

Final Environmental Report	Period Ending: 29 th April 2009
Compiled By: Siobhán Quinn & Aoife Reynolds	
Approved By: Tony Doyle	

1 Monitoring Data

1.1 Monitoring Equipment

Axonics	– Axonics plant operated as required during the reporting period.
PO ₄	<ul style="list-style-type: none"> – The PO₄ analyser was operational during the reporting period. – Partech technician on site 20th & 21st of April carrying out annual service/maintenance works. – The composite sampler was in place to cover any shortfalls in the PO₄ analyser.
TSS	<ul style="list-style-type: none"> – The TSS analyser was operational during the reporting period. – Partech technician on site 20th & 21st of April carrying out annual service/maintenance works. – The composite sampler was in place to cover any shortfalls in the TSS analyser.
Composite	<ul style="list-style-type: none"> – The composite sampler was operational during the reporting period. – Where there is loss of continuous monitoring data due to instrument faults or other issues composite sample data is provided on the graphs.
Noise	– There is a single noise monitoring location currently being used – N1.
Vibration	– There is a single vibration monitoring location currently being used – V1.
Sondes	<ul style="list-style-type: none"> – The results are displayed graphically. <ul style="list-style-type: none"> ○ Any unusual values are explained on the relevant graph.
Weather Station	– The data used for this reporting period was taken from the on-site meteorological station.
Weirs	<ul style="list-style-type: none"> – Weirs were operational during the reporting period. – Weirs re-set on 28th of April. Reading error may have been caused by an electrical surge.

1.2 Rainfall Data

16/04/2009	0.0	23/04/2009	1.0
17/04/2009	0.0	24/04/2009	2.6
18/04/2009	0.0	25/04/2009	0.0
19/04/2009	0.4	26/04/2009	12.6
20/04/2009	1.8	27/04/2009	9.4
21/04/2009	5.0	28/04/2009	0.2
22/04/2009	10.6	29/04/2009	5.0
Total Rainfall 48.6mm			

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1.3 Summary

Environment	Comments
Surface Water	There were no exceedances during the reporting period.
Groundwater	The groundwater data (Sonde) is within anticipated ranges.
Dust	Dust results are all within limits.
Weather	There was a total of 48.6mm of rainfall during the reporting period, with a temperature range of 1.8°C to 11.8 °C.
Noise	All noise levels were within the set limits. Where values were affected by high wind speeds it is indicated on the table.
Vibration	No vibration exceedances were recorded during the reporting period, based on available results.

Note: All laboratory data generated on site should be considered indicative only.

2 Environmental Exceedances / Incidents / Complaints

No exceedances during the reporting period.

Surface Water Monitoring Record Sheet: Accredited Laboratory Results

	Date	Cond.	Temp	Turbidity	DO	pH	TSS	Ortho-phosphate as P	Nitrate as N	Nitrate as NO ₃	Total Phosphorus as P	Ammonia as NH ₃ -N	Nitrite as NO ₂	Aluminium (dissolved)	Aluminium (total)	Phosphate as PO ₄ -P	TDS
		µS/cm	°C	NTU	% Sat	pH units	mg l ⁻¹	µg l ⁻¹	mg l ⁻¹	mg l ⁻¹	mg l ⁻¹	mg l ⁻¹	mg l ⁻¹	µg l ⁻¹	µg l ⁻¹	mg l ⁻¹	mg l ⁻¹
Action Limits		400		150		<3.5 or >7.5	25	40	1.5	4.0		0.2	0.025	100	135		
Target Limits		500		200		<3 or >8	35	70	2.6	6.0		0.5	0.05	150	200		
SP1	21/04/2009	294		2.2		6.9	<2	<10		<0.44	0.097	0.014	<0.017	32	70	<0.03	157
SP3	21/04/2009	316		1.2		7.2	<2	49		0.62	0.078	0.009	<0.017	26	67	0.15	169
Additional Monitoring																	
Axonics Monitoring																	
Pre Axonics	21/04/2009	313		147.0		6.9	179	<10		1.12	0.034	0.011	<0.017	<20	6747	<0.03	169
Post Axonics	21/04/2009	333		1.1		6.5	<2	<10		1.02	0.017	0.013	0.018	<20	155	<0.03	175
I.P. = In Progress																	
< LOD = Below Limit of Detection																	
> LOD = Above Limit of Detection																	
On site laboratory results included in Appendix 1																	
Grey shaded areas denote parameters that cannot or were not analysed on-site or the lab.																	

Groundwater Monitoring Record Sheet																									
Location	Date	DO	Temp	Cond.	pH	TDS	BOD	TSS	Total Hardness	Nitrite as NO ₂	Nitrate as NO ₃	Phosphate as PO ₄	Arsenic	Mercury	Lead	Aluminium (total)	Zinc	Chromium	Copper	Cadmium	Iron	Tin	Ammonia	Aluminium, dissolved	Manganese, total
		% Sat	°C	uS/cm	pH Units	mg l ⁻¹	mg l ⁻¹	mg l ⁻¹	mg/l CaCO ₃	mg l ⁻¹	mg l ⁻¹	mg l ⁻¹	ug l ⁻¹	ug l ⁻¹	ug l ⁻¹	ug l ⁻¹	ug l ⁻¹	ug l ⁻¹	ug l ⁻¹	ug l ⁻¹	ug l ⁻¹	ug l ⁻¹	mg l ⁻¹	ug l ⁻¹	ug l ⁻¹
MP 1																									
MP 2																									
MP 3																									
MP 4																									
MP 5																									
MP 6																									
MP 7																									
MP 8																									
MP 10a																									
MP 11																									
Graphs provided for MP1, MP2,MP4, MP6 and MP7: Temperature, Conductivity, and pH.																									

Graphs provided for MP1, MP2,MP4, MP6 and MP7: Temperature, Conductivity, and pH.

No Groundwater Monitoring Undertaken During The Reporting Period.

Determinant Results							
	Date Positioned	Date Removed	Ref. Number	Date Dispatched	Date Returned	Weight (mg/m ² /day)	Comments
Target (Consent) Limit: 350 mg m² d⁻¹ on as a 30 day average							
D1	22/01/2009	20/02/2009	199883	20/02/2009	23/02/2009	106	
D2	22/01/2009	20/02/2009	199884	22/12/2008	23/02/2009	117	
D3	22/01/2009	20/02/2009	199885	22/12/2008	23/02/2009	109	
D4	22/01/2009	20/02/2009	199886	22/12/2008	23/02/2009	110	
D1	20/02/2009	20/03/2009	207133	20/03/2009	25/03/2009	169	
D2	20/02/2009	20/03/2009	207134	20/03/2009	25/03/2009	162	
D3	20/02/2009	20/03/2009	207135	20/03/2009	25/03/2009	174	
D4	20/02/2009	20/03/2009	207136	20/03/2009	25/03/2009	183	
D1	20/03/2009	20/04/2009	210632	20/04/2009	29/04/2009	146	
D2	20/03/2009	20/04/2009	210633	20/04/2009	29/04/2009	101	
D3	20/03/2009	20/04/2009	210635	20/04/2009	29/04/2009	117	
D4	20/03/2009	20/04/2009	210636	20/04/2009	29/04/2009	115	
D1	20/04/2009	20/05/2009	214041	20/05/2009	25/05/2009	101	
D2	20/04/2009	20/05/2009	214042	20/05/2009	25/05/2009	98	
D3	20/04/2009	20/05/2009	214043	20/05/2009	25/05/2009	88	
D4	20/04/2009	20/05/2009	214044	20/05/2009	25/05/2009	98	
NDP = No Determination Possible							
Monitoring Points are numbered clockwise through the Cardinal Marks (N, E, S, W)							
Monitoring Results will be presented monthly							

Monitoring Points are numbered clockwise through the Cardinal Marks (N, E, S, W)

