

Appendix 6.3

Summary of results from contamination and PSA analyses

Tidal Lagoon Swansea Bay plc



The results included in this appendix are collated from the results of the analysis of samples collected during the project benthic and geotechnical investigation. They relate to analyses of particle size distribution and contaminant levels.

Figures 4.7b and 6.16 (Volume 2) provide the locations of the various sample sites, whilst further information on sampling and analysis methods can be found in the individual survey reports (Titan, 2013 and EGS, 2013).

		SW40	SW42	SW50	SW49	SW57	SW36	SW39
		05/05/13	05/05/13	05/05/13	05/05/13	05/05/13	05/05/13	05/05/13
		08:59	09:31	09:55	10:15	08:32	15:50	16:16
Dry Solids @ 105°C		49.3	63.2	74.7	75.3	79.5	79.7	78.2
Loss on Ignition @ 500°C		18.2	5.7	2.13	1.32	1.49	1.5	1.03
Carbon, Organic : Dry Wt as C		1.98	0.383	0.164	0.133	0.103	0.144	<0.1
Grain Size Inclusive Kurtosis		0.56	0.222	0.493	0.52	0.425	0.183	0.509
Grain Size Inclusive Mean		0.019	0.165	0.129	0.17	0.27	0.399	0.308
Inclusive Graphic Skewness		-0.208	1.28	-0.863	-0.116	<-1	<-1	-0.802
Kurtosis		2.18	6.92	4.77	5.29	6.1	11.2	6.33
Particle Diameter : Mean		0.064	0.339	0.152	0.249	0.431	1.26	0.351
Particle Diameter : Median		0.015	0.192	0.124	0.171	0.238	0.333	0.305
Sorting Coefficient		2.31	1.85	0.72	1.13	1.11	1.42	0.629
0.98 to 1.38 µ	{10 to 9.5 phi}	1.48	0.26	0	0	0	0	0
1.38 to 1.95 µ	{9.5 to 9 phi}	2.11	0.4	0	0	0	0	0
1.95 to 2.76 µ	{9 to 8.5 phi}	3.5	0.66	0	0	0	0	0
11.1 to 15.6 µ	{6.5 to 6 phi}	9.13	1.04	0	0.41	0	0	0
125 to 177 µ	{3 to 2.5 phi}	6.51	20	27	17.9	19	7.28	7.88
15.6 to 22.1 µ	{6 to 5.5 phi}	7.8	1.2	0	0.45	0	0	0
177 to 250 µ	{2.5 to 2 phi}	4.76	21.7	15.1	17.5	23.1	18.9	22.9
2.76 to 3.91 µ	{8.5 to 8 phi}	5.43	0.95	0	0	0	0	0
22.1 to 31.3 µ	{5.5 to 5 phi}	6.01	1.06	0	0.45	0	0	0
250 to 354 µ	{2 to 1.5 phi}	2.78	16.2	4.57	15	19.7	27.8	32.8
3.91 to 5.52 µ	{8 to 7.5 phi}	7.42	1.12	0	0	0	0	0
31.3 to 44.2 µ	{5 to 4.5 phi}	4.2	0.28	0	1.42	0	0	0
354 to 500 µ	{1.5 to 1 phi}	1.77	8.21	0.65	9.85	12	24.3	25
44.2 to 62.5 µ	{4.5 to 4 phi}	3.39	0.18	4.48	4.82	0.01	0	0
5.52 to 7.81 µ	{7.5 to 7 phi}	9.09	1.13	0	0.09	0	0	0
500 to 707 µ	{1 to 0.5 phi}	1.17	3.34	0.8	4.14	5.94	12.4	9.36
62.5 to 88.4 µ	{4 to 3.5 phi}	4.36	3.52	17.6	10.4	1.81	0	0
7.81 to 11.1 µ	{7 to 6.5 phi}	9.68	1.03	0	0.25	0	0	0
707 to 1000 µ	{0.5 to 0 phi}	0.19	1.88	1.31	0.54	2.94	2.24	0.66
88.4 to 125 µ	{3.5 to 3 phi}	6.14	11.6	28.6	15.6	9.44	1	0.61
< 0.98 µ	{>10 phi}	3.07	0.42	0	0	0	0	0
>1000 µ	{<0 phi}	0	3.84	0	1.12	6.05	6.17	0.88
1000 to 1400 µ	{0 to -0.5phi}	0	0.64	0	0.12	1.47	0.24	0.15
11200 to 16000 µ	{-3.5 to -4.0phi}	0	0	0	0	0	0	0
1400 to 2000 µ	{-0.5 to -1.0phi}	0	1.03	0	0.26	1.5	0.24	0.17
16000 to 22400 µ	{-4.0 to -4.5phi}	0	0	0	0	0	4.26	0
2000 to 2800 µ	{-1.0 to -1.5phi}	0	0.64	0	0.12	1.08	0.24	0.22
22400 to 31500 µ	{-4.5 to -5.0phi}	0	0	0	0	0	0	0
2800 to 4000 µ	{-1.5 to -2.0phi}	0	0.49	0	0.14	0.92	0.31	0.34
31500 to 45000 µ	{-5.0 to -5.5phi}	0	0	0	0	0	0	0
4000 to 5600 µ	{-2.0 to -2.5phi}	0	0.52	0	0.31	0.35	0	0
45000 to 63000 µ	{-5.5 to -6.0phi}	0	0	0	0	0	0	0
5600 to 8000 µ	{-2.5 to -3.0phi}	0	0.23	0	0.17	0.58	0	0
8000 to 11200 µ	{-3.0 to -3.5phi}	0	0.3	0	0	0.14	0.86	0
<1000 µ	{>0 phi}	100	96.2	100	98.9	94	93.8	99.1
> 63000 µ	{< -6.0 phi}	0	0	0	0	0	0	0

