PALEO DATA

MURPHY #01 ST00BP00 OCS-G-25850, BLOCK 178, DESOTO CANYON AREA
INTERVAL EXAMINED: 10390' - 24519'
NANNOFOSSIL RANGE CHART

Sample Depth	17. Braarudosphaera bigelowi 1. Coccolithus pelagicus	112. Braarudosphaera rosa 2. Dictyococcites productus	65. Calcidiscus cf. macintyrei 3. Discoaster surculus	115. Calcidiscus cf. premacintyrei 4. Reticulofenestra celticus	10. Calcidiscus leptoporus 5. Reticulofenestra haqii 3-5	43. Calcidiscus macintyrei 6. Reticulofenestra haqii 5-8	118. Calcidiscus premacintyrei 7. Reticulofenestra minuta	41. Calcidiscus tropicus 8. Reworked Cretaceous	63. Catinaster calyculus 9. Sphenolithus abies	116. Catinaster cf. sp. A 10. Calcidiscus leptoporus	64. Catinaster coalitus 11. Dictyococcites antarcticus	75. Catinaster coalitus transitus 12. Discoaster B	47. Catinaster mexicanus 13. Discoaster brouweri	117. Catinaster sp. A 14. Discoaster exilis	56. Coccolithus cf. miopelagicus 15. Helicosphaera kamptneri	27. Coccolithus miopelagicus 16. Reticulofenestra amplus	66. Coccolithus pataecus 17. Braarudosphaera bigelowi	1. Coccolithus pelagicus 18. Discoaster sp. (5 ray)	104. Coronocyclus nitescens 19. Discoaster variabilis	113. Crassipontosphaera jonesi 20. Pontosphaera discopora	101. Cyclicargolithus abisectus 21. Discoaster A	79. Cyclicargolithus cf. floridanus 22. Geminilithella rotula	119. Cyclicargolithus floridanus 23. Helicosphaera rhomba	90. Cyclicargolithus floridanus < 9 24. Umbilicosphaera sp.	82. Cyclicargolithus floridanus > 9 25. Discoaster triradiatus	11. Dictyococcites antarcticus 26. Discoaster cf. C	67. Dictyococcites bisectus 27. Coccolithus miopelagicus	2. Dictyococcites productus 28. Discoaster loeblichii	83. Dictyococcites stavensis 29. Discoaster C	21. Discoaster A 30. Discoaster adamanteus
10390-10410	1	R	1	R	R	1	N	N	S																					
10410-10440	R	F		N	R		F	N	N	V	1	R	R	1	R	1														
10440-10470	S	F		S	S	1	C	C	N			S			1	1	1	R	1	1										
10470-10500	S	C		F	N		F	F	F			N	1		S			R	1		V	V	1	1						
10530-10560	V	F		N	V		S	F	V			V			V										1					
10560-10590	V	F		N	R			N	N	1		V	1					V	1						1					
10590-10620	V	F				1	F	R	N			S			1	R		V	1							1				
10620-10650	N	S		S	1		F	N	F	1		S			R															
10650-10680	V	N		S	V		N	N	S	V		R	R		V				1	1							1	1		
10680-10710	R	V		R	S			S	V						V				V											
10710-10740	R	R			S		V	R	V																					
10740-10770						R		N				R																	V	
10770-10800	R	S		V	R		V	V	R						V					V									V	
10800-10830	S	N		S	F	V	F		R	N					S	V				V									V	V
10830-10860	F	N		N	C		C		F	N			V		F				F	V			V						F	
10860-10890	S	N		R	N		N								R	V													R	
10890-10920		C		S	F		C	V	S	N			V		S	V			V	V	V		V							
10950-10980	R	F		S	C		C	V	F				V		S	V					V		V					V	V	
10980-11010	F	F					F		F	N					N	R	V				V	V	R					V		
11010-11040	N	F		N	S		F	1	R	R			V		S				V				V						V	
11040-11070	V			R			N		V			1			1															
11070-11100	N			N			F	1	F	R		1	1		R				1	1										
11100-11130	R	N					F	1	N	V			1		V															
11130-11160	V						S	1	N	V								1												
11160-11190		F		N			F	V	F										1											
11190-11220	N	F					F	1	F	R					S				1											
11220-11250		N					N	1	N										V				1							
11250-11280	V	N		R			F	1	N										1											
11280-11310	N	F			S		C	V	F	R			S		N				R											
11310-11340	F	A			F		A		A	F			N		F				F	V										
11340-11370	F	A			F		A		A	F			N		F				F	V							1			
11370-11400	F	C					C	R	C	F	R		R		F				R				V							
11400-11430	F	C					C	S	C	F	R		R		F				R				V							
11430-11460	F	A			R		A		F	N					F				N	V		V	V							
11460-11490	F	F			F		F		F	S			N		F	S			F	V		R	R							
11490-11520	F	F			F		C	R	F	S			N		F				N			R	R							
11520-11550	F	C			F		C		F	N			N		F				F			V	R							
11550-11580	F	C			F		C	R	C	R			V		F				F	V		R	S							
11580-11610	F	C					F		C	N			F		F				F	R		R			V					
11610-11640	F	C					F		C	N			F		F				F	R		R			V					
11640-11670	F	C			F		C		C	S			F		F	S			F	R										
11670-11700	F	C			F		C		C	S			F		F	S			F	R		R								
11700-11730	F	C			F		C	V	C	S			F		F	S			F	R		R								
11730-11760	F	F			F	N	C		C	S			F		F				F	S		R			V					
11760-11790	F				F		F	R	F						F				N	S										
11790-11820	F	S			F		F	S	F		R				F	R			F	S		V								
11820-11850	F	S			F		F	S	F		R				F	R			F	S		V	V							
11850-11880	F	R			N		N	S			R				N				N											
11880-11910	F	R			F		F	F			R				F				N	R										
11910-11940	F	R			F		F	F		R	R		V		F				N	R		V								
11940-11970	F				F		F	R	F	S			S		F	R			N	R										
11970-12000	F				F		F	S	F	S	R		S		F	R			N	R										
12000-12030	F				F		F	S	F	S	R		S		F	R			N	R										
12030-12060	F	N			N		S	S							R				S											
12060-12090	F	N			N		S	N							R				S											
12090-12120	N			V		N	N	F	R		R				N	V			V	1							1			
12120-12150	R	V		V	R	S	R	N		V	R				V					V							V			
12150-12180		R		1	V	V	V	N		V									1											
12180-12210				R			N	F	R	R	R				N	R			V	V	1						1			
12210-12240	F	F		N		C	C	F	N	R	R				N	S	V		R	V	1								1	
12240-12270	F	N		R	F	F	F	F	R	R	V			V	N				R	V							V			
12270-12300	F	N		R	F	F	C	F	N	R	R			V	N	R			R	V		1	1		1		V			
12300-12330	F	N		N	C	C	C	F	N	R	R			R	N	R			N	V		1	1		1		V			
12330-12360	F	N		N	C	C	C	F	F	R	R			V	N	R			S	V		1	1		1		V			
12360-12390	F	N	1	N	C	C	F	F	F	R	N			V	N	R			R	V		1	1		1		V			
12390-12420	F	F		N	C	C	F	F	N		N			V	N	N			N								V			
12420-12450	F	F		R	F	F	F	F	N		N			V	N	S			R								V			
12450-12480	F	C		R	C	F	C	F	N		N			V	N	S			R	V							R			
12480-12510	F	C		R	C	C	F	F	N	V	F			V	N	R			R	V							R			
12510-12540	F	C		R	C	C	F	N	N	V	F			V	N	N			R	V							N			
12540-12570	F	C		R	C	C	F	N	N	V	F			V	N	N			R	V							R			
12570-12600	F	C		R		C	N	C	N		F			V	N	R				V				V						
12600-12630	V	R			V	V		A	V		V					V														
12630-12660	R				R	R	R	C	R	1	R					V														
12660-12690	R			V	R	R		A	V		R					V			V											
12690-12720	V				V	V		A			1																			
12720-12750					V	V		A	V																					
12750-12780	V	R			R	V		A			V				1															
12780-12810		V		1		V		A	V		V																			
12810-12840	V	R		V	S	R	V	A	V		R				1				1											
12840-12870	R	N			N	N		C	R	1	R				V	V														
12870-12900	N	C	1	R	F	F	N	F	N	R	N			V	N	V						1					V			
12900-12930	N	C	1	R	C	F	N	F	N	R	N			V	R	R			V			1					1			