Monitoring Results will be presented monthly

Day Time Noise Monitoring Record Sheet

Determinant Results

Location	Air Temp. (Min)	Air Temp. (Max)	Start Date	Time	Duration	Serial No.	Wind		Results dB			*Comments
							Speed (m/s)*	Direction (Degrees)	L _{Aeq}	L _{Amax}	L _{Amin}	
Action Limit									60			
Target Limit									65			
N1	8.5	17.1	16/04/2009	08:00:00	14:00:00	2539533	3.7	50.9	51.6	86.5	34.8	
N1	6.1	12.9	17/04/2009	08:00:00	14:00:00	2539533	2.0	92.3	50.9	70.5	35.5	
N1	5.9	17.1	18/04/2009	08:00:00	14:00:00	2539533	2.1	123.8	49.9	79.0	30.0	
N1	3.3	14.8	19/04/2009	08:00:00	14:00:00	2539533	3.2	188.4	48.1	75.3	30.0	
N1	9.6	12.7	20/04/2009	08:00:00	14:00:00	2539533	4.1	193.3	51.0	72.6	33.8	
N1	5.4	12.7	21/04/2009	08:00:00	14:00:00	2539533	3.1	244.8	44.9	67.9	32.7	
N1	5.2	14.4	22/04/2009	08:00:00	14:00:00	2539533	5.3	184.4	53.1	77.6	36.9	Values impacted by high winds
N1	6.1	11.9	23/04/2009	08:00:00	14:00:00	2539533	3.0	178.4	51.3	71.8	33.9	
N1	3.5	11.2	24/04/2009	08:00:00	14:00:00	2539533	2.3	293.8	48.8	74.2	34.9	
N1	2.7	10.7	25/04/2009	08:00:00	14:00:00	2539533	3.9	208.6	52.2	74.1	33.2	
N1	3.7	11.2	26/04/2009	08:00:00	14:00:00	2539533	3.5	240.8	52.3	73.9	41.0	
N1	3.9	10.8	27/04/2009	08:00:00	14:00:00	2539533	3.1	256.2	49.4	68.6	36.4	
N1	4.1	13.7	28/04/2009	08:00:00	14:00:00	2539533	3.3	249.3	50.6	79.0	31.8	
N1	1.8	14.6	29/04/2009	08:00:00	14:00:00	2539533	2.5	198.6	50.5	68.7	36.4	

* Wind speeds in excess of 5 m/s negatively impact noise readings (as per EPA Guidance Note on Noise Measurement).

Night Time Noise Monitoring Record Sheet

Determinant Results

Determinant Results												
Location	Air Temp. (Min)	Air Temp. (Max)	Start Date	Time	Duration	Serial No.	Wind		Results dB			*Comments
							Speed (m/s)*	Direction (Degrees)	L _{Aeq}	L _{Amax}	L _{Amin}	
Action Limit									50			
Target Limit									55			
N1	8.5	17.1	16/04/2009	22:00:00	10:00:00	2539533	3.7	50.9	46.8	74.1	31.6	
N1	6.1	12.9	17/04/2009	22:00:00	10:00:00	2539533	2.0	92.3	45.4	69.2	32.1	
N1	5.9	17.1	18/04/2009	22:00:00	10:00:00	2539533	2.1	123.8	48.5	71.6	31.7	
N1	3.3	14.8	19/04/2009	22:00:00	10:00:00	2539533	3.2	188.4	46.2	76.1	32.7	
N1	9.6	12.7	20/04/2009	22:00:00	10:00:00	2539533	4.1	193.3	48.0	71.3	31.5	
N1	5.4	12.7	21/04/2009	22:00:00	10:00:00	2539533	3.1	244.8	46.7	70.1	30.0	
N1	5.2	14.4	22/04/2009	22:00:00	10:00:00	2539533	5.3	184.4	47.0	71.3	36.7	Values impacted by high winds
N1	6.1	11.9	23/04/2009	22:00:00	10:00:00	2539533	3.0	178.4	43.6	65.0	32.0	
N1	3.5	11.2	24/04/2009	22:00:00	10:00:00	2539533	2.3	293.8	49.2	73.4	35.5	
N1	2.7	10.7	25/04/2009	22:00:00	10:00:00	2539533	3.9	208.6	46.5	71.6	31.2	
N1	3.7	11.2	26/04/2009	22:00:00	10:00:00	2539533	3.5	240.8	49.3	71.1	39.3	
N1	3.9	10.8	27/04/2009	22:00:00	10:00:00	2539533	3.1	256.2	47.6	68.8	34.4	
N1	4.1	13.7	28/04/2009	22:00:00	10:00:00	2539533	3.3	249.3	47.7	71.0	35.6	
N1	1.8	14.6	29/04/2009	22:00:00	10:00:00	2539533	2.5	198.6	50.6	87.0	36.5	

* Wind speeds in excess of 5 m/s negatively impact noise readings (as per EPA Guidance Note on Noise Measurement).

Flow Weir Record Sheet**Determinant Results**

Date	SP1			SP3		
	Max (l/s)	Min (l/s)	Avg (l/s)	Max (l/s)	Min (l/s)	Avg (l/s)
16/04/2009	-0.02	-0.03	-0.02	2.38	-0.33	1.59
17/04/2009	-0.02	-0.02	-0.02	2.91	-0.13	1.84
18/04/2009	-0.02	-0.02	-0.02	2.73	1.16	1.83
19/04/2009	-0.02	-0.02	-0.02	1.16	-0.08	0.65
20/04/2009	-0.02	-0.03	-0.02	1.89	-0.23	0.83
21/04/2009	-0.02	-0.02	-0.02	3.87	1.16	2.57
22/04/2009	0.00	-0.02	-0.01	9.55	1.58	3.87
23/04/2009	0.00	-0.03	-0.02	6.98	0.90	3.38
24/04/2009	-0.01	-0.03	-0.02	5.35	0.56	2.52
25/04/2009	-0.01	-0.02	-0.01	5.13	2.73	3.91
26/04/2009	0.00	-0.02	-0.02	2.56	-0.58	0.81
27/04/2009	0.00	-0.01	-0.01	2.21	-0.08	0.86
28/04/2009	6.67	-0.02	2.77	3.10	-0.53	0.40
29/04/2009	6.95	0.41	3.30	7.98	2.56	4.96

Note: Negative values indicate low flow conditions. Low values under investigation.

