

<b>Final Environmental Report</b>	Period Ending: 18 <sup>th</sup> February 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 <sub>4</sub>	– The PO <sub>4</sub> analyser was operational during the reporting period. – The composite sampler was in place to cover any shortfalls in the PO <sub>4</sub> 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 has been sent back to the manufacturer for repair.
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

05/02/2009	1.560	12/02/2009	0.585
06/02/2009	2.730	13/02/2009	0.000
07/02/2009	1.170	14/02/2009	2.925
08/02/2009	6.240	15/02/2009	0.390
09/02/2009	4.485	16/02/2009	0.000
10/02/2009	7.800	17/02/2009	0.000
11/02/2009	0.390	18/02/2009	1.560
Total Rainfall 29.835mm			

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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 29.835mm of rainfall during the reporting period, with a temperature range of -1.3°C to 11.2°C.
Noise	All noise levels were within the set limits. Where values were affected by high wind speeds or rainfall 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 exceedances during the reporting period.

### Surface Water Monitoring Record Sheet: Accredited Laboratory Results

[illegible]

## 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 <sup>2</sup> /day)	Comments
<b>Target (Consent) Limit: 350 mg m<sup>2</sup> d<sup>-1</sup> on as a 30 day average</b>							
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	22/01/2009	28/01/2009	295	
D2	22/12/2009	22/01/2009	197096	22/01/2009	28/01/2009	324	
D3	22/12/2009	22/01/2009	197097	22/01/2009	28/01/2009	261	
D4	22/12/2009	22/01/2009	197098	22/01/2009	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	20/02/2009	23/02/2009	117	
D3	22/01/2009	20/02/2009	199885	20/02/2009	23/02/2009	109	
D4	22/01/2009	20/02/2009	199886	20/02/2009	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)

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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 <sub>Aeq</sub>	L <sub>Amax</sub>	L <sub>Amin</sub>	
Action Limit									60			
Target Limit									65			
N1	1.5	6.5	05/02/2009	08:00:00	14:00:00	2539533	4.4	186.7	52.7	80.3	34.4	
N1	-0.8	6.6	06/02/2009	08:00:00	14:00:00	2539533	2.9	170.7	46.9	68.7	33.3	
N1	-1.3	8.3	07/02/2009	08:00:00	14:00:00	2539533	2.3	170.2	47.0	81.3	35.3	
N1	0.2	8.9	08/02/2009	08:00:00	14:00:00	2539533	3.3	181.3	45.8	73.3	33.6	
N1	-0.8	9.6	09/02/2009	08:00:00	14:00:00	2539533	1.1	133.8	50.9	92.3	34.9	
N1	0.5	8.4	10/02/2009	08:00:00	14:00:00	2539533	1.7	145.6	48.4	68.1	37.2	
N1	1.6	8.5	11/02/2009	08:00:00	14:00:00	2539533	1.3	158.3	48.5	70.9	35.6	
N1	5.2	11.1	12/02/2009	08:00:00	14:00:00	2539533	2.8	58.2	47.7	72.4	<LOD	
N1	5.4	11.2	13/02/2009	08:00:00	14:00:00	2539533	2.1	72.2	48.6	79.5	32.0	
N1	5.2	10.2	14/02/2009	08:00:00	14:00:00	2539533	3.1	64.5	48.8	69.1	<LOD	
N1	6.8	10.6	15/02/2009	08:00:00	14:00:00	2539533	3.8	27.3	48.5	81.2	33.2	
N1	7.7	11.0	16/02/2009	08:00:00	14:00:00	2539533	3.8	35.3	49.4	74.8	33.5	
N1	5.2	10.3	17/02/2009	08:00:00	14:00:00	2539533	2.2	80.9	49.1	81.8	<LOD	
N1	7.5	9.9	18/02/2009	08:00:00	14:00:00	2539533	3.4	94.2	49.7	71.9	<LOD	
* Wind speeds in excess of 5 m/s negatively impact noise readings (as per EPA Guidance Note on Noise Measurement).												

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

Note: Site weather data not available from the 27/11/2008 to 01/12/2008. Belmullet data used where available.

# 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 <sub>Aeq</sub>	L <sub>Amax</sub>	L <sub>Amin</sub>	
Action Limit									50			
Target Limit									55			
N1	1.5	6.5	05/02/2009	22:00:00	10:00:00	2539533	4.4	186.7	41.5	66.6	32.9	
N1	-0.8	6.6	06/02/2009	22:00:00	10:00:00	2539533	2.9	170.7	45.0	75.9	34.7	
N1	-1.3	8.3	07/02/2009	22:00:00	10:00:00	2539533	2.3	170.2	44.9	67.6	34.0	
N1	0.2	8.9	08/02/2009	22:00:00	10:00:00	2539533	3.3	181.3	41.9	69.1	34.7	
N1	-0.8	9.6	09/02/2009	22:00:00	10:00:00	2539533	1.1	133.8	43.8	71.5	36.7	
N1	0.5	8.4	10/02/2009	22:00:00	10:00:00	2539533	1.7	145.6	44.4	69.4	38.8	
N1	1.6	8.5	11/02/2009	22:00:00	10:00:00	2539533	1.3	158.3	43.8	67.3	34.7	
N1	5.2	11.1	12/02/2009	22:00:00	10:00:00	2539533	2.8	58.2	42.9	68.2	33.0	
N1	5.4	11.2	13/02/2009	22:00:00	10:00:00	2539533	2.1	72.2	42.7	71.4	30.2	
N1	5.2	10.2	14/02/2009	22:00:00	10:00:00	2539533	3.1	64.5	42.9	71.6	32.9	
N1	6.8	10.6	15/02/2009	22:00:00	10:00:00	2539533	3.8	27.3	44.6	68.9	30.0	
N1	7.7	11.0	16/02/2009	22:00:00	10:00:00	2539533	3.8	35.3	43.3	67.3	33.6	
N1	5.2	10.3	17/02/2009	22:00:00	10:00:00	2539533	2.2	80.9	42.9	68.4	<LOD	
N1	7.5	9.9	18/02/2009	22:00:00	10:00:00	2539533	3.4	94.2	42.3	70.0	30.3	

\* 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)
05/02/2009	9.48	4.21	8.16	4.48	2.21	3.72
06/02/2009	8.48	4.32	7.41	4.07	0.28	2.80
07/02/2009	9.31	5.99	8.55	3.87	0.67	3.18
08/02/2009	17.74	8.64	11.59	5.57	0.90	3.25
09/02/2009	12.50	6.95	10.16	5.57	-0.13	2.22
10/02/2009	40.56	12.70	21.90	9.28	0.90	4.46
11/02/2009	25.97	13.12	16.45	6.74	4.48	5.45
12/02/2009	13.33	2.88	9.99	5.57	0.13	3.40
13/02/2009	8.97	4.32	7.77	2.91	0.90	2.30
14/02/2009	8.16	4.43	5.88	2.91	0.56	1.44
15/02/2009	9.83	6.67	8.74	4.69	1.30	3.26
16/02/2009	9.66	6.12	8.29	5.57	1.44	3.76
17/02/2009	10.37	4.88	8.43	6.74	1.44	4.62
18/02/2009	6.53	2.10	5.07	2.21	-0.08	1.45

