

Final Environmental Report	Period Ending: 20 th January 2010
Compiled By: Aoife Reynolds & Catriona King	
Approved By: Tony Doyle	

1 Monitoring Data

1.1 Monitoring Equipment

Axonics	– The Axonic's plant was operational during the reporting period.
PO4	– 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.
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.
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

07/01/2010	10.40	14/01/2010	1.00
08/01/2010	0.20	15/01/2010	13.40
09/01/2010	0.40	16/01/2010	5.80
10/01/2010	0.00	17/01/2010	2.00
11/01/2010	2.40	18/01/2010	3.40
12/01/2010	10.00	19/01/2010	6.00
13/01/2010	4.20	20/01/2010	2.40
Total Rainfall 61.6mm			

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1.3 Summary

Environment	Comments
Surface Water	There were no exceedances during the reporting period. Elevated readings for conductivity at SP1 & SP3 were observed. The target limit was not exceeded for the SP1 grab samples. The increase in conductivity is attributed to the use of salt on the site walkways and some of the roads during the period of cold and freezing weather. Underfoot conditions were very poor and salt was used to assist in preventing accidents. The use of salt was limited to certain areas and due caution was taken with its application.
Groundwater	The groundwater data (Sonde) is within anticipated ranges.
Dust	Dust levels within limit.
Weather	There was a total of 61.6mm of rainfall during the reporting period, with a temperature range of -7.9°C to 11.4°C.
Noise	A noise meter mal-functioned during the reporting period. Data is currently no available, technical assistance is currently being sought.
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	4.00		0.20	0.025	100	135		
Target Limits		500		200		<3 or >8	35	70	2.6	6.00		0.50	0.05	150	200		
SP1	07/01/2010	258		1.7		7.2	<2	<10		0.66	0.02	<0.005	<0.017	38	83	<0.03	133
SP3	07/01/2010	363		3.1		7.0	3	<10		0.85	0.02	0.014	<0.017	88	170	<0.03	189
SP1	14/01/2010	420		2.9		6.8	5	11		0.72	0.03	0.005	<0.017	35	149	0.03	214
SP3	14/01/2010	199		4.2		6.8	2	<10		0.99	0.03	0.031	<0.017	47	185	<0.03	199
SP1	20/01/2010	363		2.2		7.0	<2	<10		0.58	0.03	0.036	<0.017	61	135	<0.03	184
SP3	20/01/2010	644		10.6		6.7	12	<10		1.23	0.05	0.024	<0.017	70	586	<0.03	339
Axonics Monitoring																	
Pre Axonics	07/01/2010	Plant Not Operating															
Post Axonics	07/01/2010	Plant Not Operating															
Pre Axonics	14/01/2010	253		21.4		6.4	1207	<10		0.89	0.09	0.056	<0.017	29	101000	<0.03	130
Post Axonics	14/01/2010	264		1.4		6.5	<2	<10		0.81	<0.01	0.066	0.019	<20	305	<0.03	135
Pre Axonics	20/01/2010	767		20.8		6.9	1002	<10		1.21	0.02	0.026	<0.017	72	67300	<0.03	403
Post Axonics	20/01/2010	792		0.7		6.4	<2	<10		1.16	<0.01	0.025	0.018	<20	215	<0.03	420
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	14/01/2010	30.0	8.7	299	6.0	156	4.0	<2	62	<0.017	<0.44	1.25	<0.5	<0.05	10.0	1113	32	2.0	5.0	<0.5	7440	6.0	2.0	91	209
MP 2	14/01/2010	26.0	6.4	225	5.8	119	<1.0	328	66	<0.017	<0.44	0.34	2.0	<0.05	9.0	737	30	1.0	3.0	<0.5	2182	5.0	1.9	311	180
MP 3	14/01/2010	23.0	9.5	389	5.6	201	14.0	22	70	<0.017	<0.44	1.17	2.0	<0.05	12.0	2265	27	5.0	6.0	<0.5	11820	3.0	2.4	<20	2137
MP 4	14/01/2010	18.0	9.5	419	6.0	217	4.0	106	70	<0.017	<0.44	0.31	2.0	<0.05	9.0	1550	27	5.0	5.0	<0.5	80200	2.0	0.3	90	2109
MP 5	14/01/2010	9.0	8.4	330	5.9	168	23.0	31	96	<0.017	<0.44	0.35	0.9	<0.05	11.0	635	48	3.0	5.0	<0.5	27590	2.0	2.3	<20	467
MP 6	14/01/2010	101.0	5.4	448	6.3	233	7.0	9	97	<0.017	<0.44	1.50	10.0	<0.05	12.0	27	20	<0.5	<1.0	<0.5	30060	3.0	0.7	<20	1311
MP 7	14/01/2010	21.0	9.6	330	6.0	170	11.0	20	66	<0.017	<0.44	0.68	<0.5	<0.05	12.0	87	22	0.7	8.0	<0.5	10510	2.0	2.4	<20	651
MP 10a	14/01/2010	10.0	8.2	337	5.6	174	<1.0	66	95	<0.017	<0.44	<0.03	2.0	<0.05	12.0	771	36	2.0	7.0	<0.5	5955	1.0	0.5	<20	4274
MP 11	14/01/2010	24.0	8.7	195	5.4	102	<1.0	4	27	<0.017	<0.44	0.05	0.6	<0.05	9.0	92	26	1.0	8.0	<0.5	452	1.0	0.0	<20	718

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

Dust Monitoring Record Sheet							
Determinant Results							
	Date Positioned	Date Removed	Ref. Number	Date Dispatched	Date Returned	Weight (mg/m ² /day)	Comments
Target (Consent) Limit:			350 mg m⁻² d⁻¹ on as a 30 day average				
D1	20/07/2009	20/08/2009	226228	21/08/2009	26/08/2009	54	
D2	20/07/2009	20/08/2009	226229	21/08/2009	26/08/2009	276	
D3	20/07/2009	20/08/2009	226230	21/08/2009	26/08/2009	110	
D4	20/07/2009	20/08/2009	226231	21/08/2009	26/08/2009	106	
D1	20/08/2009	21/09/2009	230950	23/09/2009	26/09/2009	127	
D2	20/08/2009	21/09/2009	230951	23/09/2009	26/09/2009	89	
D3	20/08/2009	21/09/2009	230952	23/09/2009	26/09/2009	69	
D4	20/08/2009	21/09/2009	230953	23/09/2009	26/09/2009	93	
D1	21/09/2009	21/10/2009	235150	23/10/2009	10/11/2009	79	
D2	21/09/2009	21/10/2009	235151	23/10/2009	10/11/2009	59	
D3	21/09/2009	21/10/2009	235152	23/10/2009	10/11/2009	50	
D4	21/09/2009	21/10/2009	235153	23/10/2009	10/11/2009	59	
D1	21/10/2009	20/11/2009	238813	20/11/2009	25/11/2009	185	
D2	21/10/2009	20/11/2009					No result due to dust pot station falling over.
D3	21/10/2009	20/11/2009	238814	20/11/2009	25/11/2009	207	
D4	21/10/2009	20/11/2009	238815	20/11/2009	25/11/2009	189	
D1	20/11/2009	21/12/2009					No result due to dust pot station falling over.
D2	20/11/2009	21/12/2009					No result due to dust pot station falling over.
D3	20/11/2009	21/12/2009	243515	22/12/2009	05/01/2010	200	
D4	20/11/2009	21/12/2009	243516	22/12/2009	05/01/2010	175	
D1	21/12/2009	20/01/2010					No result due to dust pot station falling over.
D2	21/12/2009	20/01/2010					No result due to dust pot station falling over.
D3	22/12/2009	20/01/2010	245890	20/01/2010	22/01/2010	174	
D4	22/12/2009	20/01/2010	245891	20/01/2010	22/01/2010	172	
NDP = No Determination Possible							
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	-2.2	2.5	07/01/2010	08:00:00	14:00:00	2539533	1.3	171.9				Due to technical fault with meter results are not available.
N1	-6.3	3.7	08/01/2010	08:00:00	14:00:00	2539533	0.7	194.0				
N1	-7.9	4.1	09/01/2010	08:00:00	14:00:00	2539533	0.5	193.9				
N1	-5.0	2.8	10/01/2010	08:00:00	14:00:00	2539533	1.8	65.1				
N1	0.4	2.5	11/01/2010	08:00:00	14:00:00	2539533	2.6	114.5				
N1	0.6	3.0	12/01/2010	08:00:00	14:00:00	2539533	8.9	127.3				
N1	1.2	5.3	13/01/2010	08:00:00	14:00:00	2539533	3.2	162.6				
N1	0.8	6.1	14/01/2010	08:00:00	14:00:00	2539533	2.8	174.4				
N1	5.0	10.6	15/01/2010	08:00:00	14:00:00	2539533	6.3	161.3				
N1	4.1	11.4	16/01/2010	08:00:00	14:00:00	2539533	5.9	214.4				
N1	3.7	9.5	17/01/2010	08:00:00	14:00:00	2539533	5.0	222.6				
N1	3.2	10.0	18/01/2010	08:00:00	14:00:00	2539533	2.1	202.1				
N1	3.8	6.9	19/01/2010	08:00:00	14:00:00	2539533	7.0	138.0				
N1	1.9	9.3	20/01/2010	08:00:00	14:00:00	2539533	1.7	187.5				

