

**Final Environmental Report**Period Ending: 6<sup>th</sup> August 2008

Compiled By: Aoife Reynolds, Catriona King &amp; Thomas McGlynn

Approved By: Tony Doyle

## 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	– Weir's were operational during the reporting period.

### 1.2 Rainfall Data

24/07/2008	0.4	31/07/2008	2.9
25/07/2008	0.2	01/08/2008	9.6
26/07/2008	0.8	02/08/2008	9.0
27/07/2008	2.9	03/08/2008	3.7
28/07/2008	0.2	04/08/2008	0.6
29/07/2008	2.9	05/08/2008	2.0
30/07/2008	3.9	06/08/2008	2.0
Total Rainfall 41.1mm			

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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 all within the limit.
Weather	There was a total of 41.1mm of rainfall during the reporting period, with a temperature range of 11.6°C to 25.5°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.



Groundwater Monitoring Record Sheet																										
Location	Date	DO	Temp	Cond.	pH	TDS	BOD	TSS	Phosphate as P	Total Hardness	Nitrate as NO <sub>2</sub>	Nitrate as NO <sub>3</sub>	Phosphate as PO <sub>4</sub>	Arsenic	Mercury	Lead	Aluminium (total)	Zinc	Chromium	Copper	Cadmium	Iron	Tin	Ammonia	Aluminium, dissolved	Manganese total
		% Sat	°C	uS/cm		mg l <sup>-1</sup>	mg l <sup>-1</sup>	mg l <sup>-1</sup>	ug l <sup>-1</sup>	mg/l CaCO <sub>3</sub>	mg l <sup>-1</sup>	mg l <sup>-1</sup>	mg l <sup>-1</sup>	ug l <sup>-1</sup>	ug l <sup>-1</sup>	ug l <sup>-1</sup>	ug l <sup>-1</sup>	ug l <sup>-1</sup>	ug l <sup>-1</sup>	ug l <sup>-1</sup>	ug l <sup>-1</sup>	ug l <sup>-1</sup>	ug l <sup>-1</sup>	mg l <sup>-1</sup>		
MP 1	06/08/2008	13	20.0	336	5.1	156	1	2		71.2	<0.017	<0.44	1.847	0.6	<0.05	<0.5	<20	<5	<0.5	<1	<0.5	2547	<0.5	1.865	<20	81
MP 2	06/08/2008	27	11.0	308	5.1	144	<1	166		76.2	<0.017	<0.44	0.843	<0.5	<0.05	<0.5	168	<5	<0.5	<1	<0.5	2177	<0.5	2.610	67	38
MP 3	06/08/2008	27	11.3	375	4.9	175	10	38		77.3	<0.017	<0.44	1.809	<0.5	<0.05	<0.5	149	<5	<0.5	<1	<0.5	1561	<0.5	2.182	60	32
MP 4	06/08/2008	22	10.9	461	5.2	213	12	85		84.1	<0.017	<0.44	0.363	<0.5	<0.05	<0.5	72	<5	<0.5	<1	<0.5	6965	<0.5	0.426	<20	201
MP 5	06/08/2008	59	11.5	294	4.8	136	9	75		74.8	<0.017	<0.44	0.489	<0.5	<0.05	<0.5	37	<0.5	<0.5	<1	<0.5	1405	<0.5	2.035	LP	36
MP 6	06/08/2008	23	11.5	480	5.5	222	6	13		112.5	<0.017	<0.44	1.385	1.0	<0.05	<0.5	<20	<5	<0.5	<1	<0.5	4890	0.5	1.734	<20	124
MP 7	06/08/2008	39	11.4	387	5.0	178	6	<2		53.4	<0.017	<0.44	0.693	<0.5	<0.05	<0.5	<5	<5	<0.5	<1	<0.5	4412	<0.5	2.722	<20	64
MP 8	06/08/2008	120	12.1	198	4.2	93	<1	1249		45.8	<0.017	<0.44	0.126	<0.5	<0.05	0.7	261	<5	<0.5	<1	<0.5	604	<0.5	0.913	210	12
MP 10a	06/08/2008	36	11.7	420	4.9	145	<1	108		143.9	<0.017	<0.44	<0.03	<0.5	<0.05	0.5	35	<5	<0.5	<1	<0.5	1246	0.8	0.513	<20	365
MP 11	06/08/2008	11.5	11.5	216	4.4	102	7	26		33.8	<0.017	<0.44	0.082	<0.5	<0.05	0.7	30	10	<0.5	1.0	<0.5	471	3	0.016	<20	1264
Graphs provided for MP1, MP2,MP4, MP6 and MP7 for: Temperature, Conductivity, and pH																										

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

### Determinant Results

NDP = No Determination Possible

Monitoring Results will be presented monthly

## Daytime 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>	
Action Limit									60			
Target Limit									65			
N1	14.0	25.5	24/07/2008	08:00:00	14:00:00	2539533	2.3	253.5	53.7	101.9	<LOD	
N1	11.8	19.6	25/07/2008	08:00:00	14:00:00	2539533	2.8	210.2	48.1	77.8	<LOD	
N1	17.4	11.6	28/07/2008	08:00:00	14:00:00	2539533	1.4	197.6	49.1	78.7	<LOD	
N1	16.7	13.3	29/07/2008	08:00:00	14:00:00	2539533	1.4	226.9	51.0	78.0	30.0	
N1	14.1	17.9	30/07/2008	08:00:00	14:00:00	2539533	4.8	161.1	54.1	82.5	<LOD	
N1	13.1	18.8	31/07/2008	08:00:00	14:00:00	2539533	1.2	184.7	47.5	81.4	<LOD	
N1	12.9	16.7	01/08/2008	08:00:00	14:00:00	2539533	3.8	101.7	50.1	81.1	32.1	
N1	12.2	19.2	05/08/2008	08:00:00	14:00:00	2539533	2.1	230.2	47.9	71.8	<LOD	
N1	10.7	19.5	06/08/2008	08:00:00	14:00:00	2539533	1.6	189.9	45.7	67.8	<LOD	

