

Final Environmental ReportPeriod Ending: Wed. 20th Feb 2008

Compiled By: Siobhan 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. – The composite sampler is 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. – The composite sampler is in place to cover any shortfalls in the TSS analyser.
Composite	– The composite sampler was operational during the reporting period.
Noise	<ul style="list-style-type: none"> – There is a single noise monitoring location currently being used – N1. – The other location is visible from off-site and because of current protestor action it cannot be guaranteed that the equipment remains undisturbed.
Vibration	<ul style="list-style-type: none"> – There is a single vibration monitoring location currently being used – V1. – The other location is visible from off-site and because of current protestor action it cannot be guaranteed that the equipment remains undisturbed.
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	– Data displayed in the enclosed report.

1.2 Rainfall Data

07/02/2008	6.0	14/02/2008	0.0
08/02/2008	3.8	15/02/2008	0.2
09/02/2008	5.0	16/02/2008	0.0
10/02/2008	0.6	17/02/2008	0.0
11/02/2008	0.0	18/02/2008	0.2
12/02/2008	0.2	19/02/2008	0.2
13/02/2008	0.2	20/02/2008	5.2
Total Rainfall 21.6mm			

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1.3 Summary

Environment	Comments
Surface Water	The aluminium exceedance from the previous reporting period remains open. See Section 2 below.
Groundwater	The groundwater data (Sonde) is within anticipated ranges. Groundwater monitoring was carried out during the reporting period.
Weather	There was a total of 21.6mm of rainfall during the reporting period, with a temperature range of -3.6 °C to 17.4°C
Noise	No noise exceedance was recorded during the reporting period, based on the available results.
Vibration	No vibration exceedances were recorded during the reporting period, based on the available results

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

2 Environmental Exceedences / Incidents / Complaints

Date	19 th of February 2008.
Location	SP1
Nature of Incident	A Total Aluminium concentration of 319ug/l was recorded on the 19 th of February. This values exceed the discharge limit of 200µg/l. This exceedance is related to very heavy rainfall, which lead to flooding and washout across the site.
Actions Taken	<ol style="list-style-type: none"> 1. On going surveillance and maintenance of site drainage outside the main footprint area 2. Close monitoring of Total Aluminium will be carried out at SP1. 3. Reducing the extent of open drainage and un-surfaced areas outside the footprint area by additional piping and road surface works as feasible. 4. Storage and pumping back to Axonics as much of the footprint waters as possible. 5. Investigation of further means to improve the drainage within the footprint area.
Category	Environmental Exceedance
Status	Open

Surface Water Monitoring Record Sheet																	
Conducted by										Approved by							
Name:										Name:							
Signed										Signed							
Determinant 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		
Settlement Pond Monitoring																	
SP1	07/02/2008	265	7.1	23	88.9	7.4			0.1			0.22		70	>LOD	0.35	170
SP1	08/02/2008	293	7.4	25	96.2	6.4			<LOD			0.57		110	>LOD	0.05	208
SP1	11/02/2008	310	7.9	20	89.1	7.6			0.2			<LOD		100	290	0.20	207
SP1	12/02/2008	331	7.3	18	101.6	6.9			0.3			0.14		70	420	0.27	206
SP1	13/02/2008	323	6.6	3	97.7	6.7			0.3			0.64		40	>LOD	0.18	226
SP1	14/02/2008	328	7.6	15	92.0	7.6			0.4			0.29		100	260	0.15	219
SP1	15/02/2008	348	6.1	13	101.7	7.3			0.3			1.31		70	380	0.23	225
SP1	18/02/2008	346	4.4	12	94.0	6.8			0.3			0.91		50	180	0.24	223
SP1	19/02/2008	358	4.7	12	94.1	6.9			0.4			0.03		40	250	0.09	235
SP1	20/02/2008	344	6.2	10	100.9	7.6			0.1			1.29		60	48	0.42	226
SP3	07/02/2008	331	8.8	15	96.9	7.7			0.5			0.32		120		0.01	213
SP3	08/02/2008	328	9.2	14	98.0	6.3			0.4			0.34		70		0.01	226
SP3	11/02/2008	336	9.3	7	93.2	7.5			0.5			<LOD		70		<LOD	223
SP3	12/02/2008	345	8.0	4	98.5	6.6			0.4			0.12		50		0.13	223
SP3	13/02/2008	252	8.1	6	101.1	6.6			0.2			>LOD		40		0.05	238
SP3	14/02/2008	353	7.9	6	99.1	7.4			0.3			0.33		50		0.05	235
SP3	15/02/2008	361	6.7	9	99.4	7.3			0.5			0.45		50		0.02	236
SP3	18/02/2008	376	5.5	15	101.9	6.7			<LOD			0.14		20		0.08	245
SP3	19/02/2008	375	6.1	4	101.6	6.9			1.0			0.29		40		0.01	246
SP3	20/02/2008	378	8.8	4	100.7	7.4			0.3			0.32		50		0.10	244
SP1	14/02/2008	244		10		7.5	8	18		2.563	0.025	0.02	0.019	60	67	0.05	155
SP3	14/02/2008	249		4		7.1	3	10		2.799	0.021	0.03	0.039	33	246	0.03	168
SP1	19/02/2008	232		8		7.5	<2	<10		2.033	<0.01	<0.005	0.019	35	319	<0.03	167
SP3	19/02/2008	236		1		7.3	<2	<10		3.276	<0.01	0.01	0.033	30	257	<0.03	175
Additional Monitoring																	
D22	07/02/2008	265	5.4	3	101.6	6.8			<LOD			0.06		50		0.05	182
D62	07/02/2008	203	3.4	1	14.8	6.3			<LOD			0.25		60		0.24	135
D22	14/02/2008	244	5.4	2	84.0	6.6			<LOD			0.09		60		0.12	164
D62	14/02/2008	212	5.2	3	80.0	4.1			0.5			0.23		30		0.07	139
D22	14/02/2008	224		1		6.4	6	42		<0.44	0.071	0.04	<0.017	39	298	0.13	120
D62	14/02/2008	191		0		4.3	<2	13		<0.44	0.022	<0.005	<0.017	<20	45	0.04	103
Axonics Monitoring																	
Pre	07/02/2008	333		10		6.8			0.4			0.41		100		<LOD	221
Post	07/02/2008	352		3		6.3			0.4			0.20		40	390	0.04	231
Pre	08/02/2008	326		41		6.3			0.1			0.38		170		0.04	223
Post	08/02/2008	348		2		6.4			0.8			0.21		50	>LOD	0.28	238
Pre	11/02/2008	319		88		7.2			<LOD			0.28		270		0.04	214
Post	11/02/2008	335		3		7.0			0.6			0.20		60	450	0.02	223
Pre	12/02/2008	330		31		7.8			<LOD			0.15		80		0.10	225
Post	12/02/2008	345		3		6.4			0.6			0.22		30	>LOD	0.16	232
Pre	13/02/2008	339		22		7.8			<LOD			1.08		70		0.07	227
Post	13/02/2008	359		4		6.5			0.5			0.59		50	220	0.05	242
Pre	14/02/2008	338		14		7.1			0.6			0.27		120		0.07	226
Post	14/02/2008	352		2		6.9			0.6			0.31		30	510	0.06	235
Pre	15/02/2008	346		17		7.7			<LOD			0.46		100		0.09	228
Post	15/02/2008	357		2		6.9			0.5			0.47		30	>LOD	0.13	235
Pre	18/02/2008	360		14		6.4			0.3			0.15		40		0.05	236
Post	18/02/2008	370		7		6.3			0.3			0.24		50	250	0.07	240
Pre	20/02/2008	359		5		7.0			<LOD			0.30		30		0.09	240
Post	20/02/2008	373		1		6.9			0.6			0.49		20	289	0.01	250
Pre Axonics	15/02/2008	243		2		6.8	14	<10		2.420	<0.01	0.17	0.043	49	1363	<0.03	159
Post Axonics	15/02/2008	248		1		6.3	<2	<10		2.458	<0.01	0.17	0.046	33	244	<0.03	167

I.P. = In Progress
 Italics = Indicative Only
 < LOD = Below Limit of Detection
 > LOD = Above Limit of Detection
 Grey shaded areas denote parameters that cannot or were not analysed on-site or the lab.