* 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												
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	-2.2	2.5	07/01/2010	22:00:00	10:00:00	2539533	1.3	171.9				Due to technical fault with meter results are not available.
N1	-6.3	3.7	08/01/2010	22:00:00	10:00:00	2539533	0.7	194.0				
N1	-7.9	4.1	09/01/2010	22:00:00	10:00:00	2539533	0.5	193.9				
N1	-5.0	2.8	10/01/2010	22:00:00	10:00:00	2539533	1.8	65.1				
N1	0.4	2.5	11/01/2010	22:00:00	10:00:00	2539533	2.6	114.5				
N1	0.6	3.0	12/01/2010	22:00:00	10:00:00	2539533	8.9	127.3				
N1	1.2	5.3	13/01/2010	22:00:00	10:00:00	2539533	3.2	162.6				
N1	0.8	6.1	14/01/2010	22:00:00	10:00:00	2539533	2.8	174.4				
N1	5.0	10.6	15/01/2010	22:00:00	10:00:00	2539533	6.3	161.3				
N1	4.1	11.4	16/01/2010	22:00:00	10:00:00	2539533	5.9	214.4				
N1	3.7	9.5	17/01/2010	22:00:00	10:00:00	2539533	5.0	222.6				
N1	3.2	10.0	18/01/2010	22:00:00	10:00:00	2539533	2.1	202.1				
N1	3.8	6.9	19/01/2010	22:00:00	10:00:00	2539533	7.0	138.0				
N1	1.9	9.3	20/01/2010	22:00:00	10:00:00	2539533	1.7	187.5				

* 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)
07/01/2010	27.92	9.83	12.19	7.98	1.30	2.18
08/01/2010	27.92	12.09	17.86	4.69	1.89	2.79
09/01/2010	12.09	7.39	9.43	2.05	1.03	1.58
10/01/2010	7.39	7.39	7.39	1.03	0.78	0.89
11/01/2010	7.39	7.39	7.39	1.16	0.78	0.93
12/01/2010	86.04	7.39	30.62	12.38	1.03	4.65
13/01/2010	32.42	16.99	22.78	15.13	2.91	6.72
14/01/2010	36.54	17.99	25.98	14.50	3.47	9.46
15/01/2010	107.62	20.09	37.87	38.41	3.47	13.12
16/01/2010	92.01	21.20	36.47	24.39	12.98	17.14
17/01/2010	43.08	20.92	29.81	21.85	13.58	15.38
18/01/2010	23.81	14.42	19.85	18.72	5.35	12.49
19/01/2010	16.75	7.85	12.14	12.98	1.89	7.73
20/01/2010	21.76	10.37	18.02	13.58	4.07	10.02

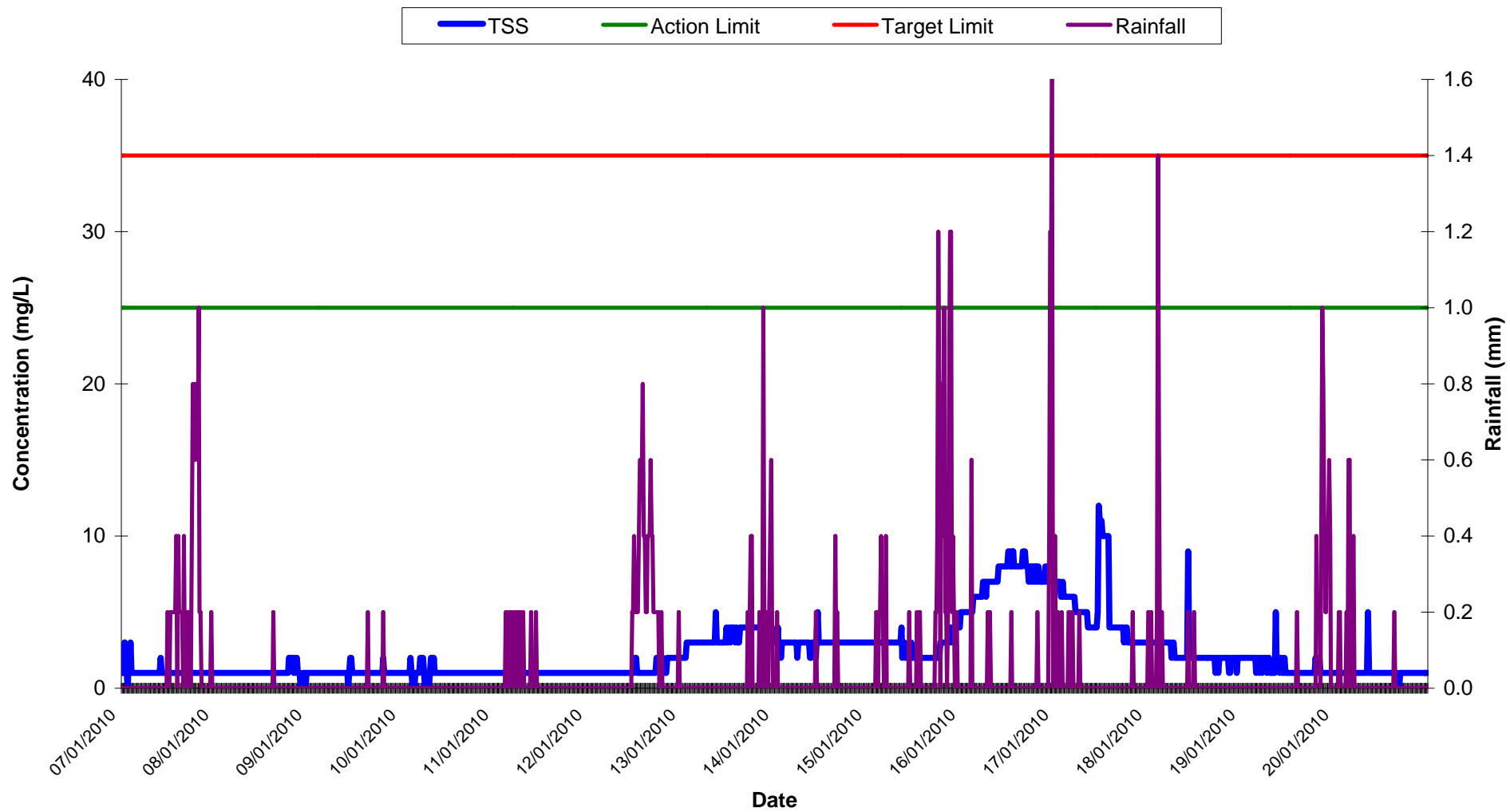
Note: Negative values indicate low flow conditions.

