

Final Environmental ReportPeriod Ending: Tues. 18th Dec 2007

Compiled By: Siobhan Quinn /Aoife Reynolds

Approved By: Tony Doyle

1 Monitoring Data

1.1 Monitoring Equipment

Axonics	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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"> o Any unusual values are explained on the relevant graph.
Weather Station	<ul style="list-style-type: none"> - The data used for this reporting period was taken from the on-site meteorological station. - Maintenance works carried out during the 2nd week of the reporting period.
Weirs	<ul style="list-style-type: none"> - Data displayed in the enclosed report. - Results of low flows from the weir are currently being investigated. - No results available for SP3, service currently being arranged.

1.2 Rainfall Data

06/12/07	20.2	13/12/07	1.2
07/12/07	14.8	14/12/07	-
08/12/07	23.8	15/12/07	-
09/12/07	8.4	16/12/07	0.0
10/12/07	0.4	17/12/07	0.0
11/12/07	0.0	18/12/07	0.0
12/12/07	2.0		
Total Rainfall 70.8mm			

Final Environmental Report Period Ending: Tues. 18th Dec 2007

Compiled By: Siobhan Quinn /Aoife Reynolds

Approved By: Tony Doyle

1.3 Summary

Environment	Comments
Surface Water	Based on the results currently available there is two exceedance for the reporting period. These included an exceedance of the total suspended solid and total aluminium concentration at SP1 – see Section 2 below. Sonde results are explained on the relevant graphs.
Groundwater	The groundwater data (Sonde) is within anticipated ranges. Groundwater monitoring was carried out for December during the previous reporting period.
Dust	There was one dust exceedance at D3 however the sample appears to have been interfered with (see Section 2 below)
Weather	There was a total of 70.8mm of rainfall during the reporting period, with a temperature range of 0.0 ^o C to 13.7 ^o 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	7 th December
Location	SP1
Nature of Incident	During the weekend of the 7 th of December a storm event occurred with exceptionally heavy rainfall. This heavy rainfall resulted in a total suspended solid exceedance at SP1. The TSS graph indicates that the TSS exceeded the discharge limit of 35mg/L however there was a downward trend after the initial peak and values returned to within the limit in a timely manner. The TSS concentration is now below the action limit and the exceedance has been closed out.
Actions Taken	The following actions are ongoing; <ol style="list-style-type: none"> 1. Ongoing surveillance of site drainage outside the main footprint area 2. Close monitoring of total suspended solid results 3. Reducing the extent of open drainage outside the footprint area by additional piping works. 4. Improvement of road surface along drainage network. 5. Improvement in terminal footprint drainage to prevent the build up of water during storm rainfall events.
Category	Environmental Exceedance
Status	Closed

Final Environmental ReportPeriod Ending: Tues. 18th Dec 2007

Compiled By: Siobhan Quinn /Aoife Reynolds

Approved By: Tony Doyle

Date	October and November 2007
Location	D3
Nature of Incident	<p>The four dust collection pots which were sent to our external laboratory for testing in December for the mid October to Mid November sampling period were returned with a note from the laboratory stating that there was a lot of peat present in the D3 sample. The following results were presented;</p> <p>D1: 142 mg/m²/day, D2: 225 mg/m²/day, D3: 530 mg/m²/day, D4: 127 mg/m²/day</p> <p>The limit for dust deposition is 350 mg / m² / day. All samples were within this limit with the exception of location D3.</p>
Actions Taken	<p>This elevated value at D3 was investigated and the following were the main findings;</p> <ul style="list-style-type: none"> • There were no works on site during this period, which would generate potentially high levels of dust. • Rainfall levels over this period were very high with a total of 185.8 mm, which would reduce the likelihood of any dust exceedance due to the damping down effect of the rainfall. • There was an incursion by protesters on to the site in the area where the D3 dust gauge is located during a protest on the 9th of November. • Despite wind direction variations over the period all the other dust monitoring locations showed generally low values. <p>Given the nature of the dust particles present in the sample, the nature of site works and the prevailing weather conditions it was concluded that interference with the sample was the most likely cause of this exceedance.</p>
Category	Environmental Exceedance
Status	Closed

Date	11 th & 18 th December 2007
Location	SP1
Nature of Incident	Elevated concentration of total aluminium were recorded from the water at SP1 on the 11 th & 18 th of December. These results are attributed to storm events during the reporting period.
Actions Taken	Actions are outlined in the TSS exceedance outlining measures implemented to improve the quality of the surface water discharging at SP1.
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	06/11/07	360	10.3	37	86.1	6.7			0.1			0.17		50	260	0.07	158
SP1	07/11/07	200	9.2	106	91.2	6.7			0.8			<LOD		60	260	0.08	163
SP1	10/11/07	240	7.3	81	98.1	7.2			<LOD			<LOD		100	520	0.02	140
SP1	11/11/07	260	10.7	61	97.2	6.8			<LOD			<LOD		90	360	0.02	152
SP1	12/11/07	268	8.8	46	98.9	6.9			<LOD			0.66		80	490	0.03	155
SP1	13/11/07	291	8.8	55	96.3	7.5			<LOD			0.06		90	340	0.06	162
SP1	14/11/07	301	9.6	28	86.0	7.0			0.2			0.08		70	110	0.10	151
SP1	17/11/07	330	6.6	14	96.2	6.1			1.1			0.27		60	200	0.05	194
SP1	18/12/07	334	6.0	10	91.6	7.8			0.3			0.01		70	190	0.16	184
SP3	06/12/07	298	11.5	21	96.3	6.7			0.1			0.13		70		0.03	189
SP3	07/12/07	238	9.4	89	93.4	6.6			<LOD			<LOD		100		0.06	153
SP3	10/12/07	313	10.0	13	96.3	7.0			0.8			0.17		50		0.04	185
SP3	11/12/07	322	11.3	7	92.2	6.8			0.6			<LOD		50		0.03	190
SP3	12/12/07	318	10.1	7	92.2	6.8			0.7			0.21		70		<LOD	192
SP3	13/12/07	342	9.9	5	93.1	7.3			0.4			0.04		60		0.01	201
SP3	14/12/07	346	11.3	8	96.8	7.0			0.1			0.07		60		0.04	208
SP3	17/12/07	374	7.6	5	92.1	6.3			2.0			0.20		50		0.02	222
SP3	18/12/07	354	6.5	2	89.4	7.5			0.8			0.02		150		0.27	206
SP1	11/12/2007	221		52		7.2	26	55		2.23	0.11	<0.005	0.026	146	369	0.17	120
SP3	11/12/2007	244		4		7.2	<2	<10		2.84	0.11	0.01	0.053	44	146	<0.03	149
SP1	18/12/2007	232		8		7.6	<2	<10		4.36	0.05	0.03	0.026	51	270	<0.03	158
SP3	18/12/2007	227		1		7.4	2	<10		3.99	0.02	0.03	0.033	34	141	<0.03	167
Additional Monitoring																	
D22	06/12/07	251	16.3	2	95.3	6.7			0.2			0.43		60		0.08	156
D22	13/12/07	251	9.7	4	94.2	6.5			<LOD			0.03		70		0.12	153
D22	18/12/07	201	6.2	1	90.2	5.0			0.1			0.03		90		0.09	130
D62	06/12/07	172	14.8	5	94.8	4.4			0.3			0.21		40		0.10	112
D62	13/12/07	188	9.6	2	93.3	4.6			<LOD			0.03		70		0.08	122
D62	18/12/07	269	6.3	3	95.2	6.3			0.1			0.04		80		0.10	161
D22	18/12/2007	167		0		4.4	<2	<10		0.55	0.03	0.03	<0.017	45	189	<0.03	96
D62	18/12/2007	232		1		6.7	3	37		1.61	0.07	0.06	<0.017	31	163	0.11	128
Axonics Monitoring																	
Pre	06/12/07	297		87		6.7			<LOD			0.59		360		0.10	187
Post	06/12/07	312		3		6.8			0.4			0.22		30	550	0.07	197
Pre	07/12/07	295		97		6.6			<LOD			0.10		190		<LOD	188
Post	07/12/07	314		8		6.3			0.1			<LOD		30	450	<LOD	202
Pre	10/12/07	295		157		6.9			<LOD			0.02		270		0.02	177
Post	10/12/07	302		3		6.6			0.3			0.13		30	220	0.02	185
Pre	11/12/07	306		112		6.7			<LOD			<LOD		40		<LOD	184
Post	11/12/07	316		6		6.6			0.3			<LOD		20	270	<LOD	192
Pre	12/12/07	313		42		6.8			<LOD			0.11		140		0.01	190
Post	12/12/07	322		2		6.9			0.9			>LOD		60	330	0.03	194
Pre	13/12/07	330		34		7.3			<LOD			0.26		110		0.02	197
Post	13/12/07	338		9		6.6			0.2			0.25		30	420	0.12	206
Pre	14/12/07	358		32		7.0			<LOD			0.30		360		0.03	215
Post	14/12/07	362		5		6.5			0.4			0.28		40	40	0.04	220
Pre	17/12/07	338		97		6.6			<LOD			0.26		180		0.01	199
Post	17/12/07	382		4		6.3			1.1			0.65		30	>LOD	0.04	236
Pre	18/12/07	312		42		6.9			<LOD			0.71		90		0.01	182
Post	18/12/07	331		3		5.8			0.9			0.19		30	400	0.08	200
Pre Axonics	07/12/2007	234		62		7.5	48	27		2.75	0.13	0.12	0.046	90	1861	0.08	137
Post Axonics	07/12/2007	233		2		6.3	4	<10		2.43	0.03	0.22	0.043	23	400	<0.03	138
Pre Axonics	11/12/2007	244		9		6.9	62	<10		3.30	0.14	0.14	0.036	46	1390	<0.03	142
Post Axonics	11/12/2007	245		1		6.4	<2	<10		2.98	0.01	0.18	0.039	<20	200	<0.03	147