\* 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. (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>	
<b>Action Limit</b>									<b>50</b>			
<b>Target Limit</b>									<b>55</b>			
N1	14.0	25.5	24/07/2008	22:00:00	10:00:00	2539533	2.3	253.5	43.3	66.6	30.0	
N1	11.8	19.6	25/07/2008	22:00:00	10:00:00	2539533	2.8	210.2	40.5	65.0	30.0	
N1	17.4	11.6	28/07/2008	22:00:00	10:00:00	2539533	1.4	197.6	43.9	65.1	30.0	
N1	16.7	13.3	29/07/2008	22:00:00	10:00:00	2539533	1.4	226.9	50.1	70.6	30.0	
N1	14.1	17.9	30/07/2008	22:00:00	10:00:00	2539533	4.8	161.1	48.7	78.9	30.0	
N1	13.1	18.8	31/07/2008	22:00:00	10:00:00	2539533	1.2	184.7	40.2	65.6	30.0	
N1	12.9	16.7	01/08/2008	22:00:00	10:00:00	2539533	3.8	101.7	51.2	66.5	33.7	
N1	12.2	19.2	05/08/2008	22:00:00	10:00:00	2539533	2.1	230.2	39.3	65.0	30.0	
N1	10.7	19.5	06/08/2008	22:00:00	10:00:00	2539533	1.6	189.9	41.6	63.2	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)
24/07/2008	6.26	0.21	1.82	4.48	-0.33	0.50
25/07/2008	5.60	1.06	3.45	4.48	-0.33	0.90
26/07/2008	4.88	3.50	3.96	2.21	1.16	1.58
27/07/2008	4.43	1.41	3.16	2.05	-0.18	0.89
28/07/2008	2.88	0.20	1.25	1.16	-0.33	-0.09
29/07/2008	1.90	0.15	0.62	-0.33	-0.43	-0.39
30/07/2008	5.48	0.15	1.99	2.73	-0.48	0.67
31/07/2008	6.26	0.84	3.43	3.28	-0.03	1.14
01/08/2008	10.93	3.50	7.16	6.50	1.30	3.08
02/08/2008	9.31	4.21	6.71	2.91	0.56	1.68
03/08/2008	4.76	3.32	3.68	0.56	0.28	0.40
04/08/2008	4.43	2.25	3.48	1.16	-0.08	0.54
05/08/2008	26.29	0.36	4.46	1.16	0.13	0.69
06/08/2008	2.79	0.44	1.92	1.30	0.02	0.14

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



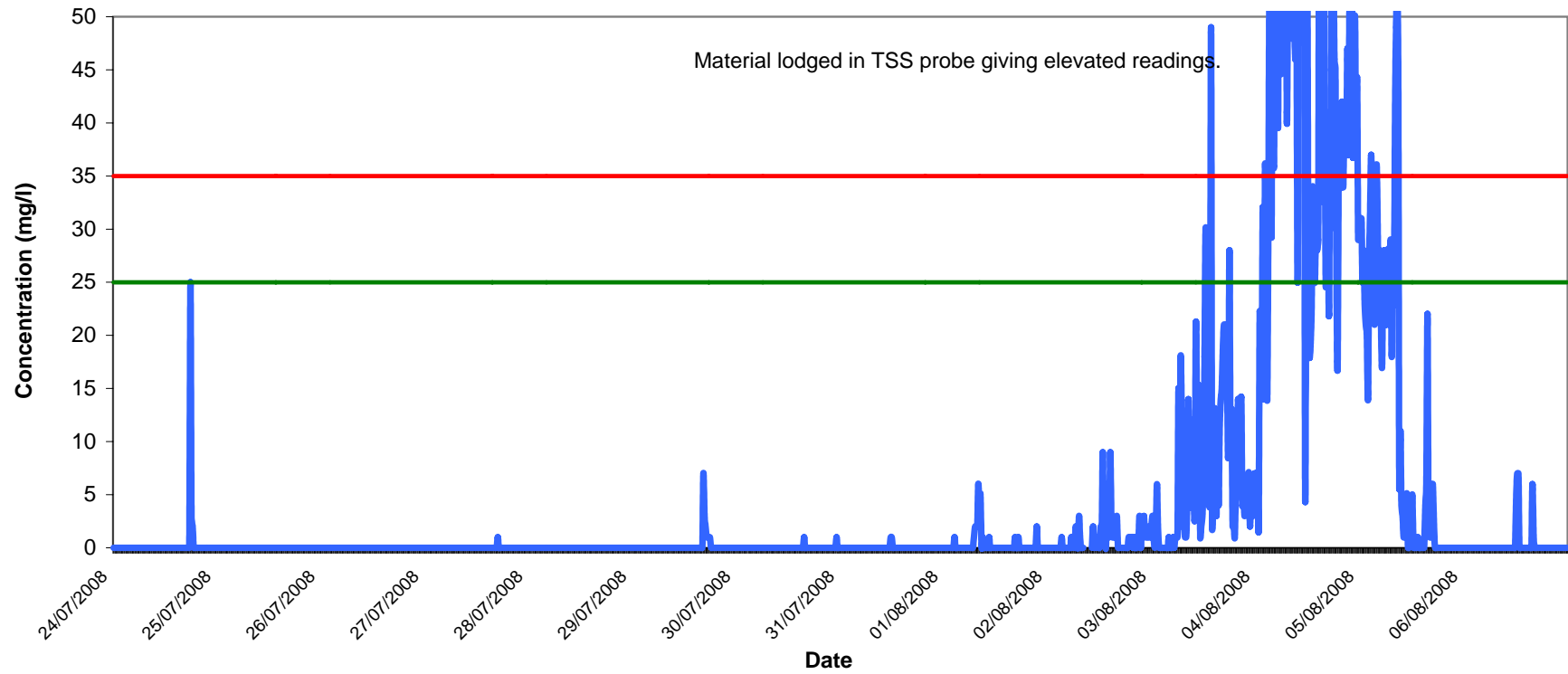
## Vibration Monitoring Record Sheet

[illegible]

Vibration meter was located at V1 only.

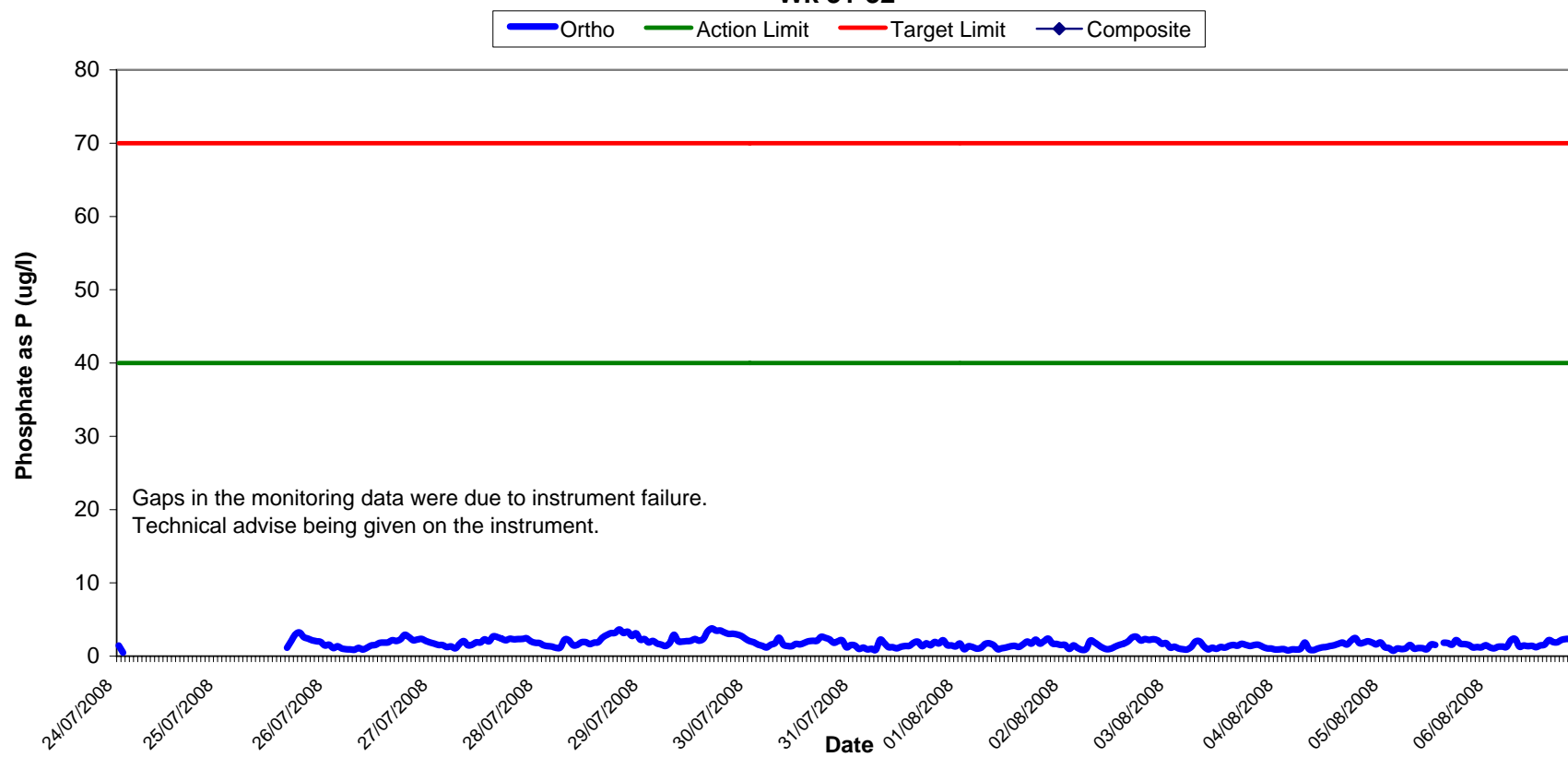
# Total Suspended Solids Results at SP1 Wk 31-32