Sample Depth	12. Discoaster B 31. Umbilicosphaera jafari	29. Discoaster C 32. Discoaster calcaris	30. Discoaster adamanteus 33. Discoaster cf. B	76. Discoaster aff. bollii 34. Discoaster neohamatus	68. Discoaster aff. hamatus 35. Thoracosphaera saxae	80. Discoaster aff. sanmiguelensis 36. Reticulofenestra gelida	100. Discoaster asymmetricus 37. Sphenolithus abies (large)	91. Discoaster barbadiensis 38. Discoaster pentaradiatus	50. Discoaster bellus 39. Syracosphaera pulchra	84. Discoaster blackstockae 40. Discoaster deflandrei	61. Discoaster bollii 41. Calcidiscus tropicus	13. Discoaster brouweri 42. Reticulo. pseudoumbilica	32. Discoaster calcaris 43. Calcidiscus macintyrei	57. Discoaster calculosus < 14 44. Discoaster intercalcaris	49. Discoaster cf. A 45. Pontosphaera multipora	33. Discoaster cf. B 46. Sphenolithus moriformis	26. Discoaster cf. C 47. Catinaster mexicanus	60. Discoaster cf. bollii 48. Helicosphaera intermedia	92. Discoaster cf. deflandrei 49. Discoaster cf. A	109. Discoaster cf. exilis 50. Discoaster bellus	81. Discoaster cf. hamatus 51. Discoaster challengeri	98. Discoaster cf. kugleri 52. Pontosphaera japonica	85. Discoaster cf. loeblichii 53. Discoaster prepentaradiatus	86. Discoaster cf. sanmiguelensis 54. Helicosphaera obliqua	95. Discoaster cf. surculus 55. Minylitha convallis	51. Discoaster challengeri 56. Coccolithus cf. miopelagicus	40. Discoaster deflandrei 57. Discoaster calculosus < 14	96. Discoaster divaricatus 58. Lithostromation perdurum	14. Discoaster exilis 59. Sphenolithus heteromorphus	62. Discoaster hamatus 60. Discoaster cf. bollii
10390-10410																														
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10830-10860	F	V	V	V	V																									
10860-10890	S					V	V																							
10890-10920	S	V			V			V	V																					
10950-10980	S									1																				
10980-11010	F	V			V		R				V	V																		
11010-11040													1	1	1	N														
11040-11070																	1													
11070-11100												1						1												
11100-11130																														
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11160-11190										1																				
11190-11220											V	1							1											
11220-11250																														
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11280-11310											1								1											
11310-11340	F	V					S	R					V						1	V	V	V								
11340-11370	F	V			R	V	S	R			S		V						1	V	V	V	R	V	R					
11370-11400	F				V		N				S								V						V					
11400-11430	F				V		N				S								V						V					
11430-11460	F				V	N	N				S	F	V					V	V				R		S	V				
11460-11490	F	R			V	F					N	F							N	S		V	R	R	R					
11490-11520	F				V	R					R	N	V										S		V					
11520-11550	F				R	S						F											S	V	S					
11550-11580	F				V	N					R	S								V		V	N		R					
11580-11610					S	R				V	R	N							R	R		V	S		S		V	V	1	
11610-11640					S	R					R	N							R	R		V	S		S		V			V
11640-11670	F					F					R	F											V		R					
11670-11700	F					F					R	F											V		R					
11700-11730	F				V	F					R	F											V	V	V					
11730-11760	F				R	F				1	N	S																		
11760-11790	S					F					R	R																		
11790-11820	F				S	F					S	F			V									R						
11820-11850	F				S	F					S	F			V									R						
11850-11880	N					F					R	S																		
11880-11910	N				V	F					R	F										V								
11910-11940	N				V	F					R	F								V		V								
11940-11970	S				R	F					R	F								V										
11970-12000	F				R	F					S	F								V										
12000-12030	F				R	F					S	F								V										
12030-12060	S					F					R																			
12060-12090	S					F					R																			
12090-12120						N				1	V	R	V						1							1				V
12120-12150						N					V	V	V							1										
12150-12180						V																								
12180-12210	R					C			V		R	N	R						V	V						R				V
12210-12240	R					C			V		N	F	R						V	V						N	1			V
12240-12270						C					R	N	R		V				1	V						R				
12270-12300	V					C	V				N	F	R		V			1	1	V						R				V
12300-12330	V					A	R				N	F	N		V			V	1	V						R				V
12330-12360	V					A	N			1	N	F	N		V			V	1	V						R				V
12360-12390	V					A	N				N	F	N		V			V	1	V						R			1	V
12390-12420	N					C	R			1	R	N	R													V				V
12420-12450	R					F	R			1	R	N	R					V				1				V				V
12450-12480	R					C	R	1		1	R	N	R					V				1				V				V
12480-12510	R					C	R	1		1	R	N	R					V				1				V				V
12510-12540	R					C	R	1		1	R	N	N					V				1				N				V
12540-12570	R					C	R	1			R	N	N		V			V				1				N				V
12570-12600	R					C	R				R	N	N					V				1				R				V
12600-12630												V																		
12630-12660						R						V														V				
12660-12690						N						V																		
12690-12720						1							1																	
12720-12750						V						V																		
12750-12780						V					1																			
12780-12810											V															1				
12810-12840						R						V														V				
12840-12870						R	V					V																		
12870-12900	V					N					V	S	V													V				
12900-12930	V					N				1	V	N	V									V				V				

Sample Depth	99. Discoaster icarus 61. Discoaster bollii	44. Discoaster intercalcaris 62. Discoaster hamatus	93. Discoaster kugleri 63. Catinaster calyculus	28. Discoaster loeblichii 64. Catinaster coalitus	102. Discoaster micros 65. Calcidiscus cf. macintyrei	87. Discoaster moorei 66. Coccolithus pataecus	34. Discoaster neohamatus 67. Dictyococcites bisectus	38. Discoaster pentaradiatus 68. Discoaster aff. hamatus	105. Discoaster petaliformis 69. Discoaster sanmiguelensis	110. Discoaster praebollii 70. Discoaster torasus	53. Discoaster prepentaradiatus 71. Helicosphaera burkei	69. Discoaster sanmiguelensis 72. Reticulofenestra haqii < 3	78. Discoaster sp. 73. Transversopontis obliquipons	18. Discoaster sp. (5 ray) 74. Umbilicosphaera sibogae	3. Discoaster surculus 75. Catinaster coalitus transitus	103. Discoaster toralus 76. Discoaster aff. bollii	70. Discoaster torasus 77. Helicosphaera granulata	25. Discoaster triradiatus 78. Discoaster sp.	19. Discoaster variabilis 79. Cyclicargolithus cf. floridanus	22. Geminilithella rotula 80. Discoaster aff. sanmiguelensis	71. Helicosphaera burkei 81. Discoaster cf. hamatus	88. Helicosphaera californiana 82. Cyclicargolithus floridanus > 9	107. Helicosphaera cf. sellii 83. Dictyococcites stavensis	106. Helicosphaera cf.scissura 84. Discoaster blackstockae	114. Helicosphaera colombiana 85. Discoaster cf. loeblichii	77. Helicosphaera granulata 86. Discoaster cf. sanmiguelensis	48. Helicosphaera intermedia 87. Discoaster moorei	15. Helicosphaera kamptneri 88. Helicosphaera californiana	94. Helicosphaera minuta 89. Neosphaera coccolithomorpha	54. Helicosphaera obliqua 90. Cyclicargolithus floridanus < 9
10390-10410																														
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11790-11820	N	V																												
11820-11850	N	V																												
11850-11880	S																													
11880-11910	S																													
11910-11940	N	R	1																											
11940-11970	S	V		V																										
11970-12000	S	V		V																										
12000-12030	S	V																												
12030-12060	S																													
12060-12090	S																													
12090-12120	V				V	V	V	1	1	V	V	R	1	R																
12120-12150								1				V			1	V	1													
12150-12180	1																	1												
12180-12210				R		R				V		R							1	1	R									
12210-12240	V			V		R	V	R		V		F		N	V				1	1	R	R	1	V	1	V	V	1	V	
12240-12270				V		N		V		V		F		R	V						R				V				V	1
12270-12300		1		V		N	V	V		V		F		R	V						R				V				V	
12300-12330	1			S		N		V		R	V	F		R	V					1	R				V				V	
12330-12360	1			V		N		V		V	V	F		R	V					1	V				V				V	
12360-12390	1			V		N		V	1	V	V	F		R	V		V			1	V				V				V	1
12390-12420				V	R	V				1		F									V					V				
12420-12450				V	R	V				1		F		R							V					V		V		1
12450-12480				V	R	V				1		F		R		1					V					1		V		
12480-12510				V	R	V				1		F		S		1					V	1				1		V		
12510-12540				V	R	V				1		F		S		1					V	1	1			1		V		V
12540-12570				V	R	V	V			V		F		S	V	1					V					1		V		
12570-12600							1		1			C		N							V					1				
12600-12630																														
12630-12660										1		R						1							1					
12660-12690						V						R																		
12690-12720												V																		
12720-12750												V																		
12750-12780												R																		
12780-12810					1							R																		
12810-12840																														
12840-12870					V							N																		
12870-12900						V								R		1														
12900-12930						V								R		1						1				V				