I.P. = In Progress
 Italics = Indicative Only
 < LOD low Limit of Detection
 > LOD hve Limit of Detection
 § denote parameters that cannot or were not analysed on-site or the lab

Groundwater Monitoring Record Sheet

Conducted by		Approved by	
Name:	Signed	Name	

Determinant Results

Location	Date	DO % Sat	Temp °C	Cond. uS/cm	pH	TDS mg l ⁻¹	Nitrate as NO ₃ mg l ⁻¹	Ammonia mg l ⁻¹	Aluminium ug l ⁻¹	BOD mg l ⁻¹	TSS mg l ⁻¹	Orthophosphate as P ug l ⁻¹	Total Hardness mg/l CaCO ₃	Nitrite as NO ₂ mg l ⁻¹	Arsenic ug l ⁻¹	Mercury ug l ⁻¹	Lead ug l ⁻¹	Zinc ug l ⁻¹	Chromium ug l ⁻¹	Copper ug l ⁻¹	Cadmium ug l ⁻¹	Iron ug l ⁻¹	Tin ug l ⁻¹		
MP1																									
MP2																									
MP3																									
MP4																									
MP5																									
MP6																									
MP7																									
MP8																									
MP9																									
MP10																									
MP11																									
MP 1																									
MP 2																									
MP 3																									
MP 4																									
MP 5																									
MP 6																									
MP 7																									
MP 8																									
MP 9																									
MP 10a																									
MP 11																									
MP 1																									
MP 2																									
MP 3																									
MP 4																									
MP 5																									
MP 6																									
MP 7																									
MP 8																									
MP 9																									
MP 10a																									
MP 11																									

NO GROUNDWATER MONITORING DURING THE REPORTING PERIOD



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 m² d⁻¹ on as a 30 day average											
D1	15/01/2007	14/02/2007	120365	16/02/2007	26/02/2007	153					
D2	15/01/2007	14/02/2007	120366	16/02/2007	26/02/2007	224					
D3	15/01/2007	14/02/2007	120367	16/02/2007	26/02/2007	12					
D4	15/01/2007	14/02/2007	120368	16/02/2007	26/02/2007	153					
D1	16/02/2007	14/03/2007	122991	14/03/2007	20/03/2007	133					
D2	16/02/2007	14/03/2007	122992	14/03/2007	20/03/2007	65					
D3	16/02/2007	14/03/2007	122993	14/03/2007	20/03/2007	216					
D4	16/02/2007	14/03/2007	122994	14/03/2007	20/03/2007	331					
D1	14/03/2007	12/04/2007	126118	12/04/2007	24/04/2007	77					
D2	14/03/2007	12/04/2007	126119	12/04/2007	24/04/2007	108					
D3	14/03/2007	12/04/2007	126120	12/04/2007	24/04/2007	283					
D4	14/03/2007	12/04/2007	126121	12/04/2007	24/04/2007	352					
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					

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	10.0	5.9	06/12/2007	07:00:00	11:00:00	2343754	4.6	60.6	51.6	40.3	65.0				
N1	6.3	4.0	07/12/2007	07:00:00	11:00:00	2343754	5.5	116.7	52.7	41.6	77.4				
N1	5.6	3.0	10/12/2007	08:00:00	10:00:00	2343754	1.9	96.9	56.6	34.3	96.6				
N1	9.7	6.0	11/12/2007	07:00:00	11:00:00	2343754	5.2	142.7	42.1	33.6	66.5				
N1	10.8	9.8	12/12/2007	07:00:00	11:00:00	2343754	5.9	283.1	45.0	33.9	66.6				
N1	10.7	8.9	13/12/2007	07:00:00	11:00:00	2343754	6.9	292.6	52.2	39.5	70.8				
N1			14/12/2007	07:00:00	11:00:00	2343754			53.7	40.6	76.4	Weather Station undergoing maintenance			
N1	4.7	2.8	17/12/2007	08:00:00	10:00:00	2343754	4.0	306.0	55.3	44.5	70.4				
N1	4.7	3.1	18/12/2007	07:00:00	11:00:00	2343754	3.6	292.1	52.3	32.3	66.3				
* Wind speeds in excess of 5 m/s negatively impact noise readings (as per EPA Guidance Note on Noise Measurement).															