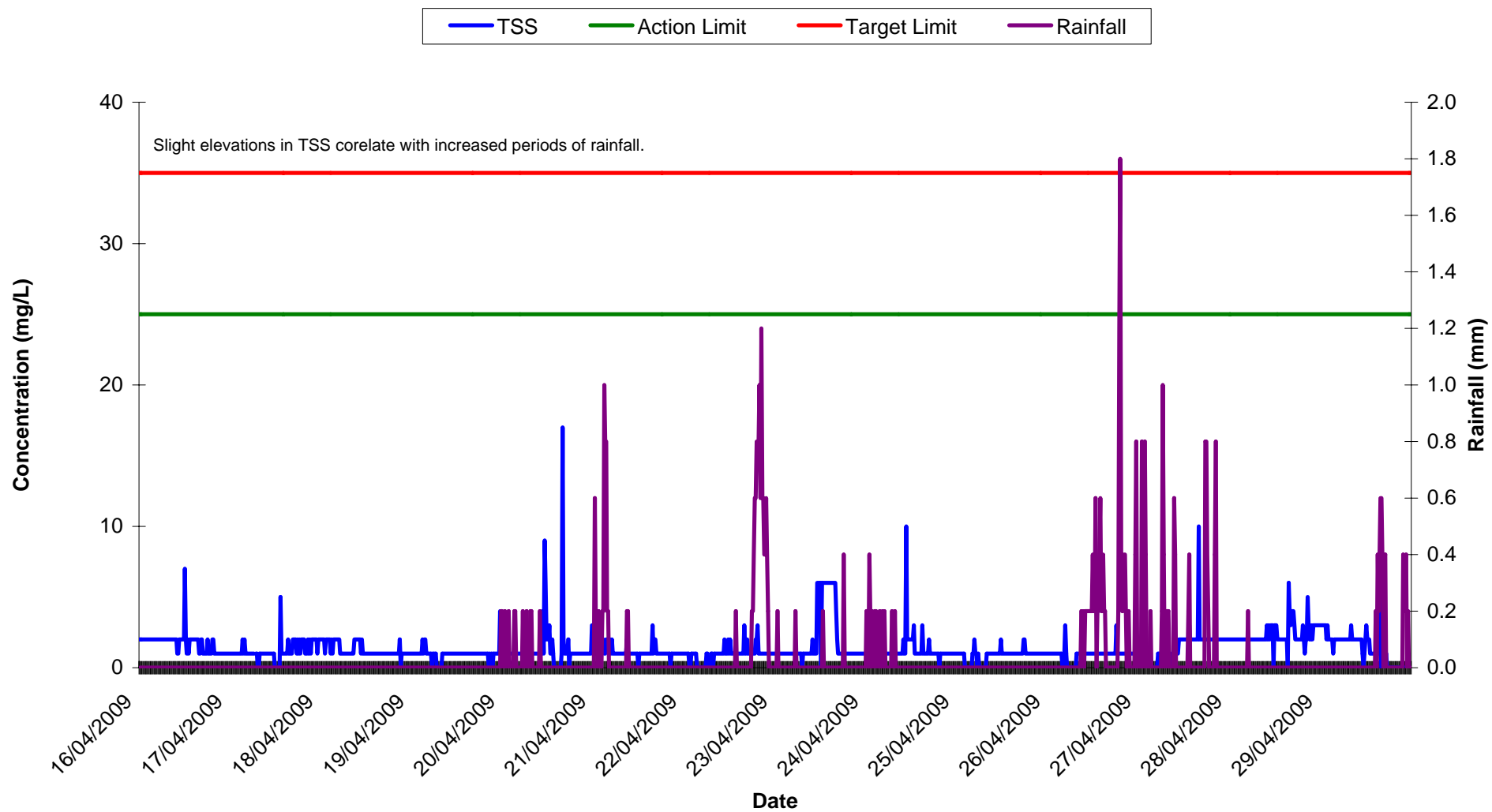
Vibration Monitoring Record Sheet

Determinant Results	
1. Demographics	Age, Gender, Education, Income, Employment Status
2. Attitudes	Attitudes Toward Recycling, Environmental Awareness, Perceived Benefits
3. Barriers	Lack of Information, Lack of Time, Lack of Access, Cost
4. Facilitators	Community Programs, Government Incentives, Convenient Recycling Bins
5. Behavioral Intent	Willingness to Recycle, Frequency of Recycling, Recycling Volume

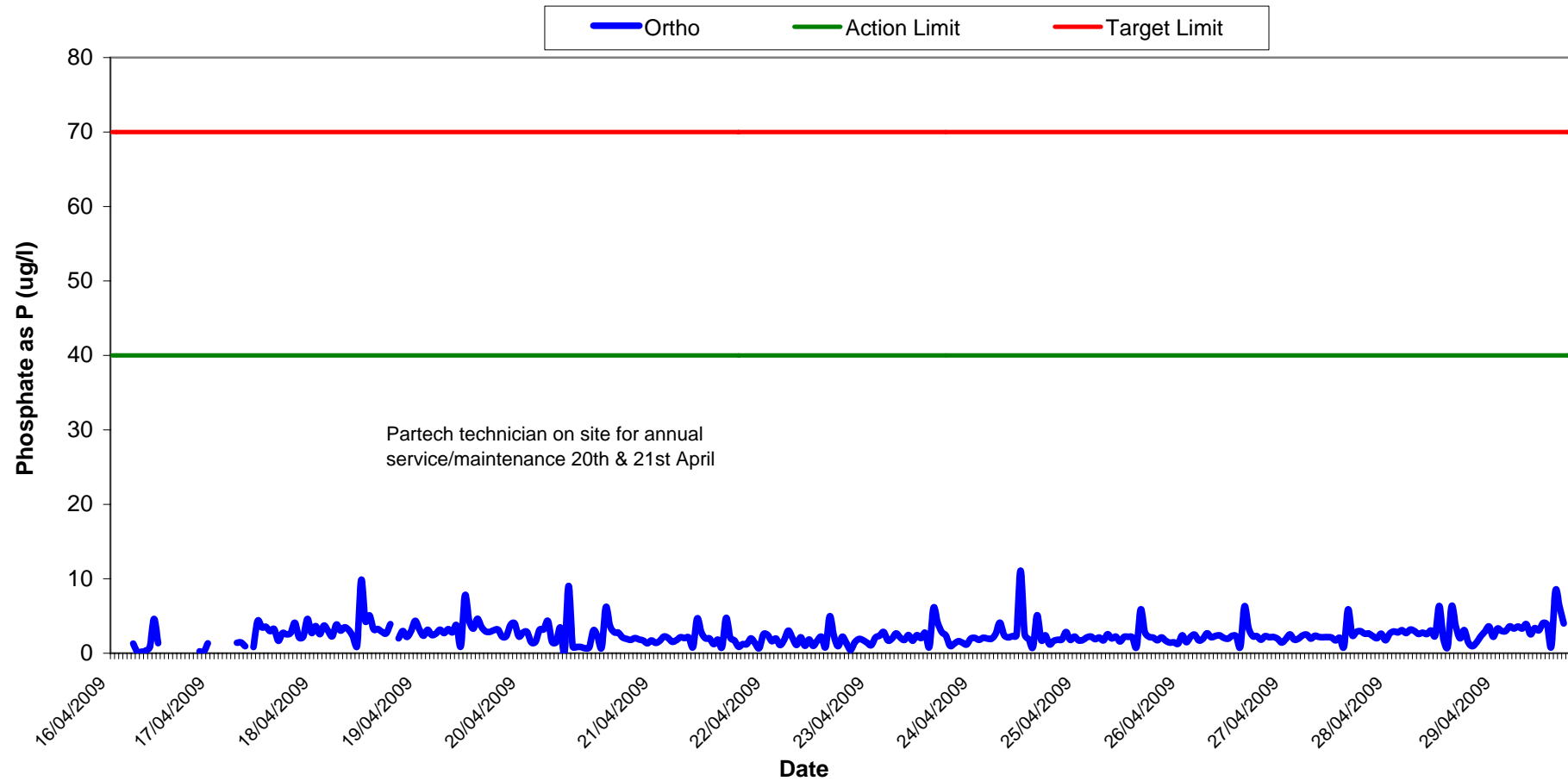
[illegible]

Vibration meter located at V1.

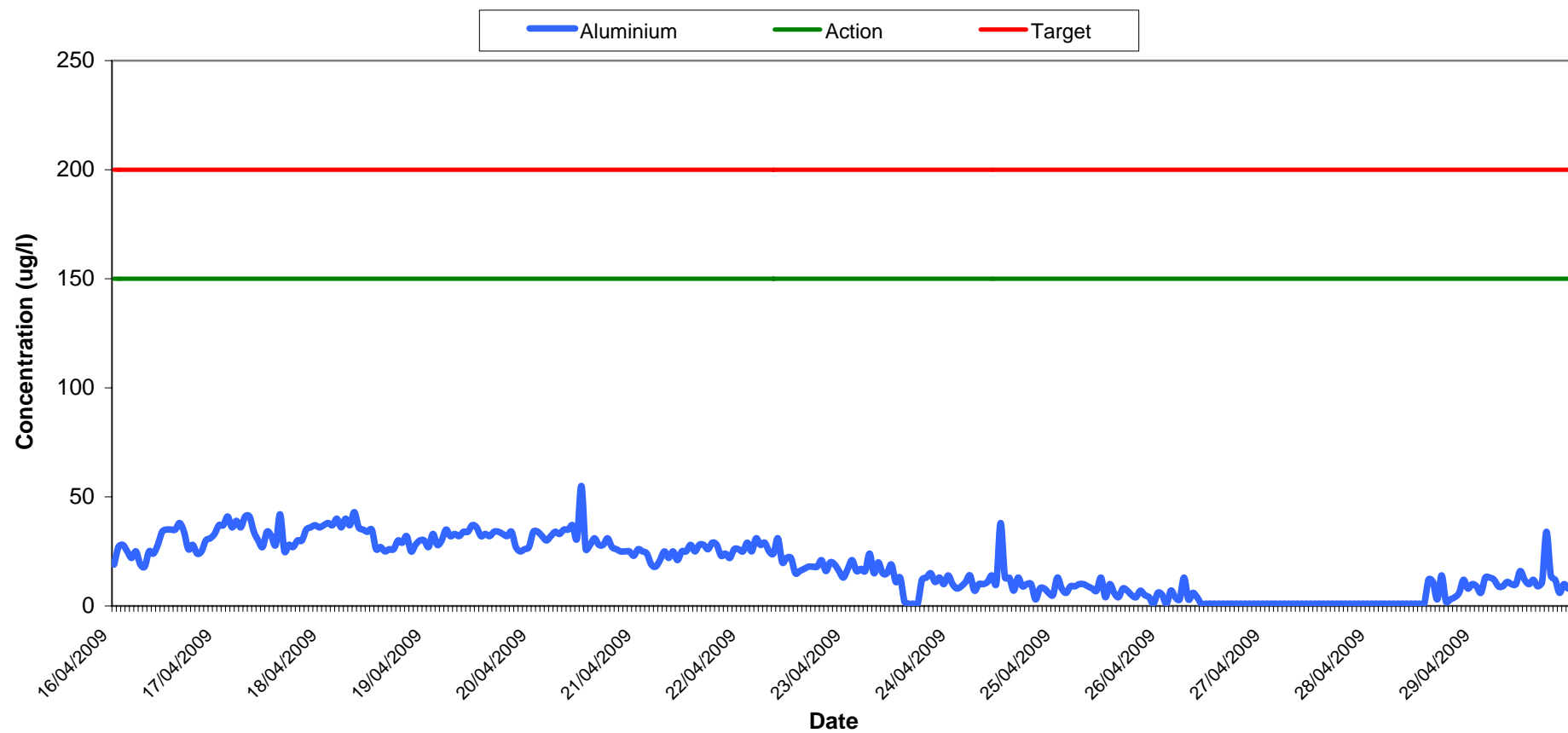
Total Suspended Solids at SP1 Week 16-17



