacked unconfined sandy splays (Spill phase from adjacent channel com <b>Spill Phas</b>	plex) e 5th order BS	Retrogradation	
	1% sand	0%		Interbedded bioturbated and laminated siltstone with some very fine sand.	F D	Abandonment Frontal/crevasse splay	Distal fine-grained unconfined s			
				Lamination of carbonaceous matter Large mudstone floating and sheared clasts surrounded by sma mud chips. Extremely faint dewatering Small mudstone floating clasts		Linked debrites Amalgamated channel margin or frontal	Spill Phase?		Retrogradation Backstepping of system Decreasing bed thickness	
				<ul> <li>Sandstone fine grained moderate to well sorted, 10 - 15% glauconite and heavy minerals</li> <li>Sharp base. Faint dish structures.</li> <li>Sandstone fine fining upward to very fine grained with parallel laminations and climbing ripple cross stratification. Well sorted.</li> </ul>	<u>B1 - B2</u> D	splay Channel margin and splay Channel margin and splay	Stacked progradational sandy s Progradational Build Phase	splays 5th order BS	5th order migration	
	Up to 40% sand			Lenses"starry night" of silty sandstone and bioturbated heterolith           Inclined and fining up top.         Small mudstone floating clasts.           Fining upward to fine grained.         Dewatering dish structures	nics E & K H A B1 - B2	Injected overbank or linked debrites Amalgamated	Distal fine-grained unconfined Spill Phase Distributary-sized composite mixed de	positional/erosive	Aggradation to Retrogradation Channels infilling and vertically stacking	
				<ul> <li>Faint parallel stratification - slightly affected by dewatering.</li> <li>Sandstone medium to fine grained. Moderately to well sorted. Contact loaded</li> <li>Fining upward to medium/fine grained siltstone</li> </ul>	A	Thin channel axis Channel base <b>4th order BS</b> Frontal/crevasse splay	channel and splay system (margin	al deposits)		
	5% sand M M 2% sand	<b>5</b> 9/		Bioturbated heterolithic very fine sand/siltstone. Planolites.         Sandstone injection features. Surrounding heterolithics strongly deformed.	F E G F	Abandonment Injectite Abandonment	Distal fine-grained unconfined s Spill Phase Stacked unconfined sandy splays			
	5% sand			Sandstone fine to medium grained, well sorted with dish structures. Inclined and bulbous upper bed contact. Coarse siltstone - little sand	G B3 - B4 F E	Frontal/crevasse splay Abandonment Overbank or distal splay	(Spill phase from adjacent channel comp		Progradation?	
	15 - 20% sand 2 - 5%	-		Sandstone injection features Planolites, Heliminthopsis, Terrebellina?	G E	Injectite (lateral?) Overbank or distal splay	Stacked unconfined sandy s (Spill phase from adjacent channe <b>Spill Phase</b>			
	sand			Coarse siltstone - little sand	F	Abandonment			6th order BS Abandonment	
	2 - 5% sand M			Sandstone injection features		Abandonment	Distal fine-grained unconfined s	plays	Retrogradation	
				Sandstone injection features Sandstone injection features	G	Injectite				
	2 - 5% sand			Coarse siltstone - little sand Thin sandstone units severely deformed through injection. Sandstone units too deformed by injection	F E A	Injectite Overbank or distal splay Frontal/crevasse splays	Stacked unconfined sandy s (Spill phase from adjacent channel			
	2 - 5% sand			Sandstone units too deformed by injection to identify sedimentological structure         Coarse siltstone - little sand	E	Overbank or distal splay	Spill Phase	5th order BS		
	1% sand			Sandstone injection features	F					
	1% sand			Sandstone injection features	G F G	Injectite	Distal fine-grained unconfined	splays	Retrogradation	
	1% sand			Rubble - No preserved core         Sandstone injection features         Very fine sand to coarse silt. Low bioturbation.	F G	Abandonment Injectite Overbank or distal splay				
	3% sand	planolite	5	Sandstone injection features       and compressed bedo         Injected contact       Fine-grained well sorted sandstone with dish structures.         Large sand-filled pillar structures.	d up E ding. G B4	Channel Abandonment Amalgamated channel margin or frontal splay	Stacked unconfined sandy spl Retrogradational Build Pha Stacked unconfined sandy spl (Spill phase from adjacent channel of	ays	Retrogradation Decreasing bed	
		- No Core		Pyrite growths         Sheared mud clasts and chips         Medium to fine-grained sandstone         Fine to very fine-grained sandstone         Small clasts in graded sandstone from fine/very fine to siltstope	H A Dne. H	Thin channel axis? Channel base 4th order BS Frontal/crevasse splays	Spill Phase? Stacked progradational sandy splays Progradational Build Phase	5th order BS	thickness up section 5th order migration	
	Pyrite Py			Sand-filled pillar structure 3 - 4 cm wide. Small heterolithic clasts	I B3 - B4	Sand pillars	Stacked unconfined sandy s Spill Phase	splays		
				Severe dewatering with dish structures and related pipes Medium to fine-grained sandstone grading to fine-grained, medium to well-sorted with occasional sporadic sheared clasts. Siderite cementation.		Amalgamated channel margin or frontal splay	Stacked unconfined sandy (Spill phase from adjacent chann			
				Severe dewatering - dish structures and pipes Medium to fine-grained, well sorted, approx 5% glauconite.	B3 - B4		Spill Phase	er complex : )	Aggradation to	
500	33			Sever dewatering - pipe structures Medium to fine-grained moderately sorted sandstone	B3 - B4	spiay	Distributary-sized composite mixed de channel and splay syste	em	Retrogradation Channels infilling and vertically stacking	
				Dish structures Medium-grained sandstone moderately sorted. 5% glauconite.	A B4 B1 - B3	Thin channel axis? Channel base? 4th order BS Amalgamated channel margin or frontal splay	(stacked marginal depose			
	No structure			Siderite cementation. No dewatering with faint stratification Dish structures and stratification Medium-grained well to moderately sorted structureless sand with floating heterolithic clast	A	Channel base? <b>4th order BS</b> ? Channel margin and splay Frontal/crevasse splay?	Stacked progradational sandy Progradational Build Phase	5th order BS	5th order migration	
*	5% sand	2 - 5%?		Contact sharp Slightly bioturbated coarse siltstone with little sand. Planolites, Terrebellina, Heliminthopsis Low bioturbation	F	Abandonment				
Siderite	S  Py			Laminated fine sandstone grading to very fine sandstone. Siderite cementation - no preserved sedimentological structu Weak interpretation due to fractured core Faint stratification	nre D A	Frontal/crevasse splay Channel margin	Spill Phase			
				Small clasts Weak interpretation due to fractured core Medium-grained moderately to well sorted sandstone with 10% glauconite.		Amalgamated channel axis	Distributary-sized composite mixed de channel and splay syste		Aggradation	
				Structureless	A	Channel base 4th order BS	Cut and Fill Phase		Channels infilling and vertically stacking	
				Faint stratification every 5 - 10cm.	A	Channel margin Thin channel axis	Distributary-sized composite mixed de channel and splay syste (marginal)			
				Dewatered sandstone - dish and pipe structures Drop in sorting to moderately sorted.	B1 A	Channel base 4th order BS Amalgamated channel margin or frontal				
	No			Glauconite up to 20% Sandstone medium to fine-grained, moderately to well sorted,	B1	splay	Distributary-sized composite mixed de channel and splay syst		Progradation Increasing bed thickness up section	
	structure	2 - 5%		10% glauconite       Structureless       Contact sharp?       Grading to fine siltstone	A F	channel axis Channel base 4th order BS Abandonment	Cut and Fill Phase Distal fine-grained unconfined	5th order BS	6th order BS	5
	2 - 5% sand	50 - 70%		Planolites, Heliminthopsis	E	Overbank or distal splay	grained unconfined	. ,-	Retrogradation	
				Coarse siltstone with some very fine sandstone, heavily bioturba Planolites, Zoophycos, Heliminthopsis and Heliminthodia.		Overband and		orti		
	5 - 10% sand			Planolites, Zoophycos, Heliminthopsis and Heliminthodia. Sharp contact to coarse siltstone with little very fine sand. No inclined bedding.	E	Overbank or distal splay	Distal fine-grained unconfined			
				Starry night sandstone and argillceous rich sandy patches interbedded and folded over with sheared and rounded clasts.	к	Hybrid flow or slump	Retrogradational Build Pł	nase		
				Occasional granule-sized uartz grains resting within a dominal fine-grained sandstone.	ntly B4	Amalgamated channel margin or frontal	Stacked unconfined sandy (Spill phase from adjacent chann <b>Spill Phase?</b>		Retrogradation Backstepping of depositional system	
	20 - 25%	10%		Medium-grained, moderately sorted friable sandstone.         5% glauconite.         Faint stratification         Weak interpretation due to fractured Contact destroyed - core rubble         Reduction in bioturbation		Frontal/crevasse splay?	Spin Phase? Stacked progradational sandy splays Progradational Build Phase	5th order BS	5th order migration	
	20 - 25% sand			Strongly bioturbated coarse siltstone and very fine sandstone.	E	Overbank or distal splay	Distal fine areity to	d snlave		
		50 - 709	6	Planolites, Heliminthopsis, Heliminthodia, Zoophycos, Terrebelli	na. E	Overbank or distal splay	Distal fine-grained unconfine overbank?	ω ομιαγδ		Downshift 37cm downsection
	20 - 25% sand	10%		Reduction in bioturbation Inclined con		Rapid abandonment channel abandonment?			Aggradation to Retrogradation Channels infilling	
				Bulbous contact with overlying heterolithics Faint parallel stratification Weak interpretation due to fractured of Medium grained, moderately sorted sandstone Dish structures Weak interpretation due to fractured of		Channel margin and splay Channel margin and splay	Stacked unconfined sandy (Spill phase from adjacent chan	splays nel complex)	and vertically stacking	
	Rubble			No interpretation due to fractured core	A		Spill Phase			
				Faint parallel stratification         Weak interpretation due to fractured         Small sheared clasts	core A	Channel margin Amalgamated channel axis			Aggradation Channels infilling and vertically stacking	
	No structure			Core			Distributary-sized composite mixed de channel and splay syste		Stacking	
	No structure			Structureless medium grained moderately sorted sandstone Core extremely friable	A	Amalgamated channel axis	Cut and Fill Phase			
	5% sand	5 - 10%		Weak interpretation due to fractured         Base loaded         Siltstone slightly laminated, heliminthopsis and heliminthodia dominate. Occasional Planolites	F	Channel base <b>4th order BS</b> Frontal/crevasse splay Overbank or distal splay	Unconfined progradational sandy spla <b>Progradational Build Phase</b> Distal low density deposition	5th order BS	5th order migration	
	Pyrite			Bulbous contact into overlying heterolithics. Sheared wipsy clasts and carbonaceous material Pyritic cemented lamination 2cm thick	D A	Frontal/crevasse splay Amalgamated channel axis	Overbank spill Phase		Aggradation Channels infilling and vertically stacking	
· · ·		1		Medium-grained moderately sorted structureless sandstone 5 - 10% glau.		and the second s	Cut and Fill Phase			
				(e)						
	- - -			Small clasts	A					
				Small clasts	A	Amalgamated channel axis	Composite mixed deposition channel and splay sys			

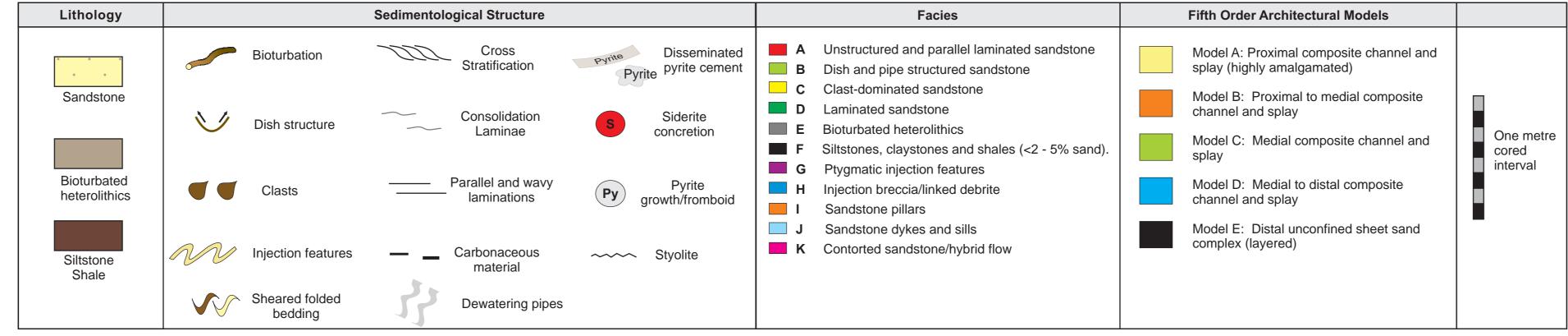


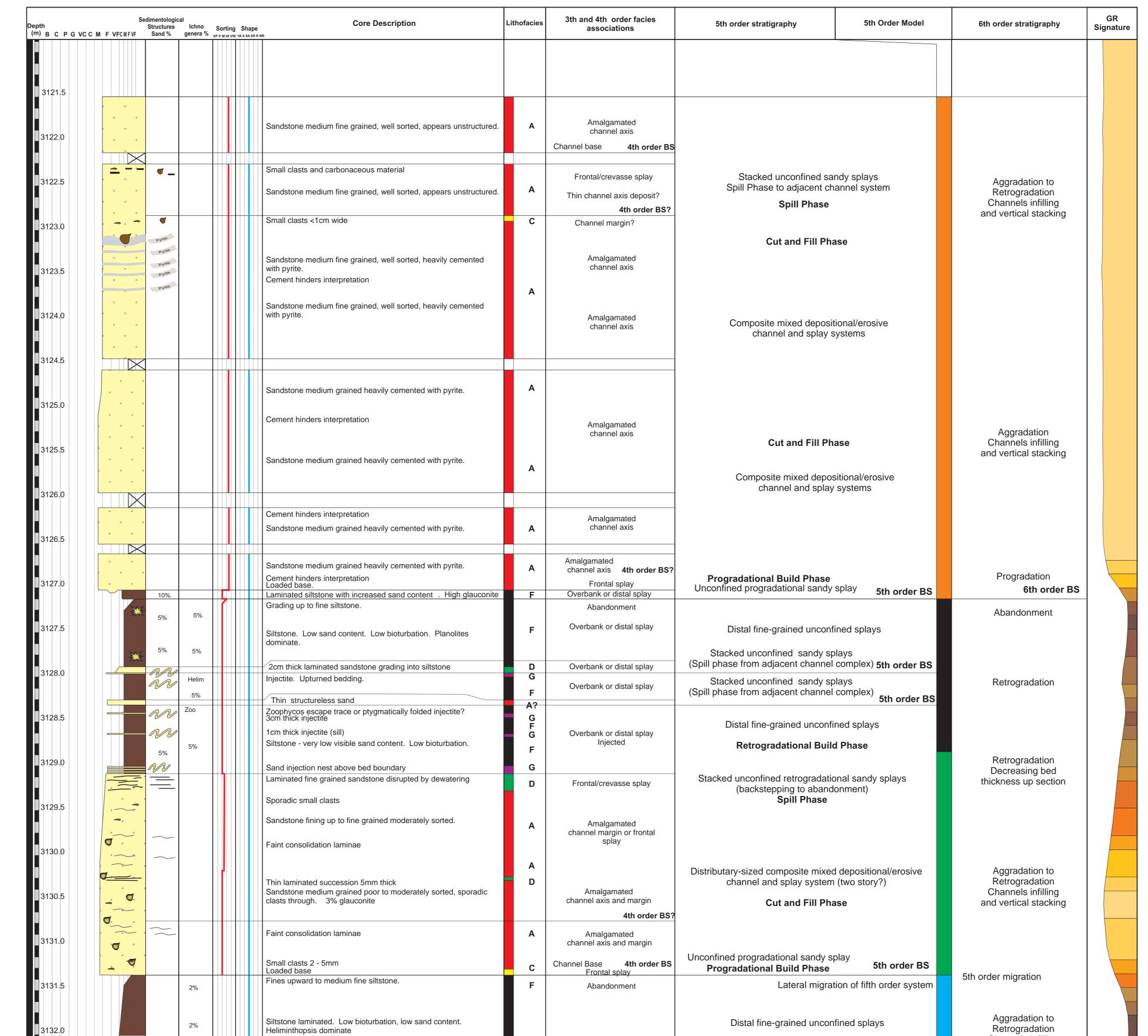




pth n)BCPGVCCMFVF0	C M F VF	Structures Sand %	Ichno genera %	Sorting Sha	pe sRrWR		associations				Signature
3142.5											
3143.0 3143.5						E				Retrogradation	
<u>3</u> 144.0		20%	20%		Heliminthodia and Heliminthopsis, Planolites, Zoophycos, Terrebellina		Overbank or distal splay	Distal fine-grained unconfined splays			
3144.5		20%	20%		Heliminthodia and Heliminthopsis, Planolites, Zoophycos, Terrebellina Bioturbated heterolithics.	E		Retrogradational Build Phase			
3145.0		<b>-</b>			Laminated heterolithics of sandstone and silt. Low bioturbation.         Disrupted laminated sandstones with mud chips and injection	D E _D	Frontal/crevasse splay	Stacked unconfined sandy splays (Spill phase from adjacent channel complex)	,	Retrogradation Decreasing bed thickness up section	
3145.5					No Core			Spill Phase			
3146.0								Stacked unconfined sandy splays (Spill phase from adjacent channel complex)			
3146.5	· · ·				Medium- to fine-grained sandstone moderately to well sorted		Amalgamated channel axis?	Spill Phase		Aggradation to Retrogradation	
	· · · · ·	$\sim$			Very faint consolidation laminations	A	Channel margin			Channels infilling and vertically stacking	
3147.5	~ 				Medium-grained sandstone moderately to well sorted, 3% glauconite		Amalgamated channel axis				
<u>3</u> 148.0					Sandstone dominantly structureless			Cut and Fill Phase			
3148.5								Composite mixed depositional/erosive channel and splay systems			
<u>3</u> 149.0					Medium-grained sandstone moderately to well sorted, 3% glauconite	A	Amalgamated channel axis			Aggradation	
3149.5	· · ·				Sandstone dominantly structureless		Channel base 4th order BS			Channels infilling and vertically stacking	
3150.0					Medium-grained sandstone fining upwards to medium to fine-grained sandstone moderately to well sorted		Channel margin?				
	· · · ·	Pyrite			Consolidation laminations? Disseminated pyrite cemented cloud	А		Cut and Fill Phase			
<u>3</u> 151.0					Disseminated pyritic cement Medium-grained sandstone moderately to well sorted, 3% glauconite		Amalgamated channel axis				
3151.5	· · · · ·	~			Sandstone dominantly structureless         Faint stratification		Channel base 4th order BS Channel margin	Composite mixed depositional/erosive			
<u>3</u> 152.0	0 0				Sporadic coarser grains in a medium-grained matrix	A	Amalgamated channel axis Channel base 4th order BS	Composite mixed depositional/erosive channel and splay systems			
3152.5		Py	_		Small pyritic fromboids 1 - 2cm wide						
<u>3</u> 153.0		Ру					Amalgamated channel axis			Aggradation	
3153.5					Medium-grained sandstone moderately to well sorted,	A				Channels infilling and vertically stacking	
<u>3</u> 154.0					Sandstone structureless		Amalgamated channel axis				
3154.5	00				Sporadic coarser grains in a medium-grained matrix Stratification		Channel base 4th order BS	Cut and Fill Phase			
<u>3</u> 155.0	) - -	~			Sporadic small sheared clasts	А	Channel margin				
3155.5	0				Medium-grained sandstone moderately sorted, 3% glauconite Sporadic coarser grains in a medium-grained matrix		Amalgamated channel axis				
3156.0		$\langle \rangle$			Faint stratification Sporadic coarser grains in a medium-grained matrix	A	Amalgamated channel axis	Distributary sized composite mixed depositional/ channel and splay system (mulit-story) Multiple episodes of reincision	erosive		
				2	Sporadic coarser grains in a medium-grained matrix	A	Channel base 4th order BS	Migrational 5th or	der BS?		
	· ·	(Py)			Pyrite cementation	A	Amalgamated channel axis Channel base 4th order BS			Aggradation Channels infilling	
		~			Faint stratification		Channel margin Channel margin	Cut and Fill Phase		and vertically stacking	
<u>3</u> 158.0	· · · · ·	~			Faint stratification		Thin channel axis				
3158.5		Pyrite			Pyrite cementation         Faint stratification	A	Channel base 4th order BS Channel margin	Composite mixed depositional/erosive			
2150.0	· · · ·	Ру			Faint stratification Pyrite growths 1cm wide		Channel margin	channel and splay systems			
3159.5						A	Amalgamated channel axis			Aggradation Channels infilling	
<u>3</u> 160.0					Medium grained sandstone moderately to well sorted, 3% glauconite					and vertically stacking	
3160.5	1.1				Homogenous and structureless	A	Amalgamated channel axis				
<u>3</u> 161.0		20%			Laminated base? Fining upwards to shale	F	Channel base 4th order BS Abandonment	Cut and Fill Phase 5th o Retrogradational Build Phase	rder BS	6th order BS	
3161.5		20%	40%		Heavy pyrite fromboid	E	Overbank or distal splay	Distal fine-grained unconfined splays			
<u>3</u> 162.0					Planolites, Heliminthopsis, Zoophycos, rare Terrebellina		Overbank er dietel enlev			Retrogradation	
3162.5					Grading upwards to bioturbated silstone very fine sandstone heterolithics.	F	Overbank or distal splay	Progradational Build Phase			
<u>3</u> 163.0		<5%	<10%		Planolites, rare Heliminthopsis?		Abandonment				
3163.5					Siltstone with minor bioturbation and occasional pyrite fromboid.	F	Abandonment		rder BS		
<u>3</u> 164.0		20%	<10%		Silstone grading up to siltstone with very fine sandstone. Thin injection features present.	E F G	Overbank or distal splay Thin Injectites	Retrogradational Build Phase Distal fine-grained unconfined splays Progradational Build Phase 5th c	rder BS		
					Medium-grained sandstone with sporadic coarse grains fining upwards to laminated disrupted sandstone with sheared clasts? Fines upward to fine silt, almost shale	F D A F D	Abandonment Injected frontal/crevasse splay Frontal/crevasse splays	Stacked unconfined sandy splays (Spill phase from adjacent channel complex)	order BS		
<u>3</u> 165.0			<5%		Thin sandstones - depositionally thin sands       Siltstone. Low bioturbation?         Fining upward to fine- and very fine-grained sandstone.       Well to moderately sorted.         Structureless       Structureless	F D A	Amalgamated channel margin or frontal splay	Stacked unconfined retrogradational sandy sp		Retrogradation Decreasing bed thickness up section	
3165.5		$\sim$			Consolidation laminations Sandstone medium-grained moderately to poorly sorted. Trace glauconite	A	Channel margin Thin amalgamated channel axis	Distributary sized composite mixed depositional/ channel and splay system	erosive		
<u>3</u> 166.0					Floating coarse grains with medium-grained matrix	H	Channel base 4th order BS Linked debrite? Injected overbank?	Spill Phase Stacked unconfined sandy splays		Aggradation Channels infilling and vertically stacking	
3166.5					Sandstone medium-grained moderately sorted. Trace glauconite	B1 - B2	Amalgamated channel margin or frontal splay	(Spill phase from adjacent channel complex	<)	and vertically stacking	
						B1 - B2	Channel margin	Cut and Fill Phase			
	·	No structur	e		Consolidation laminations. Sporadic small clasts	A	Thin amalgamated channel axis <b>4th order BS</b> Channel margin and splay	Distributary sized composite mixed depositional/ channel and splay system (mulit-story)	erosive	Aggradation	
					Consolidation laminations. Sporadic small clasts         Some coarse grains within medium-grained matrix         Sandstone medium-grained moderately sorted. 10% glauconite         Dish structures.	A B1	Channel base <b>4th order BS</b> Channel margin and splay			Channels infilling and vertically stacking	
		Py			Sheared flattened clasts, carbonaceous material Small pyritic fromboids 1cm wide. Consolidation laminations	– H A	Channel margin and splay?	Unconfined progradational sandy splay			
3169.0		<5% Py N	<10%		Loaded base         Fining up to fine silt. No shale.         Trace carbonaceous material	F	Frontal/crevasse splay Abandonment	Progradational Build Phase 5th or	5th o	order migration	GR shifted up 43cm
3169.5		<5% (PYZ)			Planolites dominate - faint heliminthopsis?	G E G	Thin Injectites			Progradation	
3170.0		N	<10%		Sills and small ptygamtic sandstone injectiites	G G E	Thin Injectites Thin Injectites	Silt-dominated splays lateral to channel syster	n?		
3170.5		<b>Py</b> <5%	<10%		Siltstone grading to bioturbated heterolithic very fine sandstone an	G	Thin Injectites				
<u>3</u> 171.0		Ру			siltstone mix. Pyrite fromboids common up to 2 - 3 cm wide.	E	Abandonment	Distal fine-grained unconfined splays		Progradation	
3171.5	•	(Py) <5%	<10%		Lighter darker lenses of silt? Siltstone moderately bioturbated. Chondrites?	F		to abandonment	der BS	Abandonment 6th order BS	
3172.0	1.1				Fining upwards laminated fine- to very-fine sandstone. Grades into bioturbated heterolithics. Small sheared clasts 2cm long. Core fractured Consolidation lamination	° D _H	Amalgamated channel margin or frontal	Stacked unconfined retrogradational sandy sp		Retrogradation	
	· · · · · · · · · · · · · · · · · · ·	$\sim$			Consolidation lamination	A	Channel margin or frontal splay Channel margin	Spill Phase		Aggredation	
<u>3</u> 173.0		~			Sandstone medium-grained moderately to well sorted. Trace glauconite Core fractured	A	Amalgamated channel axis	Composite mixed depositional/erosive channel and splay system	В	Aggradation to Retrogradation ackstepping of system?	
3173.5					Core fractured Fractured core. Bagged. No interpretation Sandatana medium grained moderately to well serted			Cut and Fill Phase			
		I			Sandstone medium-grained moderately to well sorted. Trace glauconite	A	Amalgamated channel axis				

