

Final Environmental Report	Period Ending: 18th March 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	– The PO ₄ analyser was operational during the reporting period. – The composite sampler was in place to cover any shortfalls in the PO ₄ analyser.
TSS	– The TSS analyser was operational during the reporting period. – The composite sampler was in place to cover any shortfalls in the TSS analyser.
Composite	– 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	– The results are displayed graphically. ○ Any unusual values are explained on the relevant graph. ○ Due to an internal power supply failure, data from MP6 is not available for the reporting period. The sonde was sent to the manufacturer to rectify the technical error.
Weather Station	– The data used for this reporting period was taken from the on-site meteorological station.
Weirs	– Weirs were operational during the reporting period.

1.2 Rainfall Data

05/03/2009	5.33	12/03/2009	0.00
06/03/2009	1.20	13/03/2009	3.80
07/03/2009	8.60	14/03/2009	0.20
08/03/2009	8.80	15/03/2009	0.20
09/03/2009	9.60	16/03/2009	10.40
10/03/2009	1.20	17/03/2009	0.00
11/03/2009	7.80	18/03/2009	0.00
Total Rainfall 57.13mm			

Final Environmental Report	Period Ending: 18 th March 2009
Compiled By: Siobhán Quinn & Aoife Reynolds	
Approved By: Tony Doyle	

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 57.13mm of rainfall during the reporting period, with a temperature range of 0.2°C to 18.4 °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

There were no incidents/ exceedances/ complaints during the reporting period.

	Date	Cond. μS/cm	Temp °C	Turbidity NTU	DO % Sat	pH pH units	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 ⁻¹	Aluminium (dissolved) μg l ⁻¹	Aluminium (total) μg l ⁻¹	Phosphate as PO ₄ -P mg l ⁻¹	TDS 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	05/03/2009	222		7		6.9	4.0	<10		<0.44	0.02	<0.005	<0.017	45	151	<0.03	118
SP3	05/03/2009	300		6		7.1	5.0	<10		<0.44	0.03	0.025	<0.017	26	167	<0.03	152
SP1	10/03/2009	218		5		6.9	<2.0	<10		0.90	0.07	<0.005	<0.017	54	174	<0.03	118
SP3	10/03/2009	287		2		6.5	<2.0	28		0.77	0.05	0.057	<0.017	31	374	<0.03	149
Additional Monitoring																	
D22	11/03/2009	200		2		6.3	13.0	32		0.53	0.04	<0.005	<0.017	58	35	0.10	108
D62	11/03/2009	166		1		5.1	<2.0	<10		<0.44	0.03	<0.005	<0.017	25	71	<0.03	89
Axonics Monitoring																	
Pre Axonics	05/03/2009	311		83		6.9	1107.0	62		0.47	0.19	<0.005	<0.017	28	48420	0.19	162
Post Axonics	05/03/2009	330		4		6.3	5.0	<10		0.52	<0.01	<0.005	<0.017	<20	226	<0.03	173
Pre Axonics	10/03/2009	313		23		7.1	67.0	<10		1.84	0.04	<0.005	<0.017	33	1210	<0.03	161
Post Axonics	10/03/2009	326		4		6.5	<2.0	<10		1.61	<0.01	<0.005	0.020	<20	<20	<0.03	170
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

[illegible]

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	25/08/2008	25/09/2008	185830	26/09/2008	30/09/2008	135	
D2	25/08/2008	25/09/2008	185831	26/09/2008	30/09/2008	92	
D3	25/08/2008	25/09/2008	185832	26/09/2008	30/09/2008	102	
D4	25/08/2008	25/09/2008	185833	26/09/2008	30/09/2008	83	
D1	25/09/2008	24/10/2008	188708	24/10/2008	28/10/2008	233	
D2	25/09/2008	24/10/2008	188709	24/10/2008	28/10/2008	186	
D3	25/09/2008	24/10/2008	188710	24/10/2008	28/10/2008	155	
D4	25/09/2008	24/10/2008	188711	24/10/2008	28/10/2008	208	
D1	24/10/2008	21/11/2008	191474	21/11/2008	27/11/2008	174	
D2	24/10/2008	21/11/2008	191475	21/11/2008	27/11/2008	167	
D3	24/10/2008	21/11/2008	191476	21/11/2008	27/11/2008	171	
D4	24/10/2008	21/11/2008	191477	21/11/2008	27/11/2008	180	
D1	21/11/2008	22/12/2008	194862	22/12/2008	05/01/2009	172	
D2	21/11/2008	22/12/2008	194863	22/12/2008	05/01/2009	37	
D3	21/11/2008	22/12/2008	194864	22/12/2008	05/01/2009	144	
D4	21/11/2008	22/12/2008	194865	22/12/2008	05/01/2009	39	
D1	22/12/2009	22/01/2009	197095	22/12/2008	28/01/2009	295	
D2	22/12/2009	22/01/2009	197096	22/12/2008	28/01/2009	324	
D3	22/12/2009	22/01/2009	197097	22/12/2008	28/01/2009	261	
D4	22/12/2009	22/01/2009	197098	22/12/2008	28/01/2009	324	
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	
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	2.0	10.8	05/03/2009	08:00:00	14:00:00	2539533	3.8	146.8	49.1	80.9	36.7	
N1	0.8	9.5	06/03/2009	08:00:00	14:00:00	2539533	3.8	240.9	63.2	99.3	35.7	
N1	7.9	11.4	07/03/2009	08:00:00	14:00:00	2539533	5.7	233.6	53.3	79.6	37.1	Values impacted by high wind speeds
N1	8.2	10.1	08/03/2009	08:00:00	14:00:00	2539533	7.3	278.6	54.6	84.8	44.5	Values impacted by high wind speeds
N1	7.8	10.8	09/03/2009	08:00:00	14:00:00	2539533	5.2	253.4	51.8	83.8	31.7	Values impacted by high wind speeds
N1	6.9	9.3	10/03/2009	08:00:00	14:00:00	2539533	2.6	180.7	54.8	94.9	37.1	
N1	5.5	10.5	11/03/2009	08:00:00	14:00:00	2539533	5.9	205.8	54.1	76.5	40.2	Values impacted by high wind speeds
N1	7.6	10.7	12/03/2009	08:00:00	14:00:00	2539533	3.4	249.0	50.8	69.1	34.9	
N1	8.2	10.1	13/03/2009	08:00:00	14:00:00	2539533	5.3	182.8	55.7	81.2	34.9	Values impacted by high wind speeds
N1	4.7	9.7	14/03/2009	08:00:00	14:00:00	2539533	6.0	259.3	51.6	75.0	35.5	Values impacted by high wind speeds
N1	4.2	9.5	15/03/2009	08:00:00	14:00:00	2539533	5.2	200.6	51.5	72.5	34.5	Values impacted by high wind speeds
N1	4.5	10.7	16/03/2009	08:00:00	14:00:00	2539533	3.5	167.3	50.6	80.3	40.7	
N1	-0.1	6.7	17/03/2009	08:00:00	14:00:00	2539533	3.6	154.9	51.3	83.9	36.6	
N1	-0.8	4.3	18/03/2009	08:00:00	14:00:00	2539533	1.1	235.5	51.2	77.1	35.3	