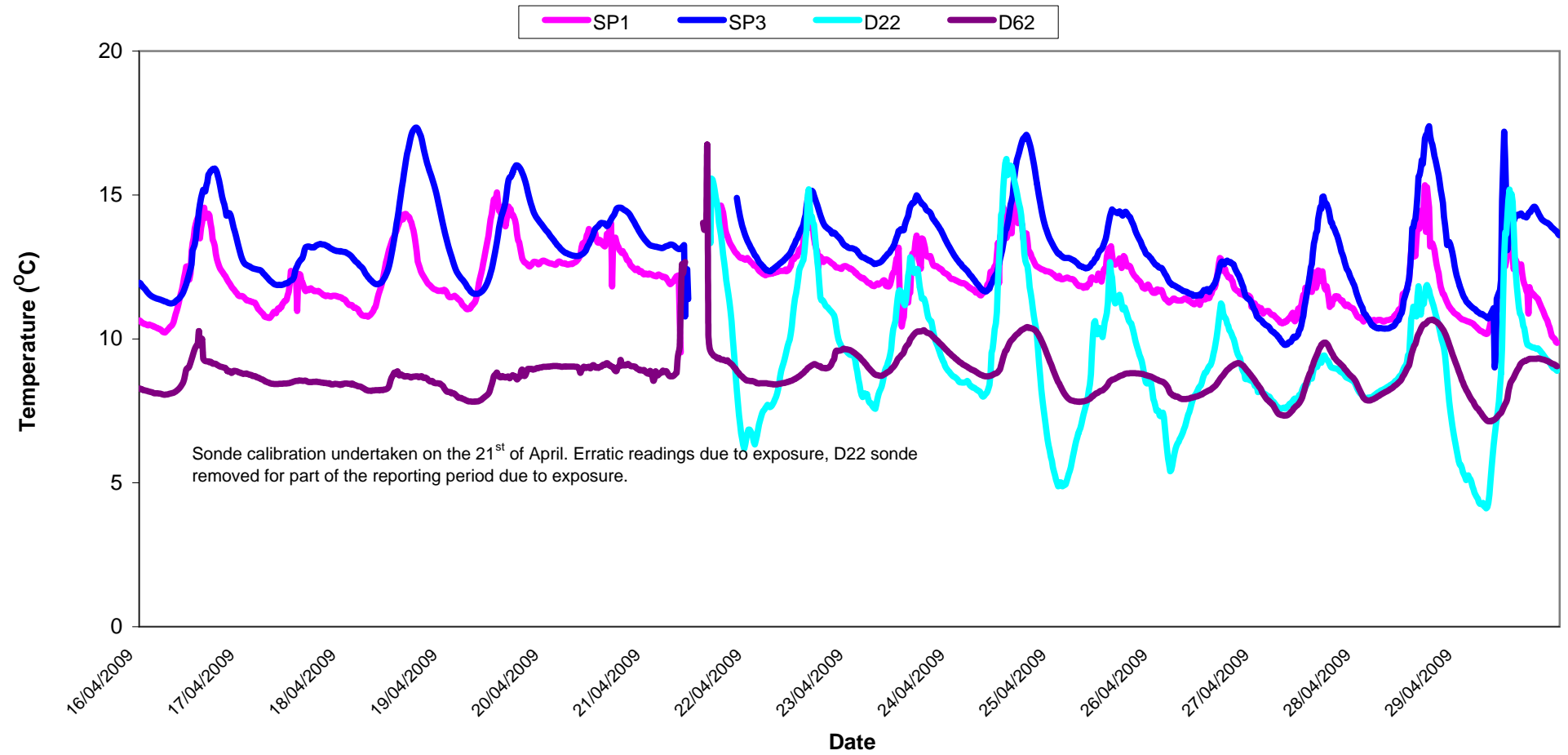
Orthophosphate Results at SP1 Wk 16-17



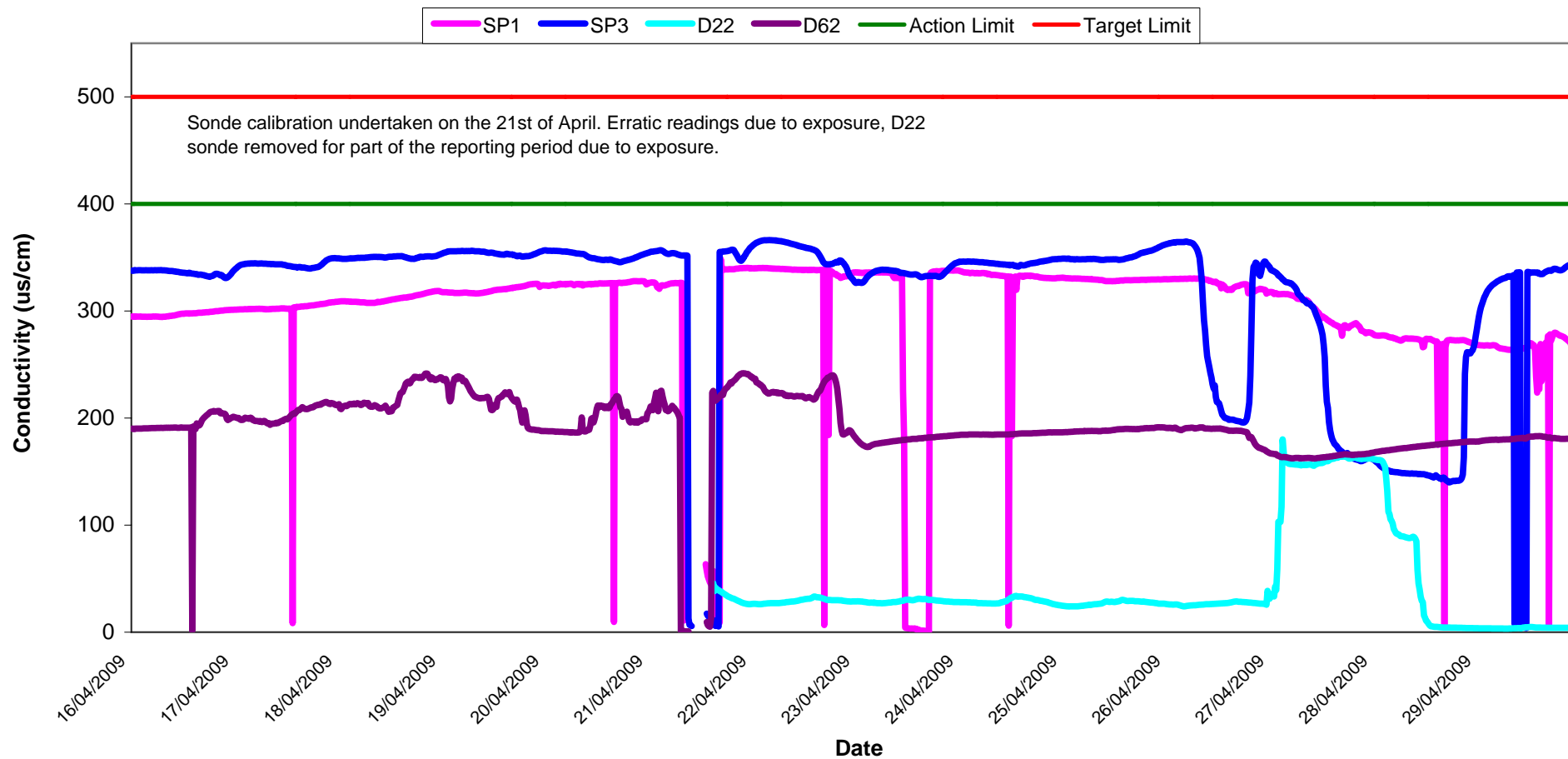
Aluminium Concentration at SP1 Wk 16-17



