



RF – Rogaland Research. <http://www.rf.no>

## **UKOOA Phase II Task 3: Simulated bioturbation of drill cuttings – results from small scale laboratory experiments**

### **Appendixes**

Report RF – 2001/219

RF - Rogaland Research has a certified Quality System in compliance with the standard NS - EN ISO 9001

## **Appendix 1**

## Appendix 1. Eh measurement in bioturbation experiment.

In the "little treatments" the first set of figures (1) represent a spot that has recently been turbated, the second (2) was turbated prox. 5 days earlier. Results in mV vs. SHE.

<b>Beryl 100%</b>		Eh	Eh	Eh	Eh	Eh	Eh
Date		25.06.2001	25.06.2001	11.07.2001	11.07.2001	28.08.2001	28.08.2001
Sample ID	Redox:	1	2	1	2	1	2
<b>None</b>	0 mm	321	256	274	250	269	257
	2 mm	323	258	273	248	269	260
	5 mm	313	225	241	206	262	257
	7 mm	275	178	211	147	232	254
	10 mm	225	117	127	115	144	235
	15 mm	135	74	89	71	101	157
	20 mm	89	70	45	51	93	101
	30 mm	30	27	27	39	64	66

  

<b>Beryl 100%</b>		Eh	Eh	Eh	Eh	Eh	Eh
Sample ID		1-9	2-5	1	2	1-8	2-4
<b>Little</b>	0 mm	256	255	238	252	204	201
1/10 turn /day	2 mm	215	251	238	252	204	201
	5 mm	147	213	235	239	169	180
	7 mm	118	133	194	180	154	138
	10 mm	112	101	188	-84	99	81
	15 mm	72	71	173	-31	67	60
	20 mm	28	43	74	-6	61	32
	30 mm	19	44	-	9	14	2

  

<b>Beryl 100%</b>		Eh	Eh	Eh	Eh	Eh	Eh
Sample ID		1	2	1	2	1	2
<b>Much</b>	0 mm	266	216	245	248	214	205
2 turns/day	2 mm	271	199	244	247	217	207
	5 mm	270	154	237	238	222	144
	7 mm	252	107	171	143	108	81
	10 mm	197	77	128	10	98	36
	15 mm	111	64	77	43	133	29
	20 mm	65	28	49	36	120	29
	30 mm	53	-6	-	-	4	-5

<b>Ekofisk 100%</b>		Eh	Eh	Eh	Eh	Eh	Eh
Date		25.06.2001	25.06.2001	11.07.2001	11.07.2001	28.08.2001	28.08.2001
Sample ID	Redox:	1	2	1	2	1	2
<b>None</b>	0 mm	260	223	224	222	225	213
	2 mm	255	224	210	208	223	211
	5 mm	103	96	114	81	215	177
	7 mm	72	107	63	48	196	156
	10 mm	59	-45	24	29	96	151
	15 mm	11	-47	10	14	17	59
	20 mm	1	-	3	6	-36	-127
	30 mm	-	-	-24	-17	-39	-86

<b>Ekofisk 100%</b>		Eh	Eh	Eh	Eh	Eh	Eh
Sample ID	Redox:	1-9	1-5	1	2	1-8	1-4
<b>Little</b>	0 mm	232	262	227	217	268	325
1/10 turn /day	2 mm	222	247	227	217	266	306
	5 mm	184	153	191	127	255	189
	7 mm	97	112	117	45	147	100
	10 mm	45	87	44	42	133	86
	15 mm	10	65	26	21	55	50
	20 mm	-15	61	4	11	1	5
	30 mm	-37	20	-23	-6	-59	-80

<b>Ekofisk 100%</b>		Eh	Eh	Eh	Eh	Eh	Eh
Sample ID	Redox:	1	2	1	2	1	2
<b>Much</b>	0 mm	250	250	258	240	245	215
2 turns/day	2 mm	243	248	255	240	176	187
	5 mm	115	197	246	201	98	-45
	7 mm	74	149	192	113	29	-48
	10 mm	39	127	32	42	7	-41
	15 mm	3	55	-2	4	2	-71
	20 mm	-18	25	-20	-30	-25	-82
	30 mm	-64	-31	-35	-36	-21	-78

<b>Reference</b>		Eh	Eh	Eh	Eh	Eh	Eh
Date		25.06.2001	25.06.2001	11.07.2001	11.07.2001	28.08.2001	28.08.2001
Sample ID	Redox:	1	2	1	2	1	2
<b>None</b>	0 mm	284	301	340	345	249	247
	2 mm	283	301	340	345	254	255
	5 mm	283	302	340	345	253	254
	7 mm	281	297	339	345	248	250
	10 mm	280	297	339	345	231	257
	15 mm	269	291	334	339	210	254
	20 mm	258	283	327	327	143	205
	30 mm	234	268	291	244	96	117

<b>Reference</b>		Eh	Eh	Eh	Eh	Eh	Eh
Sample ID	Redox:	1	2	1	2	1-1	2-7
<b>Litle</b>	0 mm	240	274	301	331	307	326
1/10 turn /day	2 mm	239	274	301	331	313	329
	5 mm	242	272	301	331	313	329
	7 mm	240	-	301	331	313	327
	10 mm	238	270	301	330	312	321
	15 mm	235	263	298	325	311	310
	20 mm	222	258	288	313	305	253
	30 mm	174	246	231	262	227	180

<b>Reference</b>		Eh	Eh	Eh	Eh	Eh	Eh
Sample ID	Redox:	1	2	1	2	1	2
<b>Much</b>	0 mm	302	312	242	284	274	305
2 turns/day	2 mm	306	318	242	284	278	305
	5 mm	308	320	242	284	280	309
	7 mm	311	321	241	284	282	313
	10 mm	312	320	241	281	225	312
	15 mm	308	313	242	272	253	311
	20 mm	299	201	241	240	239	307
	30 mm	265	190	215	213	191	168

## **Appendix 2**

**Appendix 2.** THC levels in cuttings used in bioturbation experiment. RF report 2000/219

Sample No	Cutting/treatmen	THC mg/kg	
		T0	T1
RF 1	Beryl N	766	1854
RF 3	Beryl L	766	1069
RF 7	Beryl M	766	883
RF 2	Beryl M 1-2 cm	766	1467
RF 5	Ekofisk N	4563	3962
RF 4	Ekofisk L	4563	3636
RF 6	Ekofisk M	4563	3629