Vibration Monitoring Record Sheet**Determinant Results**

Location	Date Positioned	Date Removed	Event Date	Event Time	Peak Vector Sum	Tran PPV	Vert PPV	Long PPV	Comments
V1	12-Jan-10			15:34					Monitor Started
			12-Jan-10	20:24	0.254	0.254	0.13	0.127	Sensor Check
		16-Jan-10		9:43					Monitor Stopped

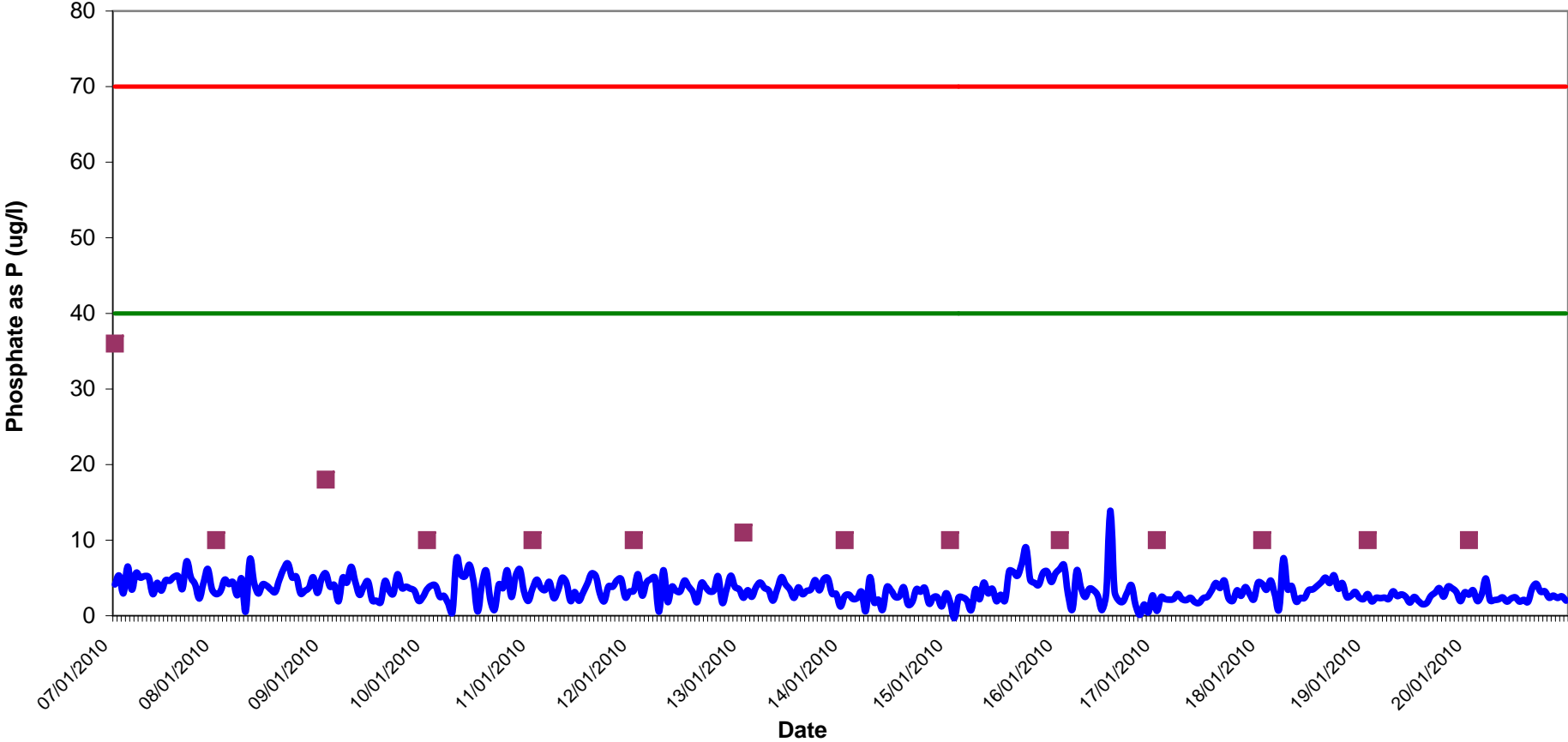
Vibration meter located at V1.