* 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	2.0	10.8	05/03/2009	22:00:00	10:00:00	2539533	3.8	146.8	61.2	98.7	35.9	Values affected by rainfall
N1	0.8	9.5	06/03/2009	22:00:00	10:00:00	2539533	3.8	240.9	44.5	68.0	35.1	
N1	7.9	11.4	07/03/2009	22:00:00	10:00:00	2539533	5.7	233.6	53.9	78.2	49.0	Values impacted by high wind speeds
N1	8.2	10.1	08/03/2009	22:00:00	10:00:00	2539533	7.3	278.6	52.7	77.5	41.4	Values impacted by high wind speeds
N1	7.8	10.8	09/03/2009	22:00:00	10:00:00	2539533	5.2	253.4	51.8	83.8	31.7	Values impacted by high wind speeds
N1	6.9	9.3	10/03/2009	22:00:00	10:00:00	2539533	2.6	180.7	46.5	80.1	36.2	
N1	5.5	10.5	11/03/2009	22:00:00	10:00:00	2539533	5.9	205.8	54.1	76.5	40.2	Values impacted by high wind speeds
N1	7.6	10.7	12/03/2009	22:00:00	10:00:00	2539533	3.4	249.0	50.7	69.1	32.2	
N1	8.2	10.1	13/03/2009	22:00:00	10:00:00	2539533	5.3	182.8	50.3	73.1	40.6	Values impacted by high wind speeds
N1	4.7	9.7	14/03/2009	22:00:00	10:00:00	2539533	6.0	259.3	43.6	69.6	34.5	Values impacted by high wind speeds
N1	4.2	9.5	15/03/2009	22:00:00	10:00:00	2539533	5.2	200.6	48.4	69.0	36.3	Values impacted by high wind speeds
N1	4.5	10.7	16/03/2009	22:00:00	10:00:00	2539533	3.5	167.3	44.1	59.1	40.9	
N1	-0.1	6.7	17/03/2009	22:00:00	10:00:00	2539533	3.6	154.9	46.2	70.0	35.1	
N1	-0.8	4.3	18/03/2009	22:00:00	10:00:00	2539533	1.1	235.5	47.2	59.8	37.7	

* 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)
05/03/2009	23.81	13.12	18.21	5.35	1.16	3.16
06/03/2009	17.49	10.93	13.69	5.80	1.03	3.86
07/03/2009	26.29	12.70	16.32	8.49	4.07	6.51
08/03/2009	36.54	23.81	28.57	10.38	6.50	7.96
09/03/2009	55.62	1.90	21.24	13.88	2.73	7.38
10/03/2009	40.14	2.63	20.85	11.51	1.74	7.85
11/03/2009	36.16	10.93	19.20	9.02	3.47	6.29
12/03/2009	26.93	3.70	13.75	8.49	0.46	5.16
13/03/2009	16.99	7.54	11.67	9.02	1.30	4.86
14/03/2009	16.03	10.19	13.09	6.98	4.27	5.74
15/03/2009	10.56	5.99	9.71	5.80	1.16	4.58
16/03/2009	42.23	10.19	22.11	11.80	5.57	7.78
17/03/2009	17.99	11.12	13.76	6.50	3.47	5.96
18/03/2009	11.90	4.99	9.21	6.26	2.73	4.46

Note: Negative values indicate low flow conditions.