Note: Maintenance Works Being Carried out on the weather station in the 2nd week of the reporting pe

Flow Weir Record Sheet				no... 1 of 1		
Conducted by			Approved by			
Name:	Signed		Name:	Signed		
Determinant Results						
Date	SP1			SP3		
	Max (l/s)	Min (l/s)	Avg (l/s)	Max (l/s)	Min (l/s)	Avg (l/s)
06/12/2007	132.16	15.33	44.33			
07/12/2007	198.03	19.56	73.40			
08/12/2007	182.35	17.49	80.33			
09/12/2007	60.76	16.51	38.59			
10/12/2007	16.51	6.26	10.67			
11/12/2007	6.26	4.43	5.28			
12/12/2007	26.29	1.47	7.84			
13/12/2007	10.56	1.31	6.16			
14/12/2007	10.01	3.23	7.06			
15/12/2007	3.41	2.55	2.83			
16/12/2007	7.54	0.80	3.17			
17/12/2007	7.39	0.00	3.61			
18/12/2007	4.43	0.00	1.51			

Note: Negative values indicate low flow conditions.
 Low flow values currently being investigated with supplier.
 SP3 Results not available due to a software problem

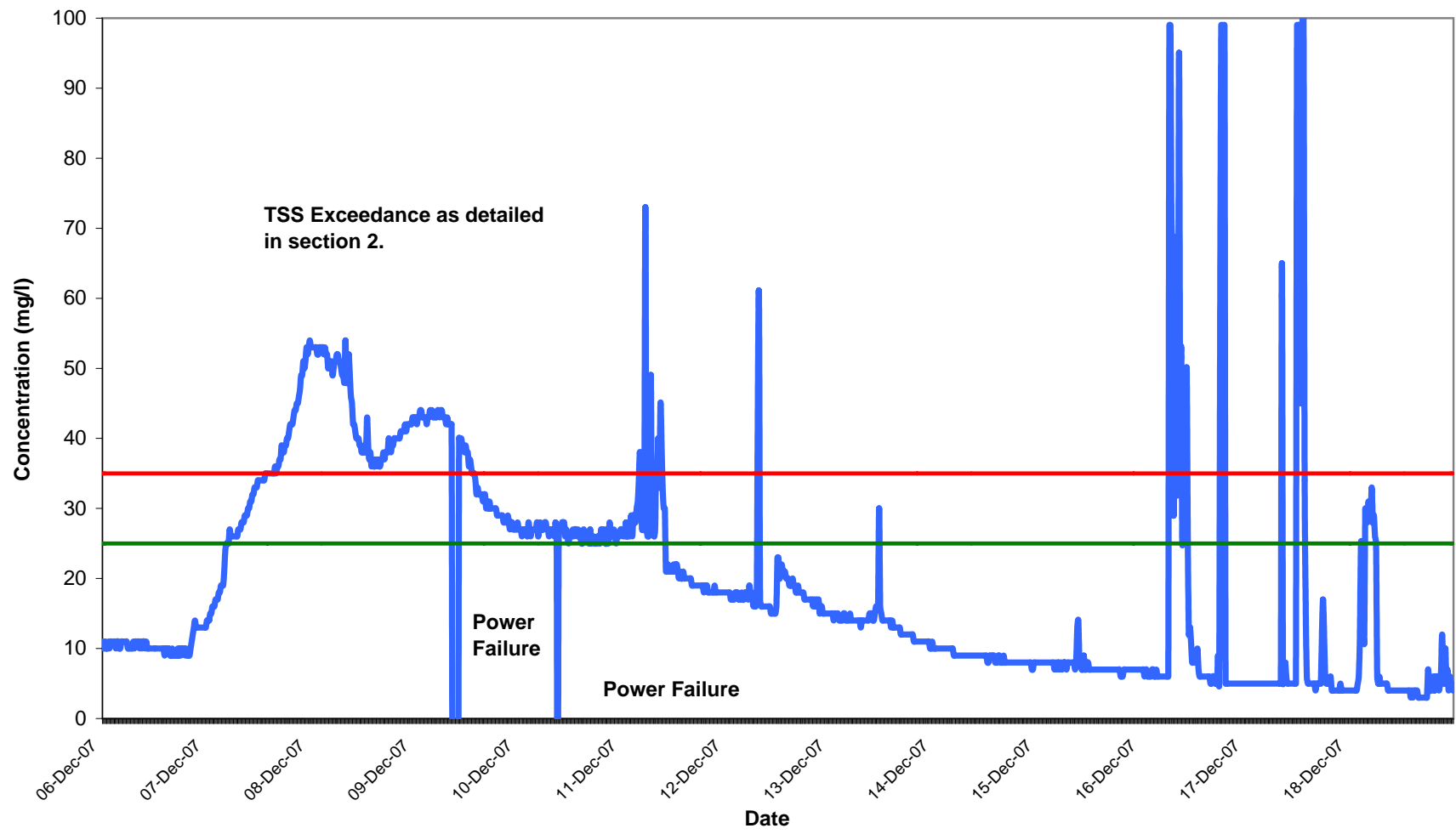
Vibration Monitoring Record Sheet		no...	1 of 1
Conducted by		Approved by	
Name:	Signed	Name:	Signed

Determinant Results									
Location	Date Positioned	Date Removed	Event Date	Event Time	Peak Vector Sum	Tran PPV	Vert PPV	Long PPV	Comments
V1	06-Dec-07			10:25					Monitor Started
			07/12/2007	8:45	5.41	2.29	4.83	1.78	Work carried out adjacent to vibration meter
		07-Dec-07		18:43					Monitor Stopped & housed for wkend
	10-Dec-07								Monitor Started
			12/12/2007	10:06	19.6	12.6	16	11	New platform being installed for meter
		15-Dec-07		11:26					Monitor Stopped & housed for wkend
	17-Dec-07			7:54					Monitor Started
		19-Dec-07		10:17					Monitor Stopped

Vibration meter was located at V1 only.

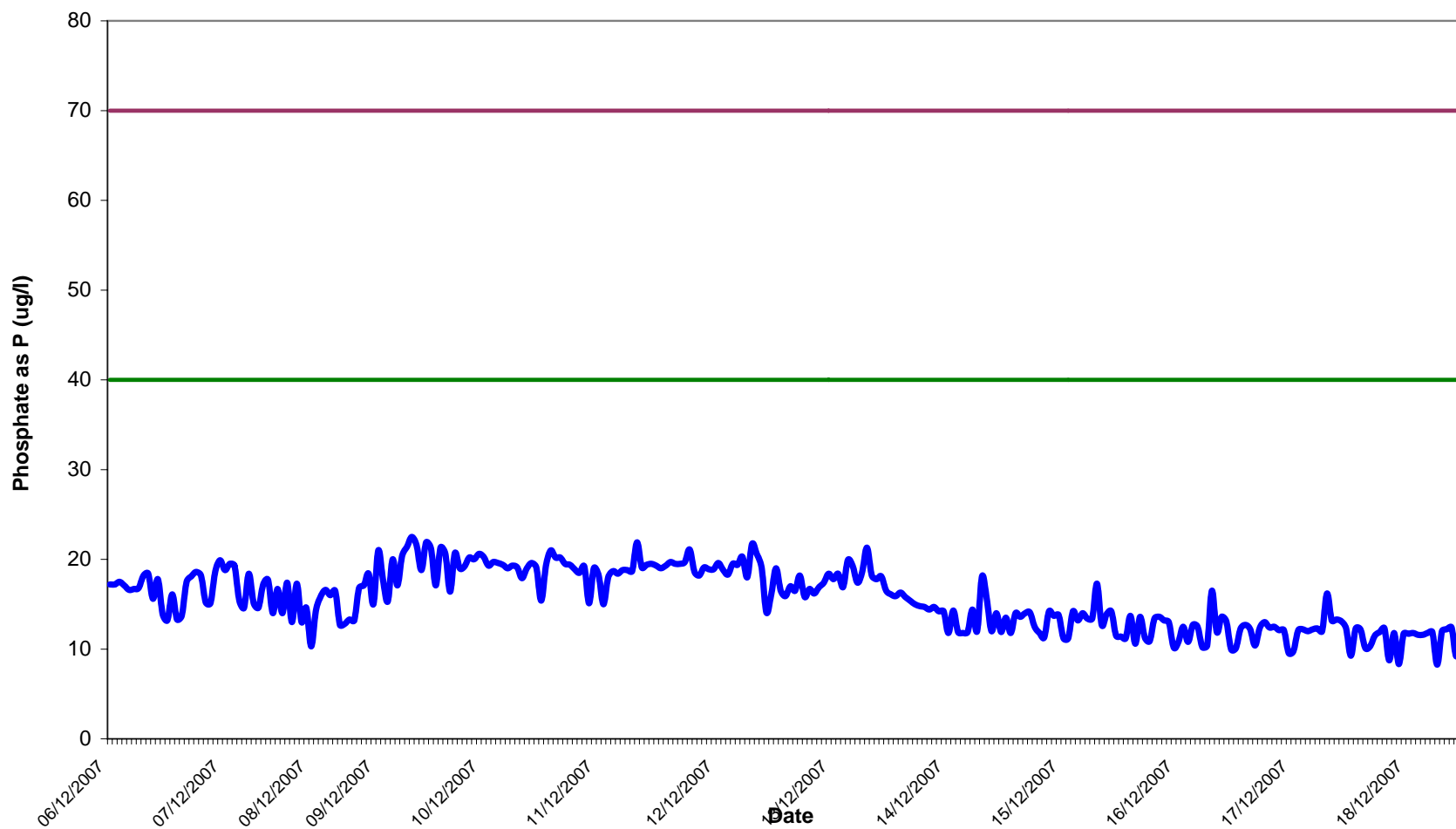
Total Suspended Solids Results at SP1 Week 50-51, 2007