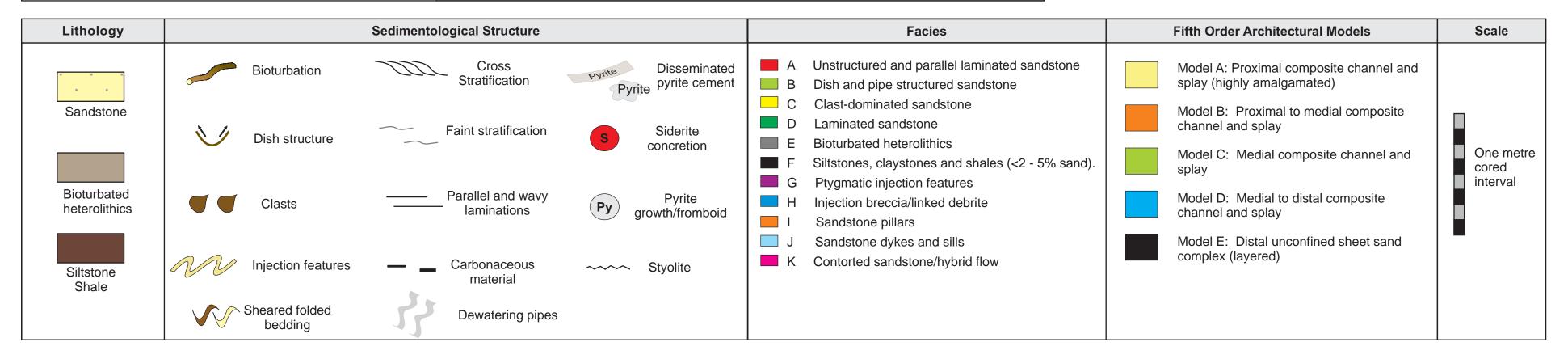


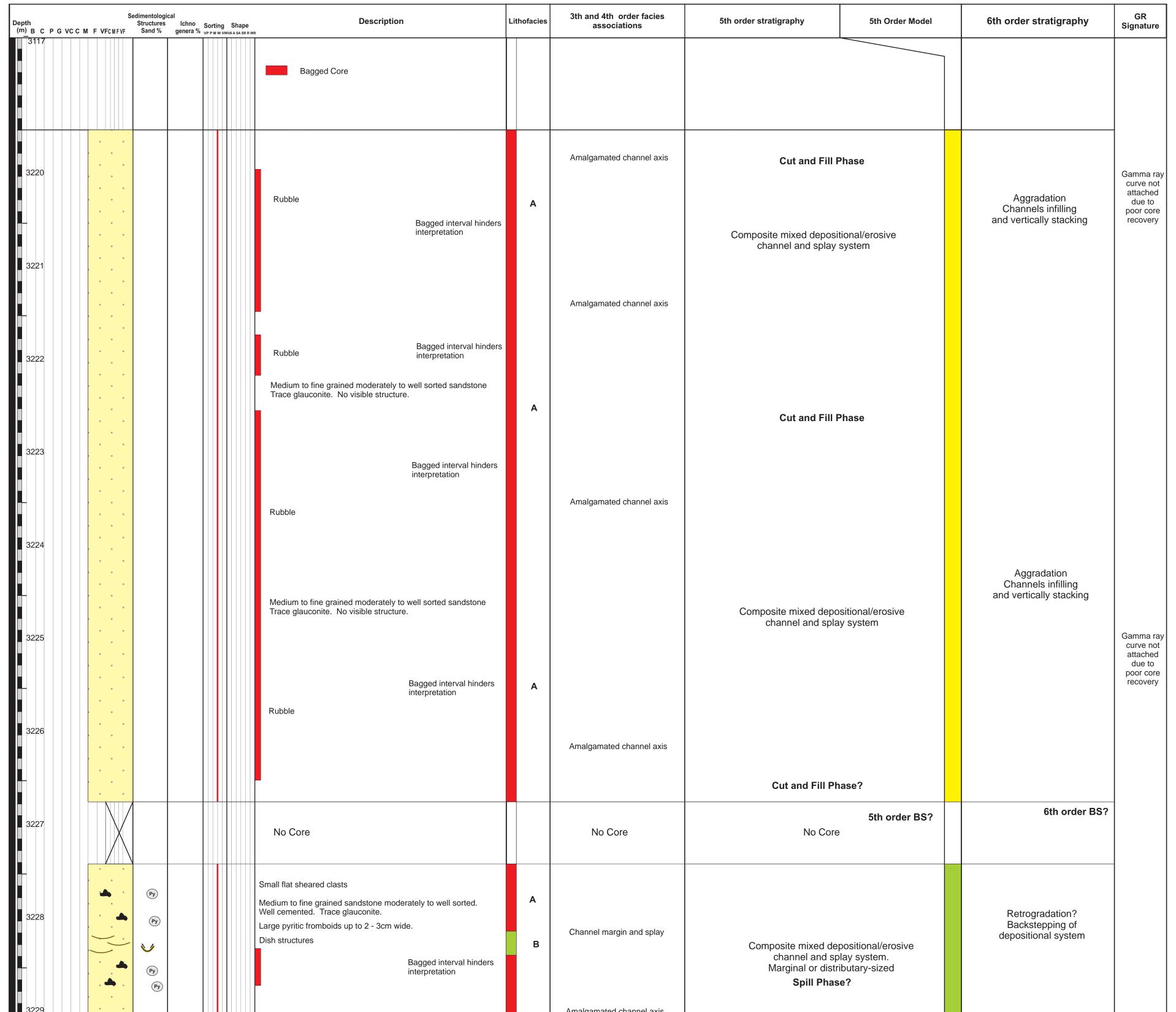




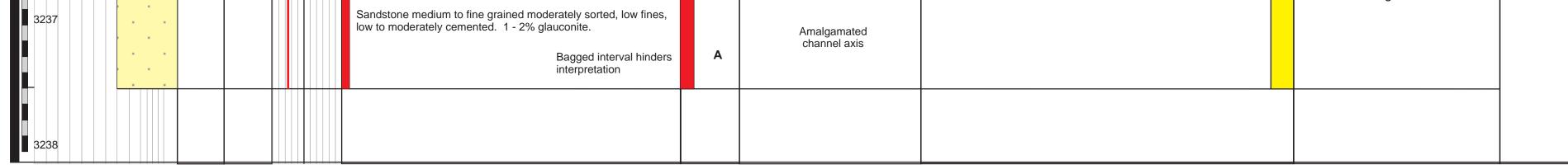
									Channels infilling
					Siltstone grading up to sandstone/siltstone bioturbated heterolithics Heliminthopsis and planolites dominate	F	Abandonment		and vertical stacking
32.5		N			Injection features Inclined upper bed contact.	E & G		Stacked unconfined retrogradational sandy splays	
22.0	٩				Sandstone grading up to fine grained moderate to well sorted, 3% glauconite, occasional small flat clasts	А	Amalgamated channel margin or frontal	(backstepping to abandonment) Spill Phase	
33.0					Faint consolidation laminae Carbonaceous material		splay		
33.5		<b>V</b>			Sandstone medium grained moderately sorted, occasional small pyritic growth.	B1			
33.5		<					Amalgamated channel margin or frontal		Aggradation to
34.0	$\smile$	<b>V</b>			Faint dish structures	B1	splay	Distributary sized composite mixed depositional/erosive	Retrogradation Channels infilling
								channel and splay system	and vertical stacking
34.5	(	V			Faint dish structures	B1	Channel margin and splay		
					Sandstone medium grained moderately sorted, occasional small		Thin channel axis and margin	Progradational Build Phase	
35.0		~			pyritic growth. Faint consolidation laminae	A	4th order BS Frontal splay	Unconfined progradational sandy splay? 5th order BS	Progradation
					Fines up to shale Chondrites population Thin 2cm fine sandstone unit. Laminated. Visible escape structure.	F	Abandonment	Distal fine-grained unconfined splays	6th order BS
35.5		w			Siltstone with minor sandstone ( 5 - 10%)	F D	Frontal/crevasse splay Abandonment	Retrogradational Build Phase	Abandonment
					Thin 5cm thick fine sandstone package. Contains large elongated clast.	G G ^H	Frontal/crevasse splay	Layered unconfined sandy splays (Spill phase from adjacent channel complex)	
6.0		60%			Siltstone with minor sandstone. Planolites dominate.	F D	Abandonment Frontal/crevasse splay	(Spill phase from adjacent channel complex) Progradational Build Phase 5th order BS	
			50%		Increasing sand content	E	Overbank or	Distal fine-grained unconfined splays	Abandanmant
6.5		40%			Bioturbated vf sandstone/coarse siltstone heterolithics Planolites and Helimithopsis dominate.	E	distal splay	Progradational Build Phase	Abandonment
		5%	5%		Very thin laminated interval 5mm thick.	F D	Abandonment Frontal/crevasse splay	5th order BS	Dotrogradation
7.0		Ру			Faint consolidation laminae	А	Amalgamated	Stacked unconfined retrogradational sandy splays (backstepping to abandonment) Spill Phase	Retrogradation
		V			Faint dish structures	B1	channel margin or frontal splay		
7.5					Faint dish structures	A	Thin channel axis 4th order BS	Distributary-sized composite mixed depositional/erosive channel and splay system	
		<b>V</b>			Faint dish structures	B1	Channel margin and splay		Aggradation to
3.0						A			Retrogradation Channels infilling
	٩	Ру			Medium sandstone well sorted, 5% glauconite		Amalgamated channel axis		and vertically stacking
.5					No visible structure. Looks very very faintly dewatered.			Distributary-sized composite mixed depositional/erosive channel and splay system	
		Ру			Loaded base	A	Channel Base <b>4th order BS</b> Frontal splay	Cut and Fill Phase	
.0	4/1/1	<u> </u>			Fine sandstone grading to fine very fine sandstone. Moderately to well sorted. Disrupted stratification overlying faintly consolidation	D	Stacked frontal/crevasse splays	Stacked progradational sandy splays	
.5	2	~			laminated sandstone. Siltstone grading up to very fine sandstone/siltstone heterolithics.	A E	Overbank or distal splay	Progradational Build Phase	
		5%	5 - 10%		Planolites and Chondrites? Planolites Inclined undulated contact	F		Distal fine-grained unconfined splays 5th order BS	5th order migration
						н	linked debrite or injected overbank	Overhault enlave	
0	0	Ру			Large rounded clasts and sheared clasts	H A	Amalgamated channel margin or frontal	Overbank splays	
.0					Large rounded clasts and sheared clasts         Faint consolidation laminae	A	Amalgamated channel margin or frontal splay Amalgamated	Overbank splays Spill Phase	
		Py			Large rounded clasts and sheared clasts		Amalgamated channel margin or frontal splay	Overbank splays	
		Py			Large rounded clasts and sheared clasts         Faint consolidation laminae	A	Amalgamated channel margin or frontal splay Amalgamated	Overbank splays	
0.5		Py			Large rounded clasts and sheared clasts         Faint consolidation laminae	A	Amalgamated channel margin or frontal splay Amalgamated	Overbank splays	
.5		Py			Large rounded clasts and sheared clasts         Faint consolidation laminae	A	Amalgamated channel margin or frontal splay Amalgamated channel axis and margin	Overbank splays Spill Phase Distributary-sized composite mixed depositional/erosive	Aggradation to Retrogradation
.0		Py			Large rounded clasts and sheared clasts Faint consolidation laminae Sporadic slightly coarser grains	A	Amalgamated channel margin or frontal splay Amalgamated	Overbank splays Spill Phase	Aggradation to
.5		(Py) (Py) (Py)			Large rounded clasts and sheared clasts Faint consolidation laminae Sporadic slightly coarser grains	A	Amalgamated channel margin or frontal splay Amalgamated channel axis and margin	Overbank splays Spill Phase Distributary-sized composite mixed depositional/erosive	Aggradation to Retrogradation Channels infilling
.0		(Py) (Py) (Py) (Py)			Large rounded clasts and sheared clasts         Faint consolidation laminae         Sporadic slightly coarser grains         Occasional small sheared flattened clasts         Occasional coarse grains, poorer sorted	A	Amalgamated channel margin or frontal splay Amalgamated channel axis and margin Amalgamated channel axis and margin Channel base <b>4th order BS</b>	Overbank splays Spill Phase Distributary-sized composite mixed depositional/erosive channel and splay system	Aggradation to Retrogradation Channels infilling and vertically stacking
).5 I.0 I.5		(Py) (Py) (Py)			Large rounded clasts and sheared clasts         Faint consolidation laminae         Sporadic slightly coarser grains         Occasional small sheared flattened clasts	A	Amalgamated channel margin or frontal splay Amalgamated channel axis and margin Amalgamated channel axis and margin	Overbank splays Spill Phase Distributary-sized composite mixed depositional/erosive	Aggradation to Retrogradation Channels infilling and vertically stacking
.5 .0 .0		Py Py Py			Large rounded clasts and sheared clasts         Faint consolidation laminae         Sporadic slightly coarser grains         Occasional small sheared flattened clasts         Occasional coarse grains, poorer sorted	A	Amalgamated channel margin or frontal splay Amalgamated channel axis and margin Amalgamated channel axis and margin Channel base <b>4th order BS</b>	Overbank splays Spill Phase Distributary-sized composite mixed depositional/erosive channel and splay system	Aggradation to Retrogradation Channels infilling and vertically stacking
.5 .0 .0		Py Py Py			Large rounded clasts and sheared clasts         Faint consolidation laminae         Sporadic slightly coarser grains         Occasional small sheared flattened clasts         Occasional coarse grains, poorer sorted         Faint consolidation laminae         Faint consolidation laminae	A	Amalgamated channel margin or frontal splay Amalgamated channel axis and margin Amalgamated channel axis and margin Channel base 4th order BS Channel margin Amalgamated channel axis 4th order BS Channel margin or frontal splay	Overbank splays Spill Phase Distributary-sized composite mixed depositional/erosive channel and splay system	Aggradation to Retrogradation Channels infilling and vertically stacking
0.5 1.0 1.5 2.0					Large rounded clasts and sheared clasts         Faint consolidation laminae         Sporadic slightly coarser grains         Occasional small sheared flattened clasts         Occasional coarse grains, poorer sorted         Faint consolidation laminae         Occasional coarse grains, poorer sorted         Faint consolidation laminae         Faint consolidation laminae         Faint consolidation laminae         Occasional coarse grains, poorer sorted	A	Amalgamated channel margin or frontal splay Amalgamated channel axis and margin Amalgamated channel axis and margin Channel base 4th order BS Channel margin Amalgamated channel axis 4th order BS	Overbank splays         Spill Phase         Distributary-sized composite mixed depositional/erosive channel and splay system         Cut and Fill Phase         Distributary-sized composite mixed depositional/erosive	Aggradation to Retrogradation Channels infilling and vertically stacking
0.5 1.0 1.5 2.0		Py Py Py			Large rounded clasts and sheared clasts         Faint consolidation laminae         Sporadic slightly coarser grains         Occasional small sheared flattened clasts         Occasional coarse grains, poorer sorted         Faint consolidation laminae         Faint consolidation laminae	A	Amalgamated channel margin or frontal splay Amalgamated channel axis and margin Amalgamated channel axis and margin Channel base 4th order BS Channel margin Amalgamated channel axis 4th order BS Channel margin or frontal splay	Overbank splays         Spill Phase         Distributary-sized composite mixed depositional/erosive channel and splay system         Cut and Fill Phase         Distributary-sized composite mixed depositional/erosive	Aggradation to Retrogradation Channels infilling and vertically stacking
).5 .0 .5 2.0					Large rounded clasts and sheared clasts         Faint consolidation laminae         Sporadic slightly coarser grains         Occasional small sheared flattened clasts         Occasional coarse grains, poorer sorted         Faint consolidation laminae         Occasional coarse grains, poorer sorted         Faint consolidation laminae         Faint consolidation laminae         Faint consolidation laminae         Occasional coarse grains, poorer sorted	A A A A A A	Amalgamated channel margin or frontal splay Amalgamated channel axis and margin Amalgamated channel axis and margin Channel base 4th order BS Channel margin Amalgamated channel axis 4th order BS Channel margin or frontal splay Channel base or coarse splay? Channel margin Amalgamated	Overbank splays         Spill Phase         Distributary-sized composite mixed depositional/erosive channel and splay system         Cut and Fill Phase         Distributary-sized composite mixed depositional/erosive	<text><text></text></text>
.5 .0 .5 .0		P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P			Large rounded clasts and sheared clasts         Faint consolidation laminae         Sporadic slightly coarser grains         Occasional small sheared flattened clasts         Occasional coarse grains, poorer sorted         Faint consolidation laminae         Occasional coarse grains, poorer sorted         Faint consolidation laminae         Faint consolidation laminae         Faint consolidation laminae         Occasional coarse grains, poorer sorted	A A A A A A	Amalgamated channel margin or frontal splay         Amalgamated channel axis and margin         Amalgamated channel axis and margin         Amalgamated channel axis and margin         Channel base       4th order BS         Channel base       4th order BS         Channel margin       Amalgamated channel margin         Channel base       4th order BS         Channel margin       Channel margin         Channel margin or frontal splay Channel base or coarse splay?         Channel margin	Overbank splays         Spill Phase         Distributary-sized composite mixed depositional/erosive channel and splay system         Cut and Fill Phase         Distributary-sized composite mixed depositional/erosive	<text><text><text></text></text></text>
).5 .0 .5 2.0 2.5 3.0		P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P			Large rounded clasts and sheared clasts         Faint consolidation laminae         Sporadic slightly coarser grains         Occasional small sheared flattened clasts         Occasional coarse grains, poorer sorted         Faint consolidation laminae         Coccasional coarse grains, poorer sorted         Faint consolidation laminae         Coccasional coarse grains, poorer sorted         Faint consolidation laminae         Coccasional coarse grains, poorer sorted         Faint consolidation laminae		Amalgamated channel margin or frontal splay         Amalgamated channel axis and margin         Amalgamated channel axis and margin         Amalgamated channel axis and margin         Channel base       4th order BS         Channel margin       Amalgamated channel axis         Amalgamated channel margin or frontal splay Channel base or coarse splay?         Channel margin         Amalgamated channel axis and margin         Amalgamated channel margin         Channel margin         Amalgamated channel axis and margin         Channel base       4th order BS	Overbank splays Spill Phase Distributary-sized composite mixed depositional/erosive channel and splay system Cut and Fill Phase Distributary-sized composite mixed depositional/erosive channel and splay system	<text><text><text></text></text></text>
.5 .0 .5 .0 .5 .0		P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P           P         P			Large rounded clasts and sheared clasts         Faint consolidation laminae         Sporadic slightly coarser grains         Occasional small sheared flattened clasts         Occasional coarse grains, poorer sorted         Faint consolidation laminae         Occasional coarse grains, poorer sorted         Faint consolidation laminae         Faint consolidation laminae         Faint consolidation laminae         Occasional coarse grains, poorer sorted		Amalgamated channel margin or frontal splay         Amalgamated channel axis and margin         Amalgamated channel axis and margin         Amalgamated channel axis and margin         Channel base       4th order BS         Channel base       4th order BS         Channel margin       Amalgamated channel axis         Amalgamated channel axis       4th order BS         Channel margin or frontal splay Channel base or coarse splay?         Channel margin         Amalgamated channel axis and margin         Channel base       4th order BS         Channel margin or frontal splay Channel base or coarse splay?         Channel margin       Amalgamated channel axis and margin         Channel base       4th order BS         Channel base       4th order BS         Channel margin       Amalgamated channel axis and margin	Overbank splays Spill Phase Distributary-sized composite mixed depositional/erosive channel and splay system Cut and Fill Phase Distributary-sized composite mixed depositional/erosive channel and splay system	<text><text></text></text>
.5 .0 .5 .0 .5 .0					Large rounded clasts and sheared clasts         Faint consolidation laminae Sporadic slightly coarser grains         Occasional small sheared flattened clasts         Occasional coarse grains, poorer sorted         Faint consolidation laminae         Coccasional coarse grains, poorer sorted         Faint consolidation laminae         Occasional coarse grains, poorer sorted         Faint consolidation laminae         Occasional coarse grains, poorer sorted         Faint consolidation laminae		Amalgamated channel margin or frontal splay         Amalgamated channel axis and margin         Amalgamated channel axis and margin         Amalgamated channel axis and margin         Channel base       4th order BS         Channel margin       Amalgamated channel axis         Amalgamated channel margin or frontal splay Channel base or coarse splay?         Channel margin         Amalgamated channel axis and margin         Amalgamated channel margin         Channel margin         Amalgamated channel axis and margin         Channel base       4th order BS	Overbank splays Spill Phase Distributary-sized composite mixed depositional/erosive channel and splay system Cut and Fill Phase Distributary-sized composite mixed depositional/erosive channel and splay system	<text><text><text></text></text></text>
0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5					Large rounded clasts and sheared clasts         Faint consolidation laminae         Sporadic slightly coarser grains         Occasional small sheared flattened clasts         Occasional coarse grains, poorer sorted         Faint consolidation laminae         Coccasional coarse grains, poorer sorted         Faint consolidation laminae         Coccasional coarse grains, poorer sorted         Faint consolidation laminae         Coccasional coarse grains, poorer sorted         Faint consolidation laminae		Amalgamated channel margin or frontal splay Amalgamated channel axis and margin Amalgamated channel axis and margin Channel base 4th order BS Channel margin Amalgamated channel axis 4th order BS Channel margin or frontal splay Channel base or coarse splay? Channel margin Amalgamated channel axis and margin Channel base 4th order BS Channel margin to splay Amalgamated	Overbank splays   Spill Phase   Distributary-sized composite mixed depositional/erosive channel and splay system   Cut and Fill Phase   Distributary-sized composite mixed depositional/erosive channel and splay system   Distributary-sized composite mixed depositional/erosive channel and splay system   Cut and Fill Phase	<text><text><text></text></text></text>
.5 .0 .5 .0 .5 .0 .5 .0					Large rounded clasts and sheared clasts         Faint consolidation laminae Sporadic slightly coarser grains         Occasional small sheared flattened clasts         Occasional coarse grains, poorer sorted         Faint consolidation laminae         Coccasional coarse grains, poorer sorted         Faint consolidation laminae         Occasional coarse grains, poorer sorted         Faint consolidation laminae         Occasional coarse grains, poorer sorted         Faint consolidation laminae         Occasional coarse grains, poorer sorted         Faint consolidation laminae         Faint laminations         Faint consolidation         Slightly occasional coarse grains, poorer sorted		Amalgamated channel margin or frontal splay Amalgamated channel axis and margin Amalgamated channel axis and margin Channel base 4th order BS Channel margin Amalgamated channel axis 4th order BS Channel margin or frontal splay Channel base or coarse splay? Channel margin Amalgamated channel axis and margin Amalgamated channel axis and margin Channel base 4th order BS Channel margin to splay Amalgamated channel axis and margin	Overbank splays Spill Phase Distributary-sized composite mixed depositional/erosive channel and splay system Cut and Fill Phase Distributary-sized composite mixed depositional/erosive channel and splay system	<text><text><text></text></text></text>
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0.5         1.0         1.5         2.0         2.5         3.0         4.5         5.0					Large rounded clasts and sheared clasts         Faint consolidation laminae Sporadic slightly coarser grains         Occasional small sheared flattened clasts         Occasional coarse grains, poorer sorted         Faint consolidation laminae         Coccasional coarse grains, poorer sorted         Faint consolidation laminae         Occasional coarse grains, poorer sorted         Faint consolidation laminae         Occasional coarse grains, poorer sorted         Faint consolidation laminae         Occasional coarse grains, poorer sorted         Faint consolidation laminae         Faint laminations         Faint consolidation         Slightly occasional coarse grains, poorer sorted		Amalgamated channel margin or frontal splay Amalgamated channel axis and margin Amalgamated channel axis and margin Channel base 4th order BS Channel margin Amalgamated channel axis 4th order BS Channel margin or frontal splay Channel base or coarse splay? Channel margin Amalgamated channel axis and margin Amalgamated channel axis and margin Channel base 4th order BS Channel margin to splay Amalgamated channel axis and margin	Overbank splays         Spill Phase         Distributary-sized composite mixed depositional/erosive channel and splay system         Cut and Fill Phase         Distributary-sized composite mixed depositional/erosive channel and splay system         Cut and Fill Phase         Distributary-sized composite mixed depositional/erosive channel and splay system         Cut and Fill Phase         Distributary-sized composite mixed depositional/erosive channel and splay system         Distributary-sized composite mixed depositional/erosive channel and splay system         Distributary-sized composite mixed depositional/erosive channel and splay system	<text><text><text></text></text></text>
0.5 1.0 1.5 2.0 2.5 3.0 4.0 4.5 5.0					Large rounded clasts and sheared clasts         Faint consolidation laminae         Sporadic slightly coarser grains         Occasional small sheared flattened clasts         Occasional coarse grains, poorer sorted         Faint consolidation laminae         Slightly occasional coarse grains, poorer sorted         Slightly occasional coarse grains, poorer sorted		Amalgamated channel margin or frontal splay Amalgamated channel axis and margin Amalgamated channel axis and margin Channel base 4th order BS Channel margin Amalgamated channel axis 4th order BS Channel margin or frontal splay Channel base or coarse splay? Channel margin Amalgamated channel axis and margin Channel base 4th order BS Channel margin to splay Amalgamated channel axis and margin	Overbank splays         Spill Phase         Distributary-sized composite mixed depositional/erosive channel and splay system         Cut and Fill Phase         Distributary-sized composite mixed depositional/erosive channel and splay system         Cut and Fill Phase         Distributary-sized composite mixed depositional/erosive channel and splay system         Cut and Fill Phase         Distributary-sized composite mixed depositional/erosive channel and splay system         Distributary-sized composite mixed depositional/erosive channel and splay system         Distributary-sized composite mixed depositional/erosive channel and splay system	<text><text><text></text></text></text>
0.5         1.0         1.5         2.0         2.5         3.0         3.5         4.0         4.5         5.0         5.5					Large rounded clasts and sheared clasts         Faint consolidation laminae         Sporadic slightly coarser grains         Occasional small sheared flattened clasts         Occasional coarse grains, poorer sorted         Faint consolidation laminae         Faint consolidation laminae         Faint consolidation laminae         Slightly occasional coarse grains, poorer sorted		Amalgamated channel margin or frontal splay Amalgamated channel axis and margin Amalgamated channel axis and margin Channel base 4th order BS Channel margin Amalgamated channel axis 4th order BS Channel margin or frontal splay Channel base or coarse splay? Channel margin Amalgamated channel axis and margin Channel base 4th order BS Channel margin to splay Amalgamated channel axis and margin	Overbank splays         Spill Phase         Distributary-sized composite mixed depositional/erosive channel and splay system         Cut and Fill Phase         Distributary-sized composite mixed depositional/erosive channel and splay system         Cut and Fill Phase         Distributary-sized composite mixed depositional/erosive channel and splay system         Cut and Fill Phase         Distributary-sized composite mixed depositional/erosive channel and splay system         Distributary-sized composite mixed depositional/erosive channel and splay system         Distributary-sized composite mixed depositional/erosive channel and splay system	<text><text><text></text></text></text>
0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 6.0					Large rounded clasts and sheared clasts         Faint consolidation laminae Sporadic slightly coarser grains         Occasional small sheared flattened clasts         Occasional coarse grains, poorer sorted         Faint consolidation laminae         Slightly occasional coarse grains, poorer sorted         Small clasts <1cm wide, pyrite		Amalgamated channel margin or frontal splay Amalgamated channel axis and margin Amalgamated channel axis and margin Channel base 4th order BS Channel margin Amalgamated channel axis 4th order BS Channel margin or frontal splay Channel base or coarse splay? Channel margin Amalgamated channel axis and margin Channel base 4th order BS Channel margin to splay Amalgamated channel axis and margin Amalgamated channel axis and margin Amalgamated channel axis and margin	Overbank splays         Spill Phase         Distributary-sized composite mixed depositional/erosive channel and splay system         Distributary-sized composite mixed depositional/erosive channel and splay system         Distributary-sized composite mixed depositional/erosive channel and splay system         Cut and Fill Phase         Distributary-sized composite mixed depositional/erosive channel and splay system         Distributary-sized composite mixed depositional/erosive channel and splay system         Mutiple episodes of channel reincision	<text><text><text></text></text></text>
0.5 1.0 1.5 2.0 2.5 3.0 4.0 4.5 5.0 5.5 6.0					Large rounded clasts and sheared clasts         Faint consolidation laminae         Sporadic slightly coarser grains         Occasional small sheared flattened clasts         Occasional coarse grains, poorer sorted         Faint consolidation laminae         Faint consolidation laminae         Faint consolidation laminae         Slightly occasional coarse grains, poorer sorted		Amalgamated channel margin or frontal splay Amalgamated channel axis and margin Amalgamated channel axis and margin Channel base 4th order BS Channel margin Amalgamated channel axis 4th order BS Channel margin or frontal splay Channel base or coarse splay? Channel margin Amalgamated channel axis and margin Channel base 4th order BS Channel margin to splay Amalgamated channel axis and margin	Overbank splays         Spill Phase         Distributary-sized composite mixed depositional/erosive channel and splay system         Cut and Fill Phase         Distributary-sized composite mixed depositional/erosive channel and splay system         Cut and Fill Phase         Distributary-sized composite mixed depositional/erosive channel and splay system         Cut and Fill Phase         Distributary-sized composite mixed depositional/erosive channel and splay system         Distributary-sized composite mixed depositional/erosive channel and splay system         Distributary-sized composite mixed depositional/erosive channel and splay system	<text><text><text></text></text></text>
0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 6.0 6.5		$\begin{array}{c} \left( \begin{array}{c} \mathbf{P} \\ \mathbf$			Large rounded clasts and sheared clasts         Faint consolidation laminae Sporadic slightly coarser grains         Occasional small sheared flattened clasts         Occasional coarse grains, poorer sorted         Faint consolidation laminae         Slightly occasional coarse grains, poorer sorted         Small clasts <1cm wide, pyrite		Amalgamated channel margin or frontal splay Amalgamated channel axis and margin Amalgamated channel axis and margin Channel base 4th order BS Channel base 4th order BS Channel margin or frontal splay Channel margin or frontal splay Channel base or coarse splay? Channel margin Amalgamated channel axis and margin Channel margin to splay Amalgamated channel axis and margin Amalgamated channel axis and margin Amalgamated channel axis and margin Amalgamated channel axis and margin	Overbank splays         Spill Phase         Distributary-sized composite mixed depositional/erosive channel and splay system         Distributary-sized composite mixed depositional/erosive channel and splay system         Distributary-sized composite mixed depositional/erosive channel and splay system         Cut and Fill Phase         Distributary-sized composite mixed depositional/erosive channel and splay system         Distributary-sized composite mixed depositional/erosive channel and splay system         Mutiple episodes of channel reincision	<text><text><text></text></text></text>
40.0 40.5 41.0 41.5 42.0 42.5 43.0 44.0 44.5 44.0 44.5 46.0 46.5 46.0					Large rounded clasts and sheared clasts         Faint consolidation laminae         Sporadic slightly coarser grains         Occasional small sheared flattened clasts         Occasional coarse grains, poorer sorted         Faint consolidation laminae         Slightly occasional coarse grains, poorer sorted         Small clasts <1cm wide, pyrite		Amalgamated channel margin or frontal splay Amalgamated channel axis and margin Amalgamated channel axis and margin Channel base 4th order BS Channel base 4th order BS Channel margin Amalgamated channel axis 4th order BS Channel margin or frontal splay Channel base or coarse splay? Channel margin Amalgamated channel axis and margin Channel base 4th order BS Channel margin to splay Amalgamated channel axis and margin Amalgamated channel axis and margin Amalgamated channel axis and margin Amalgamated channel axis	Spill Phase Distributary-sized composite mixed depositional/erosive channel and splay system Distributary-sized composite mixed depositional/erosive channel and splay system Cut and Fill Phase Distributary-sized composite mixed depositional/erosive channel and splay system Distributary-sized composite mixed depositional/erosive channel and splay system Cut and Fill Phase Distributary-sized composite mixed depositional/erosive channel and splay system	<text><text><text></text></text></text>
0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 6.0 6.5 7.0					Large rounded clasts and sheared clasts         Faint consolidation laminae Sporadic slightly coarser grains         Occasional small sheared flattened clasts         Occasional coarse grains, poorer sorted         Faint consolidation laminae         Slightly occasional coarse grains, poorer sorted         Small clasts <1cm wide, pyrite		Amalgamated channel margin or frontal splay Amalgamated channel axis and margin Amalgamated channel axis and margin Channel base 4th order BS Channel base 4th order BS Channel margin or frontal splay Channel margin or frontal splay Channel base or coarse splay? Channel margin Amalgamated channel axis and margin Channel margin to splay Amalgamated channel axis and margin Amalgamated channel axis and margin Amalgamated channel axis and margin Amalgamated channel axis and margin	Spill Phase Distributary-sized composite mixed depositional/erosive channel and splay system Cut and Fill Phase Distributary-sized composite mixed depositional/erosive channel and splay system Cut and Fill Phase Distributary-sized composite mixed depositional/erosive channel and splay system Cut and Fill Phase Distributary-sized composite mixed depositional/erosive Cut and Fill Phase	<text><text><text></text></text></text>

Montague	1	THE UNIVERSITY OF ADELAIDE AUSTRALIA	ASP Australian School of Petroleum		
Logged Date: June 2006	Notes:				
Well Total Depth: 4362 metres RT	Most of the cored interval was rubb	le contained within calico bags. Interr	pretation verv difficult and		
Logged: Kerrie Deller	extremely limited.				
Operator: Woodside Energy Ltd Latitude: 19 31' 41.3"S Longitude: 116 21' 4.6"E	The gamma ray curve was not atta of the cored zone (no silts or shales	ched due to the very poor recovery of s makes correlation to GR impossible)	core and the sandy nature		



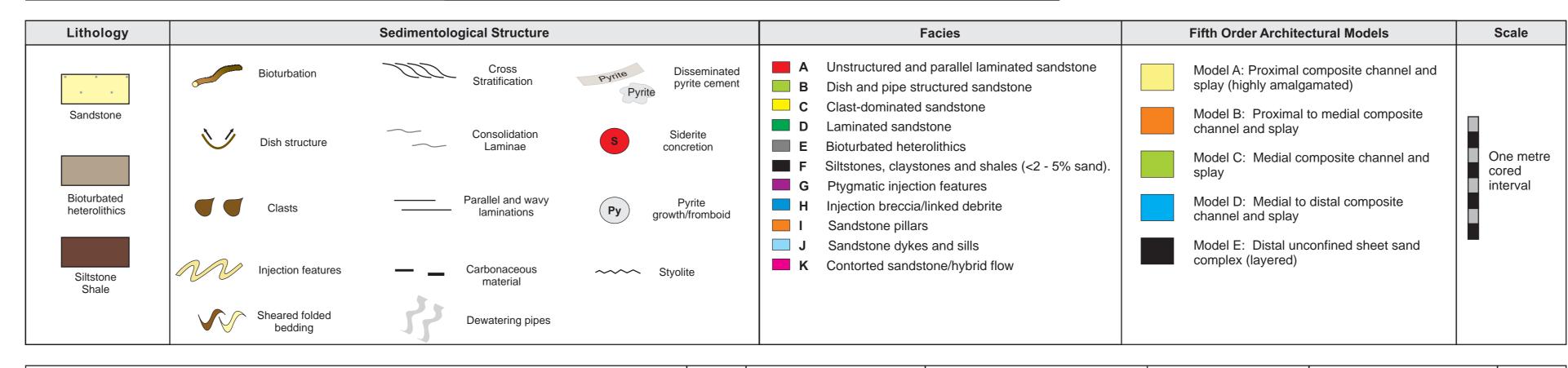


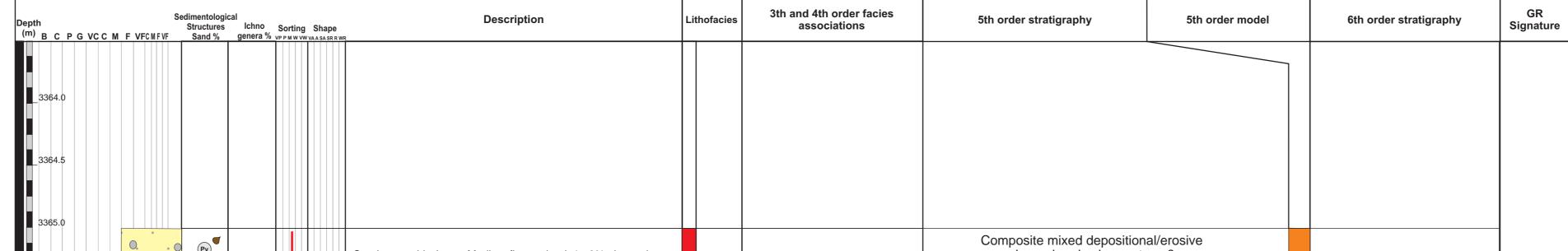
3229		~	_				Amalgamated channel axis				
	0 0							Cut and Fill Phase			
3230					Medium to fine grained moderately to well sorted sandstone. Occasional thin intervals containing coarse grains of uartz in a medium to fine grained matrix. Occasional faint consolidation laminations	A	Channel base 4th order BS Channel margin or frontal splay				
		~	_						Aggradation to Retrogradation Channels infilling	Gamma ray curve not attached due to poor core	
3231		0			Bagged interval hinders interpretation Coarse grains		Amalgamated channel axis Channel base 4th order BS		and vertically stacking	recovery	
					Medium to fine grained moderately to well sorted sandstone. Occasional thin intervals containing coarse grains of uartz in a medium to fine grained matrix. Occasional faint consolidation laminations		Amalgamated channel axis	Cut and Fill Phase			
3232					Large 4cm pyritic fromboid Coarse grains		Channel base 4th order BS	Distributary-sized composite mixed depositional/erosive channel and splay system High level of reincision and amalgamation			
3233					Medium fine grained sandstone moderately to well sorted Low to moderately cemented. Trace glauconite. Bagged interval hinders interpretation	Α	Amalgamated channel axis	Cut and Fill Phase	Aggradation Channels infilling and vertically stacking		
3234											
3235					Medium fine grained sandstone moderately sorted Low to moderately cemented. Trace glauconite. Pyrite fromboids common.		Amalgamated channel axis	Composite mixed depositional/erosive channel and splay system			
		•			Medium grained Sandstone poorly sorted, medium grained with sporadic coarser grains of uartz. 1- 2% glauconite. Well cemented	А	Channel base 4th order BS	Cut and Fill Phase 5th order BS	Eth order migration		
				17	Laminated very fine sandstone well sorted, trace glauconite, well cemented. Laminations disrupted by dewatering. Sheared and rounded mud clasts up to 2cm wide.	D H	Frontal/crevasse splay linked debrite or injected overbank	Spill Phase?	5th order migration		
3236					Small sheared clasts. Bagged interval hinders interpretation	А	Amalgamated channel axis 4th order BS		Aggradation? Channels infilling	Gamma ray curve not attached	
		Py	-		Pyritic fromboids 1 - 2cm diameter. Faint consolidation laminae		Channel margin	Composite mixed depositional/erosive	and vertical stacking or	due to poor core recovery	
					Occasional flat sheared clasts.			channel and splay system. Marginal or distributary-sized?	Progradation?		