**Note:** Negative values indicate low flow conditions.



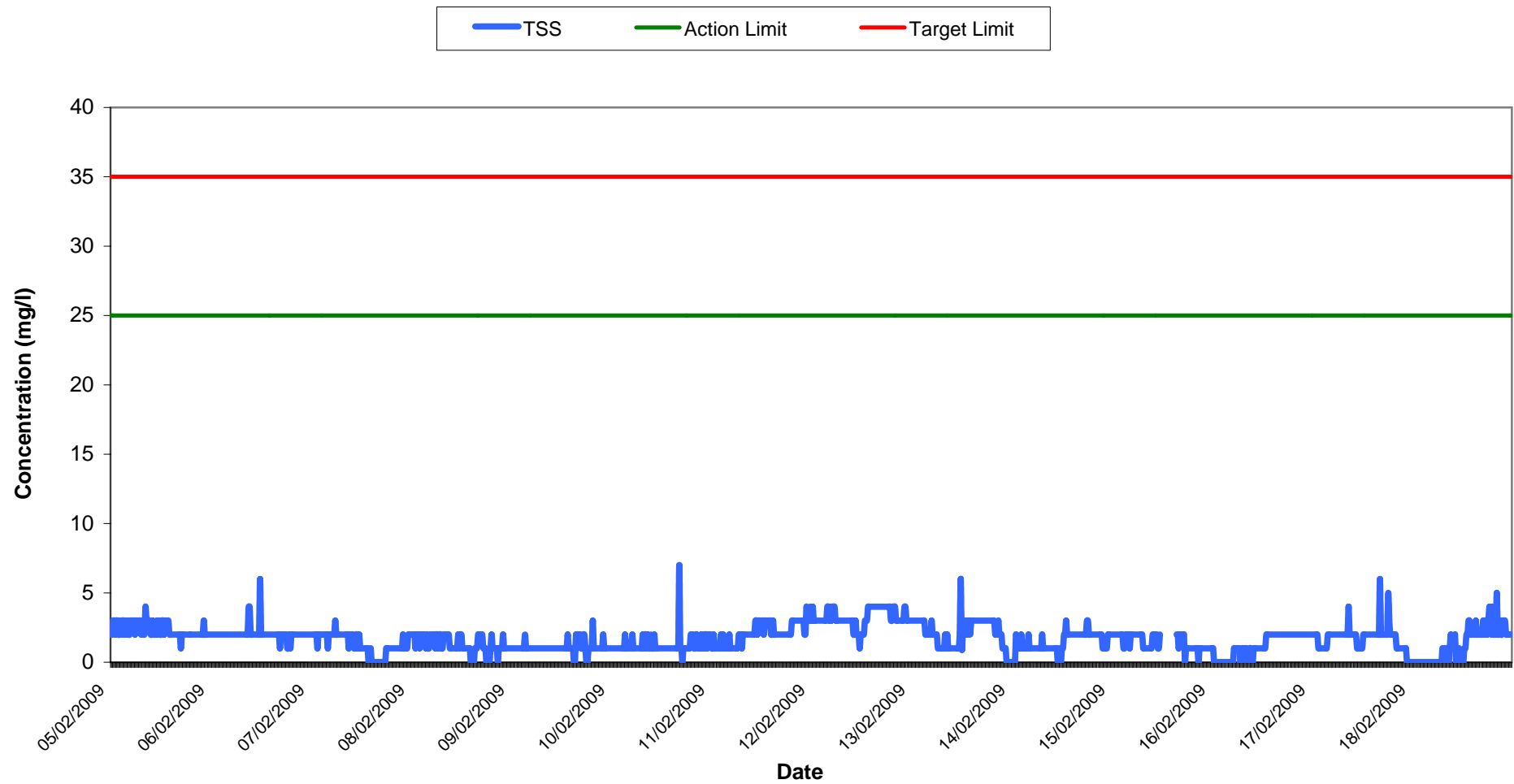
## Vibration Monitoring Record Sheet

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

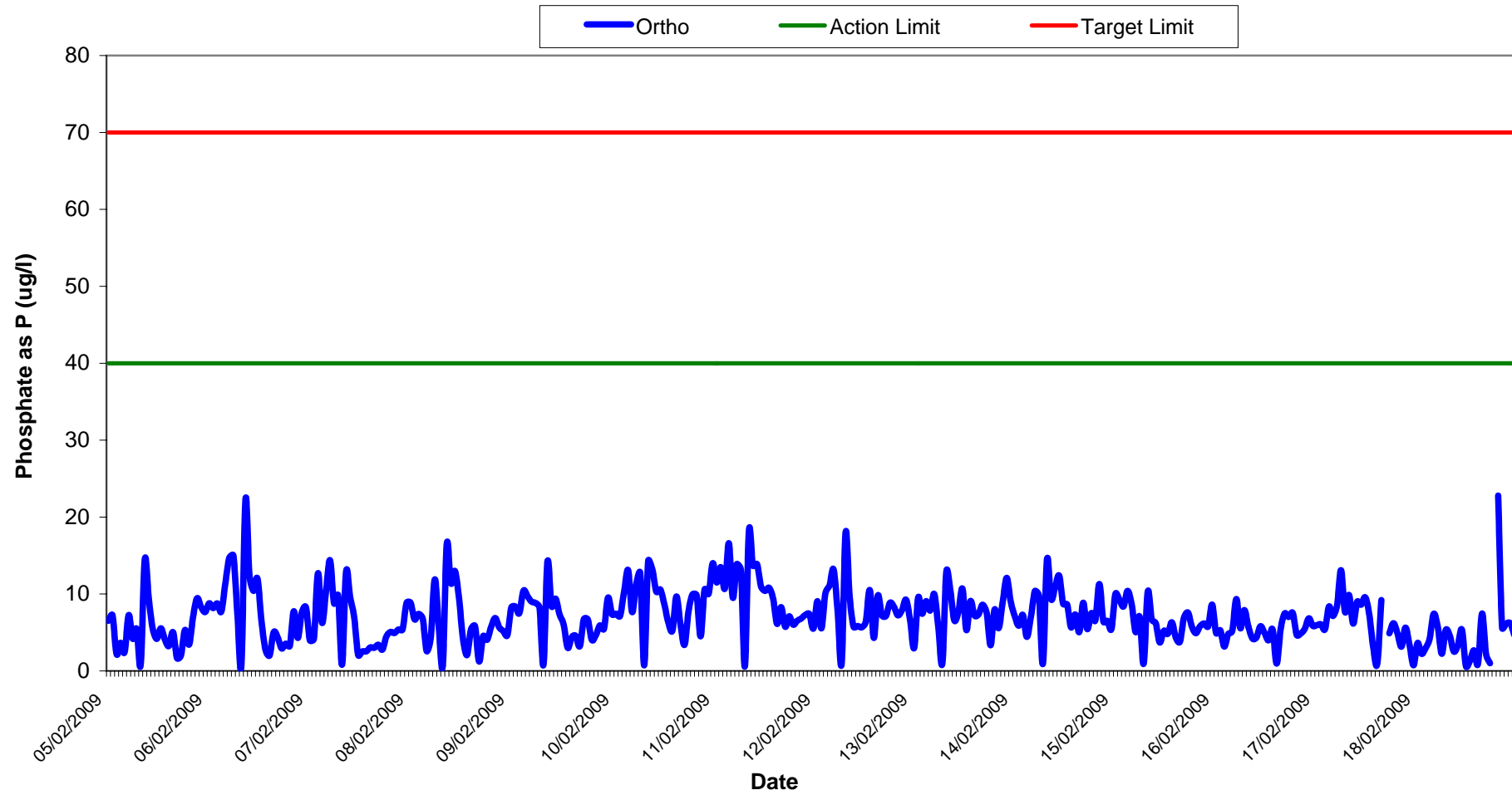
[illegible]

Vibration meter was located at V1 only.