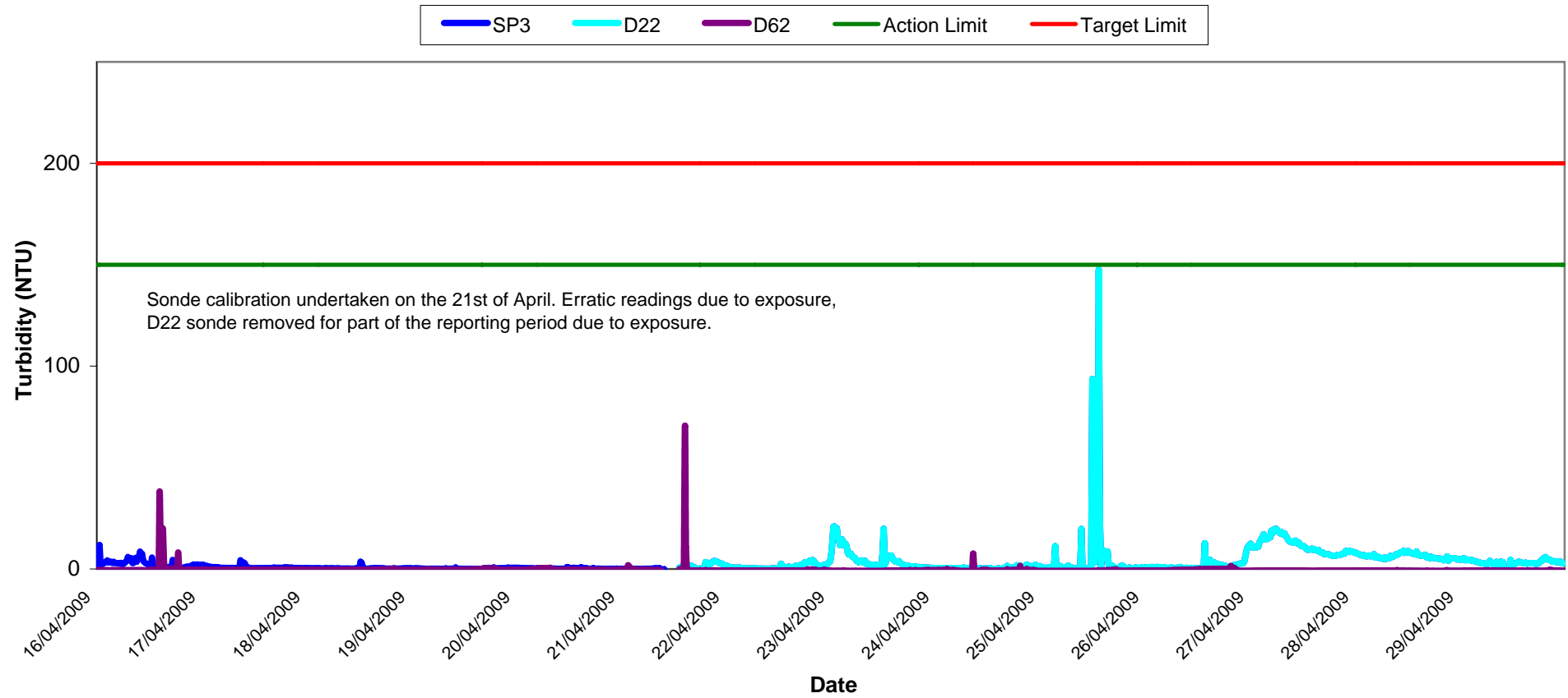
Temperature - Surface Waters Wk 16-17



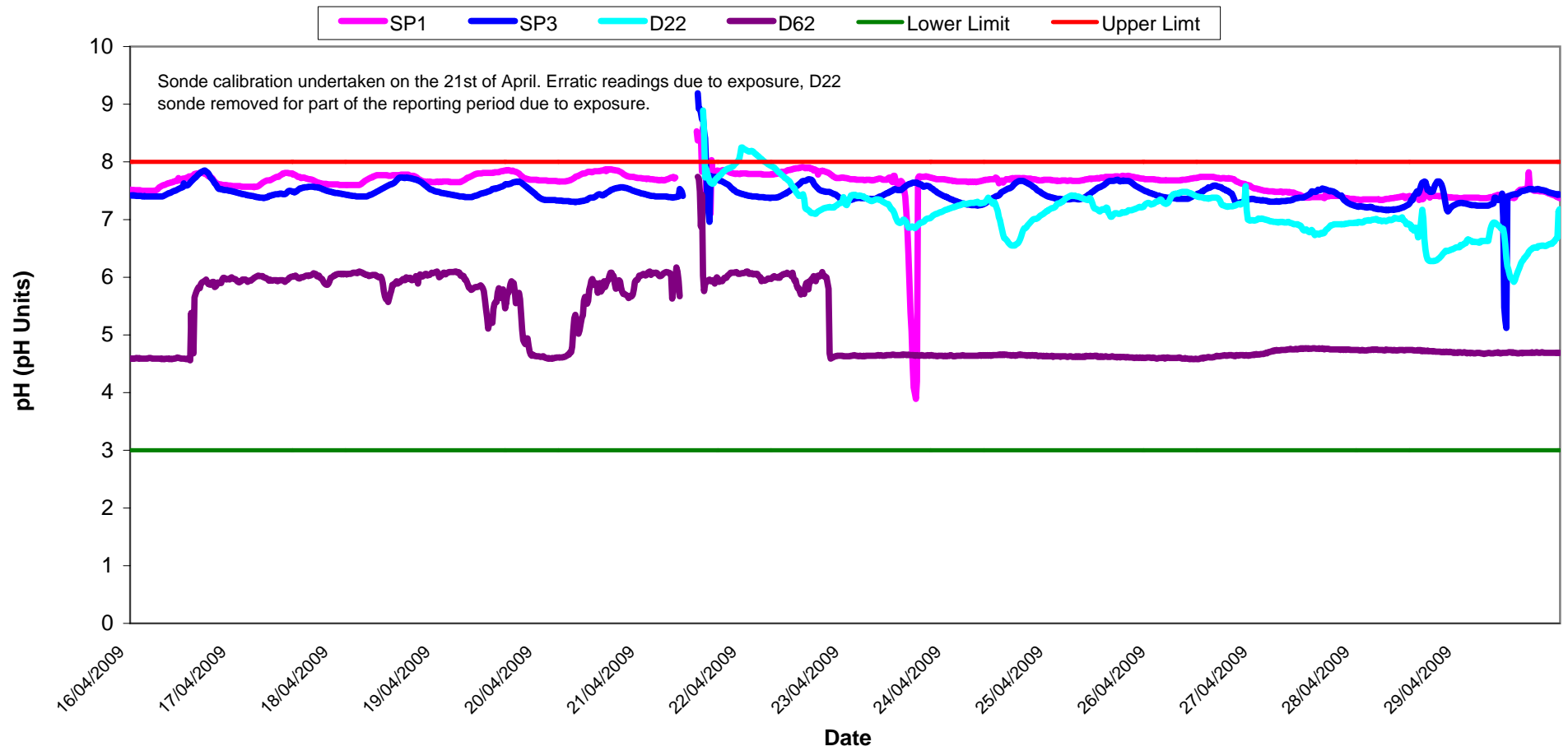
Conductivity - Surface Waters, Wk 16-17