TSS   Action Limit   Target Limit   Composite



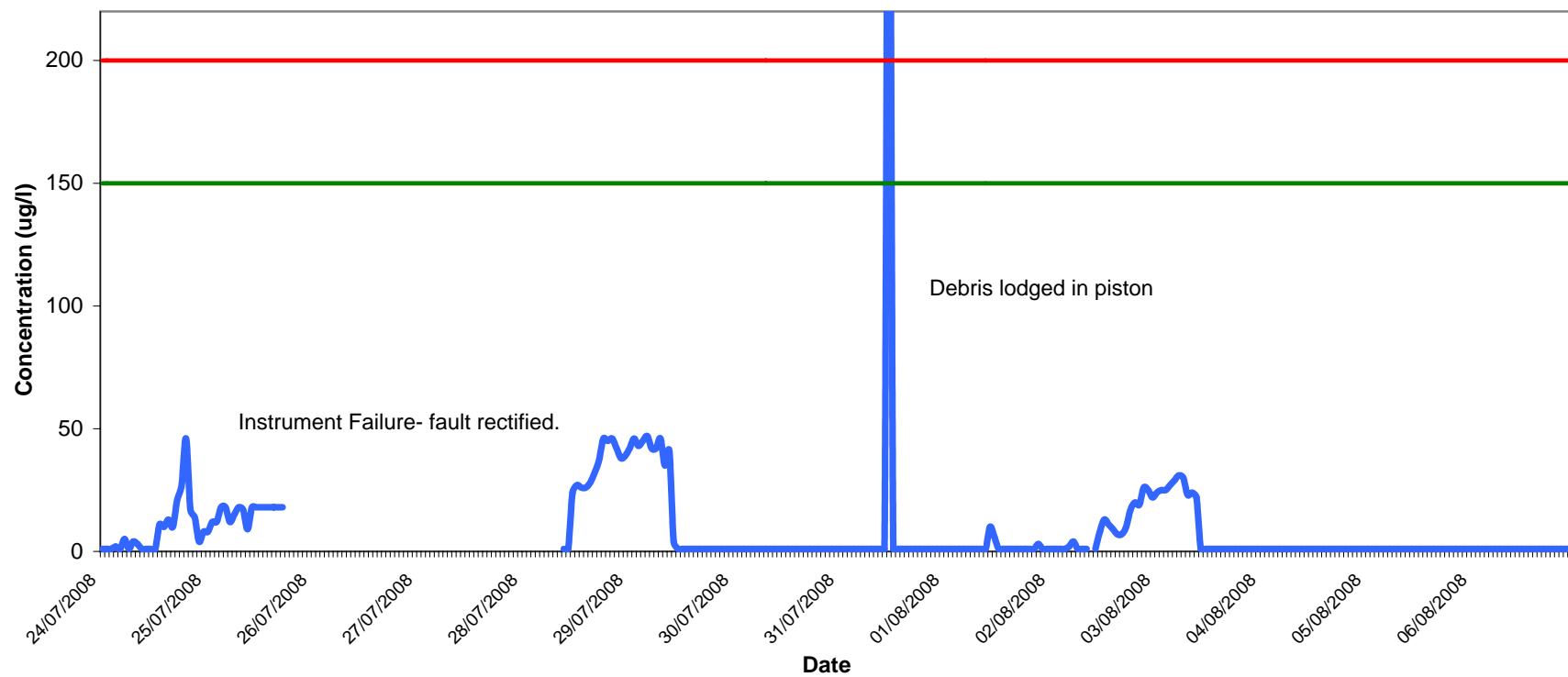
## Orthophosphate Results at SP1

Wk 31-32