TSS Action Limit Target Limit



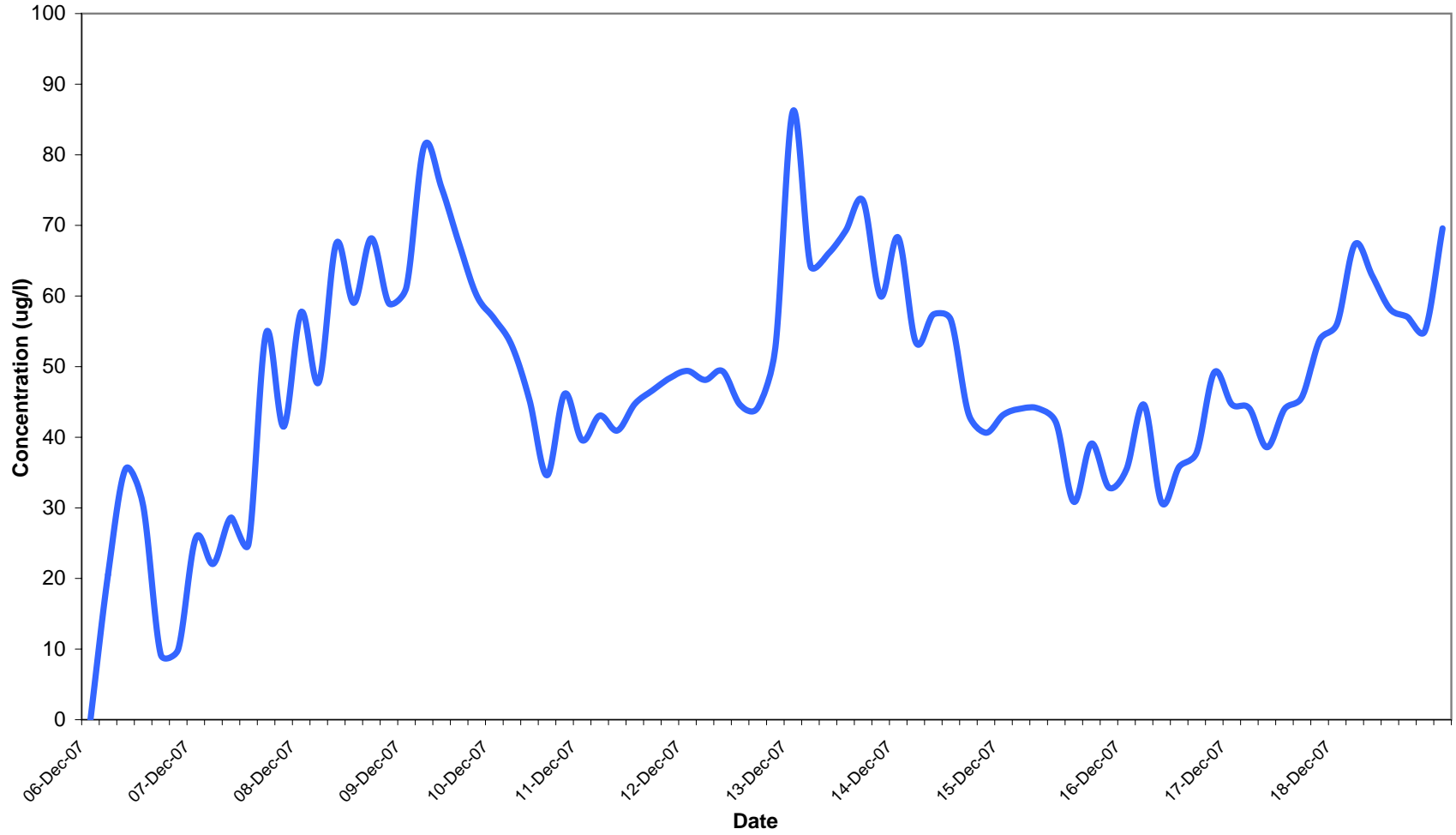
**Orthophosphate Results at SP1
Week 50-51, 2007**

