

**Final Environmental Report**Period Ending: 23<sup>rd</sup> July 2008

Compiled By: Siobhan Quinn &amp; Thomas McGlynn

Approved By: Aoife Reynolds

## 1 Monitoring Data

### 1.1 Monitoring Equipment

Axonics	– Axonics plant operated as required for the majority of the reporting period.
PO <sub>4</sub>	<ul style="list-style-type: none"> <li>– The PO<sub>4</sub> analyser was operational but some gaps in the data were encountered. Technical advice is being sought to eliminate this problem.</li> <li>– The composite sampler was in place to cover any shortfalls in the PO<sub>4</sub> analyser.</li> </ul>
TSS	<ul style="list-style-type: none"> <li>– The TSS analyser was operational during the reporting period.</li> <li>– The composite sampler was in place to cover any shortfalls in the TSS analyser.</li> </ul>
Composite	– The composite sampler was operational during the reporting period.
Noise	<ul style="list-style-type: none"> <li>– There is a single noise monitoring location currently being used – N1.</li> <li>– The other location is visible from off-site and because of current protestor action it cannot be guaranteed that the equipment remains undisturbed.</li> </ul>
Vibration	<ul style="list-style-type: none"> <li>– There is a single vibration monitoring location currently being used – V1.</li> <li>– The other location is visible from off-site and because of current protestor action it cannot be guaranteed that the equipment remains undisturbed.</li> </ul>
Sondes	<ul style="list-style-type: none"> <li>– The results are displayed graphically. <ul style="list-style-type: none"> <li>○ Any unusual values are explained on the relevant graph.</li> </ul> </li> </ul>
Weather Station	– The data used for this reporting period was taken from the on-site meteorological station.
Weirs	- The weirs were operational during the reporting period.

### 1.2 Rainfall Data

10/07/2008	4.68	17/07/2008	2.15
11/07/2008	0.20	18/07/2008	1.95
12/07/2008	0.20	19/07/2008	0.59
13/07/2008	0.20	20/07/2008	0.00
14/07/2008	0.78	21/07/2008	3.12
15/07/2008	1.17	22/07/2008	4.88
16/07/2008	4.49	23/07/2008	0.39
Total Rainfall 24.77mm			

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### 1.3 Summary

Environment	Comments
Surface Water	There was no exceedance during the reporting period.
Groundwater	The groundwater data (Sonde) is within anticipated ranges.
Dust	Dust monitoring results were within the limits.
Weather	There was a total of 24.8mm of rainfall during the reporting period, with a temperature range of 7.3°C to 20.2°C
Noise	All noise levels were within the limit.
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

There was no exceedance during the reporting period.

## Surface Water Monitoring Record Sheet: Accredited Laboratory Results

[illegible]

Groundwater Monitoring Record Sheet																							
Determinant Results																							
Location	Date	DO % Sat	Temp °C	Cond. uS/cm	pH	TDS mg l <sup>-1</sup>	Nitrate as NO <sub>3</sub> mg l <sup>-1</sup>	Ammonia mg l <sup>-1</sup>	Aluminium ug l <sup>-1</sup>	BOD mg l <sup>-1</sup>	TSS mg l <sup>-1</sup>	Orthophos phate as P ug l <sup>-1</sup>	Total Hardness mg/l CaCO <sub>3</sub>	Nitrite as NO <sub>2</sub> mg l <sup>-1</sup>	Arsenic ug l <sup>-1</sup>	Mercury ug l <sup>-1</sup>	Lead ug l <sup>-1</sup>	Zinc ug l <sup>-1</sup>	Chromium ug l <sup>-1</sup>	Copper ug l <sup>-1</sup>	Cadmium ug l <sup>-1</sup>	Iron ug l <sup>-1</sup>	Tin ug l <sup>-1</sup>
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 for: Temperature, Conductivity, and pH. No ground water monitoring during the reporting period																							

Determinant Results							
	Date Positioned	Date Removed	Ref. Number	Date Dispatched	Date Returned	Weight (mg/sq.m/day)	Comments
<b>Target (Consent) Limit:</b> 350 mg m <sup>2</sup> d <sup>-1</sup> on as a 30 day average							
D1	25/04/2008	26/05/2008	172506	28/05/2008	09/06/2008	134	
D2	25/04/2008	26/05/2008	172507	28/05/2008	09/06/2008	121	
D3	25/04/2008	26/05/2008	172508	28/05/2008	09/06/2008	209	
D4	25/04/2008	26/05/2008	172509	28/05/2008	09/06/2008	119	
D1	26/05/2008	26/06/2008	177618	02/07/2008	11/07/2008	191	
D2	26/05/2008	26/06/2008	177619	02/07/2008	11/07/2008	159	
D3	26/05/2008	26/06/2008	177620	02/07/2008	11/07/2008	1046	Very heavy peat like substance in jar
D4	26/05/2008	26/06/2008	177621	02/07/2008	11/07/2008	151	
D1	26/06/2008	25/07/2008	179466	30/07/2008	20/08/2008	52	
D2	26/06/2008	25/07/2008	179467	30/07/2008	20/08/2008	347	
D3	26/06/2008	25/07/2008	179464	30/07/2008	20/08/2008	87	
D4	26/06/2008	25/07/2008	179465	30/07/2008	20/08/2008	33	
NDP = No Determination Possible							
Monitoring Points are numbered clockwise through the Cardinal Marks (N, E, S, W)							
Monitoring Results will be presented monthly							

### Determinant Results

Determinant Results							
	Date Positioned	Date Removed	Ref. Number	Date Dispatched	Date Returned	Weight (mg/sq.m/day)	Comments

Target (Consent) Limit:	350 mg m <sup>2</sup> d <sup>-1</sup> on as a 30 day average
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D1	25/04/2008	26/05/2008	172506	28/05/2008	09/06/2008	134	
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D2	25/04/2008	26/05/2008	172507	28/05/2008	09/06/2008	121	
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D3	25/04/2008	26/05/2008	172508	28/05/2008	09/06/2008	209	
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D4	25/04/2008	26/05/2008	172509	28/05/2008	09/06/2008	119	
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D1	26/05/2008	26/06/2008	177618	02/07/2008	11/07/2008	191	
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D2	26/05/2008	26/06/2008	177619	02/07/2008	11/07/2008	159	
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D3	26/05/2008	26/06/2008	177620	02/07/2008	11/07/2008	1046	Very heavy peat like substance in jar
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D4	26/05/2008	26/06/2008	177621	02/07/2008	11/07/2008	151	
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D1	26/06/2008	25/07/2008	179466	30/07/2008	20/08/2008	52	
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D2	26/06/2008	25/07/2008	179467	30/07/2008	20/08/2008	347	
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D3	26/06/2008	25/07/2008	179464	30/07/2008	20/08/2008	87	
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D4	26/06/2008	25/07/2008	179465	30/07/2008	20/08/2008	33
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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

Determinant	Results
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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 <sub>Aeq</sub>	L <sub>Amax</sub>	L <sub>Amin</sub>	
<b>Action Limit</b>									<b>60</b>			
<b>Target Limit</b>									<b>65</b>			
N1	16.5	12.8	10/07/2008	08:00:00	14:00:00	2539533	3.6	184.3	48.9	77.6	32.9	
N1	15.0	10.9	11/07/2008	08:00:00	14:00:00	2539533	5.0	160.5	47.2	74.4	30.7	
N1	17.9	14.4	14/07/2008	08:00:00	14:00:00	2539533	3.6	52.5	49.2	85.8	30.0	
N1	17.1	13.4	15/07/2008	08:00:00	14:00:00	2539533	4.6	86.3	49.3	78.2	30.6	
N1	15.1	12.5	16/07/2008	08:00:00	14:00:00	2539533	3.9	85.1	47.3	74.6	31.5	
N1	15.7	13.4	17/07/2008	08:00:00	14:00:00	2539533	3.7	91.2	45.6	75.7	30.0	
N1	16.4	13.1	18/07/2008	08:00:00	14:00:00	2539533	4.1	89.6	52.7	79.7	30.0	
N1	17.3	7.9	21/07/2008	08:00:00	14:00:00	2539533	3.7	42.4	43.7	66.6	31.3	
N1	17.6	14.4	22/07/2008	08:00:00	14:00:00	2539533	5.1	31.5	42.5	67.4	30.0	
N1	20.2	13.3	23/07/2008	08:00:00	14:00:00	2539533	2.8	111.1	42.3	71.5	30.0	