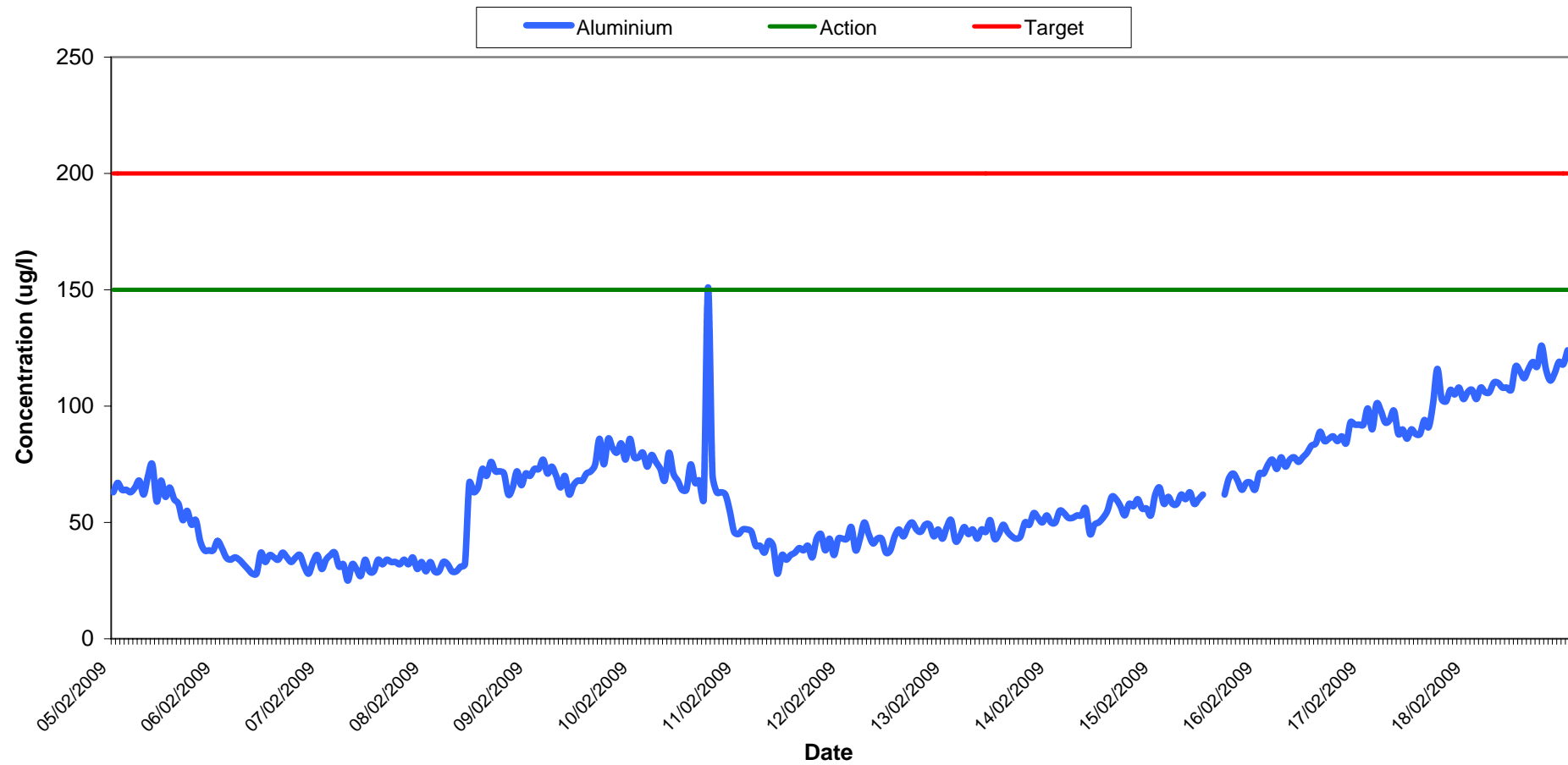
# Total Suspended Solids Results at SP1 Wk 06-07



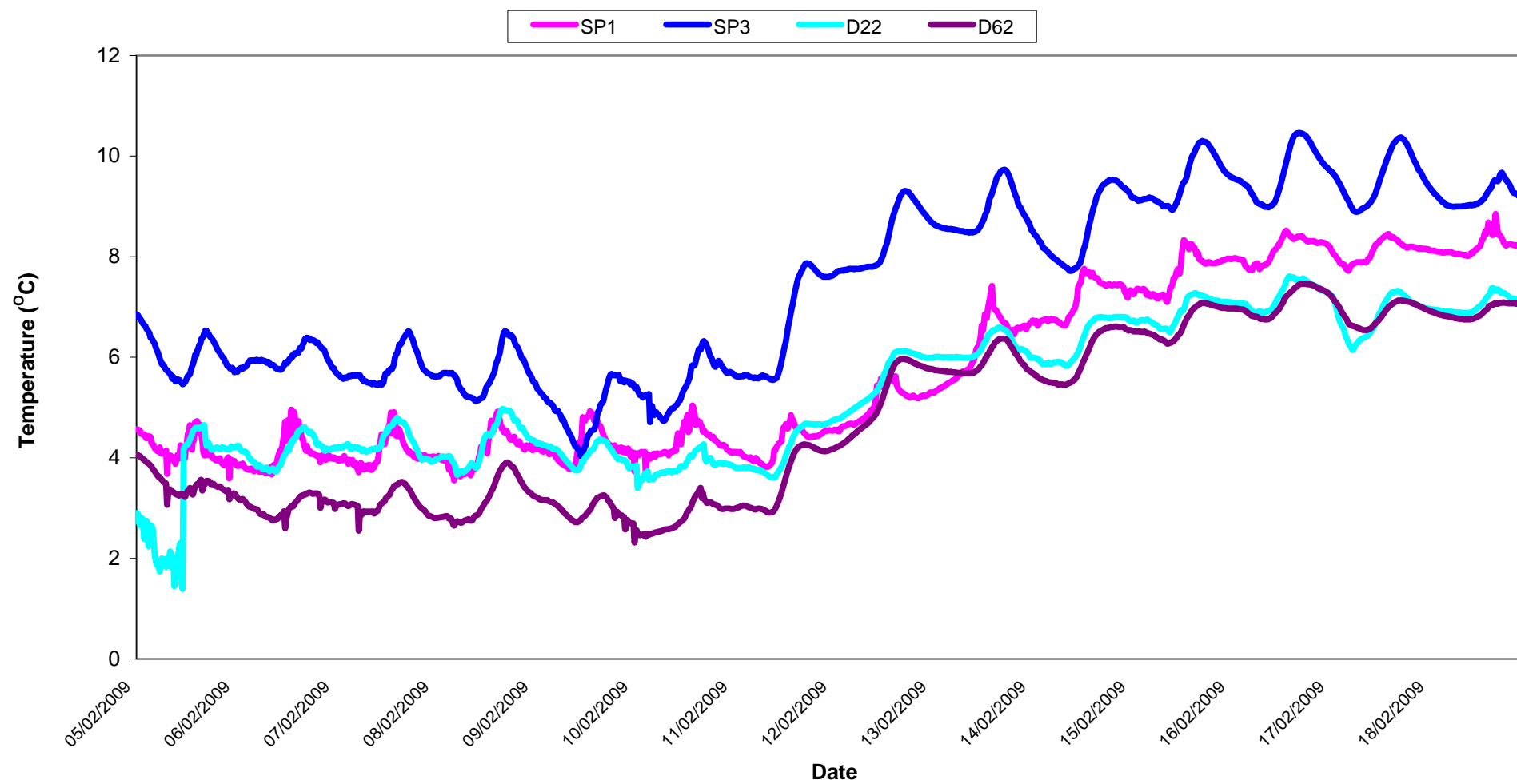
**Orthophosphate Results at SP1**  
**Wk 06-07**