Groundwater Monitoring Record Sheet			
Conducted by		Approved by	
Name:	Signed	Name	

Location	Date	DO	Temp	Cond.	pH	TDS	Nitrate as NO ₃	Ammonia	Aluminium	BOD	TSS	Orthophosphate as P	Total Hardness	Nitrite as NO ₂	Arsenic	Mercury	Lead	Zinc	Chromium	Copper	Cadmium	Iron	Tin
		% Sat	°C	uS/cm		mg l ⁻¹	mg l ⁻¹	mg l ⁻¹	ug l ⁻¹	mg l ⁻¹	mg l ⁻¹	ug l ⁻¹	mg/l CaCO ₃	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
MP 1																							
MP 2																							
MP 3																							
MP 4																							
MP 5																							
MP 6																							
MP 7																							
MP 8																							
MP 9																							
MP 10a																							
MP 11																							

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

Dust Monitoring Record Sheet				no... 1 of 1			
Conducted by				Approved by			
Name:		Signed		Name:		Signed	
Determinant Results							
	Date Positioned	Date Removed	Ref. Number	Date Dispatched	Date Returned	Weight (mg/sq.m/day)	Comments
Target (Consent) Limit: 350 mg m ² d ⁻¹ on as a 30 day average							
D1	12/04/2007	11/05/2007	129448	11/05/2007	17/05/2007	135	
D2	12/04/2007	11/05/2007	129449	11/05/2007	17/05/2007	333	
D3	12/04/2007	11/05/2007	129450	11/05/2007	17/05/2007	520	Evidence of algal growth
D4	12/04/2007	11/05/2007	129451	11/05/2007	17/05/2007	90	
D1	11/05/2007	12/06/2007	133929	15/06/2007	16/07/2007	<1	
D2	11/05/2007	12/06/2007	135930	15/06/2007	16/07/2007	258	
D3	11/05/2007	12/06/2007					D3 not sent due to the presence of bird droppings
D4	11/05/2007	12/06/2007	133932	15/06/2007	16/07/2007	329	
D1	12/06/2007	12/07/2007	137580	16/07/2007	26/07/2007	305	
D2	12/06/2007	12/07/2007	137581	16/07/2007	26/07/2007	241	
D3	12/06/2007	12/07/2007	137582	16/07/2007	26/07/2007	177	
D4	12/06/2007	12/07/2007	137583	16/07/2007	26/07/2007	179	
D1	12/07/2007	13/08/2007	140364	13/08/2007	17/08/2007	863	Algal growth
D2	12/07/2007	13/08/2007	140365	13/08/2007	17/08/2007	410	Algal growth
D3	12/07/2007	13/08/2007	140366	13/08/2007	17/08/2007	406	Algal growth
D4	12/07/2007	13/08/2007	140367	13/08/2007	17/08/2007	246	
D1	13/08/2007	13/09/2007	143627	14/09/2007	20/09/2007	NDP	NDP due to copper sulphate interference
D2	13/08/2007	13/09/2007	143628	14/09/2007	20/09/2007	NDP	NDP due to copper sulphate interference
D3	13/08/2007	13/09/2007	143629	14/09/2007	20/09/2007	NDP	NDP due to copper sulphate interference
D4	13/08/2007	13/09/2007	143630	14/09/2007	20/09/2007	NDP	NDP due to copper sulphate interference
D1	13/09/2007	15/10/2007	147427	17/10/2007	15/10/2007	242	
D2	13/09/2007	15/10/2007	147427	17/10/2007	15/10/2007	328	
D3	13/09/2007	15/10/2007	147427	17/10/2007	15/10/2007	320	
D4	13/09/2007	15/10/2007	147427	17/10/2007	15/10/2007	184	
D1	15/10/2007	23/11/2007	153945	26/11/2007	19/12/2007	142	
D2	15/10/2007	23/11/2007	153946	26/11/2007	19/12/2007	225	
D3	15/10/2007	23/11/2007	153947	26/11/2007	19/12/2007	530	Heavily Contaminated with peat, possibly vandilised. See Report
D4	15/10/2007	23/11/2007	153948	26/11/2007	19/12/2007	127	
D1	23/11/2007	23/12/2007	157412	04/01/2008	22/01/2008	68	
D2	23/11/2007	23/12/2007	157413	04/01/2008	22/01/2008	24	
D3	23/11/2007	23/12/2007	157414	04/01/2008	22/01/2008	214	
D4	23/11/2007	23/12/2007	157415	04/01/2008	22/01/2008	169	
D1	23/12/2007	23/01/2008	158975	25/01/2008	18/02/2008	280	
D2	23/12/2007	23/01/2008	158976	25/01/2008	18/02/2008	355	
D3	23/12/2007	23/01/2008	158977	25/01/2008	18/02/2008	295	
D4	23/12/2007	23/01/2008	158978	25/01/2008	18/02/2008	300	
D1	23/01/2007	25/02/2008	158975	25/02/2008	18/03/2008	I.P.	
D2	23/01/2007	25/02/2008	158976	25/02/2008	18/03/2008	I.P.	
D3	23/01/2007	25/02/2008	158977	25/02/2008	18/03/2008	I.P.	
D4	23/01/2007	25/02/2008	158978	25/02/2008	18/03/2008	I.P.	

NDP = No Determination Possible

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

Monitoring Results will be presented monthly

Noise Monitoring Record Sheet											no... 1 of 1	
Conducted by							Approved by					
Name: Siobhan Quinn						Signed		Name:			Signed	
Determinant Results												
Location	Air Temp. (Max)	Air Temp. (Min)	Start Date	Time	Duration	Serial No.	Wind		Results dB			*Comments
							Speed (m/s)*	Direction (Degrees)	L _{Aeq}	L _{Amin}	L _{Amax}	
Action Limit									60			
Target Limit									65			
N1	12.1	10.3	07/02/08	07:00:00	11:00:00	2343754	7.4	44.3	55.8	47.4	68.6	
N1	12.9	8.2	08/02/08	08:00:00	11:00:00	2343754	6.6	70.8	54.8	47.4	71.5	
N1	11.7	1.0	11/02/08	07:00:00	10:00:00	2343754	1.6	221.0	52.5	39.9	76.5	
N1	15.6	-1.2	12/02/08	07:00:00	11:00:00	2343754	0.6	131.2	50.8	42.0	67.0	
N1	17.4	-1.8	13/02/08	07:00:00	11:00:00	2343754	1.3	198.2	52.5	39.9	76.7	
N1	9.9	2.4	14/02/08	07:00:00	11:00:00	2343754	2.2	263.4	52.5	39.9	76.7	
N1	6.1	-3.0	15/02/08	08:00:00	11:00:00	2343754	1.4	263.5	53.9	41.0	72.5	
N1	9.8	-2.9	18/02/08	07:00:00	10:00:00	2343754	1.2	199.8	53.0	41.3	81.5	
N1	8.0	-3.6	19/02/08	07:00:00	11:00:00	2343754	1.2	148.7	53.4	41.0	74.3	
N1	9.3	4.7	20/02/08	07:00:00	11:00:00	2343754	4.1	61.8	53.5	41.9	73.6	
* Wind speeds in excess of 5 m/s negatively impact noise readings (as per EPA Guidance Note on Noise Measurement).												