\* 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
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Location	Air Temp. (Max)	Air Temp. (Min)	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>	
<b>Action Limit</b>									<b>50</b>			
<b>Target Limit</b>									<b>55</b>			
N1	16.5	12.8	10/07/2008	22:00:00	10:00:00	2539533	3.6	184.3	41.7	67.6	32.2	
N1	15.0	10.9	11/07/2008	22:00:00	10:00:00	2539533	5.0	160.5	38.9	63.8	30.0	
N1	17.9	14.4	14/07/2008	22:00:00	10:00:00	2539533	3.6	52.5	47.3	63.5	31.5	
N1	17.1	13.4	15/07/2008	22:00:00	10:00:00	2539533	4.6	86.3	41.6	66.0	30.0	
N1	15.1	12.5	16/07/2008	22:00:00	10:00:00	2539533	3.9	85.1	42.3	65.8	30.0	
N1	15.7	13.4	17/07/2008	22:00:00	10:00:00	2539533	3.7	91.2	40.9	67.8	30.0	
N1	16.4	13.1	18/07/2008	22:00:00	10:00:00	2539533	4.1	89.6	41.0	65.2	43.7	
N1	17.3	7.9	21/07/2008	22:00:00	10:00:00	2539533	3.7	42.4	54.2	81.3	30.0	
N1	17.6	14.4	22/07/2008	22:00:00	10:00:00	2539533	5.1	31.5	49.8	71.9	31.8	
N1	20.2	13.3	23/07/2008	22:00:00	10:00:00	2539533	2.8	111.1	46.5	75.3	30.0	

\* 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)
10/07/2008	10.74	2.63	7.06	6.50	1.74	3.75
11/07/2008	5.86	1.31	4.52	2.38	1.30	1.80
12/07/2008	5.23	4.00	4.77	2.21	0.67	1.71
13/07/2008	4.00	2.17	2.92	0.67	-0.03	0.32
14/07/2008	3.50	0.31	2.70	0.67	-0.13	0.41
15/07/2008	3.32	0.03	1.40	0.67	-0.03	0.26
16/07/2008	2.55	0.29	1.85	0.36	-0.18	0.17
17/07/2008	1.90	0.25	1.37	-0.08	-0.18	-0.13
18/07/2008	2.32	0.73	1.65	0.13	-0.18	-0.04
19/07/2008	2.25	0.55	1.58	0.13	-0.23	-0.02
20/07/2008	1.41	0.97	1.14	-0.08	-0.33	-0.21
21/07/2008	1.59	0.11	0.50	0.02	-0.38	-0.32
22/07/2008	5.11	0.47	3.15	2.05	0.02	0.90
23/07/2008	27.26	1.47	5.93	1.44	1.44	1.44

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



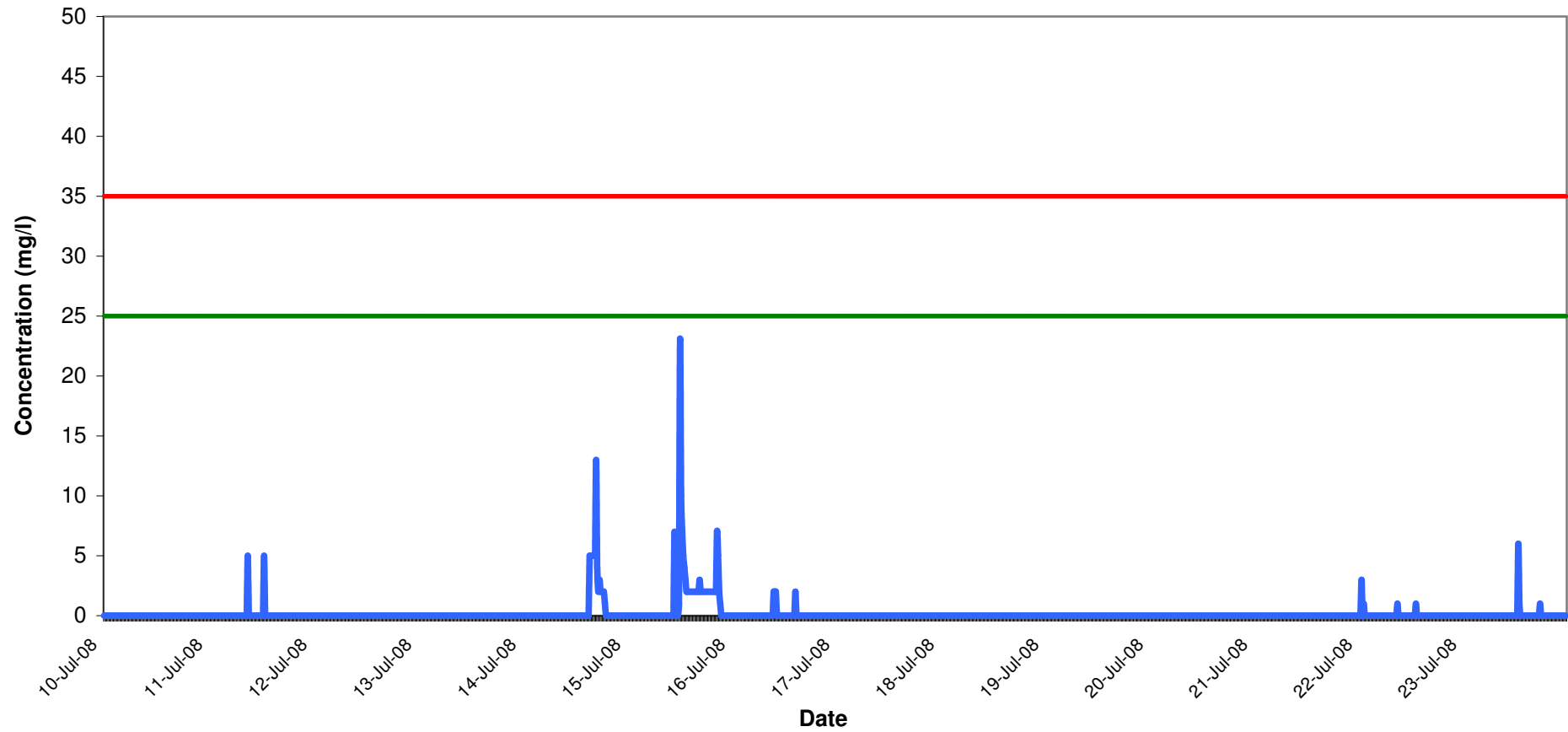
## Vibration Monitoring Record Sheet

[illegible]