		SW23	SW24	SW25	SW26	SW1	SW2	SW3
		05/05/13	05/05/13	05/05/13	05/05/13	06/05/13	06/05/13	06/05/13
		13:52	13:26	14:24	14:46	08:00	07:18	08:48
Dry Solids @ 105°C		57.7	75.3	76.5	77.1	74.2	64.6	65.3
Loss on Ignition @ 500°C		10.3	7.41	1.29	1.28	4.56	3.72	5.74
Carbon, Organic : Dry Wt as C		3.55	0.877	0.107	0.12	0.512	1.45	0.948
Grain Size Inclusive Kurtosis		0.5	0.513	0.652	0.519	0.618	0.584	0.328
Grain Size Inclusive Mean		0.294	1.13	0.765	0.243	1.19	3.62	0.439
Inclusive Graphic Skewness		0.782	-0.811	-0.902	-0.009	-0.542	0.539	0.286
Kurtosis		17.2	2.7	2.17	2.56	1.87	2.39	2.92
Particle Diameter : Mean		0.393	2.81	3.46	0.267	3.33	6.86	3.63
Particle Diameter : Median		0.29	0.764	0.347	0.242	0.701	3.55	0.394
Sorting Coefficient		0.947	1.77	2.41	0.582	2.06	1.87	3.48
0.98 to 1.38 µ	{10 to 9.5 phi}	0	0	0	0	0	0	0.46
1.38 to 1.95 µ	{9.5 to 9 phi}	0	0	0	0	0	0	0.71
1.95 to 2.76 µ	{9 to 8.5 phi}	0	0	0	0	0	0	1.13
11.1 to 15.6 µ	{6.5 to 6 phi}	0.01	0	0	0	0	0	1.51
125 to 177 µ	{3 to 2.5 phi}	10.6	0.23	8.95	17.8	2.02	1.19	5.34
15.6 to 22.1 µ	{6 to 5.5 phi}	0	0	0	0	0	0	1.21
177 to 250 µ	{2.5 to 2 phi}	24.7	3.6	19	30.6	7.16	2.44	9.33
2.76 to 3.91 µ	{8.5 to 8 phi}	0.14	0	0	0	0	0	1.57
22.1 to 31.3 µ	{5.5 to 5 phi}	0	0	0	0	0	0	1.01
250 to 354 µ	{2 to 1.5 phi}	29.8	10.6	21.9	29.3	12.9	3.06	12.5
3.91 to 5.52 µ	{8 to 7.5 phi}	0.24	0	0	0	0	0	1.87
31.3 to 44.2 µ	{5 to 4.5 phi}	0	0	0	0	0	0	0.85
354 to 500 µ	{1.5 to 1 phi}	20.5	16.5	14.2	14.7	15.1	2.6	12.7
44.2 to 62.5 µ	{4.5 to 4 phi}	0	0	0	0	0	0	0.7
5.52 to 7.81 µ	{7.5 to 7 phi}	0.28	0	0	0	0	0	1.98
500 to 707 µ	{1 to 0.5 phi}	8.35	16.7	5.12	3.04	13.1	1.89	9.71
62.5 to 88.4 µ	{4 to 3.5 phi}	0	0	0	0.07	0	0	0.94
7.81 to 11.1 µ	{7 to 6.5 phi}	0.21	0	0	0	0	0	1.83
707 to 1000 µ	{0.5 to 0 phi}	1.94	10.9	0.78	0.02	9.07	1.49	5.21
88.4 to 125 µ	{3.5 to 3 phi}	1.21	0	1.4	4.47	0.06	0.23	2.31
< 0.98 µ	{>10 phi}	0	0	0	0	0	0	0.81
>1000 µ	{<0 phi}	2.06	41.5	28.6	0	40.6	87.1	26.4
1000 to 1400 µ	{0 to -0.5phi}	0.44	5.71	0.16	0	3.51	9.19	1
11200 to 16000 µ	{-3.5 to -4.0phi}	0	0.83	0	0	13.8	31.6	0
1400 to 2000 µ	{-0.5 to -1.0phi}	0.44	5.9	0.26	0	3.66	13.3	1.07
16000 to 22400 µ	{-4.0 to -4.5phi}	0	6.04	10.7	0	0	5.34	14.6
2000 to 2800 µ	{-1.0 to -1.5phi}	0.28	6.07	0.1	0	3.32	8.56	1.12
22400 to 31500 µ	{-4.5 to -5.0phi}	0	0	0	0	0	0	0
2800 to 4000 µ	{-1.5 to -2.0phi}	0.32	6.07	0.2	0	3.78	9.05	2.23
31500 to 45000 µ	{-5.0 to -5.5phi}	0	0	0	0	0	0	0
4000 to 5600 µ	{-2.0 to -2.5phi}	0.09	5.22	0	0	3.23	3.92	2.3
45000 to 63000 µ	{-5.5 to -6.0phi}	0	0	0	0	0	0	0
5600 to 8000 µ	{-2.5 to -3.0phi}	0.09	2.89	17.2	0	6.53	5.08	1.11
8000 to 11200 µ	{-3.0 to -3.5phi}	0.39	2.77	0	0	2.75	1.04	2.91
<1000 µ	{>0 phi}	97.9	58.5	71.4	100	59.4	12.9	73.7
> 63000 µ	{< -6.0 phi}	0	0	0	0	0	0	0