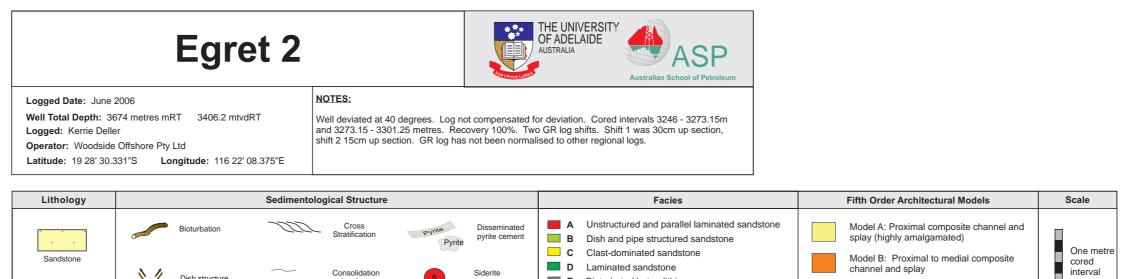
		gitude:		Core 1 3055 - 3080.6 metres. Core 2 30 hydrocarbon. Sedimentological Structure Cross Stratification	sominator	F A Unstructured and B Dish and pipe str	Facies Fifth Order Archi I parallel laminated sandstone Udured sandstone splay (highly ama roadstone	I composite channel and Igamated)	cale
one ated thics	V •••	Bioturbal Dish stru Clasts Injection	ucture	Consolidation Laminae Side Consolidation Laminations (Py) growth	ite cemeni erite retion /rite fromboid	t B Dish and pipe str C Clast-dominated D Laminated sands E Bioturbated heter	uctured sandstone splay (highly ama sandstone Model B: Proxim channel and splay oilhilos ones and shales (<2 - 5% sand). In features Iniked debrites s and sills Model D: Medial channel and splay Model D: Medial channel and splay	Igamated) al to medial composite / composite channel and to distal composite / nconfined sheet sand	One metre ored iterval
2	Sedimentological Structures Ich Sand % gene	Deddin	iy	Dewatering pipes	Lithofacies	3th and 4th order facies associations	5th order stratigraphy 5th Order Model	6th order stratigraphy	GR Signature
	51			Start Core 1 Fines up to fine silt (no shale) Very dark grey siltstone with very little bioturbation	F	Abandonment	Distal fine-grained unconfined splays	Abandonment	
	5 P, 1			Increased siderite Low bioturbation restricted to horizontal tracemarkers only. No zoopyhcos Fines up to homogeneous siltstone from bioturbated heterolithic coarse siltvery fine sand. No visible laminations and	F		Retrogradational Build Phase		
	30 40 20 30 20 30 20	to %		occasional burrows. Increased siderite. Concentrates in burrow features. Planolites, zoophycos, heliminthopsis, common terebellina. Bioturbated heterolithic very fine sand/coarse silt. Traces include planolites, zoophycos, heliminthopsis, terebellina.	E	Overbank or distal splay Overbank or distal splay	Distal fine-grained unconfined splays	Retrogradation	
	No dewatering	?		Silly zone with low bioturbation. Pyrite growths, 10% glauconite. Slight dewatering Sandstone fine to medium-grained, well sorted, fining to very fine-grained. Structureless. Sandstone fine to medium-grained, well to moderately sorted with visible dish and pillar structure. Dewatered zones have siderite cementation, non dewatered zones have possible gypsum cement. Strong cementation hinders interpretation	<u></u> В1 А В1 А В3 - В4	Abandonment Amalgamated channel margin or frontal splay Amalgamated channel margin or frontal splay	Progradational Build Phase 5th order BS Retrogradational Build Phase Stacked unconfined sandy splays (crevasse splays) Spill Phase	Retrogradation Backstepping of system Decreasing bed thickness	
	<pre>&gt;&gt; &lt; &lt;</pre>			Sandstone fine to medium-grained, well to moderately sorted with visible dish and pillar structure. Small clasts throughout. Glauconite 20% Consolidation laminations very faint Sandstone fine to medium-grained fining up to fine-grained. Disseminated privic cement.	B3 - B4 B3 B2 - B3 A	Amalgamated channel margin or frontal splay	Cut and Fill Phase		
				Glauconite 30% medium-grained sandstone fining upwards to medium to fine grained sandstone. High glauconte. Pyrite replaced clasts? Very faint dewatering consolidation lines.	A	Channel margin Thin channel axis Channel base 4th order BS Channel margin	Distributary-sized composite mixed depositional/erosive channel and splay system (mulit-story)	Aggradation to Retrogradation Backstepping of system	
				Structureless medium-grained sandstone, moderately sorted, 10 - 15% glau. Faint dewatering consolidation lines. Very fine laminations and very small sheared clasts Graded base. Sharp contact with underlying bed. Large rip-up clast of dark hemipelagic muldistone surrounded by smaller mudstone clasts and wispy discontinuous laminations. 20% glauconite.	A D H D	Amalgamated channel axis Channel base 4th order BS Injected frontal/crevasse splay Linked debrite or injected frontal/crevasse splay and overbank	Cut and Fill Phase Progradational Build Phase Unconfined progradational sandy splay 5th order BS Spill Phase	5th order migration	
				Medium sandstone fining to fine-grained, moderately sorted, 10 - 20% glauconite. Small floating mudstone clasts. Clast 2 - 3cm long rounded Occasional flattened mudstone clasts 1cm long.	A C A	Amalgamated channel axis Channel base 4th order BS	Cut and Fill Phase		
				Small mudstore floating class. Slight variation in grainsize and sorting to upper medium-grained and poorer sorting. 10 - 20% glau. Faint dewatered consolidation features. Small mudstone floating clasts. Elongated clast- depositional Faint dewatered consolidation features.	A A C	Channel margin Amalgamated channel axis Channel base <u>4th order BS</u> Channel margin and splay Amalgamated channel axis Channel base <u>4th order BS</u>	Composite mixed depositional/erosive channel and splay system	Aggradation Channels infilling and vertically stacking	
· · · · · · · · · · · · · · · · · · ·	· · ·			Faint dewatered consolidation features. Sandstone medium-grained, moderately sorted, 10 - 20% glau, structureless, disseminated pyritic cement. Cementation hinders interpretation Faint dewatered consolidation features.	A	Channel margin and splay Amalgamated channel axis Channel base 4th order BS Channel margin			
				Mudstone floating clasts.	A	Channel margin Amalgamated channel axis Channel base <u>4th order BS</u> Channel margin and splay? Amalgamated channel axis	Composite mixed depositional/erosive channel and splay system	Aggradation Channels infilling and vertically stacking	
	. a			Small flattened mudstone clasts 1 - 2cm long. Very faint consolidation	A	Channel base 4th order BS Channel margin and splay? Amalgamated channel axis	Cut and Fill Phase		
~ ~ ~				Core orange in colour. Probable HC. Very faint consolidation Sandstone medium-grained, moderately sorted. Fracture pyrite filled at 72.80m Very faint consolidation	A	Channel base         4th order BS           Channel margin and splay?         Amalgamated           Amangamated         channel axis           Channel base         4th order BS           Channel margin and splay?         Channel margin and splay?	Composite mixed depositional/erosive channel and splay system	Aggradation Channels infilling and vertically stacking	
	No structure 200 10			Sandstone medium-grained, mod to well sorted, 10 - 20% glau/ heavy minerals, structureless. While cement. Fines up to siltstone/mudstone - no shale. Heliminthopsis, zoophycos. Drop in bioturbation and sand content.	A F E F	Amalgamated channel axis Channel base 4th order BS Abandonment Overbank or distal splay	Cut and Fill Phase Sth order BS Retrogradational Build Phase Distal fine-grained unconfined splays	<ul> <li>5th order migration or 6th order?</li> </ul>	
	20-10 Py 20- 20-1 20-1	30%		Pyritic frombiods Siderite rich zone infilling burrows. Bioturbation includes planolites, heliminthopsis and zoophycos? Increasing sand content to bioturbated heterolithic fine sand/coarse silt. Siltstone with little sand, low bio	F	Abandonment Overbank or distal splay Abandonment	Distal fine-grained unconfined splays Progradational Build Phase Distal fine-grained unconfined splays 5th order BS		
	5% sand 10-			Injection features from underlying sand bed. Fining upwards top of bed. Mudstone rip down clasts 1cm wide. Rapidly grades from A through to B4 Dewatered sandstone with dish and pillar structures. Some burst through features noted. Sandstone medium-grained well sorted with 10 - 20% glau/heavy.	G B3-B4 B1 B2-B4 B1 B3-B4 A-B17	Amalgamated channel margin or frontal splay	Stacked unconfined retrogradational sandy splays Retrogradational Build Phase Stacked unconfined sandy splays (Spill phase from adjacent channel complex?) Spill Phase Distributary-sized composite mixed depositional/erosive channel and splay system		
	· · · · · · · · · · · · · · · · · · ·			Core colour change to white cement without pyrite. Faint dewatering consolidation lines. Sandstone medium-grained, well sorted, glau/heavy 10%, disseminated pyritic cement, Base slightly loaded. Small coarsening up base. Fines upward to non-bioturbated siltstone. No shale.	A A F	4th order Bs / Channel margin Amalgamated channel axis Channel base Frontal/crevase splay Abandonment	Unconfined progradational sandy splay Progradational Build Phase 5th order BS	5th order migration	
	201 0 - 0 - 0 - 0 -	70%		Sulphur on core. Bioturbated heterolithic fine sand/coarse silt. Planolites, zoophycos, heliminothopsis present. Siderite rich zone. Replaced burrows. Planolites, zoophycos, heliminothopsis present.	E	Overbank or distal splay	Distal fine-grained unconfined splays		
	60-	70%		Planoites, zoopnycos, neiminotropsis present. End Core 1		Overbank or distal splay			Shift dov 1.2 <mark>5m</mark>
	40	60%		Start Core 2 Bioturbated heterolithic fine sand/coarse sill. Traces include planolites, zoophycos, occasional Helminthopsis Fining up into overlying bioturbated heterolithics Large mudstone floating clast and wispy discontinuous laminations. Sandstone medium to fine-grained, well sorted, 5 - 10% glauheavy Rapid coarsening into overlying amalgamated sandstone unit. Fining upwards to fine-grained. Strong siderite cementation	A B4	Overbank or distal splay Amalgamated channel margin or frontal splay	Distal fine-grained unconfined splays Retrogradational Build Phase Stacked unconfined retrogradational sandy splays Spill Phase		
				Fining upwards to the-grained. Storing source commitation Extremely deviatered with dish and pillar structures. Grainsize not continuous due to dewatering. Fine-grained dewatered zones commented. Medium to fine-grained sand, moderate to well sorted, 5 - 10% glau/heavys. Fining upwards to fine-grained. medium-grained sand, moderate to well sorted, 5 - 10% glau/heavys. Consolication lines, floating mudstone clast and pyritic growth. Coarsening base.	B2 B1 B2 - B4 A B2 - B3 A B1 - B2 A	splay	Stacked unconfined sandy splays (Spill phase from adjacent channel complex?) Spill Phase Progradational Build Phase Unconfined progradational sandy splay 5th order BS	6th order BS	
	· (e) 10 	%		Coarsening base. No fining, Revidued bioturbation. Heliminthopsis, planolites. Bioturbated heterolithic fine sand/coarse sit. Bioturbation includes zoophycos, planolites, helimonthopsis, terebillina. Stiderite cement replacing burrows	E	Overbank or distal splay	Distal fine-grained unconfined splays	6th order BS	
	40- 20-3 250% sand	10%		Siderite cement replacing burrows Bioturbated heterolithic fine sand/coarse sit. Bioturbation includes zoophycos, planolites, helimonthopsis, terebillina. Sand injection 1cm thick.	E	Overbank or distal splay	Distal fine-grained unconfined splays Retrogradational Build Phase		
	20% sand	*		Low bioturbation Fire to very fine sand with internal shear features, zones of silly sandatone and disseminated pyritic comentation, carbonaceous matter. Injection feature within unit. Sharp base. Medium to fine sand fining to very fine sand, disseminated pyritic cernent, structureless at base. Medium to fine sand, well sorted, 5 - 10% glau/heavies, dish structures and lens of disseminated pyritic cernent. Base sharp and structureless Bioturbated heterolithic fine sandstone/coarse sitistone fining to sightly laminated sitistone. Planoties, Zoophycos and	K A B1-B2 A F	Overbank or distal splay hybrid flow event Channel margin and splay Amalgamated channel margin or frontal splay Abandonment Overbank or distal splay	Spill Phase Stacked unconfined retrogradational sandy splays (spill phase of adjacent channel complex) Progradational Build Phase Sth order BS Stacked unconfined retrogradational sandy splays	Retrogradation Decreasing bed thickness up section 5th order migration	
	® ®			Lteliminitopsis2.           Mudstone floating clasts with slight dewatering consolidation lines.           Sandstone grey, fine to medium-grained, moderately to well sorted           5 - 10% glaurheavies,           Pyrite growths           Sandstone fining up to medium/fine-grained. Consolidation lines with small pipes.	H A B1	Injected frontal/crevases splay or linked debrite Amalgamated channel margin or frontal splay Amalgamated channel axis Channel base <b>4th order BS</b> Channel margin and splay	Spill Phase Distributary-sized composite mixed depositional/erosive		
	No structure			Structureless.	A	Amalgamated channel axis Channel base 4th order BS Amalgamated channel margin or frontal splay	channel and splay system Cut and Fill Phase	Aggradation to Retrogradation Channels infilling and vertically stacking	
				Sandstone medium-grained, moderately to well sorted, glau/heav 5 - 10% Disseminated pyrite cemented lens crosscut core. Disseminated pyrite cement makes it difficult to identify dewatering.	A		Composite mixed depositional/erosive channel and splay system		
	No structure			Structureless sand, medium-grained, moderately to well sorted, 5 - 10% glau/heav, disseminated pyritic cement. Mudstone floating clasts. 5 - 10% glau/heav. Appear sheared	A	Amaigamated channel axis Channel base 4th order BS	Cut and Fill Phase	Aggradation Channels infilling and vertically stacking	
	No structure			Faint eruption structures Heavity dewatered zone with dish and pillar structures. Disseminated pyritic cerent. Sandstone medium-grained, moderately sorted with 5 - 10% glau/heav. Dewatering consolidation lines.	A B3 - B4 B2 A	Amalgamated channel margin or frontal splay Amalgamated channel axis	Distributary-sized composite mixed depositional/erosive channel and splay system (channel margin deposits) Progradational Build Phase 5th order BS	5th order migration	
	No structure			Disseminated pyritic cernent makes it difficult to identify dewatering.	A	Amaigamated channel axis Channel base 4th order BS Channel margin	Cut and Fill Phase Composite mixed depositional/erosive channel and splay system	Aggradation Channels infilling	
(				Lens of disseminated pyritic cement Small pyritic clast Small pipe features Faint devataring Lens of disseminated pyritic cement	A B4	Amalgamated channel axis Channel base 4th order BS Amalgamated	Cut and Fill Phase Composite mixed depositional/erosive channel and splay system Progradational Build Phase	and vertically stacking	
	No structure	<u>e 1</u>		Sandstone medium to fine-grained, moderately to well sorted, 10% glau/heav. Sharp base. Heterolithic fine sandisit. Low bioturbation. Inclined contact Fines upward to fine-grained. Mudstone floating clasts and wipy discontinuous laminate present. Injected appearance. Very faint consolidation lamiantions Fracture	B1 or B2 A E D H A	channel märgin or frontal splay Overbank or distal splay Frontal/crevasse splay linked debrite Channel margin Amalgamated	Stacked progradational sandy splays? 5th order BS Spill Phase Distributary-sized composite mixed depositional/erosive channel and splay system	<ul> <li>5th order migration</li> <li>Progradation</li> <li>Increasing bed thickness up section</li> </ul>	Shift Do
	(5)           No           structure   20- 0- 0- 0- 0- 0- 0- 0- 0- 0- 0- 0- 0- 0			Disseminated pyrite cement Sandstone medium-grained, moderate to well sorted, 10 - 20% glauheav. Slightly loaded base Bioturbated heterolithic fine sandicoarse silt. Traces include Terebellina, planolites, zoophycos, chondrites? Coarse siltstone. Low sand and low bioturbation.	E	Channel axis Channel base 4th order BS Overbank or distal splay Abandonment	Cut and Fill Phase Progradational Build Phase 5th order BS Distal fine-grained unconfined splays	6th order BS	
				Siderite coment replacing burrows. Siderite concretion approx 1 inch thick. Bioturbated heterolithic fine sand/coarse silt. Planolites, zoophycos, terebillina. Ptygmatic injection features 1 inch thick. Sandstone fine-grained fining up to bioturbated heterolithics.	F E G E	Overbank or distal splay Frontal/crevasse splay	Retrogradational Build Phase Unconfined retrogradational sandy splay	Abandonment Highstand splays	
	50% sand 30 - 1			Contains floating clasts and internal injection features. Siderite cement zone Sandstone injection feature Bioturbated heterolithic fine sandicoarse silt. Zoophycos, planolites, occasional heliminthopsis. Burrows lew m thick. Sandstone injection feature	E G E	Overbank or distal splay	(adjacent channel)	Retrogradation	
	₩ ³⁰ ₩ ₩ 10	s		Sandstone injection feature Sandstone injection feature Thick sand injection feature, line-grained with angular mudstone injectite breccia. Sharp and inclined contacts (40 degrees). Bedding angle inclined to 40%	J	Injectite	Distal fine-grained unconfined splays		
		% 1%		Sandstone injection feature Sandstone injection feature Small chondrites population? Bioturbated heterolithic fine sand/coarse silt. Planolites,heliminthopsis, rare Terebellina. Siderite cement	G	Overbank or distal splay		Retrogradation	
	50	95 95 95		Siderite cement Bioturbated heterolithic fine sand/coarse silt. Siderite cement		Overbank or distal splay	Distal fine-grained unconfined splays		
-		10%		Chondrites population Bioturbated heterolithic fine sand/coarse silt. Zoophycos, planolites heliminthopsis. Low hioturbation <u>No Core</u> Sandstone, very fine to fine-grained, slightly laminated (ripple x-laminated), appears affected by injection processes.	E D	Frontal/crevasse splay	Progradational Build Phase? 5th order BS? Retrogradational Build Phase Unconfine fertogradational sandy splay (adjacent channel)	Progradation 6th order BS? Highstand splays	
	5-1	0%		Bioturbated heterolithic fine sand/coarse silt. Siderite cement. Zoophycos, planolites, heliminthopsis.	E	Overbank or distal splay		Retrogradation	
	30 -	20%		Bioturbated heterolithic fine sand/coarse sit. Siderite cement. Zoophycos, planolites, heliminthopsis.	E				
		20%		Siderite rich zone replacing burrows.	G	Overbank or distal splay	Distal fine-grained unconfined splays	Retrogradation	
	50 - 50 - 30 -	60%		Bioturbated heterolithic fine sand/coarse sit. Zoophycos, planolites, heliminthopsis Traces overlap Siderite rich zone replacing burrows.		Overbank or distal splay			
	40-6	60%		Sand lined burrows Terebellina Siderite rich zone replacing burrows.	E	. — 4ney		Retrogradation	
	40 - 1 20 - 109 sand	30%		Bioturbated heterolithic fine sand/coarse silt. Bioturbated heterolithic fine sand/coarse silt. Zoophycos, planolites, chondrites?	E	Overbank or distal splay	Distal fine-grained unconfined splays		Shift Dow
	10-20% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30% sand 20-30	3		Chondrites population Very fine sandstone with fine silty laminations. Sharp contact: medium-grained sandstone, well sorted, 5 - 10% glau/heavy Sharp contact Small mudstone floating clast. Fining upward to medium/fine-grained and well sorted Lens of disseminated pyrite cement. Dewatering consolidation lines.	D	Frontal/crevasse splays Amaigamated channel axis Channel base 4th order BS Channel marmin	Retrogradational Build Phase Stacked unconfined retrogradational sandy splays Spill Phase Cut and Fill Phase Distributary-sized composite mixed depositional/erosive channel and splay system	Retrogradation Decreasing bed thickness up section	
	No structure			Dewatering consolidation lines. Sandstone medium-grained, moderately to well sorted, 5 - 10% glau/heavy Lens of disseminated pyrite cement. Small mudstone floating clasts. Sandstone medium-grained, well sorted, 5 - 10% glau/heavy Contact loaded. Fines to fine/medium-grained sitistone. No shale. Chordrites nouvellation, on visible zoophoros.	A	Channel margin Amalgamated channel axis Channel base 4th order BS Frontal/crevasse splay	channel and splay system Cut and Fill Phase Unconfined progradational sandy splay Progradational Build Phase 5th order BS	Aggradation Channels infilling and vertically stacking Progradation <u>6th order BS?</u> Abandonment	
	30 30 5 40% 5 40-1	% Bio		Chondrites population, no visible zoophycos. Bioturbated heterolithic fine sand/coarse silt. Siderite cementation preserving burrows	E	Overbank or distal splay		Abandonment	
	40% sand 40 -	60%		Bioturbated heterolithic fine sand/coarse silt. Burrows infilied with fine sand. Zoophycos, planolites, heliminthopsis Siderite cemented zone Wispy discontinuous laminations and carbonaceous matter,	E	Overbank or distal splay Frontal/crevasse splay	Distal fine-grained unconfined splays Retrogradational Build Phase	Retrogradation Decreasing bed thickness up section	
	10% sand 20*			Siderite cemented zone Witsy discontinuous laminations and carbonaceous matter, Extremely dewatered with dish and pillar structures, and consolidation surfaces. Sandstone fining to fine to very fine-grained. Sandstone medium to fine-grained, well sorted, glau/heav 20% Sharp contact Fining upward to slightly laminated sittstone Sulphur on core	D B4 B3 - B4 A F	Channel margin and splay	Stacked unconfined sandy splays (Spill phase from adjacent channel complex) Spill Phase Sth order BS	thickness up section	
	40% sand 70 Z, P, 709 709 75 75	н к		Bioturbated heterolithic fine sand/coarse silt. Traces include zoophycos, planolites, terebellina and heliminthopsis. Sandstone injection feature approximately 1cm thick.	E G		Distal fine-grained unconfined splays	Retrogradation	
	E 2 50 00 00 00 00 00 00 00 00 00 00 00 00			Bioturbated heterolithic fine sand/coarse silt. Traces include zoophycos, planolites, terebellina and heliminthopsis. Pyritic frombolds Chondrites population Bioturbated heterolithic fine sand/coarse silt. Chondrites population	E F H	Overbank or distal splay Frontal/crevasse splay Injected overbank or	Distal fine-grained unconfined splays Retrogradational Build Phase Stacked unconfined retrogradational sandy splays	Retrogradation Decreasing bed thickness up section	Shift Dov
				Lens of disseminated pyrite cement. Small mudstone floating clast Lens of disseminated pyrite cement. Small mudstone floating clast			Spill Phase? Composite mixed depositional/erosive		
				Lens of disseminated pyrite cement. Sandstone medium-grained, moderately to well sorted, 2 - 5% glauheary, disseminated pyritic cement. Faint pipe structures Small mudstone floating clasts Small mudstone floating clasts. Very faint consolidation lines present	A	Amalgamated channel axis Amalgamated channel axis 4th order BS	Composite mixed depositional/erosive channel and splay system Cut and Fill Phase	Aggradation to Retrogradation	
	· · · · · · · · · · · · · · · · · · ·			Slight fining up from upper to lower medium sandstone. Dewatering consolidation surfaces Disseminated pyritic cementation. Gamet?	A	Channel axis 4th order BS			
				Sandstone medium-grained, moderately to well sorted, 5% glau/heavy, pyritic cement Dewatering consolidation surfaces Dewatering consolidation surfaces	A	Channel margin Channel margin	Composite mixed depositional/erosive channel and splay system Cut and Fill Phase	Aggradation to Retrogradation Backstepping of system towards shelf	
				Dewatering consolidation surfaces Decrease in sorting to moderately to well sorted Sandstone medium-grained, well sorted, 5% glau/heavy. Small floating clasts. Lens of disseminated pyrite cement. Sandstone medium-grained, well sorted, 2 - 5% glau/heavy.	A C B1	Channel margin 4th order BS Channel margin	Composite mixed depositional/erosive channel and splay system	Aggradation Channels infilling and vertically stacking	
	Image: mail of the second s	% Ch		Disseminated pyrtic cementation. Pyrite fromboid. Sharp base Bioturbated heterolithic fine sand/coarse silt. Nest of physmatic sand injections. Injected contact Wispy discontinous laminations and floating clasts (r/p downs).	A G D H	Amalgamated channel axis 4th order BS Injected splay Frontal/crevasse splay	Cut and Fill Phase 5th order BS? Channel overbank or distal splay injections	Sth order migration? Presence of injectites suggests presence of lateral channel systems	
1.4			11	Sandstone, sub-rounded to sub-angular, well sorted, 2 - 5% glau/heavys. Rubble.	Α	Amalgamated channel axis	Spill Phase?	1	

Exeter 5S	Γ1	THE UNIVERSIT OF ADELAIDE AUSTRALIA	Y ASP Australian School of Petroleum			
Logged Date: June 2006	NOTES:					
Well Total Depth: 3454 metresLogged: Kerrie DellerOperator: Santos Pty LtdLatitude: 19 18' 36.270"SLongitude: 116 33' 41.123"E	Logged and drafted interval deviated at approximately 39 degrees. Structures and contacts are not deviated on this drafted log. Approximately 1.65 metres of drafted log e uals approximately 1 metre of true section					





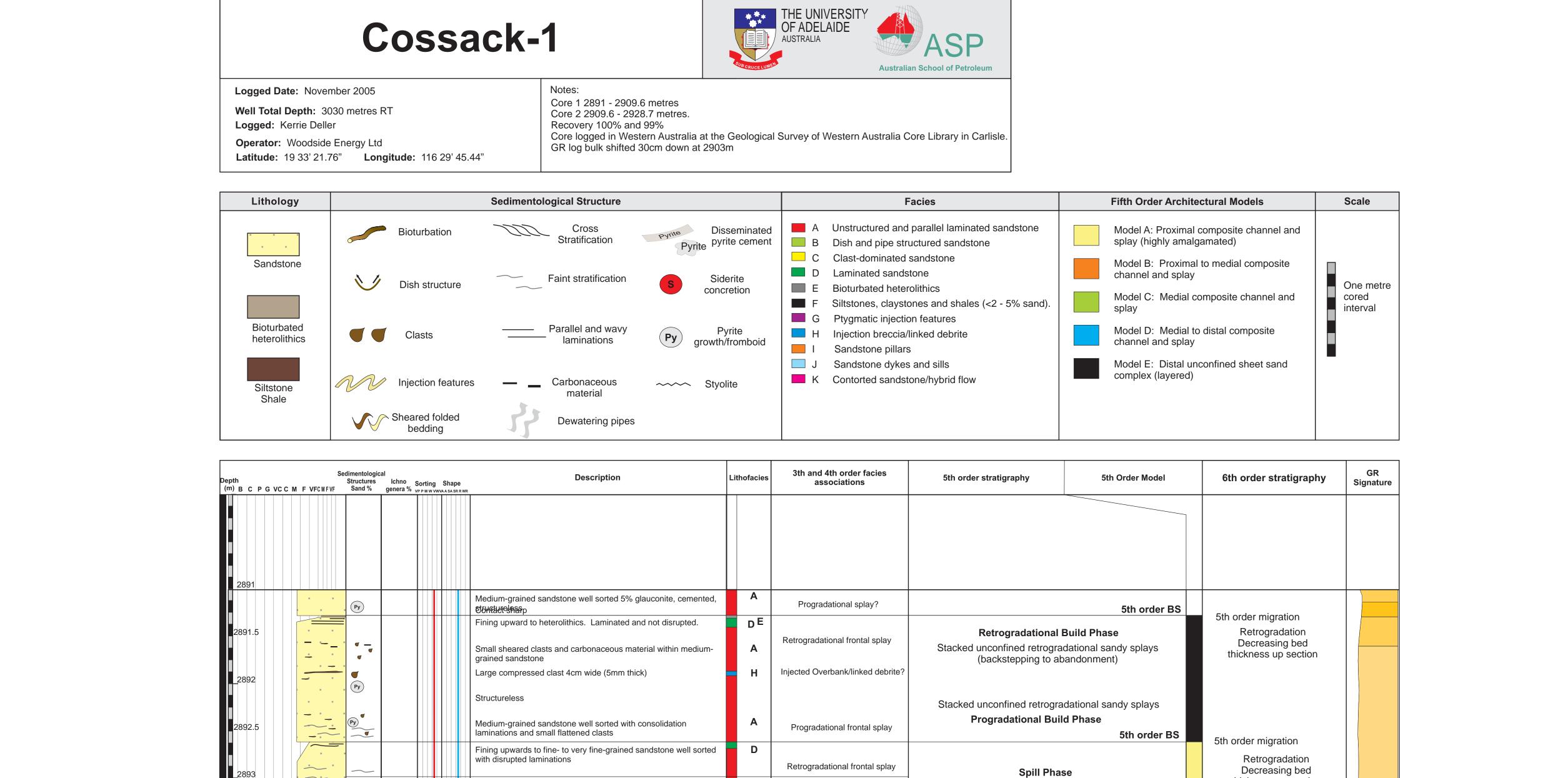
<u> </u>	Py			Sandstone white/grey. Medium fine grained, 1 - 3% glauconite. Moderately sorted. Stratification present. Sporadic clasts.	А	Channel margin and splay	Composite mixed depositional/erosive channel and splay systems? Stacked progradational sandy splays	Progradation
				Loaded contact Dark grey argillaceous siltstone/very fine sandstone mix. Low		Frontal/crevasse splay?	Progradational Build Phase     5th order BS	6th order BS
	10%	PI,Zoo Hel,Ter		amounts of sand. Laminated and moderately bioturbated (approx 20 - 30%). Ichnogenera include planolites, zoophycos, heliminthopsis, terrebellina.		Overbank or abandonment		
	10%	Hel,Ter		Strong Heliminthodia and Heliminthopsis	F		Abandonment	Abandonment
	S	PI,Zoo Hel,Ter				Overbank or abandonment		
$\sim$	10%			Occasional growths of pyrite ( 1 - 2cm wide) and siderite ( 3cm wide).	G	Overbank or abandonment		
	10%	Pl,Zoo Hel,Ter		Strong Heliminthodia and Heliminthopsis Chondrites Very fine sandstone laminated and slightly disrupted. No visible	F	Frontal/crevasse splay	Retrogradational Build Phase	Retrogradatio
				<ul> <li>glauconite. Bioturbated.</li> <li>Sheared clast-dominated interval with mud chips within medium sandstone. Highly cemented. Clast interval affected by injection. Bioturbation visible within clasts. Glauconite 2 - 5%.</li> </ul>	D H	Linked debrite or injected overbank	Stacked unconfined sandy splays (Spill phase from adjacent channel complex?) Spill Phase?	Decreasing be thickness up sec
· · · · ·				Faint parallel stratification		Channel margin	Cut and Fill Phase Distributary-sized composite mixed depositional/erosive	
· · ·				Faint parallel stratification	A	Amalgamated channel fill 4th order BS		
				Sandstone medium grained moderately sorted. White to brownish grey. Strongly to moderately cemented. 1 - 3% glauconite. Trace lithics. Faint parallel stratification Loaded base		Amalgamated channel margin or frontal splay	Stacked progradational sandy splays         Progradational Build Phase       5th order BS	Progradatio
	40%	PI,Zoo Hel,Ter		Strong Heliminthopsis and Heliminthodia populations	E	Overbank or distal splay	Retrogradational Build Phase Thin unconfined sandy splay (Spill phase from adjacent channel complex)	
	90% 40%	80%		Increased sand content, strongly bioturbated Dark grey argillaceous siltstone and very fine sandstone heterolithics. Laminated and bioturbated. Common planolites, occasional zoophycos, heliminthopsis and trace	D	Frontal/crevasse splay	Spill Phase 5th order BS?	5th order migration
	20%	PI,Zoo Hel,Ter	Ļ	Terrebellina. Increased siltstone Strong Heliminthopsis and Heliminthodia populations	E	Overbank or distal splay	Distal fine-grained unconfined splays	
	60%	70%		Strong Heliminthopsis and Heliminthodia populations Bioturbation near injectite difficult to note during		Overbank of distal splay		Retrogradation Decreasing be thickness up see
4	<del>30%</del> 20 - 30%	Hel,Ter		to high sediment compaction. Large injection feature. Sandstone same as described below. Highly cemented with secondary smaller injectite radiating off it. Pull up effect in laminated and bioturbated siltstone/fine sandstone		Sandstone pillar in	Retrogradational Build Phase	
	Ŵ			No structure, no fining.		heterolithics Fluidised contact	Fluidised contact Sedimentological structure destroyed	
					А			
				Sandstone medium grained moderately sorted. Low cement. 1 - 3% glauconite. Trace lithics. No structure. Occasional very small sheared clasts.		Amalgamated channel fill	Distributary-sized composite mixed depositional/erosive channel and splay system (mulit-story) Cut and Fill Phase	
	<b>—</b>			Large basal rip up clast cross cutting core Contact loaded	с	Channel base <b>4th order BS</b> Frontal/crevasse splay	Progradational sandy splay	
0	<10% 50% <b>Py</b> 90%	PI, Heli 20-50% bio	Ę	Dark grey argillaceous bioturbated very fine sand siltstone heterolithics. Pyritic growths. Thin 1cm package of very fine sand overlying a sand poor silt rich succession.	E D	Overbank or distal splay Frontal/crevasse splay	Progradational Build Phase         Distal fine-grained unconfined splays       5th order BS	5th order migration
	10% <b>Py</b> 50%	PI, Heli		Heliminthodia and Heliminthopsis commonContact undulating with underlying sandFining up to fine to very fine grained sandstone. High cement.	E	Distal overbank or abandonment Overbank or distal splay Channel margin to overbank	Distal fine-grained unconfined splays Stacked unconfined sandy splays (Spill phase from adjacent channel complex)	Aggradation
· · · · · · · · · · · · · · · · · · ·				Cement increasing	A	Amalgamated	Spill Phase	Channels infillin and vertically stack
					A	channel fill		
0	Py			Cementation hinders interpretation Amalgamated contact Faint consolidation laminae	D	Channel Base 4th order BS Channel margin	Composite channel-splay migration	
				Cross stratified sandstone within finer sandstone. Moderately sorted. Faint parallel stratification	Ū		Composite mixed depositional/erosive	
•	Ру					Amalgamated channel fill	channel and splay systems	
	No structure			Sandstone brownish grey, 1 - 3% glauconite, medium-grained, moderately sorted, occasional sporadic sheared mud clast				Aggradatior
••••	Ру			Pyrite Cementation hinders interpretation			Cut and Fill Phase	Channels infill and vertically sta
	No structure			Pyrite		Amalgamated channel fill		
. •	(Py) No structure			Sandstone brownish grey, 1 - 3% glauconite, medium grained, moderately sorted, occasional sporadic sheared mud clast				
0	Ру				A			
0	Py			Pyrite         Cementation hinders interpretation           Patchy dolomite cement         Patchy dolomite cement			Composite mixed depositional/grasive	
0	Py			Sandstone brownish grey, 1 - 3% glauconite, medium grained, moderately sorted, occasional sporadic sheared mud clast		Amalgamated channel fill	Composite mixed depositional/erosive channel and splay systems	
•	Py			Pyrite Faint parallel stratification	<u> </u>	Channel Base 4th order BS		
						Channel margin		Aggradatior Channels infill
· · · · · · · · · · · · · · · · · · ·				Faint parallel stratification				and vertically sta
				Patchy dolomite cement Cementation hinders interpretation Sandstone structureless	Α	Amalgamated channel fill	Cut and Fill Phase	
				Medium grained, moderately sorted				
	No structure			Sandstone medium grained, moderately sorted, moderate to low cement. 1 - 3% glauconite. No visible structure. Occasional small sheared mud clast.				
	•			Amalgamated contact	A	Channel Base 4th order BS	5th order BS?	Eth and a
				Flattened sheared clasts approximately 3cm wide. Cementation hinders interpretation	н	Injected overbank/linked debrite?		5th order migration?
	No structure			Patchy dolomite cement	A	Amalgamated channel axis		Progradatio
· · · · · · · · · · · · · · · · · · ·	$\sim$			Amalgamated contact Faint parallel stratification		Channel Base 4th order BS Channel margin and splays	Small composite mixed depositional/erosive channel and splay systems (multi-story distributary?)	Increasing be thickness up see
· · · · · · · ·	~			Patchy dolomite cement	А	Thin channel axis	Cut and Fill Phase	
· · · · ·	~			Faint parallel stratification		Channel Base 4th order BS Amalgamated channel margin or frontal splay	5th order BS?	
				Clast 3cm wide with visible internal bioturbation (chondrites?) Amalgamated contact Patchy dolomite cement	H A	Injected overbank or splay or linked debrite? Amalgamated channel margin or frontal	Stacked progradational sandy splays	5th order migration? Progradation
	<5%			Slightly loaded base Cementation hinders interpretation Dark grey argillaceous laminated siltstone with little sandstone. Low to no visible bioturbation. Heliminthodia? Base sharp with underlying sandstone. Poorly developed crossbedding at base	F	splay Abandonment or distal	Progradational Build Phase 5th order BS	6th order B
55		Ch		<ul> <li>With chondrites</li> <li>Medium grained sandstone with sheared and folded mudclasts up to 5cm thick. Some clasts display internal lamination. Strongly cemented.</li> </ul>	F K	Slumped overbank & splay Possible hybrid flow event?	Retrogradational Build Phase Linked debrite/hybrid splay deposits	Retrogradatio
	•			Medium-grained sandstone moderately sorted. Strongly cemented.	А	Amalgamated channel margin or frontal	Spill Phase Stacked unconfined sandy splays	
4	•			Occasional sheared mudchips and clasts. 1 - 2% glauconite.		splay	(Spill phase from adjacent channel complex)	
	10%	20%		Sharp base         Dark grey argillaceous siltstone with some sandstone. Low bioturbation. Dominantly Heliminthodia and Heliminthopsis	F	Channel Base 4th order BS Abandonment or distal overbank	Cut and Fill Phase 5th order BS	5th order migration Retrogradatio
	N	30%		Planolites Sandstone fine grained with disrupted laminations and overlain by heavy bioturbation (planolites/chondrites).	Đ	Frontal/crevasse splay	Retrogradational Build Phase Stacked unconfined retrogradational sandy splays	
				Contorted coarse siltstone, fine siltstone/shale and sandstone. Pygmatic injection features evident. No visible bioturbation. Appears slurried. Fine carbonacoues material evident. Base loaded into underlying sand Interpretation difficult through	H	Linked debrite or injected overbank Amalgamated	Linked debrite/hybrid splay deposits Spill Phase	
				state of core preservation Core firable and fragmented. Interpretation difficult. Medium grained with fine to very fine grained sand matrix with	Ē	channel margin or frontal splay	Stacked unconfined sandy splays (Spill phase from adjacent channel complex?)	Retrogradatic Decreasing be thickness up see
	?			1 to 2% glauconite and trace lithics. uartz clear to translucent Low cement. Flattened sheared clasts present at top of		Amalgamated channel fill?		