Total Suspended Solids at SP1 Week 02-03

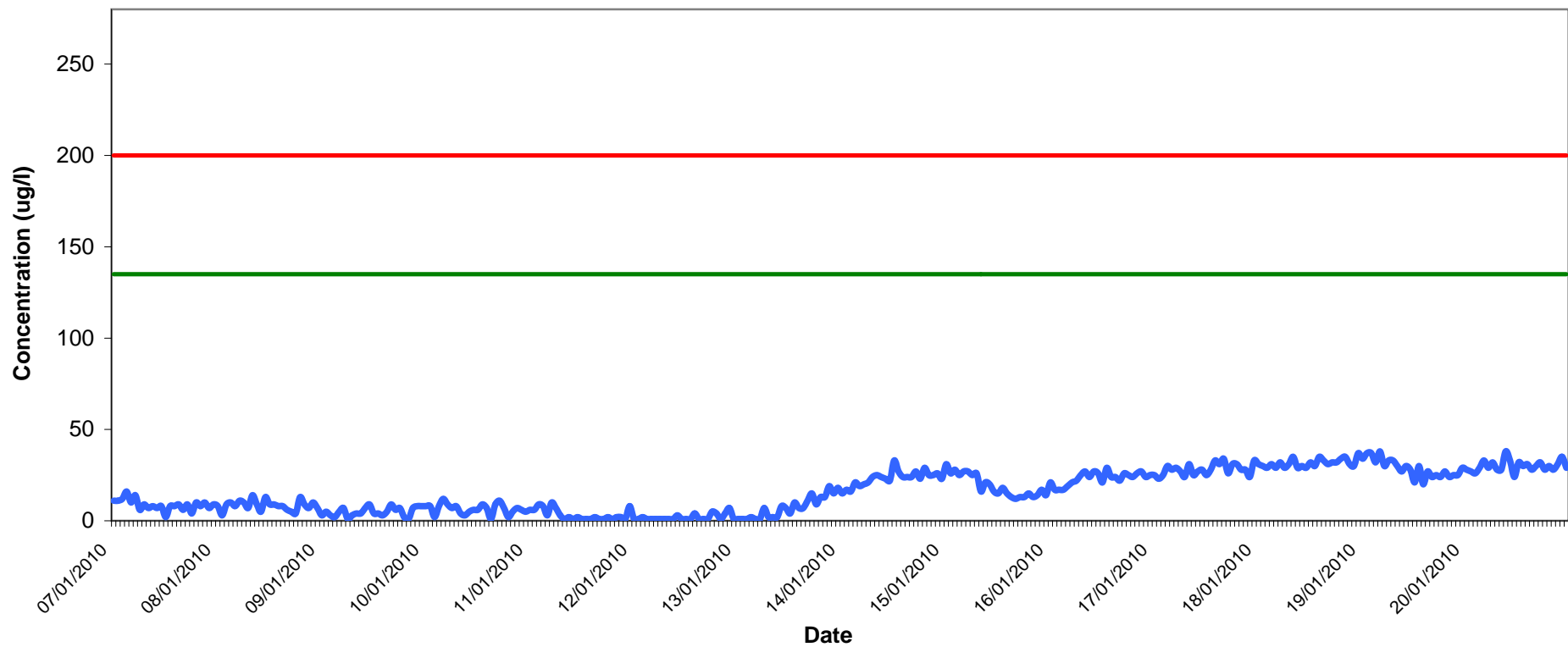


Orthophosphate Results at SP1
Wk 02-03

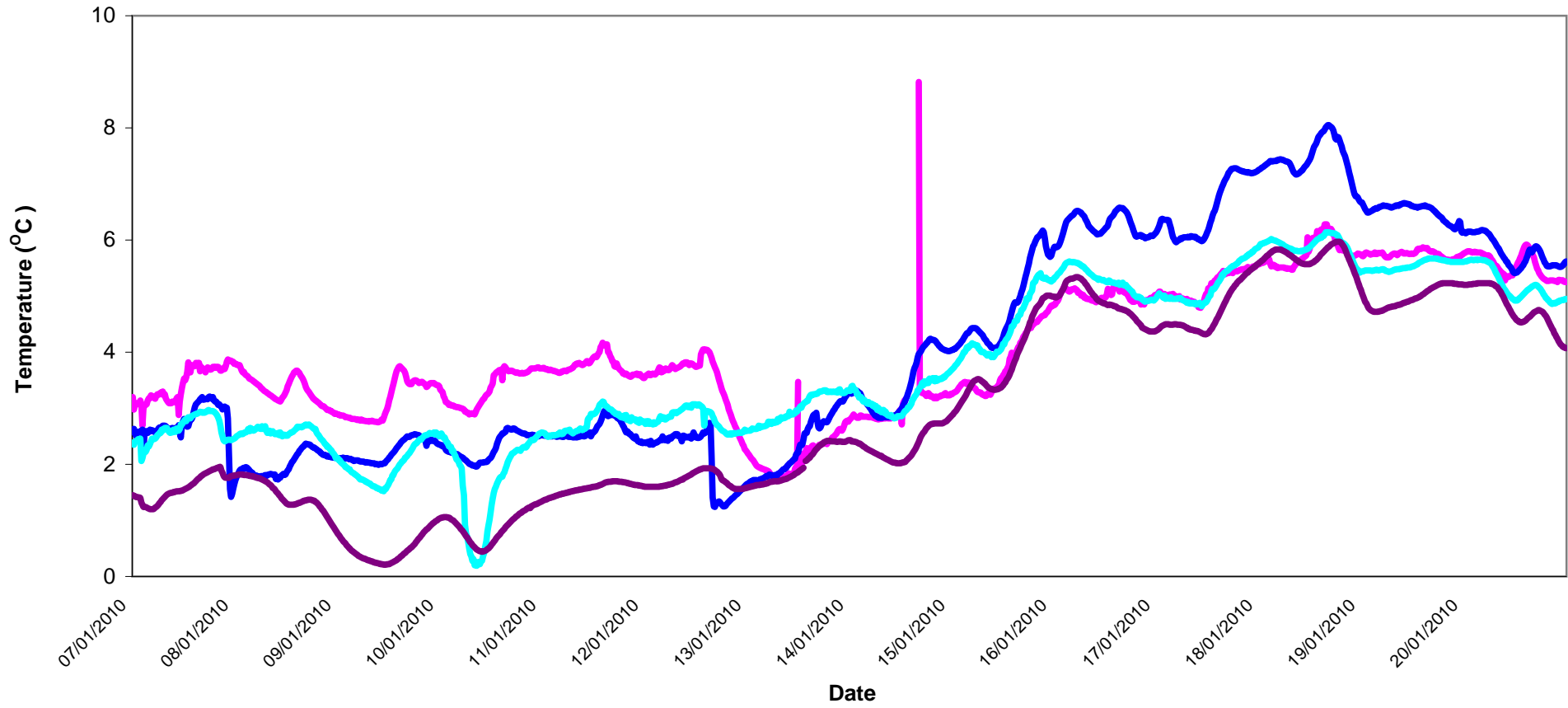
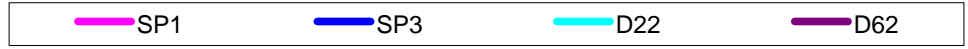
Ortho Action Limit Target Limit Composite