		SW4	SW7	SW55	SW56	SW9	SW46	SW12
		06/05/13	06/05/13	06/05/13	06/05/13	06/05/13	06/05/13	06/05/13
		09:29	09:52	10:45	10:27	11:32	14:00	13:20
Dry Solids @ 105°C		79.1	78.1	68.1	74.8	75.4	75	78.7
Loss on Ignition @ 500°C		0.5	2.27	4.39	4.01	3.17	3.45	1.01
Carbon, Organic : Dry Wt as C		<0.1	0.394	0.944	0.751	0.482	0.674	<0.1
Grain Size Inclusive Kurtosis		0.468	0.227	0.715	0.547	0.506	0.715	0.475
Grain Size Inclusive Mean		0.3	0.392	3.42	8.56	0.28	1.96	0.308
Inclusive Graphic Skewness		-0.014	<-1	0.258	1.17	-0.102	-0.198	<-1
Kurtosis		2.77	5.31	1.52	3.52	2.68	1.26	11.7
Particle Diameter : Mean		0.315	0.98	18	20.1	0.309	10.2	0.386
Particle Diameter : Median		0.299	0.291	6.08	23	0.278	0.757	0.291
Sorting Coefficient		0.384	1.52	3.48	2.59	0.594	3.08	0.731
0.98 to 1.38 µ	{10 to 9.5 phi}	0	0	0	0	0	0	0
1.38 to 1.95 µ	{9.5 to 9 phi}	0	0	0	0	0	0	0
1.95 to 2.76 µ	{9 to 8.5 phi}	0	0	0.06	0.02	0	0	0
11.1 to 15.6 µ	{6.5 to 6 phi}	0	0	0.1	0.07	0	0	0
125 to 177 µ	{3 to 2.5 phi}	1.35	11.3	4.88	1.57	9.04	7.02	5.85
15.6 to 22.1 µ	{6 to 5.5 phi}	0	0	0.11	0.09	0	0	0
177 to 250 µ	{2.5 to 2 phi}	22.5	25.1	10.5	2.26	20.7	13	27.1
2.76 to 3.91 µ	{8.5 to 8 phi}	0	0	0.14	0.04	0	0	0
22.1 to 31.3 µ	{5.5 to 5 phi}	0	0	0.21	0.11	0	0	0
250 to 354 µ	{2 to 1.5 phi}	50.4	28.2	12.5	2.72	24.3	14.3	39.3
3.91 to 5.52 µ	{8 to 7.5 phi}	0	0	0.18	0.05	0	0	0
31.3 to 44.2 µ	{5 to 4.5 phi}	0	0	0.24	0.12	0	0	0
354 to 500 µ	{1.5 to 1 phi}	24	16.2	8.55	2.77	15.5	9.59	20.8
44.2 to 62.5 µ	{4.5 to 4 phi}	0	0	0.04	0.15	0	0	0
5.52 to 7.81 µ	{7.5 to 7 phi}	0	0	0.2	0.06	0	0	0
500 to 707 µ	{1 to 0.5 phi}	1.75	3.89	3.67	2.49	5.31	4.26	3.27
62.5 to 88.4 µ	{4 to 3.5 phi}	0	0	0	0.34	0	0.01	0
7.81 to 11.1 µ	{7 to 6.5 phi}	0	0	0.17	0.07	0	0	0
707 to 1000 µ	{0.5 to 0 phi}	0	0.04	1.17	1.88	0.77	1.74	0.02
88.4 to 125 µ	{3.5 to 3 phi}	0	1.45	0.84	0.83	1.16	1.52	0.07
< 0.98 µ	{>10 phi}	0	0	0	0	0	0	0
>1000 µ	{<0 phi}	0	13.8	56.4	84.4	23.3	48.6	3.65
1000 to 1400 µ	{0 to -0.5phi}	0	0.42	0.77	2.1	0.88	1.56	0.75
11200 to 16000 µ	{-3.5 to -4.0phi}	0	0	0	7.73	12.6	2.57	0
1400 to 2000 µ	{-0.5 to -1.0phi}	0	0.91	1.21	3.1	1.46	1.79	0.76
16000 to 22400 µ	{-4.0 to -4.5phi}	0	0	4.71	0	0	0.94	0
2000 to 2800 µ	{-1.0 to -1.5phi}	0	2.19	1.21	3.59	1.84	2.23	0.79
22400 to 31500 µ	{-4.5 to -5.0phi}	0	0	0	16.2	0	33.8	0
2800 to 4000 µ	{-1.5 to -2.0phi}	0	2.7	1.6	4.71	2.35	2.62	0.98
31500 to 45000 µ	{-5.0 to -5.5phi}	0	0	43.5	35.1	0	0	0
4000 to 5600 µ	{-2.0 to -2.5phi}	0	2.41	1.2	3.66	1.84	1.21	0.36
45000 to 63000 µ	{-5.5 to -6.0phi}	0	0	0	0	0	0	0
5600 to 8000 µ	{-2.5 to -3.0phi}	0	1.84	1.83	2.6	2.24	0.45	0
8000 to 11200 µ	{-3.0 to -3.5phi}	0	3.37	0.33	5.58	0	1.44	0
<1000 µ	{>0 phi}	100	86.2	43.6	15.6	76.7	51.4	96.4
> 63000 µ	{< -6.0 phi}	0	0	0	0	0	0	0