	Dish structure	Consolidation Laminae	s Siderite concretion	E Bioturbated heterolithics	Model C: Medial composite channel and	Interval
				<ul> <li>F Siltstones, claystones and shales (&lt;2 - 5% sand).</li> <li>G Ptygmatic injection features</li> </ul>	splay	
Bioturbated heterolithics	Clasts	Parallel and wavy laminations	Py Pyrite growth/fromboid	H Injection breccia/linked debrite	Model D: Medial to distal composite channel and splay	-
	M Injection features	Carbonaceous	Quality.	J Sandstone dykes and sills	Model E: Distal unconfined sheet sand complex (layered)	
Siltstone Shale	Injection reatures	material	Styolite			
	Sheared folded bedding	Dewatering pipes				

Scale

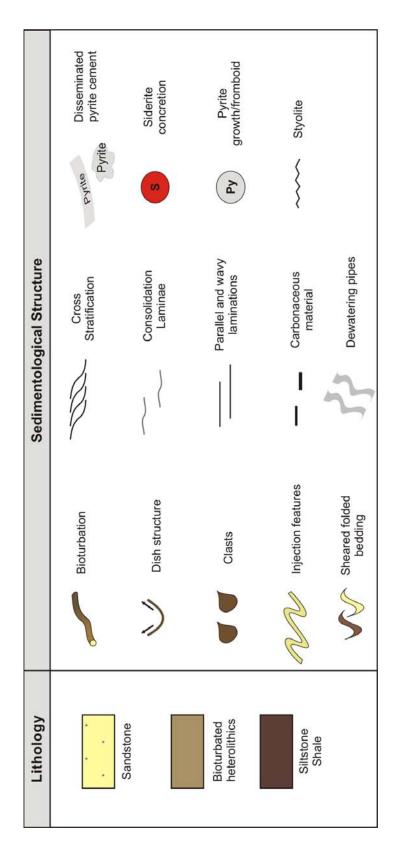
G VC C M F VFCM	Stru	ntological	Ichno	8# 8	Saes	p Description	Lithofacies	3th and 4th Order Facies	5th Order Stratigraphy 5th Order Model	6th Order Stratigraphy	GR
	FVF Sa	ctures	genera %	Very Poor Moderate Well Very well	><000	a Description	Lithofacies	Associations	5th Order Stratigraphy 5th Order Model	6th Order Stratigraphy	Signature
	, Str	No ucture	40 - 50%			Sandstone medium grained moderately sorted. No visible structur Trace glauconite.	e. A	Channel axis? Channel base? 4th order BS?	Cut and Fill Phase? 5th order BS		
			40 - 50%			Bioturbated heterolithics. Planolites dominate, occasional Heliminthopsis and Terebellina		Overbank or distal splay		6th order BS	J40
	20	1% 0%	20% 40%				E		Distal fine-grained unconfined splays Retrogradational Build Phase		
	1 40	0%	-			Siderite zone Decreasing sand content. Grading upwards to bioturbated heterolithics.	D	Overbank or distal splay	Stacked unconfined sandy splays	Retrogradation Decreasing bed thickness up section	
	1/-1	0% 40%				Low sand content. Dominantly silty sand-laminated interval.	D E	Amalgamated channel margin or frontal splay Overbank or distal splay	Stacked unconfined sandy splays (crevasse splays) <b>Spill Phase</b> 5th order BS?		
	°	0%				Fine to very fine-grained sandstone poorly sorted with disrupted silty laminations few mm thick. Sand and silt concentrations varying throughout succession.	D	Amalgamated channel margin or frontal splay	Stacked unconfined sandy splays (crevasse splays) <b>Spill Phase</b>		
	<b>~</b> 4	90%				Low sand content. Dominantly silty sand-laminated interval	E	Overbank or distal splay Amalgamated channel margin or frontal splay	5th order BS? Stacked unconfined sandy splays (crevasse splays) Spill Phase Progradational Build Phase 5th order BS		
	2	0% 0% - 50%	10% 10%			Increasing sand content. Low bioturbation. Heterolithics more laminated. Reduction in bioturbation. Ptygmatic injection feature Bioturbated heterolithics. Planolites dominate, occasional	E	splay Injected overbank or distal splay	Progradational Build Phase 5th order BS Retrogradational Build Phase Spill Phase	Retrogradation Decreasing bed thickness up section	
		- 50%	40%			Bioturbated heterolithics. Planolites dominate, occasional Heliminthopsis. Ptygmatic injection feature Ptygmatic injection feature Inclined heterolithic bedding.	G	united splay	Spill Phase (Lateral Injectites?) Distal fine-grained unconfined splays		
	40	- 50%	40%			Ptygmatic injection feature	E G	Injected overbank or distal splay	Spill Phase (Lateral Injectites?)		
	<u>،</u>	- 50%	20%			Bioturbated heterolithics. Planolites dominate, occasional Terebellina and Heliminthopsis.	E	Channel margin to overbank?	(∟aterai injectites?)	Aggradation	
	- · ·	~				Medium to fine grained sandstone moderately sorted. Faint stratification through unit. Moderately to well cemented. Trace glauconite.	A	Channel margin and splay Channel margin	Stacked unconfined sandy splays (Spill phase from adjacent channel complex) <b>Spill Phase</b>	Aggradation Channels infilling and vertically stacking	
		30%	5% 50 - 60%			Sharp contact Reduction in bioturbation. Bioturbated heterolithics. Planolites dominate, occasional	E		5th order BS		
	30	) - 40%	40%			Bioturbated heterolithics. Planolites dominate, occasional Heliminthopsis. Ptygmatic injection feature	G	Overbank or distal splay	Distal fine arging the state	Progradation to Aggradation Channel system located	
		40%	40%			Bioturbated heterolithics. Planolites and Heliminthopsis dominate.	E		Distal fine-grained unconfined splays	off-axis? 6th order BS	J35C
		40% 0%	60%			Terebellina		Overbank or distal splay			
	ŧ	50%	70%			Bioturbated heterolithics. Planolites dominate, occasional Heliminthopsis.	E				
			70%						Distal fine-grained unconfined splays	Aber 1	
		50%	50%			Bjølurboted kater Pri t	E	Overbank or distal splay		Abandonment	
		50% - 40%	50% 60 - 70%			Bioturbated heterolithics. Planolites dominate, occasional Heliminthopsis.	G		Retrogradational Build Phase		
		- 40%				Ptygmatic injection feature Bioturbated heterolithics. Planolites dominate, occasional Heliminthopsis. Siderite cemented zone	E		Retrogradational Build Phase Distal fine-grained unconfined splays		
	$\sim$	20% 20%	10 - 20% 20%			Ptygmatic injection features. Sharp sided. Bioturbated heterolithics. Planolites dominate, occasional Heliminthopsis.	G	Injected overbank or distal splay		Retrogradation Decreasing bed	
	_	<10%	<5%			Thin fine grained sandstone with laminations. Low bioturbation. Thin beds slumped. Laminations Medium-grained sandstone moderately sorted fining upward to fine to medium-grained. Trace glauconite.	D K D	Frontal/crevasse splay Hybrid flow/slump Amalgamated channel margin or frontal splay	Stacked unconfined sandy splays (Spill phase from adjacent channel complex) Spill Phase Progradational Build Phase 5th order BS	Decreasing bed thickness up section	
		10%	10%			Clast containing internal laminations.	F	Injected frontal/crevasse splay or linked debrite Abandonment	Progradational Build Phase 5th order BS	Progradation	
		20%	20%			Bioturbated heterolithics. Planolites dominate. High sand content.	F			6th order BS	
	3	0%	40%			Planolites, Terebellina.	E	Overbank or			
		50% - 70%	50%			Bioturbated heterolithics. Planolites dominate. High sand content. Minor Heliminthopsis		Overbank or distal frontal splay	Distal fine-grained unconfined splays Retrogradational Build Phase		
	60	- 70% - 70% 90%	40% 40% <10%			Bioturbated heterolithics. Planolites dominate. High sand content. Disrupted and laminated sandstone. Slightly bioturbated.	E	Frontal/crevasse splay	Spill Phase 5th order BS? Stacked unconfined sandy splays		
	=	0 - 40% 90% 60%	<10%			Bioturbated heterolithics. Planolites dominate. High sand content. Disrupted and laminated sandstone. Slightly bioturbated. Bioturbated heterolithics. Planolites dominate. High sand content.	D	Overbank or distal splay Frontal/crevasse splay Overbank or distal splay	(Spill phase from adjacent channel complex) 5th order BS?	Retrogradation Decreasing bed	
	stru	No ucture 10%	60% <5%			Bioturbated heterolithics. Planolites dominate. High sand content. Laminated fine grained sandstone grading up to unstructured fine-grained sandstone Siltstone with very little sand content. Very low bioturbation. Laminated sandstone grading to siltstone Sandstone medium to fine-grained with faint stratification	E A D F D A	distal splay Frontal/crevasse splay Abandonment Amalgamated	Spill Phase 5th order BS? Stacked unconfined sandy splays (Spill phase from adjacent channel complex)	Decreasing bed thickness up section	
		20%	None 40 - 50%				E	Channel margin or frontal splay Overbank or distal splay	(Spill phase from adjacent channel complex) Progradational Build Phase		
	-	5%	10%? 50 - 60%			Increased silt. Low bioturbation and sand content. Bioturbated heterolithics of very fine sandstone and siltstone. Planolites dominate.	F	Abandonment	Distal fine-grained unconfined splays 5th order BS		
		- 50%	40 - 50% 20 - 30%			Bioturbated heterolithics of very fine sandstone and siltstone. Planolites and Heliminthopsis. No visible zoophycos	E	Overbank or distal splay			
						Planoities and reliminitionsis. No visible 200phycos Low bioturbation Laminated sandstone Fine to very fine-sandstone well sorted with faint stratification. Laminated sandstone Fine-grained sandstone well sorted with faint stratification. Trace glauconite	D A D A	Amalgamated channel margin or frontal splay	Retrogradational Build Phase Stacked unconfined sandy splays (Spill phase from adjacent channel complex)	Retrogradation Decreasing bed thickness up section	
		~				Trace glauconite No Core Pipe features and dish structures within medium grained sandston	e. <b>B2</b>	Amalgamated channel margin or frontal	]		
						Pipe features and dish structures within medium grained sandston Pipes strongly cemented internally. Pipes approximately 5 cm long Faint stratification with small clasts		channel margin or frontal splay Channel margin	Spill Phase		
		itructure				Medium-grained sandstone. Moderately sorted. Trace glauconite. No visible structure	A	Thin channel axis? Channel base? 4th order BS?	Cut and Fill Phase?	Aggradation	
· · · · · · · · · · · · · · · · · · ·		~				Stratification	A B1 - B2		Spill Phase	Aggradation to retrogradation Channels infilling and vertically stacking	
		ی بر بر				Dish structures Medium-grained sandstone with dish structures and stratification.	B1	Channel margin Channel margin			
( ( 0 0		Structure				Medium-grained sandstone with dish structures and stratification. Moderately sorted Medium-grained sandstone with floating coarse grains. Moderately to poorly sorted trace glauconite. No visible structure.	A	Amalgamated channel axis	Cut and Fill Phase		
0 / / / 0	0 1 11 1	Structure				Moderately to poorly sorted trace glauconite. No visible structure.	A	Channel base 4th order BS Channel margin	Cut and Fill Phase Distributary-sized composite mixed depositional/erosive channel and splay system (multi-storey)		
	No 3	Structure				Medium-grained sandstone moderately sorted. Trace glauconite.		Amalgamated channel axis	channel and splay system (multi-storey)	Aggradation Channels infilling and vertically stacking	
00	, O		<5%			Medium-grained sandstone with floating coarse grains. Moderately to poorly sorted. 2% glauconite. No visible structure. Loaded base Core friable. Low bioturbation.	A F E	Channel base 4th order BS Abandonment	Cut and Fill Phase Lateral migration		?
	-50	9% 30% <del>- 60%</del> - 40%	40% 60%			Sharp sided injection feature of medium sandstone. No internal structure. Heterolithic bedding pulled up around it. Common pyritic fromboid Heavily bioturbated heterolithics. Dominant planolites and Heliminthopsis. Small pyritic fromboids common.	s. E	Injected distal splay or overbank	Lateral injectites from migrational channel system? Progradational Build Phase 5th order BS	6th order BS	J35B Shift 1
						Disturbed small scale injected top. No laminations Large bioturbated clast 10cm and cross cutting core. Clast orientation becoming chaotic and inclined. Fine-grained sandstone moderately sorted. Sheared clasts and	G A H	Fluidised top Linked debrite or injected overbank Amalgamated channel marrie or frontal	Retrogradational Build Phase Stacked unconfined sandy splays (Spill phase from adjacent channel complex)	Retrogradation Decreasing bed	30cm up
						Fine-grained sandstone moderately sorted. Sheared clasts and disrupted laminations common. Occasional pyritic fromboids. Moderate cementation. Sharp base No drop in bioturbation	D	Amalgamated channel margin or frontal splay	Spill Phase 5th order BS	Decreasing bed thickness up section	
	50	- 60%	70 - 80%			Heavily bioturbated	E	Distal splay or overbank			
p pro este 🖬					1111	Bioturbated base with a		Distal splay of overballk		· ·	
	50	- 60%	80%			Bioturbated heterolithics. Planolites and Heliminthopsis dominate with possible Zoophycos and Terebellina. High sand content.	E	Distal splay of overballik	Distal fine-grained unconfined splays		
		- 60%	80%				E	Distal splay of overbank	Distal fine-grained unconfined splays		
	50 40	- 60%				with possible Zoophycos and Terebellina. High sand content. Heavily bioturbated Bioturbated heterolithics. Planolites and Heliminthopsis dominate. Fine-grained sandstone moderately to well sorted. Faint stratification with occasional sheared clasts grade upwards to laminated sandstone.	E H	Distal splay or overbank	Distal fine-grained unconfined splays		
	40	- 60%	80%			with possible Zoophycos and Terebellina. High sand content. Heavily bioturbated Bioturbated heterolithics. Planolites and Heliminthopsis dominate. Fine-grained sandstone moderately to well sorted. Faint stratification with occasional sheared clasts grade upwards	E	Distal splay or overbank		Aggradation Channels infilling	
	40	- 60%				with possible Zoophycos and Terebellina. High sand content. Heavily bioturbated Bioturbated heterolithics. Planolites and Heliminthopsis dominate. Fine-grained sandstone moderately to well sorted. Faint stratification with occasional sheared clasts grade upwards to laminated sandstone. Bioturbated heterolithics. Visible Planolites and Terebellina Medium sandstone fining up to fine very fine grained sandstone	E H H	Distal splay or overbank Injected frontal/crevasse splay or linked debrite Distal splay or overbank Frontal/crevasse splay Injected overbank/debrite Amalgamated channel margin or frontal	Retrogradational Build Phase	Aggradation Channels infilling and vertically stacking	
	40 10 10 10 10 10	- 60%				with possible Zoophycos and Terebellina. High sand content. Heavily bioturbated Bioturbated heterolithics. Planolites and Heliminthopsis dominate. Fine-grained sandstone moderately to well sorted. Faint stratification with occasional sheared clasts grade upwards to laminated sandstone. Bioturbated heterolithics. Visible Planolites and Terebellina Medium sandstone fining up to fine very fine grained sandstone with large 8cm clast	E D H A	Distal splay or overbank Injected frontal/crevasse splay or linked debrite Distal splay or overbank Frontal/crevasse splay Injected overbank/debrite Amalgamated channel margin or frontal splay Channel margin Amalgamated channel axis	Retrogradational Build Phase Spill Phase Distributary-sized composite mixed depositional/erosive channel and splay system (multi-storey) Cut and Fill Phase	Channels infilling	
	50 40	- 60% - 50% Structure Structure Structure				with possible Zoophycos and Terebellina. High sand content. Heavily bioturbated Bioturbated heterolithics. Planolites and Heliminthopsis dominate. Fine-grained sandstone moderately to well sorted. Faint stratification with occasional sheared clasts grade upwards to laminated sandstone. Bioturbated heterolithics. Visible Planolites and Terebellina Medium sandstone fining up to fine very fine grained sandstone with large 8cm clast	E D H A	Distal splay or overbank Injected frontal/crevasse splay or linked debrite Distal splay or overbank Frontal/crevasse splay Injected overbank/debrite Amalgamated channel margin or frontal splay Channel margin Amalgamated	Retrogradational Build Phase Spill Phase Distributary-sized composite mixed depositional/erosive channel and splay system (multi-storey) Cut and Fill Phase	Channels infilling and vertically stacking	
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Strongly commended fries guard to laminated sandstone.</li> <li>United stratification and small shared clast</li> <li>Modere and some contently sorted, trace glauconite. (Modera terroris) compressed and inclined through injection. No disrupted laminated intervals or carbonaceous matter present.</li> <li>Core rubble</li> <li>Core rubble</li> <li>Core rubble</li> <li>Disturbated heterolithics up fine sandstone allottone.</li> <li>Dominantly structuroless</li> <li>Core rubble</li> <li>Disturbated heterolithics up fine sandstone allottone.</li> <li>Core rubble</li> <li>Disturbated heterolithics up fine sandstone allottone.</li> <li>Dominantly structuroless</li> <li>Core rubble</li> <li>Disturbated heterolithics up fine sandstone and siltstone.</li> <li>Cortact sharp - no laminated an injected interval.</li> <li>Carbonacous natter present.</li> <li>Medium-grained sandstone moderately sorted. No structure.</li> <li>Occasional pyritic fromboids</li> <li>Fant stratification</li> <li>Law bleithrobes and Zoophycos.</li> <li>Bioturbated heterolithics very</li></ul>		Distal splay or overbank Injected frontal/crevasse splay Injected overbank/ebrite Amalgamated channel margin or frontal splay Channel margin Amalgamated channel axis Channel Base <b>4th order BS</b> Channel Base <b>4th order BS</b> Injected frontal/crevasse splay Injected overbank/distal splays Injected overbank/distal splays Injected overbank/distal splays Channel margin C	Retrogradational Build Phase         Spill Phase         Distributary-sized composite mixed depositional/erosive         Cut and Fill Phase         Vnconfined progradational Build Phase         Obstal fine-grained unconfined splays         Retrogradational Build Phase         Stacked unconfined retrogradational sandy splays         Retrogradational Build Phase         Stacked unconfined retrogradational sandy splays         Retrogradational Build Phase         Stacked unconfined retrogradational sandy splays         Retrogradational Build Phase         (Lateral injectites from migrational channel system)         Distal fine-grained unconfined splays (overbank)         Spill Phase         (Lateral injectites from migrational channel system)         Distal fine-grained unconfined splays         Cut and Fill Phase         Slumped overbank and splay deposits         Spill Phase         Distributary-sized composite mixed depositional/erosive         Chan and splay system         Cut and Fill Phase         Slumped overbank and splay deposits         Spill Phase         Distributary-sized composite mixed depositional/erosive         Chan and applay system         Cut and Fill Phase         Distrin buidar Phase         Slun	Channels infilling and vertically stacking	15cm
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No structure.</li> <li>Occasional small pyritic fromboids Smm wide</li> <li>Faint stratification</li> <li>Hear Heliminthopsis and Zoophycos.</li> <li>Bioturbated heterolithics very fine sandstone and siltstone.</li> <li>Core tract indeterminable</li> <li>Phanolites dominant farme heliminthopsis?</li> <li>Faint stratification</li> <li>Conscional pyritic fromboids.</li> <li>Faint stratification</li> <li>Conscional pyritic fromboids.</li> <li>Faint stratification</li> <li>Core trubble</li> <li< td=""><td></td><td>Distal splay or overbank         Injected frontal/crevasse splay         Injected frontal/crevasse splay         Injected overbank/debrite         Amalgamated         channel margin         Amalgamated         Channel Base       4th order BS         Channel Base       4th order BS         Channel Base       4th order BS         Distal splay or overbank       Frontal/crevasse splay         Distal splay or overbank       Frontal/crevasse splay         Injected frontal/crevasse 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High sand content.</li> <li>Heavily bioturbated</li> <li>Bioturbated heterolithics. Planolites and Helminthopsis dominate.</li> <li>Fine-grained standstone moderately to well sorted.</li> <li>Fain stratification</li> <li>Medium grained standstone moderately sorted trace glauconte, low cenerit, no visible structure.</li> <li>Some patchy dotomic consolitation of the very fine grained standstone with range form cast.</li> <li>No core</li> <li>Fine grained standstone well sorted strongly cenerated with faint stratification.</li> <li>Contact charp with underlying heterolithics.</li> <li>No drop in bioturbation</li> <li>Biourbated heterolithics dominantly planolites with occasional Heliminthopsis.</li> <li>Biourbated fine standstone</li> <li>Fine-grained standstone well sorted with clasts. Strongly cenerated with faint stratification.</li> <li>Contact charp with underlying heterolithics.</li> <li>No drop in bioturbation</li> <li>Biourbated fine standstone</li> <li>Fine-grained standstone well sorted with clasts. Strongly cenerated with faint stratification constraints and strongly compressed and inclined through injector.</li> <li>Laminated fine standstone well sorted with clasts. Strongly cenerated files sound to a laminated standstone.</li> <li>Figerated zone phygmatically folded.</li> <li>Heenorithics strongly compressed and inclined through injector.</li> <li>Core rubble</li> <li>Core rubble</li> <li>Dioturbated heterolithics very fine standstone sitistone.</li> <li>Core rubble some Zoophycos and Heliminthopsis?</li> <li>Fine-grained standstone moderately sorted. Inse glauconite.</li> <li>Medium grained standstone moderately sorted. No structure.</li> <li>Occasional small present.</li> <li>Stary night textures present.</li> <li>Stary</li></ul>		Distal splay or overbank Injected frontal/crevasse splay or linked debrite Distal splay or overbank Finited overbank/debrite Amalgamated channel margin Amalgamated channel Base 4th order BS Channel Base 4th order BS Channel Base 9th order BS Distal splay or overbank Frontal/crevasse splay Distal splay or overbank Injected overbank/distal splays Injected overbank/distal splays Channel margin Channel margin Channel margin Channel margin Channel margin Channel axis Channel base 4th order BS Distal splay or overbank Distal splay or overbank Channel base 4th order BS Channel margin or splay? 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High sand content.</li> <li>Heavily bioturbated</li> <li>Bioturbated heterolithics. Planolites and Heliminthopsis dominate.</li> <li>Prine-grained sandstone moderately to well sorted.</li> <li>Prine-grained sandstone moderately to well sorted.</li> <li>Tere grained sandstone fining up to fine very fine grained sandstone with large 8cm class.</li> <li>Very faint stratification</li> <li>Medium sandstone fining up to fine very fine grained sandstone to the very fine grained sandstone.</li> <li>Frie grained sandstone moderately sorted trace glaucosite, tow cement, no visible structure.</li> <li>Some patchy dolomite cemer</li> <li>No core</li> <li>Prine-grained sandstone well sorted strongly cemented with occasional Heliminthopsis.</li> <li>Laminated fine standstone</li> <li>Frie-grained sandstone well sorted with clasts. Strongly cemented Fine guard to laminated sandstone.</li> <li>Injected zone physmatically folded.</li> <li>Helerotithics and sandstone moderately sorted, trace glaucosite. No discupted laminated sandstone.</li> <li>Injected zone physmatically folded.</li> <li>Helerotithics and sandstone moderately sorted, trace glaucosite.</li> <li>Moderate came.</li> <li>Core rubble</li> <li>Core rubble</li> <li>Decasional amall pyritic fromboids Srm wide</li> <li>Faint stratification and small sheared clast</li> <li>Medium grained sandstone moderately sorted. Twos glaucosite.</li> <li>Moderate came.</li> <li>Decasional amall pyritic fromboids Srm wide</li> <li>Faint stratification and small sheared clast</li> <li>Medium grained sandstone moderately sorted. 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Channel axis Channel base 4th order BS Channel base 7 4th order BS Channel base 9 4th order BS Channel base	Retrogradational Build Phase         Distributingstaced composite mixed depositional/eroses         Cut and Fill Phase         Unconfined progradational Build Phase         Destablinggrained unconfined splays         Retrogradational Build Phase         Stacked unconfined retrogradational andy splays         Retrogradational Build Phase         Stacked unconfined retrogradational andy splays         Retrogradational Build Phase         (Lateral Injectites from migrational channel system)         Distabling-grained unconfined splays (overbank)         Split Phase         (Lateral injectites from migrational channel system)         Distabling-grained unconfined splays (overbank)         Split Phase         Stacked unconfined splays (overbank)         Split Phase         Cut and Fill Phase         Sumped overbank and splay splaymant         Cut and Fill Phase         Stacked inconfined splay system         Cut and Fill Phase         Stacked inconfined splay system         Cut and Fill Phase         Stacked inconfined splay system         Stacked inconfined splay system         Cut and Fill Phase         Stacked inconfined splay system         Stacked inconfined splay system         Stacked inconfined splay system </td <td>Channels infilling and vertically stacking Lateral migration of fifth order channel complex Aggradation Channels infilling and vertically stacking Channels infilling and vertically stacking Aggradation Channels infilling and vertically stacking Lateral migration of channels infilling and vertically stacking Lateral migration of channels infilling and vertically stacking Aggradation Channels infilling and vertically stacking Lateral migration of channels infilling and vertically stacking Bergasation Channels infilling and vertically stacking Aggradation Channels infilling and vertically stacking Aggradation Channels infilling and vertically stacking</td> <td>15cm</td>	Channels infilling and vertically stacking Lateral migration of fifth order channel complex Aggradation Channels infilling and vertically stacking Channels infilling and vertically stacking Aggradation Channels infilling and vertically stacking Lateral migration of channels infilling and vertically stacking Lateral migration of channels infilling and vertically stacking Aggradation Channels infilling and vertically stacking Lateral migration of channels infilling and vertically stacking Bergasation Channels infilling and vertically stacking Aggradation Channels infilling and vertically stacking Aggradation Channels infilling and vertically stacking	15cm
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393		/~ ~	~		Fining upwards to fine- to very fine-grained sandstone well sorted with disrupted laminations	D	Retrogradational frontal splay	Spill Phase	5th order migration Retrogradation Decreasing bed	
93.5		· · · · · · · · · · · · · · · · · · ·		-	Faint stratification Medium grained sandstone well sorted 5% glauconite, well cement occasional small (<5mm) clasts, structureless		Amalgamated channel axis?		thickness up section	
394		· · ·	Py Py		Faint stratification with large pyritic growths up to 4cm wide	A	Channel base 4th order BS Channel margin?	Channels becoming more shallow and distributary-like		
94.5		· · ·	Ру				Amalgamated	Cut and Fill Phase		
395							channel axis	Composite mixed depositional/erosive channel and splay systems		
95.5		· · ·	-		Medium-grained sandstone well sorted 5% glauconite, well cemented,occasional small (<5mm) clasts, structureless				Aggradation Channels infilling and vertically stacking	
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96.5			1		Medium-grained sandstone well sorted 5% glauconite, well cemented, occasional small (<5mm) clasts, structureless			Cut and Fill Phase		
97							Amalgamated channel axis		Aggradation	
7.5							Channel axis		Aggradation Channels infilling and vertically stacking	
98								Composite mixed depositional/erosive channel and splay systems		
8.5					Medium-grained sandstone well sorted 5% glauconite, well cemented, occasional small (<5mm) clasts, structureless	А	Channel base 4th order BS	Cut and Fill Phase 5th order BS	5th order migration	
99				5% •	Siltstone with ptygmatic injectites. Low bioturbation. Planolites Medium- to fine-grained sandstone with clasts and laminations Siltstone. No bioturbation	E and G A& D F	Injected overbank/distal splay Frontal/crevasse splay Abandonment	Spill Phase		
9.5				-	Slight fining upwards to medium to fine grained sandstone, well sorted, small (<5mm) clasts and disrupted laminations. Faint stratification	А	Retrogradational frontal splays	Cut and Fill Phase		
00					Medium-grained sandstone, well sorted, 3% glauconite, structureless. Amalgamated contact Grading to fine-grained sandstone well sorted with large 2cm wide	D&H	Scoured surface?	Distributary sized composite mixed depositional/erosive channel and splay system (marginal) 5th order BS?		
0.5			<u> </u>		Sheared clasts and disrupted laminations Medium-grained sandstone, well sorted, 5% glauconite,	Dan	Injected overbank/linked debrite Channel margin to overbank Amalgamated	Distributary sized composite mixed depositional/erosive channel and splay system (marginal)	Progradation	
01					occasional pyritic growths (<1cm wide).	А	channel axis Channel base 4th order BS			
1.5		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Py	-	Faint stratification Medium-grained sandstone, well sorted, 5% glauconite, occasional pyritic growths (<1cm wide).		Progradational frontal splay	Unconfined progradational sandy splay		
02			Py 70% 50%	1% 50 - 80%	Contact slightly loaded Grading to fine siltstone with no bioturbation High sand content. Planolites and Heliminthopsis/odia dominate. Injection feature	F E&G	Abandonment Injected overbank or distal splay	Progradational Build Phase 5th order BS	6th order BS Fan lobe abandonment	K5
2.5			20 - 3	0% 40%	Bioturbated heterolithics (siltstone/very fine sandstone) Low sand.         Injected upper contact         Medium-grained sandstone, well sorted, 5% glauconite.         Structureless	<u>E&amp;G</u>	Injected inclined contact Retrogradational frontal splay	Retrogradational Build Phase Stacked unconfined retrogradational sandy splays (backstepping to abandonment) Spill Phase	Retrogradation Decreasing bed thickness up section	
03			$\langle \rangle$	-	Drop in grainsize to medium to fine-grained with faint stratification.	А	Channel margin	Spill Phase	Log shifted 30cm down	1
3.5		· · ·	Ру				Amalgamated channel axis	Composite mixed depositional/erosive channel and splay systems		
04			(Py Py		Medium-grained sandstone, well sorted, 5% glauconite, moderately cemented. Occasional pyritic growths up to 1cm wide					
4.5			Ру							
05		•				A	Amalgamated	Cut and Fill Phase		
5.5		· · ·	Ру				Amalgamated channel axis		Aggradation Channels infilling and vertical stacking	
06		· · ·	Py           Py							
6.5			Ру		Medium-grained sandstone, well sorted, 5% glauconite, moderately cemented.					
07			Ру		Occasional pyritic growths up to 1cm wide	А		Composite mixed depositional/erosive channel and splay systems		
7.5		· · ·					Amalgamated channel axis			
7.5			Ру					Cut and Fill Phase		
		· · ·	Ру		Medium-grained sandstone, well sorted, 5% glauconite,				Aggradation Channels infilling and vertical stacking	
8.5		· · ·	Ру		moderately cemented. Occasional pyritic growths up to 1cm wide	А				
09		· · ·	Ру			~	Amalgamated channel axis			
9.5		· · ·					Amalgamated	Composite mixed depositional/erosive		
10					Medium to fine-grained sandstone grading upwards to medium- grained sandstone. Well sorted, 5% glauconite, structureless. Occasional small pyritic growths (<5mm) Amalgamated contact	A	channel axis Channel base <b>4th order BS</b>	channel and splay systems Cut and Fill Phase Progradational Build Phase	Progradation	
0.5			20% 50 - 60°	10%	Fine-grained sandstone well sorted with small clasts (<5mm)	A F E	Frontal or crevasse splay Overbank or distal splay	Stacked progradational sandy splays 5th order BS	6th order BS	
11			40%	50 - 60%	No fining upwards, no structure       Pyritic growths		Channel abandonment or fluidised contact?	Retrogradational Build Phase?		
1.5			Py •		Small thin (<5mm) clasts	Α	Amalgamated channel axis and margin	Spill Phase	Retrogradation	
12	A/C	· · ·	•		Clast thin 2 - 3 cm wide Sandstone medium-grained well sorted 10% glauconite,	H	Injected overbank? debrite?		Decreasing bed thickness up section	
2.5		· · ·	 		disseminated cement common. No structure. Occasional sporadic small (<5mm wide) clasts. Faint stratification	А	Amalgamated channel axis and margin	Stacked unconfined retrogradational sandy splays (backstepping to abandonment) Spill Phase		
13 A		· ·	Py		Clast thin 2 - 3 cm wide	H	Injected overbank? debrite?			
3.5			Ру						Aggradation Channels infilling and vertically stacking	
14			Ру				Amalgamated channel axis			
4.5	-		•		Small thin (<5mm) clasts Sandstone medium-grained well sorted 10% glauconite,	A		Composite mixed depositional/erosive channel and splay systems. They are migrational (injected overbanks) and are becoming depositional and distributary-like		
15					disseminated cement common. No structure. Occasional sporadic small (<5mm wide) clasts.	Н	Channel base 4th order BS	Cut and Fill Phase		
5.5			Ру		Small pyritic clasts (<5mm wide)					
16			Ру				Amalgamated channel axis		Aggradation Channels infilling and vertically stacking	
6.5										
17			No structur	e	Sandstone medium-grained well sorted 10% glauconite, disseminated cement common. No structure. Occasional sporadic small (<5mm wide) clasts.	A	Amalgamated channel axis	Composite mixed depositional/erosive channel and splay systems.		
7.5				No bio	Fine siltstone Medium-grained sandstone moderately to well sorted, 5%	F H&D	Channel base <b>4th order BS</b> Abandonment	Cut and Fill Phase 5th order BS	5th order migration	
18			40 - 50	% 50%	Medium-grained sandstone moderately to well sorted, 5% glauconite. Wavy disrupted laminations and sheared clasts. B oturbated heteroltihics (siltstone/very fine sandstone) Planolites dedium-grained sandstone moderately to well sorted, 5% glauconite. Wavy disrupted laminations and sheared clasts. Bioturbated beteroltibics (siltstone/very fine sandstone) Planolites	H&D E H&D E	Frontal/crevasse splay Distal splay Frontal/crevasse splay Distal splay	Abandonment Interbedded sand and silt-dominated unconfined splays	Progradation Increasing bed thickness up section	
8.5					Bioturbated heteroltihics (siltstone/very fine sandstone) Planolites Medium-grained sandstone moderately to well sorted, 5% glauconite. Wavy disrupted laminations and sheared clasts. Amalgamated contacts	E H&D	Frontal/crevasse splay	Progradational Build Phase 5th order BS		
19			<b>Py</b> 30 - 40	% 40 - 50%	Core babyled.hinders interpretation           Bioturbated heterolithics (siltstone/very fine sandstone)           Planolites, Heliminthopsis/Heliminthodia.	Е	Overbank or distal splay	Distal fine-grained unconfined splays	6th order BS	
9.5		/	Ру		Pyrite growths.			Retrogradational Build Phase		
20					Core rubble - hinders interpretation	A	Sand-dominanted frontal splays	Stacked unconfined retrogradational sandy splays (backstepping to abandonment) Spill Phase <b>Spill Phase</b>	Retrogradation	
0.5					Faint stratification Occasional small sheared clasts		Channel margin			
21		· · ·	Py Py		Occasional small sheared clasts Occasional small pyritic growths (<1cm)			Cut and Fill Phase		
1.5			Ру		Sandstone medium-grained well sorted, 5% glauconite, moderately cemented. Structureless		Amalgamated channel axis	Composite mixed depositional/erosive channel and splay systems.	Aggradation Channels infilling	
			Ру		Occasional small pyritic growths (<1cm)				and vertically stacking	
22					Sandstone medium-grained well sorted, 5% glauconite, moderately cemented. Structureless	А				
2.5		· · ·			Stratification - Amalgamated contact - sandstone colour change		Channel base? 4th order BS? Channel margin?	Cut and Fill Phase		
23										
3.5					Occasional small sheared clasts		Amalgamated	Composite mixed depositional/erosive channel and splay systems.	Aggradation Channels infilling and vertically stacking	
		• • •	Ē		Sandstone medium-grained well sorted, 5% glauconite, moderately cemented. Structureless	A	channel axis	Cut and Fill Phase 5th order BS	6th order BS	
24			<b>Py</b> 5%		Base slightly loaded         Grades upward to fine siltstone         Coarse siltstone with low sand and bioturbation. Planolites only         Very fine-grained sandstone grading upwards to fine- to very         fine-grained sandstone with laminations and carbonaceous material.	F	Channel base 4th order BS Abandonment Frontal/crevasse splay	Retrogradational Build Phase		J42
			90%		fine-grained sandstone with laminations and carbonaceous material. Coarse bioturbated siltstone grading upwards into bioturbated heterolithics. Planolites, Heliminthopsis and Planolites dominate	A D E F	Frontal/crevasse splay Overbank or distal splay	Unconfined progradational sandy splay Progradational Build Phase 5th order BS		
4.5					Occasional sheared small clast <5mm long	A H & D H & D	Frontal/crevasse splay Injected overbank/debrite Injected overbank/debrite	Retrogradational Build Phase	5th order migration Retrogradation Decreasing bed	
25		-	1		Structureless medium-grained moderately to well sorted sandstone. Large wide clasts (up to 5cm) with hairline features - affected by injection. Carbonaceous chips 5mm wide. Coarsening upward to medium grained sandstone moderately to	A H&D	Frontal or crevasse splay Injected overbank/debrite Frontal or crevasse splay	Stacked unconfined progradational and retrogradational sandy splays	thickness up section	
24.5 25 25.5			N		Coarsening upward to medium grained sandstone moderately to well sorted 5 - 10% glauconite     Faint stratification within fine grained sandstone on loaded base.     Bioturbated heterolithics grading upwards into shale and back     into bioturbated heterolithics. Heliminthopsis/planolites dominate.	A EF	4th order BS         Frontal/crevasse splay         Overbank or distal splay	Progradational Build Phase         Progradational sandy splay       5th order BS         Distal fine-grained unconfined splays       5th order BS	Stroider migration	
24.5 25 25.5 26				50%	Telimintropsis/planolites dominate.	F	Abandonment Channel Abandonment?	Rapid autocyclic abandonment of system or fluidisation?	5th order migration	
24.5 225 25.5 226.5			No		Medium-grained sandstone moderately to well sorted 5%				·	
24.5 225 25.5 226 26.5 227			No		Medium-grained sandstone moderately to well sorted 5% glauconite, moderately to well cemented. Core structureless. No fining upwards towards top of bed.	А	Amalgamated channel axis	Small composite mixed depositional/erosive channel and splay systems (single story distributary?)	Progradation/	
24.5 225 25.5 226 26.5 227 227.5			No		glauconite, moderately to well cemented. Core structureless.	Α	Amalgamated channel axis		Progradation/ Aggradation Channels infilling and vertical stacking	
24.5 25.5 26.5 26.5 27.5 27.5			No structur		glauconite, moderately to well cemented. Core structureless.         No fining upwards towards top of bed.         Occasional pyritic growths and faint stratification         Medium-grained sandstone moderately to well sorted 5%         glauconite, moderately to well cemented.         Contact indeterminable         Decreasing bioturbation and sand content. Fines upward to shale.		Amalgamated channel axis Channel base? 4th order BS Abandonment	channel and splay systems (single story distributary?) Cut and Fill Phase	Aggradation Channels infilling	
224         24.5         225         225.5         226         226.5         227.5         228         228.5         229			No structur	e	glauconite, moderately to well cemented. Core structureless.         No fining upwards towards top of bed.         Occasional pyritic growths and faint stratification         Medium-grained sandstone moderately to well sorted 5%         glauconite, moderately to well cemented.         Contact indeterminable		channel axis Channel base? 4th order BS	channel and splay systems (single story distributary?) Cut and Fill Phase	Aggradation Channels infilling	