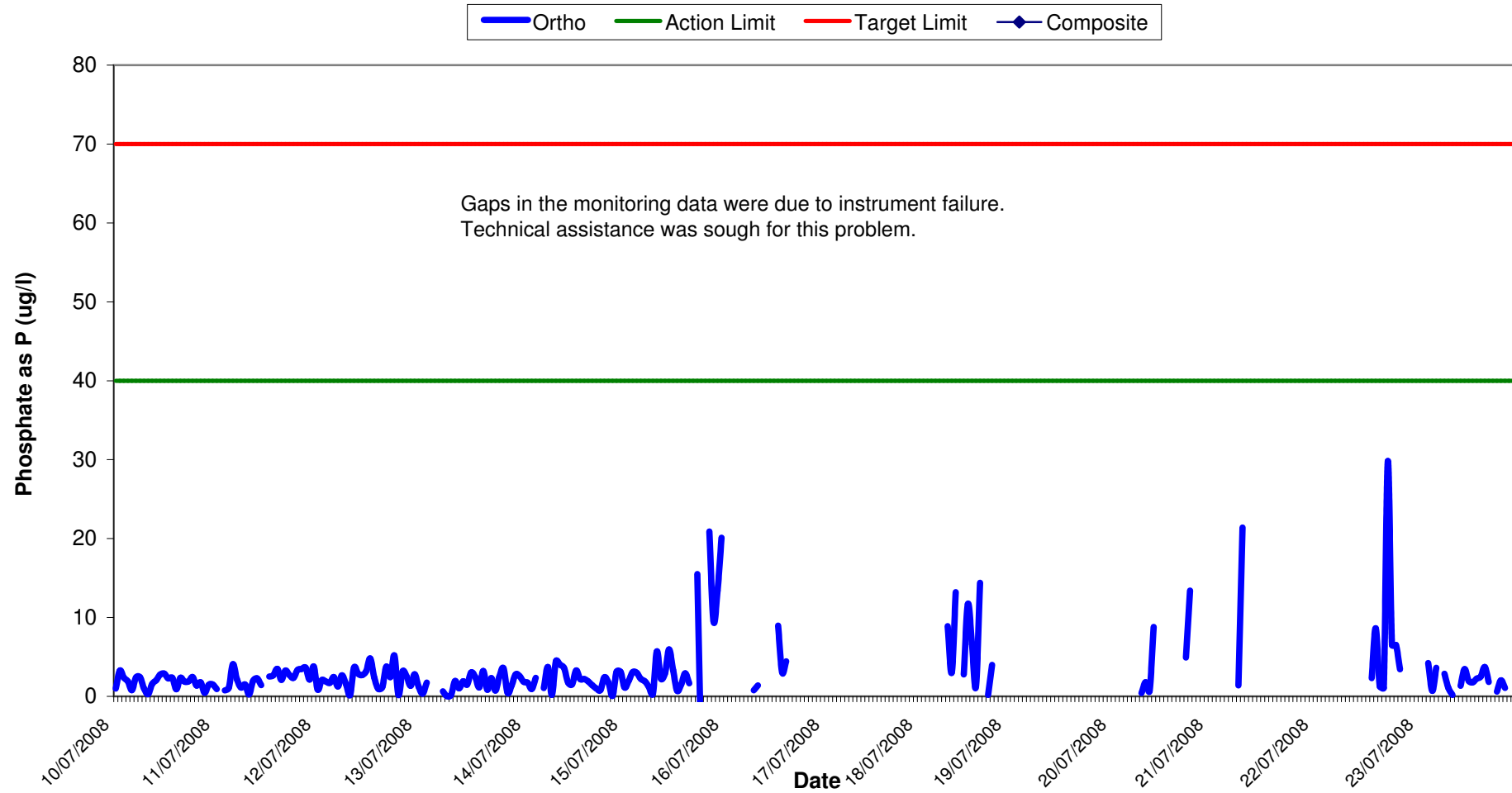
Vibration meter was located at V1 only.

# Total Suspended Solids Results at SP1 Wk 29-30

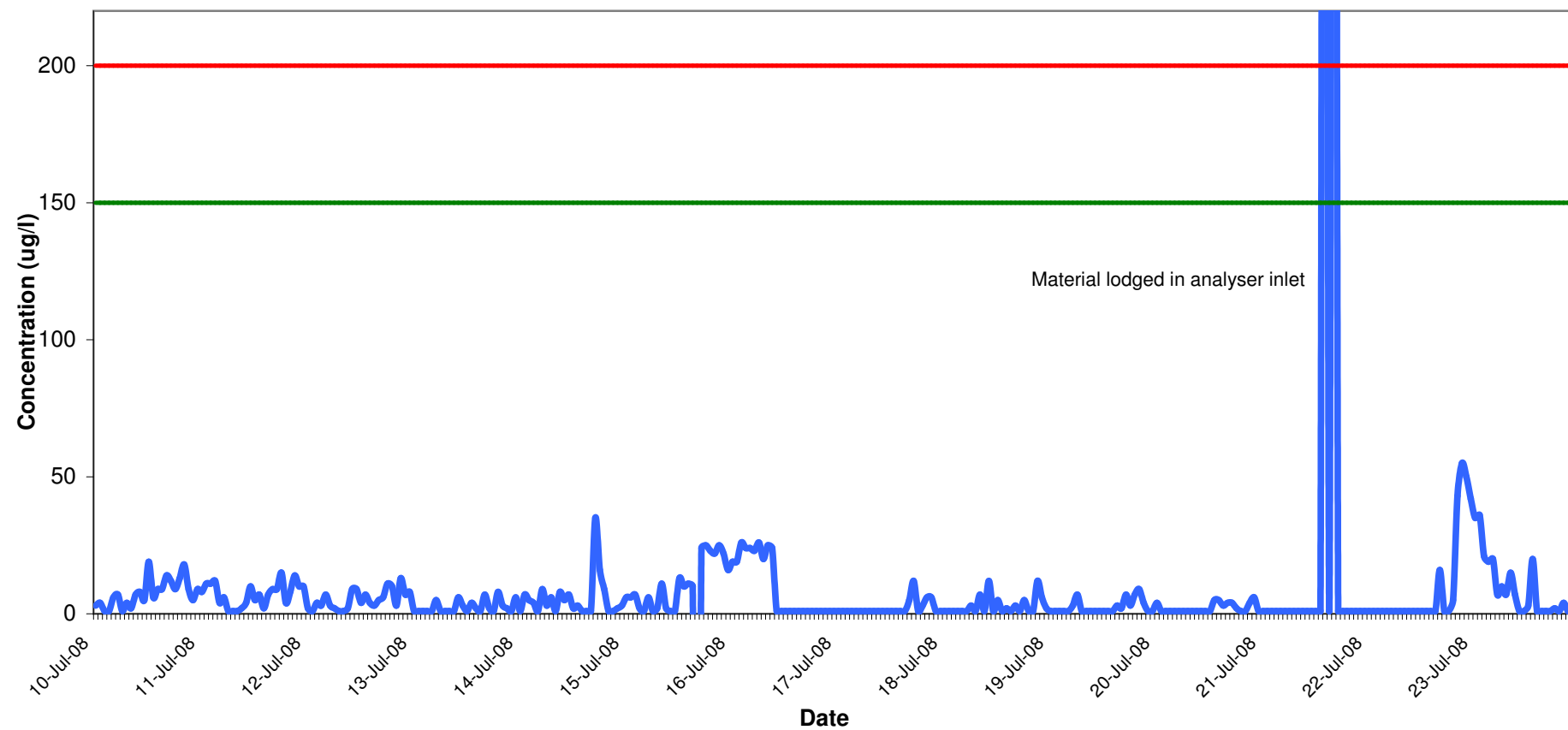
TSS   Action Limit   Target Limit   Composite