		SW47	SW13	SW48	SW14	SW15	SW16	SW38
		06/05/13	06/05/13	06/05/13	06/05/13	06/05/13	06/05/13	07/05/13
		14:32	15:35	15:05	16:08	16:43	17:23	06:41
Dry Solids @ 105°C		73.2	70.2	70.9	67.5	76.7	70.8	77.1
Loss on Ignition @ 500°C		3.3	3.42	4.25	7.14	6.51	1.49	1.57
Carbon, Organic : Dry Wt as C		0.705	1.54	0.912	2.3	2.8	0.105	<0.1
Grain Size Inclusive Kurtosis		0.711	0.302	0.205	0.697	0.659	0.676	0.222
Grain Size Inclusive Mean		2.49	0.349	0.596	8.34	3.75	4.68	0.275
Inclusive Graphic Skewness		0.287	0.44	<-1	0.84	0.581	0.53	<-1
Kurtosis		1.86	8.51	3.4	2.13	1.9	1.62	6.24
Particle Diameter : Mean		17.7	0.764	4.57	32.9	9.46	14	1.27
Particle Diameter : Median		1.44	0.325	0.295	46.9	6.7	11.7	0.193
Sorting Coefficient		3.86	1.63	2.61	3.59	2.46	2.76	1.88
0.98 to 1.38 µ	{10 to 9.5 phi}	0.11	0	0	0	0	0	0
1.38 to 1.95 µ	{9.5 to 9 phi}	0.18	0.1	0	0.03	0	0	0
1.95 to 2.76 µ	{9 to 8.5 phi}	0.3	0.26	0	0.08	0	0	0
11.1 to 15.6 µ	{6.5 to 6 phi}	0.36	0.27	0	0.11	0	0	0
125 to 177 µ	{3 to 2.5 phi}	6.09	6.98	12.8	4.6	2.62	1.05	22
15.6 to 22.1 µ	{6 to 5.5 phi}	0.33	0.21	0	0.14	0.03	0	0
177 to 250 µ	{2.5 to 2 phi}	12.4	18.3	22.7	6.77	4.78	6.06	19.4
2.76 to 3.91 µ	{8.5 to 8 phi}	0.44	0.39	0.11	0.12	0	0	0
22.1 to 31.3 µ	{5.5 to 5 phi}	0.44	0.39	0	0.18	0.09	0	0
250 to 354 µ	{2 to 1.5 phi}	13.7	25	22.6	6.78	6.01	11	13.2
3.91 to 5.52 µ	{8 to 7.5 phi}	0.55	0.49	0.19	0.16	0	0	0
31.3 to 44.2 µ	{5 to 4.5 phi}	0.41	0.51	0	0.08	0.09	0	0
354 to 500 µ	{1.5 to 1 phi}	8.53	20	12.6	4.81	5.7	8.88	7.3
44.2 to 62.5 µ	{4.5 to 4 phi}	0.01	0.11	0	0	0	0	0.34
5.52 to 7.81 µ	{7.5 to 7 phi}	0.58	0.53	0.2	0.16	0	0	0
500 to 707 µ	{1 to 0.5 phi}	2.94	10.1	3.71	2.75	4.69	3.33	3.44
62.5 to 88.4 µ	{4 to 3.5 phi}	0	0	0.04	0.2	0.03	0	6.45
7.81 to 11.1 µ	{7 to 6.5 phi}	0.5	0.44	0.1	0.14	0	0	0
707 to 1000 µ	{0.5 to 0 phi}	0.47	3.09	0.37	1.46	3.54	0.41	1.33
88.4 to 125 µ	{3.5 to 3 phi}	1.06	0.61	2.99	1.79	0.78	0	16.4
< 0.98 µ	{>10 phi}	0.12	0	0	0	0	0	0
>1000 µ	{<0 phi}	50.5	12.3	21.5	69.6	71.6	69.2	10.1
1000 to 1400 µ	{0 to -0.5phi}	0.42	1.01	0.53	0.64	2.46	1.03	0.3
11200 to 16000 µ	{-3.5 to -4.0phi}	0	0.93	2.69	0	2.46	10.6	5.57
1400 to 2000 µ	{-0.5 to -1.0phi}	0.51	1.27	0.88	0.85	3.18	1.28	0.37
16000 to 22400 µ	{-4.0 to -4.5phi}	0	0	0	0	33.4	21.9	0
2000 to 2800 µ	{-1.0 to -1.5phi}	0.62	1.36	0.97	0.92	3.79	1.62	0.38
22400 to 31500 µ	{-4.5 to -5.0phi}	0	0	14.2	6.23	3.3	0	0
2800 to 4000 µ	{-1.5 to -2.0phi}	1.25	2.02	0.94	1.05	4.8	2.42	0.43
31500 to 45000 µ	{-5.0 to -5.5phi}	45.4	0	0	0	0	18.9	0
4000 to 5600 µ	{-2.0 to -2.5phi}	0.86	1.18	0.57	0.57	4.18	2.06	0.1
45000 to 63000 µ	{-5.5 to -6.0phi}	0	0	0	57.1	0	0	0
5600 to 8000 µ	{-2.5 to -3.0phi}	0.86	0.71	0.39	1.03	6.42	3.71	0.42
8000 to 11200 µ	{-3.0 to -3.5phi}	0.52	3.79	0.35	1.22	7.65	5.78	2.55
<1000 µ	{>0 phi}	49.5	87.7	78.5	30.4	28.4	30.8	89.9
> 63000 µ	{< -6.0 phi}	0	0	0	0	0	0	0