	e: November 2005 apth: 2825 metres rrie Deller loodside Energy		NOTES: Core logged in Western Australia at the (	Geological		an School of Petroleum		
Atitude: 19 2	28'57.12'S Longitude:	ation	Sedimentological Structure	entre retion yrite fromboid	A Unstructured and B Dish and pipe str C Clast-dominated D Laminated sands E Bioturbated heter	uctured sandstone splay (highly annal sandstone Model B: Proxime tone channel and splay olifihics inked debrites inked debrites and sills Model E: Distal ur Model D: Medial C: Medial C: channel and splay	composite channel and gamated) I to medial composite omposite channel and o distal composite	metre
Siltstone Shale	Sedimentological	ding	material Dewatering pipes	Lithofacies	J Sandstone dyket		5th andre stratements	GR ignature
98 St	Start Core 1		Bioturbated coarse siltstone/very fine sandstone heterolithics Planolites and assorted unidentifiable horizontal trace makers. Pyrite formbaid	E	Överbank or distal splay	5th order BS Distal fine-grained unconfined splays Retrogradational Build Phase Stacked unconfined retrogradational andy splays (backstepping to bandroment)	6th order BS?	
9 ( 0			Yeary disrupted terminations if ning upward to coarse sitistone/very the ann bines primed also primed also in the standard sector between the Bioturbaled coarse sitistone yeary five sandatone between themasians agreements and coarboarse. Wavy disrupted terminations agree bits overlying between the source of Stratification Pre-depositionally tithilited rock classis Large pyritic fromboid Medium to fire-grained sandatone well sorted.	D E D	Frontal/crevasse splay Overbank or distal splay Frontal/crevasse splay Channel margin and overbank (njected) Possible debrite	Progradational Build Phase 5th order BS Retrogradational Build Phase Distal fine-grained unconfined splays Spill Phase Stacked unconfined retrogradational sandy splays (backstepping to abandonment) Spill Phase	Retrogradation 5th order migration	
1			Stratification Amaigamated contact Stycilies and laminations of carbonaceous material Medium to fine-grained andiatione well sorted. Strongly ceremited Fining us to fine to very fine-grained well sorted, 10%	A D A	Amaigamated channel till and margin Channel base 4th order BS Frontal/crevasse splay	Small composite mixed depositional/erosive channel and splay systems (single story distributary?) Channels becoming more shallow and distributary-like Spill Phase	Retrogradation	
2			glauconite. Sporadic dolomite cement. Small clast	A	Amalgamated channel axis and margin?	Spill Phase Composite mixed depositional/erosive channel and splay systems Cut and Fill Phase		
	No structure		Medium to fine-grained well sorted sandstone 5 - 10% glauconite. Sporadic patchy dolomite and disseminated pyrtiic cement	А			Aggradation to	
;	· · · · · · · · · · · · · · · · · · ·		Medium to fine-grained well sorted sandstone 5 - 10% glauconite. Sporadic patchy dolonite and disseminated pyritic cement		Amalgamated channel axis	Composite mixed depositional/erosive channel and splay systems Cut and Fill Phase	Retrogradation Channels infilling	
, ,			Small clast	A	Amalgamated channel axis and margin?			
3	No structure		Medium to fine-grained well sorted sandstone 5 - 10% glaconite. Sporadic patchy dolomite and disseminated pyrtiic cement Small pyrite fromboids	A		Composite mixed depositional/erosive		
9	No.		Medium to fine-grained well sorted sandstone 5 - 10% glauconte. Sporadic patchy dolomite and disseminated pyrtic cement	А		channel and splay systems	Aggradation to Retrogradation Channels infilling	
E	End Cole 1		Medium to fine-grained well sorted sandstone 5 - 10% glauconite.	А	Amalgamated channel axis			
8								
5								
	Start Core 2		Large 1cm frombold	A	Amalgamated channel axis	Composite mixed depositional/erosive channel and splay systems.	Aggradation to Retrogradation Channels infilling	
	No No structure No structure No		Medium to fine-grained well sorted sandstone 10% glauconite.	A		Cut and Fill Phase		
	© ©		Large 1 - 2 cm frombolds Small pyrtic frombolds Smm Medium to fine-grained well sorted sandstone 10% glauconite.	A				
	No No No No No No No No No No No No No N		Medium to fine-grained well sorted sandstone 10% glauconite.	A	Amalgamated channel axis Channel base 4th order BS	Composite mixed depositional/erosive channel and splay systems. Cut and Fill Phase Sth order BS	Aggradation to Retrogradation Channels infilling 6th order BS	
	20% 10%		Five silitatore 10cm thick Increasing sill Bioturbated coarse sillatornelvery five sandstone heterolithics. Planotites only recognisable ichrogeners. Fainty wavy laminated Fining upward to fine-grained sandstone. Well sorted Amalgameted context Large sheared clast 2mm thick. 4 cm long	F E D A	Channel base 4th order BS Splay Abandonment Overbank or distal splay Frontal/crevase splay	Sth order BS Distal fine-grained unconfined splays Retrogradational Build Phase Stacked unconfined retrogradational sandy splays (backstepping to abandomment) Splil Phase	6th order BS	
	No. No. No. No. No. No. No. No.	ſ	Analganisted contact Large sheared clast 2mm thick 4 cm long Medium to fine-grained sandstone 10% glauconite no structure	A	Amaigamated channel axis			
	No 		Medium to fine-grained sandstone 10% glauconite no structure	A	Amalgamated channel axis		Aggradation to Retrogradation Channels infilling	
	No structure		Medium to fine-grained sandstone 10% glauconite no structure Amalgamated contact. Very small rip up clasts, faint stratification	A	Channel base 4th order BS Frontal/crevase splay			
	No N		Very rendl fro up clasts, fair statification Mery rendlematical mininted analysis. Sharp base. Extended tetrolithics, Low biotuchation Fines rigidly coarse sitively mergrained and heterolithics Floating coarse grains in medium to fine grained matrix Strattication Medium to fine-grained sandstone, well sorted, up to 10% glauconite, no structure.	A	Frontal/crevases splay Frontal/crevases splay Overbank or detail splay Channel margin Amalgamated channel axis	Unconfined progradational sandy spisy 5th order BS Progradational Build Phase Spill Phase (overbank)	5th order migration	
	· · · · · · · · · · · · · · · · · · ·		Medium to fine-grained sandsione, well sorted, up to 10% glauconie, no structure.	A	mated channel axis	Cut and Fill Phase Composite mixed depositional/erosive channel and splay systems.		
	No		Medium to the grained standarde, well sorted, up to 10% granconite, residucture.	A	Amalgamated channel axis	Composite mixed depositional/erosive channel and splay systems. Cut and Fill Phase		
			glauconte, no structure. Amaigamated contact Large sheared and flattened clasts up to 3cm in length. Stratification Fining up to medium to fine-grained. Well sorted. Small clasts	н	Channel base 4th order BS Linked debites or Injected channel margin and overbank Analgamated channel fill and margin	5th order BS? Spill Phase Small composite mixed depositional/erosive channel and splay systems (single story distributary?)	Sth order migration	
Ļ	No shuchre ©		Medium-grained well sorted sandstone 5% glauconite Sharp base Annigamated contact Fries rapidly to line/very fine-grained sandstone with very sinit laminations, well sorted. No clasts Medium-grained sandstone well sorted with sporadic doionite corrent Sharp base Biotrubated coarse sittstone to very fine sandstone heterolithics Ranzefed risks from with	A	Channel base 4th order BS Frontal or crevases splay Amalgamated channel fill and margin Channel base 4th order BS Distal splay	Cut and Fill Phase Small composite mixed depositional/erosive channel and splay systems (single story distributary?) Cut and Fill Phase Sth order BS Distal fine-grained unconfined splays Retorgradiational Build Phase	Progradation Stacked fifth order fan lobe units Increasing bed thickness up section 5th order migration	
	5000 30-67% 50% 5000 500000		Rounded class from wide Large class 3 om wide Medium-grained sandstore well sonted, strongly cemented Biotrycontext Biotrycontext Biotrycontext Biotrycontext Status Singlet coarse sitistone to very fine sandstone heterolithics, Singlet coarse sitistone to very fine sandstone heterolithics, Planottes, Shi glauconte Pyrite frombolds	H A E-F E H	Frontal splay injected or linked debrite Charnel base 4th order BS Distal forstal or crevases splay Distal forstal or crevases splay Linked debrite or channel margin (injected) Amalgamated channel axis	Unconfined progradational sandy splay Progradational Build Phase Distal fine-grained unconfined splays Rapid autocyclic abandonment of system? Splil Phase Small composite mixed depositional/erosive	6th order BS	
			Medium-grained well sorted sandstone with sporadic dolomite oment. 5% glauconite Medium to fine ased with laminations, rounded to angular ripped up classs and mud rhap. Free upwards to the sand. Indined conta Laminate films to very fine aged well sorted Statute grading to heterolithics This lamination. Sheared and rounded classs	A D&H D E D H	Channel base 4th order BS	channel and splay systems (single story distributary?) Cut and Fill Phase Unconfined progradational sandy splay Progradational Build Phase Stacked unconfined rerogradational andy splays (backsteping to abandoment) Splil Phase	5th order migration Retrogradation	
-	No structure		Medium-grained sandstone well sorted, 5% glauconite. Sporadic dolomite cement. No structure. Stratification Amalgameted contact?		Amalgamated channel fill and margin Amalgamated channel axis	Cut and Fill Phase Small composite mixed depositional/erosive channel and splay systems (multiple story distributary?)	Keuogradaadun	
	No. structure		Medium-grained sandstone well sorted, 5% glauconte. Sporadic dolomile centent. No structure. Amalgamated costs Stightly baded base Fines to siliscone and shale Wigy juministed andstotne. Coarsets upserd to medium/time-grained base.	A A F D	Channel base 4th order BS Frontal splay Channel margin and overbank	Cut and Fill Phase Progradational Build Phase 5th order BS Unconfined progradational sandy splay Progradational Build Phase 5th order BS	5th order migration Retrogradation 5th order migration	
			Fines rapidly to shalls Shale coartiming up to bioturbated very fine sandfailtstone. Planolit Fines rapidly to fine sand. No clasts or laminations. Amalgamated contact Very faint stratification	FE _F A H	Distal frontal splay Abandonment Frontal/crevasse splay Amaloamated channel axis	Prograduounal suitid rinase Sith Order BS     Distal fine-grained unconfined splays 5th order BS     Rapid Abandonment?     Spill Phase (overbank)     Composite mixed depositional/erosive     channel and splay systems.	Sth order migration Sth order migration Aggradation to Retrogradation	
	No shockure		Modum-grained well sorted, 5% glauconite, sporadic patchy dolomite cement.		Amalgamated channel axis	channel and splay systems. Cut and Fill Phase	Aggradation to Retrogradation Channels infilling	
			dolomite cement. Small sheared clast	A	Amalgamated channel fill and margin? Amalgamated channel axis	Composite mixed depositional/erosive channel and splay systems. Cut and Fill Phase		
	No structure		Medium-grained well sorted, 5% glauconile, sporadic patchy domite cement. Small sheared clasts	A	Amalgamated Amalgamated channel fill and margin?		Aggradation	
	No         No           Structure         Structure           ·         ·           ·         ·           ·         ·           ·         ·           ·         ·           ·         ·           ·         ·           ·         ·           ·         ·           ·         ·           ·         ·           ·         ·           ·         ·           ·         ·           ·         ·           ·         ·           ·         ·           ·         ·           ·         ·           ·         ·           ·         ·           ·         ·           ·         ·           ·         ·           ·         ·           ·         ·           ·         ·           ·         ·           ·         ·           ·         ·           ·         ·           ·         ·           ·         ·           ·		Strong dolomite and alderine cementation hinders interpretation Madium-grained well sorted, 5% glauconite, sporadic patchy dolomite cement. Addunate cement.	A	Amalgamated channel axis Channel base <u>4th order BS</u> Channel abandonment or	Composite mixed depositional/erosive channel and splay systems. Cut and Fill Phase 5th order BS	5th order migration	
	10% 5-10%		Portubated very fire sandstone and coarse allstone heterolitics (Planolite): galaxies to similar de andy altstone. 1%2 deuconite Sharp top Sharp top	A		Distal fine-grained unconfined splays overbank	Aggradation Channels infilling	
	No.		Mediam-grained moderately to well sorted. 5% glauconite, sportadic patchy dolomite coment.	A	Amalgamated channel axis	Composite mixed depositional/erosive channel and splay systems. Cut and Fill Phase	Channels intilling and stacking	
	No N		Faint stratification Analgamated contact?	A	Channel base? 4th order BS Amalgamated channel fill and margin	Cut and Fill Phase		
	No shockare		Medium-grained moderately to well sorted, 5% glauconite, sporadic patchy dokonite cement. Small sheared clasts	A	channel till and margin Channel base? 4th order BS Amalgamated channel till and margin	Composite mixed depositional/enosive channel and splay systems.	Progradation Increasing bed thickness up section	
	No. structure 20- 30% 20- 30%		Small clisst Fairt stratification Amalgamated contact Fairt stratification Amalgamated contact Medium-grained moderately to well sorted. 5% glauconite, sportadic party disories comment. Sharp base Fines back to shale Small clisst sorted and the sandstone mix. Planotites Fairt stratification	۸ ۲-۲	Channel base <b>4th order BS</b> Abandorment Distal frontal splay Abandorment Frontal/crevasse splay	Cut and Fill Phase Sth order BS Distal Ine-granued unconfined spars Retrogradational Build Phase Sth order BS Retrogradational Build Phase Stacked unconfined retrogradational sandy splays Stackedstepping to abandomment)	6th order BS	
	No. No. No. Structure		Medium-grained well sorted sandstone, 5 - 8% glauconite Small sheared clast Improved sorting? Strong dolomite and	A	Channel margin? Amalgamated channel axis	Stacked unconfined refrograduonal safnoy spays (backstepping to adandomment) Spill Phase Composite mixed depositional/erosive channel and splay systems. Cut and Fill Phase	Retrogradation	
	No No statute		Small sheared clast idefile comentation hinders interpretation Medium-grained well to moderately sorted sandstone, S - 8% glauconite Medium-grained well to moderately sorted sandstone,	A	Amalgamated channel axis	Composite mixed depositional/erosive channel and splay systems. Cut and Fill Phase		
	No structure		5 - 8% glauconte Loaded base Finite graywords to thin shale Bioturbaid costs allatione with very fine-grained sandstone. Planes rapidly to very fine-grained sandstone with wany laminations Rare unit: granule in medium/line-grained sandstone well sorted Faint stratification	A F E D	Channel base 4th order BS Frontal/crevase splay? Abandomment Distal frontal splay Frontal/crevase splay Channel margin	Cut and Fill Phase Progradational Build Phase Thin progradational sandy splay? 5th order BS Distal fine-grained unconfined splays Splil Phase	Retrogradation 5th order migration	
			Rapid fining to medium/fine-grained sandstone Coarse-grained sandstone poorly to moderately sorted. Some uartic clasts up to 4mm diameter (granules). Medium-grained sandstone coarsening upwards Sharp contact	A	Channel margin Amalgamated channel axis Channel base 4th order BS Frontal/crevases splay?	Composite mixed depositional/erosive charnel and splay systems Cut and Fill Phase Progradational Build Phase Unconfined progradational sandy splay Retrogradational autocyclic migration 5th order BS	Aggradation to Retrogradation Channels infilling and stacking	
			Medium-grained sandstone coarsening upwards Sharp context Fining upward to medium/fine-grained sandstone well to moderately sorted Medium-grained moderately sorted sandstone. Occasional faint stratification. Rounded mud clast	A	Frontal/crevasse splay? Amalgamated channel till and margin		5th order migration	
			Rounded mud clast Mediam-grained moderately sorted sandstone. Occasional faint stratification.	C	Amalgamated channel fill and margin	Composite mixed depositional erosive channel and splay systems (thick marginal succession) Spill Phase		
			Netium-grained moderately sorted sandstone. Occasional	A	Amalgamated	Spill Phase Cut and Fill Phase		
	· · · · · · · · · · · · · · · · · · ·		Medium-grained moderately sorted sandstone. Occasional faint stratifications. Faint stratification Medium-grained andisone poorly to moderately sorted. Some uartic classis up to Amm diameter (granules). Medium-grained sandstone, moderate sorting. Occasional faint stratification	A	Amalgamated channel fill and margin Channel base 4th order BS Amalgamated channel fill and margin	Distributary-sized composite mixed depositional/erosive channel and splay system	Aggradation Channels infiling and stacking	
-	≤		Modum-grained andstone poorly to moderately sorted. Sons untri-cluste up to firm diameter (granules). Faint stratification Modum-grained andstone, moderate sorting. Occasional faint stratification Improved sorting, faint stratification	A	Channel base 4th order BS Channel margin Channel axis	Cut and Fill Phase		
0,-	No.     No.     Structure     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O     O		Very small flat clasts Medium-grained sandatone poorly to moderately sorted. Some users clasts up to 4mm diameter (granules) Fining to medium-grained, improved sorting, faint stratification Coarse to medium grained sandatone poorly to moderately sorted.	A	Channel base? 4th order BS Channel base 4th order BS Amalgamated channel fill and margin	Distributary-sized composite mixed depositional/erosive channel and splay system	Progradation Increasing bed thickness up section	
0			Coarse to medium grained sandstone poorly to moderately sorted. Some uart class up to firm diameter (grainules) Shapard fattered dists sorted no sinchare, 3 - 5% glaucinits, costained small carbonaceous fields Sharp base. Prines upward to shale Coarse sitistone with very fine and. Planolites. No vable Helimintopsis or Zoothycos. Purganizariji (dold rijection fatures compressing biotrubated netrofithios Laminated fining upward anddrose well sorted,	H A F G D	Channel base 4th order BS Injected distal solary? Injected distal solary? Frontal splay Abandonment Distal crevasse frontal splay Frontal/crevasse splay	Progradational Build Phase Unconfined progradational sandy splay 5th order BS Distal fine-grained unconfined splays Retrogradational Build Phase Stacked unconfined retrogradational sandy splays	6th order BS	
	No. structure		Laminated fining upward sandstone well sorted, califorational material isonitation literarial Medium grained sandstone well sorted 5% glauconite no structure No core Medium/time grained sandstone well sorted no structure 2006/signation structure well sorted no structure 2006/signation structure well sorted no structure 2006/signation structure well sorted for structure	A B E-F	Frontal/crevasse splay Amaigamated channel axis Channel base 4th order BS Fontal splay Detail solar to abandomment	(backstepping to abandoment) Retrogradational Build Phase Distributary-sized composite mixed depositional/erosive channel and splay system Cut and Fili Phase Progradational Build Phase Unconfined progradational sandy splay Sth order BS	Retrogradation 5th order migration	
					Distal solav to abandoment Frontal/crevasse splay Frontal/crevasse splay Frontal/crevasse splay	Distal fine-grained unconfined splays Distal fine-grained unconfined splays Stacked unconfined retrogradational sandy splays (backstepping to abandonment) Spill Phase	Sth order migration	
	No No		Fining upward to fine-grained, well sorted sandstone.	A	Channel margin? Amalgamated channel axis	Spill Phase Composite mixed depositional/erosive channel and splay systems Spill Phase		
			Fining from medium to medium/the-grained, well sorted. No structure. 5% glauconte: Small sheared clasts Slight fining, improved sorting to well sorted	A	Amalgamated channel axis	Cut and Fill Phase	Aggradation to Retrogradation Channels infilling and stacking	
			Slight firmg, improved sorting to well sorted Large sheared clasts Poorer sorted sandtstone with sponsicic coarse uartz grains in medium-grained matrix Pyrite fromboids Small sheared clasts	A	Channel base 4th order BS Amaigamated channel fill and nijected margin linked debutier Channel base 4th order BS Amaigamated channel fill and margin	5th order BS? Cut and Fill Phase Distributary-sized(?) composite mixed depositional/erosive	5th order migration	
	No.		Medium-grained sandstone well to moderately sorted, 5% glauconte.	A	Amagamated channel fill and margin Amalgamated channel axis	Distributary-sized(?) composite mixed depositional/erosive channel and splay system Cut and Fill Phase	Aggradation Channels infilling	
			Poorer sorted aandstone with sponstic coarse uartz grains in medium-grained matrix	A	Channel base 4th order BS Amalgamated channel axis		Channels infilling and stacking	
	<b>.</b>		Small sheared clast Stratification Amalgamated contact?		Channel base? 4th order BS? Amalgamated channel fill and margin?	Composite mixed depositional/erosive channel and splay systems Cut and Fill Phase		
	No			A	channel fill and margin? Amalgamated channel axis			
			Small sheared cleat	A			Aggradation Channels infiling and stacking	
				A		Composite mixed depositional/erosive channel and splay systems	unu siaoking 1	
	No. structure		Small sheared clast		Amalgamated channel axis	Cut and Fill Phase		
	No.		Small sheared clast	A				
			5% glauconite No visible structure	A	Amalgamated channel axis	Composite mixed depositional/erosive channel and splay systems	Aggradation Channels infilling	
111 ¹	No structure		Medium-grained moderately to well sorted uartz arentle sandstone Analgamated contact Thin sheared clasts and carbonaceous material Fines slightly to medium/fine-grained sandstone. Improved sorting.	н	Channel base 4th order BS Thin debrite or channel margin (njected)	Cut and Fill Phase 5th order BS?	Channels Infilling and stacking	
			Medium-grained moderately to well sorted uartz arenite sandstone		Amalgamated channel axis	Composite mixed depositional/ensive channel and splay systems Cut and Fill Phase		
	· · structure	ПÌ				uur and Fill Phase		
				А			Aggradation	
			Medium-optimed moderately to well sorted usrtz arente sandatore 3 - 5% glauconite and heavy minerals No visible structure		Amalgamated channel axis	Composite mixed depositional/erosive channel and splay systems	Aggradation Channels infilling and stacking	
			3 - 5% glauconite and heavy minerals	A	Amalgamated channel axis	Composite mixed depositional/erosive channel and splay systems	Channels infilling	