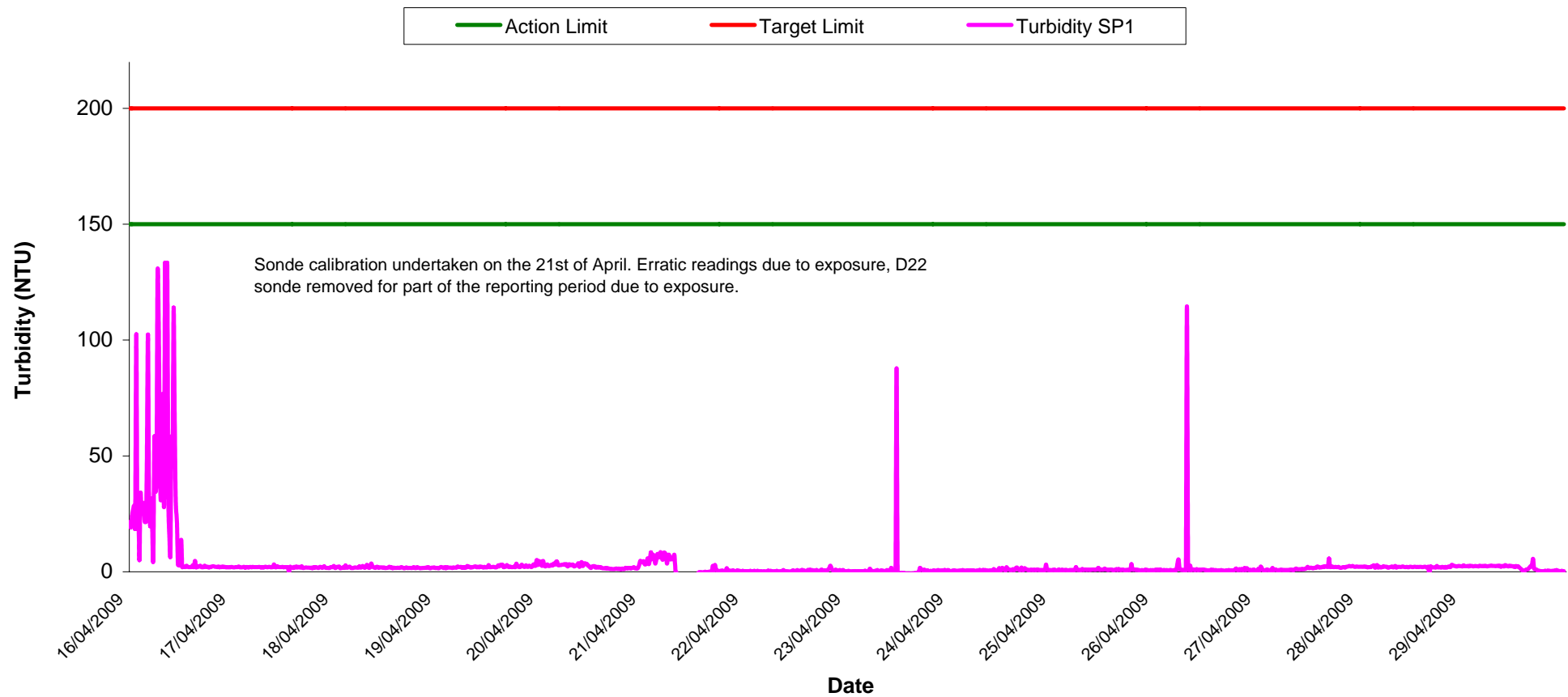
Turbidity - Surface Waters Wk 16-17



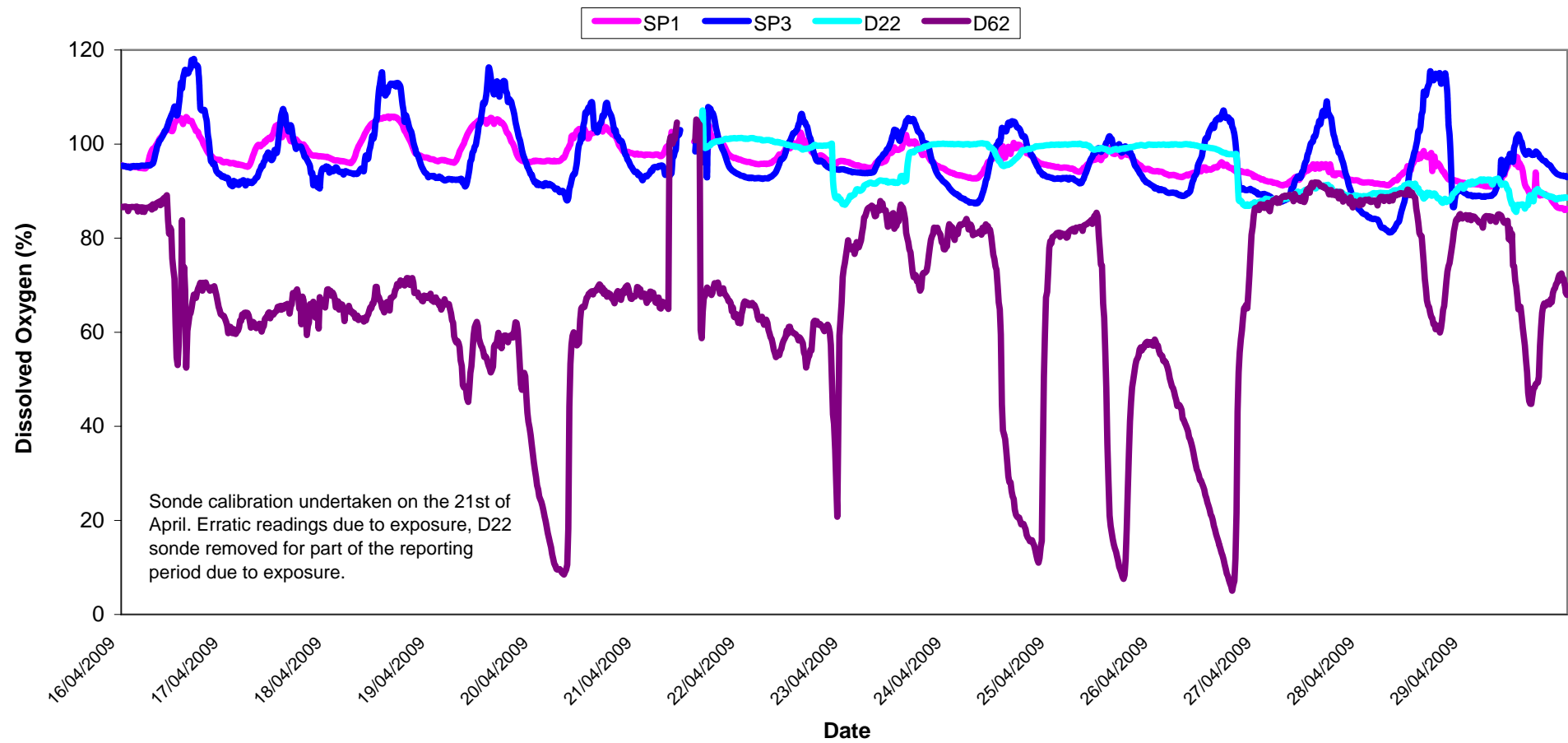
pH - Surface Waters Wk 16-17