Ortho Action Limit Target Limit



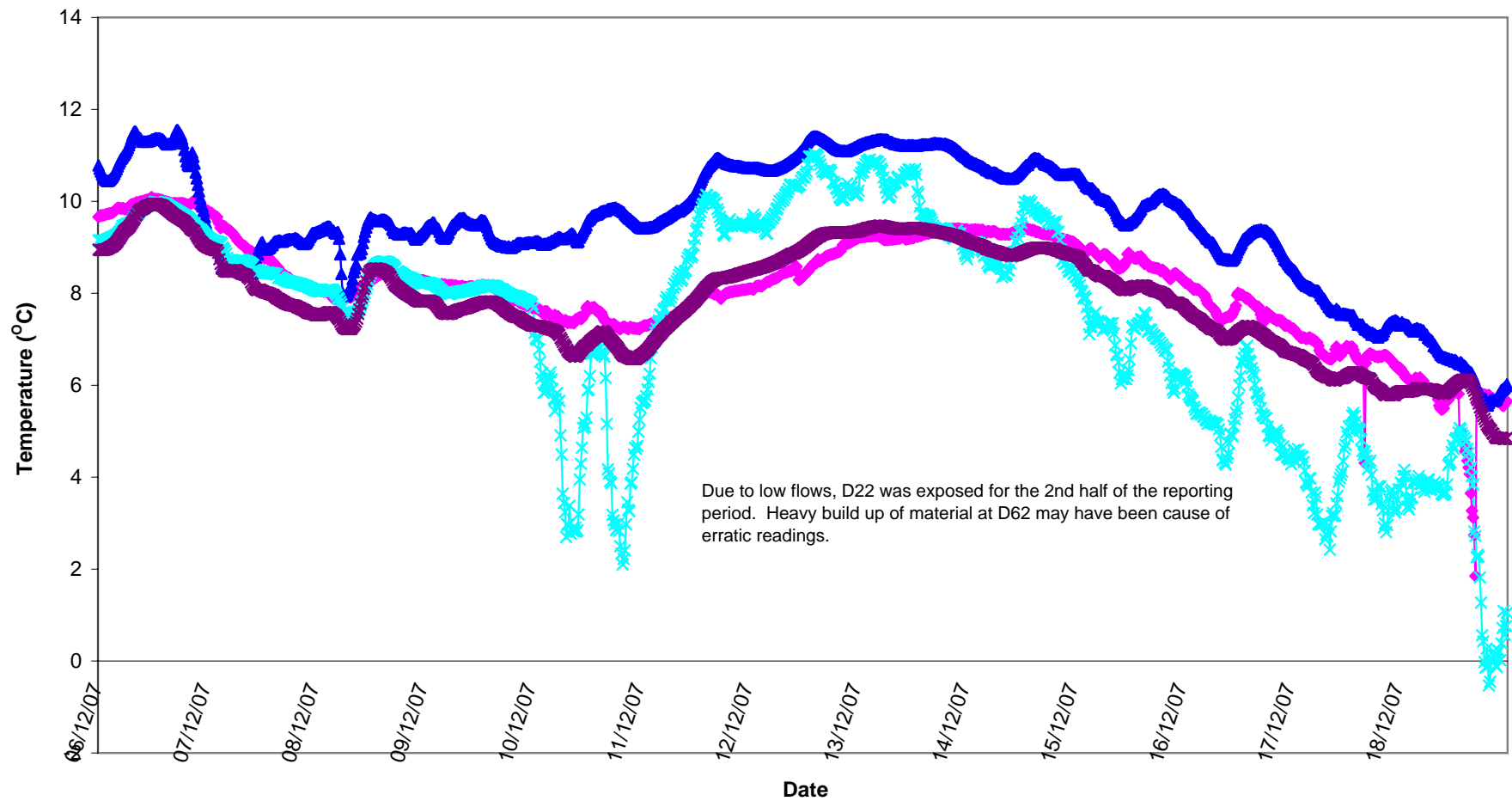
**Aluminium Concentration at SP1
Week 50-51, 2007**