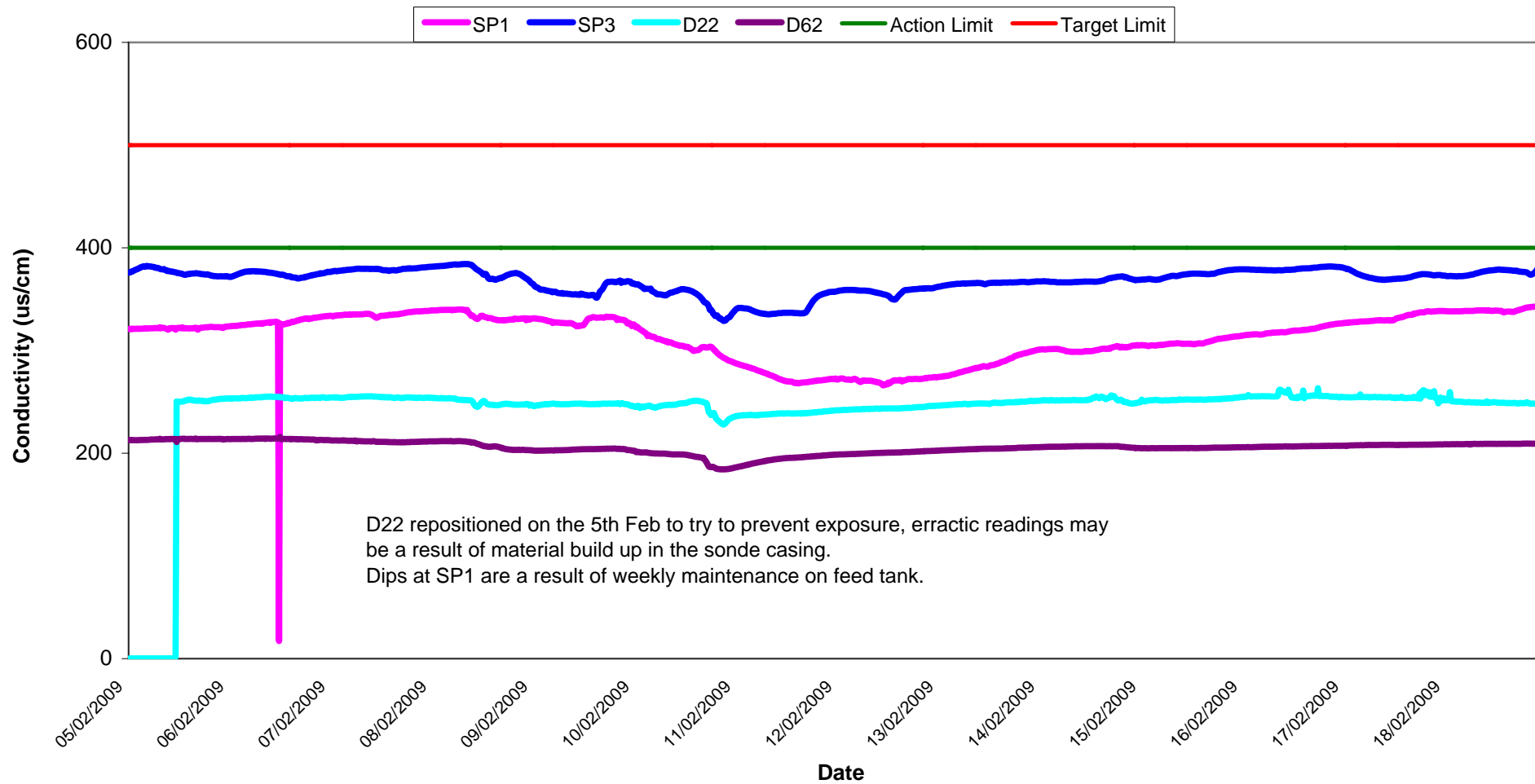
# Aluminium Concentration at SP1 Wk 06-07