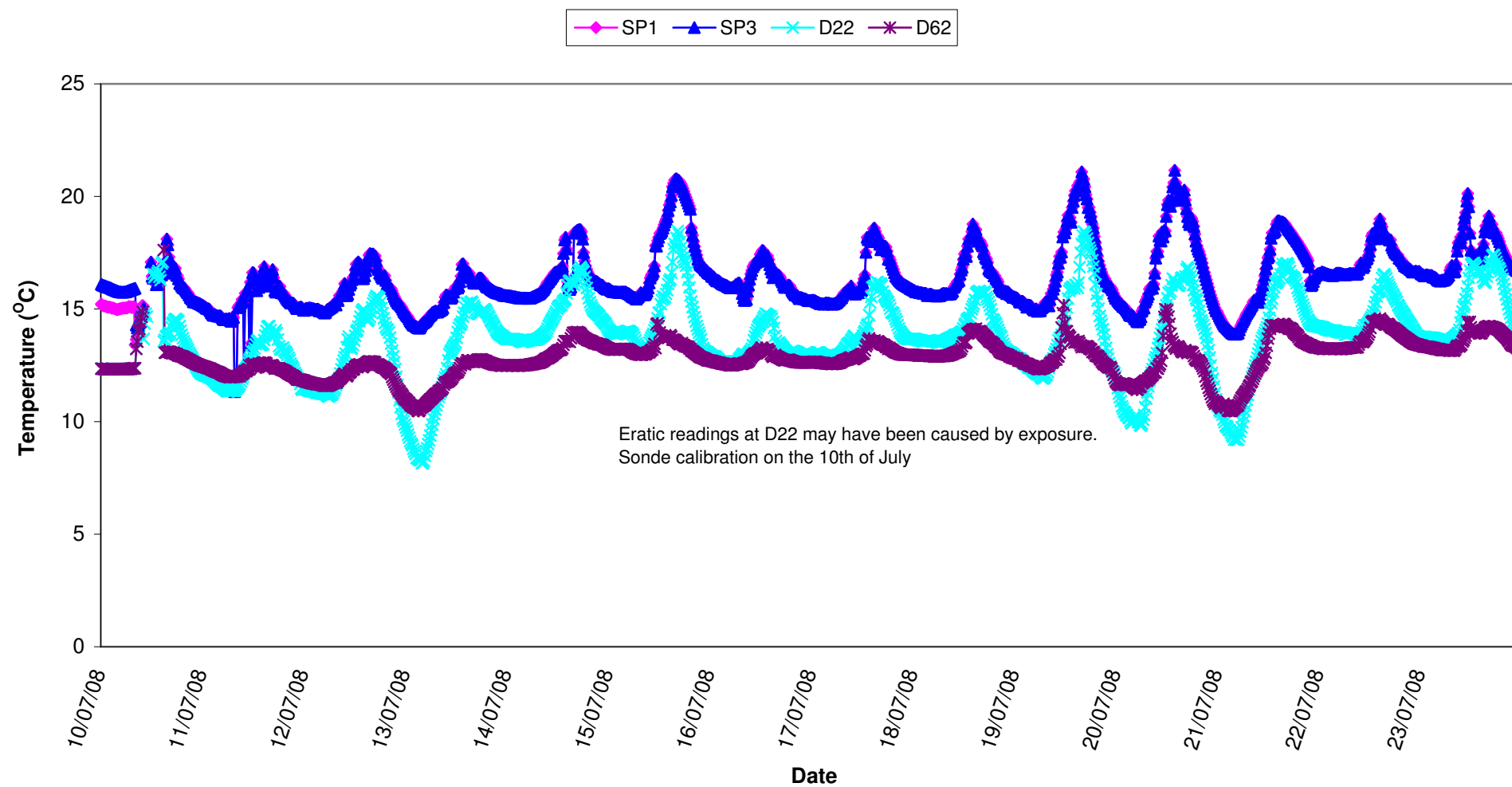
# Orthophosphate Results at SP1 Wk 29-30



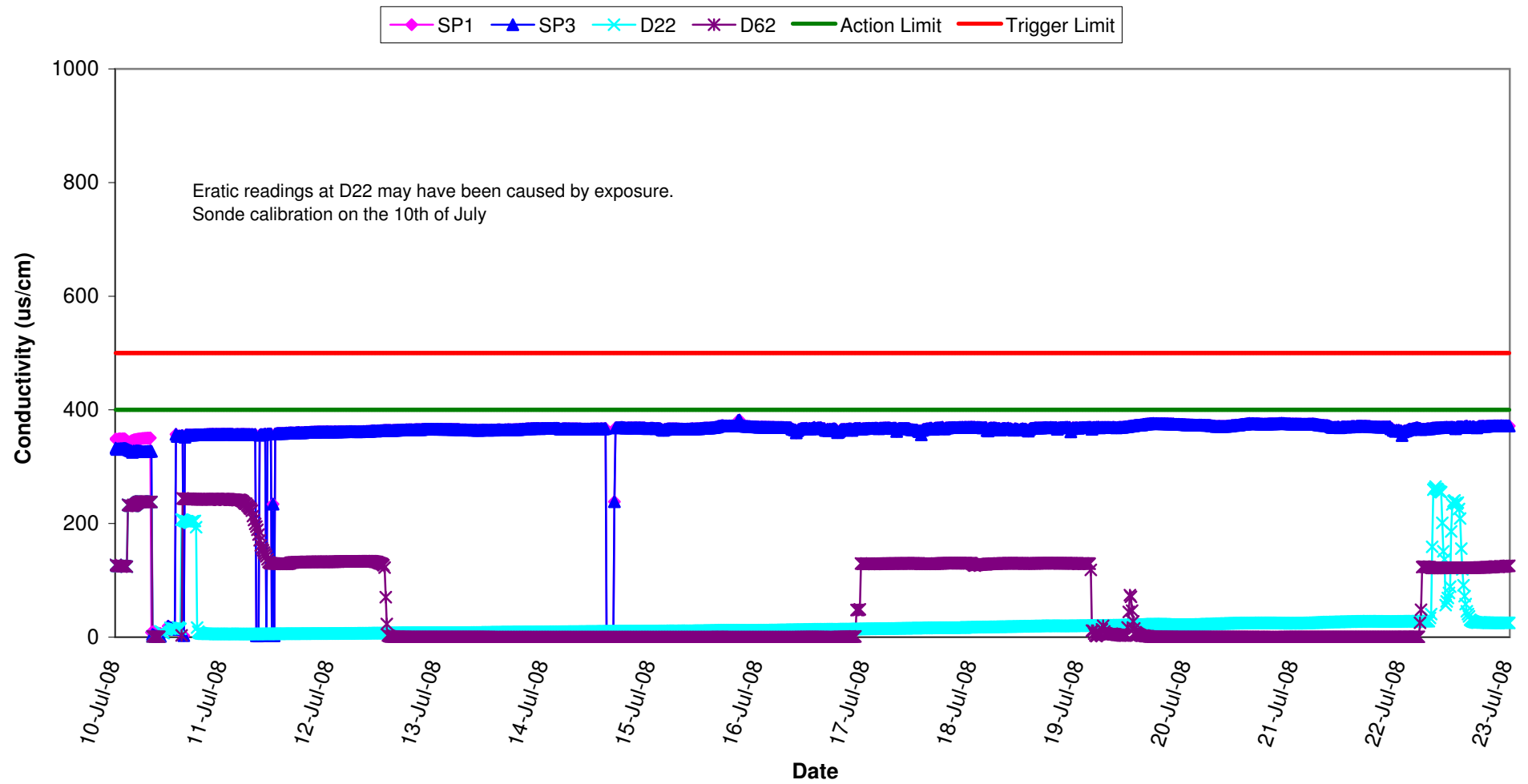
# Aluminium Concentration at SP1 Wk 29-30