Aluminium

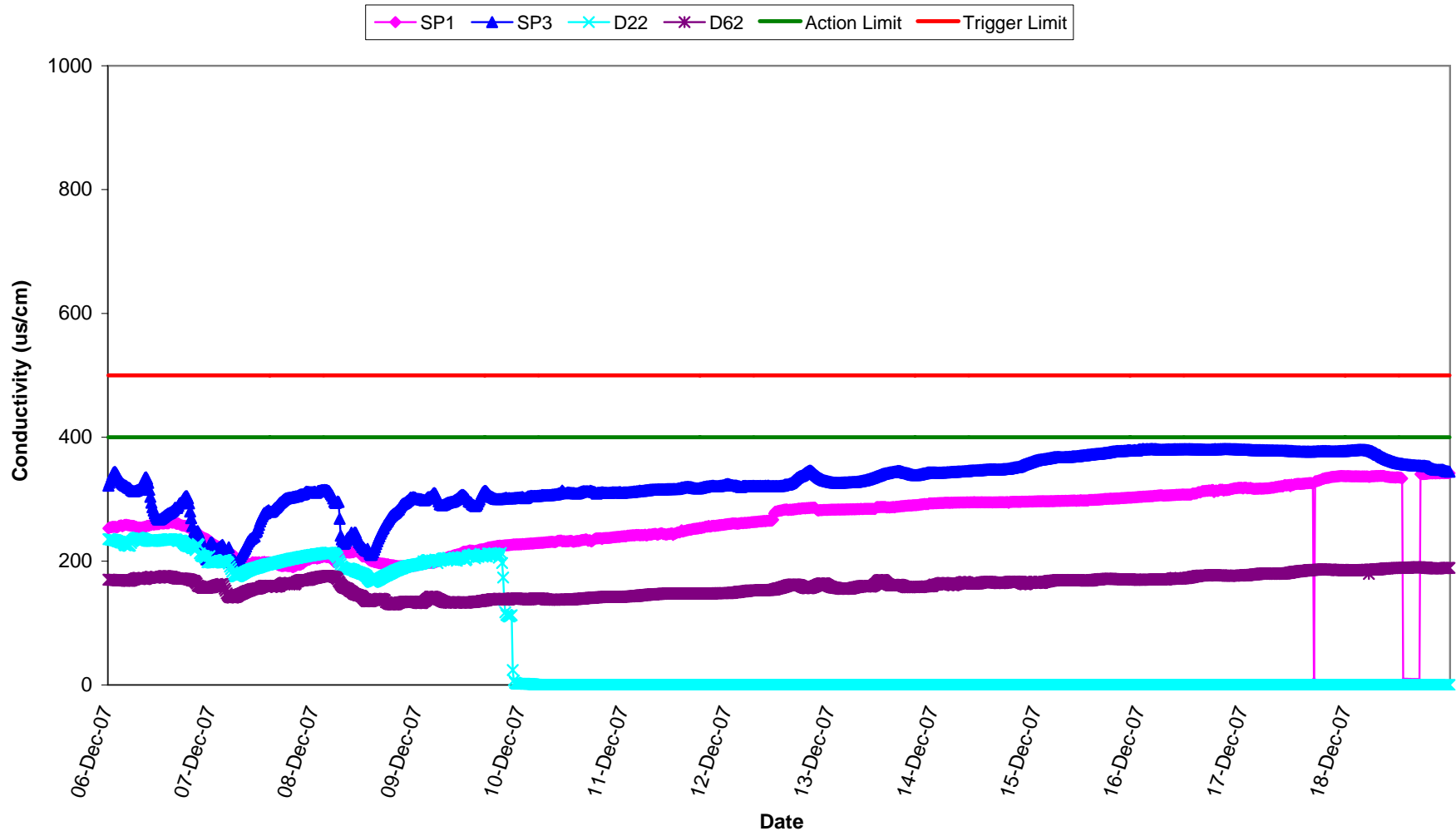


Temperature - Surface Waters, Week 50-51, 2007

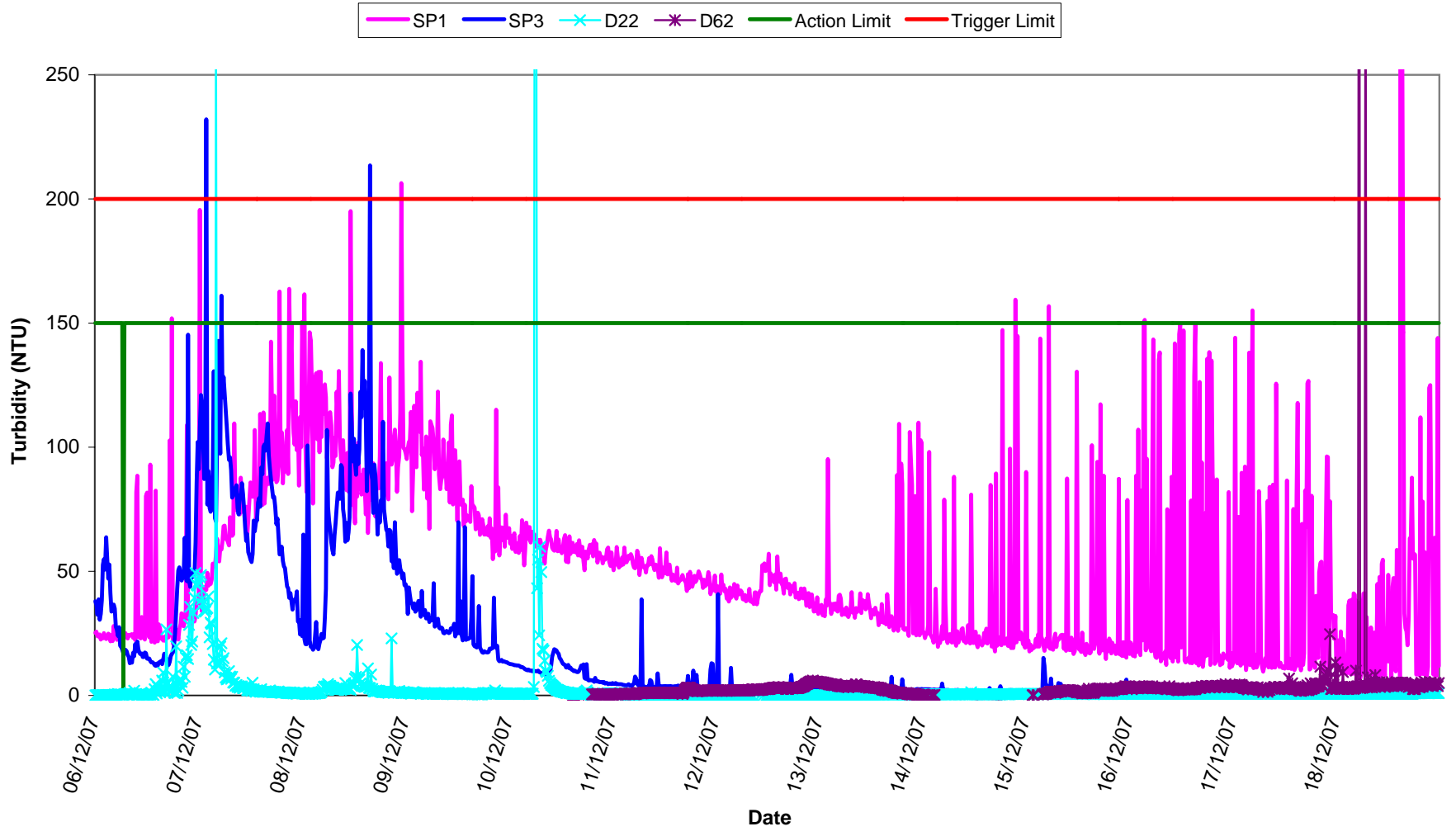
SP1 SP3 D22 D62



Conductivity - Surface Waters, Week 50-51, 2007

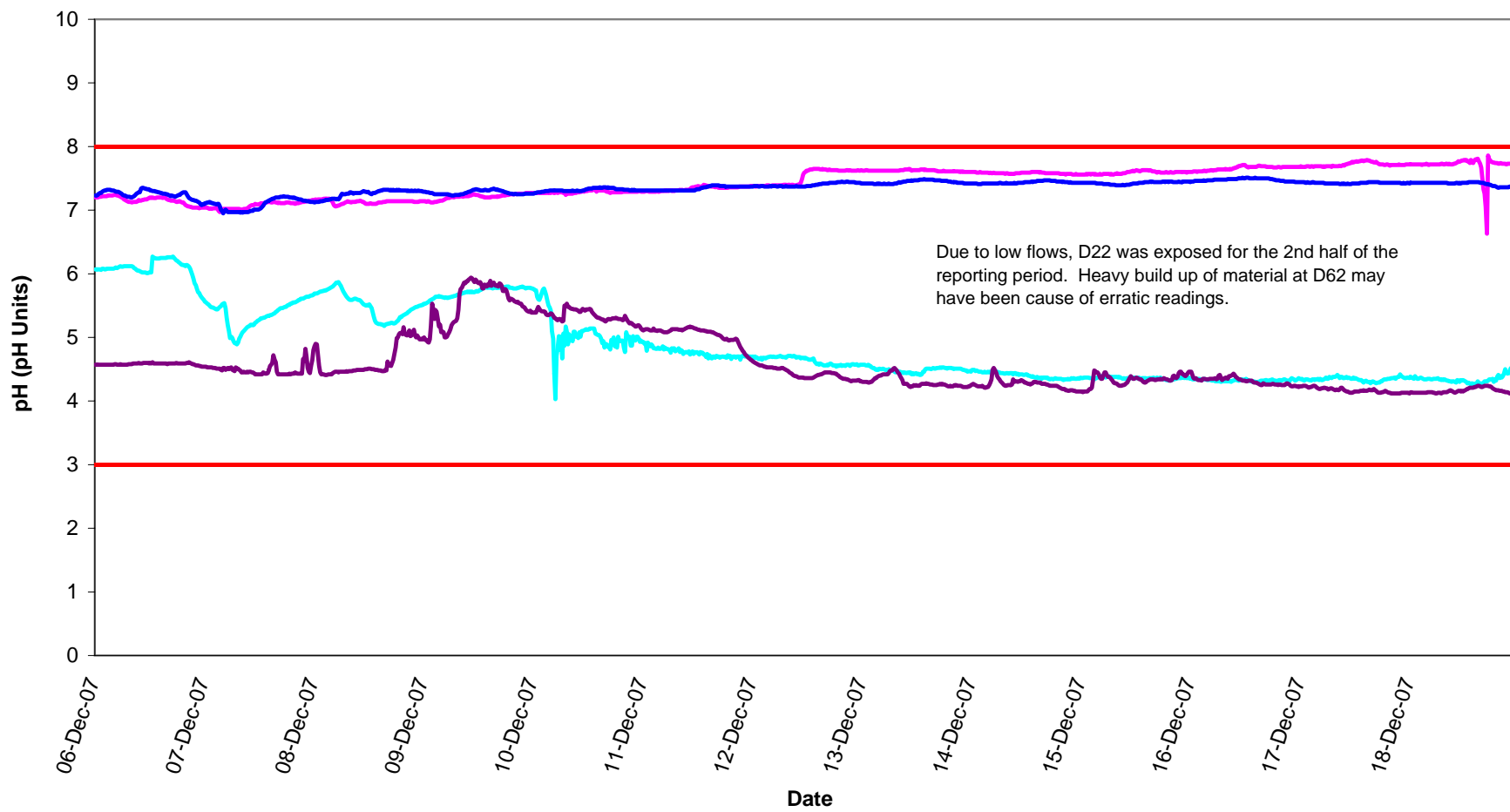


Turbidity - Surface Waters, Week 50-51, 2007