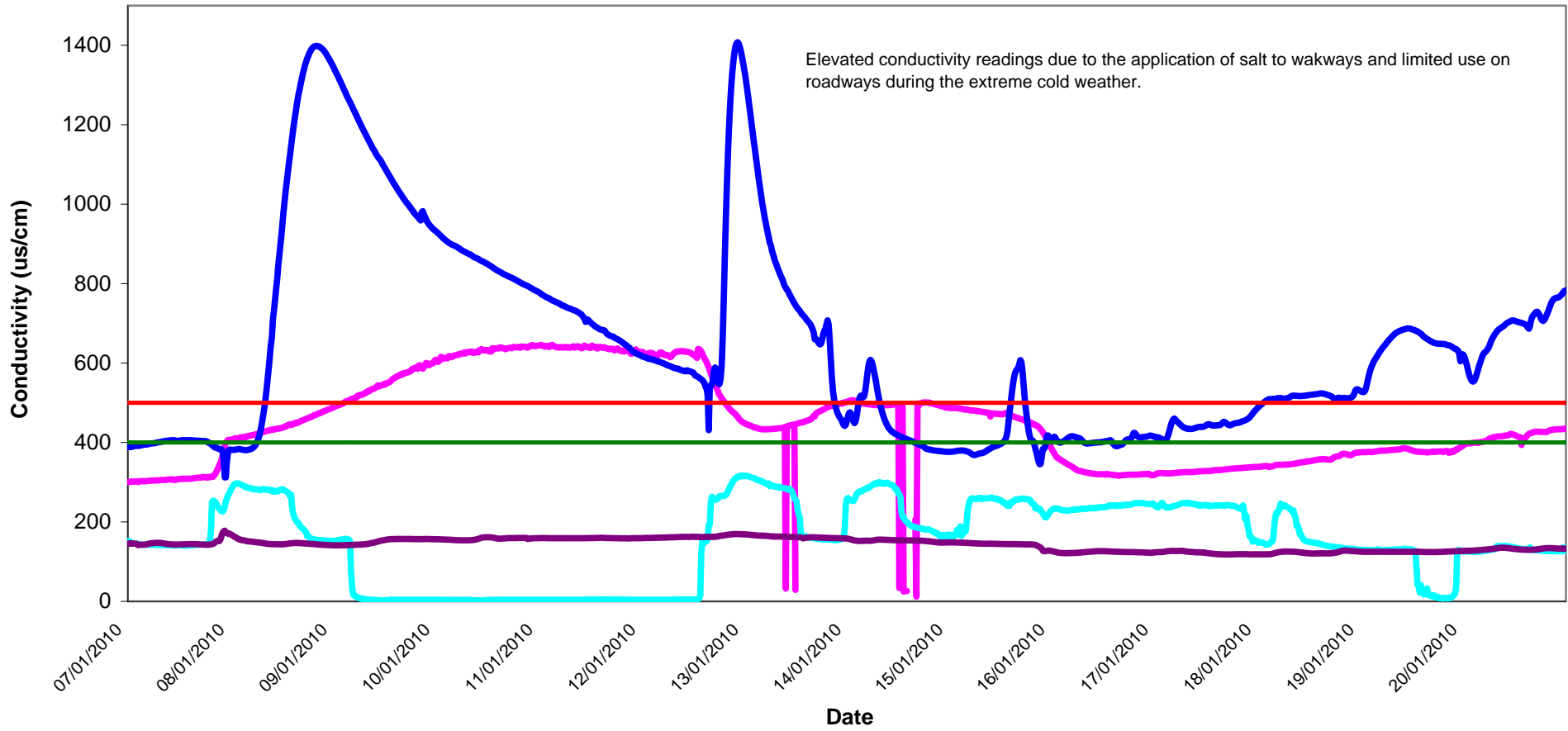
Aluminium Concentration at SP1 Wk 02-03



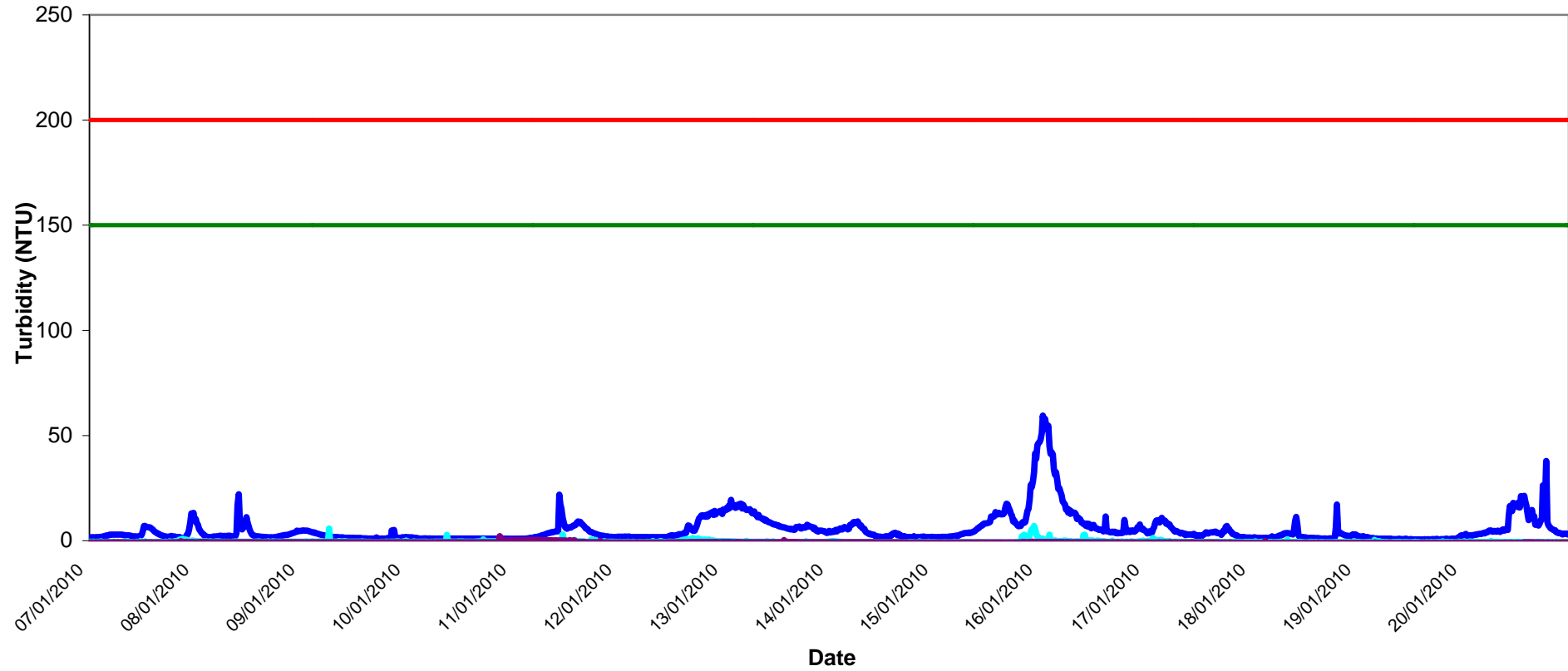
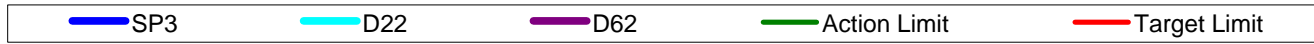
Temperature - Surface Waters Wk 02-03



