

## **CORRIB GAS DEVELOPMENT**

**Report for PMC Meeting dated 17<sup>th</sup> June 2009.**

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### **Water Quality – Carrowmore Lake**

- Mayo County Council's Project Team has continued to monitor the surface waters in and around the Bellanaboy site. Summaries of the most recent verified results are attached, which are available on Mayo County Council Website [www.mayococo.ie](http://www.mayococo.ie).
- The results show that in the last monitoring period the discharge of surface water from the Terminal Site has had no significant impact on the water quality of the Bellanaboy River and Carrowmore Lake.
- The results also show that the discharge of surface water from the Terminal Site has had no adverse impact on the quality of drinking water produced at the Erris Regional Water Supply Scheme at Barnatra.

### **Environmental Issues at the Bellanaboy Site**

- Construction work at the terminal site is ongoing and is now approximately 78% complete. Site landscaping has been completed for 2009.
- Surface water runoff from the terminal footprint, the carrier drain road and other roads outside the terminal footprint, is treated by the axonics unit prior to discharge to the site drainage system.
- The axonics plant has been switched to mains power and a new clarifier has been installed and will be on line by end of June. The settlement ponds have been cleaned out.
- During the last two months the site experienced significant rainfall from time to time. However, no exceedances in water quality parameters were recorded.
- Specific work activities outside normal hours are ongoing from time to time, subject to noise level restriction and the developer providing continuous noise monitoring which is submitted in a fortnightly report to Mayo County Council. Pipeline pressure testing and weld radiographic testing are taking place at night from time to time, due to safety considerations.

## **Community Fund**

- **Bellanaboy Village Scheme** – It is proposed to provide new footpaths and public lighting from terminal gate to Bellanaboy bridge on R314, length 1.32km. The estimate to carry out these works is €400,000, and this has been sent as an application for funding.

## **Transportation/Roads**

- Deliveries of abnormal loads have been completed.
- R314 and L1202 – These works are substantially complete.

**CARROWMORE LAKE**

Results from 26/03/2009 to 12/05/2009 ( 8Samples taken)

Analysis by Bord na Mona Laboratory Newbridge, Co. Kildare

Parameter	Units	Average	Max	Min
Suspended Solids	mg/l	6	8	5
Turbidity	N.T.U	4	7	2
pH	pH units	7.6	8.2	7
Conductivity	uS/cm	156	199	144
Phosphate	mg/l P	<0.01	<0.01	<0.01
Total Phosphorous	mg/l P	<0.05	<0.05	<0.05
Ammonia	mg/l NH <sub>3</sub> -N	<0.02	<0.02	<0.02
Nitrate	mg/l NO <sub>3</sub> -N	<0.2	<0.2	<0.2
Nitrite	mg/l NO <sub>2</sub> -N	<0.02	<0.02	<0.02
Total Aluminium	ug/l Al	60	146	30

**ERRIS REGIONAL WATERWORKS (Final Treated Water)**

Results from 1/04/2009 to 10/06/2009 ( 71 Samples)

Analysis carried out at Erris Regional Waterworks

Parameter	Units	Average	Max	Min	Drinking Water Limits
Colour	mg/l	2	10	0	<10 Haz
Turbidity	N.T.U	0.07	0.27	0.05	<2.0 NTU
Ph	pH units	7.1	8.1	6.4	6.5 – 8.5
Free Chlo/Res	mg/l	0.79	1.18	0.50	>0.3
Total Chlo/Res	mg/l	0.90	1.25	0.62	>0.3
Flourine	ppm	0.69	1	0.53	0.6-0.8
Total Aluminium	ug/l	5	11	0	200

**BELLANABOY RIVER**  
**(Upstream and Downstream of discharge from Terminal site)**  
**Results from 26/03/2009 to 12/05/2009( 8 Samples taken)**  
**Analysis by Bord na Mona Laboratory Newbridge, Co. Kildare**