Flow Weir Record Sheet							
Conducted by			Approved by				
Name:	Signed		Name:				
Determinant Results							
Date	SP1			SP3			Comment
	Max (l/s)	Min (l/s)	Avg (l/s)	Max (l/s)	Min (l/s)	Avg (l/s)	
07/02/2008	32.06	13.33	18.16	25.9	13.0	19.2	
08/02/2008	14.42	0.00	0.15	22.6	9.0	15.8	
09/02/2008	3.70	0.00	1.90	22.9	9.6	15.8	
10/02/2008	4.88	0.62	2.91	17.1	8.8	14.5	
11/02/2008	1.59	0.59	1.10	14.2	4.1	9.4	
12/02/2008	1.06	0.09	0.73	9.6	2.2	7.4	
13/02/2008	23.22	0.15	7.75	8.8	0.0	6.7	
14/02/2008	23.22	12.09	20.38	9.0	2.7	6.8	
15/02/2008	22.63	10.93	18.29	9.0	0.6	5.6	
16/02/2008	12.91	12.09	12.47	1.6	1.4	1.5	
17/02/2008	12.09	11.31	11.91	1.6	1.2	1.4	
18/02/2008	27.59	10.93	14.74	7.2	1.0	3.6	
19/02/2008	52.67	4.54	16.71	6.5	-0.1	3.7	
20/02/2008	19.82	7.54	13.64	8.5	-0.1	3.6	

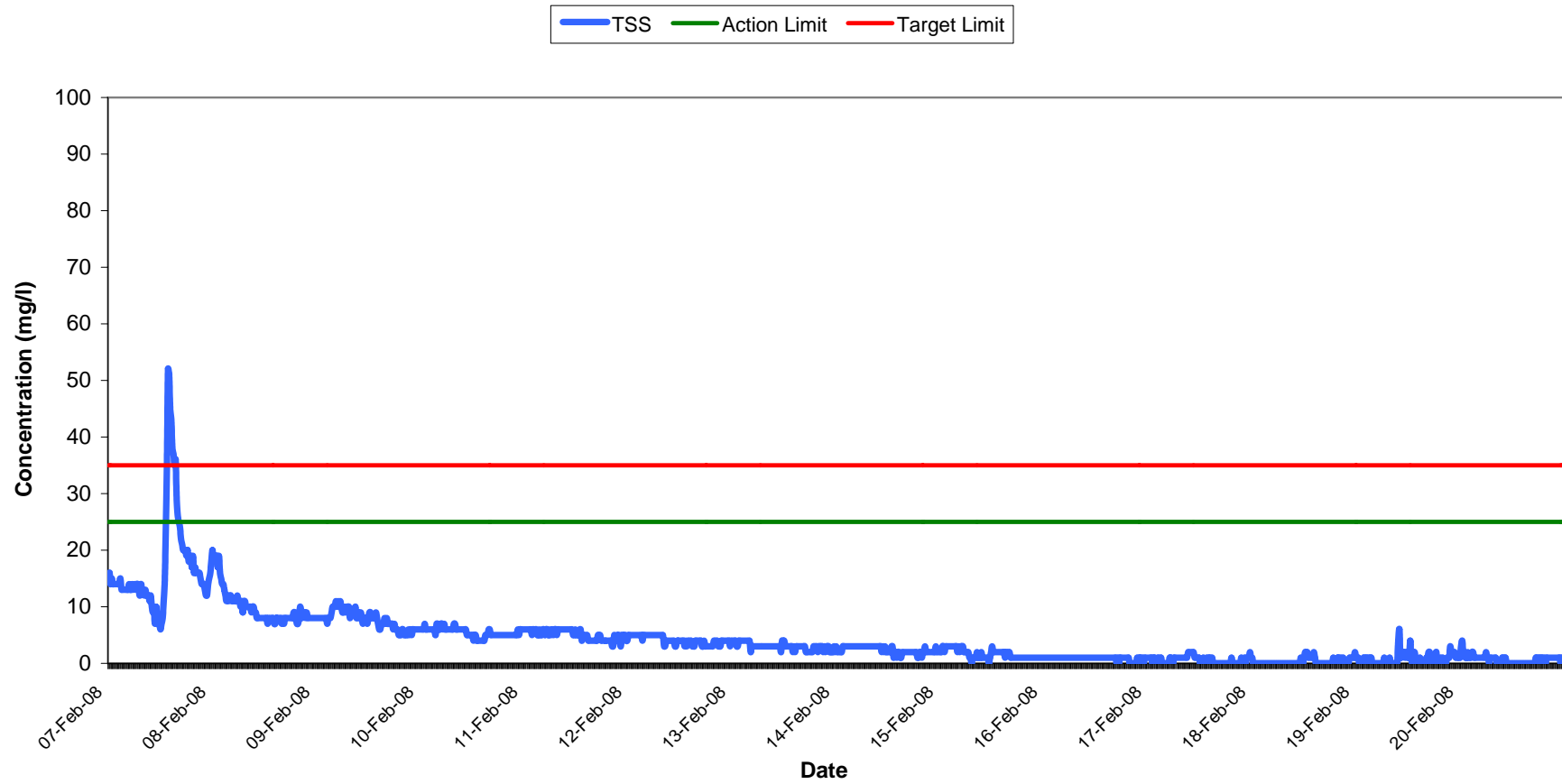
Note: Negative values indicate low flow conditions.

Vibration Monitoring Record Sheet		no...		1 of 1	
Conducted by			Approved by		
Name: Signed			Name: Signed		