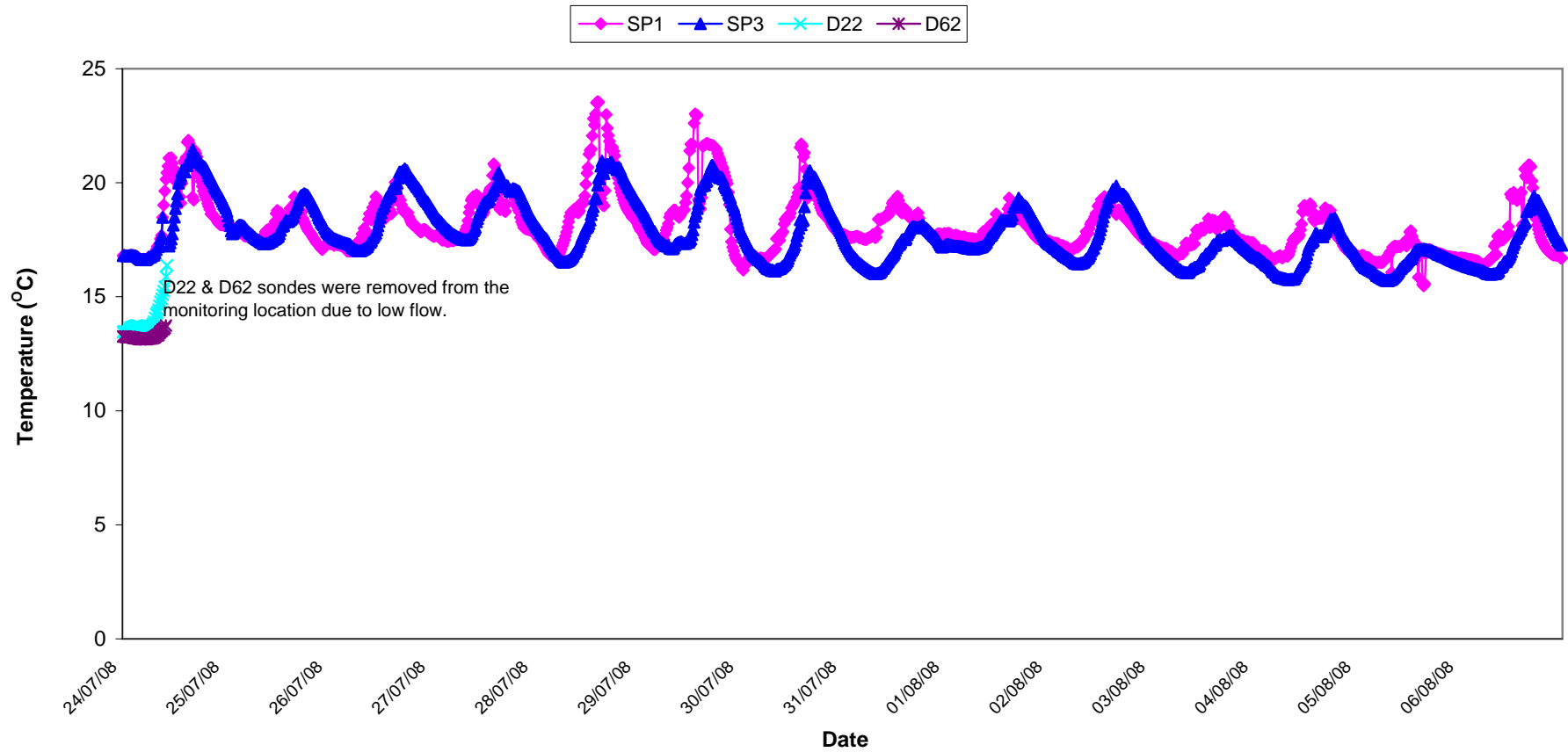


# Aluminium Concentration at SP1 Wk 31-32

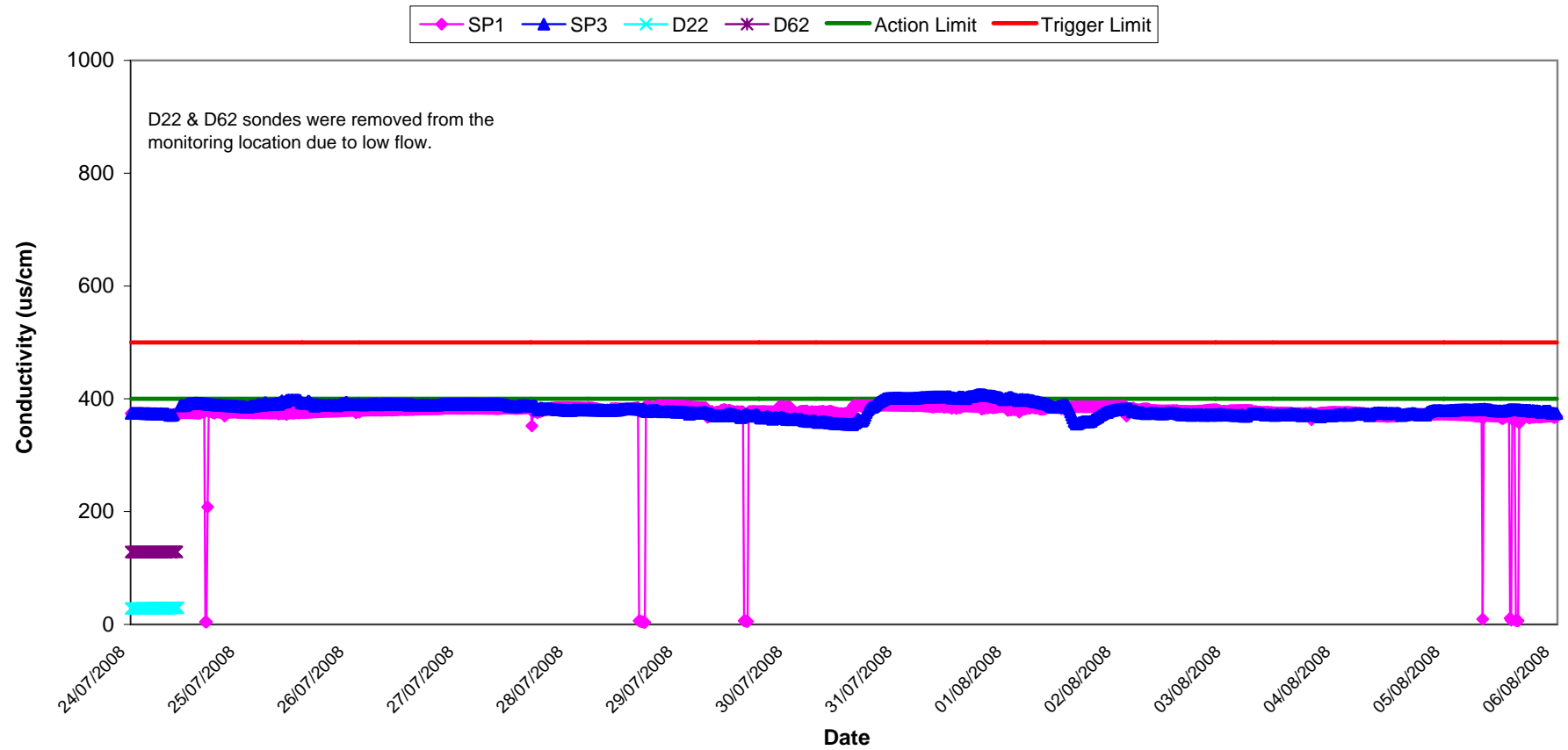
Aluminium    Action    Target



