APPENDIX 2

Distribution of dinoflagellate cysts in the Leliszka borehole succession

	Lithology	calcareous loamy sands															non-calcareous loamy sands											
	Taxon / Sample depth [m]	38.6–38.7	36.6–36.8	35.5–35.7	34.5–34.7	33.1–33.3	32.3–32.4	31.6–31.7	29.4–29.55	28.7–28.8	27.6–27.8	25.5–25.7	22.7–22.9	20.7–20.9	19.1–19.3	18.3–18.5	18.2–18.3	17.1–17.3	15.7–15.9	14.2–14.3	13.2–13.4	12.5–12.65	11.2–11.3	10.3–10.5	8.8–8.95	8.5–8.7	7.1–7.25	5.0–5.2
1.	*Cordosphaeridium minimum*	10	2	5	19	2	2	9	3	12	6	3		1	3	3	5	8	12	3	3	4	4			5	6	
2.	*Spiniferites ramosus*	180	128	62	107	112	86	122	96	92	90	45	76	69	94	135	120	139	112	76	65	140	90	2		62	88	8
3.	*Areosphaeridium michoudii*	40	5	3	9	4	14	15	15	9	6	3	3	1	1	3	12	8	103	65	71	108	92	1		74	25	6
4.	*Enneadocysta pectiniformis*	70	24	3	3	12	2	12	9	10	2	2	20	10	3	2	2	5		2			2			1		
5.	*Homotryblium aculeatum*	2	2	89	4	12	2	3	6	1	4	4	8	4	12	1	3	2	15	19		32	2			14	9	1
6.	*Wetzeliella articulata*	19	6	14	12	17	6	9	18	16	18	8	9	9	35	21	20	15										
7.	*Dapsilidinium pseudocolligerum*	46	2	15	32	13	18	9	2	15	5	9	19	21	8	2	45	12	12		2	11				2		
8.	*Dapsilidinium pastielsii*	15	2	21	24	14	10	12	2	13	4	5	25	1	1	2	6		7									
9.	*Operculodinium centrocarpum*	8	35	30	28	15	20	21	32	15	10	33	25	40	11	18	22	20	56	10	23	36	28			59	30	
10.	*Lingulodinium machaerophorum*	3	2	2	41	16	12	30	3	6	6	1	10	1	7	3	9	16	12	25	12	3	5				14	
11.	*Batiacasphaera hirsuta*	20	5	7	19	14	21	10	25	33	10	32	67	21	10	14	11	21	2	1	4	13	10					
12.	*Batiacasphaera* sp.	10	2	11	15	20	39	22	60	30	29	9	31	19	5	21	27	19	10	3	28	25	26	6		15	5	
13.	*Batiacasphaera* sp. C *sensu* Gedl 2013	2		1	2	5	2	2	1		1																1	
14.	*Deflandrea phosphoritica*	25	39	1	40	2	10	19	12	7	26	4	39	1	8	6	6	2	24	8	13	16	5	52	31	10	1	82
15.	*Areosphaeridium diktyoplokum*	3	1	1	12	1	1	1	1	2	1	3	2	11	7	4	1	2	2	1		1						
16.	*Cleistosphaeridium placacanthum*	3	19	15	40	18	26	39	45	36	20	11	34	68	32	18	17	39	20	11	18	3	25			9	9	
17.	*Cribroperidinium giuseppei*	16	21	11	39	7	18	9	21	6	6	1	22	41	30	6	2	3	8	2	9	3	5			19	14	
18.	?*Ynezidinium brevisulcatum*	1			1																1	1						
19.	*Pentadinium laticinctum*	5	16	1	7	3	5	4	9	6	4	4	5	4	1	12	9	8		4	4		8			1	3	10
20.	*Thalassiphora pelagica*	2	23	1	21	8	4	3	4	1	5	1	1	1	2	3	10	21	3	2	2	4	9	2		2	2	4
21.	*Cordosphaeridium inodes*	1		1	1	2	1	1	1	1		1		1		2		1	1			1						
22.	*Cordosphaeridium gracile*	1	2	1	1	2	1	1		1	2	1	1	2	3	2	1	4	1	5						1		
23.	*Tectatodinium pellitum*	2	4	4	9	2	2	1	1	1	2	5	2	4	4	1	1											
24.	*Wetzeliella eocenica*	3	1	19	19	6	4	5	5	6	10	5	4	4	3	24	15	1		1								
25.	*Glaphyrocysta*? *vicina*	1	1	2	6														1	1								
26.	*Elytrocysta*? sp.	1	1	3	6		3	3		2		2	2				7	2		2			4			3		
27.	*Dracodinium* sp.	1	7	1																								