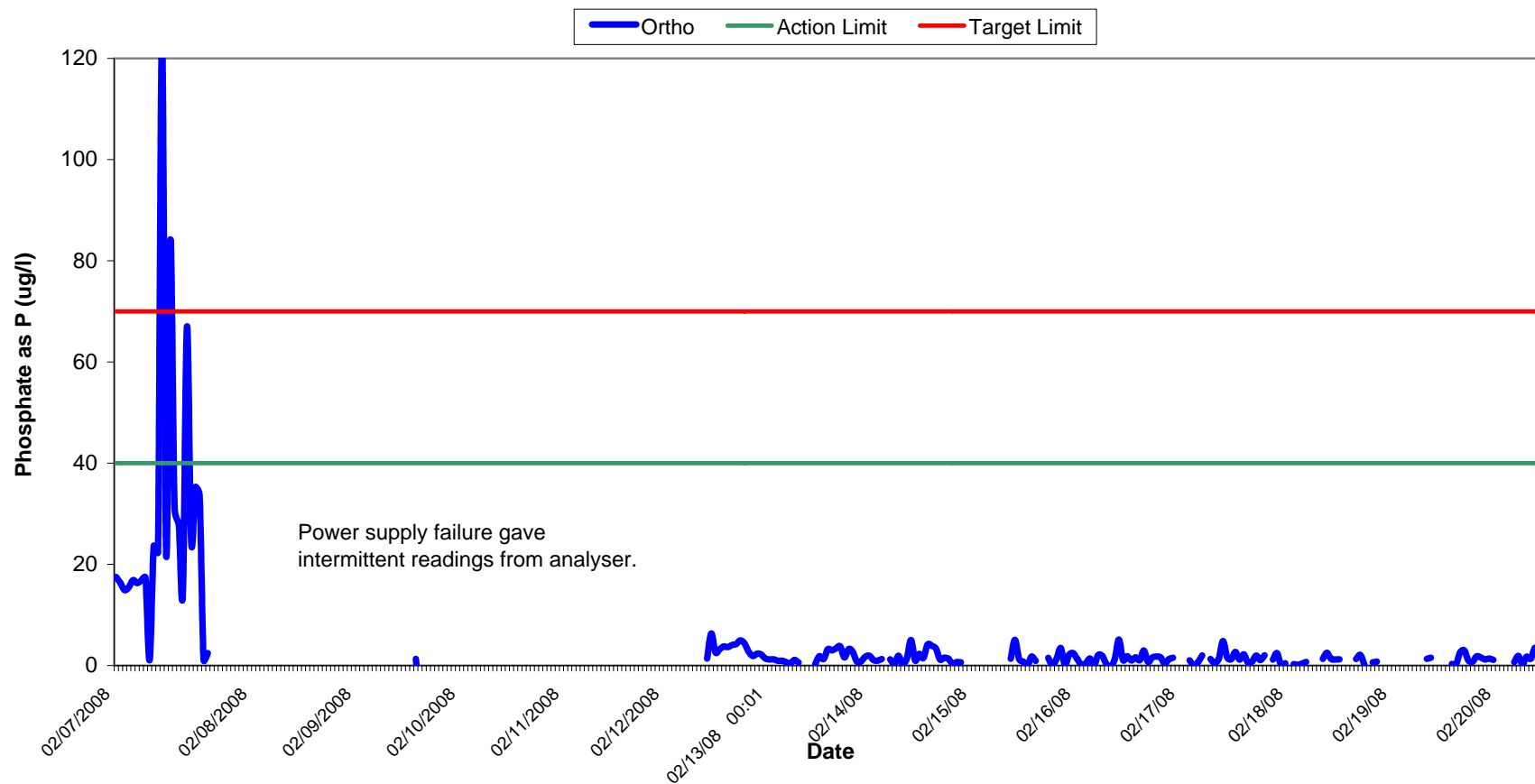
Determinant Results									
Location	Date Positioned	Date Removed	Event Date	Event Time	Peak Vector Sum	Tran PPV	Vert PPV	Long PPV	Comments
V1	04-Feb-08			8:51					Monitor Started
			08/02/2008	17:01	5.26	3.3	4.44	2.29	Sensor check
		09-Feb-08		11:47					Monitor Stopped & housed for wkend
	11-Feb-08			8:41					Monitor Started
			11/02/2008	8:46	3.13	1.52	2.79	0.889	Sensor check
		11-Feb-08		11:09					Monitor Stopped & downloaded
	11-Feb-08			11:13					Monitor Re-started
			13/02/2008	18:33	4.32	3.05	3.3	2.03	Sensor check
		17-Feb-08		11:05					Monitor Stopped & housed for wkend
	18-Feb-08			8:41					Monitor Started
			18/02/2008	8:45	3.87	2.54	2.92	1.4	Sensor check
		21/02.08		12:02					Monitor Stopped

Vibration meter was located at V1 only.