Sample Depth	23. Helicosphaera rhomba 91. Discoaster barbadiensis	111. Helicosphaera walbersdorfensis 92. Discoaster cf. deflandrei	108. Helicosphaera wallichi 93. Discoaster kugleri	58. Lithostromation perdurum 94. Helicosphaera minuta	55. Minylitha convallis 95. Discoaster cf. surculus	89. Neosphaera coccolithomorpha 96. Discoaster divaricatus	20. Pontosphaera discopora 97. Rhabdosphaera procera	52. Pontosphaera japonica 98. Discoaster cf. kugleri	45. Pontosphaera multipora 99. Discoaster icarus	42. Reticulo. pseudoumbilica 100. Discoaster asymmetricus	16. Reticulofenestra amplus 101. Cyclicargolithus abisectus	4. Reticulofenestra celticus 102. Discoaster micros	36. Reticulofenestra gelida 103. Discoaster toralus	5. Reticulofenestra haqii 3-5 104. Coronocyclus nitescens	6. Reticulofenestra haqii 5-8 105. Discoaster petaliformis	72. Reticulofenestra haqii < 3 106. Helicosphaera cf.scissura	7. Reticulofenestra minuta 107. Helicosphaera cf. sellii	8. Reworked Cretaceous 108. Helicosphaera wallichi	97. Rhabdosphaera procera 109. Discoaster cf. exilis	9. Sphenolithus abies 110. Discoaster praebollii	37. Sphenolithus abies (large) 111. Helicosphaera walbersdorfensis	59. Sphenolithus heteromorphus 112. Braarudosphaera rosa	46. Sphenolithus moriformis 113. Crassipontosphaera jonesi	39. Syracosphaera pulchra 114. Helicosphaera colombiana	35. Thoracosphaera saxae 115. Calcidiscus cf. premacintyrei	73. Transversopontis obliquipons 116. Catinaster cf. sp. A	31. Umbilicosphaera jafari 117. Catinaster sp. A	74. Umbilicosphaera sibogae 118. Calcidiscus premacintyrei	24. Umbilicosphaera sp. 119. Cyclicargolithus floridanus	BIOHORIZONS
10390-10410																														
10410-10440																														
10440-10470																														
10470-10500																														
10530-10560																														
10560-10590																														
10590-10620																														
10620-10650																														
10650-10680																														
10680-10710																														
10710-10740																														
10740-10770																														Discoaster C
10770-10800																														
10800-10830																														
10830-10860																														Discoaster calcaris
10860-10890																														
10890-10920																														
10950-10980																														Discoaster loeblichii
10980-11010																														
11010-11040																														
11040-11070																														Catinaster mexicanus
11070-11100																														
11100-11130																														
11130-11160																														
11160-11190																														
11190-11220																														
11220-11250																														
11250-11280																														
11280-11310																														
11310-11340																														
11340-11370																														Discoaster prepentaradiatus
11370-11400																														
11400-11430																														
11430-11460																														Discoaster prepentaradiatus persistent
11460-11490																														
11490-11520																														
11520-11550																														
11550-11580																														
11580-11610																														
11610-11640																														
11640-11670																														Discoaster bollii
11670-11700																														
11700-11730																														
11730-11760																														
11760-11790																														
11790-11820																														Discoaster hamatus
11820-11850																														
11850-11880																														
11880-11910																														
11910-11940																														Catinaster calyculus
11940-11970																														Catinaster coalitus
11970-12000																														
12000-12030																														
12030-12060																														
12060-12090																														
12090-12120																														
12120-12150																														Coccolithus miopelagicus
12150-12180																														
12180-12210																														
12210-12240																														
12240-12270	1	V	1	1																										
12270-12300		V		1	1	1	V																							
12300-12330		1		1	1	V	V	V	1																					
12330-12360		1		1	V	V	R		1																					
12360-12390		1		1	V	V	R		1																					
12390-12420						1				1																				
12420-12450					1	1	V			1	1	1	V																	
12450-12480		1			1	1	V			1			V	1																
12480-12510		1			1	1	V	1		1		1	V	1																
12510-12540		1			V	1	V	1		1		1	V	1	1	1														
12540-12570		1	1		R	1	V	1		1		1	V	1		1	1													
12570-12600			1																											
12600-12630																														
12630-12660																		1												
12660-12690														1					1											
12690-12720																														
12720-12750																														
12750-12780																														
12780-12810																	1													
12810-12840																														
12840-12870																														
12870-12900			1															V												Discoaster kugleri
12900-12930			1		1													V												

PALEO DATA

MURPHY #01 ST00BP00 OCS-G-25850, BLOCK 178, DESOTO CANYON AREA
INTERVAL EXAMINED: 10390' - 24519'
NANNOFOSSIL RANGE CHART

Depth	17. Braarudosphaera bigelowi	112. Braarudosphaera rosa	65. Calcidiscus cf. macintyrei	115. Calcidiscus cf. premacintyrei	10. Calcidiscus leptoporus	43. Calcidiscus macintyrei	118. Calcidiscus premacintyrei	41. Calcidiscus tropicus	63. Catinaster calyculus	116. Catinaster cf. sp. A	64. Catinaster coalitus	75. Catinaster coalitus transitus	47. Catinaster mexicanus	117. Catinaster sp. A	56. Coccolithus cf. miopelagicus	27. Coccolithus miopelagicus	66. Coccolithus pataecus	1. Coccolithus pelagicus	104. Coronocyclus nitescens	113. Crassipontosphaera jonesi	101. Cyclicargolithus abisectus	79. Cyclicargolithus cf. floridanus	119. Cyclicargolithus floridanus	90. Cyclicargolithus floridanus < 9	82. Cyclicargolithus floridanus > 9	11. Dictyococcites antarcticus	67. Dictyococcites bisectus	2. Dictyococcites productus	83. Dictyococcites stavensis	21. Discoaster A
12930-12960	N	F	V	N	C	C	F	F	N	R	N			1	N	R			R			1					V			
12960-12990	F	C			C	F	N	F	N		N					R			V			1					V			
12990-13020	N	F			C	N	F	N								R			V											
13020-13050	N	C	1	N	C	N	F	N			F					R			V											
13050-13080	N	N		R	N	N	R	N	R		N					R			V	1			1							
13080-13110	N	F		N	F	N	N	N	R	V	F				N	V			1	V			1				V			
13110-13140	N	F		N	F	N	F	N	R	V	N			1	N	R			1	V			1				V			
13140-13170		F			F		N	N	N		N				S	V											V			
13170-13200	N	C		V	F	N	R	C			F			V	R	V											V			
13200-13230	N	F		R	F		F	C	R						R	R			V								V			
13230-13260	N	F		R	F	N	N	C	R	V	N				R				V											
13260-13290	R	R		V	N	R	V	F			R				V	V														
13290-13320		C		R	F	N		F	R	R					N	R			V	V							R			
13320-13350	F	C		R	C	C		N	R	R	C			V	N	N			V	V							S			
13350-13380	R	N		R	F	N	N	N	V		N				N	V			V											
13380-13410	N	N		V	N	N	R	F	V		N				V															
13410-13440		N		V	R	V	R	C			R																			
13440-13470		R		V	N	R	R	F		V	R				R	V														
13470-13500		R			R	V		F			R				V	V				1										
13500-13530	V	R		1	V	V	V	F			R				V	V				1										
13530-13560	V			1	R	V		F			V				V															
13560-13590		R			V	V		N	1							1														
13590-13620	V	N			R	V		F			R				V	1														
13620-13650	V	N		V	R	R	R	N			R				V	V														
13650-13680	R	R			V	1	V	N			V																			
13680-13710	V	R		V	R	V	V	N			R					V														
13710-13740	N	N			N			N			N			V	R	R			1											
13740-13770		R			1	V	V	N			V				1															
13770-13800		V				1		N																						
13800-13830		V		1	1	V	V	N			1					1														
13830-13860	1	V				1		N			1																			
13860-13890	V			1	1	V	V	F	1						V															
13890-13920	V	N		V	R	R	R	F			V				V	V											V			
13920-13950	R	N			R	R	N	N			V			1	R	V														
13950-13980		N		V	V	V	V	F	V		V			1	V	V														
13980-14010	F	C	1		C	N	N	R	N		F				F	N			1								N			
14010-14040	V	N			R		V	F			V																			
14040-14070		N		V	V			F																			1			
14070-14100	R	F			R	R	R	N	R		N				V				V								V			
14100-14130	R	F		R	N	V	N	N	V	1	N				R	V											V			
14130-14160	R	F		V	R	R	N	N	V	1	R				V	V				1										
14160-14190	R	R		V	R	1		N			R				V															
14190-14220	S	N		V	S	R	R	N	V		R				R	V			1								V			
14220-14250		F				R	R	N	V						V	V														
14250-14280	F	C			F	S		N	V		F		V			V			V	V			1				V			
14280-14310	N	C	V		C	N	N	N	V		F		V			R			V	V			1				V			
14310-14340	N	C	1		F	N	F	N	R	V	N				R	R														
14340-14370	F	C			N	S	N	N	R		N				R	R														
14370-14400	F	C		V	C	N	N	N	R	V	F				R	R											V			
14400-14430	N	A		V	C	N	F	N	R	V	N				V	R											V			
14430-14460	N	C		V	F	N	F	N	R		N				R	R			1				1				V			
14460-14490	N	C		V	N	R	F	S	1	1	R				V	V				1							1			
14490-14520	R	S		S	S			F												V										
14520-14550	R					R		F							V															
14550-14580								F																						
14580-14610		R			R			S	R																					
14610-14640	R	V		V		R		S							V				V											
14640-14670	R				R		V	S							V															
14670-14700	R	V		V	R			S																						
14700-14730						V		N																						
14730-14760	S	N		R	S		S	N		R	V				R															
14760-14790	V						V	N							V															
14790-14820	S	S		V	R		S	N	R		R				S				V								V			
14820-14840	F	F			C		C	R	F		N				F	S			R	R			R				R			
14840-14860	F	F		N	C		C		S						F	S			S	R							V			
14860-14880	F			N	C	S	C	R	F	S					F	R	V		S	R			V							
14880-14900	F			N	C	S	C	R	F	S					F	R	V		S	R			V							
14900-14910	F			N	C	S	C	R	F	S					F	R	V		S	S			V				S			
14910-14940	F	C		S	C	F	C	V		R					F	R	V		S	S										
14940-14970	F	R			S	S		F			V				R					V										
14970-15000	F	R			F	F	R	F			N				S				R	V							V			