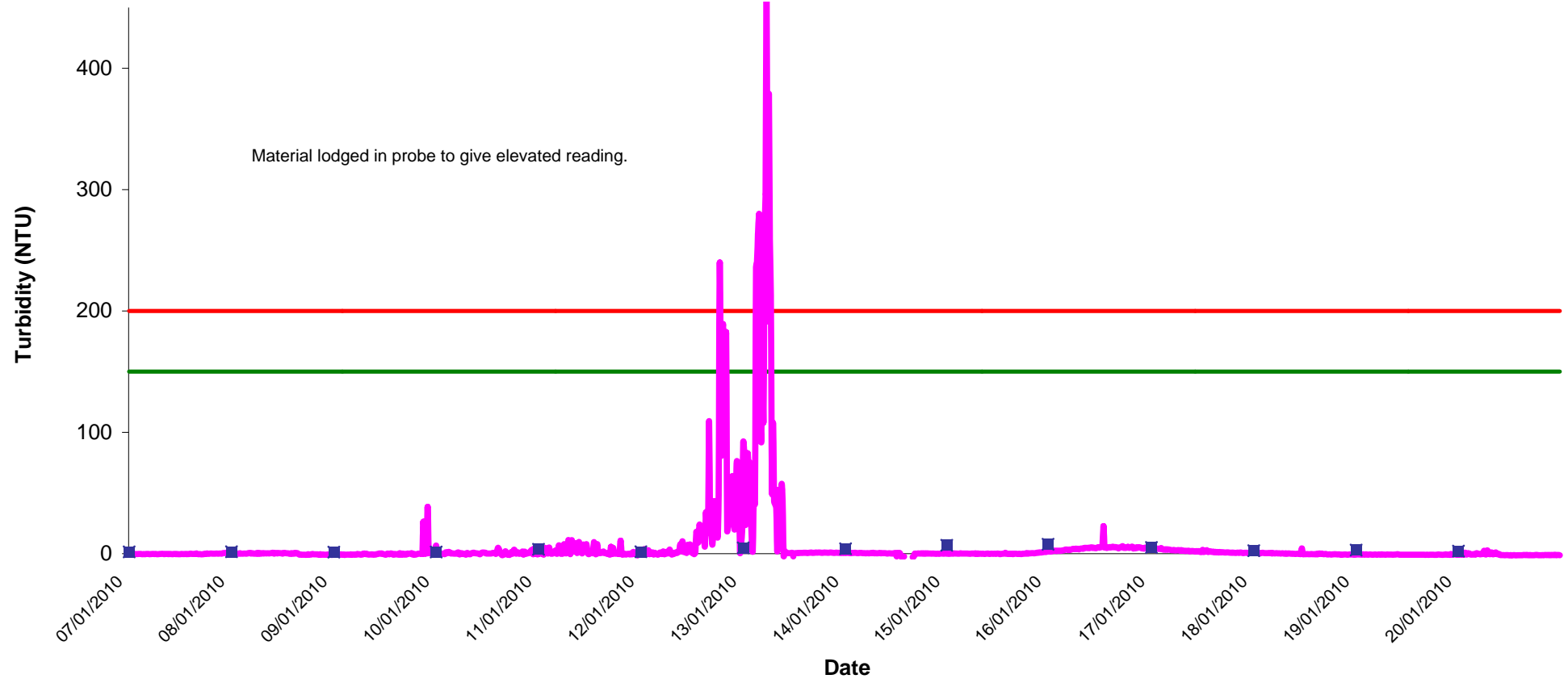
Conductivity - Surface Waters, Wk 02-03



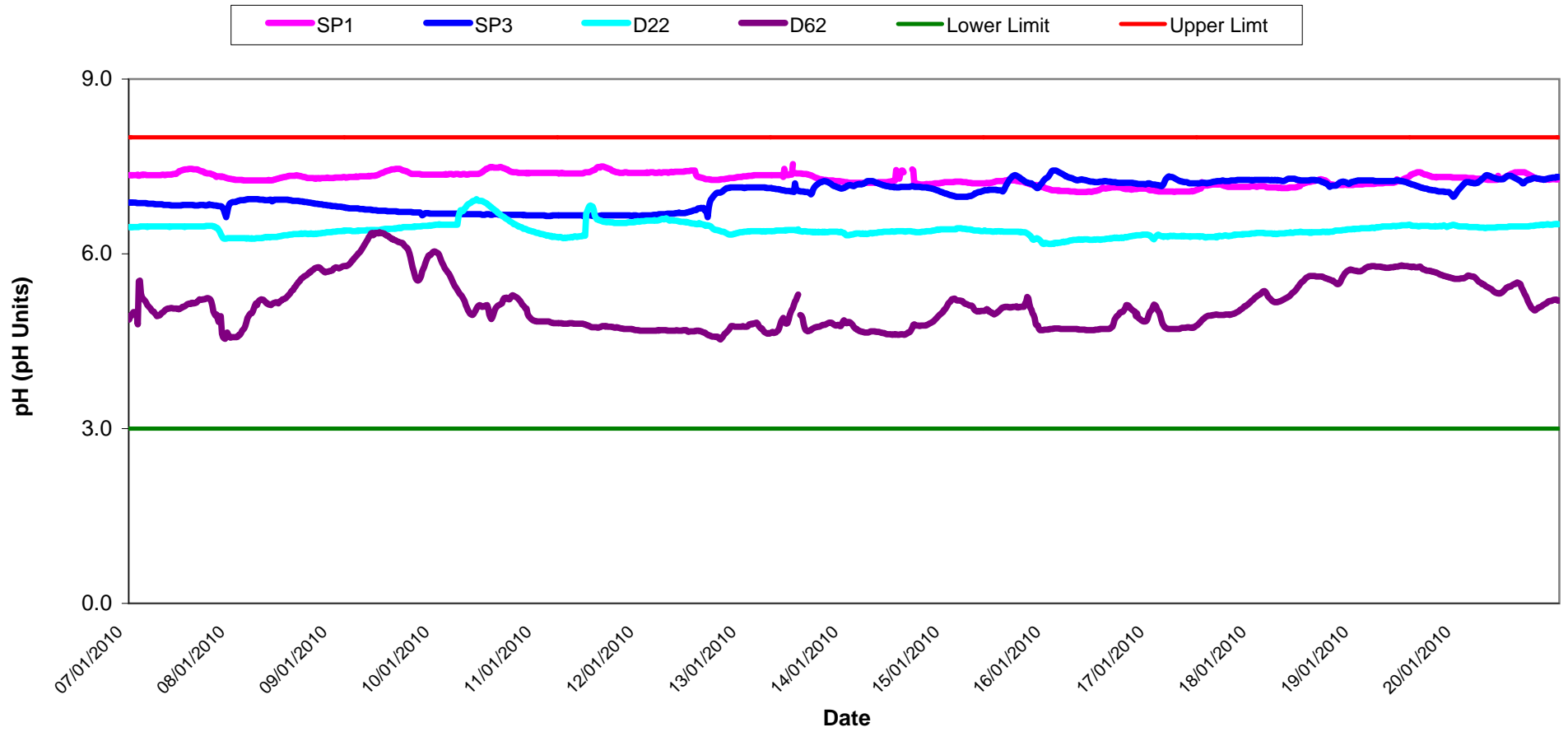
Turbidity - Surface Waters Wk 02-03



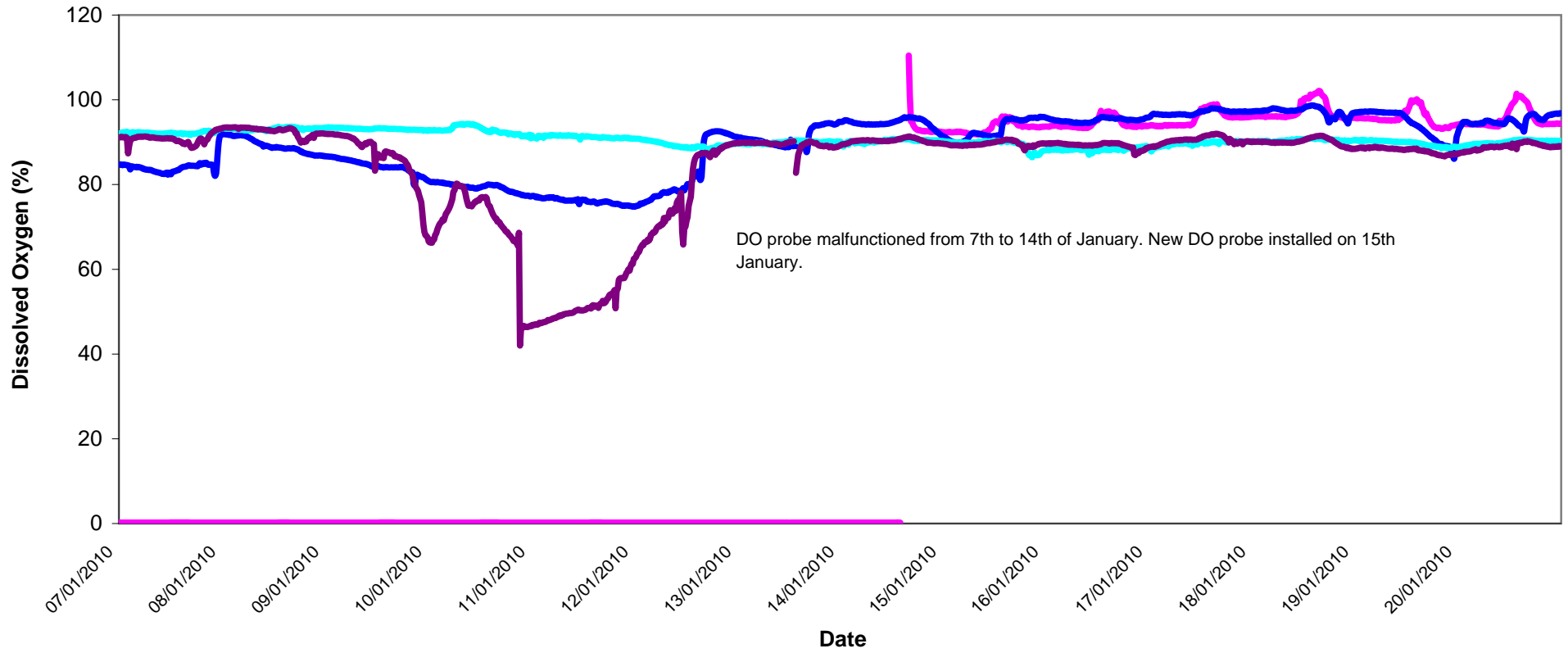
Turbidity - Surface Waters @ SP1, Wk 02-03