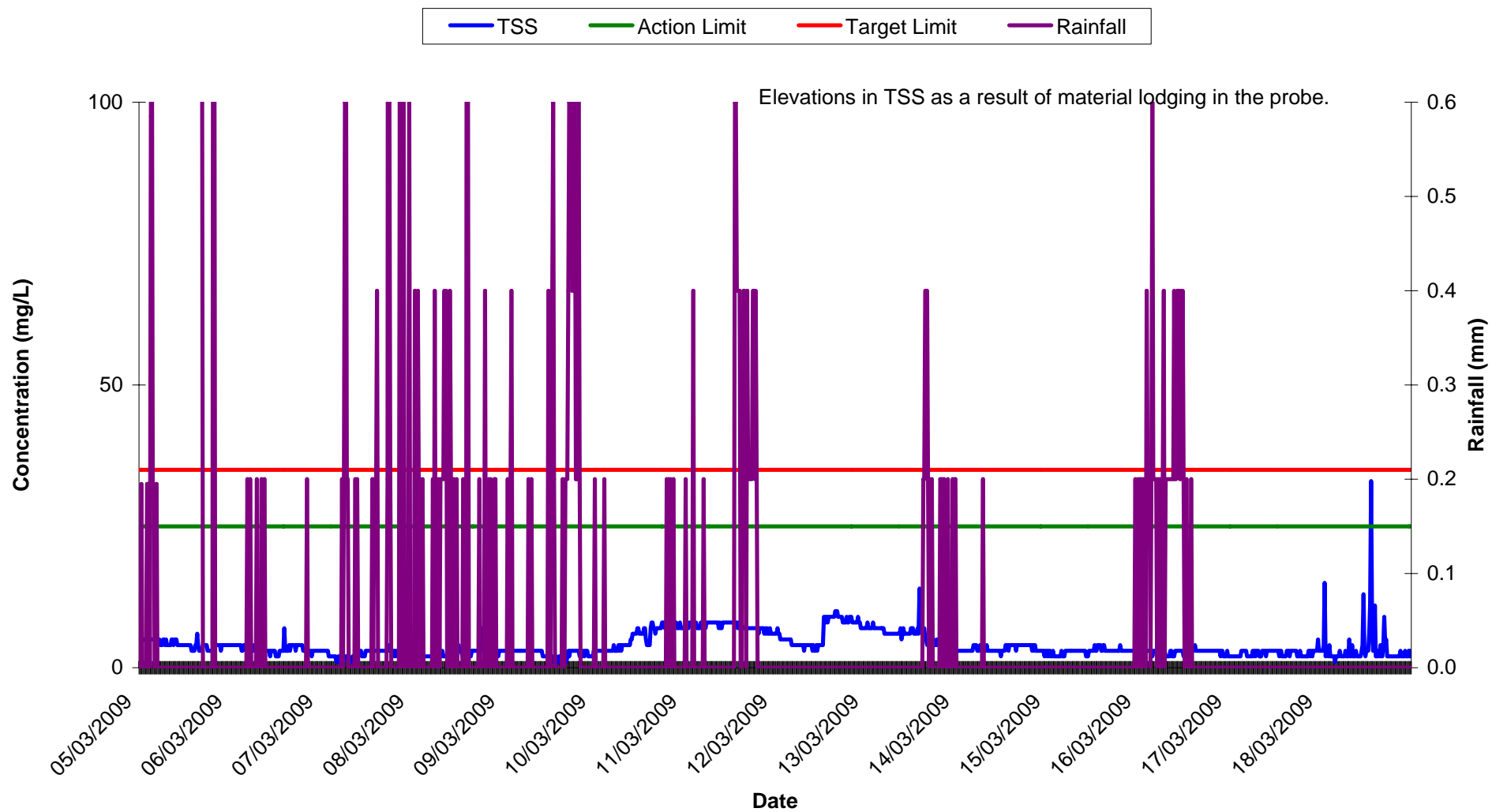
Vibration Monitoring Record Sheet

Determinant Results	
---------------------	--

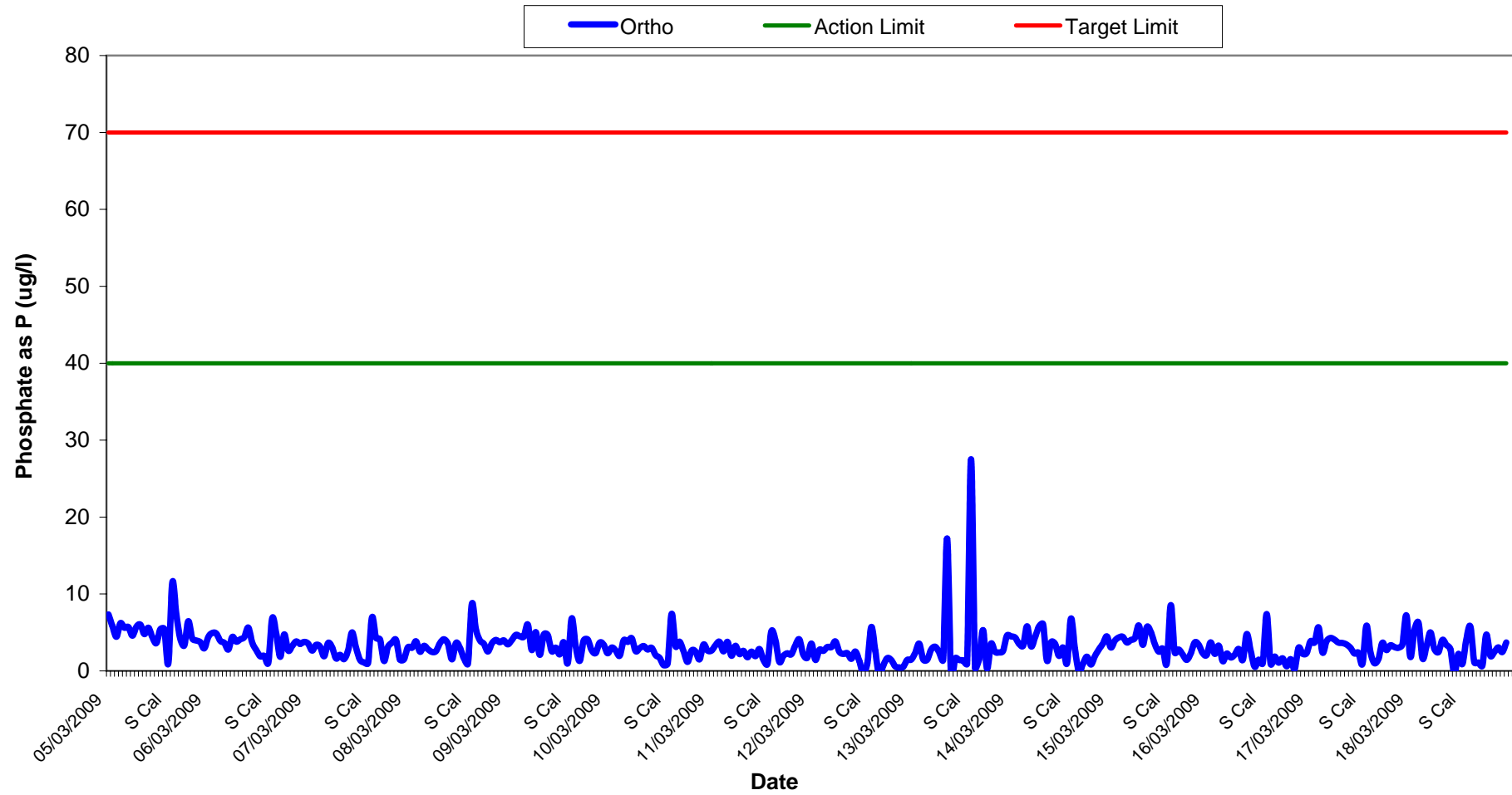
[illegible]

Vibration meter located at V1.

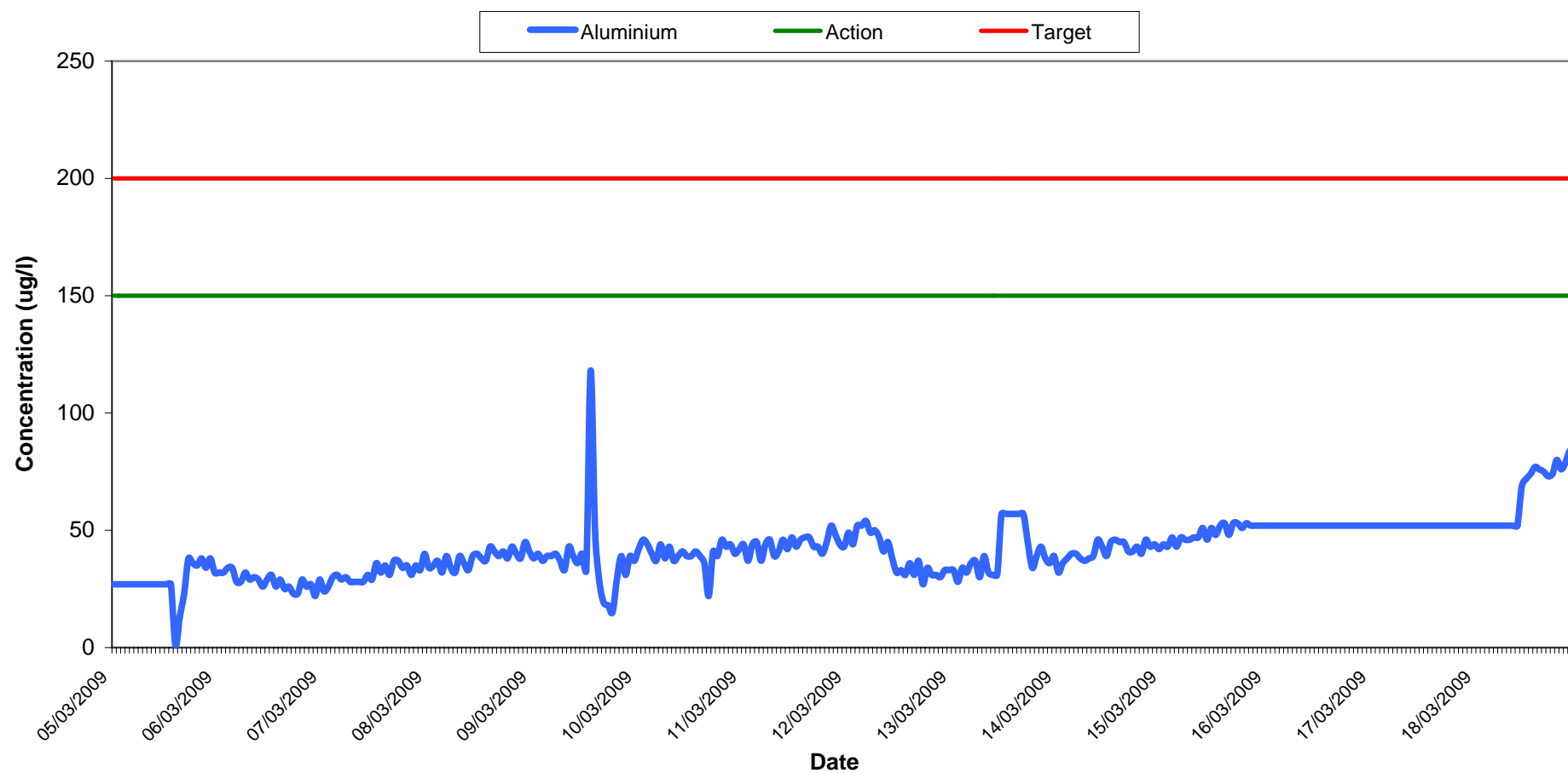
Total Suspended Solids at SP1 Week 10-11