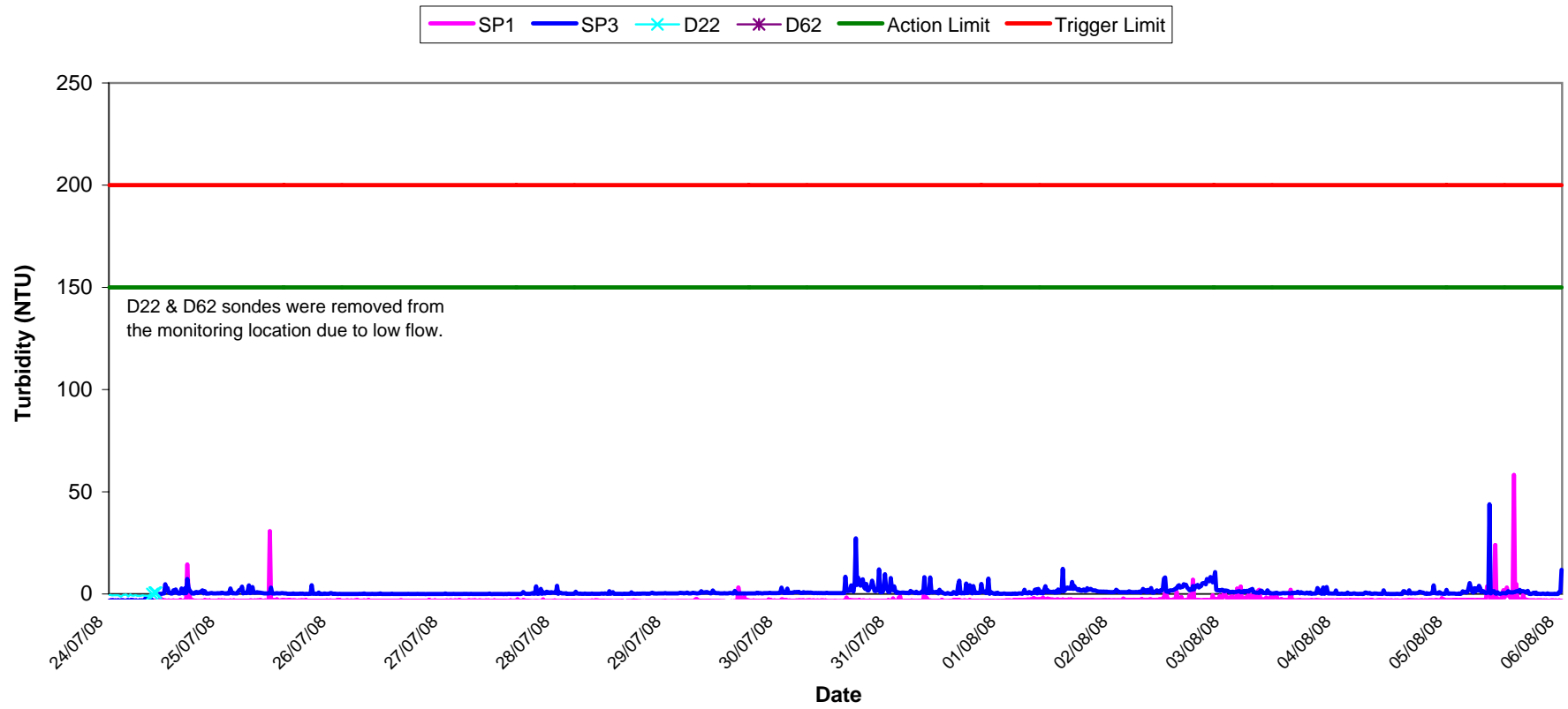
Temperature - Surface Waters  
Wk 31-32



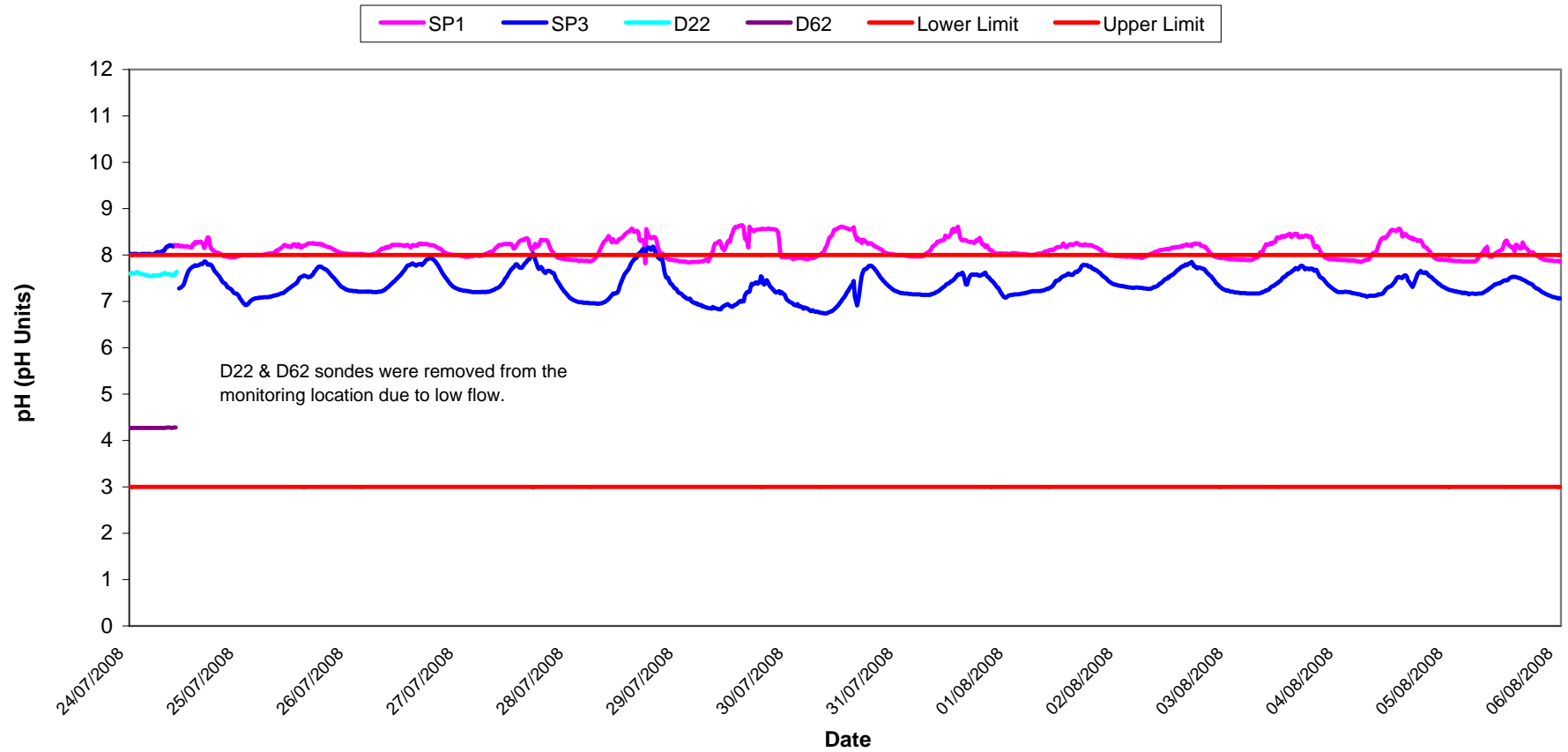
### Conductivity - Surface Waters, Wk 31-32