**Total Suspended Solids Results at SP1
Week 07-08, 2008**

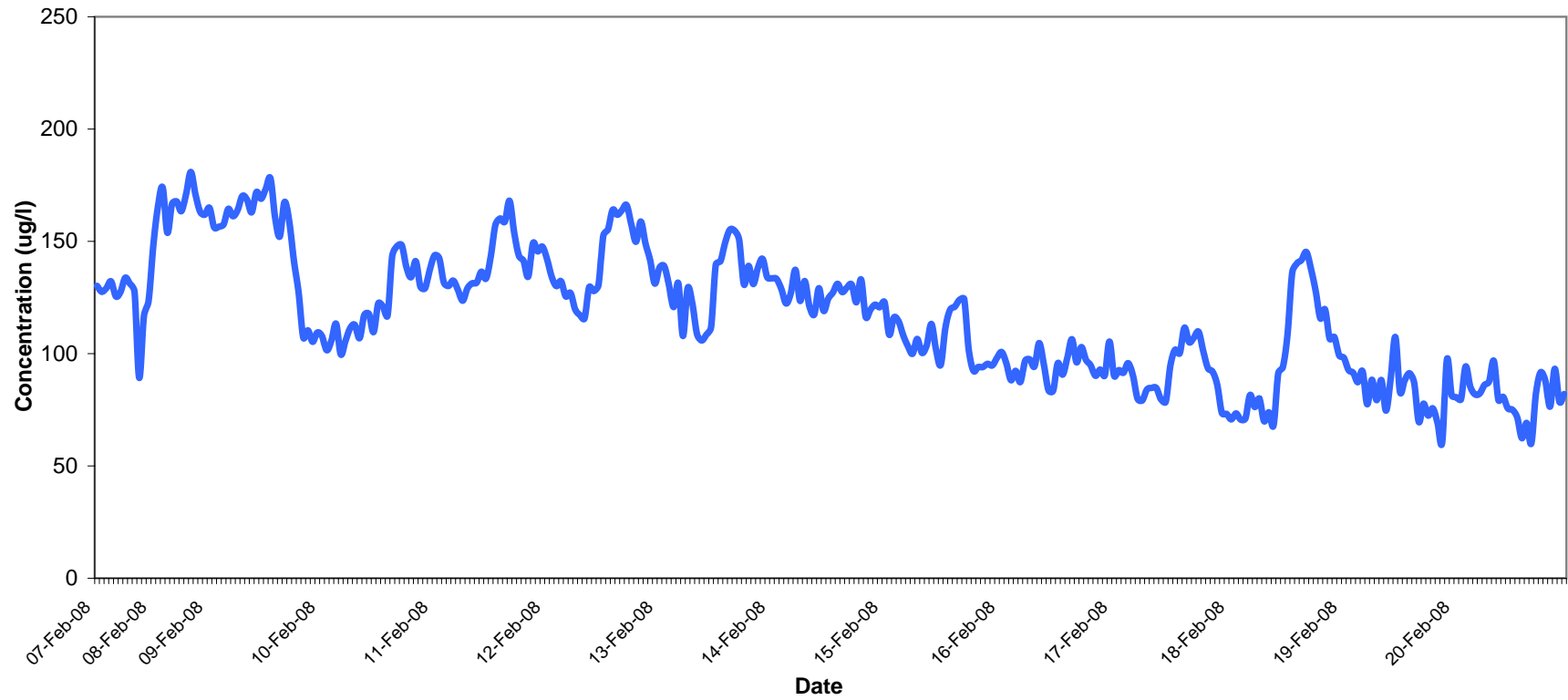


Orthophosphate Results at SP1 Week 07-08, 2008

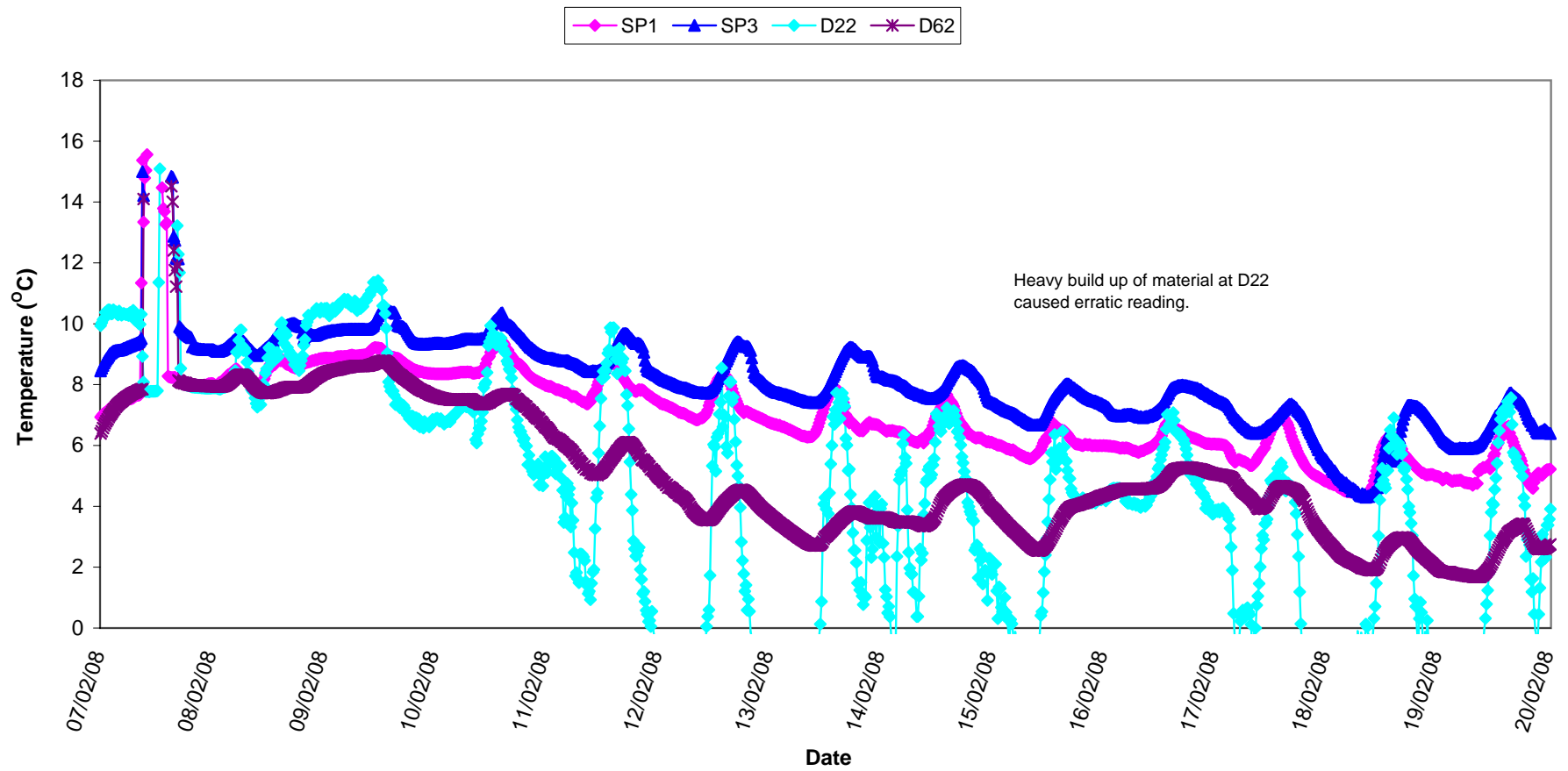


Aluminium Concentration at SP1
Week 07-08, 2008