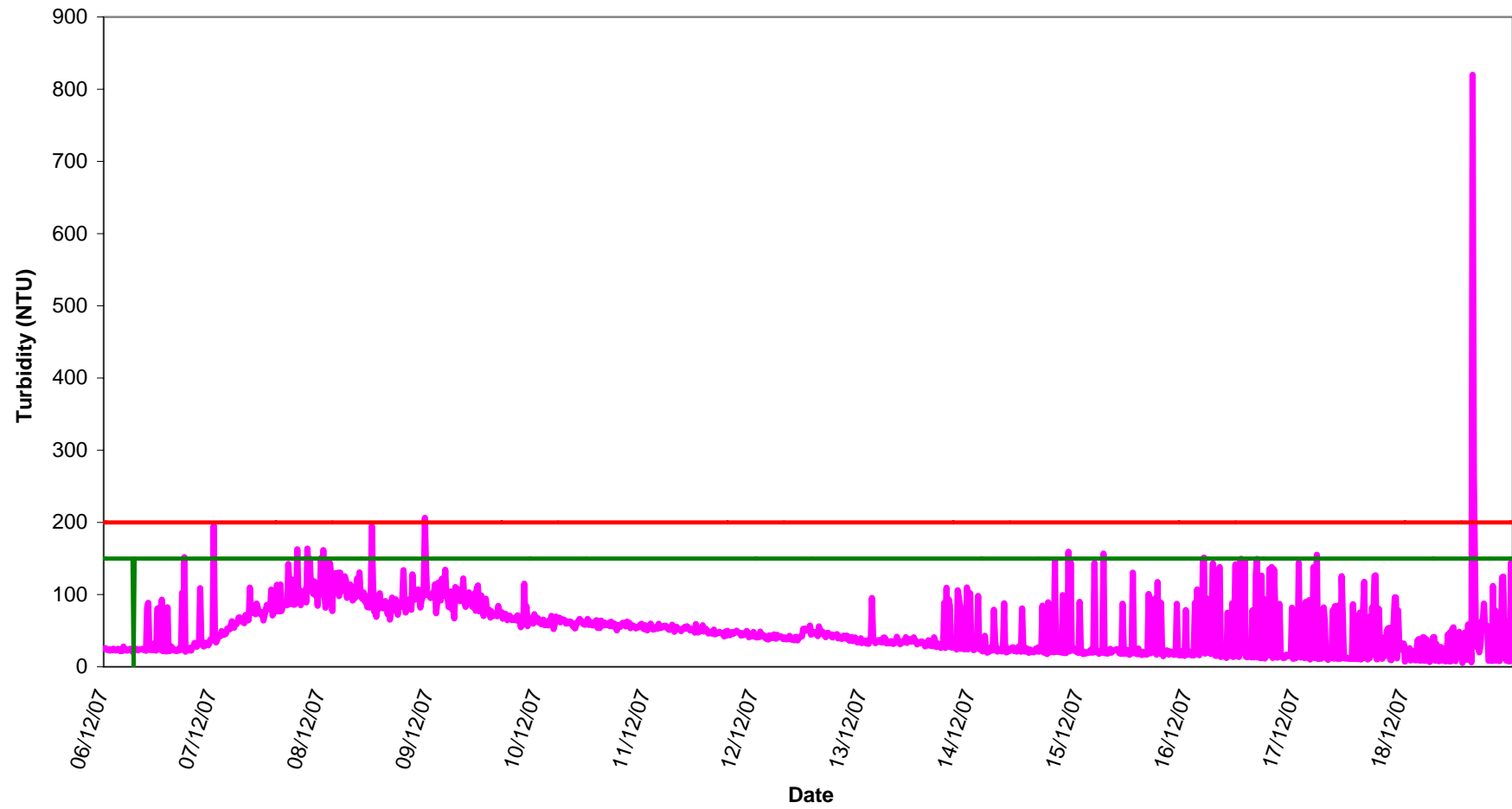
pH - Surface Waters, Week 50-51, 2007

SP1 SP3 D22 D62 Lower Limit Upper Limit

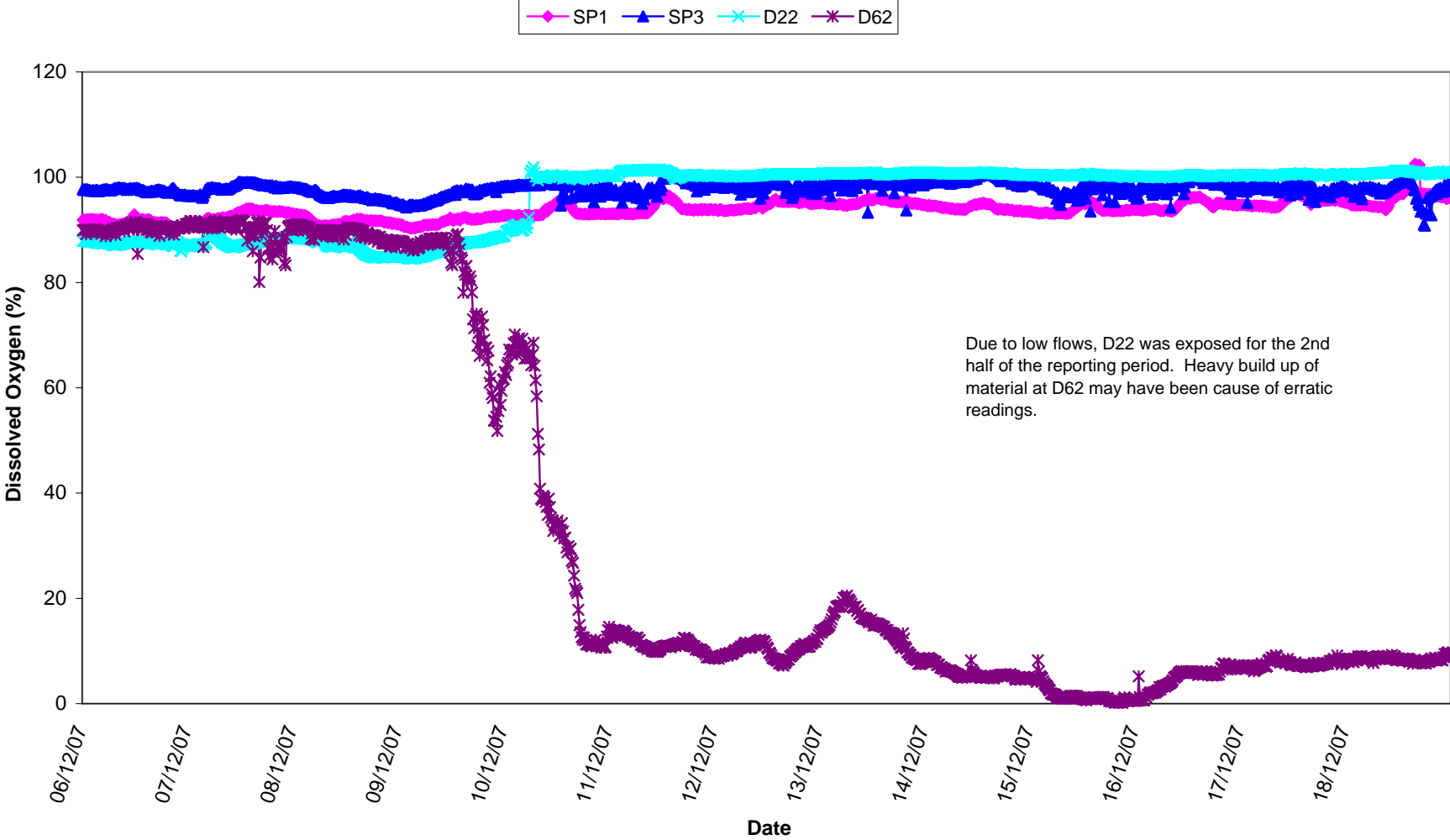


Turbidity - Surface Waters @ SP1, Week 50-51, 2007

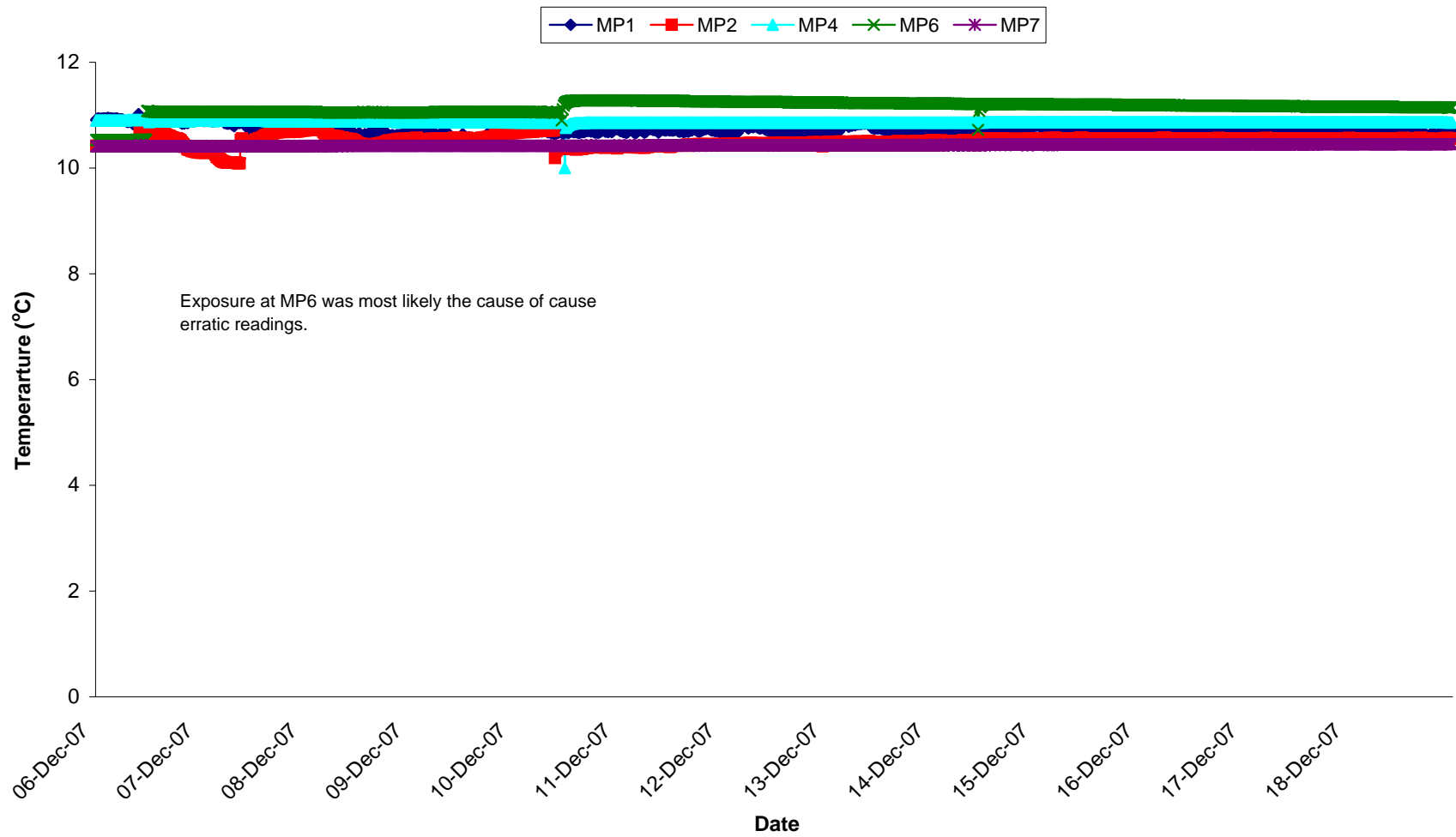