Orthophosphate Results at SP1
Wk 10-11



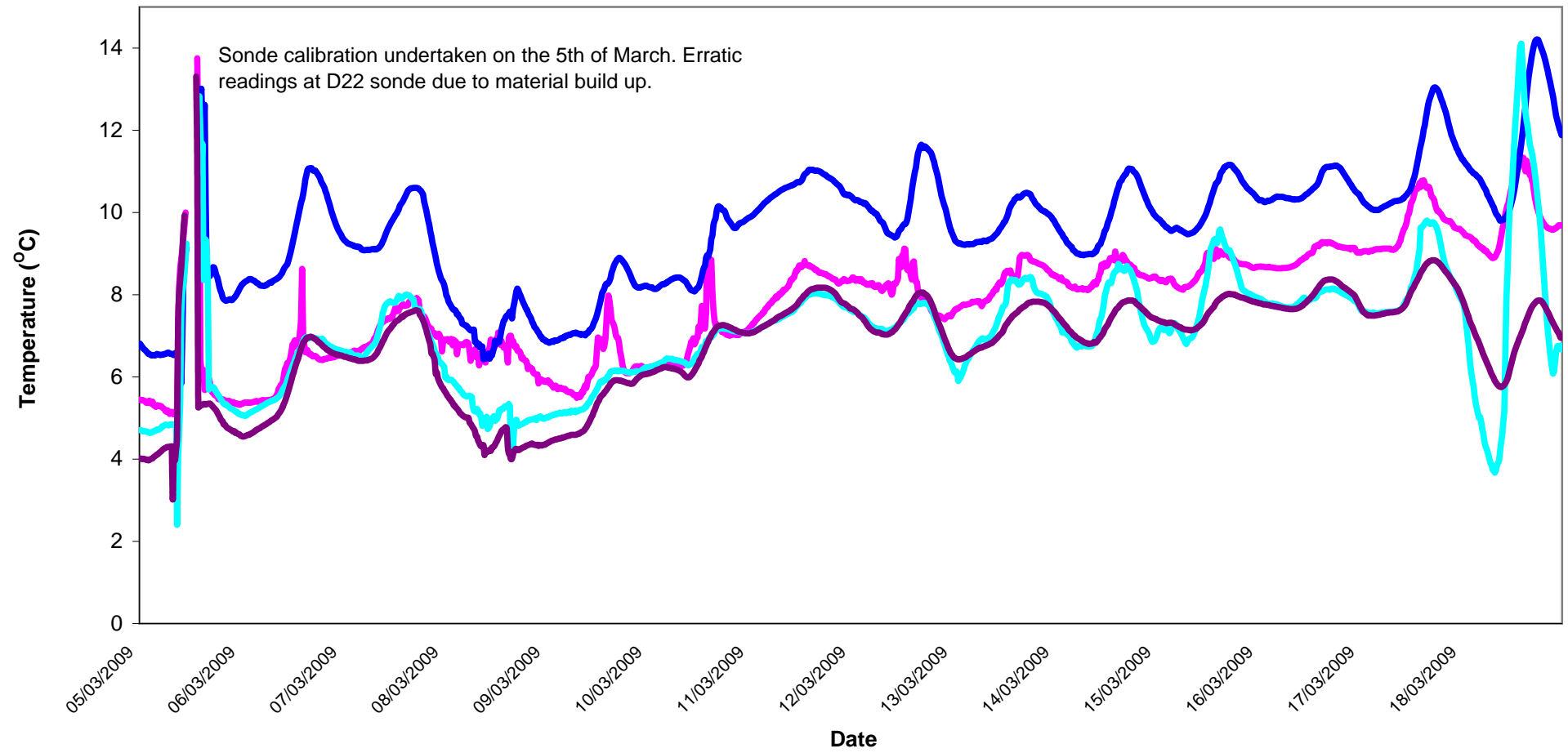
Aluminium Concentration at SP1 Wk 10-11



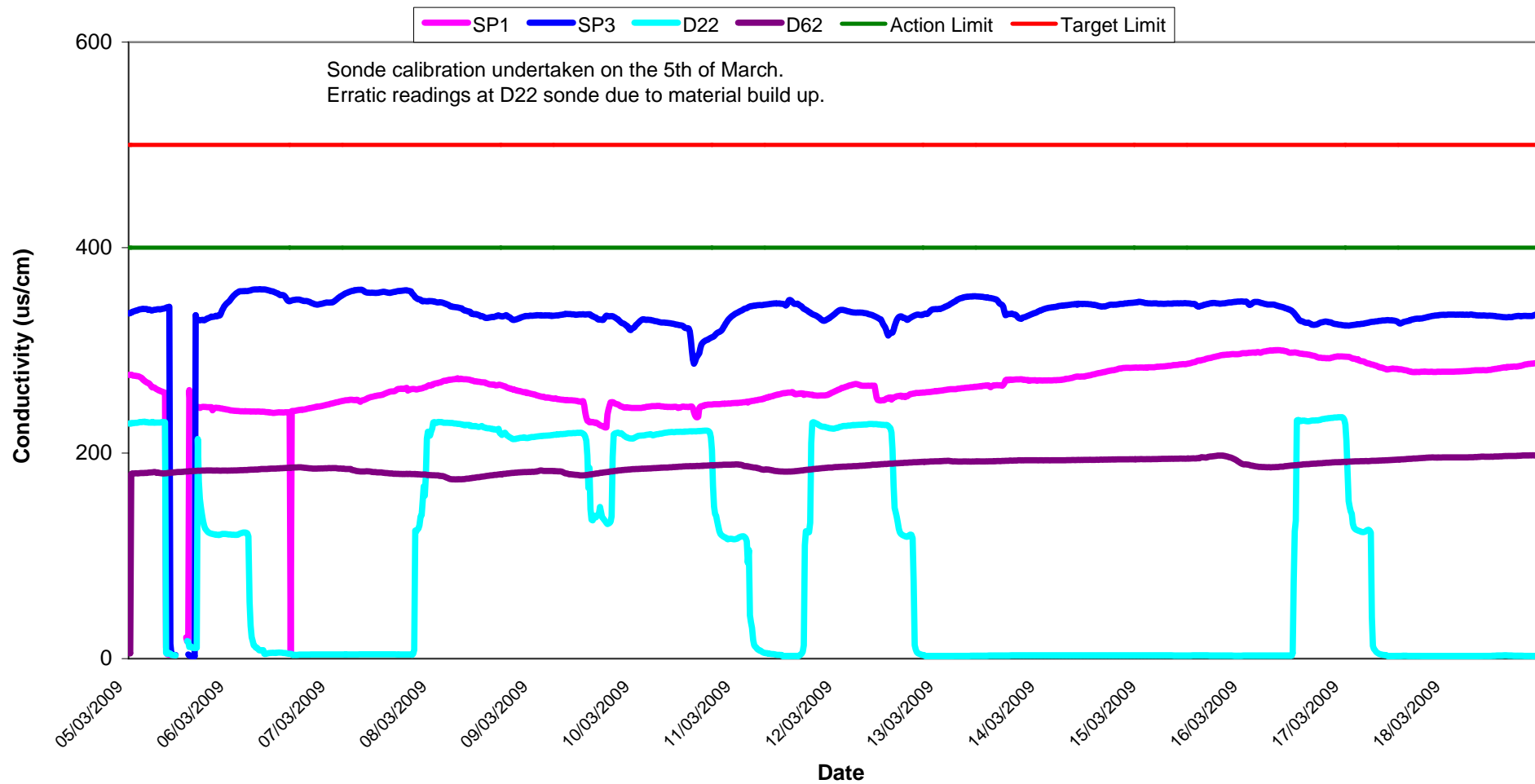