	- gy		e: 116 27 0 Bioturt Dish s		Consolidation Sid	oominata	A Unstructured and B Dish and pipe st C Clast-dominated D Laminated sand E Bicturbated hete F Siltstones, clays	d parallel laminated sandstone ructured sandstone sandstone stone rollhics ones and shales (<2 - 5% sand).	imal to medial composite
Bioturb heteroli Siltstor Shale	ne e	v v	Clast	is on featur d folded	Parallel and wavy Py animations Py growth	yrite /fromboid	F Siltstones, clayst     G Ptygmatic inject     H Injection brecisit     J Sandstone pillar     K Contorted sands	Inked debrite s and sills Model C: Med splay Model C: Med splay Model C: Med splay Model C: Med splay Model C: Med splay Model C: Med splay Model C: Med splay	ial composite channel and cored interval ial to distal composite play al unconfined sheet sand
a B C P G VC 2829.5 1830.0	Su C M F VRUPH	20%	khno Sor ganera % urr	ting Shape	Description Date gray botunteed heard/lines. Hearly botunteed.	Lithofacies	3th and 4th, order facies associations	58h order stratigraphy 58h Order Model	Bith order stratigraphy GR Signature
2830.5 2831.0 2831.5 2832.0		40 - 60% 40 - 60% 40 - 60% 50 - 60%	60 - 70%		Viable planofiles, zoophycos, common terebellina, crae Helinisthopas? Dark gray boltuntated heteroditivos. Heavily boltuntated. Wary line lemnated sandstone with small sheared and way tim class.	E	Overbank or distal splay Overbank or distal splay	Retrogradational Build Phase Distal fine-grained unconfined splays Retrogradational Build Phase Rapid abandomment? Distributary sized composite mixed depositional/erosive	Retrogradation
832.0 832.5 833.0 833.5			(		Wey his introduction with mail Paraled and wey this class Contactive granular buy course general granding querest to laminated sandbrane Contact study parts between the laminated sandbrane Contact study parts and the laminate branchardon (replaced date) Societion (replaced date) Danabase endours general, moderately to sell sound with no valides structure.  5 - This generate. Constraintly to sell sound with no valides structure.  5 - This generate. Constraintly to sell sound with	A	Frontal/crevasse splay Amalgamated channel fill or fluidised contact Channel base? 4th order BS? Channel margin or splay	channel and splay system Cut and FIL Phase? (marginal?) Sh order BS. Stacked unconfined retrogradational sandy splays Distributary sized composite mixed depositional/erosive channel and splay system Cut and FIL Phase? (marginal?) Sh order BS Split to retrogradational Phase	5th order migration
1834.0 1834.5 1835.0		> > < <			Sandation modulin-graphics care as above tor determined with dath and give structures. Prives highlighting dath structures include carbonaceous material data structures and the structure of the structure of the structure of the Banchace medium graphic, moderately to well worked with faint consolitation leading. Could be very faint dateo?	B	Channel margin or splay	Stacked unconfined sandy splays	
1835.5 1836.0 1836.5		~			Sumbrows medum grained, moderately to will some with fairt consultation adding	A	Channel base 4th order BS	Distributary sized composite mixed depositional/erosive channel and splay system (marginal) Cut and Fill Phase Sth order BS	Aggradation Channels infiling and vertical stacking
1837.0 1837.5 1838.0		> > > > > >			Senders a reader spanet, exclusively is well sond but devated methods involves "new hypothy drive involver advances manual. Peer of common	в	Channel margin to splay	Spill to Retrogradational Build Phase Stacked unconfined sandy splays	
1838.5 1839.0 1839.5		V V V No Structure			Surdanne modum grainet, motoranky to well const but devatored with dus thoulous. Press hybrighting dates includes carbonaceous meanut. Pipes no common. Electronic modum grainet, motoranky to well conto with no violae structure. Care broken - contact indexembatik	в	Channel margin or splay Amalgamated channel fill Channel base	Stacked unconfined sandy splays Spill Phase Cut and Fill Phase Sth order BS	Progradation
1840.0 1840.5 1841.0		40% No Structure	10%		Boncharden Sweetsfreis wir bei welles tosinutauro. Staucortes 5-195. Lagent and and and streadod. Raget transloted onzelant wirk owner welle streador ender gene and welle streador ender gene and welle welle streador ender and welle streador welle streador ender and welle streador ender ender and welle streador ender	A A	Distal splay	Distal fine-grained unconfined splays Stacked unconfined retrogradational sandy splays Retrogradational Build Phase Stacked unconfined sandy splays	5th order migration
841.5 842.0 842.5		ע ע ע			Services making point, and/mini (s cell sond with doil structures and accessorie and paper 2 - 3 cm long	в	Channel margin to splay	Spill to Retrogradational Build Phase Spill to Retrogradational Build Phase	
843.0 843.5 844.0		> > > ~			Eachstone medium grained, moderabely to well sorted with more laminar data multicates and class policit. Sanchstone medium grained, moderabely to well sorted with more laminar data exclusions and class policit. <i>Fairs</i> tablego, socialization laminations, 1% distus, Editoria camare, <i>Fairs</i> tablego, socialization laminations, 1% distus, Editoria camare, Thing queuestic bia morphones anglitaceso latitione.	A	Channel margin to splay Abandonment	Stacked unconfined sandy splays Progradational Build Phase Sth order BS	Progradation 6th order BS
844.5 845.0 845.5		40 - 50% 2004 40 - 50%	40 - 60%		Bioluturd heavaithics Cristianist and unophyces with occasional Textellina and rate Meterological.	E	Overbank or distal splay	Distal fine-grained unconfined splays Retrogradational Build Phase	Retrogradation
846.0 846.5 847.0 847.5	~~	40 - 50%	40 - 60%		Seed igection leasure approximately form vola.  Soferite concretion  Lancade very fine sandbalane Context only adjust leads for some of the sandbalane  Priggradic sand injunction flasture approximately from volas.  Somethical balance filters Common planelities and coophysos with accessional Twenteelities and nere Haltershoppas.	E	Injected overbank or distal splay Frontal/crevasse splay injected overbank or distal splay	Spill Phase? Unconfined sandy splays (Spill phase from adjacent channel complex?) Sth order BS	
848.0 848.5 849.0	200	40-50% 10-50%	50 - 70%		Scanhard Makailina Commo pipulata az zopłycos with occasinal Testellina and rae Helensteppa. Prygnatic aad nijectos fastures approximately form wide.	E	Overbank or distal splay	Distal fine-grained unconfined splays Retrogradational Build Phase	Retrogradation
849.5 850.0 850.5		40 - 50%	40 - 60%		Contact uncertain - indele Sambare madem grained, moderately to will avried, 5 - 10% gracester. Rubble Indeles interpretation.	A	Channel abandooment or fluidised upper contact? Amaigamated channel fill	Spill Phase? Channel abandonment? Distributary sized composite mixed depositional/erosive channel and splay system (marginal) Cut and Fill Phase	Aggradation/ Retrogradation Channels infiling and vertical stacking
851.0 851.5 852.0		40 - 60%	40 - 70%		Part consideration laminae Contact indeemmodule Backsholes and a state of the second on the second o	E G E	4th order BS Channel Base? Frontal/crevase splay Overbank or distal splay Injected overbank or distal splay	Progradational Build Phase Stacked progradational sandy splays? Sth order BS Retrogradational Build Phase Distal fine-grained unconfined splays	6th order BS or 5th order migration? 80cm up shift
852.5 853.0 853.5			40 - 70%		Edites convertions replaced lamitations and zapolycols hornes. Substantions grafts through the long graft adds to very files. Lamitatid sectors and an account class. Browy's lamitatid glacomie. Bioletic convertion Editational bases of the Editational sectors Indirect approximation and account of the based approximation and account of the lamitation and account based approximation and account of the lamitation and account of the based approximation and account of the lamitation and account of the based account of the lamitation account of the lamitation account of the based account of the lamitation account of the lamitation account of the eminant account one to the lamitation account of the lamitation account of the eminant account one to the lamitation account of the lamitation account of the eminant account one to the lamitation account of the lamitation account one account of the eminant account one to the lamitation account one acco	E E	trontal splay with debrites? Overbank or distal splay Channel margin to overbank Enonalizewase aniou	Unconfined sandy splays (Spill phase from adjacent channel complex?) Spill Phase 5th order BS Retrogradational Build Phase Distal fine-grained unconfined splays Unconfined sandy splays (Spill phase from adjacent channel complex?)	Retrogradation Backstepping of system Decreasing bed thickness
854.0 854.5 855.0		40 - 60% 	40 - 70% 30 - 40% 5%		Interact associations with 15% globolita.     Exclusion Associations     Exclusion Associations     Exclusion Associations     Exclusions     Exclusion	E E E	Frontal/crevases splay Overbank or distal splay Overbank or distal splay Overbank or distal splay Abandonment Channe Rhandonment	Progradational sandy splays Progradational Build Phase Distal fine-grained unconfined splays Progradational Build Phase 5th order BS	5th order migration
855.5		No Stucture	-			е А А – Е _С Н		Cut and Fill Phase (channel margin?) Progradational Build Phase Progradational sandy splays Sth order BS Distal fine-grained unconfined splays Distributary sized composite mixed depositional/erosive (marginal) Splil Phase?	Sth order migration Retrogradation Backstepping of system Decreasing bed thickness 5th order migration
⊌57.0 857.5 858.0		No Structure			Bandatore medium grained, moderately to well pantel with 5 - 10% glaucovite. Occasional fairer consultation lumous chemiste fundigenous.	A	Amalgamated channel fil		
49.5 859.0 859.5 860.0		No Shucture			Sanctaron medium gained, moderatily to will some with 5 - 10% glauconia. Occasione fairer consolitation lunnear chevenia funniganoui. Sanctarone medium grained, moderatily to will ported with 5 - 10% glauconia. Occasione fairer consolitation laminee chevenia homogenoui.	A	Amalgamated channel fill Channel Base 4th order BS	Distributary sized composite mixed depositional/erosive channel and splay system Cut and Fill Phase	Aggradation Channels infilling and vertical stacking
860.5 861.0 861.5		V V V V V			Sanctione modum grainet, moderably to will sorted, 10 - 15% glacconte, doi: structured with Safethy connert. Sanctione modum grained, noderably to will sorted, 10 - 15% glacconte, dhi throchand with safetils connert. Dislose nove planar than those above. Ethochandess base with sharg underlying contact	в	Channel Base 4th order BS Frontal/crevase splay Frontal/crevase splay	Progradational Build Phase Stacked progradational sandy splays Sth order BS	
862.0 862.5 863.0					Binchnetes base with sharp vederlying contact Sendations medium gauned thing generals to very free. Wholy laminations and decision approach throughout. Well knowl. Contact approach statest Sendations medium gauned: moderately contel, 10 - 15% glauconola. Decisional faint consolidation laminations, otherwise structureless.	A	Frontal/crevasse splay	Sth order BS Stacked sandy splays Retrogradational Build Phase (abandonment?) Spill Phase?	5th order migration
863.5 864.0 864.5		No Structure			Sandaran malam garang, mudawaky sonid, 10-15%, glaucona, Occasporal part consolidion lemantare, interview as sinclusives.	A	Annalgomated channel fill	Distributary sized composite mixed depositional/erosive channel and splay system	Aggradation Channels infilling and vertical stacking
365.0 365.5 366.0		No Structure			Subtaine median grainet, moderate somet 10 - 151 glacoste. Desister and the consideration inmations, otherwise structures. Exademic median grainet, moderately sorted 50 - 151 glacoste. Occasional titer consideration inmations, otherwise structures.	А	Amalgamated channel fill Channel Base 4th order BS Channel margin to splay	Cut and Fill Phase 5th order BS Spill to Retrogradational Build Phase	Sth order migration
866.5 867.0 867.5		2 2 2 2			Sectore reduin grand, indexaily solid with visible dish shufures and additionance.	в	to splay Channel margin	Stacked unconfined sandy splays (could represent migration of channel system) Spill Phase?	Aggradation Channels infilling and vertical stacking
868.0 868.5 869.0		No Structure			High siderts comert Bandaron meturn graned, moderately soltet, 10 - 19% glacomite, Ocasional fairs constitation lamonation, offenesia annoLiveless. High sidelite coment Core fiscalized.	A	Analgamated channel fill	Cut and Fill Phase	
869.5 870.0 870.5		40 - 50%	5% 50 · 60%		Sandatore median graned, moderatily solid, 10 - 15% glacomite. Ocusional frant consolidation leminatore, othernia structurates. Elemitative course graned, poorly solited, 5 - 15% glacomite. Binutineties. Constal sharp Law Isotanization 5%. Biotudated helemithes with plandles, zophysics and Texteelina	E	Channel Bi Channel Base 4th order BS	Distributary sized composite mixed depositional/erosive channel and splay system Cut and Fill Phase 5th order BS	Progradation Increasing bed thickness up section 6th order BS
871.0 871.5 872.0		40 - 50% 40 - 50% 20 - 30%	50 - 60% 30%		Binng zoshycos Viable sand and biotutation increasing up saction Biotutanet helevolitics with planufiles, zosphycos and Texteelina	E		Distal fine-grained unconfined splays Retrogradational Build Phase	Retrogradation
872.5 873.0 873.5	0 2 0	20% 10 -15% 10 -15%	20% 20% 10%		Injected top Small clasts form wide x 6 Small rip down clasts	E A B B B B B B B B B B B B B B B B B B	Overbank or distal splay	Distal fine-grained unconfined splays Retrogradational Build Phase Stacked unconfined retrogradational sandy splays Splil Phase?	Retrogradation
874.0 874.5 875.0 875.5		No Structure No Structure			Bundtote module galand, 5 - 10% glacosofie, Brong staffer comert, modurately to well sorted. Destinating structurelases Sendettinue modules galand, 5 - 10% glacosofie, Strong sidentia comert, modurately to well strate. Demonsory structuresas	A	Amalgamated channel El Amalgamated channel El 4th order BS	Distributary sized composite mixed depositional/erosive channel and splay system Cut and Fill Phase Progradational Build Phase	Progradation/ Aggradation Channels infilling and vertical stacking Progradation?
876.0 876.5 877.0		5% 10% 10%	5%		Corted Indexminutes	F	Frontal/crevase splay Distal overbank or abandonment Distal overbank or abandonment	Progradational Build Phase Progradational sandy splays Sth order BS Retrogradational Build Phase Distal fine-grained unconfined splays	6th order BS Abandonment
877.5 878.0 878.5	•••	5%. 	5%		Situana with tion-radio sand and biochristicin instrudedard with more applications althoutes and radios. Resultate destinates and non-radiosities is projected with radio grading to a collect to its any reference destination. Base of core 3 Top of core 4 Decidatione temperature and reference and refere	A C C	Frontal/crevasse splay	Progradational Build Phase Sth order BS Retrogradational Build Phase Stacked unconfined sandy splays Progradational Build Phase	Retrogradation
879.0 879.5 880.0		15 - 20% 20 - 30% 30% 30%	20 - 30% 30% 30%		ton wide, Bray baar collect.  Bisturback hetmolifies: Prevailies scophycos and scopsional Bashadina.  Bisturback hetmolifies: Prevailies, scophycos and scopsional Bashadina.  Bisturback hetmolifies: Prevailies, scophycos and scopsional Bashadina.	E	Overbank or distal splay Overbank or distal splay	5th order BS Retrogradational Build Phase Distal fine-grained unconfined splays Retrogradational Build Phase	
880.5 881.0 881.5		5%	-5%		Sprindle siderite convertation. Pygmatic rejudion feature ton thos. Instructions the granteal terminated with indiconcess material. Solvinour with the withits and and biofundation. Convoltes and planutines domains. Registri from Registri from Registri from Registri for additional additionadditional additional additionadditionadditionaddity	д Р _F F H	Injected overbank or distal splay Frontal/crevasse splay Distal overbank or abandonment Linked debrites?	Unconfined sandy splays (Spill phase from adjacent channel complex?) Sth order BS Distal fine-grained unconfined splays Retrogradational Build Phase Stacked unconfined sandy splays	5th order migration Retrogradation Backstepping of system Decreasing bed thickness
882.0 882.5 883.0		> > > > > > > >			Serdone modure grainet, motionale, to well ontict with fairt dish shutching. Finas highlighing the datus include high concentration of conformational material.	в	Channel margin to splay	Spill to Retrogradational Build Phase	
883.5 884.0 884.5		> > > > > >			Services modum grainet, moderately to well acried with fairs data structures. Press highlighting the datas include high concentration of calciforwation in material.	в	Channel margin to splay	Stacked unconfined sandy splays	Aggradation Channels infilling and vertical stacking
885.0 885.5 886.0 886.5		> ~			Bootstore medium grained, moderately to well sorted with block dish starturing. Press highlighting the dishes include high concentration of cantonasses meaned. Sandatore medium grained, moderately to well sorted with faint consolidation immake all discontrating stochasticates	A	Channel margin or splay Amalgamated channel fill Channel base 4th order BS	Spill Phase Distributary sized composite mixed depositional/erosive channel and splay system (marginal) Cut and Fill Phase Sth order BS	5th order migration
887.0 887.5 888.0		> > >			Lamitatio andones Sandatore laminaad with visible flame structure Sandatore modules gained, moducelary to well average with faint dath structuring mean lightighing the schedul stage uncernanted of automations matural.	в	Frontal splay Channel margin to splay	Stacked retrogradational unconfined sandy splays Retrogradational Build Phase Spill to Retrogradational Build Phase Stacked unconfined sandy splays	
888.5 889.0 889.5		No Structure			Soring increases to modurately to well sorted, Sociatione maduin graned, modurately sorted, structuratess with occasional barchadeing Constant Aug.	B	Channel margin or splay Amajgamated distance fill Channel base 4th order BS	Spill Phase Distributary sized composite mixed depositional/erosive channel and splay system (margina) Cut and Fill Phase Sth order BS	Progradation Increasing bed thickness up section 6th order BS
890.0 890.5 891.0		57 <b>N</b> N 57 57	ත්		Bindtree with the visible and ad bioschalation.     Bindtatree spectrom feature programshally follow:     Sillatoree with the visible and and bioschalator.     Ourselfites     Substree with the visible and and bioschalator.     Counselfites     Substree visible spectrom feature programshall for substreet and and     substreet visible and and bioschalator.     Counselfites     Substreet visible spectrom feature programshall for substreet and     substreet visible spectrom feature and	F F H	Distal overbank or abandonment Distal overbank or abandonment Linked debrite? Channel margin or splay	Retrogradational Build Phase Distal fine-grained unconfined splays Retrogradational Build Phase Unconfined sandy splays (Spill phase from adjacent channel complex?)	Abandonment
891.5 892.0 892.5		No Structure 30%	20 - 30%		Core is noble - historical responsation - Reactivate bedding - hansued source todding planes. Substations medium grannell moderately to well sorted. Branp contact Biolubused heterolithics. Tembellina planetities and coophyces dominate.	н А Е	Amaigamated channel fill Channel base 4th order BS Overbank or distal splay	Distributary sized composite mixed depositional/erosive channel and splay system (margina) Cut and Fill Phase	Retrogradation Backstepping of system Decreasing bed thickness
893.D 893.5 894.0		30% 5%	20 - 30%		Bolumber Meanthics. Tendratins, plandins and popylices dominan. Bitterine geolog spolicy to bootuneed hear-clinics. Senderine moduler planet, moderality to well puter with dark dark inductories.	E F A	Overbank or distal splay Abandonment Frontal/crevases splay (splil from provinal channet?)	Distal fine-grained unconfined splays Progradational Build Phase Sth order BS Retrogradational Build Phase	5th order migration? Retrogradation
44.5 895.0 895.5		<ul> <li>→</li> <li>→</li></ul>			sonatorie divolutić. Pres hydrighting he structures include carbonasous manufact. Sonatorie mediani frang to very fine granted with turninations Earchitorie clast. Sandtorie nediani granted, moderatity to with sonat with dask dash structures, sonatories elivaries. Pres hydrighting the structures include carbonasous manifali. Pies structures include carbonasous	B D C B	(spill from proximal channel?) Frontal/crevasse splay Channel margin to splay	Stacked unconfined sandy splays 5th order BS Retrogradational Build Phase Stacked unconfined sandy splays	Decreasing bed thickness up section 5th order migration
896.0 896.5 897.0 897.5		У У У				в	u - unegan to splay	Spill to Retrogradational Build Phase	Aggradation channels infilling and vertical stacking
896.0 898.5		v v v			Sandonna modum granad, nodinasky to witi tortud with dark dah muchans, material Robert Provi Voldenting the smouthers include antibourseous material. Pipe structures conflort.	в	Channel margin to splay	Stacked unconfined sandy splays	
900.0 900.5		V V V			Sandaron medur graned, motocolly to will const with data data structures, constraines disceptor. Free bylogifeting the structures include carbonaseaue matricel. Pipe structures control.	в			
901.0 901.5 2902.0		v v v				в	Channel margin to splay	Stacked unconfined sandy splays Spill Phase	Aggradation channels infilling and vertical stacking
2902.5 2903.0 2903.5		V V V			Sendanne nedran parled, molecular jo well sond with dati dati structures, sonatellere dinautid. Pres biplighting tre structures include calchoraecous materia. Pipe dinadais commun.	в	Channel margin to splay Amalgamated	Distributary sized rownoods and a	
2904.0 2904.5 2905.0		No Structure V V No Structure			Sandative dominantly structureless Sandative reduction graned, noderably to well sorted with dark data muchures, material, . Sandative reductive dominantly structureless Eandative reductive structureless Eandative reductive graned, moderably to well sorted with dark data structures.	A B A	Analgamated channel till Channel base 4th order BS Channel margin or splay Amalgamated channel till Channel base 4th order BS	Distributary sized composite mixed depositional/erosive channel and splay system (marginal) Stacked unconfined sandy splays (spill from adjacent migrational channels?) Distributary sized composite mixed depositional/erosive channel and splay system (marginal)	Progradation Increasing bed thickness and decreasing sinuosity up section
2905.5		No Structure	20 - 30%		Eachtara maduin grained, moderalaj la val sonta vili dan dala discutara, sontaria disputar Pres hydrojeto per imcures indue sinda sato menure. Bage taleg Bige taleg ta mos honogenous altatorie. Biodrate Aleverathors. Plandre dominate, occasional Tendolfna. Biodrate Aleverathors. Bise et Core 4 Tap of Core 5	B A B F E	Abandonment Overbank or distal splay	(marginal) Progradational Build Phase Stacked progradational sandy splays Sth order BS Distal fine-grained unconfined splays Retrogradational Build Phase	6th order BS
2907.0		20% 20% 20% 5% Stucture	20 - 30% 20 - 30% 80%		Tap of Core 5  Biolumbated Networkhous  Laminated Statistics with durinicard chronollins populations.  Laminated Statistics with durinicard chronollins populations.  Laminated Statistics with durinicard chronollins populations.  Heddum graned autobooks. With somed  Heddum graned autobooks.	E F D	Overbank or distal splay Rapid Abandonment Frontal/crevase splay	Distal fine-grained unconfined splays Progradational Build Phase 5th order BS Stacked retrogradational unconfined sandy splays (spiil from adjacent migrational channels?)	6th order BS or 5th order migration? Retrogradation Backstepping of system
2908.5 2909.0 2909.5 2910.0		t No Structure			Motion gained sundance, will a motionally softed, occasional faire consolidation terminal, otherwise stinctureless.	•	Amalgamated channel fill	adjacent migrational channels?) Retrogradational Build Phase Composite mixed depositional/erosive channel and splay system	Aggradation/ Backtepping of system Decreasing bed thickness Aggradation/ Retrogradation Channels infilling and vertical stacking
2910.0 2910.5 2911.0 2911.5		No Structure				A	Amalgamated channel fill	Cut and Fill Phase	and vertical stacking
2911.5 2912.0 2912.5 2913.0		B No Structure			Pyrite groutins approximately from wide Modum graned sandations, will be motionally sorted, occasional failer consolidation lemmas, otherwise attracturalises.	A	Amalgamated charriet III		
2913.0 2913.5 2914.0 2914.5		No Structure			Modum granet sandstone, will to incidentate sorted, accessional faint consideration terminer, rollwerke structureless.	A	Amaigamated charoel fil	Composite mixed depositional/erosive channel and splay system	Aggradation Channels infilling and vertical stacking
2914.5 2915.0 2915.5 2916.0		€ No Stuchare			Pyrite growthe approximately form wide	A	Amalgamated channel fill Channel base 4th order BS Frontalicrevases splay	Cut and Fill Phase	versual stacking
2916.5 2917.0 2917.5		↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑	Nore		Matter grand andore, will be notectably porticit, with concentrated dish structures. Design contract Statures with small sandtarus injunctions. Lamonate structures lengths on analysis for granted. Sorting myoning the well contract structures from the structures. Resting Structure to any structure of the structure of the structures.	B F D H	Frontailcrevase splay Abandonment Frontailcrevase splay Channel margin	Stacked progradational sandy splays Progradational Build Phase 5th order BS Distal fine-grained unconfined splays Spill to Retrogradational Build Phase	5th order migration Progradation Increasing bed thickness up section
2918.0 2918.5 2919.0		20-30%	10-15%		Modum grand surdnine, will to molecularly sorted, with faire distributions. 5 - 10% wable glocosts. Bharp context Biostrated Heterothics, low violate locaturation, Phyrolites dominate. Violate planeties and zoophyces with new Testellers and Helmithods.	в	Channel margin to splay Frontalicrevasse splay Överbank or distal splay	Stacked progradational sandy splays Distal fine-grained unconfined splays	
2919.5 2920.0 2920.5		<5% No Structure No Structure	-6%		Effective grading to biostnated heterolites. Levivable and and biostnation. Effective grading to biostnated heterolites. Levivable and and biostnation. I advantual reactives get to minischen to prograde. Bollow approving well profile. Cabouscoon natural present internations' therand motical with instrum functional. Internal of diructureless medium sand. Below provid circlebrow well to monicratily prints with dirk dish and and pipes are common. Internal of diructureless medium sand. Internal of diructureless medium sand.	D H A B	Overstank of ostal aplay Abandonment Frontalicrevasse splay Channel margin to splay	Distal fine-grained unconfined splays Sth order BS Stacked retrogradational sandy splays Retrogradational Build Phase Spill to Retrogradational Build Phase	6th order BS Retrogradation Backstepping of system Decreasing bed thickness
2921.0 2921.5 2922.0		Studare			Intered of directuatives madum saved. Large pyritic growth covering series width of core. Medium grained services, well to moderately sorted with dark dash mediumes Rept. Not and another series. Dashes appear disrupted and solid lipitit are common.	в	Channel margin to splay	Stacked unconfined sandy splays Spill to Retrogradational Build Phase Stacked unconfined sandy splays	Retrogradation/ Aggradation
2922.5 2923.0 2923.5		No Structure Structure			Netitian grahad sandatores will is inclusively point with Gard dan muturking high. Yet disclosures the Dates appear dangesed and mail pope as motiones the Dates appear dangesed and mail pope as motions and. Simal pyritic growthe,	в	Channel margin	Spill Phase Distributary sized composite mixed depositional/erosive	Auggradation And and addition Increasing channel sinuousity
2924.0 2924.5 2925.0		No Gruchare			Email pytic growth,     Internet of structureless medium sand. Occasional very taint bedding     Strong sidentile camere.     Medium graphing solutiones, wait to modescalary sonal with dark dash     and small pages are comere.	A	Amalgamated channel III Channel Base 4th order BS Channel margin to splay	channel and splay system (marginal)	5th order migration
2925.5 2926.0 2926.5 2927.0		0			Pyrific grantfu Zom adda.	в	Channel margin to splay	Stacked unconfined sandy splays	Retrogradation/ Aggradation
2927.0 2927.5 2928.0 2928.5					Medium graned associative, well to moderately sorted with dark data instrume (high % of activational head). Solve a popul dissipation and intell pipes are common, included datas concentrates 1 - 30m Rok.			Stacked unconfined sandy splays	
2928.5 2929.0 2929.5 2930.0		0			Modure grows sandblow, will is movimally under with das das substrated (high st of calobraneous fines). Distas agear disripted and small speak an common. Pyritic growths ten wide, Large synth growth dam wide.	в	Channel margin to splay	Spill to Retrogradational Build Phase	
2930.0 2930.5		6			Pyritic granth 2cm wide.	đ	Channel margin	Stacked unconfined sandy splays	Retrogradation/ Aggradation
2931.0 2931.5		г ^г	- 11	lltn.	1	P			,





### APPENDIX C: Image Log Sedimentological and Palaeocurrent Analysis of Mutineer 1B

#### **C.1 Introduction**

Sedimentological image log interpretation, like surface interpretation, is based on techniques published by Bourke (1992), Prosser *et al.*, (1999) and Bal *et al.*, (2002). It utilises the geometric relationships of the resolvable sedimentological surfaces in conjunction with image texture to define image facies that can be correlated with core-derived lithofacies. Image facies can indicate the depositional processes that controlled deposition and the temporal and special relationships of different image facies can indicate how depositional processes varied in space and time. When image facies are combined with image log-derived palaeocurrent directions, conclusions regarding the geometry, orientation and spatial distribution of reservoir bodies can be determined (Chapter 8).

#### **C.2 Sedimentological Surfaces**

Interpreted sedimentological surfaces were used to determine palaeocurrent information (as discussed in Section 4.4). Two log intervals were interpreted.

- i. Overlying claystone succession (to determine tectonic tilt for palaeocurrent analysis) (Appendix C.1)
- ii. Tithonian reservoir succession (to determine sedimentological structure and image facies) (Appendix C.2).

The sedimentological surface classification created for the study includes the following surfaces:

Code	Surface Description
EB	Erosive boundary
LB	Loaded boundary
PS	Parallel stratification
DL	Dewatered Lamination
WL	Disrupted wavy lamination
RB	Remobilised boundary (post-depositional)
ML	Lamination within siltstone and shale
SL	Lamination within overlying regional seal siltstone (tectonic tilt)

Table C-1: Mutineer-1B image log sedimentological surfaces

Interpreted surface and palaeocurrent logs can be found in Appendix C.1 and C.2 on attached DVD in Abode Acrobat (pdf) format.

#### C.3 Sedimentological Image Facies

Image facies classifications of Mutineer-1B are modelled on the interpreted core lithofacies. They include:

Code	Image Facies Description
Smpl	Massive and parallel laminated sandstone
Sd	Dewatered sandstone
Stb	Thin sandy depositional beds and thin injectites
Sdl	Waning flow disrupted laminated sandstone
SIHb	Bioturbated heterolithics, siltstone and shale
DZ	Post depositional deformed zone
RES	Residual hydrocarbon zone

#### C.3.1 Massive and Parallel Laminated Sandstone (Smpl)

Core interpretation revealed that the core in Mutineer 1B often comprised unstructured sandstone to the naked eye. With the use of high resolution image logs, it was determined that many of these intervals comprised parallel stratified sandstone with comparable dip angles. Pyrite growths are randomly distributed throughout the image log within these sandstone units. Strongly consolidated successions are commonly preserved, signifying a loaded amalgamated contact between depositional events.

#### C.3.2 Dewatered Sandstone (Sd)

Unstructured and parallel stratified sandstone is interpreted to be affected by dewatering and hence is reclassified as dewatered sandstone. If the dip angles on the parallel stratification surfaces (PS) appear erratic up section, it is due to the existence of dish and pillar structures. It is comparable with the dish structured sandstone succession in Mutineer 1B (3133.5 to 3135.0 metres).

#### C.3.3 Thin Sandy Depositional Beds and Thin Injectites (Stb)

Zones comprising thin depositional sandy units or thin sandy injectites surrounded by heterolithics or siltstones are commonly displayed as laminae that can appear either more conductive against the resistive nature of the heterolithic or siltstone unit or vice versa. Thin depositional units are commonly

identified within an image log as strongly conductive against the resistive nature of the heterolithic or siltstone unit. They appear as laminae conformable to the main bedding direction. The conductive nature is due to the formation water contained within the pore spaces of the thin units. It is also intensified due to a halo effect of the tool.

Injection features are commonly identified within an image log as strongly resistive against the conductive nature of the heterolithic or siltstone unit. They can appear conformable to bedding (sills) or unconformable (dykes) to bedding. They appear strongly resistive primarily due to a lower porosity and permeability within the injected sandstone. It is the result of tighter grain packing produced by grain reorganisation during remobilisation. Similar processes have been noted in remobilised sandstones from the North Sea (Duranti *et al.,* 2002).

#### C.3.4 Waning Flow Disrupted Laminated Sandstone (Sdl)

Intervals comprising disrupted laminae that are interpreted to have been deposited through waning flow are represented within image logs as intervals of resistive laminae that display varying dip directions and angles. If significantly thick, these intervals could represent overbank splay depositional settings. If these units are particularly thin, they would not be registered by the image tool.

#### C.3.5 Bioturbated Heterolithics, Siltstone and Claystone (SIHb)

This image facies is identifiable through a high gamma ray log character in combination with bioturbation and a general spotty image character. Bioturbated heterolithic intervals were easily recognised due to the existence of heavy bioturbation.

#### C.3.6 Post-Depositional Deformed Zone (DZ)

These intervals are easily identified within image logs. Remobilised pillar features are displayed on image logs as pipe features containing strongly resistive sandstone.

#### C.3.7 Residual Hydrocarbon Zone (RES)

The image log character across successions containing significant in-situ hydrocarbon is highly resistive and the preservation of primary and secondary sedimentological structure is poor.

#### C.4 Limitations

Due to the size of the sample window (25 centimetres), bioturbated heterolithic, siltstone and claystone intervals less than 10 centimetres thick can not be identified within the image log. Injection nests (Section 5.5.1) could be misinterpreted as either waning flow laminated sandstones of image facies Sdl or thin injectites of image facies Stb.

#### C.5 Extrapolated intervals

It was found that the intervals below those cored within Mutineer IB comprise parallel stratified sandstones with interbedded heterolithics and laminated successions. No clast-dominated successions are interpreted to be present.

The image log was run deeper than the Angel Formation into the Legendre Formation. Sanddominated cross-bedding and coarser-grained intervals were interpreted from the log. Bioturbation was also interpreted to be present. An erosive transgressive ravinement surface is interpreted at the top of the formation at the JC/JO/JK/JT boundary.

#### **C.6 Conclusion**

The surface and image facies classification created for Mutineer-1B could be applied to image logs within both past and future wells of the Dampier sub-basin with confidence. It represents a cheap method of interpreting sedimentary lithofacies in future wells that were not cored. For past wells (Spica-1, Bounty-2 and Pitcairn-1), due to poor image resolution, the comparison of image facies to other image logs in these wells could not be completed.

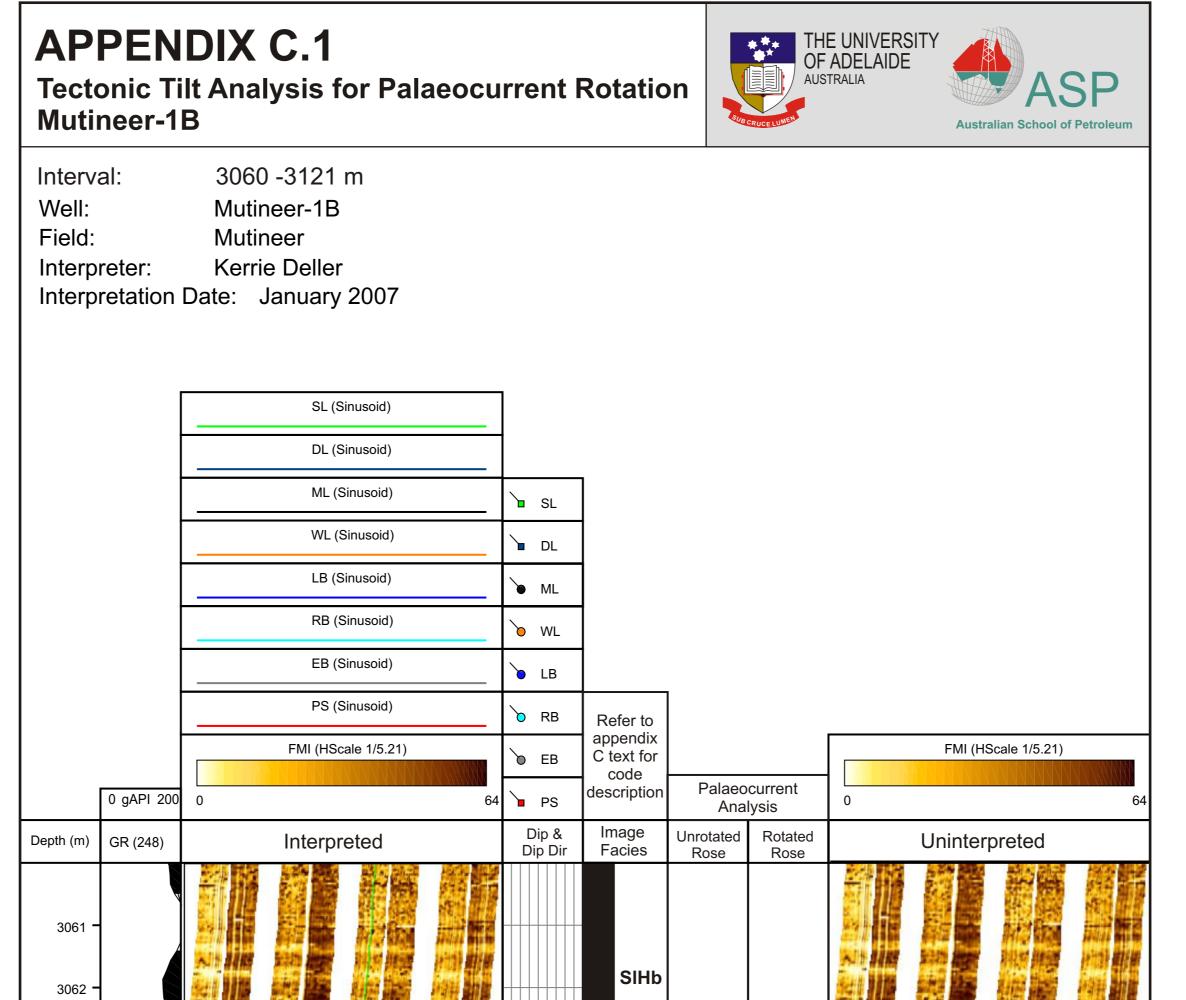
#### **C.7 References**

Prosser, J., S. Buck, S. Saddler, and V. Hilton, 1999, Methodologies for multi-well sequence analysis using borehole image and dipmeter data, *in* M. Lovell, G. Williamson, and P. Harvey, eds., Borehole imaging; applications and case histories, v. 159: London, Geological Society of London, p. 91-121.

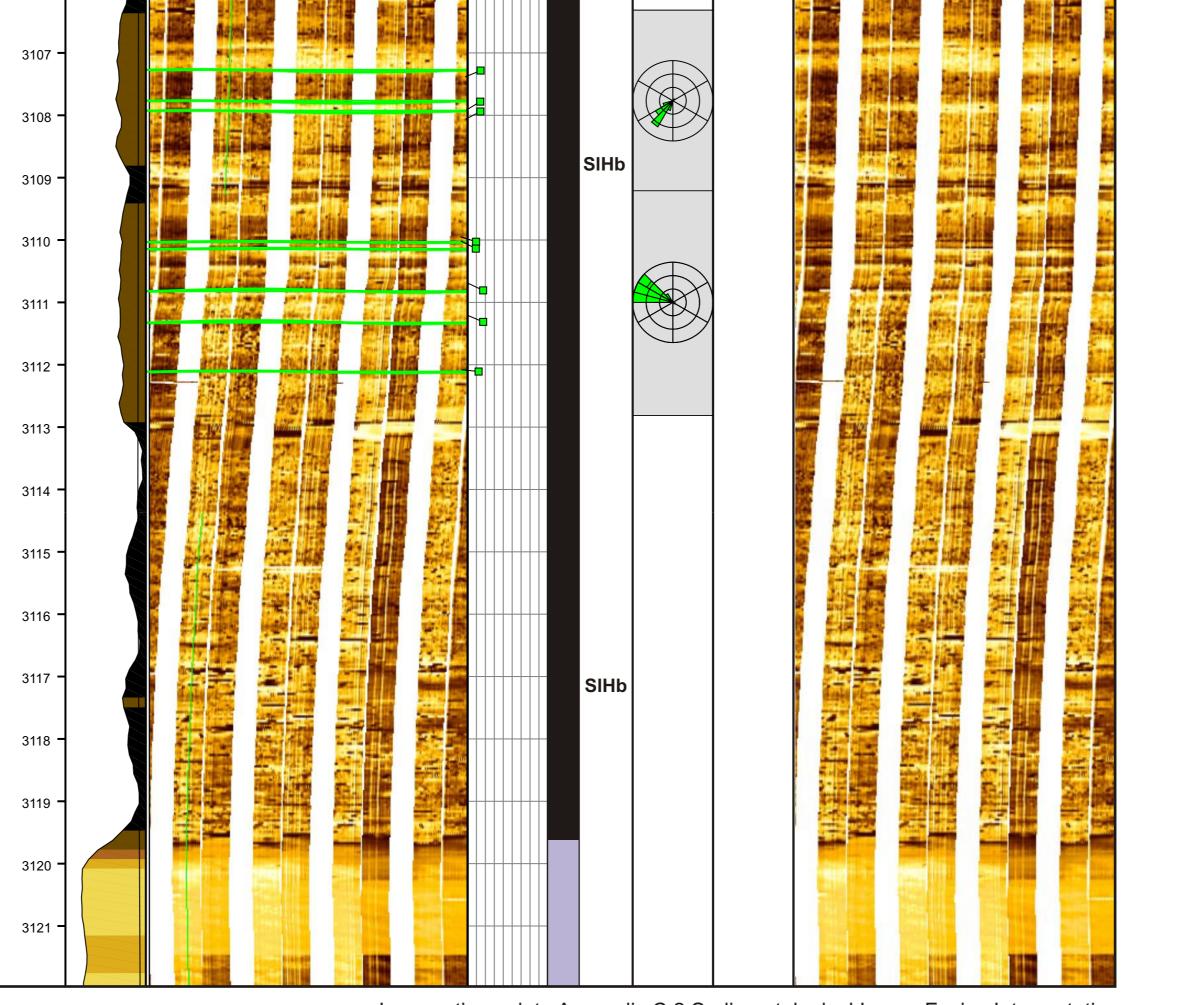
Bal, A. A., J. Prosser, and T. J. Magee, 2002, Sedimentology of the Mungaroo Formation in the Echo-Yodel field: a borehole image perspective: The Sedimentary Basins of Western Australia 3, p. 661-685.

Bourke, L. T., 1992, Sedimentological borehole image analysis in clastic rocks; a systematic approach to interpretation., *in* A. Hurst, C. M. Griffins, and P. F. Worthington, eds., Geological applications of wireline logs; II, v. 65: London, Geological Society of London, p. 31-42.

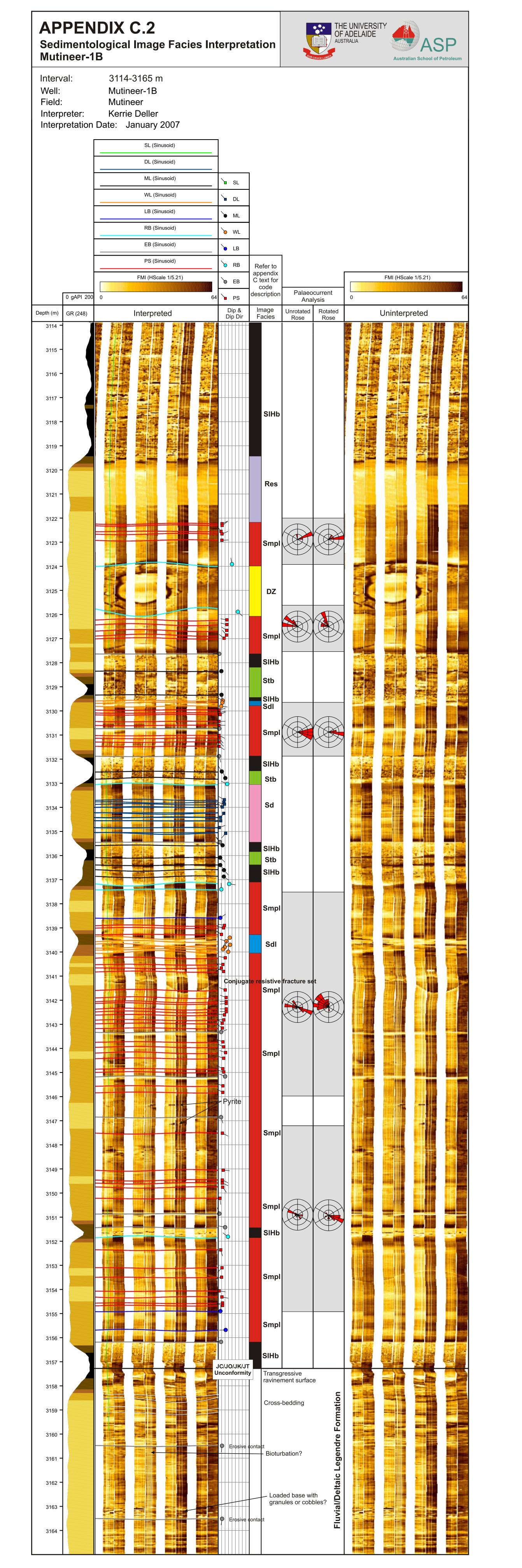
Duranti, D., A. Hurst, C. Bell, S. Groves, and R. Hanson, 2002, Injected and remobilised Eocene sandstones from the Alba Field, UKCS: core and wireline characteristics: Petroleum Geoscience, v. 8, p. 99-107.