Depth	12. Discoaster B	29. Discoaster C	30. Discoaster adamanteus	76. Discoaster aff. bollii	68. Discoaster aff. hamatus	80. Discoaster aff. sanmiguelensis	100. Discoaster asymmetricus	91. Discoaster barbadiensis	50. Discoaster bellus	84. Discoaster blackstockae	61. Discoaster bollii	13. Discoaster brouweri	32. Discoaster calcaris	57. Discoaster calculosus < 14	49. Discoaster cf. A	33. Discoaster cf. B	26. Discoaster cf. C	60. Discoaster cf. bollii	92. Discoaster cf. deflandrei	109. Discoaster cf. exilis	81. Discoaster cf. hamatus	98. Discoaster cf. kugleri	85. Discoaster cf. loeblichii	86. Discoaster cf. sanmiguelensis	95. Discoaster cf. surculus	51. Discoaster challengeri	40. Discoaster deflandrei	96. Discoaster divaricatus	14. Discoaster exilis	62. Discoaster hamatus
12930-12960	R					F				1	V	N	V									V				V				
12960-12990	V					F				V	V	N	V													V				
12990-13020	F					F		1	V		V	N	V		1			V								V				
13020-13050	F					N		1	V	V	V	N	V		1			V								R				
13050-13080	N					R			V			V																		
13080-13110	N					N			V		R	N			1			V								V			1	
13110-13140	N					N			V		R	N			1			V								V				
13140-13170	N					R					R	R																		
13170-13200	R					N						R			1															
13200-13230	R											R																		
13230-13260	R					N					V	R			1			V								V				
13260-13290						V					V	V																		
13290-13320	R					N					R	R						V								R				1
13320-13350	R					C				1	R	N						V								S				1
13350-13380	R					N						V						V								V				
13380-13410	V					R					V	R	V																	
13410-13440	V					V						V	V									1								
13440-13470												V														V				
13470-13500	V					R				1		R	1													1				
13500-13530	V					V						1	1													1				
13530-13560						V						1																		
13560-13590																														
13590-13620						V						V																		
13620-13650	R					R					V	V										1								
13650-13680																														
13680-13710						V																								
13710-13740	R					N						S														1				
13740-13770												V																		
13770-13800																														
13800-13830																														
13830-13860																														
13860-13890	V					V																				1				
13890-13920	V					V						V														V				
13920-13950	V					R						V														1				1
13950-13980	V					V						V			1											V				
13980-14010						C	N				V	S	N																	
14010-14040						V																								
14040-14070																		1												
14070-14100	V												V																	
14100-14130	N					R	V					V														V				
14130-14160	V					R	V					V														V				
14160-14190						V												1												
14190-14220						S						V			1			V												
14220-14250	V											V			V															
14250-14280	N					R			V		1	V	V													V				
14280-14310	F					N			V		1	R	V					V				V				V				
14310-14340	N										V	R			1											1				
14340-14370	N											V														1				1
14370-14400	N					N					V	R			1			V	1			V				V				V
14400-14430	R					N					V	1			1			V	1			V				V				V
14430-14460	R					R					V	R	1													V				1
14460-14490	V					R												V												
14490-14520	R											V																		
14520-14550						R						R																		
14550-14580												V	1																	
14580-14610						V																								
14610-14640						V																								
14640-14670																														
14670-14700																														
14700-14730																														
14730-14760	R					V																								
14760-14790						V						V																		
14790-14820	V					R																								
14820-14840	F				V					V	R	V																	1	
14840-14860	F									V	R																			
14860-14880	S									R	R																			
14880-14900	S									R	R	R			V															
14900-14910	S				V					R	R	R			V															
14910-14940	F					R				S	R	S	V		V	N						V		R						
14940-14970	V					R				V						V														
14970-15000	F				R	V										V						V								

Depth	99. Discoaster icarus	44. Discoaster intercalcaris	93. Discoaster kugleri	28. Discoaster loeblichii	102. Discoaster micros	87. Discoaster moorei	34. Discoaster neohamatus	38. Discoaster pentaradiatus	105. Discoaster petaliformis	110. Discoaster praebollii	53. Discoaster prepentaradiatus	69. Discoaster sanmiguelensis	78. Discoaster sp.	18. Discoaster sp. (5 ray)	3. Discoaster surculus	103. Discoaster toralus	70. Discoaster torasus	25. Discoaster triradiatus	19. Discoaster variabilis	22. Geminilithella rotula	71. Helicosphaera burkei	88. Helicosphaera californiana	107. Helicosphaera cf. sellii	106. Helicosphaera cf.scissura	114. Helicosphaera colombiana	77. Helicosphaera granulata	48. Helicosphaera intermedia	15. Helicosphaera kamptneri	94. Helicosphaera minuta	54. Helicosphaera obliqua
12930-12960												C		R		1										V				
12960-12990					V	V						C		V																
12990-13020														R												1				
13020-13050						V								R												1		1		
13050-13080					V							F		V																
13080-13110					V					1		F		V		1											1		1	1
13110-13140					V					1		F		V		1													1	
13140-13170					V	V						N				1														
13170-13200						V						F														V				
13200-13230					V							N		V												1				
13230-13260					V							N				V														
13260-13290												R																		
13290-13320									1		1	N		V																1
13320-13350									V	V	1	N		V																
13350-13380					V							N																	1	
13380-13410										V		R																V		
13410-13440						1						R														1				
13440-13470												R																		
13470-13500									1			R																		
13500-13530					1	1						R																		
13530-13560												V																		
13560-13590																														
13590-13620												R											1							
13620-13650					V						1			V																1
13650-13680						1						V																		
13680-13710																														
13710-13740												N				1										1				
13740-13770												V																		
13770-13800																														
13800-13830																														
13830-13860																														
13860-13890					1							R																		
13890-13920												R		V																
13920-13950																V														
13950-13980												R		V																
13980-14010										V				R		1	V									1				
14010-14040												V		V																
14040-14070												V																		
14070-14100												R		R																
14100-14130												R		N		1														
14130-14160												V		V		1														
14160-14190												1		V																
14190-14220	1				V							S								1										
14220-14250					1							R		V				1												
14250-14280	V					V						F		V			V													
14280-14310	V					V				1		C		V			V									1				
14310-14340					1							F		R																
14340-14370												F		R				V												
14370-14400	V				1	V						F		N				V												
14400-14430	V				1	V						F		N				V		1										
14430-14460									1		1	F		N				V												
14460-14490						1						N		S				1												
14490-14520												R					V													
14520-14550												V																		
14550-14580												R																		
14580-14610																														
14610-14640																														
14640-14670																														
14670-14700																														
14700-14730																														
14730-14760																														
14760-14790																														
14790-14820																														
14820-14840	V																													V
14840-14860																										1				V
14860-14880	V																					1								V
14880-14900	R																													V
14900-14910	R																													V
14910-14940														R			S													
14940-14970																	R													
14970-15000														R			V													

Depth	23. Helicosphaera rhomba	111. Helicosphaera walbersdorfensis	108. Helicosphaera wallichi	58. Lithostromation perdurum	55. Minylitha convallis	89. Neosphaera coccolithomorpha	20. Pontosphaera discopora	52. Pontosphaera japonica	45. Pontosphaera multipora	42. Reticulo. pseudoumbilica	16. Reticulofenestra amplus	4. Reticulofenestra celticus	36. Reticulofenestra gelida	5. Reticulofenestra haqii 3-5	6. Reticulofenestra haqii 5-8	72. Reticulofenestra haqii < 3	7. Reticulofenestra minuta	8. Reworked Cretaceous	97. Rhabdosphaera procera	9. Sphenolithus abies	37. Sphenolithus abies (large)	59. Sphenolithus heteromorphus	46. Sphenolithus moriformis	39. Syracosphaera pulchra	35. Thoracosphaera saxae	73. Transversopontis obliquipons	31. Umbilicosphaera jafari	74. Umbilicosphaera sibogae	24. Umbilicosphaera sp.	
12930-12960			1		1							1					1	V												
12960-12990			1															V		1										
12990-13020							V											V			V									
13020-13050							V											V			V									
13050-13080																														
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13110-13140								1										V				1	1							
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14130-14160					V																									
14160-14190																														
14190-14220																														
14220-14250																														
14250-14280					1																					1	1			Secondary Marker (Catinaster sp. A)
14280-14310					1													V								1				
14310-14340		1					V																							
14340-14370																														
14370-14400					1																									
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14820-14840																												V		Sphenolithus heteromorphus
14840-14860																												R		
14860-14880			1																									R		
14880-14900																												R		
14900-14910																												R		
14910-14940															V						V							R	N	
14940-14970																														
14970-15000																												V	V	

MURPHY #01 ST00BP00 OCS-G-25850, BLOCK 178, DESOTO CANYON AREA
INTERVAL EXAMINED: 10390' - 24519'
NANNOFOSSIL RANGE CHART