Temperature - Surface Waters

Wk 10-11

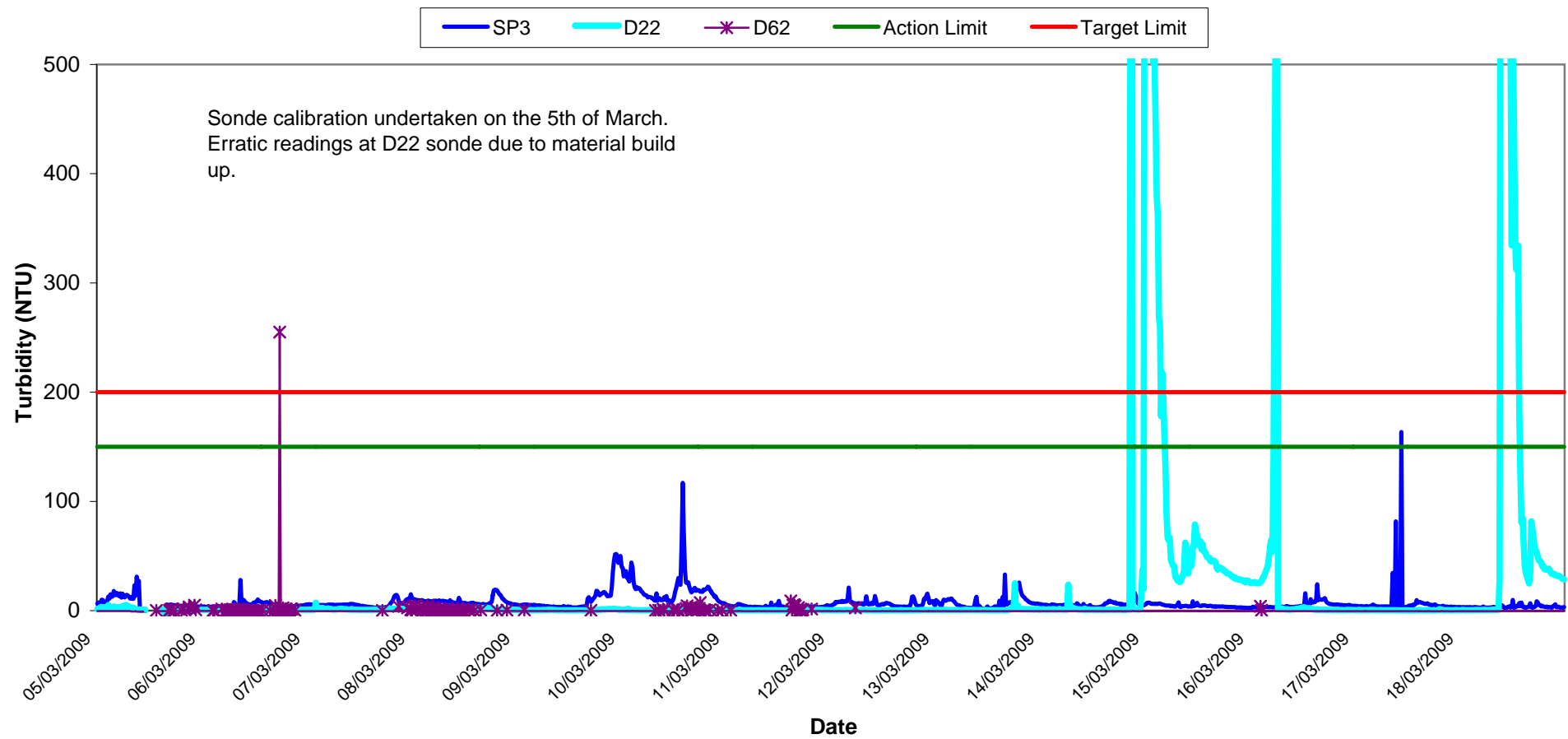
SP1 SP3 D22 D62



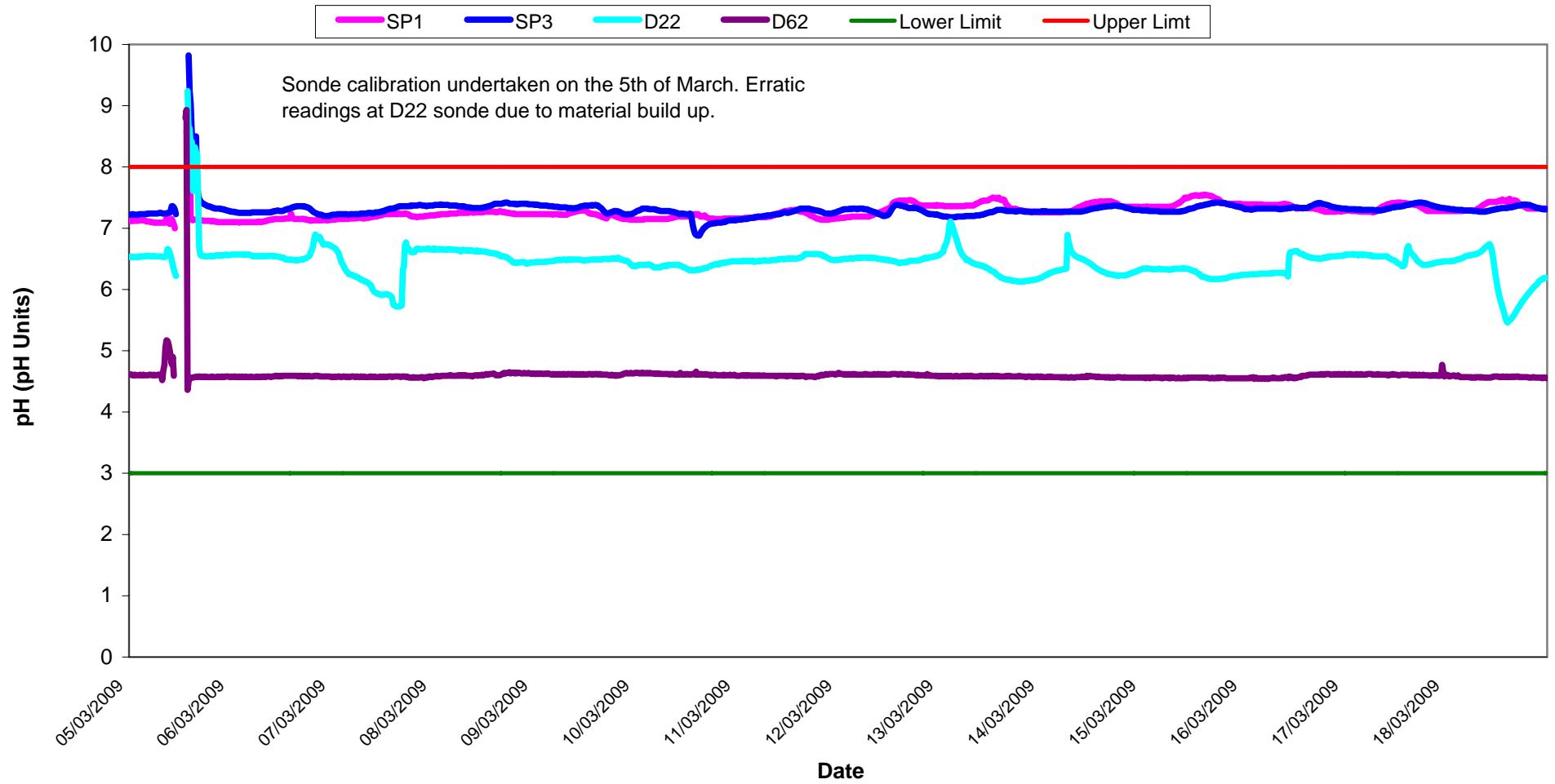
Conductivity - Surface Waters, Wk 10-11