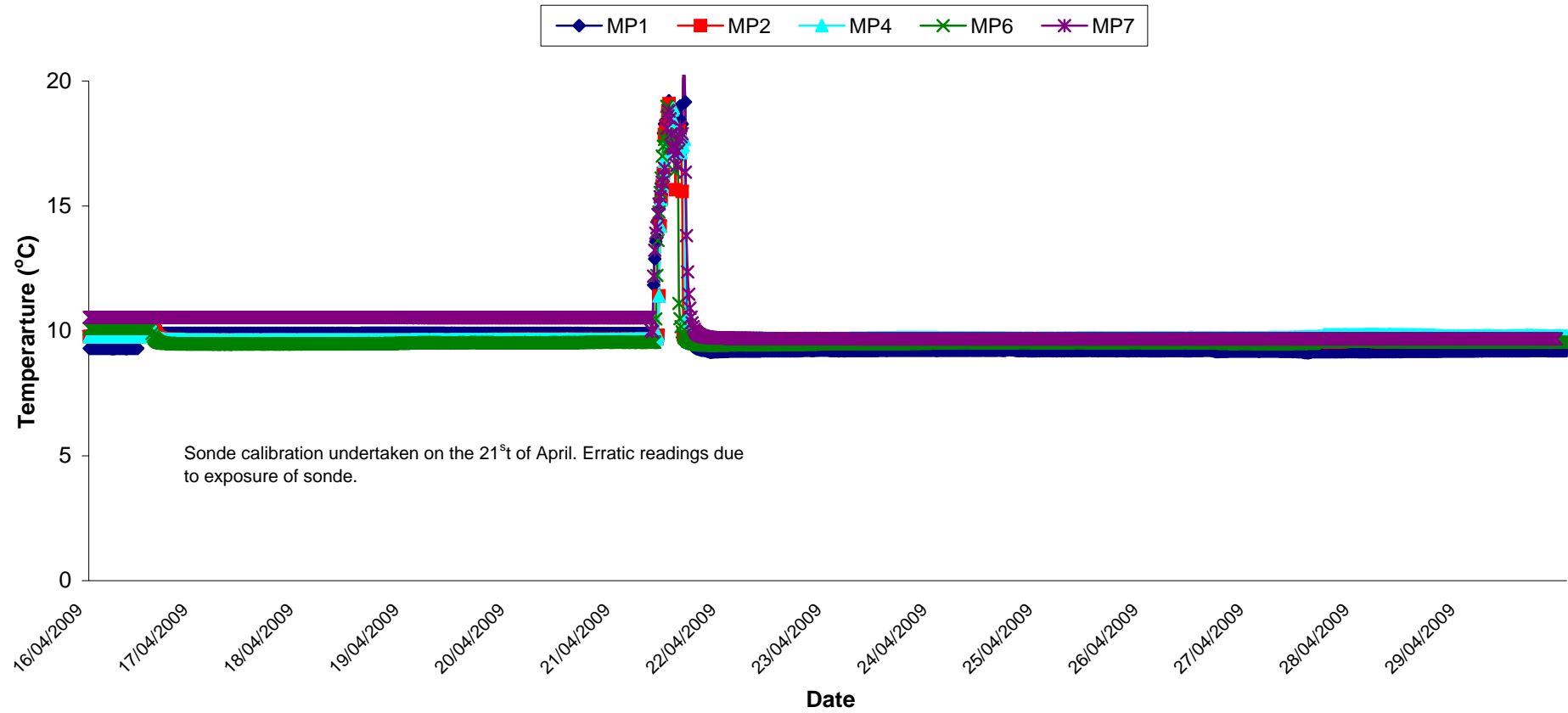
Turbidity - Surface Waters @ SP1, Wk 16-17



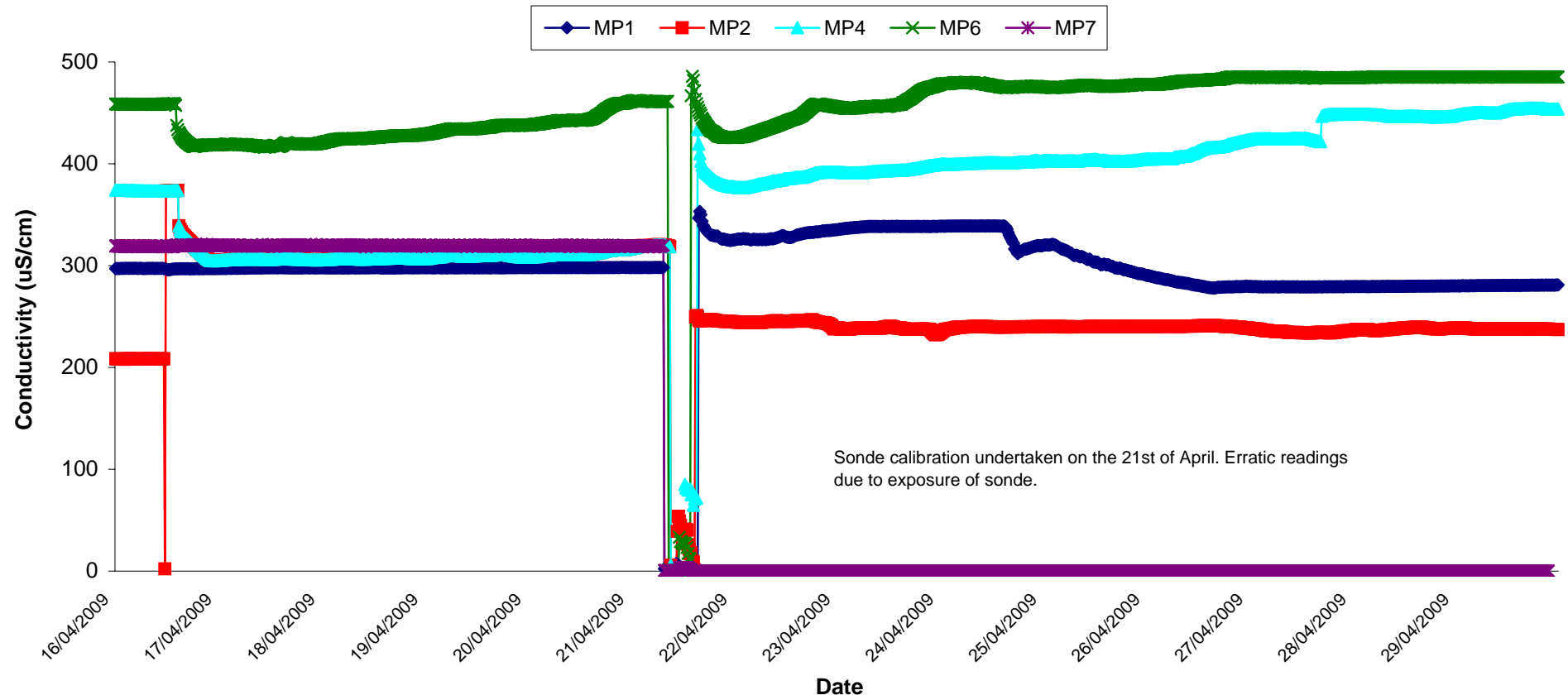
Dissolved Oxygen - Surface Waters, Wk 16-17