	129. Amphizygus brooksii	164. Anfractus harrisonii	98. Aspidolithus parcus parcus	97. Biscutum constans	182. Biscutum sp.	155. Biscutum thurowii	146. Braarudosphaera africana	1. Braarudosphaera bigelowii	154. Braarudosphaera primula	153. Braarudosphaera regularis	166. Braarudosphaera sp.	151. Braarudosphaera stenorhetha	165. Calcicalithina oblongata	2. Calcidiscus leptoporus	3. Calcidiscus macintyrei	4. Calcidiscus premacintyrei	28. Calcidiscus tropicus	76. Chiasmolithus bidens	77. Chiasmolithus californicus	85. Chiasmolithus danicus	59. Chiasmolithus grandis	99. Chiastozygus amphipons	100. Chiastozygus litterarius	50. Coccolithus eopelagicus	5. Coccolithus miopelagicus	6. Coccolithus pelagicus	181. Conusphaera mexicana	101. Corollithion signum	102. Cretarhabdus conicus	53. Cribrocentrum reticulata	138. Cribrosphaerella ehrenbergii	169. Cruciellipsis cuvillieri	78. Cruciplacolithus frequens	88. Cruciplacolithus tenuis	150. Cyclagelosphaera margerelli	60. Cyclicargol. floridanus > 9-11	7. Cyclicargolithus abisectus	8. Cyclicargolithus floridanus	57. Cyclicargolithus floridanus 6-9	71. Cyclicargolithus floridanus < 6	38. Cyclicargolithus floridanus < 9	130. Cylindralithus nudus	171. Diadorhombus rectus	167. Diazomatholithus lehmanii	9. Dictyococcites antarcticus	44. Dictyococcites bisecta	54. Dictyococcites bisectus	55. Dictyococcites erbae	10. Dictyococcites productus	51. Dictyococcites scrippsae	52. Dictyococcites stavensis	45. Discoaster barbadiensis	11. Discoaster deflandrei	93. Discoaster delicatus	72. Discoaster diastypus	68. Discoaster multiradiatus	36. Discoaster petaliformis	46. Discoaster saipanensis	29. Discoaster transitus	12. Discoaster variabilis	103. Discorhabdus ignotus	148. Eiffellithus equibiramus	149. Eiffellithus hancocki	140. Eiffellithus parvus	104. Eiffellithus gorkae	183. Eiffellithus sp.	105. Eiffellithus turriseiffelii	175. Eiffellithus windii	95. Ellipsolithus macellus	106. Eprolithus floralis	47. Ericsonia formosa	89. Ericsonia robusta	187. Ethmorhabdus gallicus	79. Fasciculithus thomasii	80. Fasciculithus tympaniformis	156. Flabellites oblonga	107. Gartnerago segmentatum	144. Haqius circumradiatus	131. Helicolithus leckiei	58. Helicosphaera gertae	13. Helicosphaera granulata	14. Helicosphaera kamptneri	30. Helicosphaera obliqua	43. Helicosphaera recta	31. Helicosphaera rhomba	34. Helicosphaera walbersdorfensis	86. Heliolithus cantabriae	87. Heliolithus kleinpeli	184. Hexalithus noeliae	56. Lanternitus sp.	170. Lithraphidites bollii	191. Lotharingius velatus	108. Loxolithus armilla	109. Manivitella pemmatoidea	90. Micrantholithus discula	161. Micrantholithus holschulzii	160. Micrantholithus obtusus	185. Micrantholithus sp.	125. Micula decussata	147. Nannoconus bucheri	180. Nannoconus elongatus	157. Nannoconus kamptneri	110. Nannoconus regularis	142. Nannoconus sp.	158. Nannoconus steinmannii	73. Neochiastozygus chiastus	91. Neochiastozygus junctus	172. Orastrum partitum	163. Percivalia imperfossa	174. Perissocyclus plethotretus	141. Placozygus fibuliformis	94. Placozygus sigmoides	190. Podorhabdus grassei	188. Polycostella beckmannii	178. Polycostella senaria	15. Pontosphaera discopora	16. Pontosphaera japonica	37. Pontosphaera multipora	69. Pontosphaera plana	132. Prediscosphaera columnata	111. Prediscosphaera cretacea	81. Prinsius bisulcus	74. Prinsius martinii	145. Radiolithus planus	159. Retecapsa angustiforata	112. Retecapsa crenulata	17. Reticulo. pseudoumbilica	18. Reticulofenestra amplus	39. Reticulofenestra asanoi	19. Reticulofenestra celticus	48. Reticulofenestra dictyoda	20. Reticulofenestra gelida	21. Reticulofenestra haqii 3-5	22. Reticulofenestra haqii 5-8	40. Reticulofenestra haqii < 3	49. Reticulofenestra hillae	41. Reticulofenestra lockeri	23. Reticulofenestra minuta	61. Reticulofenestra umbilica	42. Reticulofenestra westerholdii	24. Reworked Cretaceous	113. Rhagodiscus achlyostaurion	114. Rhagodiscus asper	168. Rhagodiscus dekaenellii	115. Rhagodiscus gallagheri	133. Rhagodiscus infinitus	134. Rhagodiscus plebeius	176. Speetonia colligata	82. Sphenolithus anarrhopus	64. Sphenolithus belemnos	35. Sphenolithus ciperoensis	62. Sphenolithus dissimilis	67. Sphenolithus furcatolithoides	32. Sphenolithus heteromorphus	25. Sphenolithus moriformis	65. Sphenolithus obtusus	92. Sphenolithus primus	66. Sphenolithus radians	116. Staurolithites crux	117. Staurolithites gausorhethium	135. Staurolithites lafittei	162. Staurolithites mutterlosei	118. Staurolithites sp.	193. Stephanolithion atmetus	173. Stradnerlithus geometricus	126. Tegumentum stradneri	26. Thoracosphaera saxae	70. Toweius callosus	83. Toweius eminens	96. Toweius occultatus	75. Toweius pertusus	84. Toweius tovae	119. Tranolithus orionatus	179. Tubodiscus bollii	136. Tubodiscus burnettiae	177. Tubodiscus verenae	27. Umbilicosphaera jafari	33. Umbilicosphaera sibogae	127. Uniplanarius gothicus	152. Uniplanarius sissinghi	120. Watznaueria barnesae	121. Watznaueria biporta	139. Watznaueria britannica	122. Watznaueria fossacincta	189. Watznaueria ovata	137. Watznaueria supracretacea	192. Zeugrhabdotus cooperi	123. Zeugrhabdotus diplogrammus	124. Zeugrhabdotus embergeri	128. Zeugrhabdotus erectus	186. Zeugrhabdotus fissus	143. Zygrabdotus noeliae	63. Zygrablithus bijugatus	
Sample Depth	1. Braarudosphaera bigelowi	2. Calcidiscus leptoporus	3. Calcidiscus macintyrei	4. Calcidiscus premacintyrei	5. Coccolithus miopelagicus	6. Coccolithus pelagicus	7. Cyclicargolithus abisectus	8. Cyclicargolithus floridanus	9. Dictyococcites antarcticus	10. Dictyococcites productus	11. Discoaster deflandrei	12. Discoaster variabilis	13. Helicosphaera granulata	14. Helicosphaera kamptneri	15. Pontosphaera discopora	16. Pontosphaera japonica	17. Reticulo. pseudoumbilica	18. Reticulofenestra amplus	19. Reticulofenestra celticus	20. Reticulofenestra gelida	21. Reticulofenestra haqii 3-5	22. Reticulofenestra haqii 5-8	23. Reticulofenestra minuta	24. Reworked Cretaceous	25. Sphenolithus moriformis	26. Thoracosphaera saxae	27. Umbilicosphaera jafari	28. Calcidiscus tropicus	29. Discoaster transitus	30. Helicosphaera obliqua	31. Helicosphaera rhomba	32. Sphenolithus heteromorphus	33. Umbilicosphaera sibogae	34. Helicosphaera walbersdorfensis	35. Sphenolithus ciperoensis	36. Discoaster petaliformis	37. Pontosphaera multipora	38. Cyclicargolithus floridanus < 9	39. Reticulofenestra asanoi	40. Reticulofenestra haqii < 3	41. Reticulofenestra lockeri	42. Reticulofenestra westerholdii	43. Helicosphaera recta	44. Dictyococcites bisecta	45. Discoaster barbadiensis	46. Discoaster saipanensis	47. Ericsonia formosa	48. Reticulofenestra dictyoda	49. Reticulofenestra hillae	50. Coccolithus eopelagicus	51. Dictyococcites scrippsae	52. Dictyococcites stavensis	53. Cribrocentrum reticulata	54. Dictyococcites bisectus	55. Dictyococcites erbae	56. Lanternitus sp.	57. Cyclicargolithus floridanus 6-9	58. Helicosphaera gertae	59. Chiasmolithus grandis	60. Cyclicargol. floridanus > 9-11	61. Reticulofenestra umbilica	62. Sphenolithus dissimilis	63. Zygrablithus bijugatus	64. Sphenolithus belemnos	65. Sphenolithus obtusus	66. Sphenolithus radians	67. Sphenolithus furcatolithoides	68. Discoaster multiradiatus	69. Pontosphaera plana	70. Toweius callosus	71. Cyclicargolithus floridanus < 6	72. Discoaster diastypus	73. Neochiastozygus chiastus	74. Prinsius martinii	75. Toweius pertusus	76. Chiasmolithus bidens	77. Chiasmolithus californicus	78. Cruciplacolithus frequens	79. Fasciculithus thomasii	80. Fasciculithus tympaniformis	81. Prinsius bisulcus	82. Sphenolithus anarrhopus	83. Toweius eminens	84. Toweius tovae	85. Chiasmolithus danicus	86. Heliolithus cantabriae	87. Heliolithus kleinpeli	88. Cruciplacolithus tenuis	89. Ericsonia robusta	90. Micrantholithus discula	91. Neochiastozygus junctus	92. Sphenolithus primus	93. Discoaster delicatus	94. Placozygus sigmoides	95. Ellipsolithus macellus	96. Toweius occultatus	97. Biscutum constans	98. Aspidolithus parcus parcus	99. Chiastozygus amphipons	100. Chiastozygus litterarius	101. Corollithion signum	102. Cretarhabdus conicus	103. Discorhabdus ignotus	104. Eiffellithus gorkae	105. Eiffellithus turriseiffelii	106. Eprolithus floralis	107. Gartnerago segmentatum	108. Loxolithus armilla	109. Manivitella pemmatoidea	110. Nannoconus regularis	111. Prediscosphaera cretacea	112. Retecapsa crenulata	113. Rhagodiscus achlyostaurion	114. Rhagodiscus asper	115. Rhagodiscus gallagheri	116. Staurolithites crux	117. Staurolithites gausorhethium	118. Staurolithites sp.	119. Tranolithus orionatus	120. Watznaueria barnesae	121. Watznaueria biporta	122. Watznaueria fossacincta	123. Zeugrhabdotus diplogrammus	124. Zeugrhabdotus embergeri	125. Micula decussata	126. Tegumentum stradneri	127. Uniplanarius gothicus	128. Zeugrhabdotus erectus	129. Amphizygus brooksii	130. Cylindralithus nudus	131. Helicolithus leckiei	132. Prediscosphaera columnata	133. Rhagodiscus infinitus	134. Rhagodiscus plebeius	135. Staurolithites lafittei	136. Tubodiscus burnettiae	137. Watznaueria supracretacea	138. Cribrosphaerella ehrenbergii	139. Watznaueria britannica	140. Eiffellithus parvus	141. Placozygus fibuliformis	142. Nannoconus sp.	143. Zygrabdotus noeliae	144. Haqius circumradiatus	145. Radiolithus planus	146. Braarudosphaera africana	147. Nannoconus bucheri	148. Eiffellithus equibiramus	149. Eiffellithus hancocki	150. Cyclagelosphaera margerelli	151. Braarudosphaera stenorhetha	152. Uniplanarius sissinghi	153. Braarudosphaera regularis	154. Braarudosphaera primula	155. Biscutum thurowii	156. Flabellites oblonga	157. Nannoconus kamptneri	158. Nannoconus steinmannii	159. Retecapsa angustiforata	160. Micrantholithus obtusus	161. Micrantholithus holschulzii	162. Staurolithites mutterlosei	163. Percivalia imperfossa	164. Anfractus harrisonii	165. Calcicalithina oblongata	166. Braarudosphaera sp.	167. Diazomatholithus lehmanii	168. Rhagodiscus dekaenelii	169. Cruciellipsis cuvillieri	170. Lithraphidites bollii	171. Diadorhombus rectus	172. Orastrum partitum	173. Stradnerlithus geometricus	174. Perissocyclus plethotretus	175. Eiffellithus windii	176. Speetonia colligata	177. Tubodiscus verenae	178. Polycostella senaria	179. Tubodiscus bollii	180. Nannoconus elongatus	181. Conusphaera mexicana	182. Biscutum sp.	183. Eiffellithus sp.	184. Hexalithus noeliae	185. Micrantholithus sp.	186. Zeugrhabdotus fissus	187. Ethmorhabdus gallicus	188. Polycostella beckmannii	189. Watznaueria ovata	190. Podorhabdus grassei	191. Lotharingius velatus	192. Zeugrhabdotus cooperi	193. Stephanolithion atmetus	**BIOHORIZONS**
15000-15030	V	R	V	R	N	F	1	S	R	F	S	R	R	F	V	V	R	S	S	R	C	F	A	N	F	V	F																																																																																																																																																																													
15030-15060				R	S	F		V	R	C	R	N	S	N	V	V	S	S	R	N	F	F	C	F	F	V	F	R	V																																																																																																																																																																													
15060-15090				R	N	F		V	R	C	S	F	S	N	S	V	S	S	R	N	F	F	C	F	F	V	F	R	V	V	V	R	V																																																																																																																																																																											
15090-15120		V		S	N	F		V	R	C	S	F	S	N	S	V	S	S	R	N	F	F	C	F	F	V	F	S	V	V	V		V	V																																																																																																																																																																					
15120-15150		V		S	N	F		V	R	C	S	F	S	F	S	V	S	S	R	N	F	F	C	F	F	V	F	S	V	V	V		V	V																																																																																																																																																																					
15150-15180		V		S	N	F		R	R	C	N	F	S	F	S	V	S	S	R	N	F	F	C	F	F	V	F	S	V	V	V		V	V																																																																																																																																																																		Discoaster deflandrei Acme
15180-15200		V		S	N	F		R	R	C	F	F	S	F	S	V	S	S	R	N	F	F	C	F	F	V	F	S	R	V	R		V	V																																																																																																																																																															
15210-15240		V		S	N	F		R	R	C	F	F	S	F	S	V	S	S	R	N	C	F	C	F	F	V	F	S	R	V	R		V	V	1																																																																																																																																																													
15240-15270		R		V	S	F			R	F	S	N		N			R			S	F	F	F	R	S	R	F	R			V					1	V																																																																																																																																																														
15270-15300		R		V	R	F			R	F		R		N	R			R	R	N	F		F	N	F	R	F				V																																																																																																																																																																					
15300-15330		R		V	S	F			R	F	R	F	R	F	R		V	R	R	N	F		F	N	F	R	F				V	V																																																																																																																																																																		
15330-15360						N				N	V			R	V					S	N	N		F			N																																																																																																																																																																																	
15360-15390					V	N		V		N	V			R			V	R	V	S	N	N		F			N																																																																																																																																																																																
15390-15420				V	V	F		V		N	V	R		R			V	R	V	S	F	N		F			N																																																																																																																																																																															
15420-15450				V	R	F		R		F	V	R		R			V	R	V	S	F	N	F	F		R	N	V								V																																																																																																																																																																			
15450-15480					V	F				N	V			R				V	R	R	F	N	F	F	N	V						V						V	R	F	F	F																																																																																																																																																					
15480-15510				V		S				R	V			R	V		R			R	N	S		F			R											R																																																																																																																																																																
15510-15540				V	N	C				N	F	N	N	F	S		S	F	N		C	C	F		C						R	C						S																																																																																																																																																														
15540-15570				V	N	C				N	F	N	N	F	S		S	F	N		C	C	F		C	R					R	F						S					V																																																																																																																																																						
15570-15600					R	F					R		R								N			S	F													R						V	R	R	V	N	V																																																																																																																																																							Discoaster barbadiensis
15600-15630					R	F					R		R								N			S	F							1						R						F	S	R	V	N	V	N	S	R																																																																																																																																																
15630-15660				1		F				V											R			S	F												V								N					N	F		S	N	R	V																																																																																																																																													Cribrocentrum reticulata
15660-15690				1		F				V	R										R			S	F							1					V								N	R		R		N	F		S	N	R	V	R	R																																																																																																																																				
15690-15720				1		F				V	S										R			S	F												V								N	R		R	V	N	F		S	N	R	V	R	R	V	R	V	V	V																																																																																																																																	Chiasmolithus grandis
15720-15750						F	V					R									F		F	R	N							V													R		R	R		S	F		R	R			N				R																																																																																																																																										
15750-15780						F	V					R									F		F	R	N							V													S		R	R		N	F		R	R			N			S	R		R	V	V																																																																																																																																			
15780-15810		R				F	V				R	R									F		F	R	N																				S	V	R	R		N	F		R	R			N	V		S	R		R		V	V																																																																																																																														
15810-15840		R				F	V				R	R									F		F	S	N																				S	V	R	R		N	F		R	R			N	V		S	R		R		V	V	S																																																																																																																								Sphenolithus furcatolithoides
15840-15870		R				F	V				S	R									F		F	S	N																				S	V	R	R		N	F		R	R			N	V		S	R		R		V	V	S																																																																																																																								
15870-15900		R				F	V				N	R									F		F	S	N																				S	V	R	R		N	F			R			N	V		S	R		N		V	V		V	V	R																																																																																																																		
15900-15930						F																			F	S																			R					S													R				V			S	R	V	V	V	V																																																																																																																																												Prinsius martinii
15930-15960						C																		S	F	S																			R					S													R				V			C	R	V	R	V	F	R	V	V	V	N	V	R	R	R																																																																																																																																				Toweius tovae
15960-15990						F																		S	F	S																			R					S													R				V			C	R	V	R	V	F	R	V	V	V	N	V	R	R	R	V	R	S																																																																																																																									Heliolithus kleinpellii
15990-16020						F																																																																	F						S									V		V	N	V	V	V	F																																																																																																																																																		Cruciplacolithus tenuis
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16290-16320																																																																																																								R	V		V		F		V			V				V	F		V			V			R		V								V																																																																								
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MURPHY #01 ST00BP00 OCS-G-25850, BLOCK 178, DESOTO CANYON AREA
INTERVAL EXAMINED: 10390' - 24519'
NANNOFOSSIL RANGE CHART