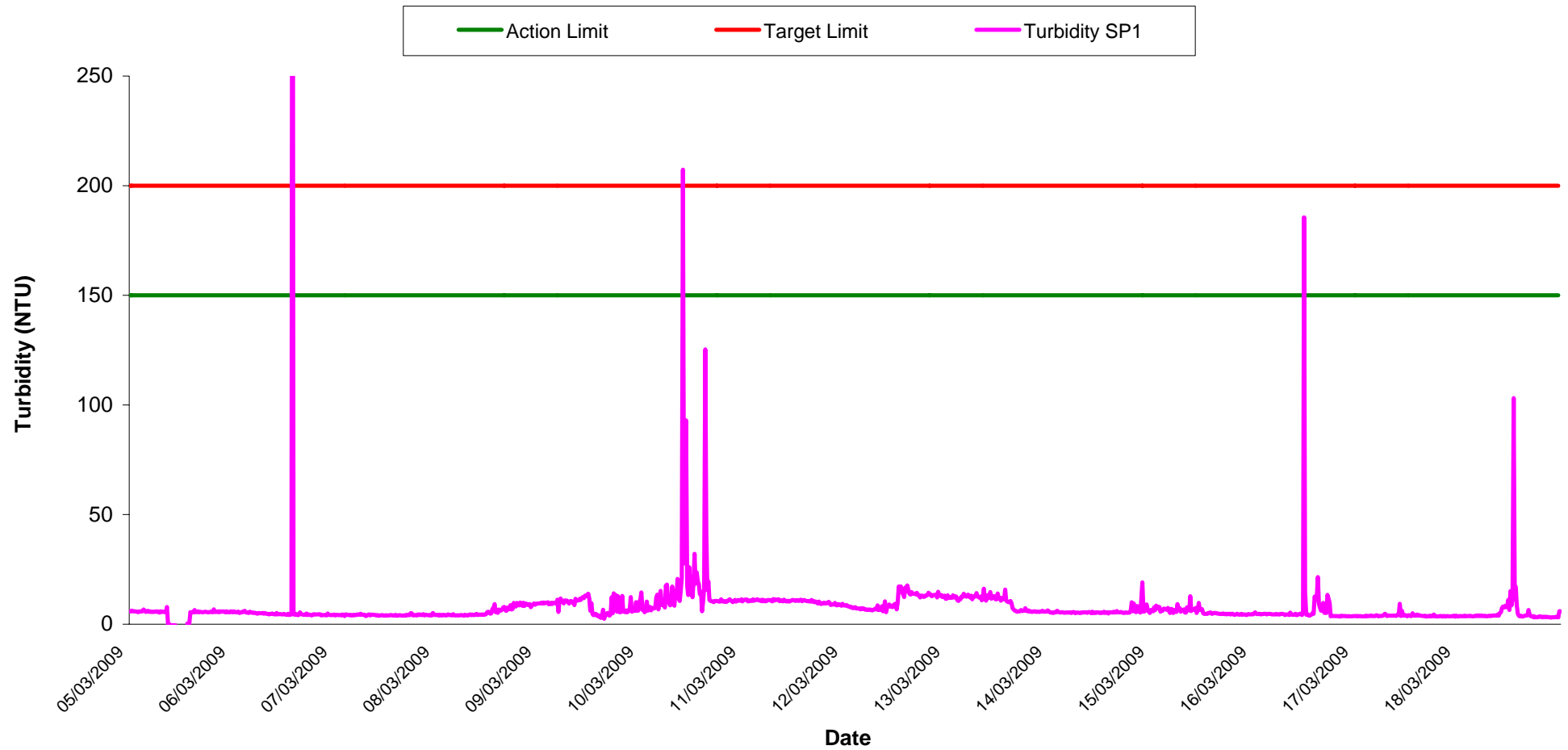
Turbidity - Surface Waters Wk 10-11



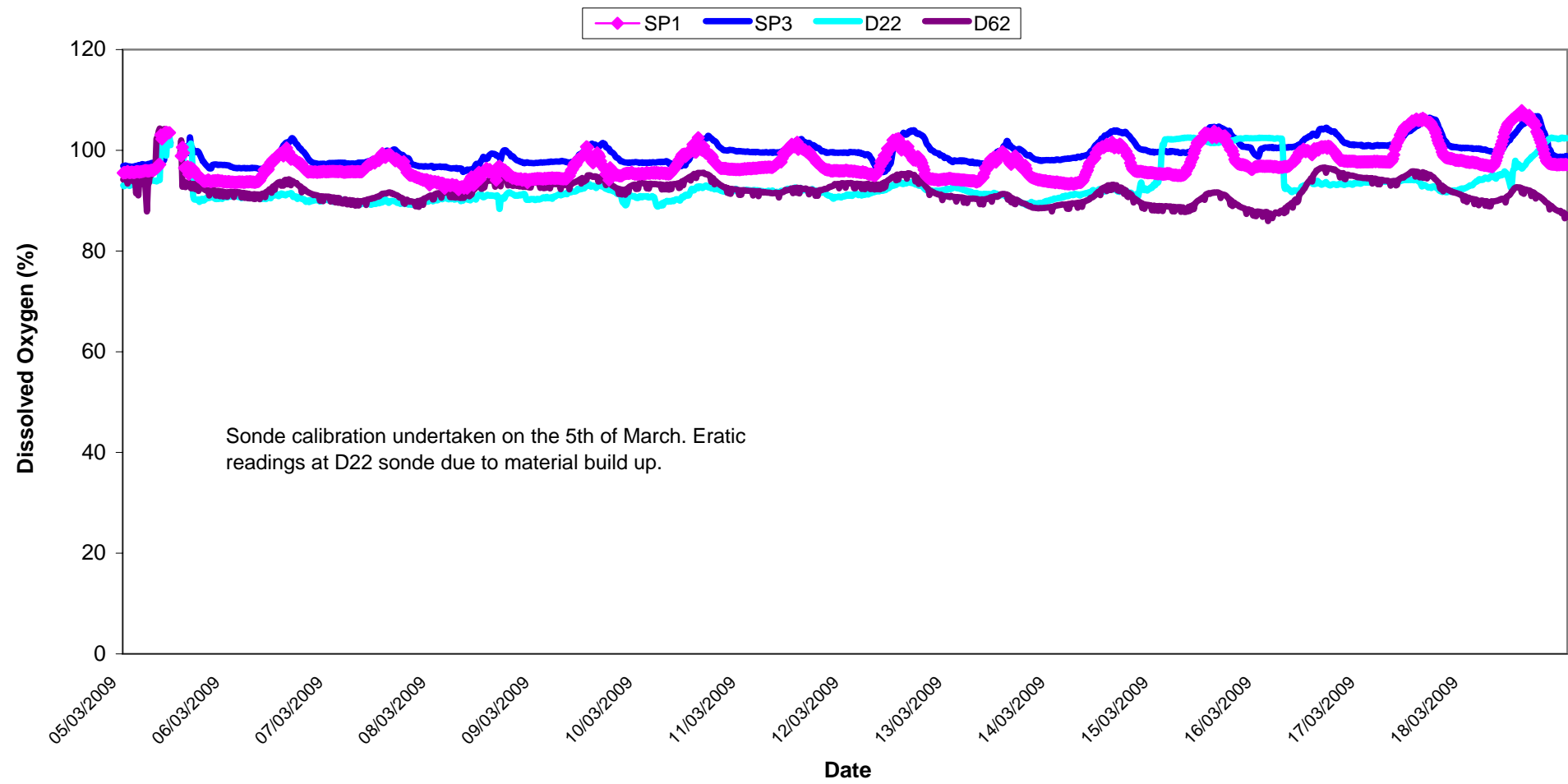
pH - Surface Waters Wk 10-11