28.	*Alterbidinium* sp.	1		3									1					8										
29.	*Chiropteridium eocaenicum*	1	1	1	6	1	1	1	1	2	1	1					1											
30.	Gen. et spec. indet. C *sensu* Gedl 2013	1																										
31.	*Microdinium* spp.	1	5	2	2	4	4	6	3	2	2	2	5	7	2		6	4	3	3		5	4			8	5	
32.	*Spiniferites pseudofurcatus*	1	2	2	2	14	8	8	15		2	9	31	12	2	17	3	8	1	5	1	3	4		1	1	1	
33.	*Hystrichokolpoma rigaudiae*	1	1	2	2	1	1	5		3	2	1					1	1		1								
34.	*Charlesdowniea variabilis*	1	5	2	7	2	1	1	9	2	10	3				1	1	1										
35.	*Enneadocysta arcuata*	1	17	52	48	5	4	4	9	2	1	1		3		1	2	5										
36.	*Pyxidinopsis* spp.	1			1			1																				
37.	*Melitasphaeridium pseudorecurvatum*	1	3	3	4	2	5	1	1	6	1	1	2	3	3	1	1	2	2	1	1	1	1			1		
38.	*Glaphyrocysta semitecta*	1	1	1	20	5	6	3	1	6	1	2	6	9	8	3	3	2		1	1	1	6			1		
39.	*Corrudinium incompositum*	1			2	2	1	1	1	1		1	3						1	4	1	1	4	1		1		1
40.	*Achomosphaera* sp.	1	12	2	7	11	7	7			4	4	9	5	9	9	7	4	11	5	5	12	5			9	6	
41.	*Hystrichokolpoma cinctum*	1	1	4	2	1	3	1	1	1	1	1			2	1	1	1				1	1					
42.	*Operculodinium tiara*	1	1	1	4	2	2		1	1	12	2		2	2	19	6	9	13	3	1		5			1		
43.	*Selenopemphix nephroides*	1			1	1	1	1	1	1	1	1	1	2		1	1		10	1	1							
44.	*Dracodinium rhomboideum*	1	1			2															1	1	5	2				
45.	*Wetzeliella* sp.	1	3		2			1	1	3	1	1						1										
46.	*Operculodinium divergens*	1	1	2	8	1	2	1		3	2	1	2	1				1	12	3	1	15	12			6	19	6
47.	*Charlesdowniea coloethrypta*		1	1	22	1	8	6		1	1		1						6							1	1	
48.	*Dinopterygium cladoides*		1		1	3	1	4	1	5	5	3	3	1	1	1	2	5		1	1	1	1			1	1	
49.	*Lentinia serrata*		1	1		1	1	1	73	42	16	172	1	26	8	12	19	16				1						
50.	*Diphyes colligerum*		1	1		1		1				1																
51.	*Hystrichostrogylon membraniphorum*		1	1	1	1		1	1		1			1			2	1				1						
52.	*Samlandia chlamydophora*		1	1	2	2	1	1	2	5	6	2	2		6	2		3	2	1	6	1	1			2		
53.	*Operculodinium* sp.		1	5	5	9		7	6			2															1	
54.	*Operculodinium nanaconulum*		1	1	11		1	1		1					1													

	Lithology	calcareous loamy sands															non-calcareous loamy sands											
	Taxon / Sample depth [m]	38.6–38.7	36.6–36.8	35.5–35.7	34.5–34.7	33.1–33.3	32.3–32.4	31.6–31.7	29.4–29.55	28.7–28.8	27.6–27.8	25.5–25.7	22.7–22.9	20.7–20.9	19.1–19.3	18.3–18.5	18.2–18.3	17.1–17.3	15.7–15.9	14.2–14.3	13.2–13.4	12.5–12.65	11.2–11.3	10.3–10.5	8.8–8.95	8.5–8.7	7.1–7.25	5.0–5.2
55.	*Fibrocysta vectensis*		1		1	1	1	1	1	1	1	1		1		1	1	1	1									
56.	*Rottnestia borussica*		1	1			1	1	1	1		1		1		1	1						1					
57.	*Spiniferella cornuta*		1	1	1	1	2	1	1	1							1									1		
58.	*Achilleodinium biformoides*		1	3		1	1	1	1	1	1	1		8	1	3	4	1	1	2						1		
59.	*Adnatosphaeridium multispinosum*		1		1	2	1	1		1	1	2	1	1	1	1		1										
60.	*Deflandrea arcuata*		1	1																								
61.	*Phthanoperidinium stockmansii*		1	1	1	1	2		2	1	1	2	1	1		3	3	2	2									