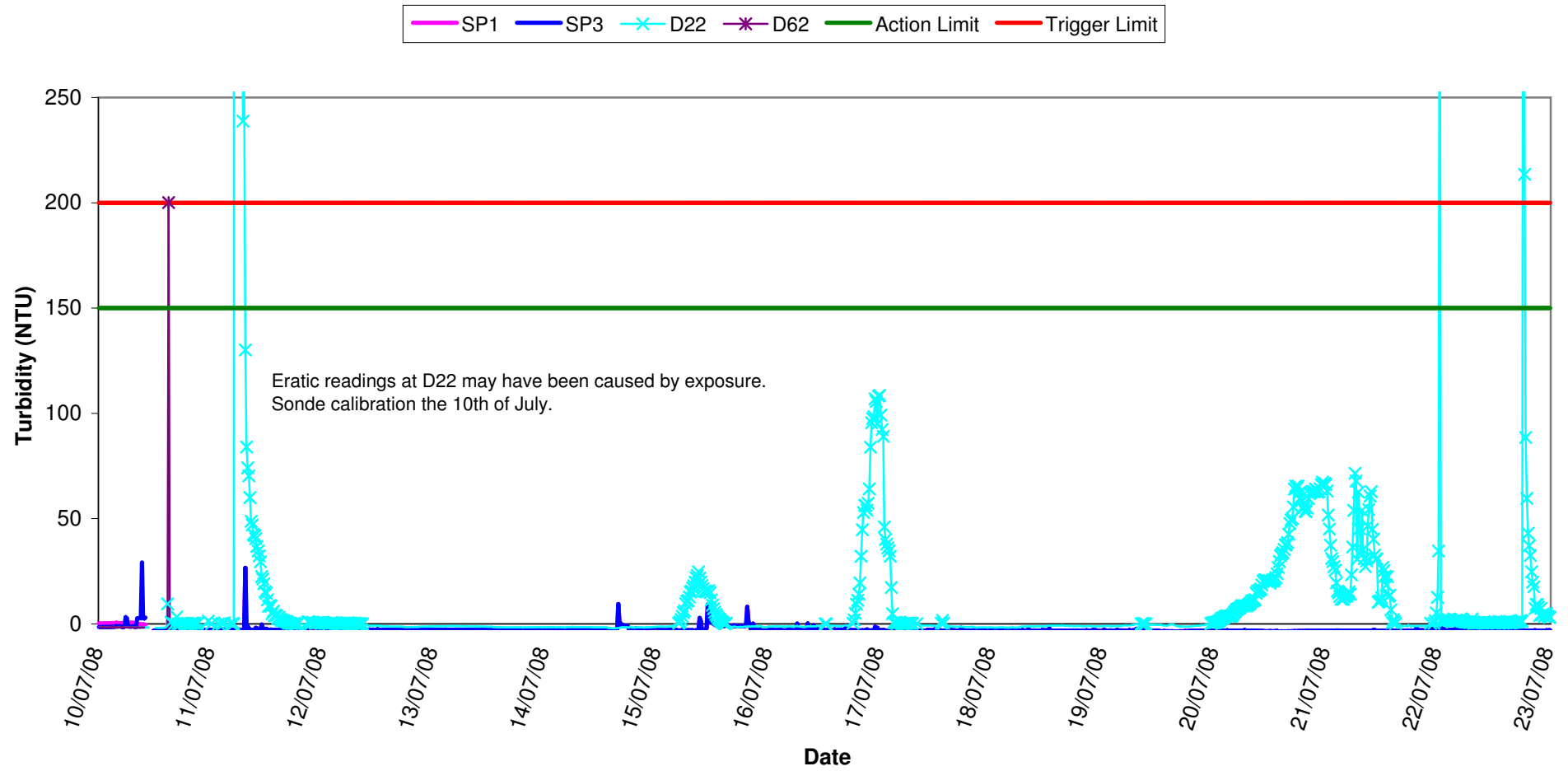
# Temperature - Surface Waters Wk 29-30



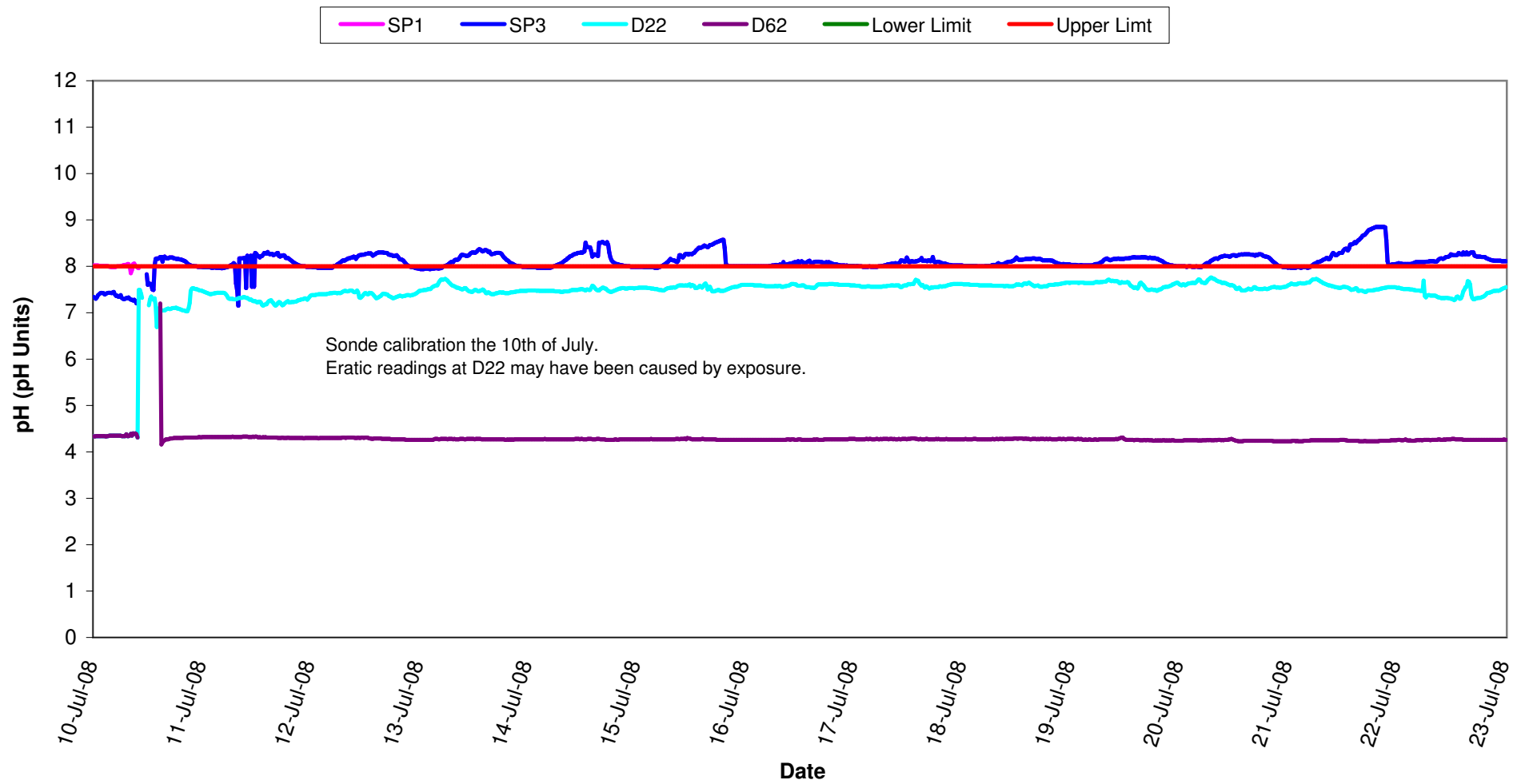
# Conductivity - Surface Waters, Wk 29-30