Parameter	Units	BEL 1 (upstream)			BEL 2 (downstream)		
		Average	Max	Min	Average	Max	Min
Temp.	°C	9.4	11.5	7.9	9.3	11	7.9
Dissolved Oxygen	% Sat.	88	97	81	86	96	80
Suspended Solids	mg/l	6	12	<5	6	10	<5
Turbidity	N.T.U	4	7	2	4	8	2
pH	pH units	7.4	8.1	6.9	7.3	7.9	6.5
Conductivity	uS/cm	180	227	100	194	239	111
Total Dissolved Solids	mg/l	139	158	92	143	170	106
Phosphate	mg/l P	<0.01	0.02	<0.01	<0.01	0.02	<0.01
Total Phosphorus	mg/l P	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ammonia	mg/l NH <sub>3</sub> -N	0.03	0.05	<0.02	0.04	0.06	0.03
Nitrate	mg/l NO <sub>3</sub> -N	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrite	mg/l NO <sub>2</sub> -N	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Total Aluminium	ug/l Al	92	229	34	72	145	42

**SP1 (Discharge point from terminal site)**  
**Results from 26/03/2009 to 12/05/2009 ( 8 Samples)**  
**Analysis by Bord na Mona Laboratory Newbridge, Co. Kildare**

Parameter	Units	SP 1		
		Average	Max	Min
Suspended Solids	mg/l	6	12	5
Turbidity	N.T.U	4	12	1
pH	pH units	7.7	8.2	7.1
Conductivity	uS/cm	318	353	287
Total Dissolved Solids	mg/l	<0.01	<0.01	<0.01
Phosphate	mg/l P	<0.05	<0.05	<0.05
Total Phosphorus	mg/l P	<0.02	<0.02	<0.02
Ammonia	mg/l NH <sub>3</sub> -N	<0.02	<0.02	<0.02
Nitrate	mg/l NO <sub>3</sub> -N	<0.2	<0.2	<0.2
Nitrite	mg/l NO <sub>2</sub> -N	<0.02	<0.02	<0.02
Total Aluminium	ug/l Al	117	196	55

**Axonics Water Treatment Units (Post-treatment Results)**  
**Results from 26/03/2009 to 12/05/2009 (8 samples)**  
**Analysis by Bord na Mona Laboratory Newbridge, Co. Kildare**

Parameter	Units	Post-Treatment ( 8 Samples)		
		Average	Max	Min
Suspended Solids	mg/l	5	5	5
Turbidity	N.T.U	3	4	2
pH	pH units	7.1	7.7	6.6
Conductivity	uS/cm	364	384	348
Total Dissolved Solids	mg/l	238	266	222
Phosphate	mg/l P	<0.01	<0.01	<0.01
Total Phosphorus	mg/l P	<.05	<0.05	<0.05
Ammonia	mg/l NH <sub>3</sub> -N	<0.02	<0.03	<0.02
Nitrate	mg/l NO <sub>3</sub> -N	0.29	0.68	<0.2
Nitrite	mg/l NO <sub>2</sub> -N	<0.20	<0.20	<0.20
*Total Aluminium	ug/l Al	229	301	44