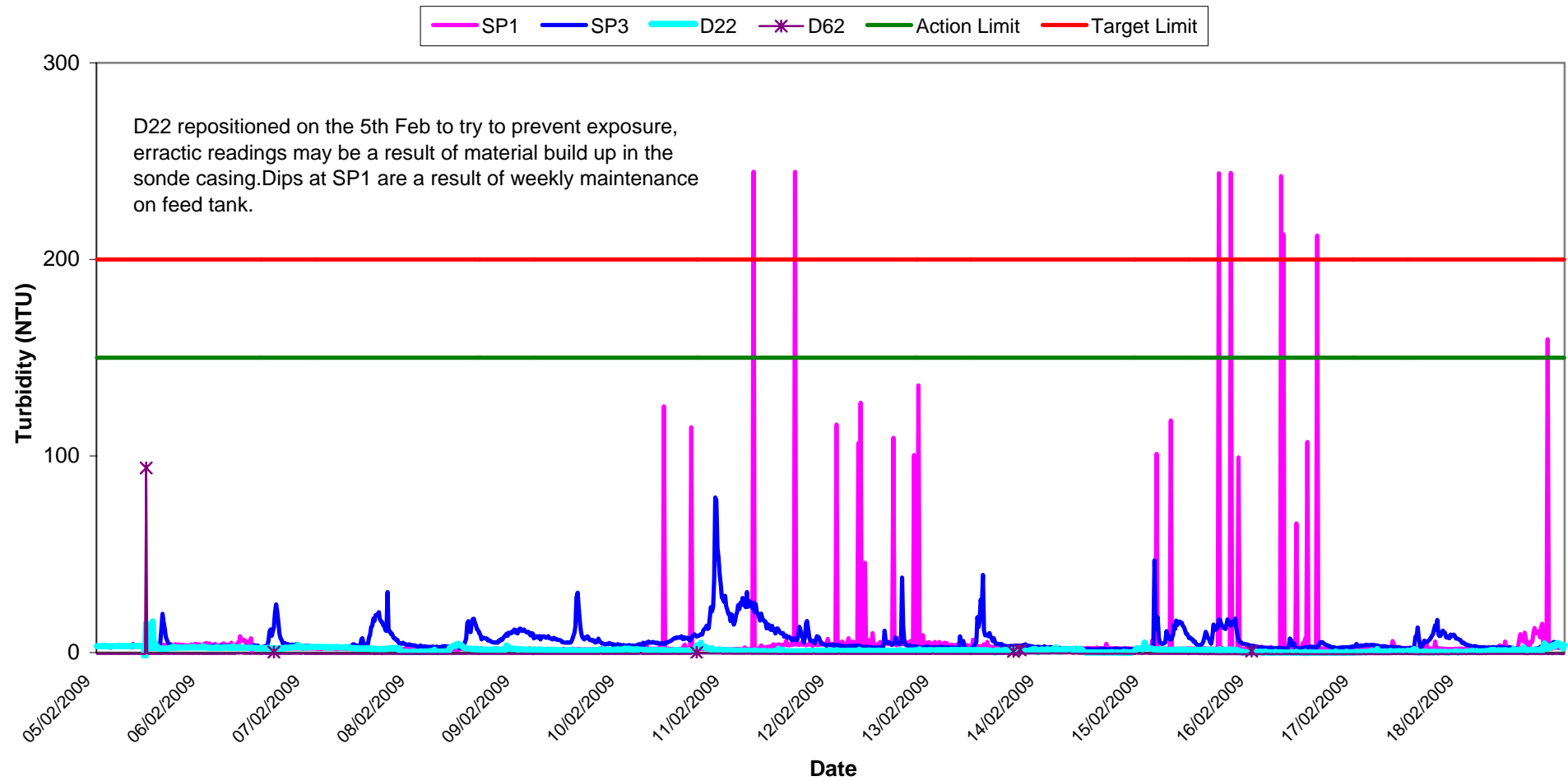
Temperature - Surface Waters  
Wk 06-07



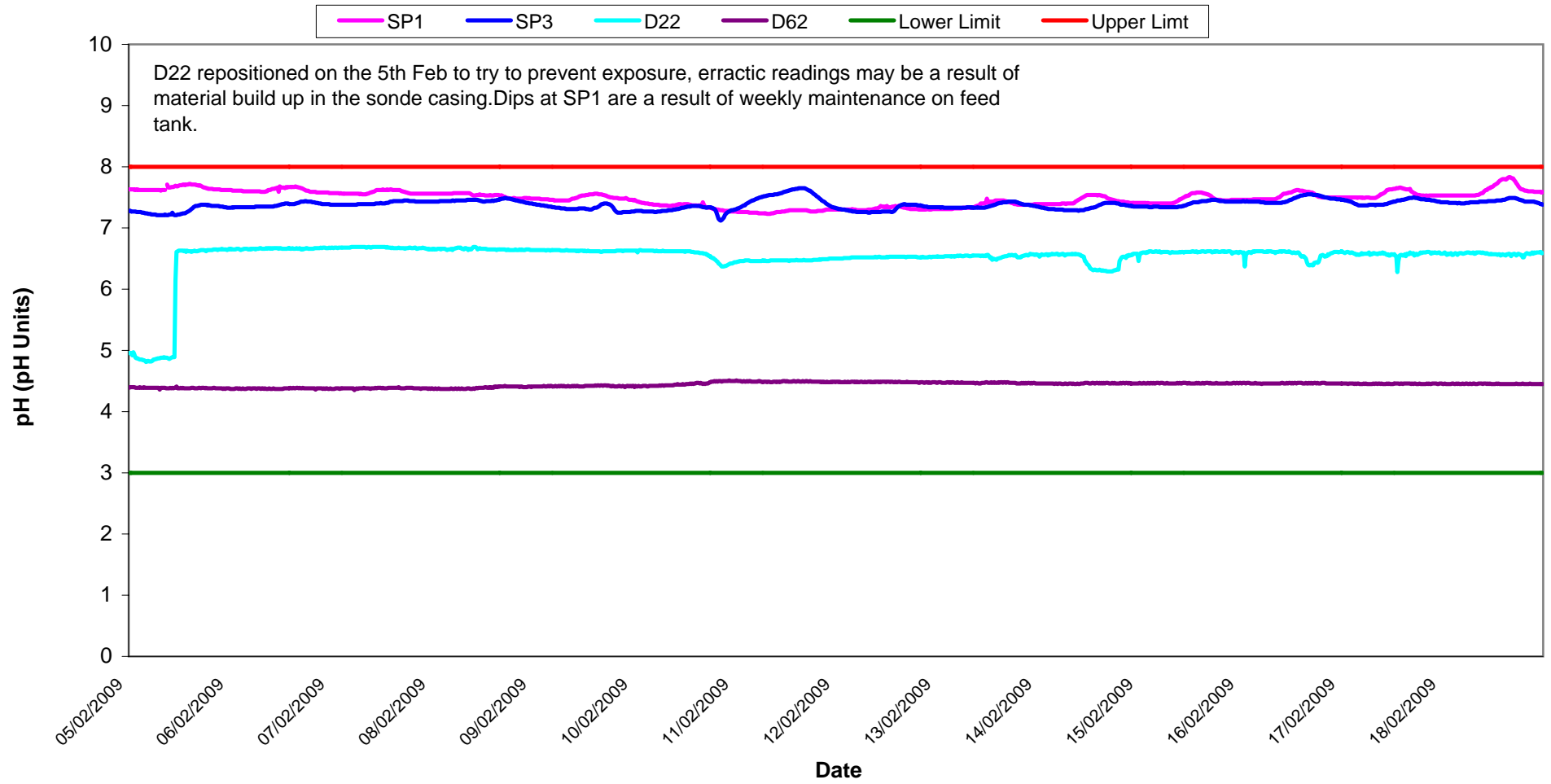
# Conductivity - Surface Waters, Wk 06-07