	129. Amphizygus brooksii	155. Biscutum thurowii	2. Calcidiscus leptoporus	3. Calcidiscus macintyrei	59. Chiasmolithus grandis	160. Micrantholithus obtusus	147. Nannoconus bucheri	157. Nannoconus kamptneri	110. Nannoconus regularis	172. Orastrum partitum	163. Percivalia imperfossa	174. Perissocyclus plethotretus	94. Placozygus sigmoides	190. Podorhabdus grassei	188. Polycostella beckmannii	16. Pontosphaera japonica	132. Prediscosphaera columnata	111. Prediscosphaera cretacea	81. Prinsius bisulcus	74. Prinsius martinii	145. Radiolithus planus	18. Reticulofenestra amplus	113. Rhagodiscus achlyostaurion	133. Rhagodiscus infinitus	134. Rhagodiscus plebeius	64. Sphenolithus belemnos	35. Sphenolithus ciperoensis	67. Sphenolithus furcatolithoides	32. Sphenolithus heteromorphus	25. Sphenolithus moriformis	65. Sphenolithus obtusus	92. Sphenolithus primus	66. Sphenolithus radians	116. Staurolithites crux	117. Staurolithites gausorhethium	135. Staurolithites lafittei	162. Staurolithites mutterlosei	118. Staurolithites sp.	193. Stephanolithion atmetus	173. Stradnerlithus geometricus	126. Tegumentum stradneri	26. Thoracosphaera saxae	
17490-17520													R													1																				
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18210-18240													F					N					V			V				V																
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18270-18300													N					S			V				V																				
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18330-18360													F			V		F							R			1																
18360-18390									V		V	F		V	R		N			V										1														
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18420-18450													N	V				N											V																
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18540-18570													F			V		F																										
18570-18600													N					N													V																
18600-18630													N					S																										
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18870-18900																S		F			V												F	F		S	V								
18900-18930																R		F			V												F	F		V		V							
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18960-18990									V							V		N														F		V		V		V					
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19620-19650																V		F								N							F	F	V	S	S	V					V		
19650-19680																R		F														F	F			V								
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20070-20100									V							S		F		V						R							F	F	V	R	S				S		V		
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20340-20370									V							V		F								R							F	F		V	V				S				