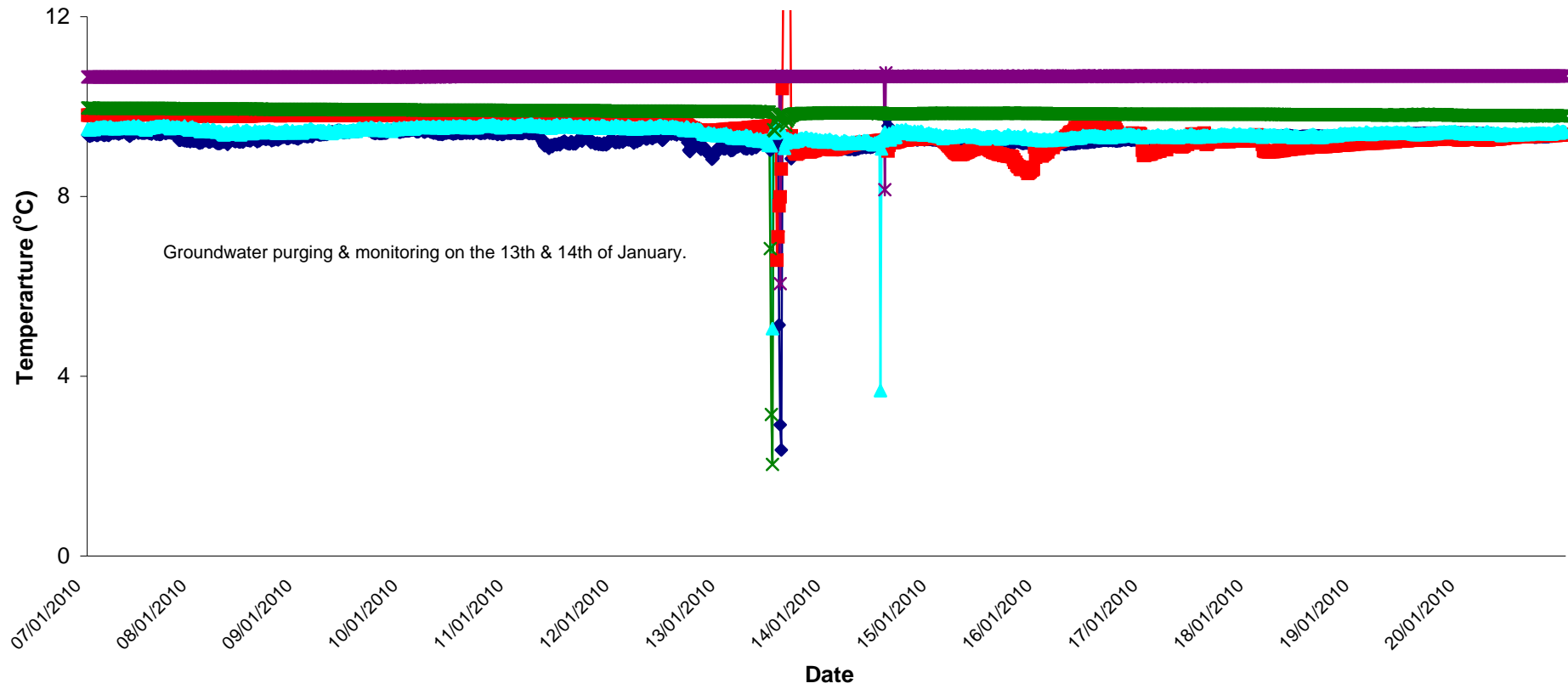
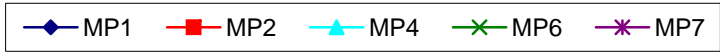
pH - Surface Waters Wk 02-03



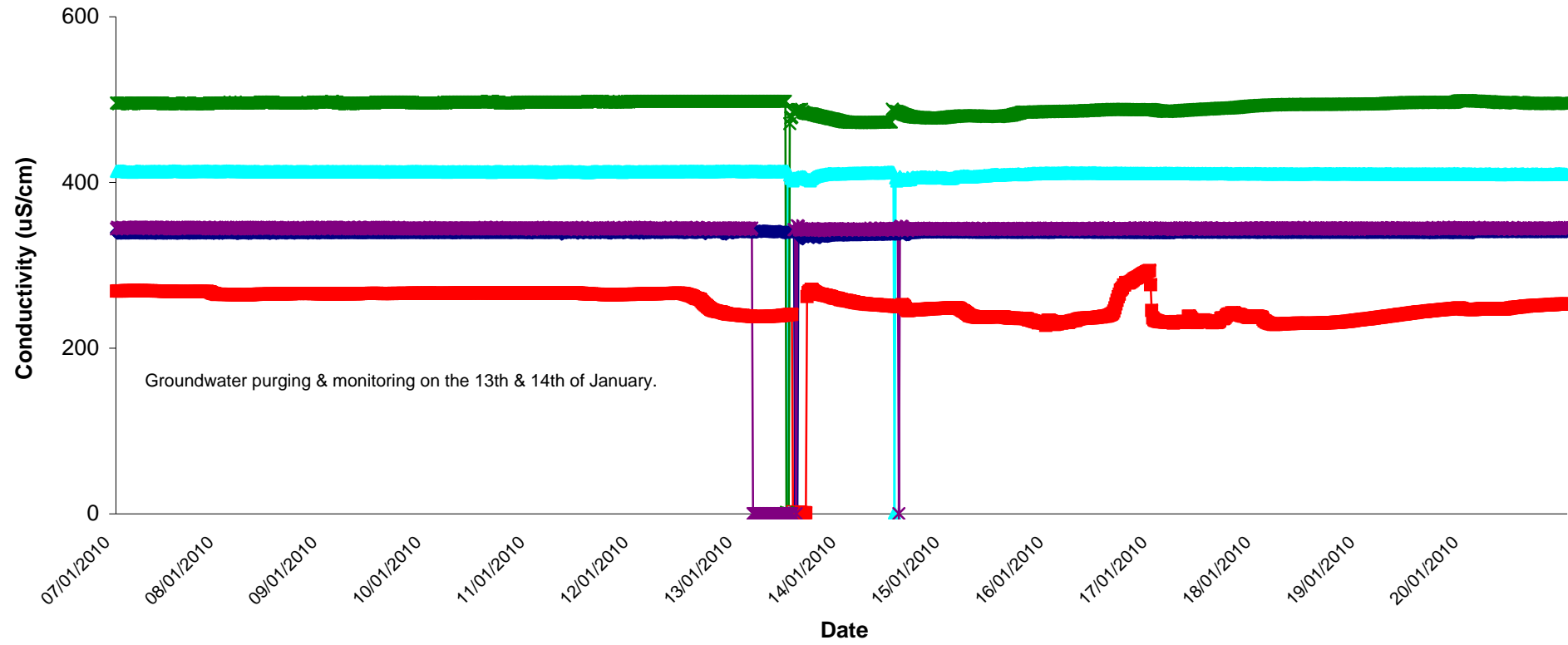
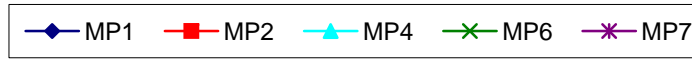
Dissolved Oxygen - Surface Waters, Wk 02-03