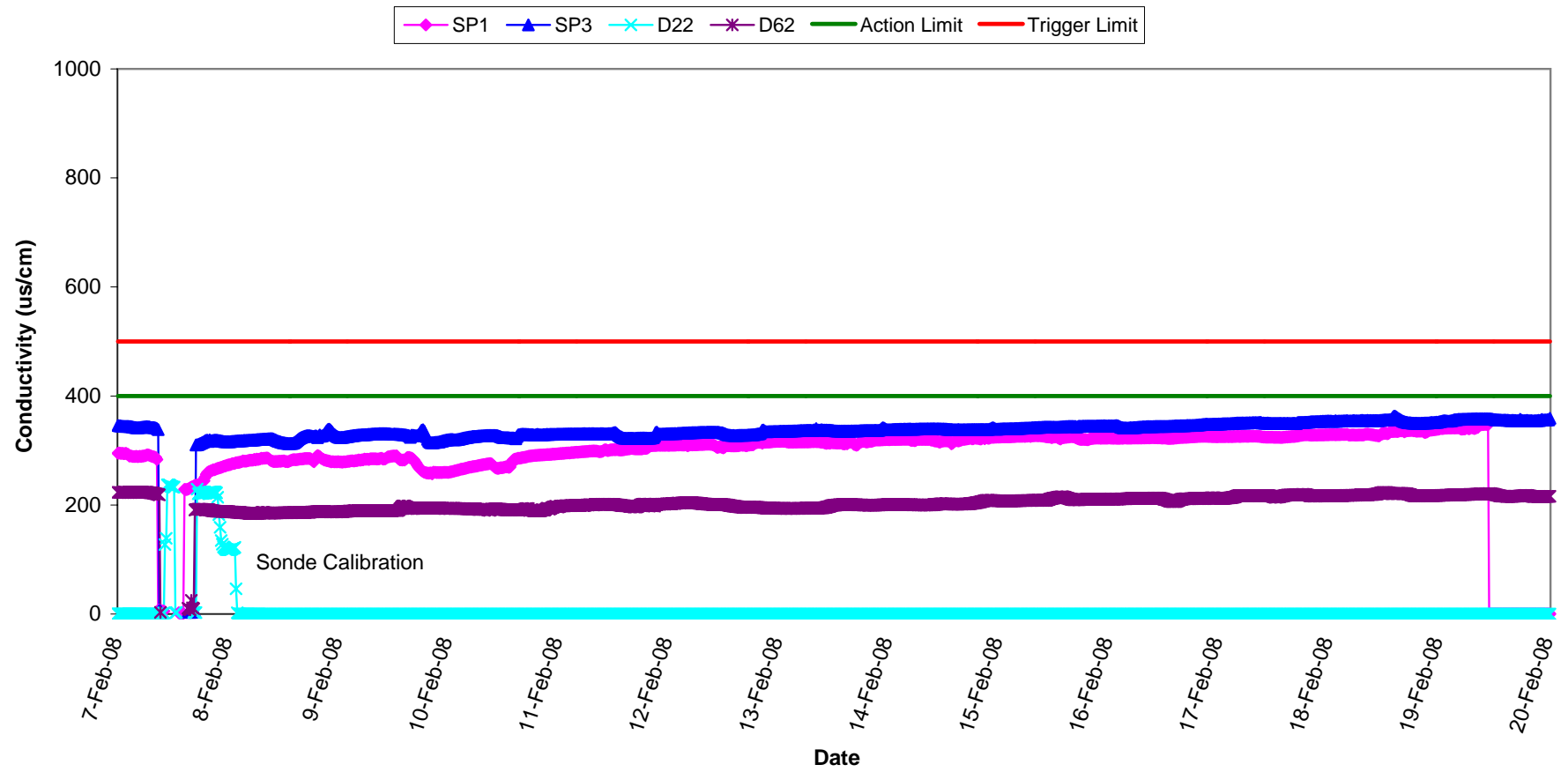
Aluminium



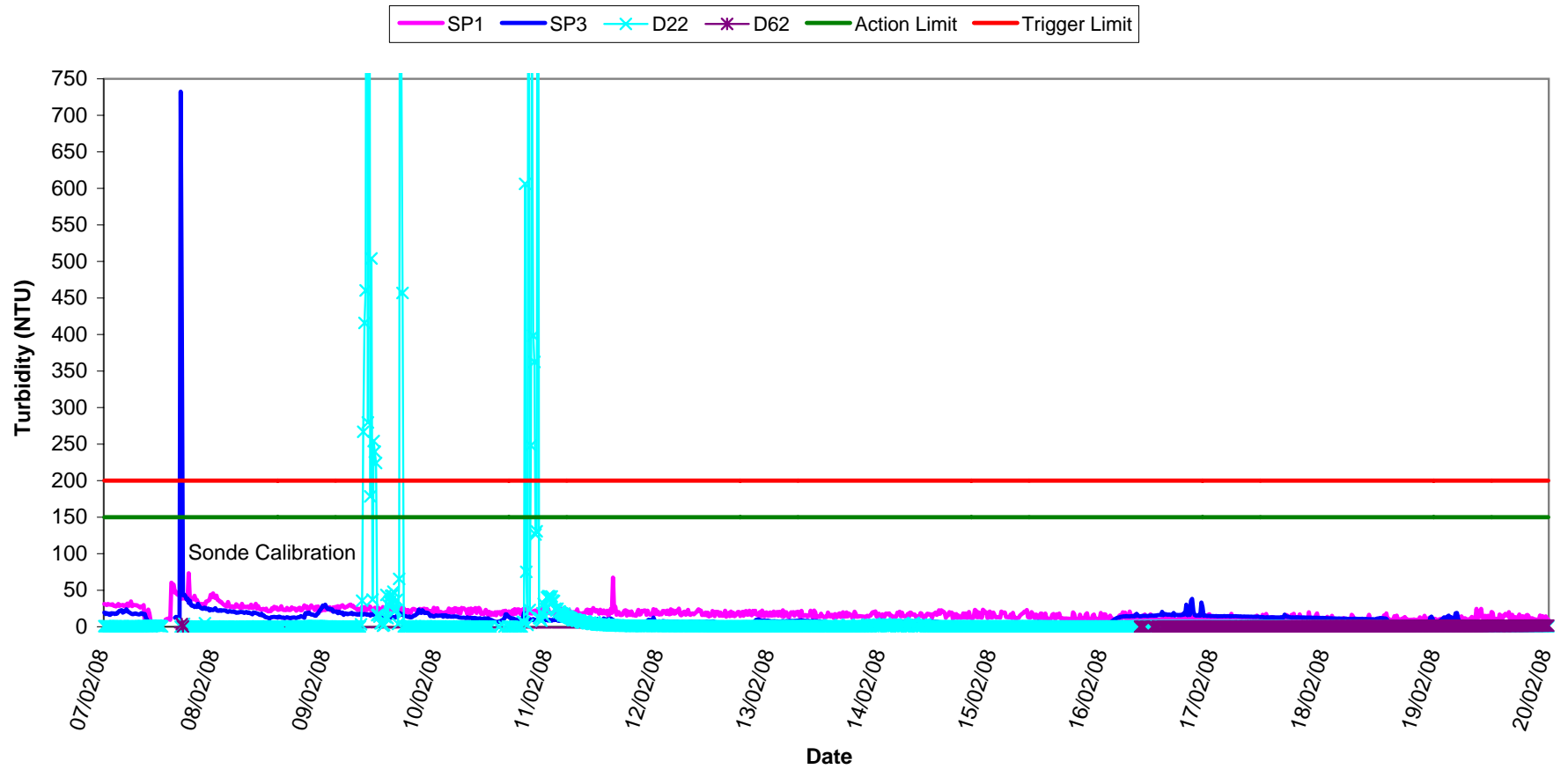
Temperature - Surface Waters,
Week 07-08, 2008



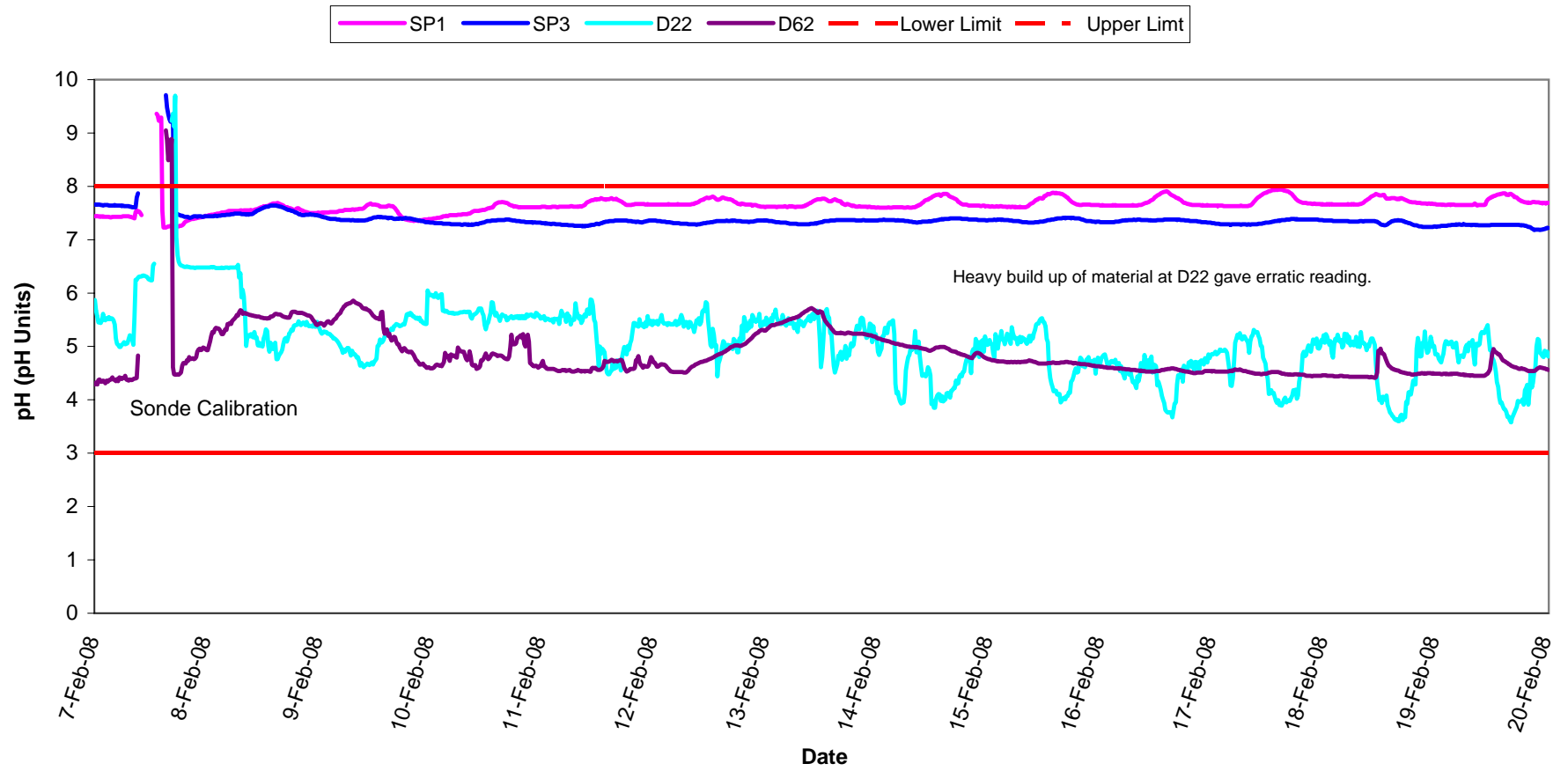
Conductivity - Surface Waters, Week 07-08, 2008