## Turbidity - Surface Waters Wk 29-30

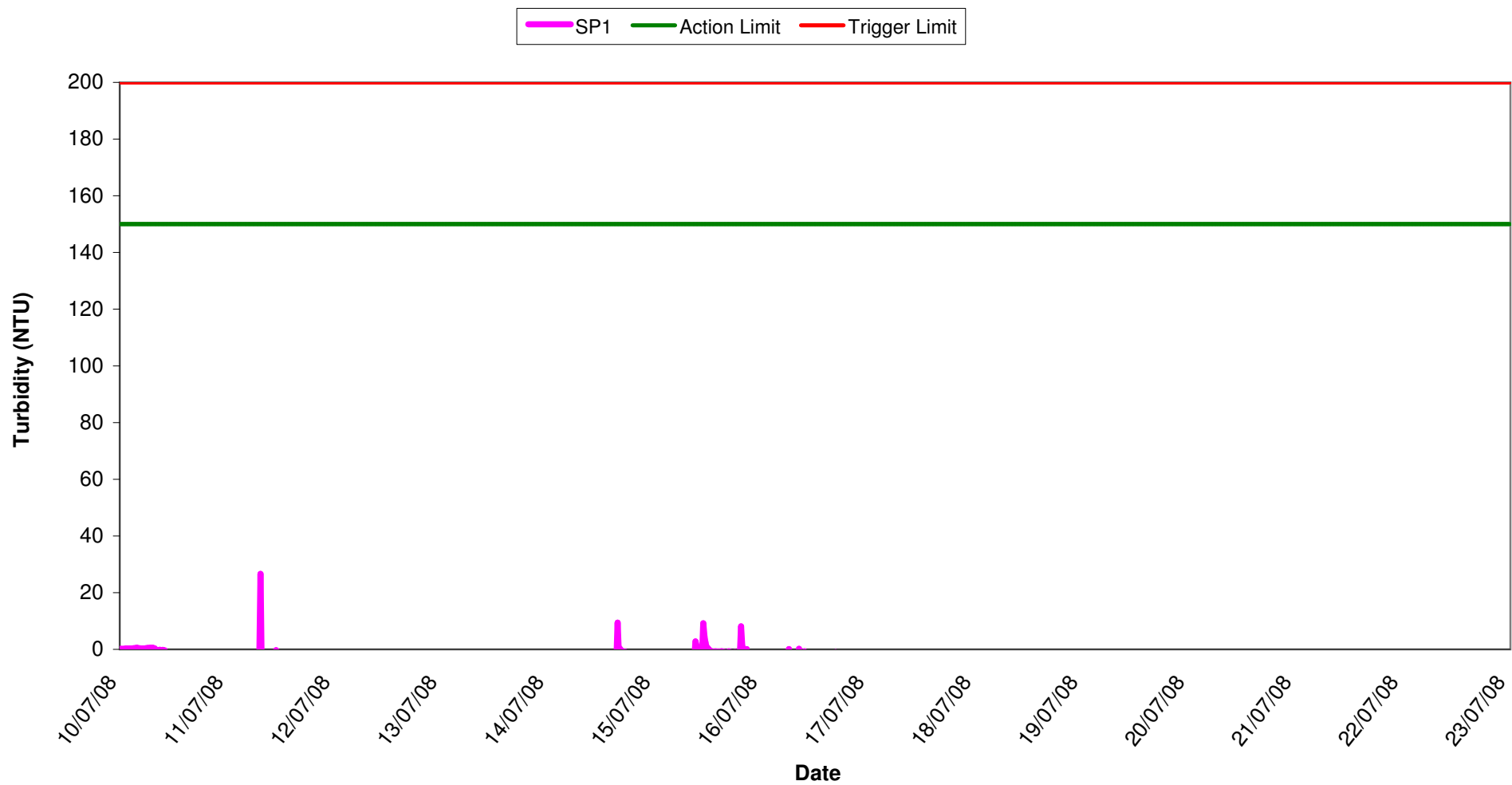


# pH - Surface Waters Wk 29-30

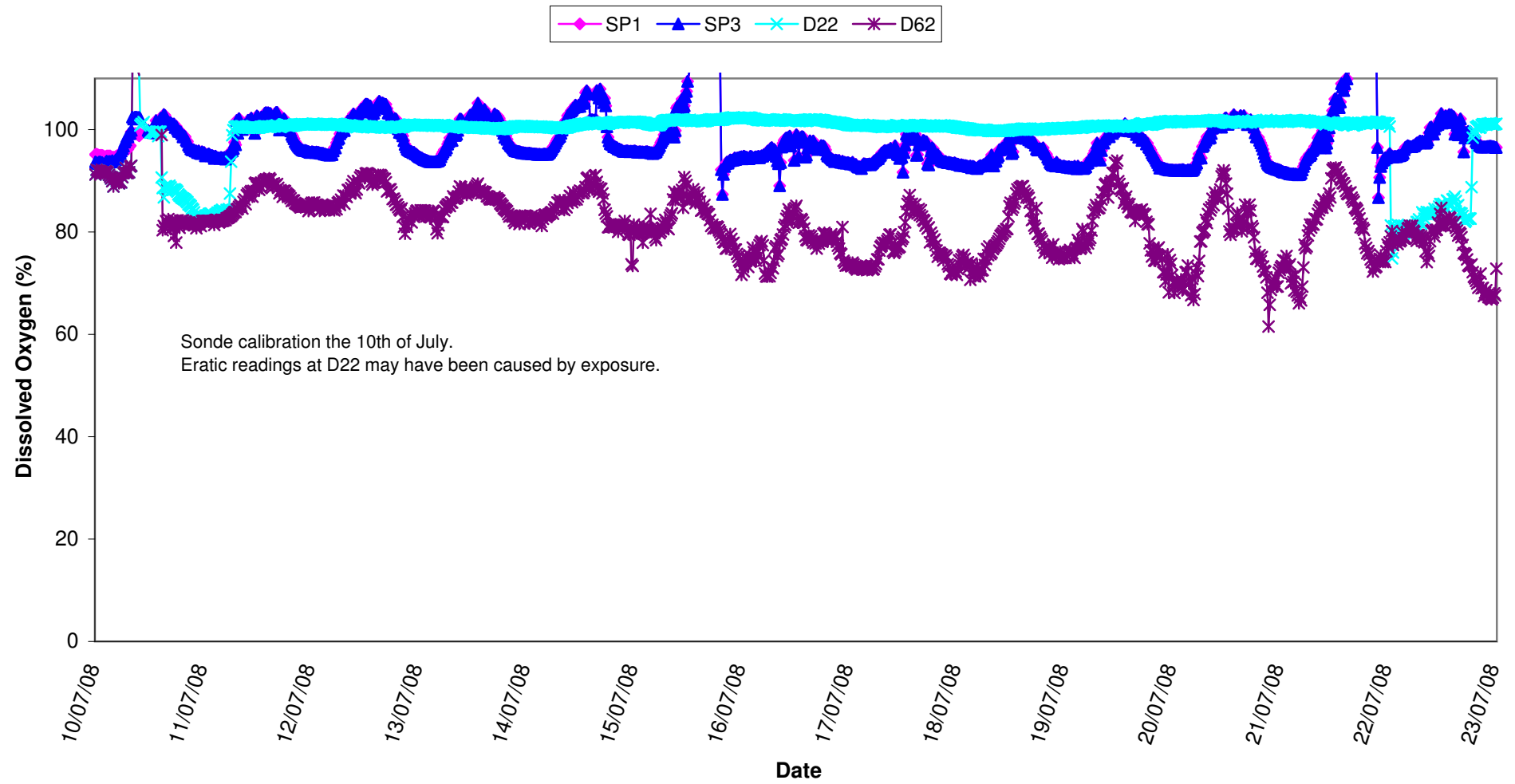




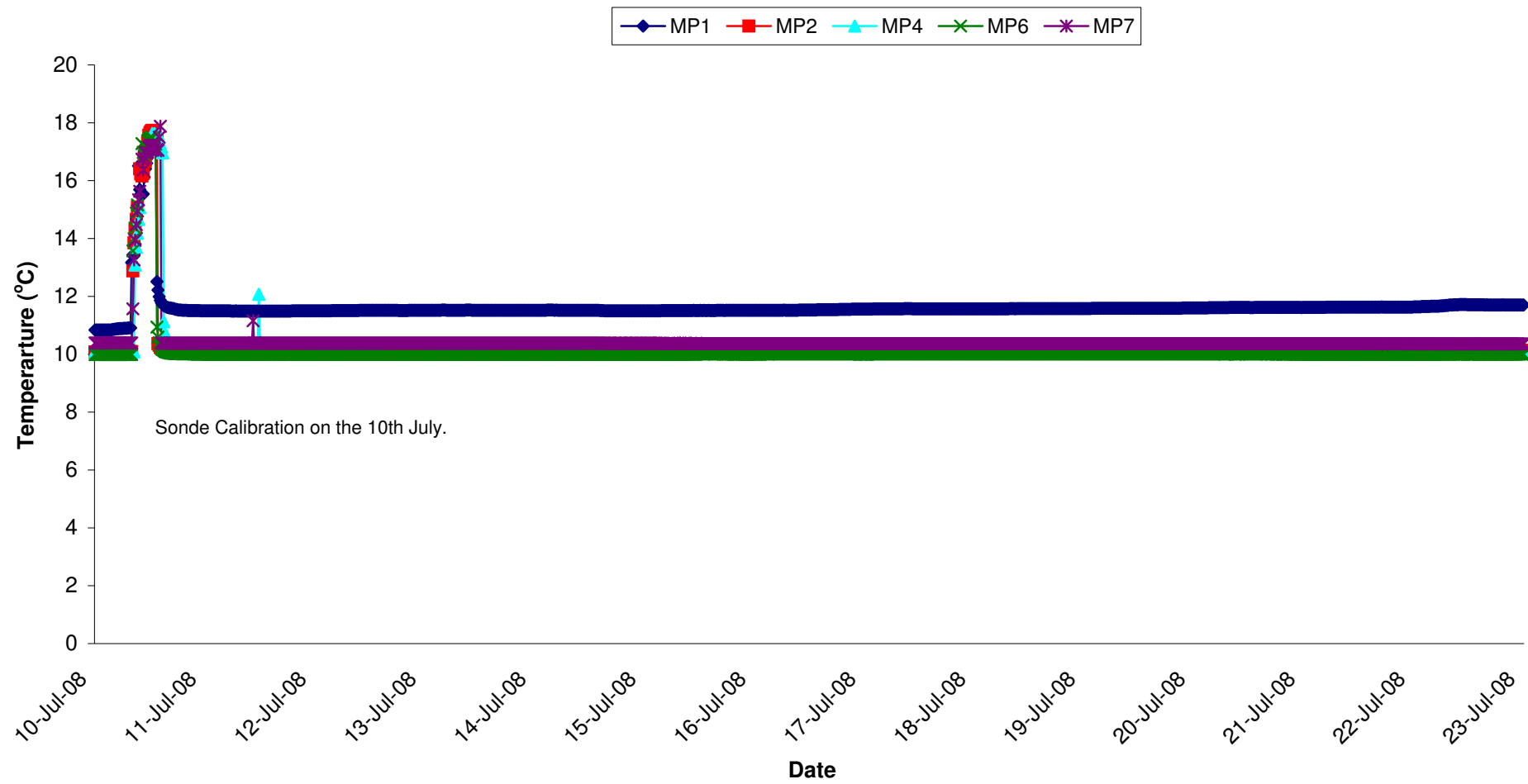
# Turbidity - Surface Waters @ SP1, Wk 29-30