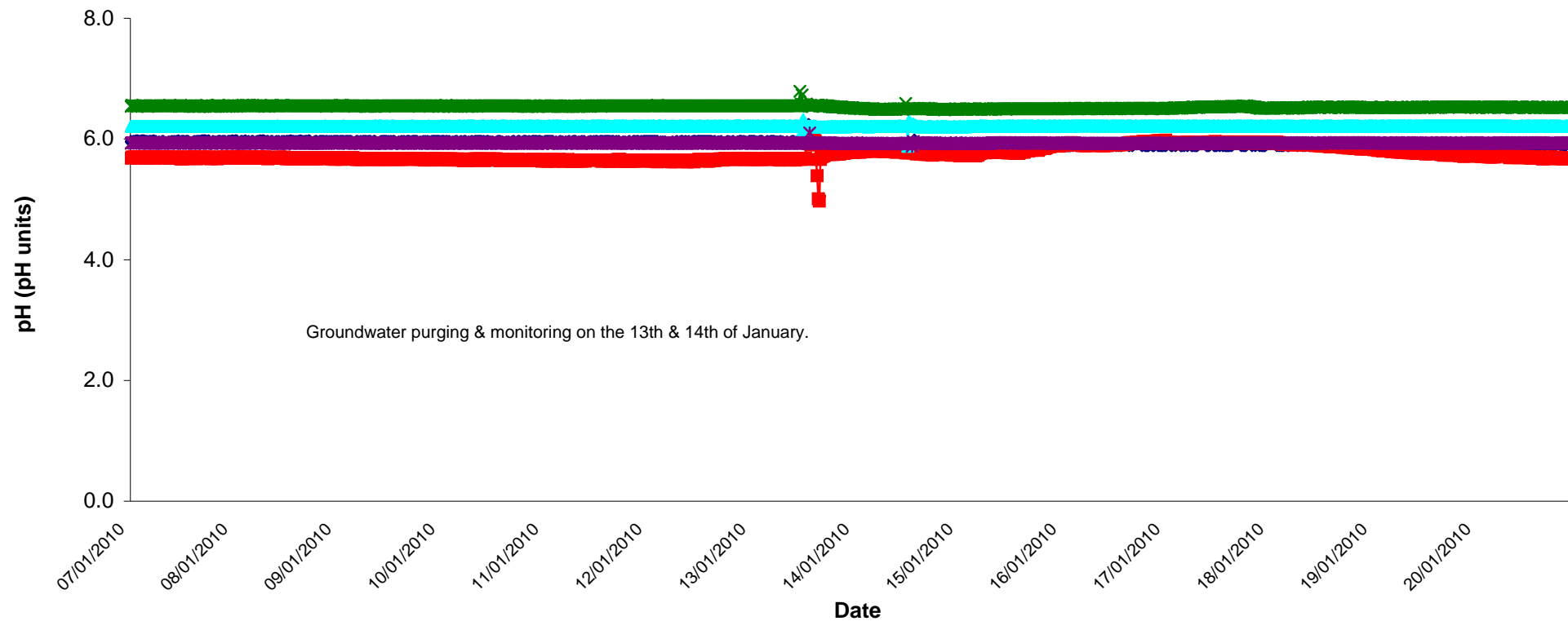
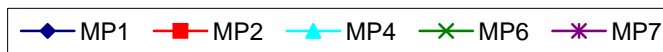
Temperature - Groundwaters Wk 02-03



Conductivity - Groundwaters Wk 02-03



pH - Groundwaters Wk 02-03



Appendix 1

Appendix 1: Surface Water Monitoring Record Sheet- Onsite Monitoring																	
	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	Total dissolved solids
		µS/cm	oC	NTU	% Sat		mg l ⁻¹	µg l ⁻¹	mg l ⁻¹	mg l ⁻¹	mg l ⁻¹	mg l ⁻¹	mg/l	ug/l	ug/l	mg/l	mg/l
Settlement Pond Monitoring																	
SP1	07/01/2010	251	4.1	4.4	94.3	6.7			0.2			0.09		34	62	0.34	170
SP1	11/01/2010	520	5.0	3.8	93.3	6.6			<LOD			<LOD		22	34	1.53	348
SP1	12/01/2010	549	5.0	5.4	93.6	6.6			0.1			<LOD		<LOD	43	>LOD	368
SP1	13/01/2010	391	2.8	7.0	94.5	6.5			0.1			<LOD		23	67	0.99	274
SP1	14/01/2010	380	4.0	8.4	97.1	7.6			<LOD			0.03		21	80	0.05	258
SP1	15/01/2010	399	5.6	7.0	92.8	7.5			<LOD			0.04		32	59	0.22	270
SP1	18/01/2010	315	7.1	7.6	94.7	6.8			<LOD			<LOD		43	184	0.45	212
SP1	19/01/2010	350	6.9	7.4	94.5	6.5			0.1			<LOD		27	142	>LOD	241
SP1	20/01/2010	375	5.7	4.8	96.5	7.4			0.1			1.36		33	123	0.15	256
SP3	07/01/2010	342	3.2	5.7	83.8	6.9			<LOD			0.08		67		0.03	230
SP3	11/01/2010	602	3.2	13.2	89.3	6.7			<LOD			<LOD		86		0.08	405
SP3	12/01/2010	537	3.5	6.9	83.8	6.6			<LOD			0.02		44		0.04	362
SP3	13/01/2010	670	3.2	13.0	91.5	6.5			<LOD			<LOD		36		0.07	458
SP3	14/01/2010	407	4.0	5.1	94.6	7.4			<LOD			0.02		31		0.08	278
SP3	15/01/2010	387	5.3	9.5	92.8	6.3			0.2			0.13		64		0.97	262
SP3	18/01/2010	484	7.9	8.9	97.0	6.8			<LOD			<LOD		25		0.03	330
SP3	19/01/2010	639	6.9	3.1	79.5	6.6			<LOD			<LOD		<LOD		0.03	445
SP3	20/01/2010	646	5.7	18.6	96.8	7.1			0.1			0.04		73		0.04	446
Additional Monitoring																	
D22	13/01/2010	260	4.2	1.9	98.2	6.4			<LOD			<LOD		51		0.06	178
D62	13/01/2010	175	4.5	1.7	86.8	5.7			<LOD			<LOD		<LOD		0.08	104
D22	20/01/2010	220	5.7	3.8	90.3	6.2			0.1			0.46		43		0.17	147
D62	20/01/2010	168	5.3	2.9	91.5	5.5			<LOD			1.40		<LOD		0.03	99
Axonics Monitoring																	
Pre	07/01/2010	No sample as plant not operational															
Post	07/01/2010	No sample as plant not operational															
Pre	11/01/2010	No sample as plant not operational															
Post	11/01/2010	No sample as plant not operational															
Pre	12/01/2010	No sample as plant not operational															
Post	12/01/2010	No sample as plant not operational															
Pre	13/01/2010	No sample as plant not operational															
Post	13/01/2010	No sample as plant not operational															
Pre	14/01/2010	272		>LOD		6.2			<LOD			0.97		>LOD		0.92	185
Post	14/01/2010	275		21.0		6.1			<LOD			0.03		21	259	0.04	185
Pre	15/01/2010	268		116.0		6.6			0.2			0.17		311		0.09	182
Post	15/01/2010	285		1.8		6.6			0.4			0.08		22	223	0.08	192
Pre	18/01/2010	494		115.0		6.9			<LOD			0.12		>LOD		<LOD	339
Post	18/01/2010	517		4.0		6.5			0.2			<LOD		<LOD	445	0.05	355
Pre	19/01/2010	701		579.0		6.8			<LOD			0.21		776		<LOD	468
Post	19/01/2010	708		3.4		6.5			0.1			0.40		52	>LOD	0.02	494
Pre	20/01/2010	761		>LOD		7.0			3.9			>LOD		211		0.07	524
Post	20/01/2010	747		10.4		6.7			0.1			0.61		27	409	1.24	520
Grey shaded areas denote parameters that cannot or were not analysed on-site.																	
= Indicative Only																	
< LOD Lower than Limit of Detection																	
> LOD Greater than Limit of Detection																	