# Turbidity - Surface Waters Wk 31-32

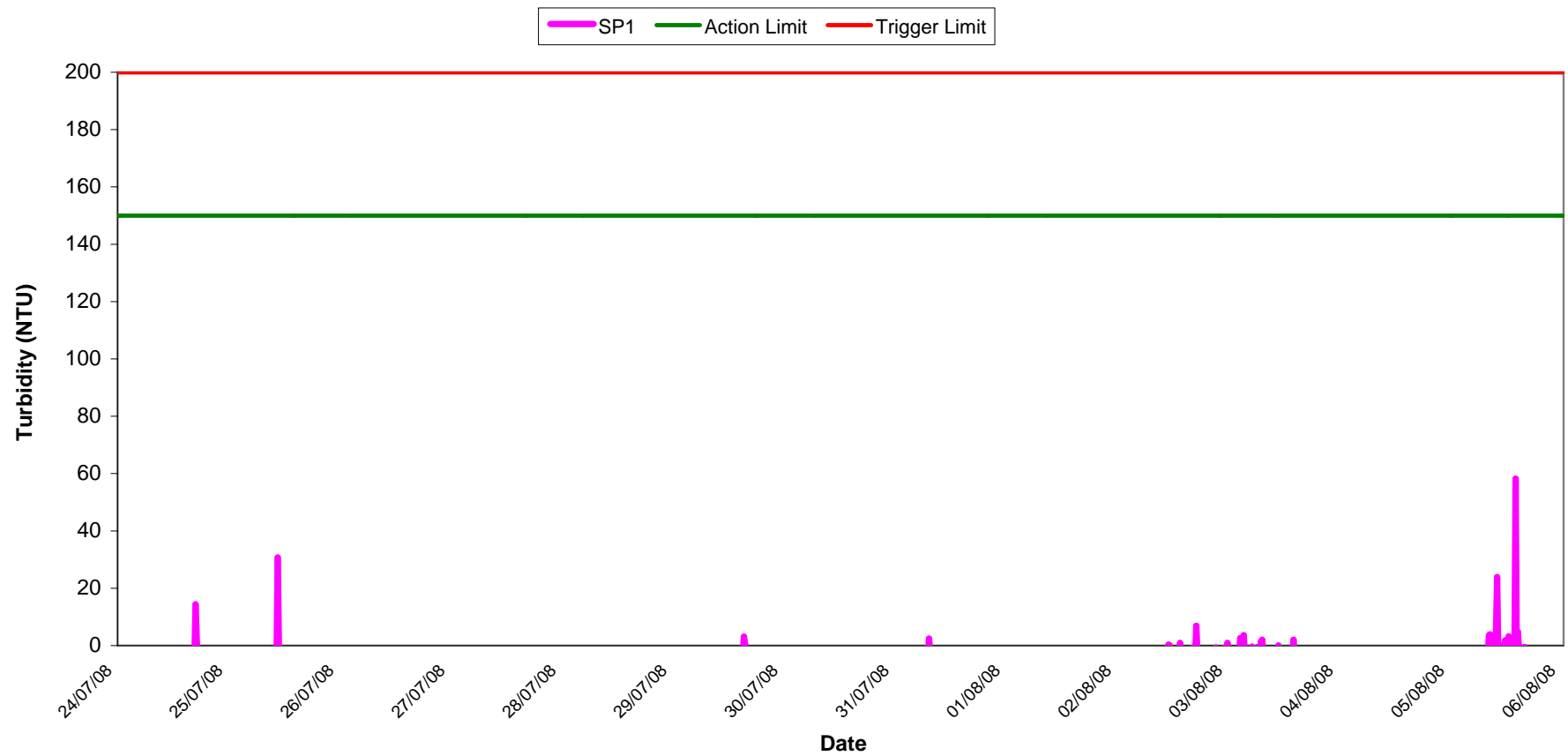


# pH - Surface Waters Wk 31-32