## Turbidity - Surface Waters Wk 06-07



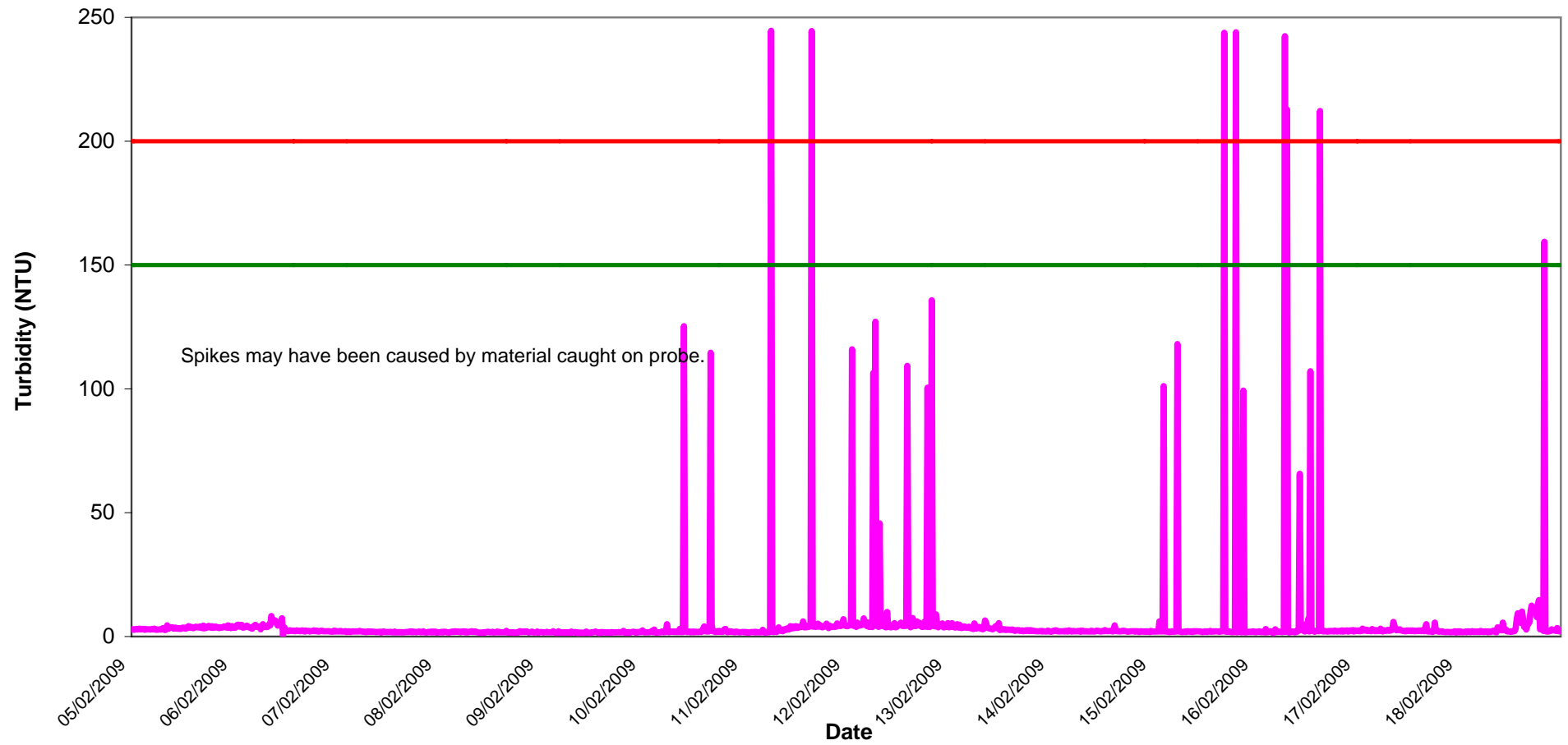
# pH - Surface Waters Wk 06-07



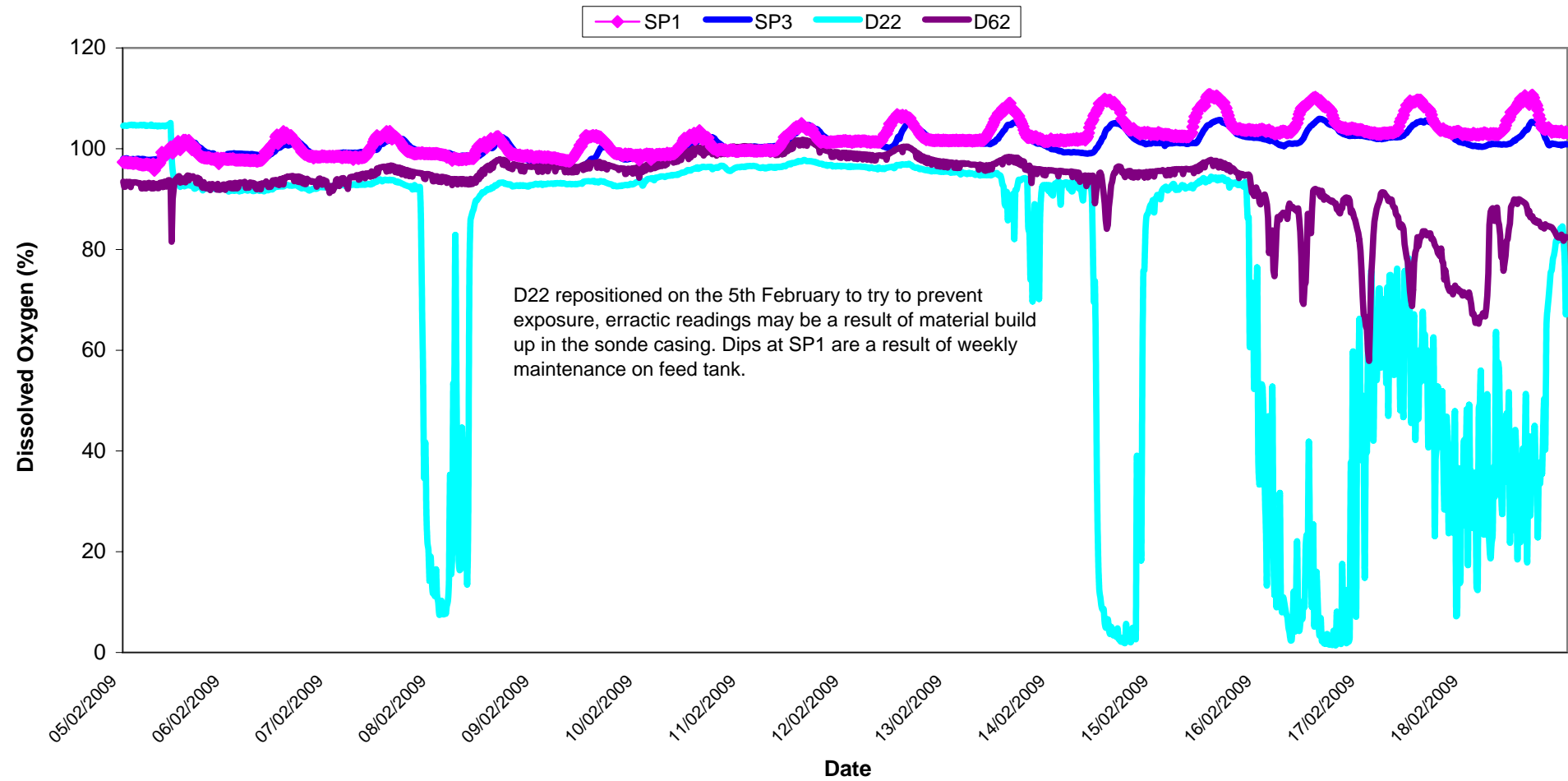