3062 -		SIHb		
3063 -				
3064 -				
3065 -				
3066 -				
3067 -	+0			
3068 -	<b>:</b>			
3069 -				
3070 -	3 <b>0</b>			
3071 -				
3072 -				
3073 -		SIHb		
3074 -				
3075 -	-			
3076 -				
3077 - 3078 -				
3078 -				
3080 -	-			
3081 -				
3082 -				
3083 -				
3084 -				
3085 -				
3086 -				
3087 -		SIHb		
3088 -	•			
3089 -	-			
3090 -				
3091 -				
3092 -	10			
3093 -				
3094 -				
3095 -				
3096 -				
3097 -				
3098 -	,			
3099 -				
3100 -		SIHb		
3101 - 3102 -				
3102 - 3103 -				
3103 -		Stick and pu		
3104		Stick and pu logging artefa	ct	
3105 -				



Log continues into Appendix C.2 Sedimentological Image Facies Interpretation

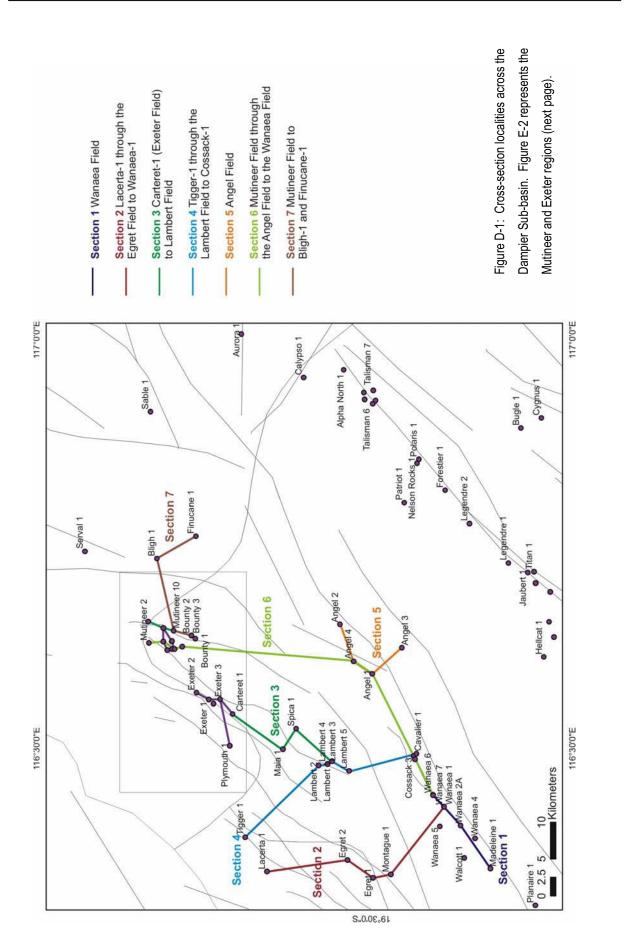


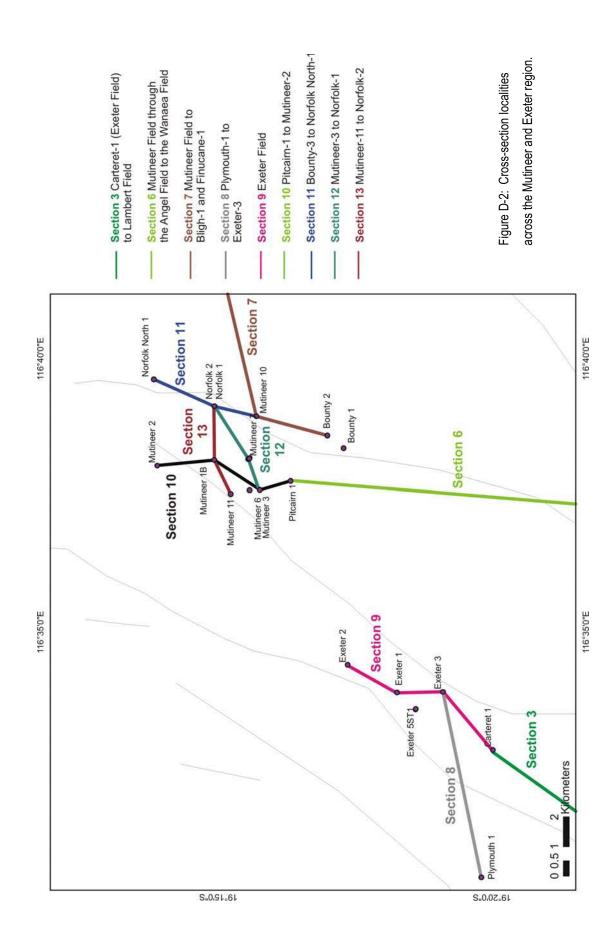
### **APPENDIX D: Interpreted Sections across the Dampier Sub-basin**

This appendix contains interpreted geological cross-sections across the northern and western Dampier Sub-basin. Thirteen cross-sections were interpreted using Geology Office in Geoframe:

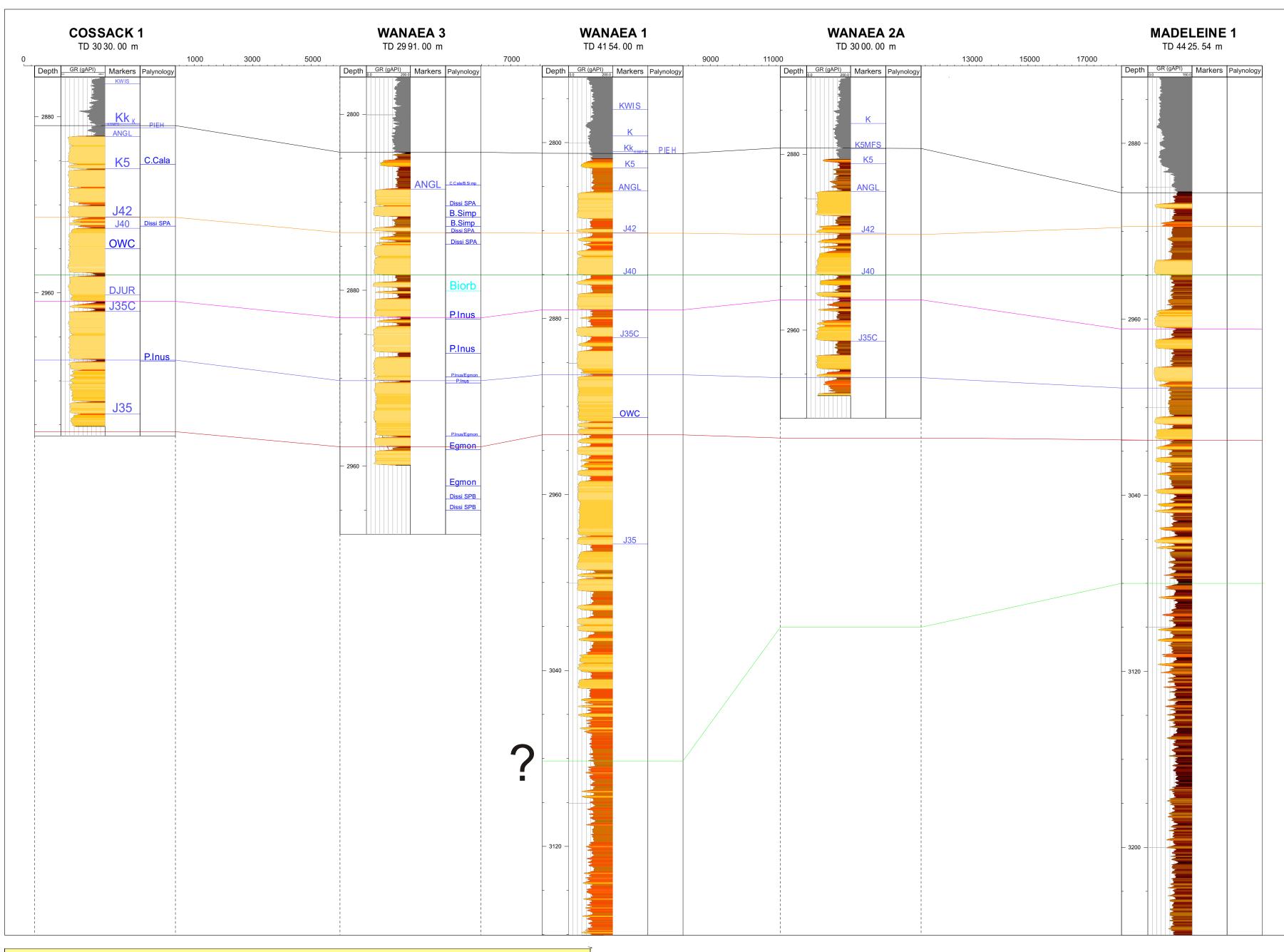
- Section 1. The Cossack and Wanaea Fields
- Section 2. Lacerta-1 through the Egret Field to Wanaea-1
- Section 3. Carteret-1 (Exeter Field) through to the Lambert Field
- Section 4. Tigger-1 through the Lambert Field to Cossack-1
- Section 5. The Angel Field
- Section 6. The Mutineer, Angel, Cossack and Wanaea Field Tie
- Section 7. Bounty-3 to Bligh-1 to Finucane (Southern Beagle Sub-basin west of Mutineer Field)
- Section 8. Plymouth-1 to Exeter-3
- Section 9. The Exeter Field
- Section 10. Pitcairn-1 to Mutineer-2
- Section 11. Norfolk North-1 to Bounty-2
- Section 12. Mutineer-3 to Norfolk-1
- Section 13. Mutineer-11 to Norfolk-2

Cross-section localities within the sub-basin are represented in Figures D-1 and D-2. The sections are located on the attached DVD in an Adobe postscript (pdf) format.





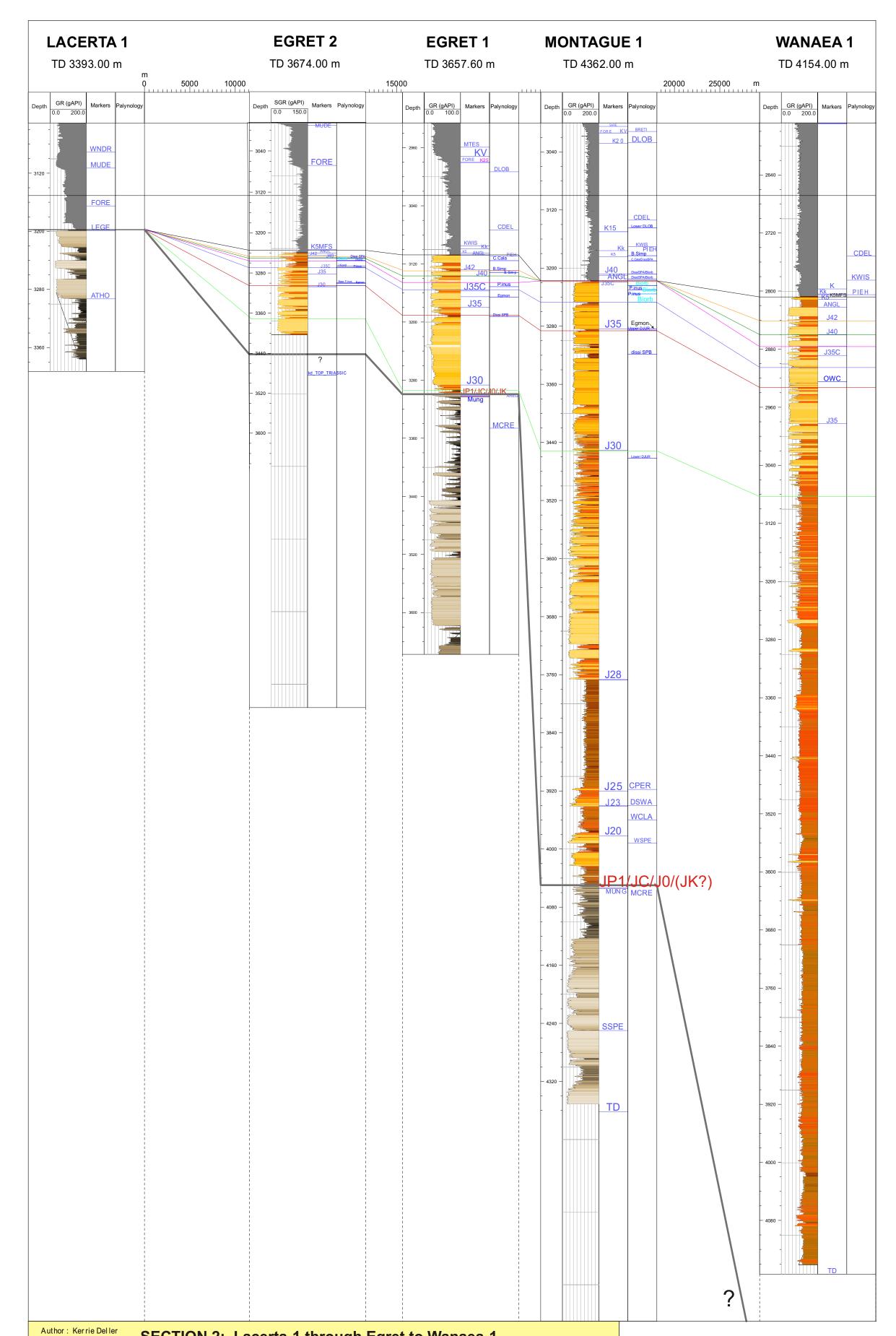
Page 305 of 305



## SECTION 1: Wanaga Field Pagion

Author: Kerrie Deller Date: 3/19/2008	SECTIO	ON 1: Wana	ea Field Regi	on
CROSS SECTION DATA				
SECTION NA ME:	Fin al_w an aea	SECTION X, Y START:	( 447 405. 78, 78379 96. 33 )	
VERTICAL SCALE:	2.0 m/cm	SECTION X, Y END:	(432 882.66, 78272 93.13)	
HORIZONTAL SCALE:	150.0 m/cm	SECTION TOP-ELEV:	-2710. 0 m	
TOTAL OF FSET:	18 19 7. m	SECTION BOT-ELEV:	-3100. 0 m	
CORRELATION DATA				
CORR ELATION NA ME	CORR ELATION	TYPE CORR ELATION A	GE CORR ELATION SOURCE	COL O R
Top Angel Maximum Flood	Hor izon	0.0	Geology Office	
A Horizon ( <i>B. simplex</i> Shale)	Hor iz on	0.0	Geology Office	
B Horizon (base <i>K. wisemanise</i> S	Shale) Horizon	0.0	Geology Office	
C Horizon (Serrata Shale)	Horizon	0.0	Geology Office	
D Horizon (Intra P. inusitatum Sh	nale) Horizon	0.0	Geology Office	
E Horizon (Upper Belodinium Sh	ale) Horizon	0.0	Geology Office	
F Horiz on (Morgani i Shale)	Horizon	0.0	Geology Office	
BOREHOLE DATA				
BOREHOLE NAME B	OREHOLE UWI	BOREHOLE FIELD	X,Y_SURFACE(m)	X,Y_BOTTOM (m)
COSSACK 1 C	OSSACK 1	CA RNA RV ON_ DA MPIER	(447 266.04, 78377 18.04)	(447 272.94, 78376 93.38)
WANAEA 3 W	/ANAEA 3	CA RNA RV ON_ DA MPIER	( 442 321. 17, 78350 92. 37 )	(442 310.05,78350 68.39)
WANAEA 1 W	ANAEA 1	CA RNA RV ON_ DA MPIER	(440 786.40, 78335 91.24)	(440 834.75, 78335 78.57)
WANAEA 2A W	/ANAEA 2A	CA RNA RV ON_DA MPIER	(438 398.66,78313 02.47)	(438424.03,7831299.48)
MADELEINE 1 M	1A DELEINE 1	CA RNA RV ON_ DA MPIER	( 432 882.66, 78272 93.13 )	( 432 882.66, 78272 93.13 )

Section flattened on B horizon (base K. wisemanise Shale)



#### **SECTION 2: Lacerta-1 through Egret to Wanaea-1** Date: 3/19/2008

WANAEA 1

Section flattened against datum best interpreted to reflect Tithonian basin form
----------------------------------------------------------------------------------

#### **CROSS SECTION DATA**

WANAEA 1

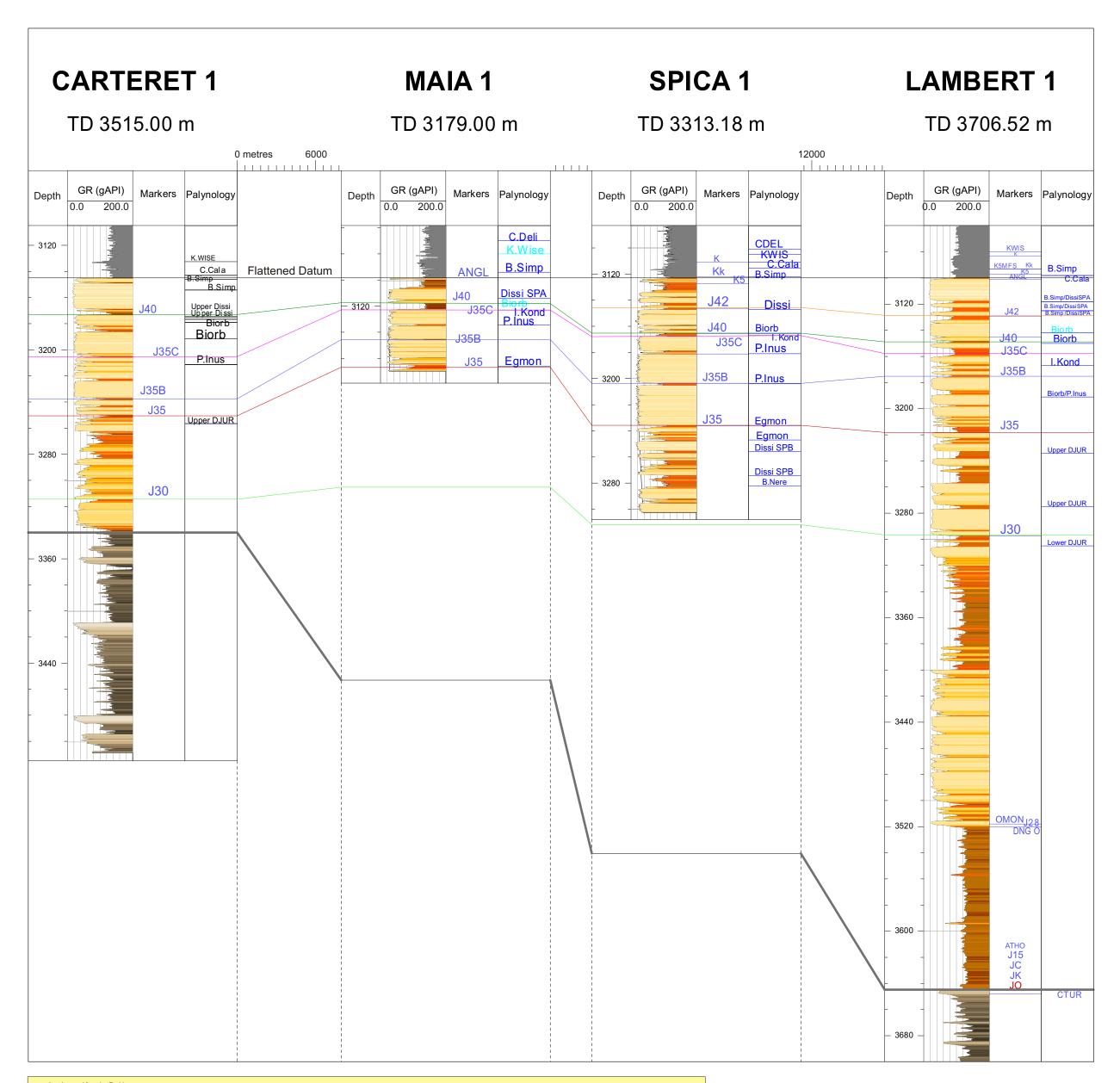
SECTION NAME:	Final_Lacerta_to_Wanaea1	SECTION X,Y START:	(432404.33,7857468.26)	
VERTICAL SCALE:	5.0 m/cm	SECTION X, Y END:	(440834.75,7833578.57)	
HORIZONTAL SCALE:	400.0 m/cm	SECTION TOP-ELEV:	-2500.0 m	
TOTAL OFFSET:	29379. m	SECTION BOT-ELEV:	-4150.0 m	
	<b>T A</b>			
CORRELATION DA				

CORR ELATION NAME	CORR ELATION TYPE	CORR ELATION AGE	CORR ELATION SOUR	CE COLOR
Top Angel Fm	Horizon	0.0	Geology Office	
Top Legendre/Mungaroo	Horizon	0.0	Geology Office	
A Horizon (B. simplex Shale)	Hor iz on	0.0	Geology Office	
B Horizon (base <i>K. wisem ani se</i> Shale)	Horizon	0.0	Geology Office	
C Horizon (Serrata Shale)	Horizon	0.0	Geology Office	
D Horizon (Intra <i>P. inusitatum</i> Shale)	Horizon	0.0	Geology Office	
E Hor izon (Upper Belodinium Shale)	Horizon	0.0	Geology Office	
F Horiz on ( <i>Morgani i</i> Shal e)	Horizon	0.0	Geology Office	
BOREHOLE DATA				
BOREHOLE NAME BOREHO	OLE UWI BORE HO	_E FIELD X,Y_SU	JRFACE (m)	K,Y_BOTTOM (m)
LACERTA 1 LACERT	A 1 CAR NAR	VON_RANKIN (43238	88.05, 7857493.00) (43	32404.33, 7857468.26 )
EGRE T 2 EGRE T	2 CARNAR	VON_DAMPIER (43393	35.43, 7846616.43) (4	34452.60, 7846145.68 )
EGRE T 1 EGRE T	1 CARNAR	VON_DAMPIER (43163	33.48, 7843150.81) (44	31633.48, 7843150.81 )
MONTAGUE 1 MONTAG	GUE1 CARNAR	VON_DAMPIER (43207	77.70, 7840753.35) (4	32077.70, 7840753.35)

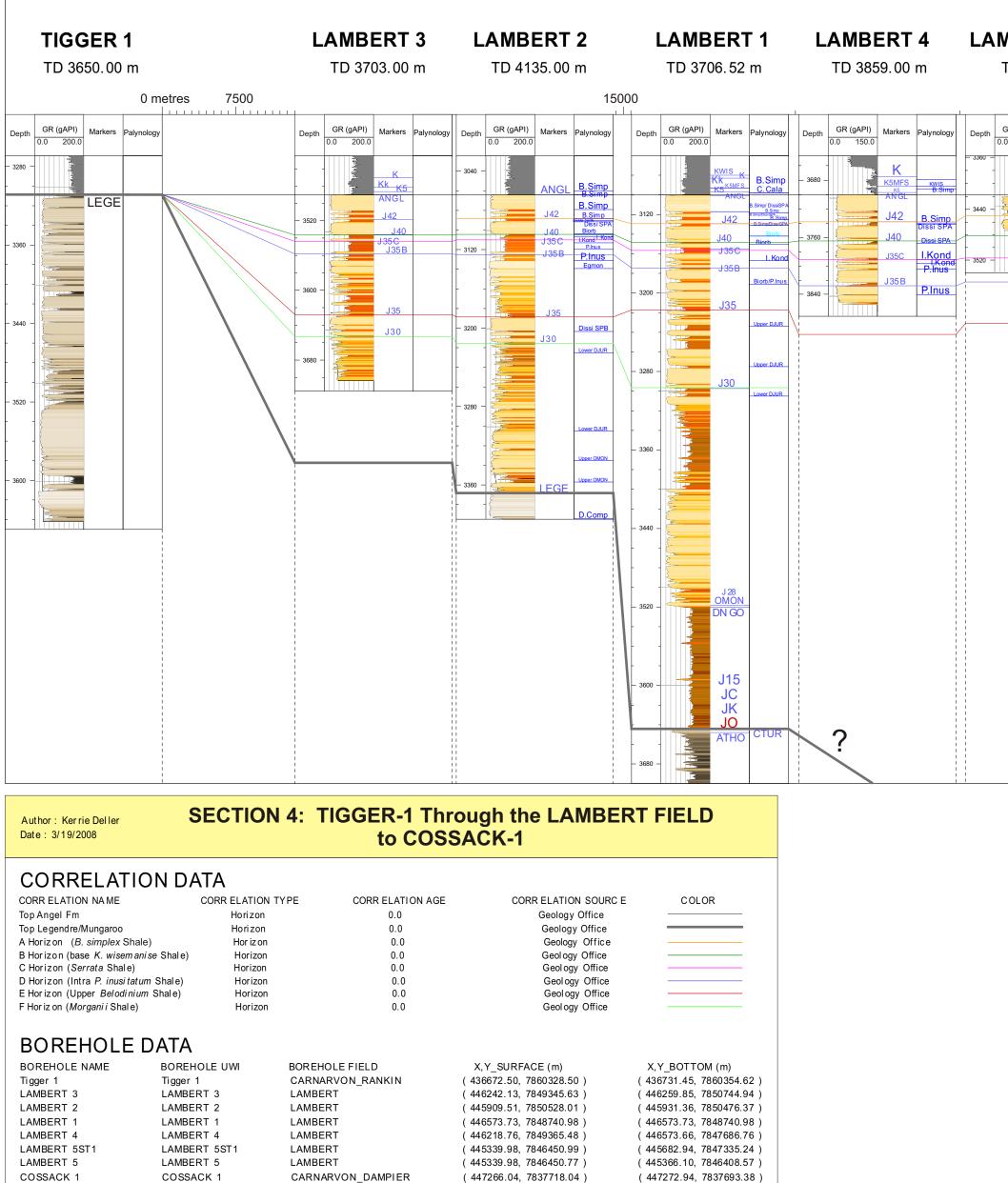
(440786.40,7833591.24)

(440834.75,7833578.57)

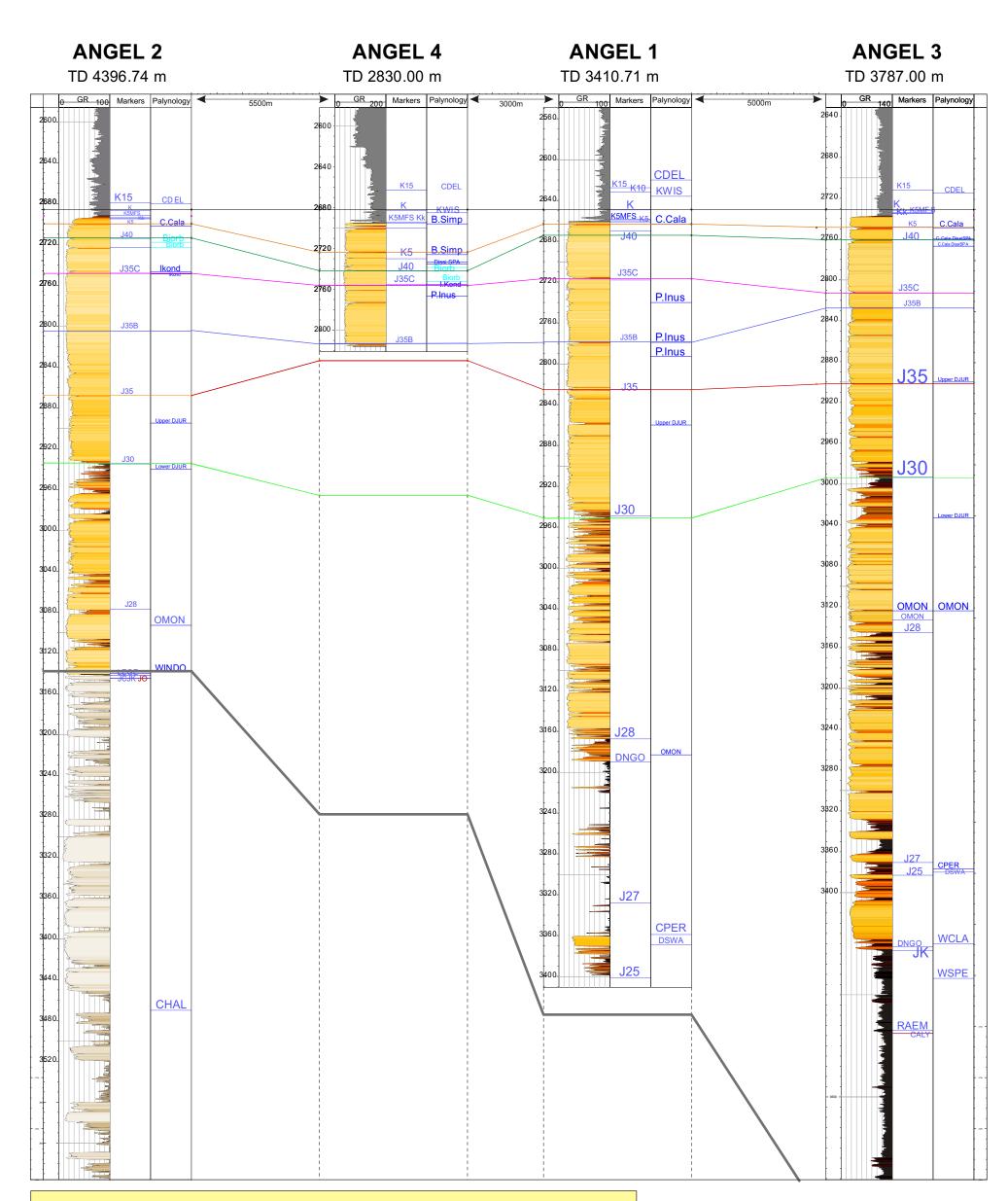
CAR NARVON_DAMPIER



Author: Kerrie Deller Date: 3/19/2008	SECTION 3	B: Carteret-1 to	Lambert-	1	
Section flattened along to	p Angel Formation	I			
CORRELATION DATA					
CORR ELATION NAME	CORR ELATION TYPE	CORR ELATION AGE	CORR ELATIO	ON SOURC E	COLOR
Top Angel Fm	Horizon	0.0	Geolog	y Office	
Top Legendre/Mungaroo	Horizon	0.0	Geolog	gy Office	
A Horizon (B. simplex Shale)	Hor iz on	0.0	Geolog	gy Office	
B Horizon (base K. wisem anise Shale)	Horizon	0.0		gy Office	
C Horizon (Serrata Shale)	Horizon	0.0		gy Office	
D Horizon (Intra P. inusitatum Shale)	Horizon	0.0		gy Office	
E Horizon (Upper Belodinium Shale)	Horizon	0.0		gy Office	
F Hor iz on ( <i>Morgani i</i> Shal e)	Horizon	0.0	Geolog	gy Office	
BOREHOLE DATA					
BOREHOLE NAME BOREHO	LE UWI BOREHOLE	FIELD X,Y_SURFA	ACE (m)	X,Y_BOTTO	M (m)
Carteret 1 Carteret 1	CARNARVO	ON_RANKIN (452478.80,	7862040.00 )	( 452492.04,	7862045.74 )
MAIA 1 MAIA 1	CARNARVO	ON_RANKIN (448099.88,	7855410.09 )	( 448103.85,	7855385.08 )
SPICA 1 SPICA 1	CARNARVC	N_RANKIN (450748.00,	7853614.23)	(450748.00,	7853614.23 )
LAMBERT 1 LAMBER	1 LAMBERT	( 446572 72	7848740.98 )	( 116572 72	7848740.98 )



A	<b>MBEI</b> TD 354					. <b>AME</b> FD 319					<b>DSSA</b> TD 3030		
									22500				
th	GR (gAPI) 0.0 100.0	Markers	Palynology	Dep	th 0.	GR (gAPI) 0 200.0	Markers	Palynology		Depth	GR (gAPI) 0.0 200.0	Markers	Palynology
- J	- Marina (	ANGL		-	-	and the second second	K K5MFS			- 2880 -		Kk K5MFS	KWIS
0 —	2 2 2 1	J42		- 312	20 -	106: 	ANGL J42			- 2000 -		K5MFS ANGL K5	PIE H C.Cala
-		J40		-	- 2	/	J40					J42	Dissi SPA
-		J35C		-	-	4=2	J35C			- 2960 -	-	J40	
										- 2960 -		J35C	Dinus
			- - - - -									<u> </u>	P.Inus
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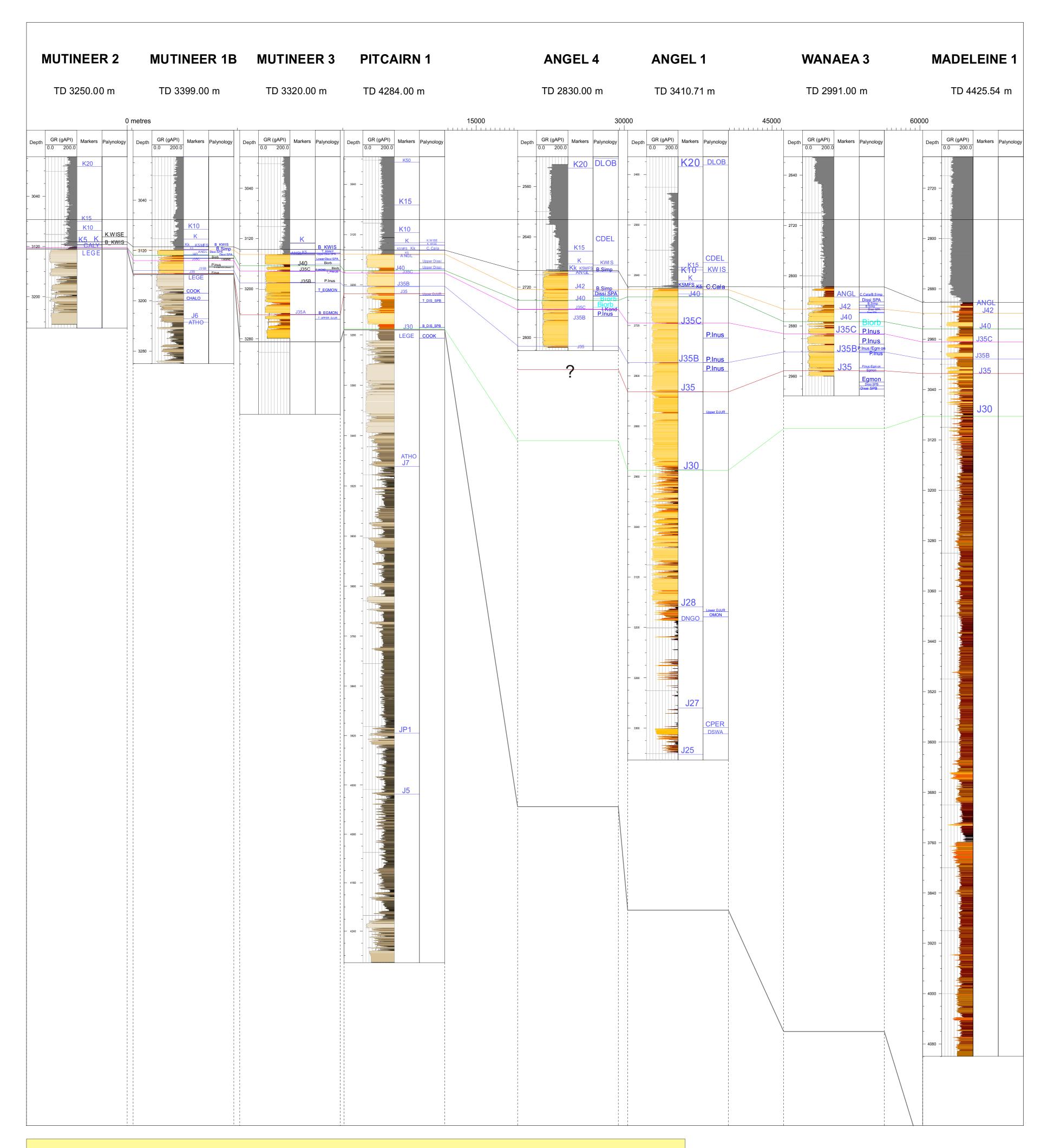


Author: Kerrie Deller Date: 3/19/2008

### SECTION 5: ANGEL FIELD

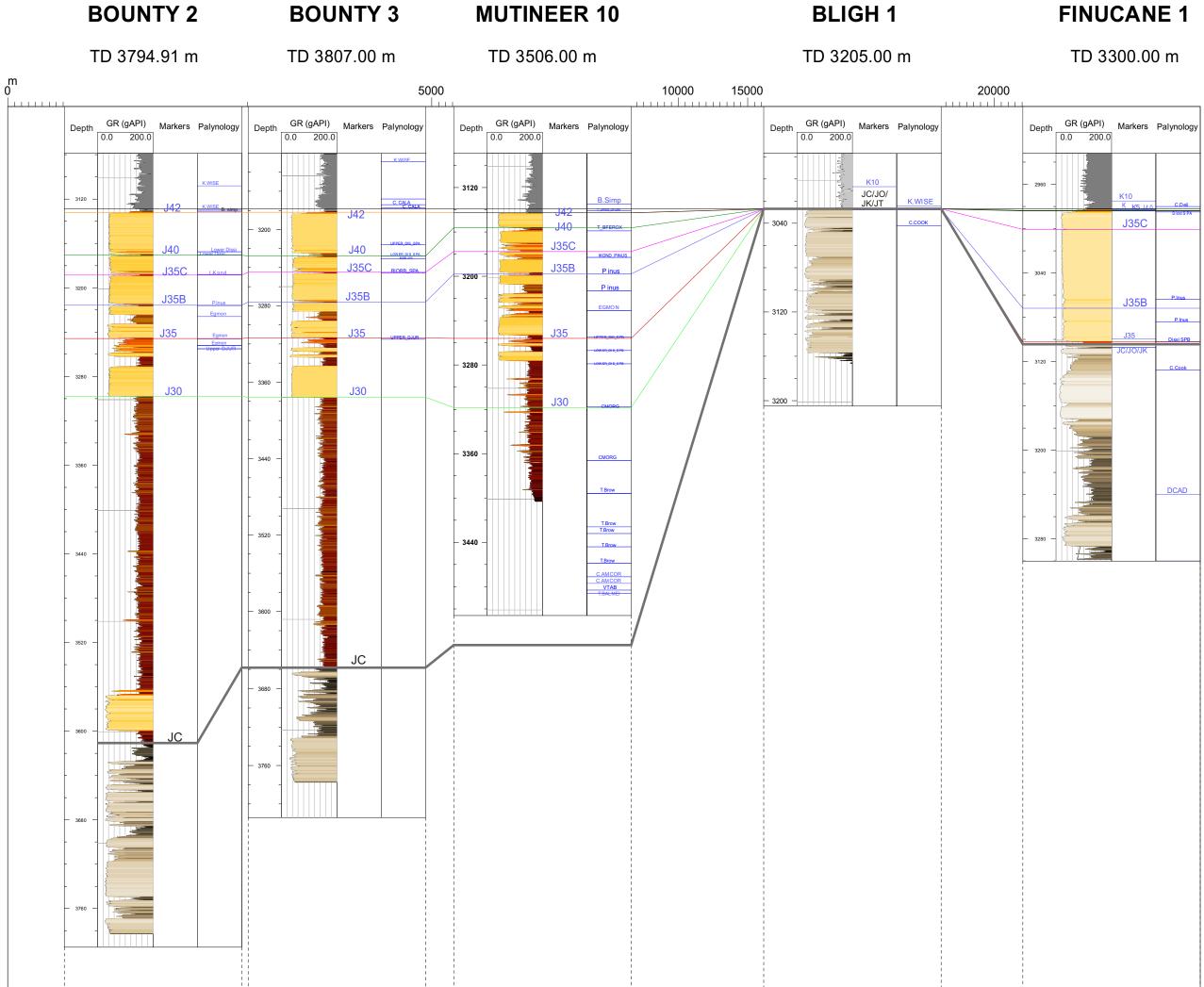
#### CORRELATION DATA

CORRE LATION NAME	CORRE LATION TYPE	CORRE LATION AGE	CORRE LATION SO	URCE COLOR
Top Ang el Fm	Horizon	0.0	Geology Offic	e
Top Legendre/Mungaroo	Horizon	0.0	Geology Offic	ce —
A Horizon (B. simplex Shale)	Hor iz on	0.0	Geology Off	ice
B Horizon (base K. wisem anise Shale)	Hori zon	0.0	Geology Offic	ce
C Horizon (Serrata Shale)	Horizon	0.0	Geology Offi	се
D Horizon (Intra P. inusitatum Shale)	Horizon	0.0	Geology Offi	ice
E Horizon (Upper Belodi nium Shale)	Horizon	0.0	Geology Off	ice
F Hor iz on (Morgani i Shale)	Horizon	0.0	Geology Offi	ce
BOREHOLE DATA				
BOREHOLE NAME BOREHO	LE UWI BOREHOLE	EFIELD X,Y	SURFACE (m)	X,Y BOTTOM (m)
ANGEL 2 ANGEL 2	2 CA RN AR V	ON DAMPIER (4	64128.50, 7847695.44)	(464128.50,7847695.44)
ANGEL 4 ANGEL 4	CARNAR CARNAR	/ON_DAMPIER (4	159432.65, 7845876.26)	(459453.65, 7845873.59)
ANGEL 1 ANGEL	CA RN AR	/ON_DAMPIER (4	157811.32, 7843328.55)	(457811.18,7843386.60)
ANGEL 3 ANGEL 3	CARNAR V	/ON_DAMPIER (4	61166.42, 7839328.12)	(461166.42,7839328.12)