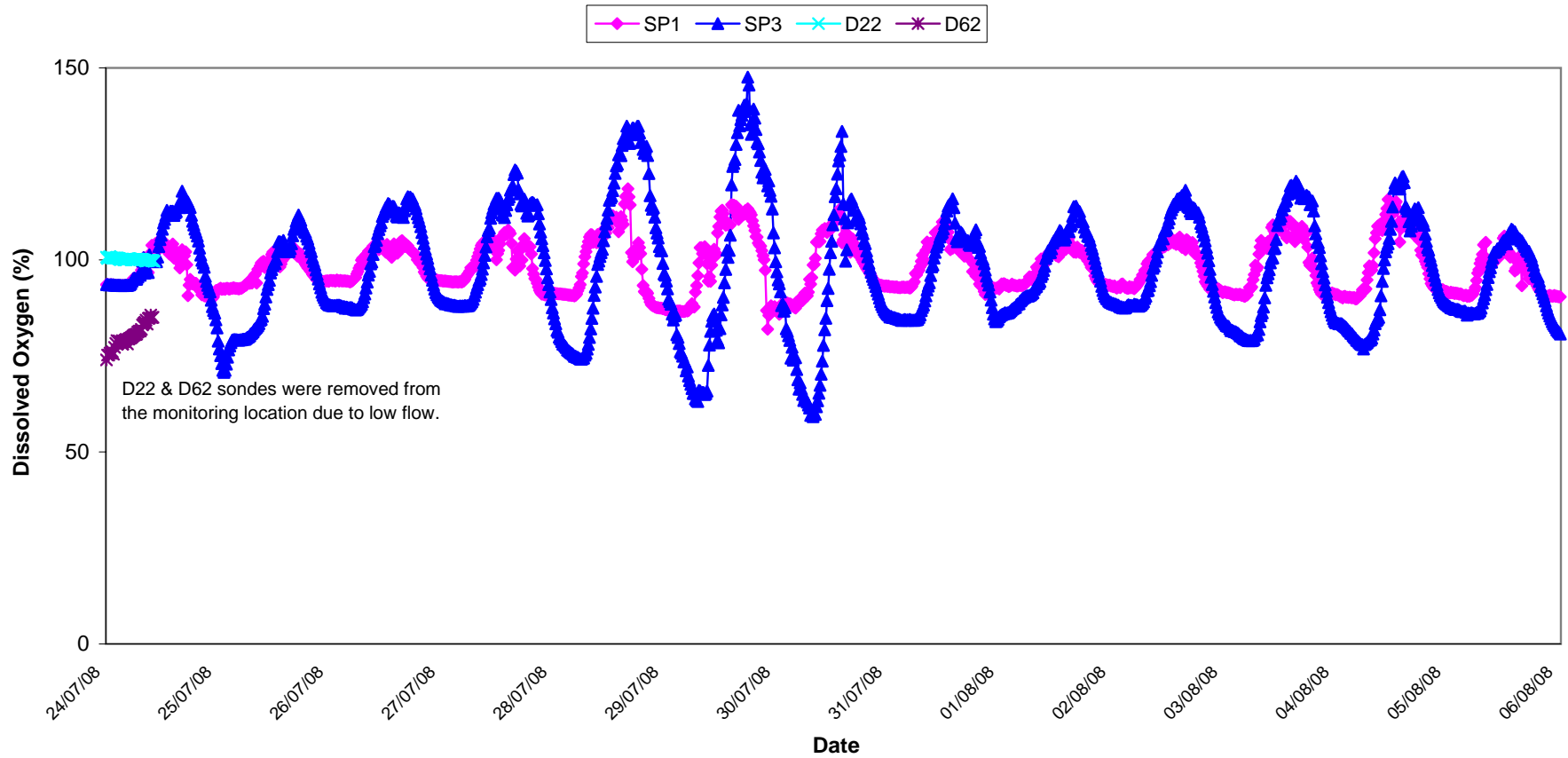




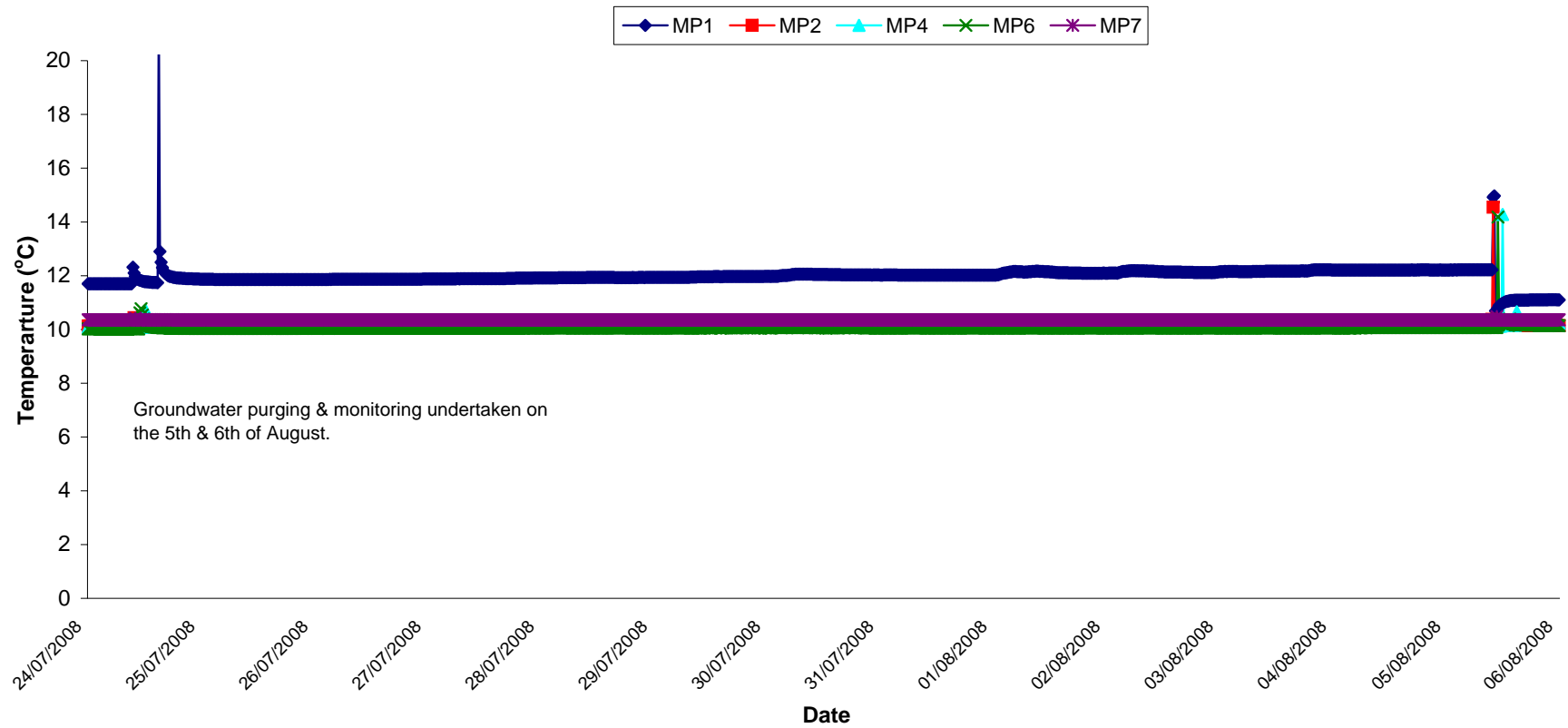
**Turbidity - Surface Waters @ SP1,  
Wk 31-32**