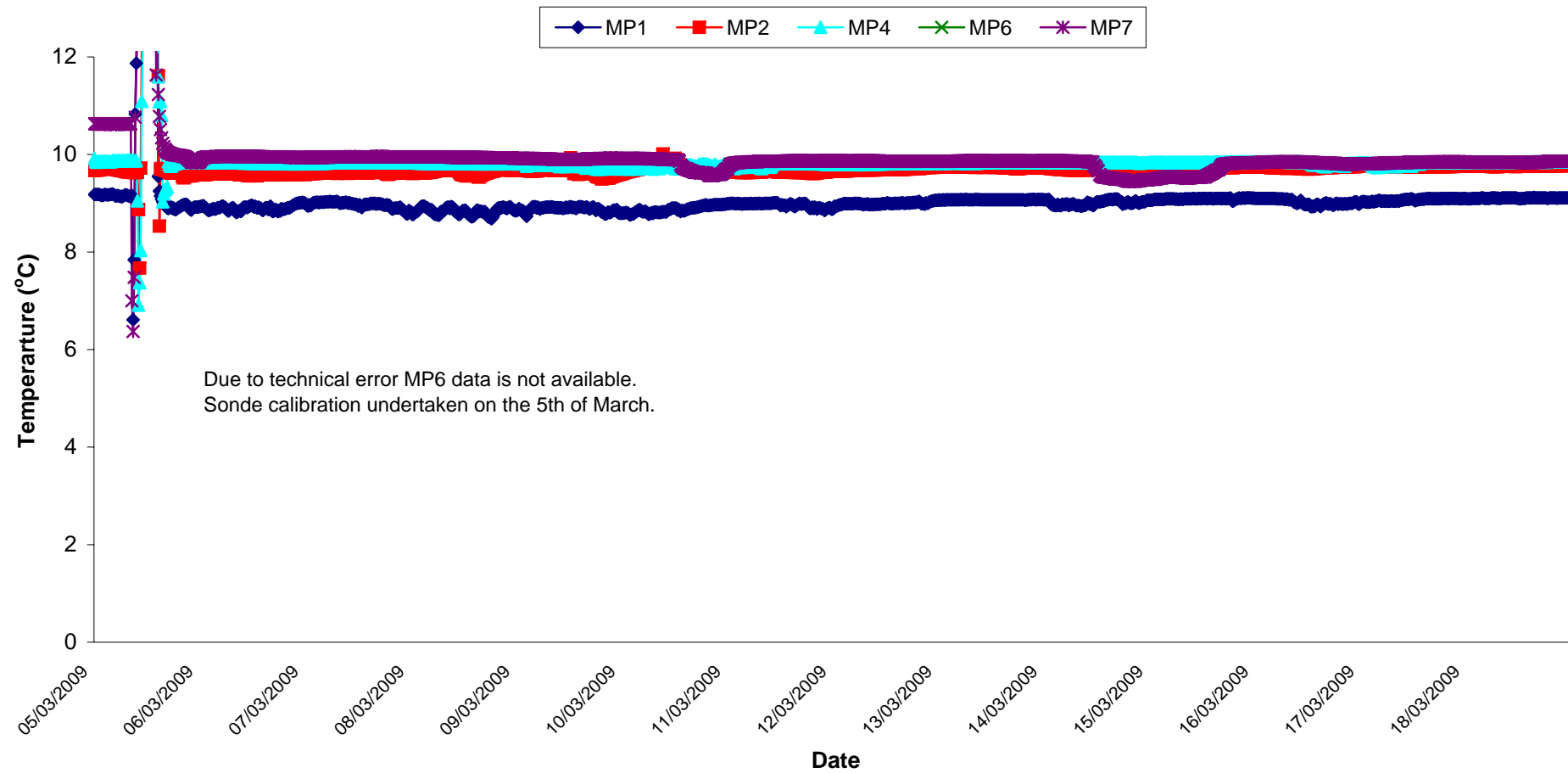
Turbidity - Surface Waters @ SP1, Wk 10-11



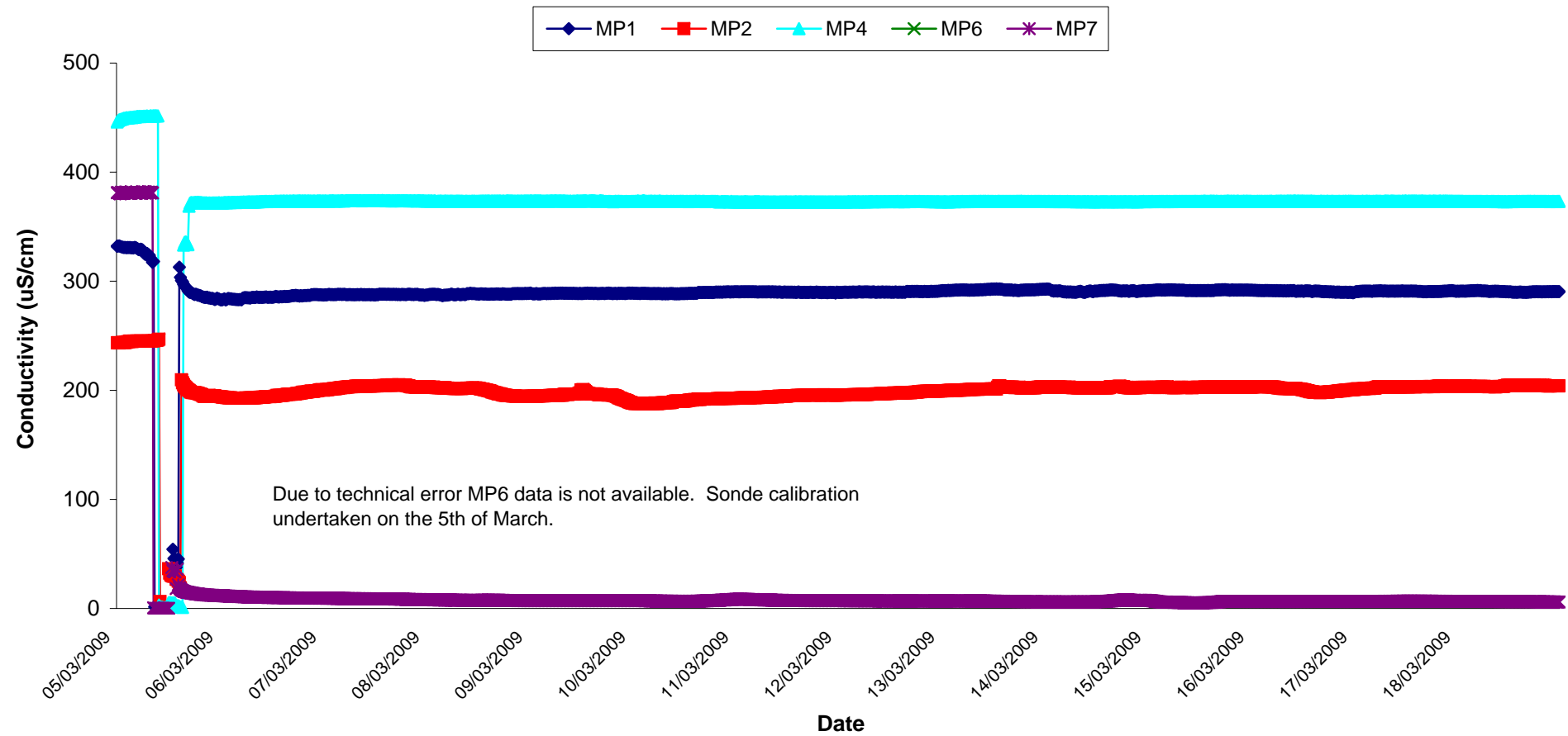
Dissolved Oxygen - Surface Waters, Wk 10-11