# Dissolved Oxygen - Surface Waters, Wk 29-30

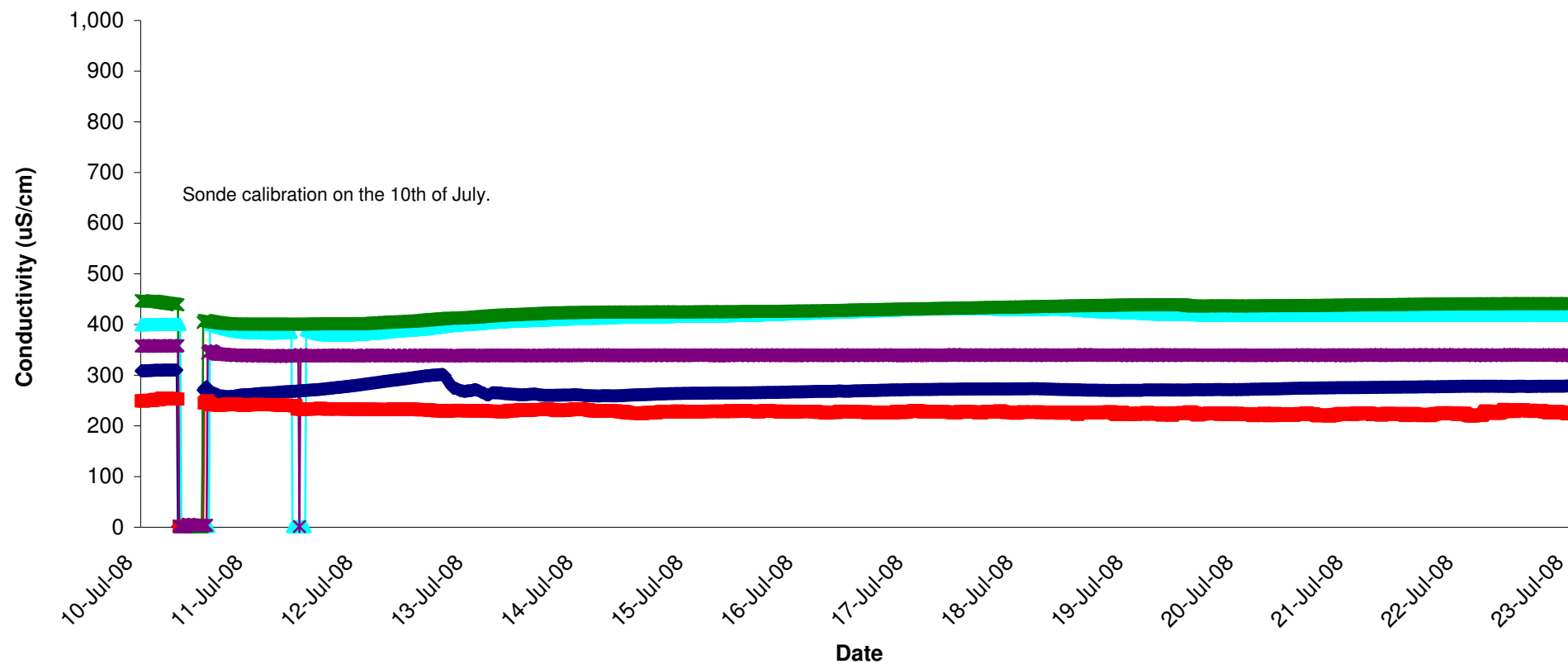


# Temperature - Groundwaters Wk 29-30



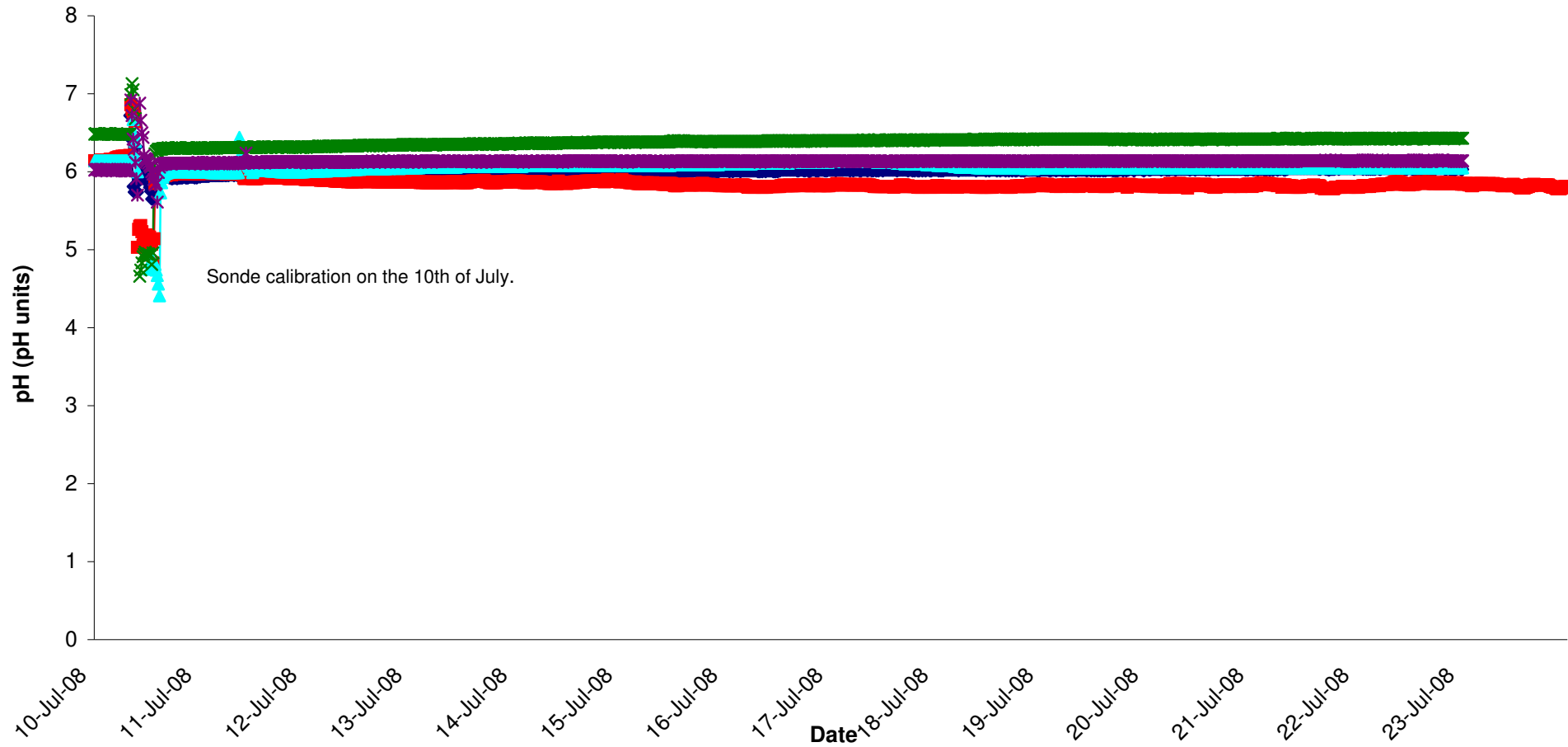
# Conductivity - Groundwaters Wk 29-30

MP1 MP2 MP4 MP6 MP7



# pH - Groundwaters Wk 29-30

MP1 MP2 MP4 MP6 MP7



# 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	10/07/2008	323	15.8	2.3	89.8	7.1			<LOD			<LOD		<LOD	144	0.06	230
SP1	11/07/2008	345	15.8	2.1	93.8	7.0			0.30			0.06		<LOD	70	0.01	232
SP1	14/07/2008	398	16.6	1.9	92.4	6.9			0.10			0.14		<LOD	105	0.05	246
SP1	15/07/2008	392	19.9	5.3	109.4	7.1			0.70			<LOD		20	60	<LOD	240
SP1	16/07/2008	405	15.8	2.4	94.8	6.7			0.40			<LOD		<LOD	208	0.06	251
SP1	17/07/2008	402	16.2	1.8	96.9	7.3			0.60			LOD		<LOD	66	0.01	249
SP1	18/07/2008	410	15.3	1.8	88.6	7.0			0.70			0.12		91	65	0.15	250
SP1	21/07/2008	373	15.1	1.3	95.1	6.9			0.40			0.28		<LOD	163	0.06	239
SP1	22/07/2008	369	16.9	1.7	95.0	7.3			0.80			0.96		<LOD	37	0.08	249
SP1	23/07/2008	368	18.3	0.3	100.7	7.2			0.60			0.07		<LOD	37	0.03	245
SP3	10/07/2008	363	15.8	2.0	89.6	7.0			0.40			0.03		<LOD		0.03	245
SP3	11/07/2008	369	15.7	2.2	96.3	7.0			1.00			<LOD		126		0.01	245
SP3	14/07/2008	400	16.1	2.9	86.8	7.1			0.40			<LOD		<LOD		<LOD	248
SP3	15/07/2008	399	18.4	1.7	117.5	7.0			1.40			<LOD		<LOD		0.03	244
SP3	16/07/2008	402	15.2	2.6	88.6	6.8			0.50			<LOD		<LOD		0.08	250
SP3	17/07/2008	396	15.2	3.3	96.2	7.1			0.60			<LOD		<LOD		<LOD	245
SP3	18/07/2008	409	15.5	1.4	79.0	7.0			0.60			0.21		86		0.04	282
SP3	21/07/2008	373	14.8	1.7	80.5	6.8			0.40			<LOD		<LOD		0.04	251
SP3	22/07/2008	368	16.1	2.2	89.4	7.3			<LOD			<LOD		<LOD		0.03	246