		SW29	SW30	SW31	SW32	SW20	SW27	SW28
		07/05/13	07/05/13	07/05/13	07/05/13	07/05/13	07/05/13	07/05/13
		07:46	08:09	07:24	07:06	09:25	08:56	08:29
Dry Solids @ 105°C		74.6	75.5	76.1	73.8	76.3	75.3	81
Loss on Ignition @ 500°C		1.33	1.59	1.56	1.9	2.09	2.12	14.8
Carbon, Organic : Dry Wt as C		<0.1	0.109	0.14	0.153	0.158	0.977	0.257
Grain Size Inclusive Kurtosis		0.516	0.485	0.413	0.241	0.444	0.505	0.653
Grain Size Inclusive Mean		0.165	0.159	0.19	0.114	0.181	0.227	2.45
Inclusive Graphic Skewness		-0.072	-0.696	<-1	2.76	<-1	<-1	0.279
Kurtosis		2.55	3.7	9.84	11.7	6.87	10.3	1.67
Particle Diameter : Mean		0.182	0.188	0.436	0.139	0.266	0.33	5.85
Particle Diameter : Median		0.164	0.152	0.159	0.133	0.161	0.215	3.03
Sorting Coefficient		0.579	0.749	1.26	1.17	0.996	0.914	2.2
0.98 to 1.38 µ	{10 to 9.5 phi}	0	0	0	0	0	0	0
1.38 to 1.95 µ	{9.5 to 9 phi}	0	0	0	0.14	0	0	0
1.95 to 2.76 µ	{9 to 8.5 phi}	0	0	0	0.48	0	0	0
11.1 to 15.6 µ	{6.5 to 6 phi}	0	0	0	1.23	0	0	0
125 to 177 µ	{3 to 2.5 phi}	31.9	28.4	24.9	33.6	25.6	21.6	1.78
15.6 to 22.1 µ	{6 to 5.5 phi}	0	0	0	1.18	0	0	0
177 to 250 µ	{2.5 to 2 phi}	27.4	20.8	18.1	18.1	19.5	24.7	4.33
2.76 to 3.91 µ	{8.5 to 8 phi}	0	0	0	0.76	0	0	0
22.1 to 31.3 µ	{5.5 to 5 phi}	0	0	0	0.16	0	0	0
250 to 354 µ	{2 to 1.5 phi}	12.9	9.88	9.75	3.87	10.8	20.1	7.17
3.91 to 5.52 µ	{8 to 7.5 phi}	0	0	0	0.85	0	0	0
31.3 to 44.2 µ	{5 to 4.5 phi}	0	0	0	0	0	0	0.05
354 to 500 µ	{1.5 to 1 phi}	2.45	3.4	4.98	0.15	5.3	11.5	8.38
44.2 to 62.5 µ	{4.5 to 4 phi}	0.02	0.84	1.11	0.51	0.84	0	0.07
5.52 to 7.81 µ	{7.5 to 7 phi}	0	0	0	0.79	0	0	0
500 to 707 µ	{1 to 0.5 phi}	0.01	1.75	3.17	0	3.17	4.73	7.45
62.5 to 88.4 µ	{4 to 3.5 phi}	5.38	10.1	10.2	9.42	9.3	2.8	0.09
7.81 to 11.1 µ	{7 to 6.5 phi}	0	0	0	0.88	0	0	0
707 to 1000 µ	{0.5 to 0 phi}	0	1.49	1.99	0	2.08	1.36	5.05
88.4 to 125 µ	{3.5 to 3 phi}	19.9	23.4	21.6	28	21.1	11.8	0.44
< 0.98 µ	{>10 phi}	0	0	0	0	0	0	0
>1000 µ	{<0 phi}	0	0	4.2	0	2.32	1.46	65.2
1000 to 1400 µ	{0 to -0.5phi}	0	0	0.6	0	0.52	0.19	3.39
11200 to 16000 µ	{-3.5 to -4.0phi}	0	0	0.56	0	0	0	16.3
1400 to 2000 µ	{-0.5 to -1.0phi}	0	0	0.51	0	0.55	0.15	4.89
16000 to 22400 µ	{-4.0 to -4.5phi}	0	0	0	0	0	0	6.2
2000 to 2800 µ	{-1.0 to -1.5phi}	0	0	0.4	0	0.54	0.17	5.48
22400 to 31500 µ	{-4.5 to -5.0phi}	0	0	0	0	0	0	0
2800 to 4000 µ	{-1.5 to -2.0phi}	0	0	0.4	0	0.4	0.24	6.53
31500 to 45000 µ	{-5.0 to -5.5phi}	0	0	0	0	0	0	0
4000 to 5600 µ	{-2.0 to -2.5phi}	0	0	0.28	0	0	0.1	2.55
45000 to 63000 µ	{-5.5 to -6.0phi}	0	0	0	0	0	0	0
5600 to 8000 µ	{-2.5 to -3.0phi}	0	0	0.9	0	0.31	0	8.09
8000 to 11200 µ	{-3.0 to -3.5phi}	0	0	0.54	0	0	0.6	11.7
<1000 µ	{>0 phi}	100	100	95.8	100	97.7	98.5	34.8
> 63000 µ	{< -6.0 phi}	0	0	0	0	0	0	0