SP1 Action Limit Trigger Limit



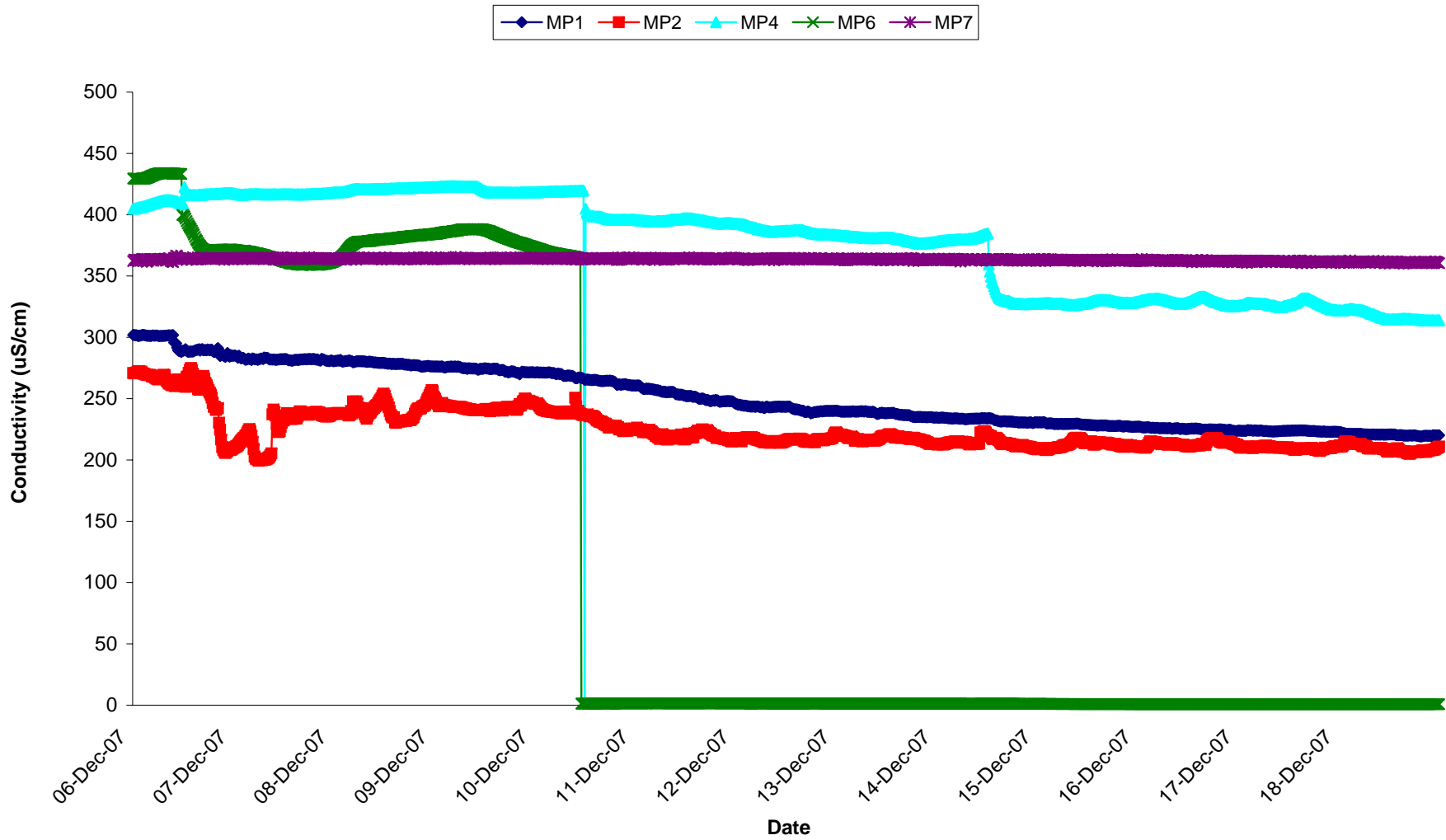
Dissolved Oxygen - Surface Waters, Week 50-51, 2007



Temperature - Groundwaters Week 50-51, 2007



Conductivity - Groundwaters Week 50-51, 2007



pH - Groundwaters Week 50-51, 2007

MP1 MP2 MP4 MP6 MP7