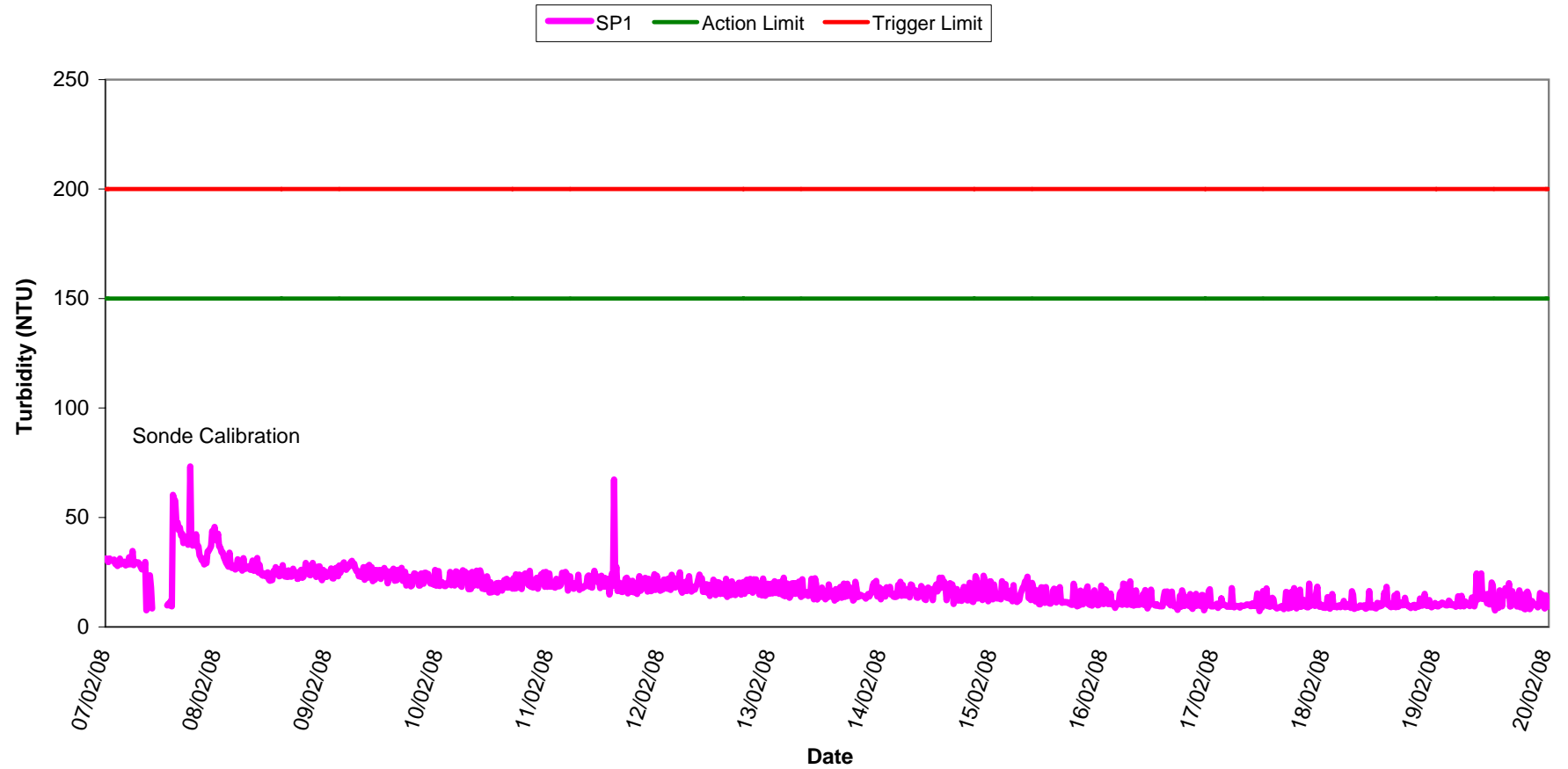
**Turbidity - Surface Waters,
Week 07-08, 2008**