		SW22	SW18	SW37
		07/05/13	07/05/13	07/05/13
		09:50	10:57	15:42
Dry Solids @ 105°C		74.7	69.7	76.2
Loss on Ignition @ 500°C		3.97	6.29	1.31
Carbon, Organic : Dry Wt as C		0.608	1.3	0.301
Grain Size Inclusive Kurtosis		0.471	0.478	0.468
Grain Size Inclusive Mean		0.247	0.58	0.226
Inclusive Graphic Skewness		<-1	-0.418	<-1
Kurtosis		6.01	3.19	14.3
Particle Diameter : Mean		0.378	1.89	0.494
Particle Diameter : Median		0.221	0.38	0.201
Sorting Coefficient		1.07	2.16	1.14
0.98 to 1.38 µ	{10 to 9.5 phi}	0	0	0
1.38 to 1.95 µ	{9.5 to 9 phi}	0	0	0
1.95 to 2.76 µ	{9 to 8.5 phi}	0	0.08	0
11.1 to 15.6 µ	{6.5 to 6 phi}	0	0.16	0
125 to 177 µ	{3 to 2.5 phi}	20.8	10.1	25.5
15.6 to 22.1 µ	{6 to 5.5 phi}	0	0.25	0
177 to 250 µ	{2.5 to 2 phi}	22.5	15	27.5
2.76 to 3.91 µ	{8.5 to 8 phi}	0	0.19	0
22.1 to 31.3 µ	{5.5 to 5 phi}	0	0.32	0
250 to 354 µ	{2 to 1.5 phi}	17.5	16	18.4
3.91 to 5.52 µ	{8 to 7.5 phi}	0	0.25	0
31.3 to 44.2 µ	{5 to 4.5 phi}	0	0.04	0
354 to 500 µ	{1.5 to 1 phi}	10.5	12.9	7.86
44.2 to 62.5 µ	{4.5 to 4 phi}	0.01	0	0
5.52 to 7.81 µ	{7.5 to 7 phi}	0	0.25	0
500 to 707 µ	{1 to 0.5 phi}	6.06	8.68	2.37
62.5 to 88.4 µ	{4 to 3.5 phi}	2.92	0.46	1.91
7.81 to 11.1 µ	{7 to 6.5 phi}	0	0.19	0
707 to 1000 µ	{0.5 to 0 phi}	3.76	5.37	0.65
88.4 to 125 µ	{3.5 to 3 phi}	11.9	4.05	12.5
< 0.98 µ	{>10 phi}	0	0	0
>1000 µ	{<0 phi}	4.01	25.7	3.37
1000 to 1400 µ	{0 to -0.5phi}	0.89	1.3	0.19
11200 to 16000 µ	{-3.5 to -4.0phi}	0	0	0.62
1400 to 2000 µ	{-0.5 to -1.0phi}	0.99	1.74	0.21
16000 to 22400 µ	{-4.0 to -4.5phi}	0	0	0
2000 to 2800 µ	{-1.0 to -1.5phi}	0.68	2.3	0.17
22400 to 31500 µ	{-4.5 to -5.0phi}	0	0	0
2800 to 4000 µ	{-1.5 to -2.0phi}	0.59	3.05	0.23
31500 to 45000 µ	{-5.0 to -5.5phi}	0	0	0
4000 to 5600 µ	{-2.0 to -2.5phi}	0.27	2.51	0.19
45000 to 63000 µ	{-5.5 to -6.0phi}	0	0	0
5600 to 8000 µ	{-2.5 to -3.0phi}	0.59	3.96	0.27
8000 to 11200 µ	{-3.0 to -3.5phi}	0	10.8	1.5
<1000 µ	{>0 phi}	96	74.3	96.6
> 63000 µ	{< -6.0 phi}	0	0	0