**Dissolved Oxygen - Surface Waters,  
Wk 29-30**

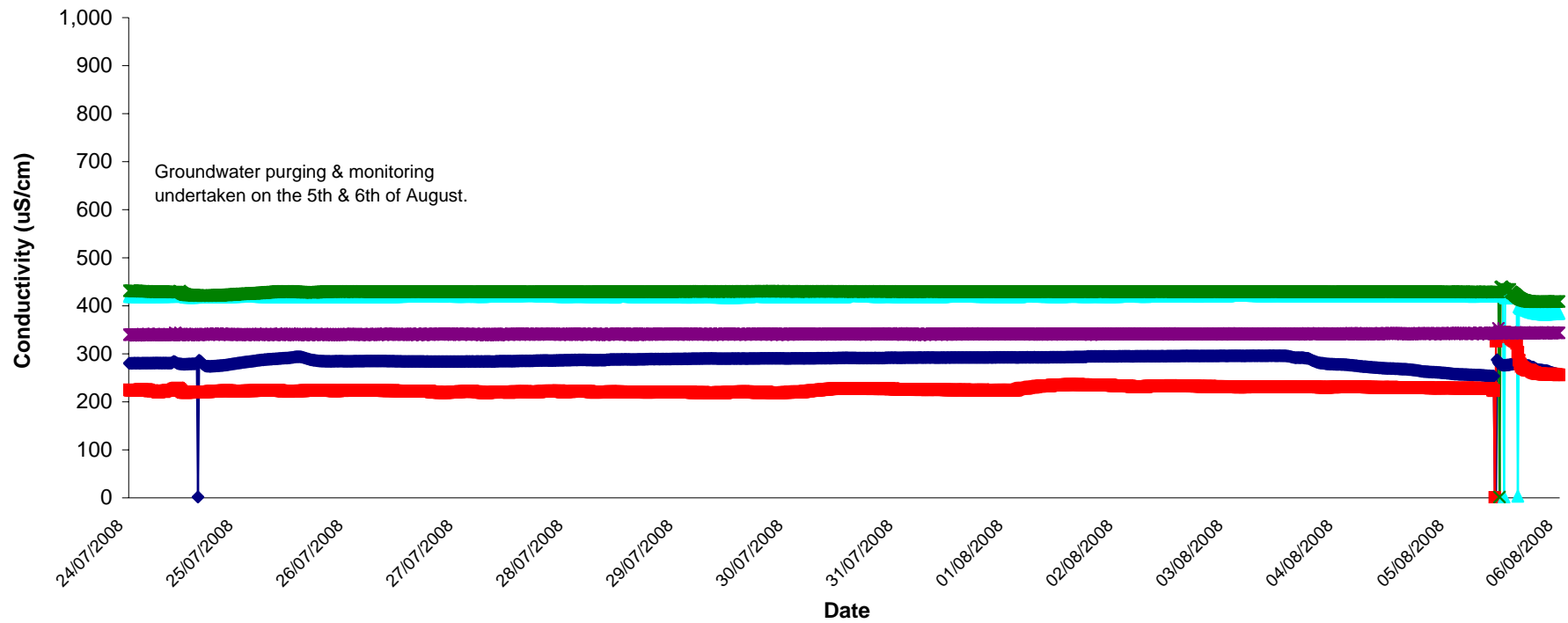


# Temperature - Groundwaters Wk 31-32



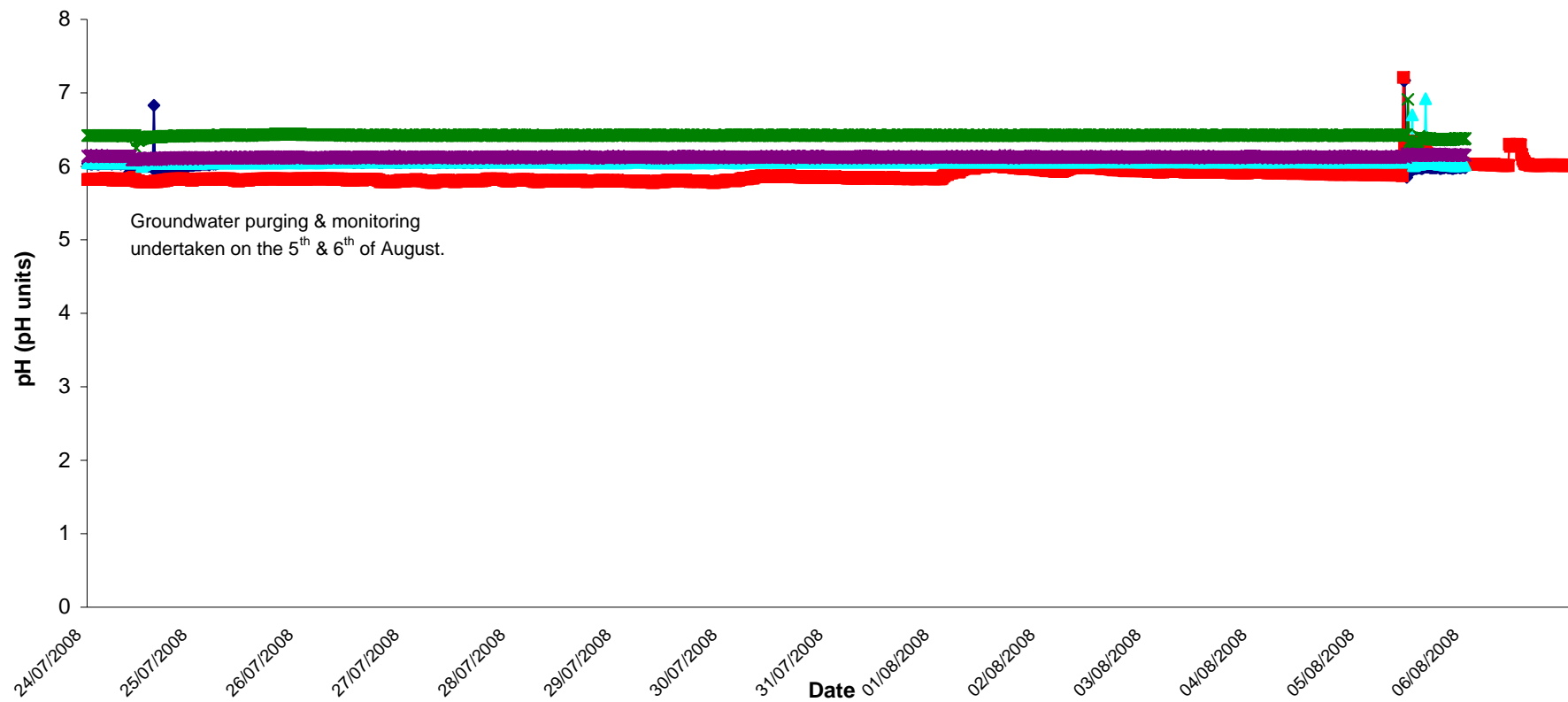
# Conductivity - Groundwaters Wk 31-32

MP1 MP2 MP4 MP6 MP7



# pH - Groundwaters Wk 31-32

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	24/07/2008	374	15.4	1	90.8	6.9			0.5			<LOD		<LOD	246	0.03	259
SP1	25/07/2008	374	18.8	2	92.5	6.9			0.5			0.17		<LOD	79	0.20	253
SP1	28/07/2008	385	19.0	2	103.0	7.8			0.4			0.24		<LOD	164	0.03	259
SP1	29/07/2008	346	19.7	2	91.5	6.9			0.1			0.06		24	216	0.02	240
SP1	30/07/2008	362	16.8	1	68.4	6.5			0.1			1.30		<LOD	88	0.04	252
SP1	31/07/2008	373	18.9	2	101.7	7.5			0.2			0.12		<LOD	144	0.04	251
SP1	01/08/2008	362	17.6	2	92.6	7.6			0.3			0.01		<LOD	78	0.03	254
SP1	05/08/2008	361	16.9	2	98.5	7.5			0.5			0.06		<LOD	90	<LOD	240
SP1	06/08/2008	359	17.3	1	107.7	7.7			0.1			0.13		<LOD	171	0.02	239
SP3	24/07/2008	379	16.1	1	89.4	7.0			0.6			<LOD		<LOD		0.05	255
SP3	25/07/2008	387	17.6	3	87.7	7.0			0.6			<LOD		<LOD		0.04	260
SP3	28/07/2008	381	18.4	2	106.6	7.6			0.7			0.77		<LOD		0.03	257
SP3	29/07/2008	363	18.0	3	77.4	6.9			0.4			0.12		<LOD		0.04	246
SP3	30/07/2008	357	17.4	2	90.1	6.7		<LOD				0.54		<LOD		0.03	247
SP3	31/07/2008	334	18.4	2	97.5	7.5			0.1			0.06		<LOD		0.03	267
SP3	01/08/2008	391	17.1	2	88.2	7.4			0.1			0.01		<LOD		0.03	263
SP3	05/08/2008	374	16.2	1	92.3	7.4			<LOD			0.12		<LOD		0.02	250
SP3	06/08/2008	378	16.3	1	87.2	7.2			<LOD			0.07		<LOD		0.01	252
Additional Monitoring																	
D22	24/07/2008	459	16.8	8	86.4	6.9			0.4			0.01		<LOD		0.03	309
D22	28/07/2008	415	16.0	6	6.7	7.0			0.2			0.19		26		0.08	280
D62	24/07/2008	242	13.8	1	29.3	5.4			0.5			0.02		33		0.13	163
D62	28/07/2008	242	16.4	8	39.1	6.1			0.3			0.23		<LOD		0.08	164
Axonics Monitoring																	
Pre	24/07/2008	414		16		7.1			0.3			0.12		157		0.07	277
Post	24/07/2008	397		2		6.5			0.3			0.21		69	588	0.04	267
Pre	25/07/2008	384		14		7.0			0.4			0.19		169		0.02	259
Post	25/07/2008	394		5		6.5			0.7			0.21		72	510	0.03	285
Pre	28/07/2008	416		958		7.7			1.4			0.67		>LOD		0.37	282
Post	28/07/2008	404		1		6.5			0.6			0.67		<LOD	294	0.04	271
Pre	29/07/2008	420		36		6.8			0.7			0.32		455		0.07	285
Post	29/07/2008	431		1		6.3		<LOD	6.3		<LOD		59	139	0.04	297	
Pre	30/07/2008	407		33		6.8		<LOD			1.00		132		0.03	273	
Post	30/07/2008	441		1		6.9		0.2			2.18		24	123	0.04	297	
Pre	31/07/2008	402		22		7.3		0.4			0.22		150		0.09	268	
Post	31/07/2008	424		4		6.3		0.1	6.3		0.34		39	>LOD	<LOD	285	
Pre	01/08/2008	372		44		7.4		<LOD			0.43		123		0.03	250	
Post	01/08/2008	408		2		6.4		0.1			0.32		24	398	0.02	274	
Pre	05/08/2008	382		41		7.2		<LOD			0.34		43		0.06	254	
Post	05/08/2008	395		4		6.3		0.30			0.07		23	608	0.04	264	
Pre	06/08/2008	389		21		7.1			0.4		0.29		156		0.01	260	
Post	06/08/2008	413		2		6.3			0.5			0.31		29	379	<LOD	276
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																	