# Turbidity - Surface Waters @ SP1, Wk 06-07

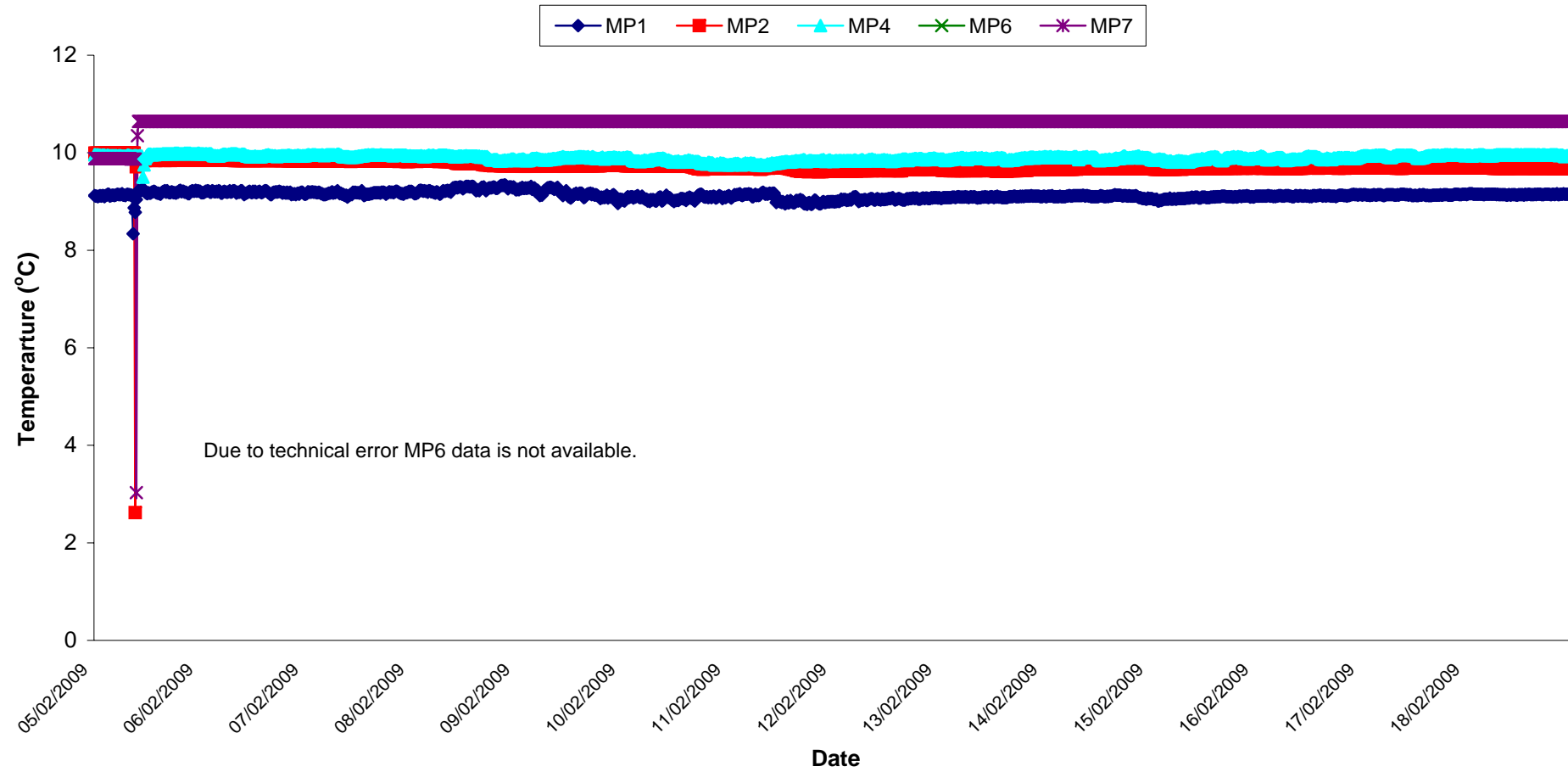
SP1    Action Limit    Target Limit



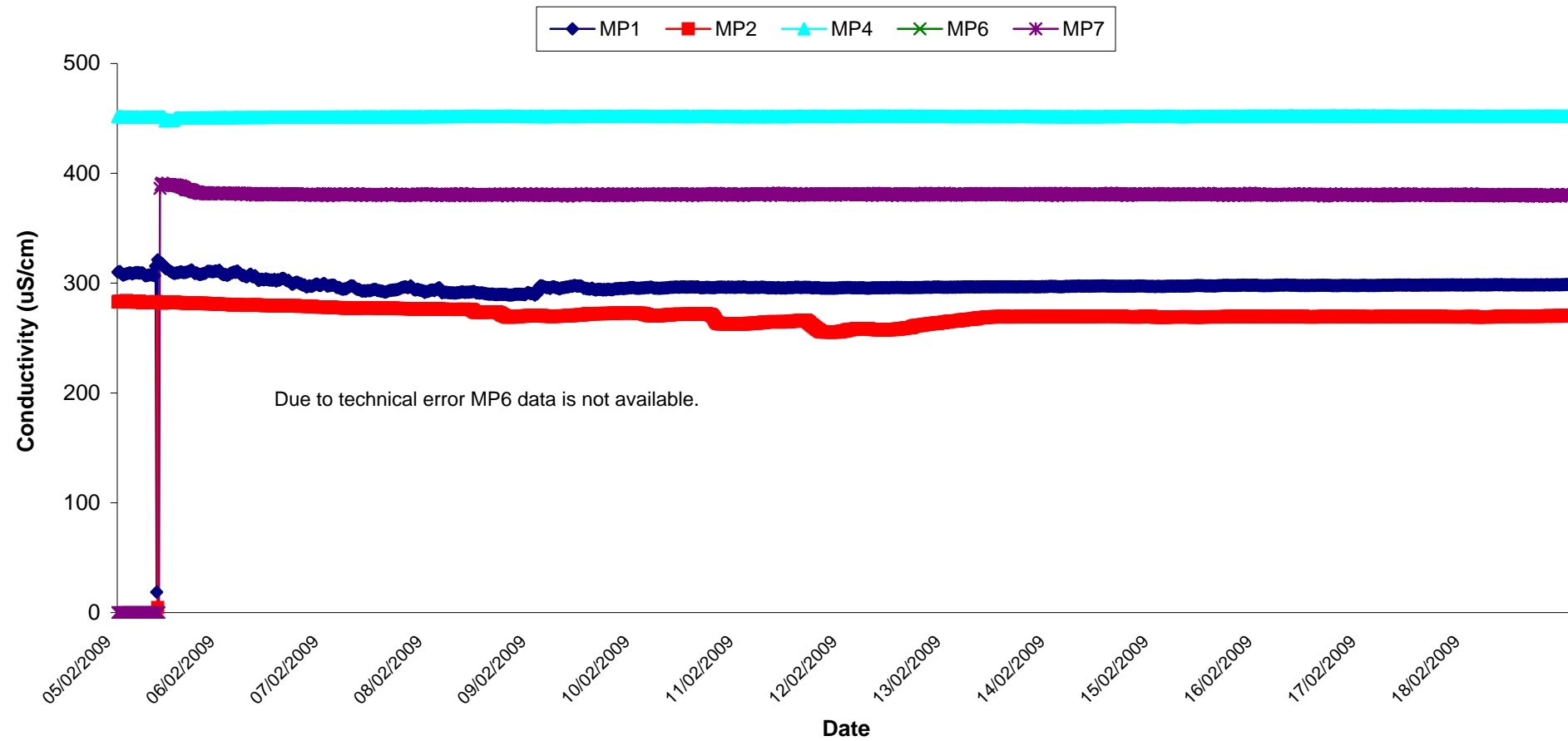
# Dissolved Oxygen - Surface Waters, Wk 06-07