Tidal Lagoon Swansea Bay plc



Type	No.	Depth (m)	Arsenic mg/kg	Copper mg/kg	Lead mg/kg	Cadmium mg/kg	Chromium mg/kg	Nickel mg/kg	Zinc mg/kg	Dibutyltin mg/kg	Mono butyltin mg/kg	Tributyltin mg/kg	Mercury mg/kg	Material
CEFAS Action Level 1 threshold¹			20	40	50	0.4	40	20	130	0.1	0.1	0.1	0.3	
CEFAS Action Level 2 threshold			100	400	500	5	400	200	800	1	1	1	3	
VC	202	0.2	16.2	17.7	29.4	0.1	19.9	13.6	94.8	0	0	0	0.03	Sand
VC	202	1.5	6.4	3.4	4.6	0	10.5	7.8	20.3	0	0	0	0	Sand
VC	202	2.5	6.7	3.8	5	0	11.9	9.4	23.5	0	0	0	0	Sand
VC	202	3.6	5.6	5.3	9.4	0	27.5	15.2	42.3	0	0	0	0.01	Sand
VC	202	4.7	6.8	10.8	15.2	0.3	52.2	27.8	70.4	0	0	0	0.01	Clay
VC	204	0.5	8.8	0	8.6	0	10.7	8.2	33.5	0	0	0	0.02	Sand
VC	204	1.5	4	0	3.9	0	6.3	5.6	12.9	0	0	0	0	Sand
VC	204	2.5	7	10.7	12.4	0.2	40.1	22.2	56.2	0	0	0	0.01	Clay
VC	204	3.5	6.5	9	12.3	0.2	40.1	22.3	58.9	0	0	0	0.01	Clay
VC	204	4.5	5.8	8.5	12.3	0.2	40.8	22.3	56	0	0	0	0.01	Clay
VC	204	5.5	5.5	12.1	13	0.1	42.9	23.2	59.2	0	0	0	0.01	Clay
VC	206	0.7	48.3	327.3	344.9	3.3	47.2	68	688.1	0	0	0	0.74	Silt
VC	206	1.5	7.7	28.7	23	0.5	21.7	12.7	69.8	0	0	0	0.09	Sand
VC	206	2.5	8	28	25	0.2	22	12.8	73.7	0	0	0	0.06	Sand
VC	206	3.6	7.7	18.9	30.9	0.3	17.7	9.4	66.6	0.14	0	0	0.13	Sand
VC	206	5.2	5.8	14.9	17.6	3.2	42.7	19.5	71.9	0.05	0	0	0.02	Clay
VC	208	0.5	10.6	31.7	43.9	0.2	12.4	13	101.8	0	0	0	0.04	Sand
VC	208	1.5	7.3	9.1	17.2	0	8.9	8.3	46.1	0	0	0	0.02	Sand
VC	209	0.7	6.3	12.8	9.2	0.3	10.8	8.5	31.5	0	0	0	0.02	Sand
VC	209	1.5	5.2	11.8	6	0	6.1	6	20	0	0	0	0.01	Sand
VC	212	0.5	4.6	81.7	8.5	0.1	11.8	6.4	51.8	0.11	0	0	0	Sand
VC	212	1.5	4.1	8.3	6.1	0	8.9	5.9	24.9	0.14	0	0	0	Sand

Samples that exceed Cefas Action Level 1 are highlighted Yellow; samples that exceed Cefas Action Level 2 are highlighted Red.

Tidal Lagoon Swansea Bay plc

Type	No.	Depth (m)	Arsenic mg/kg	Copper mg/kg	Lead mg/kg	Cadmium mg/kg	Chromium mg/kg	Nickel mg/kg	Zinc mg/kg	Dibutyltin mg/kg	Mono butyltin mg/kg	Tributyltin mg/kg	Mercury mg/kg	Material
VC	212	2.5	4.6	8.6	7.7	0	17.3	10.5	29.7	0.1	0	0	0	Sand
VC	212	3.5	4.4	6.9	6.8	0	12.9	5.8	25.7	0.07	0	0	0	Sand
VC	212	4.5	4.9	9.6	7	0	10.5	5.5	24.7	0.07	0	0	0.01	Sand
VC	213	0.5	5.8	9.5	6.1	0	6.5	6	20.6	0.11	0	0	0.01	Sand
VC	213	1.5	5.3	5.4	5.8	0	4.8	5.6	19.8	0.10	0	0	0.01	Sand
VC	213	2.5	6.9	10.6	6	0	7.6	6.9	23	0	0	0	0.01	Sand
VC	213	3.5	4.9	9.3	5.6	0	6.3	6	19.5	0.11	0	0	0.01	Sand
VC	213	4.5	5.3	14.1	6.4	0	9.3	7	21.6	0	0	0	0.02	Sand
VC	213	5.5	4.3	17.8	6.7	0	10.3	7	22.8	0	0	0	0.02	Sand
VC	214	0.5	10.5	9.8	12.2	0	7.4	6	57.4	0.14	0	0	0.01	Sand
VC	214	1.5	10.5	13.3	19.6	0	15.9	9.3	87.3	0.14	0	0	0.04	Sand
VC	214	2.5	6.4	7.7	6.2	0	8.5	5.2	25.3	0.09	0	0	0	Sand
VC	214	3.5	5.3	5.9	5.6	0	7.8	5.9	31.7	0.15	0	0	0.02	Sand
VC	214	4.5	6.4	7.2	8.5	0	12.5	7.1	26.8	0.29	0	0	0	Sand
VC	216	0.6	15	13.5	13.1	0	6.9	9.5	59.2	0	0	0	0.02	Sand
VC	208B	0.5	19.3	91.4	135.5	0.3	27.2	30.2	290.4	0	0	0	0.24	Clay
VC	208B	1	10.7	8.6	14.5	0	10.1	8.3	39.8	0	0	0	0.03	Sand
VC	208B	2.5	5.6	2.3	4.7	0	7.4	5.3	12.4	0	0	0	0.01	Sand
VC	208B	3.5	4.6	5.2	4.1	0	6.1	5.1	13.5	0	0	0	0	Sand
VC	208B	4.5	6.8	7	11.4	0	33.3	18.4	50.1	0	0	0	0.01	Clay
VC	209B	0.2	17.2	49.9	76.2	3.5	42	32	159.5	0	0	0	0.26	Silt
VC	209B	2.5	9.2	11.4	6.5	0	8.4	6.2	19.2	0	0	0	0	Sand
VC	209B	3.65	6.2	15.9	15.3	0.2	39.8	19.7	80	0	0	0	0.02	Clay
VC	216B	0.5	13.1	12.6	15.9	0	9.2	8.3	77.7	0.12	0	0	0.01	Sand
VC	216B	1.5	10.8	9.8	9	0.4	6.8	6	40	0.12	0	0	0	Sand