Author: Kerrie Deller Date: 3/19/2008 SECTION 6: MUTINEER FIELD Through the ANGEL FIELD

Date : 3/19/2008		to COSSACK and	WANAEA FIELDS	
CORRELATIC	N DATA			
COR RELATION NAME Top Angel Fm Top Legendre/Mungaroo A Horizon ( <i>B. simplex</i> Shale B Horizon (base <i>K. wisem ani</i>	se Shale) Horizon	0.0 0.0 0.0 0.0	COR RELATION SOUR CE Geology Office Geology Office Geology Office Geology Office	C OL OR
C Horizon ( <i>Serrata</i> Shale) D Horizon (Intra <i>P. inusitatun</i> E Horizon (Upper <i>Belodinium</i> F Horizon ( <i>Morganii</i> Shale)	,	0.0 0.0 0.0 0.0	Geology Office Geology Office Geology Office Geology Office	
BOREHOLE	DATA			
BOREHOLE NAME MUTINEER 2 MUTINEER 1B MUTINEER 3 PITCAIRN 1 ANGEL 4 ANGEL 1 WANAEA 3 MADELEINE 1	BOREHOLE UWI MUTINEER 2 MUTINEER 1B MUTINEER 3 PITCAIRN 1 ANGEL 4 ANGEL 1 WANAEA 3 MADELEINE 1	BOREHOLE FIELD MUTINEER MUTINEER CARNARVON_DAMPIER CARNARVON_DAMPIER CARNARVON_DAMPIER CARNARVON_DAMPIER CARNARVON_DAMPIER	X,Y_SURFACE (m) ( 461707.61, 7873539.84 ) ( 461876.29, 7871630.33 ) ( 460923.55, 7870083.15 ) ( 461215.90, 7869046.96 ) ( 459432.65, 7845876.26 ) ( 457811.32, 7843328.55 ) ( 442321.17, 7835092.37 ) ( 432882.66, 7827293.13 )	X, Y_BOTTOM (m) ( 461729.08, 7873488.85 ) ( 461940.51, 7871596.40 ) ( 460925.66, 7870025.14 ) ( 461427.62, 7868996.69 ) ( 459453.65, 7845873.59 ) ( 457811.18, 7843386.60 ) ( 442310.05, 7835068.39 ) ( 432882.66, 7827293.13 )



### **BOUNTY 3**

### **MUTINEER 10**

COLOR

#### Author: Kerrie Deller Date: 3/19/2008

# **SECTION 7: MUTINEER FIELD Bounty-2 to Finucane-1**

### CORRELATION DATA

CORR ELATION NAME	CORR ELATION TYPE	CORR ELATION AGE	CORR ELATION SOURC E
Top Angel Fm	Horizon	0.0	Geology Office
Top Legendre/Mungaroo	Horizon	0.0	Geology Office
A Horizon (B. simplex Shale)	Hor iz on	0.0	Geology Office
B Horizon (base <i>K. wisem ani se</i> Shale)	Horizon	0.0	Geology Office
C Horizon (Serrata Shale)	Horizon	0.0	Geology Office
D Horizon (Intra <i>P. inusitatum</i> Shale)	Horizon	0.0	Geology Office
E Horizon (Upper Belodinium Shale)	Horizon	0.0	Geology Office
F Horizon ( <i>Morgani i</i> Shale)	Horizon	0.0	Geology Office

### **BOREHOLE DATA**

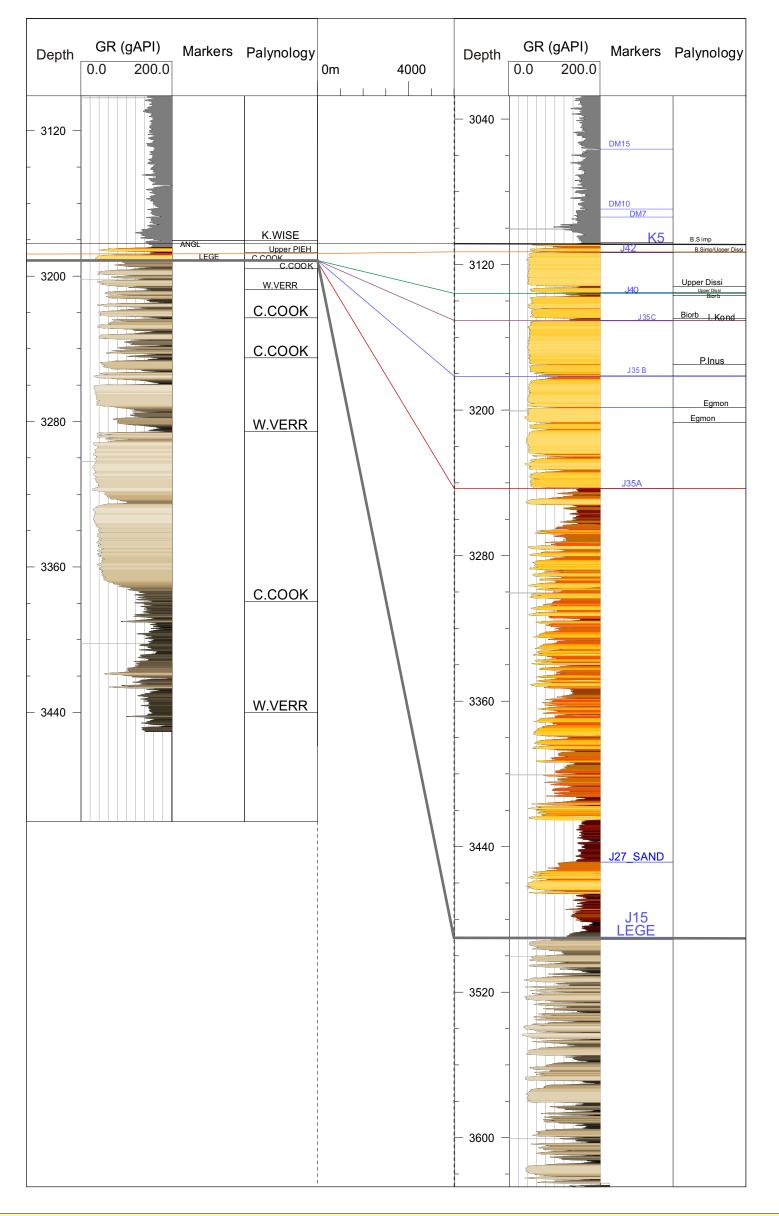
BOREHOLE NAME	BOREHOLE UWI	BOREHOLE FIELD	X,Y_SURFACE (m)	X,Y_BOTTOM (m)
BOUNTY 2	BOUNTY 2	CARNARVON_DAMPIER	(462674.89, 7867804.82)	(462704.75, 7867855.
BOUNTY 3	BOUNTY 3	CARNARVON_DAMPIER	(462674.89,7867804.82)	(462538.37,7868373.
Mutineer 10	Mutineer 10	MUTINEER	(463289.00,7870287.00)	(463288.08,7870290.
BLIGH 1	BLIGH 1	CARNARVON_DAMPIER	( 472557.17, 7872504.29 )	( 472603.32, 7872454 .
FINUCANE 1	FINUCANE 1	CARNARVON_DAMPIER	( 475439.36, 7867218.23 )	( 475439.27, 7867280.

. . . . . . . . .

### **EXETER 3**

TD 3458.50 m

### TD 3995.00 m

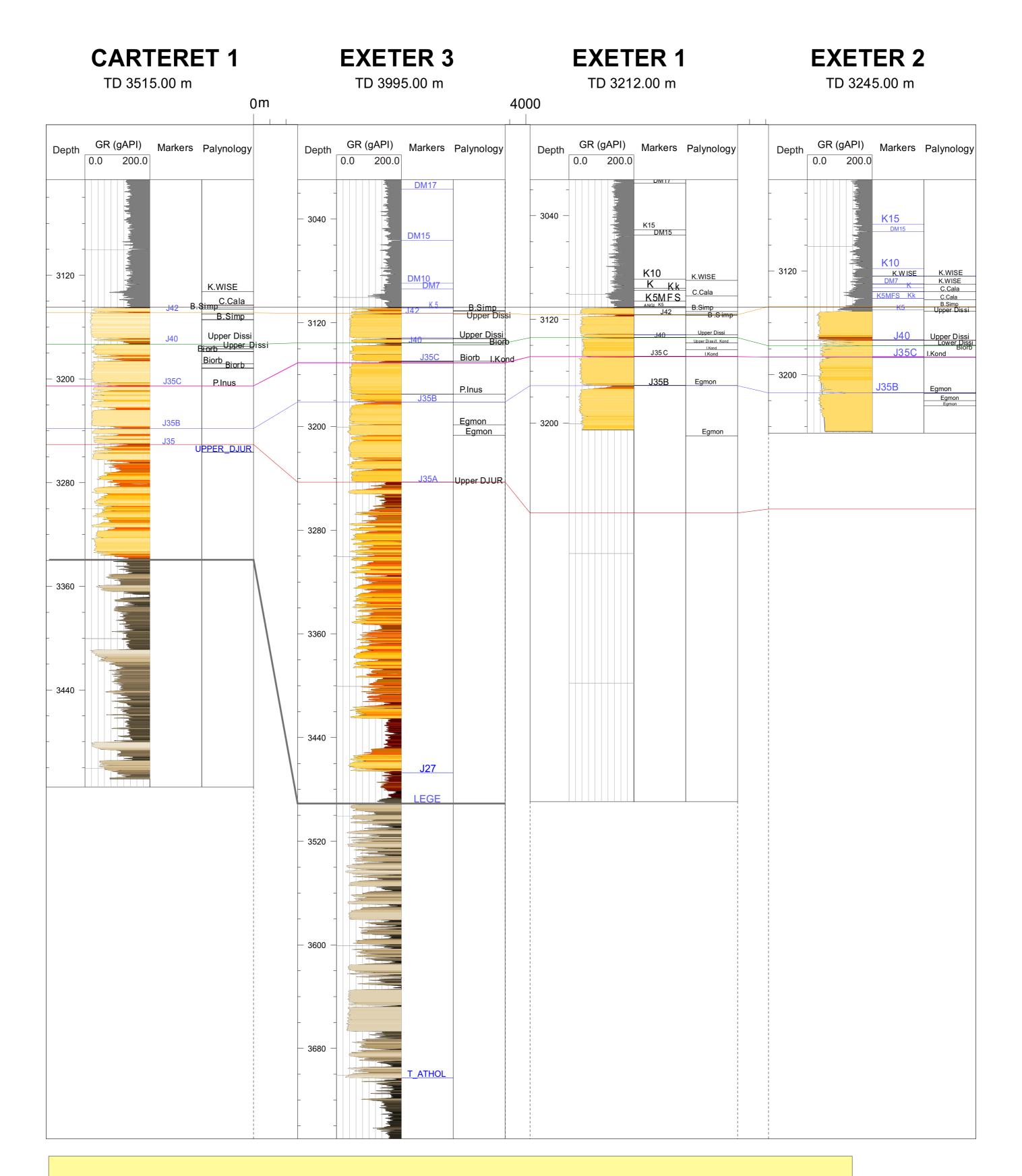


Author : Kerrie Deller Date : 3/19/2008

# **SECTION 8: EXETER FIELD: Plymouth-1 to Exeter-3**

# CORRELATION DATA

COR RELATION NAME	COR RELATION TYPE	COR RELATION AGE	COR RELATION SOUR CE	COLOR
Top Angel Fm	Horizon	0.0	Geology Office	
Top Legendre/Mungaroo	Horizon	0.0	Geology Office	
A Horizon ( <i>B. simplex</i> Shale)	Horizon	0.0	Geology Office	
B Horizon (base <i>K. wisem ani se</i> Shale)	Horizon	0.0	Geology Office	
C Horizon (Serrata Shale)	Horizon	0.0	Geology Office	
D Horizon (Intra <i>P. inusitatum</i> Shale)	Horizon	0.0	Geology Office	
E Horizon (Upper <i>Belodinium</i> Shale)	Horizon	0.0	Geology Office	
BOREHOLE DATA	A			
BOREHOLE NAME BORE	HOLE UWI E	BOREHOLE FIELD	X,Y_SURFACE (m)	X,Y_BOTTOM (m)
Plymouth 1 Plymo	outh 1 (	CARNARVON_RANKIN	( 448476.50, 7864145.00 )	(448470.46,7864146.84)
EXETER 3 EXET	ER 3 (	CARNARVON_RANKIN	(454476.21,7863891.81)	(454505.39,7863871.45)



Author: Kerrie Deller Date: 3/19/2008

# **SECTION 9: CARTERET-1 to EXETER-2**

# CORRELATION DATA

COR RELATION NAME	COR RELATION TYPE	COR RELATION AGE	COR RELATION SOUR CE	COLOR
Top Angel Fm	Horizon	0.0	Geology Office	
Top Legendre/Mungaroo	Horizon	0.0	Geology Office	
A Horizon (B. simplex Shale)	Horizon	0.0	Geology Office	
B Horizon (base <i>K. wisem ani se</i> Shale)	Horizon	0.0	Geology Office	
C Horizon (Serrata Shale)	Horizon	0.0	Geology Office	
D Horizon (Intra <i>P. inusitatum</i> Shale)	Horizon	0.0	Geology Office	
E Horizon (Upper Belodinium Shale)	Horizon	0.0	Geology Office	

# BOREHOLE DATA

BOREHOLE NAME	<b>BOREHOLE UWI</b>	BOREHOLE FIELD	X,Y_SURFACE (m)	X,Y_BOTTOM (m)
Carteret 1	Carteret 1	CARNARVON_RANKIN	(452478.80,7862040.00)	(452492.04,7862045.74)
EXETER 3	EXETER 3	CARNARVON_RANKIN	(454476.21,7863891.81)	(454505.39,7863871.45)
EXETER 1	EXETER 1	CARNARVON_RANKIN	(454451.85,7865440.03)	(454480.05,7865414.08)
EXETER 2	EXETER 2	CARNARVON_RANKIN	(455326.17,7867106.55)	(455339.81,7867114.67)



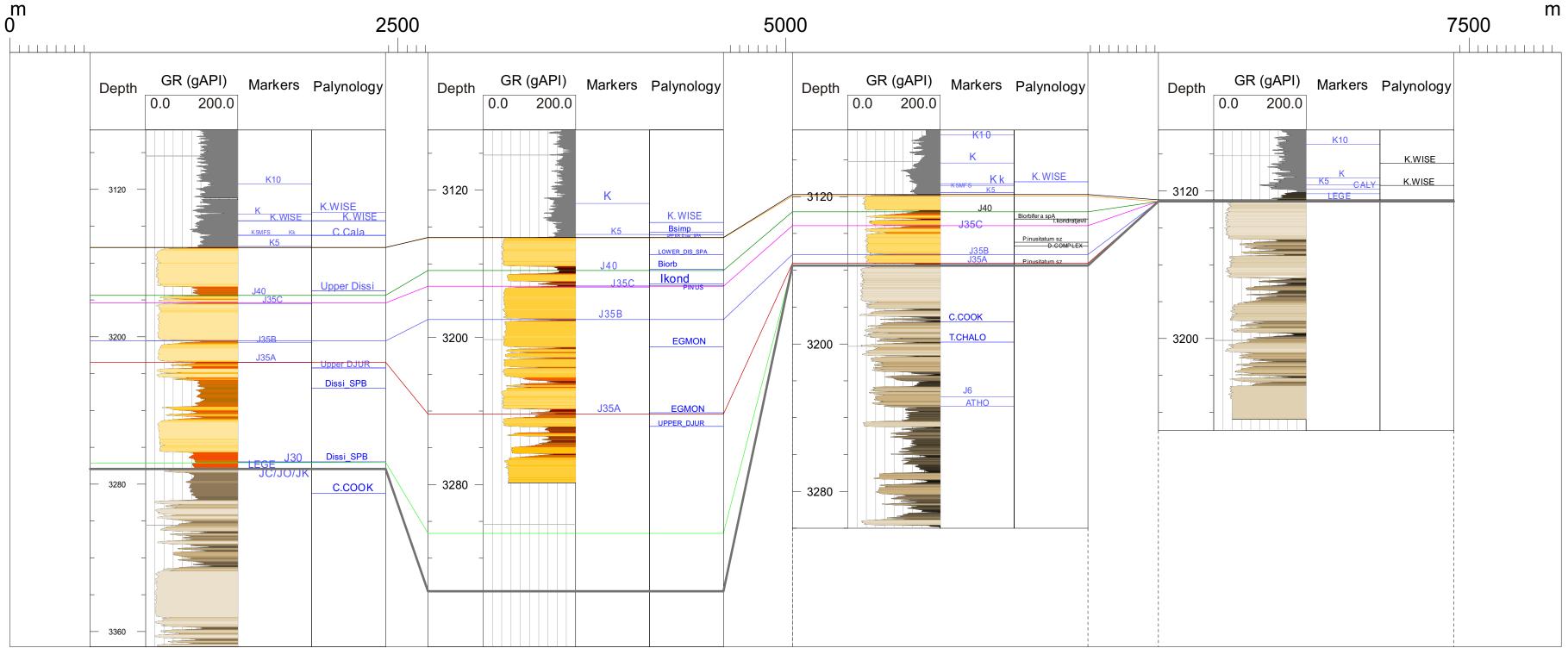
### **PITCAIRN 1**

### **MUTINEER 3**

TD 3320.00 m

### **MUTINEER 1B**

TD 4284.00 m



### **SECTION 10: PITCAIRN-1 to MUTINEER-2**

### CORRELATION DATA

Author: Kerrie Deller

Date: 3/19/2008

MUTINEER 1B

**MUTINEER 2** 

CORR ELATION NAME	CORR ELATION TYPE	CORR ELATION AGE	CORR ELATION SOURC E	COLOR
Top Angel Fm	Horizon	0.0	Geology Office	
Top Legendre/Mungaroo	Horizon	0.0	Geology Office	
A Horiz on (B. simplex Shale)	Hor iz on	0.0	Geology Office	
B Horizon (base K. wisemanise Shal	e) Horizon	0.0	Geology Office	
C Horizon (Serrata Shale)	Horizon	0.0	Geology Office	
D Horizon (Intra P. inusitatum Shale	) Horizon	0.0	Geology Office	
E Hor izon (Upper Belodinium Shale)	Horizon	0.0	Geology Office	
F Horiz on ( <i>Morgani i</i> Shal e)	Horizon	0.0	Geology Office	
BOREHOLE DATA	N			
BOREHOLE NAME BORE	HOLE UWI BOREHOL	E FIELD X,Y_SUR	FACE (m) X,Y_BOT	TOM (m)
PITCAIRN 1 PITCA	AIRN 1 CARNAR	ON_DAMPIER (461215	.90, 7869046.96 ) (461427.	.62, 7868996.69
MUTINEER 3 MUTI	NEER 3 MUTINEE	R (460923	3.55, 7870083.15) (460925.	.66, 7870025.14

MUTINEER

MUTINEER

MUTINEER 1B

MUTINEER 2

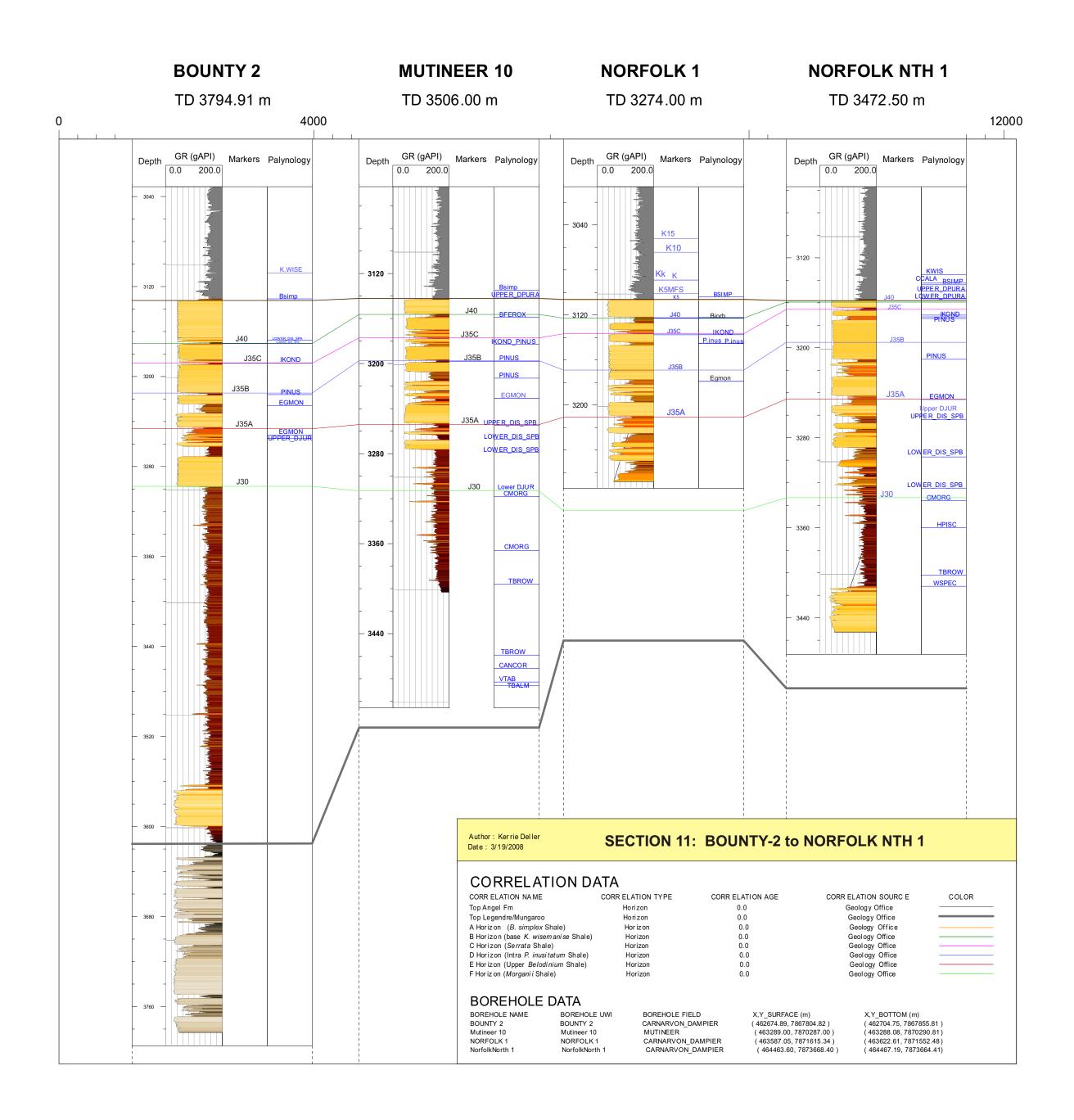
(460923.55, 7870083.15) (461876.29,7871630.33) (461707.61,7873539.84)

(460925.66,7870025.14 (461940.51,7871596.40 (461729.08,7873488.85

# TD 3399.00 m

# **MUTINEER 2**

### TD 3250.00 m

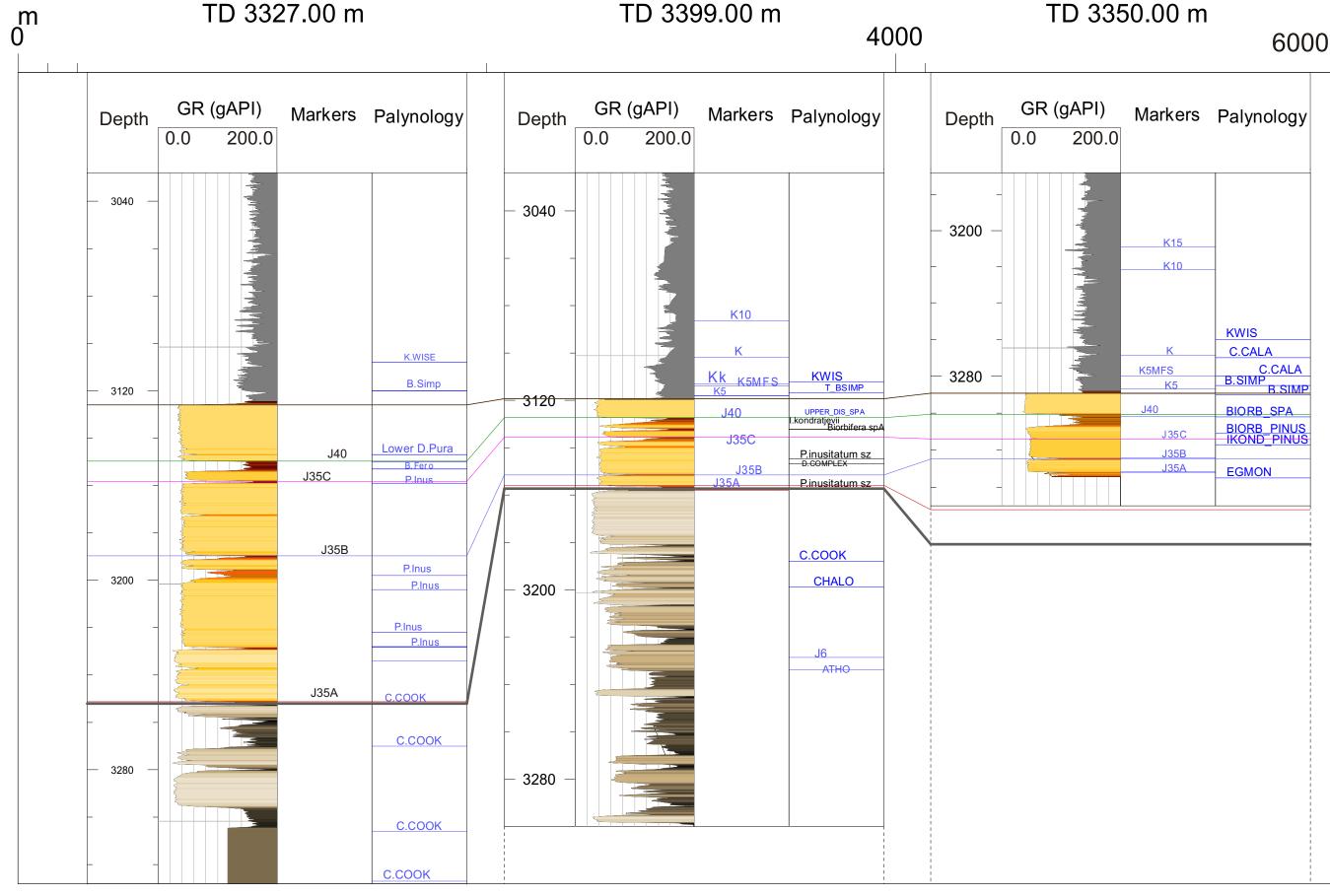


### **MUTINEER 11**

TD 3327.00 m

### **MUTINEER 1B**

TD 3399.00 m



Author: Kerrie Deller Date: 3/19/2008

### SECTION 12: BOUNTY-2 to NORFOLK NTH 1

### CORRELATION DATA

CORR ELATION NAME	CORR ELATION TYPE	CORR ELATION AGE	CORR ELATION SOURC E	COLOR
Top Angel Fm	Horizon	0.0	Geology Office	
Top Legendre/Mungaroo	Horizon	0.0	Geology Office	
A Horizon (B. simplex Shale)	Hor iz on	0.0	Geology Office	
B Horizon (base K. wisemanise Shale)	Horizon	0.0	Geology Office	
C Horizon (Serrata Shale)	Horizon	0.0	Geology Office	
D Horizon (Intra <i>P. inusitatum</i> Shale)	Horizon	0.0	Geology Office	
E Horizon (Upper Belodinium Shale)	Horizon	0.0	Geology Office	
F Hor iz on ( <i>Morgani i</i> Shal e)	Horizon	0.0	Geology Office	

### **BOREHOLE DATA**

BOREHOLE NAME MUTINEER 11 MUTINEER 1B NORFOLK 2

BOREHOLE UWI MUTINEER 11 MUTINEER 1B NORFOLK 2

BOREHOLE FIELD MUTINEER MUTINEER CARNARVON_DAMPIER X,Y SURFACE (m) (460789.45, 7871073.47) (461876.29, 7871630.33) (463587.05, 7871615.34)

X,Y_BOTTOM (m) (460827.13, 7870992.72) (461940.51, 7871596.40) (463451.65, 7872077.17) 4000

# **NORFOLK 2**

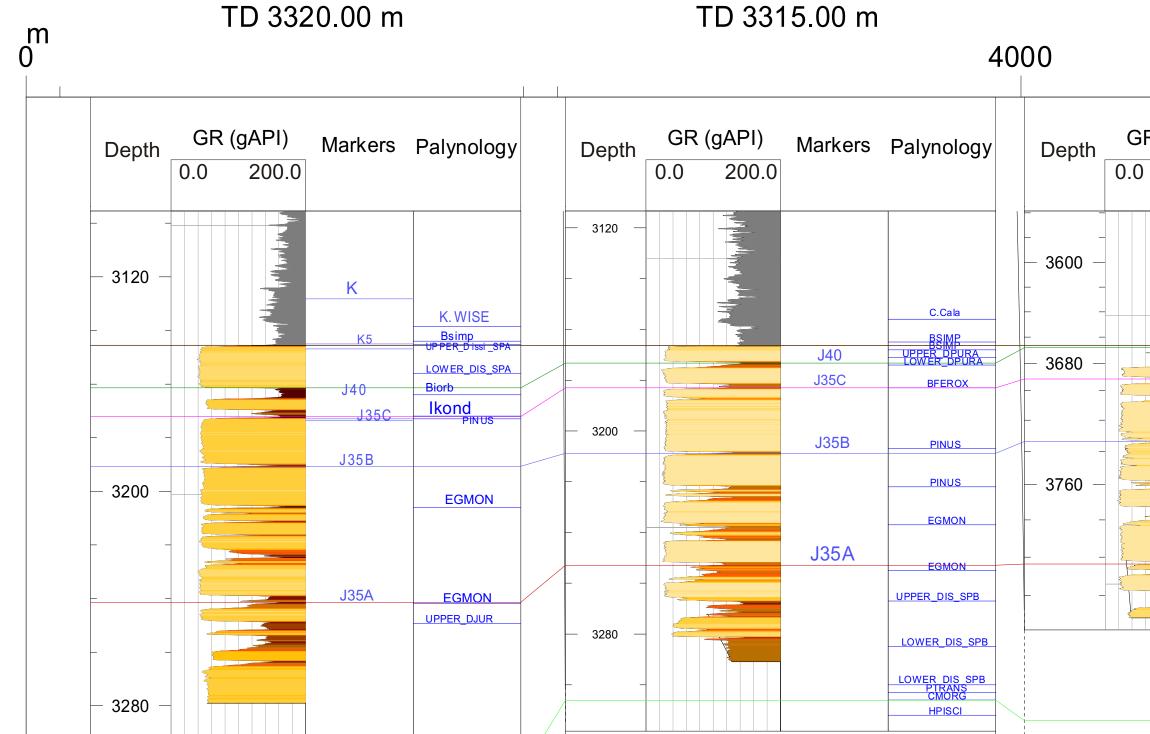
TD 3350.00 m

### 6000m

# **MUTINEER 3**

### **MUTINEER 9**

TD 3315.00 m



# **SECTION 13: MUTINEER-3 to NORFOLK-1**

### CORRELATION DATA

Author: Kerrie Deller

Date: 3/19/2008

CORR ELATION NAME	CORR ELATION TYPE	CORR ELATION AGE	CORR ELATION SOU	RCE COLOR
Top Angel Fm	Horizon	0.0	Geology Office	
Top Legendre/Mungaroo	Horizon	0.0	Geology Office	e
A Horizon ( <i>B. simplex</i> Shale)	Hor iz on	0.0	Geology Offic	e
B Horizon (base K. wisem ani se Shale)	Horizon	0.0	Geology Office	
C Horizon ( <i>Serrata</i> Shale)	Horizon	0.0	Geology Offic	e
D Horizon (Intra <i>P. inusitatum</i> Shale)	Horizon	0.0	Geology Offic	e
E Horizon (Upper Belodinium Shale)	Horizon	0.0	Geology Offic	e
F Horiz on ( <i>Morgani i</i> Shale)	Horizon	0.0	Geology Offic	9
F Horiz on ( <i>Morgani i</i> Shale)		0.0	Geology Offic	9
BOREHOLE DATA			Geology Offic SURFACE (m)	eX,Y_BOTTOM (m)
BOREHOLE DATA	HOLE UWI BOREH	IOLE FIELD X,Y_S		
BOREHOLE DATA BOREHOLE NAME BORE	HOLE UWI BOREH IEER 3 MUTIN	IOLE FIELD X,Y_3 EER (460	SURFACE (m)	X,Y_BOTTOM (m)
BOREHOLE DATA BOREHOLE NAME BOREI MUTINEER 3 MUTIN Mutineer 9 Mutine	HOLE UWI BOREH IEER 3 MUTIN	HOLE FIELD X,Y_S EER (460 EER (461	SURFACE (m) 923.55, 7870083.15)	X,Y_BOTTOM (m) (460925.66, 7870025.14)

## **MUTINEER 8**

TD 3837.00 m

# **NORFOLK 1**

TD 3274.00 m

GR (gAPI) GR (gAPI) Markers Palynology Markers Palynology Depth 0.0 200.0 200.0 K10 Kk _K K5MFS K.WISE BSIMP B.Simp Simp J40 K5 B IO RB B IO RB J35C IKOND J40 3120 Biorb PINUS P.Inus P.Inus J35C IKOND J35B P.inus P.inus P. Inu s P.Inus **J35B** P.Inus Egmon Egmon Egmon J35A UPPER_DJUR 3200 J35A

m