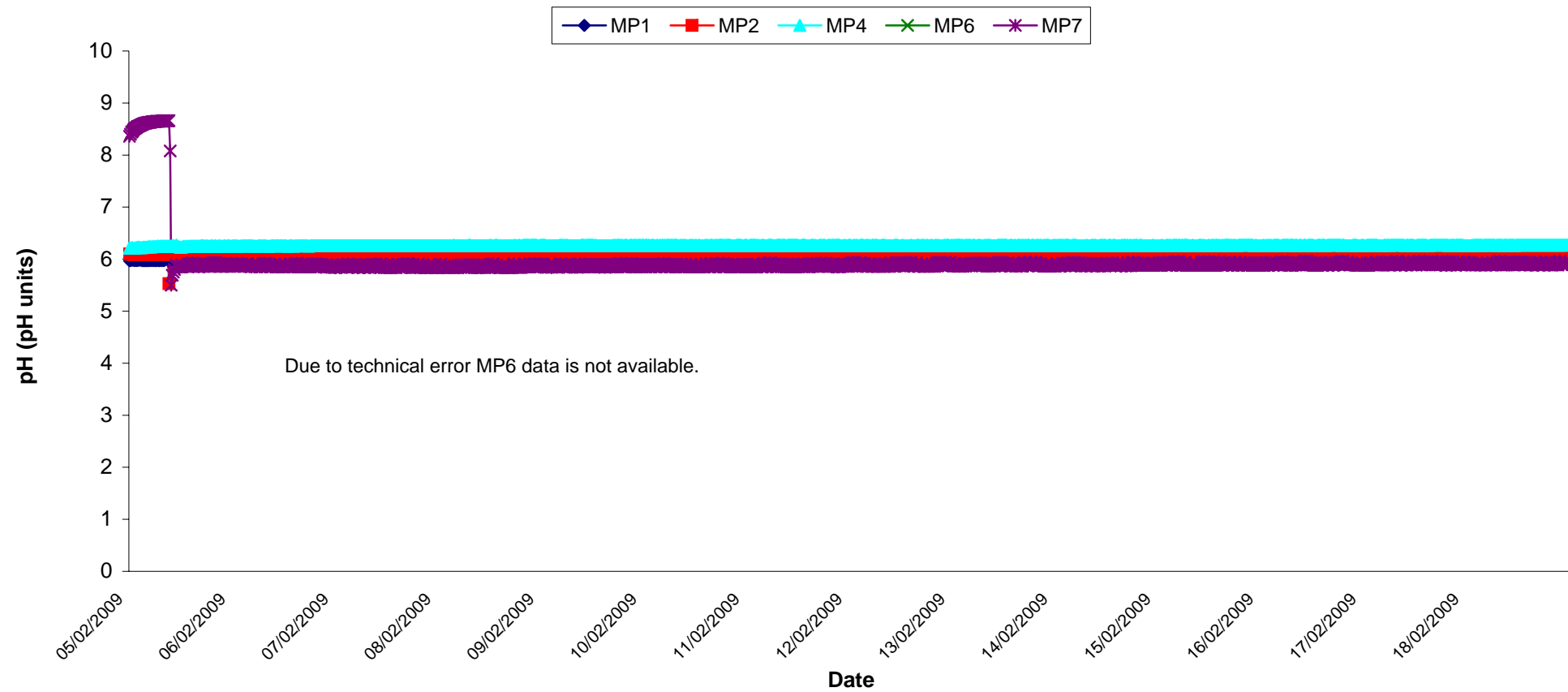
# Temperature - Groundwaters Wk 06-07



# Conductivity - Groundwaters Wk 06-07



pH - Groundwaters  
Wk 06-07



# **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 <sup>-1</sup>	Ortho-phosphate as P µg l <sup>-1</sup>	Nitrate as N mg l <sup>-1</sup>	Nitrate as NO <sub>3</sub> mg l <sup>-1</sup>	Total Phosphorus as P mg l <sup>-1</sup>	Ammonia as NH <sub>3</sub> -N mg l <sup>-1</sup>	Nitrite as NO <sub>2</sub> mg/l	Aluminium (dissolved) ug/l	Aluminium (total) ug/l	Phosphate as PO <sub>4</sub> mg/l	Total dissolved solids mg/l
Settlement Pond Monitoring																	
SP1	05/02/2009	302	3.8	8.5	90.7	7.4			0.5			0.04		40	198	0.01	217
SP1	06/02/2009	303	5.0	9.8	90.4	7.5			0.3			0.02		44	308	0.04	210
SP1	09/02/2009	325	5.1	11.2	91.3	6.6			0.7			0.04		<LOD	145	0.65	223
SP1	10/02/2009	299	5.4	8.7	97.7	6.9			0.7			0.13		33	181	0.07	210
SP1	11/02/2009	280	5.3	28.0	98.2	6.9			0.1			<LOD		<LOD	132	<LOD	187
SP1	12/02/2009	271	6.7	10.4	97.3	7.2			0.3			0.14		28	182	<LOD	190
SP1	13/02/2009	288	6.7	19.2	97.3	7.1			<LOD			0.02		39	166	<LOD	200
SP1	16/02/2009	320	8.6	8.8	99.4	7.1			<LOD			0.06		28	127	0.10	223
SP1	17/02/2009	344	9.7	5.9	96.0	7.1			0.3			0.35		41	182	0.44	233
SP1	18/02/2009	340	9.2	10.8	92.1	6.7			<LOD			0.01		50	172	0.60	231
SP3	05/02/2009	363	5.5	6.4	91.9	7.1			0.4			0.09		24		0.04	252
SP3	06/02/2009	351	6.0	6.6	92.6	7.4			1.0			0.02		27		0.04	241
SP3	09/02/2009	360	4.6	8.9	90.5	6.8			0.6			0.56		<LOD		0.06	245
SP3	10/02/2009	362	5.9	13.5	99.9	6.6			0.2			0.35		34		0.05	245
SP3	11/02/2009	341	6.4	13.0	100.9	6.8			0.5			0.03		52		0.03	254
SP3	12/02/2009	369	6.7	9.9	100.7	7.1			0.5			0.05		49		0.03	253
SP3	13/02/2009	369	8.5	24.0	99.6	7.5			<LOD			0.04		64		0.01	254
SP3	16/02/2009	378	9.2	7.4	100.6	7.5			0.7			0.18		41		0.02	262
SP3	17/02/2009	382	10.5	8.3	96.2	6.4			0.7			0.41		51		0.05	258
SP3	18/02/2009	381	9.3	4.9	93.4	6.9			0.4			1.02		72		0.02	260
Additional Monitoring																	
D22	05/02/2009	250	4.2	11.8	85.2	6.8			0.2			0.09		55		0.05	173
D62	05/02/2009	206	3.3	2.1	85.4	5.7			0.2			0.04		<LOD		<LOD	135
D22	13/02/2009	258	7.1	10.9	92.8	7.0			<LOD			0.05		44		0.13	181
D62	13/02/2009	209	6.5	7.1	93.0	5.5			<LOD			0.03		<LOD		0.05	128
Axonics Monitoring																	
Pre	05/02/2009	353		976.0		7.0			<LOD			0.79		>LOD		0.02	245
Post	05/02/2009	378		11.2		6.5			0.3			0.18		<LOD	310	<LOD	258
Pre	06/02/2009	350		453.0		7.0			<LOD			0.15		352		0.08	239
Post	06/02/2009	365		7.1		6.6			0.1			0.01		<LOD	247	0.03	250
Pre	09/02/2009	374		348.0		6.6			<LOD			0.27		314		0.12	255
Post	09/02/2009	399		8.2		6.5			0.5			0.08		<LOD	365	<LOD	271
Pre	10/02/2009	380		>1000		6.5			<LOD			2.03		<LOD		0.63	257
Post	10/02/2009	384		8.8		6.5			0.5			0.16		>LOD	276	0.03	261
Pre	11/02/2009	360		>1000		6.8			<LOD			0.56		>LOD		0.07	245
Post	11/02/2009	368		5.8		6.8			0.2			0.08		40	478	0.03	250
Pre	12/02/2009	365		111.0		6.9			<LOD			0.15		272		0.02	249
Post	12/02/2009	379		9.3		6.9			0.5			0.10		65	>LOD	0.01	257
Pre	13/02/2009	368		209.0		7.3			<LOD			0.24		304		0.42	251
Post	13/02/2009	386		19.7		7.1			0.5			0.03		23	536	0.05	264
Pre	16/02/2009	379		24.7		7.3			0.4			0.45		120		<LOD	263
Post	16/02/2009	401		4.8		6.6			1.1			0.27		27	775	0.04	275
Pre	17/02/2009	372		56.2		6.3			<LOD			0.20		44		0.01	250
Post	17/02/2009	391		8.2		6.3			1.4			0.04		<LOD	528	0.03	263
Pre	18/02/2009	400		955.0		6.9			<LOD			0.96		>LOD		0.04	272
Post	18/02/2009	410		3.5		6.8			1.3			<LOD		<LOD	223	<LOD	279
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																	