62.	*Hystrichokolpoma salacia*		1				2			1	2	2	4	1			1		1	1	1	1						
63.	*Hystrichokolpoma globulus*		1	1																								
64.	*Cordosphaeridium fibrospinosum*		1		1				1																			
65.	*Cleistosphaeridium?* sp. A *sensu* Gedl 2013		1																									
66.	*Cerebrocysta bartonensis*		1	1	2	2			2	1							1	1	1		1	1	1			1		
67.	*Hystrichosphaeropsis rectangularis*		1							1				1														
68.	*Areosphaeridium ebdonii*		1																									
69.	*Palaeocystodinium golzowense*		1			1		1		1		1	1					1							1	1	5	
70.	*Operculodinium microtriainum*		1	7	17	6	1	1	1		6	8	3	4	7	3	6			7	1		2			1		
71.	*Adnatosphaeridium robustum*		1			1									1													
72.	*Rhynchodiniopsis* sp.*		1			1						1																
73.	*Ctenidodinium combazii**		1					1									1											
74.	*Cerodinium diebellii**		1	1																								
75.	*Enneadocysta multicornuta*		1	2	2		1	1	1	1	5	1	4	4	3		3									1		
76.	*Impagidinium maculatum*			1	1						1							1										
77.	*Lanternosphaeridium* sp. 1 *sensu* H-C&VS			1			1		1	1																		
78.	*Impagidinium ?gibrense*			1																								
79.	*Homotryblium oceanicum*			1																								
80.	*Homotryblium caliculum*			1	1						1																	
81.	*Corrudinium*? sp. A *sensu* Gedl 2005			1		1	1										2											
82.	*Glaphyrocysta* sp.			2	7	5				2	1				2	1	1											
83.	*Melitasphaeridium asterium*			1		1	1	1			1																	
84.	*Batiacasphaera micropapillata*			3	8		1	1	2													1						
85.	*Batiacasphaera* sp. A *sensu* Gedl 2013			4	6	3	3	5	1	1	1										1							
86.	*Ectosphaeropsis*? sp.			1		2		1	1								1										1	
87.	*Deflandrea heterophlycta*				18	1											1								1			
88.	*Thalassiphora delicata*				1													1										
89.	*Dapsilidinium* sp.				1																							
90.	*Heterelaucacysta leptalea*				1															1	1	1	4					
91.	*Impagidinium* sp.				1				1																			
92.	*Selenopemphix* sp. A sensu Gedl 2005				2												1											
93.	*Phthanoperidinium comatum*				1															1							1	
94.	*Cordosphaeridium* cf. *inodes*				1																							
95.	*Araneosphaera araneosa*				1						1				1			1										
96.	*Heterelaucacysta porosa*				1		1																			1		
97.	*Areoligera undulata*				2	2	2	3	6		1				1													
98.	*Chytroeisphaeridia* sp.				1			1																				
99.	*Fibrocysta radiata*					1		1	1	1	1	1	1		1		1	1										
100.	*Enneadocysta fenestrata*					1																						
101.	*Palaeohystrichophora infusorioides**					1																						
102.	*Kallosphaeridium* sp.					1	2	2		2							1		4		4	9	5			4	3	
103.	*Wetzeliella meckenfeldensis*					1				1																		
104.	*Trichodinium* sp.*					2															1							