164. Anfractus harrisonii	98. Aspidolithus parcus parcus	97. Biscutum constans	182. Biscutum sp.	146. Braarudosphaera africana	1. Braarudosphaera bigelowi	154. Braarudosphaera primula	153. Braarudosphaera regularis	166. Braarudosphaera sp.	151. Braarudosphaera stenorhetha	165. Calcicalithina oblongata	4. Calcidiscus premacintyrei	28. Calcidiscus tropicus	76. Chiasmolithus bidens	77. Chiasmolithus californicus	85. Chiasmolithus danicus	99. Chiastozygus amphipons	100. Chiastozygus litterarius	50. Coccolithus eopelagicus	5. Coccolithus miopelagicus	6. Coccolithus pelagicus	181. Conusphaera mexicana	101. Corollithion signum	102. Cretarhabdus conicus	53. Cribrocentrum reticulata	138. Cribrosphaerella ehrenbergii	169. Cruciellipsis cuvillieri	78. Cruciplacolithus frequens	88. Cruciplacolithus tenuis	150. Cyclagelosphaera margerelli	60. Cyclicargol. floridanus > 9-11	7. Cyclicargolithus abisectus	8. Cyclicargolithus floridanus	57. Cyclicargolithus floridanus 6-9	71. Cyclicargolithus floridanus < 6	38. Cyclicargolithus floridanus < 9	130. Cylindralithus nudus	171. Diadorhombus rectus	167. Diazomatholithus lehmanii	9. Dictyococcites antarcticus	44. Dictyococcites bisecta	54. Dictyococcites bisectus	55. Dictyococcites erbae	10. Dictyococcites productus	51. Dictyococcites scrippsae	52. Dictyococcites stavensis	45. Discoaster barbadiensis	11. Discoaster deflandrei	93. Discoaster delicatus	72. Discoaster diastypus	68. Discoaster multiradiatus	36. Discoaster petaliformis	46. Discoaster saipanensis	29. Discoaster transitus	12. Discoaster variabilis	103. Discorhabdus ignotus	148. Eiffelithus equibiramus	149. Eiffelithus hancocki	140. Eiffellithus parvus	104. Eiffellithus gorkae	183. Eiffellithus sp.	105. Eiffellithus turriseiffelii	175. Eiffellithus windii	95. Ellipsolithus macellus	106. Eprolithus floralis	47. Ericsonia formosa	89. Ericsonia robusta	187. Ethmorhabdus gallicus	79. Fasciculithus thomasii	80. Fasciculithus tympaniformis	156. Flabellites oblonga	107. Gartnerago segmentatum	144. Haqius circumradiatus	131. Helicolithus leckiei	58. Helicosphaera gertae	13. Helicosphaera granulata	14. Helicosphaera kamptneri	30. Helicosphaera obliqua	43. Helicosphaera recta	31. Helicosphaera rhomba	34. Helicosphaera walbersdorfensis	86. Heliolithus cantabriae	87. Heliolithus kleinpeli	184. Hexalithus noeliae	56. Lanternitus sp.	170. Lithraphidites bollii	191. Lotharingius velatus	108. Loxolithus armilla	109. Manivitella pemmatoidea	90. Micrantholithus discula	161. Micrantholithus holschulzii	185. Micrantholithus sp.	125. Micula decussata	180. Nannoconus elongatus	142. Nannoconus sp.	158. Nannoconus steinmannii	73. Neochiastozygus chiastus	91. Neochiastozygus junctus	141. Placozygus fibuliformis	178. Polycostella senaria	15. Pontosphaera discopora	37. Pontosphaera multipora	69. Pontosphaera plana	159. Retecapsa angustiforata	112. Retecapsa crenulata	17. Reticulo. pseudoumbilica	39. Reticulofenestra asanoi	19. Reticulofenestra celticus	48. Reticulofenestra dictyoda	20. Reticulofenestra gelida	21. Reticulofenestra haqii 3-5	22. Reticulofenestra haqii 5-8	40. Reticulofenestra haqii < 3	49. Reticulofenestra hillae	41. Reticulofenestra lockeri	23. Reticulofenestra minuta	61. Reticulofenestra umbilica	42. Reticulofenestra westerholdii	24. Reworked Cretaceous	114. Rhagodiscus asper	168. Rhagodiscus dekaenellii	115. Rhagodiscus gallagheri	176. Speetonia colligata	82. Sphenolithus anarrhopus	62. Sphenolithus dissimilis	70. Toweius callosus	83. Toweius eminens	96. Toweius occultatus	75. Toweius pertusus	84. Toweius tovae	119. Tranolithus orionatus	179. Tubodiscus bollii	136. Tubodiscus burnettiae	177. Tubodiscus verenae	27. Umbilicosphaera jafari	33. Umbilicosphaera sibogae	127. Uniplanarius gothicus	152. Uniplanarius sissinghi	120. Watznaueria barnesae	121. Watznaueria biporta	139. Watznaueria britannica	122. Watznaueria fossacincta	189. Watznaueria ovata	137. Watznaueria supracretacea	192. Zeugrhabdotus cooperi	123. Zeugrhabdotus diplogrammus	124. Zeugrhabdotus embergeri	128. Zeugrhabdotus erectus	186. Zeugrhabdotus fissus	143. Zygrabdotus noeliae	63. Zygrablithus bijugatus

MURPHY #01 ST00BP00 OCS-G-25850, BLOCK 178, DESOTO CANYON AREA
INTERVAL EXAMINED: 10390' - 24519'
NANNOFOSSIL RANGE CHART

Interval	129. Amphizygus brooksii	164. Anfractus harrisonii	98. Aspidolithus parcus parcus	97. Biscutum constans	182. Biscutum sp.	155. Biscutum thurowii	146. Braarudosphaera africana	1. Braarudosphaera bigelowi	154. Braarudosphaera primula	153. Braarudosphaera regularis	166. Braarudosphaera sp.	151. Braarudosphaera stenorhetha	165. Calcicalithina oblongata	2. Calcidiscus leptoporus	3. Calcidiscus macintyrei	4. Calcidiscus premacintyrei	28. Calcidiscus tropicus	76. Chiasmolithus bidens	77. Chiasmolithus californicus	85. Chiasmolithus danicus	59. Chiasmolithus grandis	99. Chiastozygus amphipons	100. Chiastozygus litterarius	50. Coccolithus eopelagicus	5. Coccolithus miopelagicus	6. Coccolithus pelagicus	181. Conusphaera mexicana	101. Corollithion signum	102. Cretarhabdus conicus	53. Cribrocentrum reticulata	138. Cribrosphaerella ehrenbergii	169. Cruciellipsis cuvillieri	78. Cruciplacolithus frequens	88. Cruciplacolithus tenuis	150. Cyclagelosphaera margerelli	60. Cyclicargol. floridanus > 9-11	7. Cyclicargolithus abisectus	8. Cyclicargolithus floridanus	57. Cyclicargolithus floridanus 6-9	71. Cyclicargolithus floridanus < 6	38. Cyclicargolithus floridanus < 9	130. Cylindralithus nudus	171. Diadorhombus rectus	167. Diazomatholithus lehmanii	9. Dictyococcites antarcticus	44. Dictyococcites bisecta	54. Dictyococcites bisectus	55. Dictyococcites erbae	10. Dictyococcites productus	51. Dictyococcites scrippsae	52. Dictyococcites stavensis	45. Discoaster barbadiensis	11. Discoaster deflandrei	93. Discoaster delicatus	72. Discoaster diastypus	68. Discoaster multiradiatus	36. Discoaster petaliformis	46. Discoaster saipanensis	29. Discoaster transitus	12. Discoaster variabilis	103. Discorhabdus ignotus	148. Eiffellithus equibiramus	149. Eiffellithus hancocki	140. Eiffellithus parvus	104. Eiffellithus gorkae	183. Eiffellithus sp.	105. Eiffellithus turriseiffelii	175. Eiffellithus windii	95. Ellipsolithus macellus	106. Eprolithus floralis	47. Ericsonia formosa	89. Ericsonia robusta	187. Ethmorhabdus gallicus	79. Fasciculithus thomasii	80. Fasciculithus tympaniformis	156. Flabellites oblonga	107. Gartnerago segmentatum	144. Haqius circumradiatus	131. Helicolithus leckiei	58. Helicosphaera gertae	13. Helicosphaera granulata	14. Helicosphaera kamptneri	30. Helicosphaera obliqua	43. Helicosphaera recta	31. Helicosphaera rhomba	34. Helicosphaera walbersdorfensis	86. Heliolithus cantabriae	87. Heliolithus kleinpeli	184. Hexalithus noeliae	56. Lanternitus sp.	170. Lithraphidites bollii	191. Lotharingius velatus	108. Loxolithus armilla	109. Manivitella pemmatoidea	90. Micrantholithus discula	161. Micrantholithus holschulzii
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Interval	160. Micrantholithus obtusus	185. Micrantholithus sp.	125. Micula decussata	147. Nannoconus bucheri	180. Nannoconus elongatus	157. Nannoconus kamptneri	110. Nannoconus regularis	142. Nannoconus sp.	158. Nannoconus steinmannii	73. Neochiastozygus chiastus	91. Neochiastozygus junctus	172. Orastrum partitum	163. Percivalia imperfossa	174. Perissocyclus plethotretus	141. Placozygus fibuliformis	94. Placozygus sigmoides	190. Podorhabdus grassei	188. Polycostella beckmannii	178. Polycostella senaria	15. Pontosphaera discopora	16. Pontosphaera japonica	37. Pontosphaera multipora	69. Pontosphaera plana	132. Prediscosphaera columnata	111. Prediscosphaera cretacea	81. Prinsius bisulcus	74. Prinsius martinii	145. Radiolithus planus	159. Retecapsa angustiforata	112. Retecapsa crenulata	17. Reticulo. pseudoumbilica	18. Reticulofenestra amplus	39. Reticulofenestra asanoi	19. Reticulofenestra celticus	48. Reticulofenestra dictyoda	20. Reticulofenestra gelida	21. Reticulofenestra haqii 3-5	22. Reticulofenestra haqii 5-8	40. Reticulofenestra haqii < 3	49. Reticulofenestra hillae	41. Reticulofenestra lockeri	23. Reticulofenestra minuta	61. Reticulofenestra umbilica	42. Reticulofenestra westerholdii	24. Reworked Cretaceous	113. Rhagodiscus achlyostaurion	114. Rhagodiscus asper	168. Rhagodiscus dekaenelii	115. Rhagodiscus gallagheri	133. Rhagodiscus infinitus	134. Rhagodiscus plebeius	176. Speetonia colligata	82. Sphenolithus anarrhopus	64. Sphenolithus belemnos	35. Sphenolithus ciperoensis	62. Sphenolithus dissimilis	67. Sphenolithus furcatolithoides	32. Sphenolithus heteromorphus	25. Sphenolithus moriformis	65. Sphenolithus obtusus	92. Sphenolithus primus	66. Sphenolithus radians	116. Staurolithites crux	117. Staurolithites gausorhethium	135. Staurolithites lafittei	162. Staurolithites mutterlosei	118. Staurolithites sp.	193. Stephanolithion atmetus	173. Stradnerlithus geometricus	126. Tegumentum stradneri	26. Thoracosphaera saxae	70. Toweius callosus	83. Toweius eminens	96. Toweius occultatus	75. Toweius pertusus	84. Toweius tovae	119. Tranolithus orionatus	179. Tubodiscus bollii	136. Tubodiscus burnettiae	177. Tubodiscus verenae	27. Umbilicosphaera jafari	33. Umbilicosphaera sibogae	127. Uniplanarius gothicus	152. Uniplanarius sissinghi	120. Watznaueria barnesae	121. Watznaueria biporta	139. Watznaueria britannica	122. Watznaueria fossacincta	189. Watznaueria ovata	137. Watznaueria supracretacea	192. Zeugrhabdotus cooperi	123. Zeugrhabdotus diplogrammus	124. Zeugrhabdotus embergeri	128. Zeugrhabdotus erectus	186. Zeugrhabdotus fissus	143. Zygrabdotus noeliae	63. Zygrablithus bijugatus	
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MURPHY #01 ST00BP00 OCS-G-25850, BLOCK 178, DESOTO CANYON AREA
INTERVAL EXAMINED: 10390' - 24519'
NANNOFOSSIL RANGE CHART