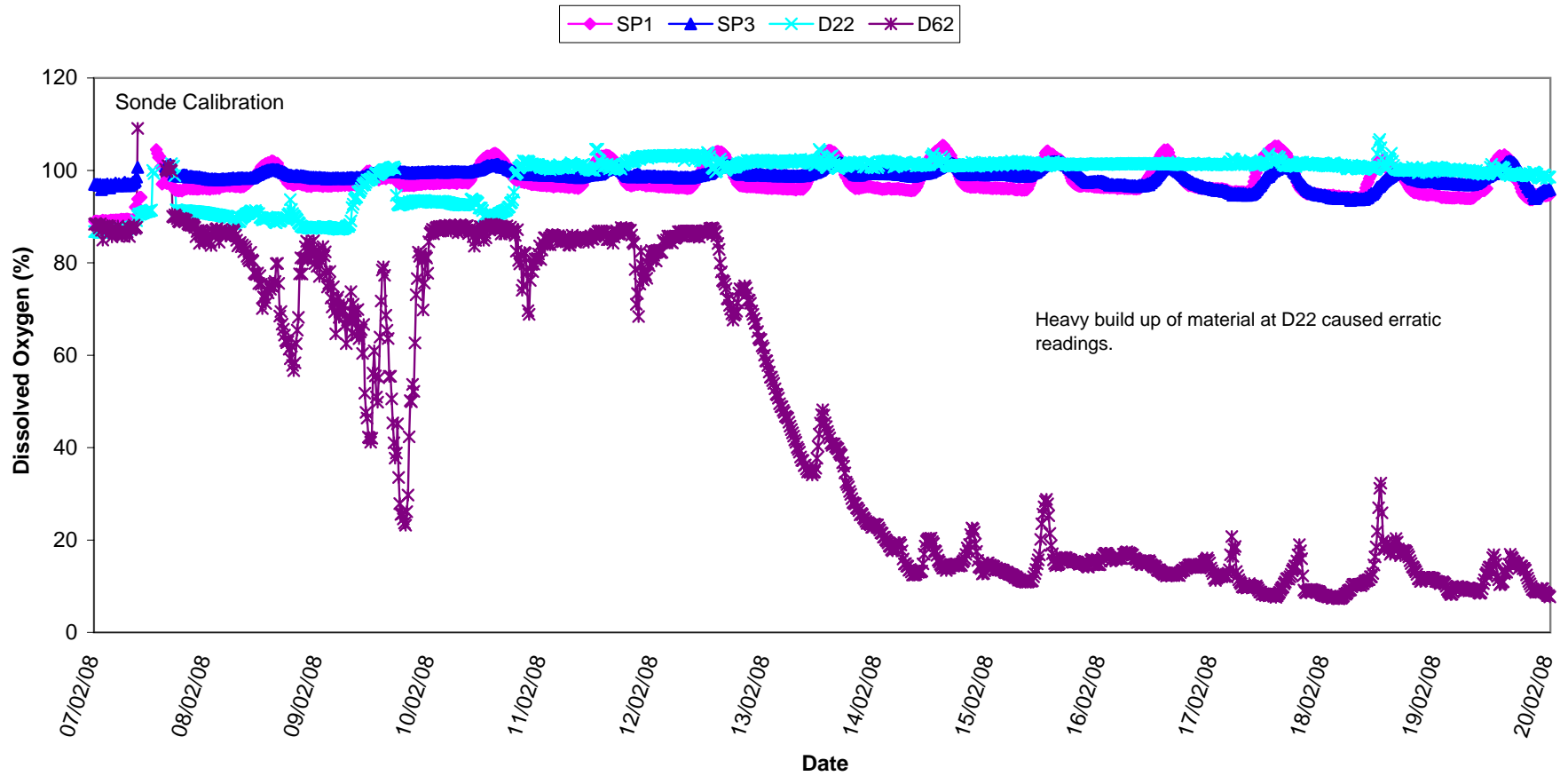
pH - Surface Waters, Week 07-08, 2008



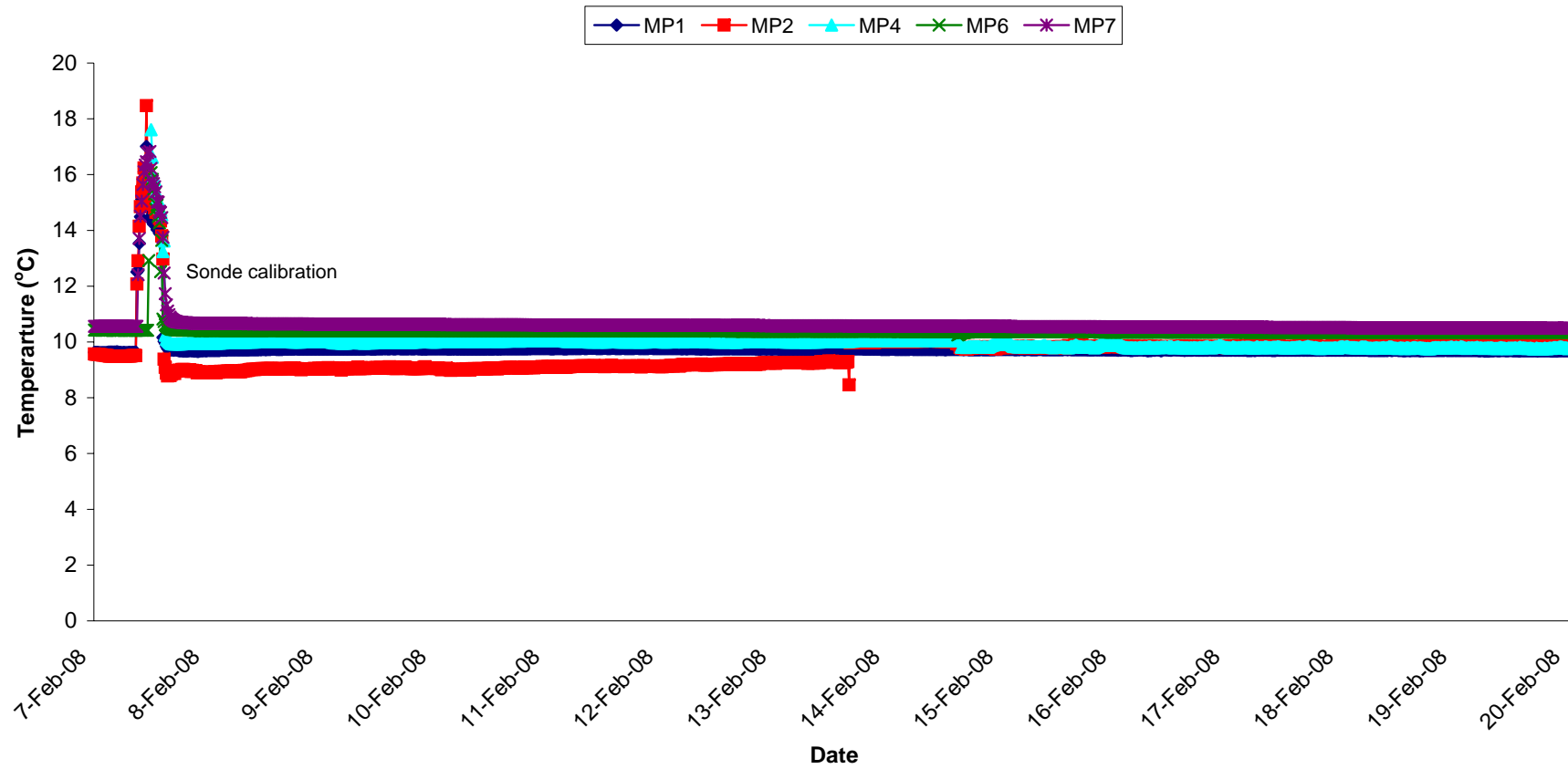
**Turbidity - Surface Waters @ SP1,
Week 07-08, 2008**



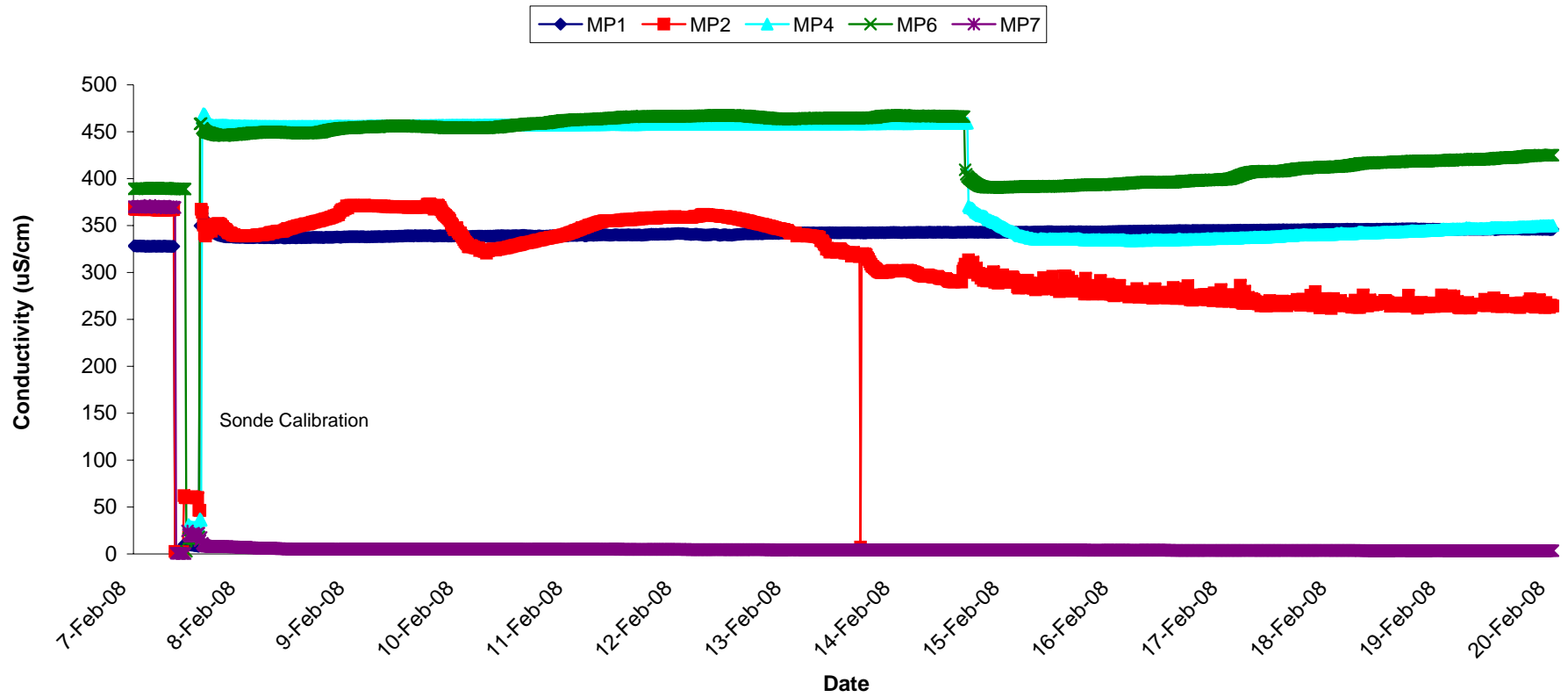
Dissolved Oxygen - Surface Waters, Week 07-08, 2008



Temperature - Groundwaters Week 07-08, 2008



Conductivity - Groundwaters Week 07-08, 2008



**pH - Groundwaters
Week 07-08, 2008**