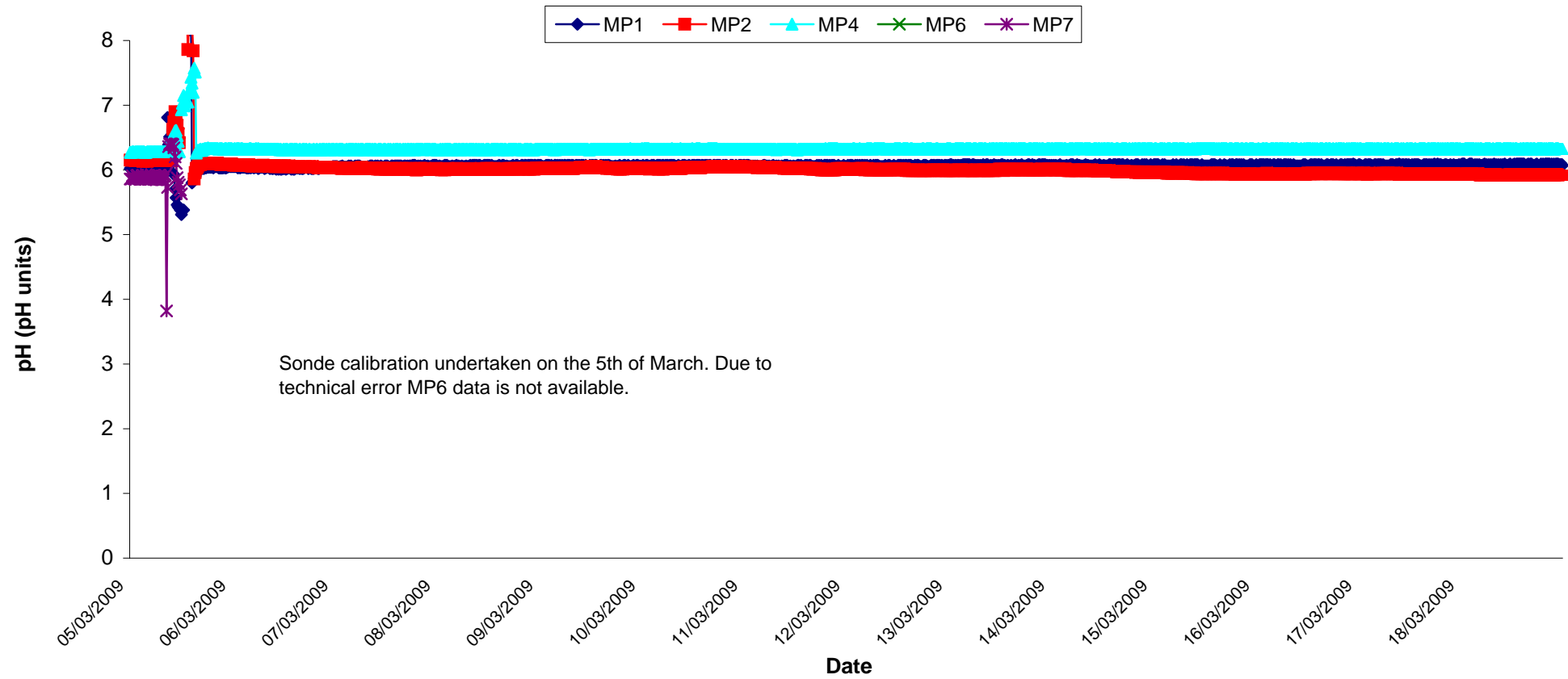
Temperature - Groundwaters Wk 10-11



Conductivity - Groundwaters Wk 10-11



pH - Groundwaters Wk 10-11



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	05/03/2009	272	7.0	15.1	94.6	6.4			<LOD			0.11		21	117	0.05	206
SP1	06/03/2009	262	8.6	18.5	96.7	6.9			<LOD			0.02		20	152	0.05	192
SP1	09/03/2009	282	7.0	15.4	96.3	7.3			<LOD			<LOD		31	134	0.02	216
SP1	10/03/2009	263	7.7	20.5	93.9	7.2			<LOD			0.20		39	170	0.28	177
SP1	11/03/2009	258	8.4	20.6	92.1	6.6			0.7			0.09		39	266	<LOD	177
SP1	12/03/2009	256	8.1	25.5	95.3	7.2			<LOD			0.03		32	166	<LOD	181
SP1	13/03/2009	266	8.7	15.7	90.7	7.2			0.1			<LOD		28	290	0.02	180
SP1	18/03/2009	310	9.9	7.7	92.9	6.3			0.3			0.21		60	172	0.57	223
SP3	05/03/2009	371	8.6	10.2	98.7	6.5			0.9			0.15		20		<LOD	281
SP3	06/03/2009	395	6.8	10.9	94.2	6.8			0.7			0.02		26		0.04	293
SP3	09/03/2009	373	7.7	8.6	98.5	7.0			0.1			0.02		57		0.04	279
SP3	10/03/2009	308	11.9	47.6	94.4	7.1			<LOD			0.07		30		0.02	210
SP3	11/03/2009	347	10.6	6.9	94.7	6.6			0.3			0.02		38		<LOD	236
SP3	12/03/2009	340	9.2	8.9	96.6	7.2			1.4			0.20		21		<LOD	232
SP3	13/03/2009	355	9.6	5.4	93.6	7.2			0.8			<LOD		28		0.05	242
SP3	18/03/2009	357	10.0	6.6	93.6	6.4			0.4			<LOD		56		0.01	254
Additional Monitoring																	
D22	05/03/2009	263	4.7	5.2	93.0	6.2			0.4			0.01		22		0.08	199
D62	05/03/2009	205	4.1	2.2	94.2	5.3			0.4			0.03		<LOD		0.05	157
D22	10/03/2009	230	6.4	10.1	84.4	6.6			<LOD			0.09		33		>LOD	143
D62	10/03/2009	208	6.0	4.3	91.6	5.2			0.9			0.11		<LOD		0.05	116
Axonics Monitoring																	
Pre	05/03/2009	391		>1000.0		6.4			<LOD			1.65		>LOD		0.29	294
Post	05/03/2009	406		7.6		6.5			0.2			0.35		<LOD	189	<LOD	301
Pre	06/03/2009	390		323.0		6.7			<LOD			0.17		227		0.10	287
Post	06/03/2009	415		8.8		6.6			1.8			0.01		<LOD	262	0.03	307
Pre	09/03/2009	397		207.0		6.9			<LOD			0.55		>LOD		0.04	295
Post	09/03/2009	412		5.4		6.5			0.3			<LOD		<LOD	365	0.03	306
Pre	10/03/2009	346		128.0		6.7			<LOD			0.10		232		0.02	235
Post	10/03/2009	378		9.4		6.6			0.4			0.04		35	575	0.02	248
Pre	11/03/2009	346		238.0		6.7			4.4			0.23		>LOD		0.01	239
Post	11/03/2009	367		7.8		6.4			0.6			<LOD		19	363	0.03	250
Pre	12/03/2009	369		814.0		7.1			<LOD			1.10		>LOD		0.01	245
Post	12/03/2009	366		4.7		6.4			0.4			<LOD		<LOD	350	<LOD	247
Pre	13/03/2009	352		151.0		7.0			<LOD			>LOD		<LOD		0.06	240
Post	13/03/2009	372		5.1		6.7			0.5			<LOD		410	170	0.03	251
Pre	18/03/2009	354		84.7		6.5			<LOD			1.64		442		0.01	252
Post	18/03/2009	368		5.7		6.3			0.7			0.06		29	>LOD	0.03	263
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																