105.	*Circulodinium* sp.*					1											1											
106.	*Hystrichostrogylon coninckii*					1				2					1		1									1	4	
107.	*Cribroperidinium* sp.*					1							1															
108.	*Dracodinium* cf. *rhomboideum*					1																						

	Lithology	calcareous loamy sands															non-calcareous loamy sands											
	Taxon / Sample depth [m]	38.6–38.7	36.6–36.8	35.5–35.7	34.5–34.7	33.1–33.3	32.3–32.4	31.6–31.7	29.4–29.55	28.7–28.8	27.6–27.8	25.5–25.7	22.7–22.9	20.7–20.9	19.1–19.3	18.3–18.5	18.2–18.3	17.1–17.3	15.7–15.9	14.2–14.3	13.2–13.4	12.5–12.65	11.2–11.3	10.3–10.5	8.8–8.95	8.5–8.7	7.1–7.25	5.0–5.2
109.	*Dracodinium*? *condylos*					1		1	5	1			1															
110.	*Pyxidiella*? sp.				1	1			1																			
111.	*Pyxidinopsis*? sp.						1																					
112.	*Cordosphaeridium cantharellus*						1			1							1		1	1						8	3	
113.	*Achomosphaera alcicornu*						1		1	1			1			1	1					1					1	
114.	*Wetzeliella symmetrica*								1																			
115.	*Hystrichosphaeropsis* sp.									1																		
116.	*Dracodinium solidum*									1																		
117.	*Membranophoridium aspinatum*										1	1									3		1				1	
118.	*Membranilarnacia*? sp.										1																	
119.	*Epiplosphaera*? sp.*											1																
120.	*Distatodinium ?tenerum*											1																
121.	*Hemiplacophora semilunifera*											2																
122.	*Distatodinium ellipticum*											2															1	
123.	*Occisucysta* sp*											1																
124.	*Diphyes* cf. *ficusoides*											1																
125.	*Cannosphaeropsis*? sp.											1					1			1	1							
126.	*Charlesdowniea clathrata*											1	4	1	1	3	1			1	2	2	1	1			1	4
127.	*Pareodinia* sp.*												1															
128.	*Cleistosphaeridium* cf. *placacanthum*												1															
129.	*Apteodinium* sp.														1													
130.	*Wilsonidinium echinosuturatum*														1													
131.	*Lejeunecysta* sp.														1													
132.	*Spinidinium* sp.														1													
133.	*Muderongia perforata**															1												
134.	*Odontochitina operculata**															1												
135.	*Ctenidodinium continuum**																1											
136.	*Cordosphaeridium funiculatum*																		1		1		1					
137.	*Wetzeliella simplex*																		2	2								
138.	*Selenopemphix armata*																		1									
139.	*Sentusidinium* sp.*																				1							
140.	*Selenopemphix* sp.																					1						
141.	*Homotryblium floripes*																					1	1			32	31	4
142.	*Gonyaulacysta* sp.*																						1					
143.	*Rhombodinium perforatum*																									1	2	1

H-C&VS – Heilmann-Clausen and Simaeys (2005); * – recycled pre-Eocene taxa