	129. Amphizygus brooksii	164. Anfractus harrisonii	98. Aspidolithus parcus parcus	97. Biscutum constans	182. Biscutum sp.	155. Biscutum thurowii	146. Braarudosphaera africana	1. Braarudosphaera bigelowi	154. Braarudosphaera primula	153. Braarudosphaera regularis	166. Braarudosphaera sp.	151. Braarudosphaera stenorhetha	165. Calcicalithina oblongata	2. Calcidiscus leptoporus	3. Calcidiscus macintyrei	4. Calcidiscus premacintyrei	28. Calcidiscus tropicus	76. Chiasmolithus bidens	77. Chiasmolithus californicus	85. Chiasmolithus danicus	59. Chiasmolithus grandis	99. Chiastozygus amphipons	100. Chiastozygus litterarius	50. Coccolithus eopelagicus	5. Coccolithus miopelagicus	6. Coccolithus pelagicus	181. Conusphaera mexicana	101. Corollithion signum	102. Cretarhabdus conicus	53. Cribrocentrum reticulata	138. Cribrosphaerella ehrenbergii	169. Cruciellipsis cuvillieri	78. Cruciplacolithus frequens	88. Cruciplacolithus tenuis	150. Cyclagelosphaera margerelli	60. Cyclicargol. floridanus > 9-11	7. Cyclicargolithus abisectus	8. Cyclicargolithus floridanus	57. Cyclicargolithus floridanus 6-9	71. Cyclicargolithus floridanus < 6	38. Cyclicargolithus floridanus < 9	130. Cylindralithus nudus	171. Diadorhombus rectus	167. Diazomatholithus lehmanii	9. Dictyococcites antarcticus	44. Dictyococcites bisecta	54. Dictyococcites bisectus	55. Dictyococcites erbae	10. Dictyococcites productus	51. Dictyococcites scrippsae	52. Dictyococcites stavensis	45. Discoaster barbadiensis	11. Discoaster deflandrei	93. Discoaster delicatus	72. Discoaster diastypus	68. Discoaster multiradiatus	36. Discoaster petaliformis	46. Discoaster saipanensis	29. Discoaster transitus	12. Discoaster variabilis	103. Discorhabdus ignotus	148. Eiffelithus equibiramus	149. Eiffelithus hancocki	140. Eiffelithus parvus	104. Eiffellithus gorkae	183. Eiffellithus sp.	105. Eiffellithus turriseiffelii	175. Eiffellithus windii	95. Ellipsolithus macellus	106. Eprolithus floralis	47. Ericsonia formosa	89. Ericsonia robusta	187. Ethmorhabdus gallicus	79. Fasciculithus thomasii	80. Fasciculithus tympaniformis	156. Flabellites oblonga	107. Gartnerago segmentatum	144. Haqius circumradiatus	131. Helicolithus leckiei	58. Helicosphaera gertae	13. Helicosphaera granulata	14. Helicosphaera kamptneri	30. Helicosphaera obliqua	43. Helicosphaera recta	31. Helicosphaera rhomba	34. Helicosphaera walbersdorfensis	86. Heliolithus cantabriae	87. Heliolithus kleinpeli	184. Hexalithus noeliae	56. Lanternitus sp.	170. Lithraphidites bollii	191. Lotharingius velatus	108. Loxolithus armilla	109. Manivitella pemmatoidea	90. Micrantholithus discula	161. Micrantholithus holschulzii	160. Micrantholithus obtusus	185. Micrantholithus sp.	125. Micula decussata	147. Nannoconus bucheri	180. Nannoconus elongatus	157. Nannoconus kamptneri	110. Nannoconus regularis	142. Nannoconus sp.	158. Nannoconus steinmannii	73. Neochiastozygus chiastus	91. Neochiastozygus junctus	172. Orastrum partitum	163. Percivalia imperfossa	174. Perissocyclus plethotretus	141. Placozygus fibuliformis	94. Placozygus sigmoides	190. Podorhabdus grassei	188. Polycostella beckmannii	178. Polycostella senaria	15. Pontosphaera discopora	16. Pontosphaera japonica	37. Pontosphaera multipora	69. Pontosphaera plana	132. Prediscosphaera columnata	111. Prediscosphaera cretacea	81. Prinsius bisulcus	74. Prinsius martinii	145. Radiolithus planus	159. Retecapsa angustiforata	112. Retecapsa crenulata	17. Reticulo. pseudoumbilica	18. Reticulofenestra amplus	39. Reticulofenestra asanoi	19. Reticulofenestra celticus	48. Reticulofenestra dictyoda	20. Reticulofenestra gelida	21. Reticulofenestra haqii 3-5	22. Reticulofenestra haqii 5-8	40. Reticulofenestra haqii < 3	49. Reticulofenestra hillae	41. Reticulofenestra lockeri	23. Reticulofenestra minuta	61. Reticulofenestra umbilica	42. Reticulofenestra westerholdii	24. Reworked Cretaceous	113. Rhagodiscus achlyostaurion	114. Rhagodiscus asper	168. Rhagodiscus dekaenellii	115. Rhagodiscus gallagheri	133. Rhagodiscus infinitus	134. Rhagodiscus plebeius	176. Speetonia colligata	82. Sphenolithus anarrhopus	64. Sphenolithus belemnos	35. Sphenolithus ciperoensis	62. Sphenolithus dissimilis	67. Sphenolithus furcatolithoides	32. Sphenolithus heteromorphus	25. Sphenolithus moriformis	65. Sphenolithus obtusus	92. Sphenolithus primus	66. Sphenolithus radians	116. Staurolithites crux	117. Staurolithites gausorhethium	135. Staurolithites lafittei	162. Staurolithites mutterlosei	118. Staurolithites sp.	193. Stephanolithion atmetus	173. Stradnerlithus geometricus	126. Tegumentum stradneri	26. Thoracosphaera saxae	70. Toweius callosus	83. Toweius eminens	96. Toweius occultatus	75. Toweius pertusus	84. Toweius tovae	119. Tranolithus orionatus	179. Tubodiscus bollii	136. Tubodiscus burnettiae	177. Tubodiscus verenae	27. Umbilicosphaera jafari	33. Umbilicosphaera sibogae	127. Uniplanarius gothicus	152. Uniplanarius sissinghi	120. Watznaueria barnesae	121. Watznaueria biporta	139. Watznaueria britannica	122. Watznaueria fossacincta	189. Watznaueria ovata	137. Watznaueria supracretacea	192. Zeugrhabdotus cooperi	123. Zeugrhabdotus diplogrammus	124. Zeugrhabdotus embergeri	128. Zeugrhabdotus erectus	186. Zeugrhabdotus fissus	143. Zygrabdotus noeliae	63. Zygrablithus bijugatus
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