Tidal Lagoon Swansea Bay plc

Type	No.	Depth (m)	Arsenic mg/kg	Copper mg/kg	Lead mg/kg	Cadmium mg/kg	Chromium mg/kg	Nickel mg/kg	Zinc mg/kg	Dibutyltin mg/kg	Mono butyltin mg/kg	Tributyltin mg/kg	Mercury mg/kg	Material
VC	216B	2.5	7.5	2.9	5.1	0	5.9	4.5	29.9	0.1	0	0	0	Sand
VC	216B	3.5	6.4	7.8	5.6	0	8.6	6	25.2	0.1	0	0	0	Sand
VC	216B	4.5	8.6	4.7	7.5	0	16.4	8.9	37.1	0	0	0	0	Sand
BH	101	0.5	8.3	14.3	11.2	0	17.5	11.4	36.5	2	0	0	0.01	Sand
BH	101	11.75	10.2	13.1	9	0.1	40.1	27	52.4	0.03	0	0	0	Gravel
BH	102	0.5	8.2	15.2	20.2	0	24.7	13.1	72.9	0.03	0	0	0.01	Sand
BH	102	1	7.5	7.9	5.9	0	10	6.8	22.4	2	0	0	0	Sand
BH	102	1.5	7.5	6.6	5.6	0	9.5	6.7	18.7	0.04	0	0	0	Sand
BH	102	3	7.5	10.6	11.2	0	34.1	17.5	44.8	0.02	0	0	0	Clay
BH	103	12.25	9.1	14.6	9.9	0.3	42.5	30.3	60.7	0.03	0	0	0	Sand
BH	104	1	10.4	9.7	10.8	0	14.6	8.1	70.4	0.02	0	0	0	Sand
BH	104	2	7.8	7.3	6.7	0	12.4	7.3	37.1	0.05	0	0	0	Sand
BH	104	4.5	7.7	8.6	11.1	0.1	34.2	17.3	45	0.07	0	0	0	Silt
BH	105	1	12.4	12.1	15.5	0	13.9	9.4	83.8	0.02	0	0	0	Sand
BH	105	2	8.2	10.1	10.1	0	10.5	6.7	31	0.03	0	0	0	Sand
BH	105	3	7	5.8	6.2	0	10.7	6.7	21.3	0.05	0	0	0	Sand
BH	105	14.25	9.4	16.3	11.2	0.1	35.2	24.7	65.7	2	0	0	0	Gravel
BH	107	10	12	28.7	13.7	0.6	42	38	94.6	0			0.03	Gravel
BH	107	12	9.2	20.9	10.7	0.4	43.8	31.5	70.9	0			0.02	Gravel
BH	107	14	7.4	16.7	10.8	0.4	39	27.5	72.8	0			0.03	Gravel
Grab	SW14	-	21.3	79.3	90.4	0.377	184	113	257	-	-	<0.003	0.223	
Grab	SW16	-	15.9	51.5	44.3	0.139	128	75.7	139	-	-	<0.004	0.008	
Grab	SW18	-	17.5	47.3	72.1	0.231	169	99.9	219	-	-	<0.004	0.182	
Grab	SW24	-	26	53.7	112	0.174	304	192	203	-	-	<0.003	0.032	
Grab	SW26	-	10.7	32.6	27.8	0.121	84	60	96.9	-	-	<0.003	0.075	

Tidal Lagoon Swansea Bay plc



Type	No.	Depth (m)	Arsenic mg/kg	Copper mg/kg	Lead mg/kg	Cadmium mg/kg	Chromium mg/kg	Nickel mg/kg	Zinc mg/kg	Dibutyltin mg/kg	Mono butyltin mg/kg	Tributyltin mg/kg	Mercury mg/kg	Material
Grab	SW37	-	12	5.77	21.2	<0.03	13.6	11.4	87	-	-	<0.004	0.01	
Grab	SW3	-	15.2	36.5	65.9	0.291	139	79.7	192	-	-	<0.005	0.208	
Grab	SW6	-	10.7	3.53	14.7	0.052	11.3	10.2	40.3	-	-	<0.004	0.004	
Grab	SW10	-	9.96	2.6	12.2	0.032	6.17	4.92	29	-	-	<0.004	0.004	
Grab	SW12	-	8.8	63.3	30.3	0.132	133	72.7	74.4	-	-	<0.003	0.008	
Grab	SW23	-	32	86.2	129	3.99	130	104	331	-	-	<0.003	0.616	
Grab	SW33	-	15.9	38.1	49.6	0.111	125	71.1	152	-	-	<0.004	0.107	
Grab	SW36	-	11	3.74	13.7	<0.03	8.56	6.57	46.6	-	-	<0.003	0.007	
Grab	SW39	-	16.3	67.3	36	0.169	174	86.7	122	-	-	<0.003	0.004	
Grab	SW43	-	15.9	14.1	17.7	0.085	57.6	30.2	68.5	-	-	<0.004	0.008	