SP3	23/07/2008	374	16.5	0.8	99.0	7.2			0.70			0.07		<LOD		0.05	251
Additional Monitoring																	
D22	10/07/2008	316	13.7	3.4	81.4	7.0			0.40			<LOD		32		0.02	215
D22	15/07/2008	411	16.7	12.0	86.5	7.1			1.40			<LOD		20		0.07	255
D62	10/07/2008	236	12.9	1.1	70.1	5.1			0.30			<LOD		26		0.01	160
D62	15/07/2008	269	16.0	118.0	70.6	5.6			<LOD			0.74		41		0.03	167
Axonics Monitoring																	
Pre	10/07/2008	364		22.8		7.1			<LOD			0.12		124		0.04	247
Post	10/07/2008	376		1.9		7.0			0.30			0.06		27	418	0.01	256
Pre	11/07/2008	358		34.3		7.1			0.30			<LOD		46		0.10	241
Post	11/07/2008	317		2.4		6.7			0.70			<LOD		46	299	0.06	254
Pre	14/07/2008	384		17.0		7.6			0.60			0.05		555		0.03	239
Post	14/07/2008	416		1.2		7.0			0.70			0.04		35	247	<LOD	258
Pre	15/07/2008	404		41.0		7.0			<LOD			<LOD		248		0.01	248
Post	15/07/2008	412		1.5		7.0			0.40			0.15		24	266	<LOD	258
Pre	16/07/2008	401		18.7		7.0			0.20			<LOD		294		0.09	249
Post	16/07/2008	417		0.8		6.9			0.70			<LOD		<LOD	349	0.11	259
Pre	17/07/2008	419		18.6		7.1			0.20			0.11		55		0.02	259
Post	17/07/2008	432		1.3		7.0			0.60			<LOD		52	193	0.01	268
Pre	18/07/2008	426		22.4		7.1			0.50			0.24		297		0.02	263
Post	18/07/2008	433		1.2		6.6			0.40			0.06		106	289	0.02	266
Pre	21/07/2008	377		16.4		7.0			0.50			0.18		97		0.02	253
Post	21/07/2008	399		2.0		6.7			0.60			0.24		22	565	0.06	268
Pre	22/07/2008	369		12.1		7.2			0.30			0.21		129		0.03	247
Post	22/07/2008	365		1.0		6.9			0.90			0.26		28	343	0.03	259
Pre	23/07/2008	378		14.5		7.0			0.50			0.39		105		0.04	254
Post	23/07/2008	391		1.4		6.8			0.70			0.26		31	465	0.02	251
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																	