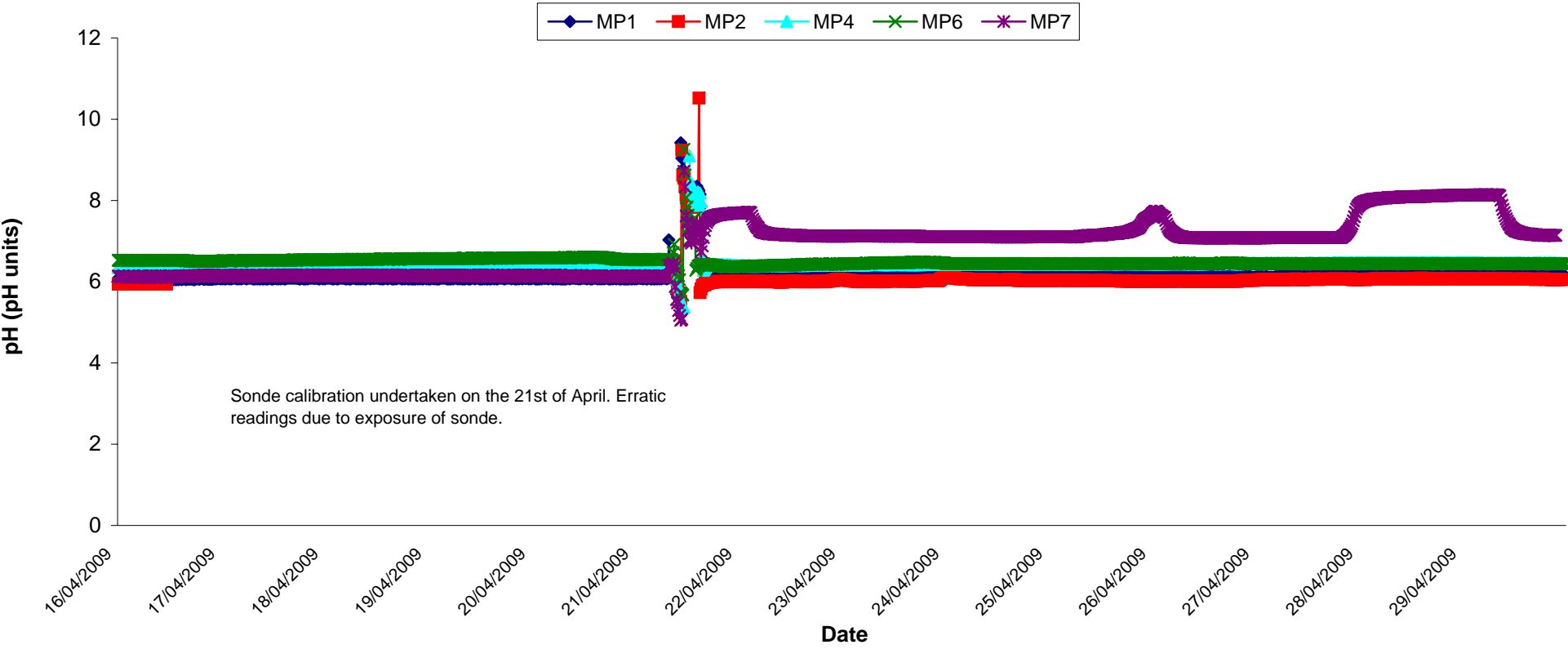
Temperature - Groundwaters Wk 16-17



Conductivity - Groundwaters Wk 16-17



pH - Groundwaters
Wk 16-17



Appendix 1

Appendix 1: Surface Water Monitoring Record Sheet- Onsite Monitoring

	Date	Cond. µS/cm	Temp °C	Turbidity NTU	DO % Sat	pH	TSS mg l ⁻¹	Ortho-phosphate as P µg l ⁻¹	Nitrate as N mg l ⁻¹	Nitrate as NO ₃ mg l ⁻¹	Total Phosphorus as P mg l ⁻¹	Ammonia as NH ₃ -N mg l ⁻¹	Nitrite as NO ₂ mg/l	Aluminium (dissolved) ug/l	Aluminium (total) ug/l	Phosphate as PO ₄ mg/l	Total dissolved solids mg/l
Settlement Pond Monitoring																	
SP1	16/04/2009	269	10.4	3.5	95.1	7.5			<LOD			<LOD		46	103	<LOD	140
SP1	17/04/2009	271	10.7	2.6	96.8	7.4			<LOD			<0.005		43	115	<LOD	144
SP1	20/04/2009	336	13.0	3.8	90.4	6.7			0.1			0.060		27	121	<LOD	244
SP1	21/04/2009	332	13.7	4.0	96.6	6.7			<LOD			0.310		29	99	0.01	236
SP1	22/04/2009	324	13.3	2.4	93.7	7.1			<LOD			0.010		22	55	<LOD	221
SP1	23/04/2009	331	12.9	5.4	94.6	7.4			<LOD			0.050		<LOD	81	<LOD	235
SP1	24/04/2009	329	12.2	4.4	92.7	6.4			0.1			0.030		<LOD	55	0.62	213
SP1	27/04/2009	290	12.3	5.3	91.0	7.0			<LOD			0.140		<LOD	137	0.15	205
SP1	28/04/2009	273	12.7	6.6	92.0	6.6			<LOD			0.010		<LOD	114	0.05	190
SP1	29/04/2009	269	10.8	8.7	89.8	6.8			<LOD			0.360		<LOD	122	0.40	196
SP3	16/04/2009	305	10.7	1.4	96.8	7.5			0.6			<LOD		43	90	<LOD	162
SP3	17/04/2009	310	12.2	1.2	92.0	7.3			0.7			0.015		22	98	<LOD	167
SP3	20/04/2009	351	13.2	2.1	88.6	6.6			0.3			0.120		<LOD		<LOD	251
SP3	21/04/2009	359	13.5	3.5	96.4	6.7			0.7			0.110		<LOD		<LOD	248
SP3	22/04/2009	348	13.0	3.7	94.3	6.9			0.2			0.040		<LOD		0.04	253
SP3	23/04/2009	343	13.4	4.6	98.6	7.3			0.3			0.470		38		0.04	238
SP3	24/04/2009	351	11.9	2.6	92.9	7.4			0.2			0.020		<LOD		0.01	232
SP3	27/04/2009	302	10.9	22.6	93.6	6.9			0.3			0.040		28		0.01	206
SP3	28/04/2009	282	12.0	15.7	94.0	6.7			0.2			0.050		<LOD		0.04	193
SP3	29/04/2009	337	11.3	7.5	91.1	6.5			0.3			0.040		28		0.08	239
Additional Monitoring																	
D22	16/04/2009	233	9.7	1.6	82.4	6.7			<LOD			0.024		38		0.03	123
D62	16/04/2009	170	9.2	0.5	63.6	4.5			<LOD			<LOD		32	38	<LOD	93
D22	21/04/2009	298	8.8	4.5	79.1	5.5			0.2			0.060		<LOD		0.02	206
D62	21/04/2009	200	8.2	6.8	66.1				1.1			0.010		23		0.06	115
Axonics Monitoring																	
Pre	16/04/2009	301		218.0		7.2			1.1			<LOD		21		0.06	160
Post	16/04/2009	313		12.0		6.5			1.1			0.023		<20	85	<LOD	165
Pre	17/04/2009	301		218.0		7.2			1.1			<LOD		21		0.06	160
Post	17/04/2009	315		2.0		6.6			1.0			0.012		<LOD	532	<LOD	164
Pre	20/04/2009	342		676.0		6.5			<LOD			>LOD		721		0.08	242
Post	20/04/2009	365		4.1		6.5			0.5			0.040		<LOD	131	0.01	256
Pre	21/04/2009	365		18.2		6.6			<LOD			2.280		164		0.04	251
Post	21/04/2009	373		2.6		6.6			0.3			0.060		22	230	0.02	256
Pre	22/04/2009	351		379.0		6.9			<LOD			0.050		761		0.03	241
Post	22/04/2009	369		4.4		6.8			0.6			<LOD		20	354	0.02	253
Pre	23/04/2009	344		373.0		7.1			<LOD			0.430		902		0.05	238
Post	23/04/2009	345		4.4		6.7			0.3			0.050		<LOD	305	0.06	237
Pre	24/04/2009	348		248.0		7.3			<LOD			0.400		>LOD		0.03	229
Post	24/04/2009	360		3.3		6.8			0.3			<LOD		<LOD	208	0.03	236
Pre	27/04/2009	No Discharge															
Post	27/04/2009	No Discharge															
Pre	28/04/2009	349		830.0		6.6			<LOD			0.380		>LOD		0.10	233
Post	28/04/2009	366		9.7		6.5			0.6			<LOD		<LOD	286	<LOD	240
Pre	29/04/2009	347		242.0		6.5			<LOD			0.220		404		0.07	242
Post	29/04/2009	351		250.0		6.5			0.5			0.460		<LOD	250	0.03	250
Grey shaded areas denote parameters that cannot or were not analysed on-site.																	
= Indicative Only																	
< LOD = Below Limit of Detection																	
> LOD = Above Limit of Detection																	