Srahmore Peat Repository  
WL 0199-01

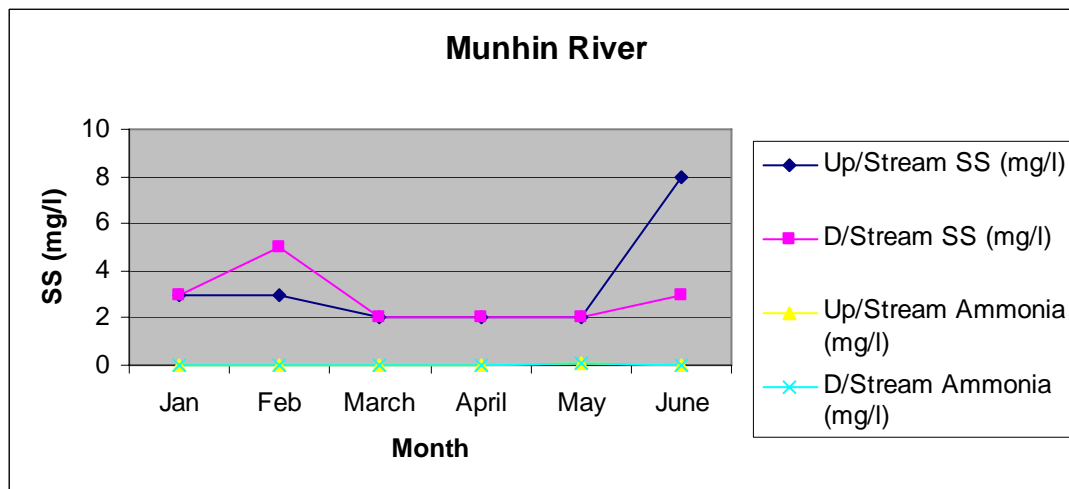
**Environmental Management System Up-Date No. 39(17/06/09)**

Decommissioning and Rehabilitation

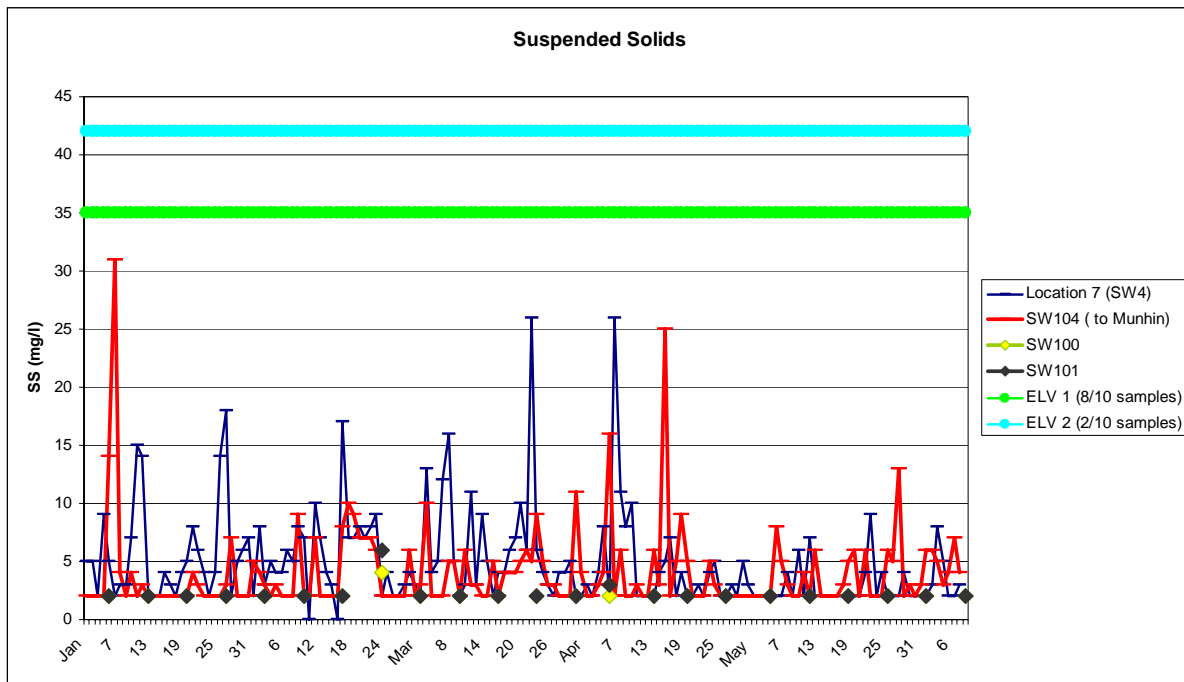
Environmental Monitoring:

- There were No non-compliances at the site since the last meeting
- There were No complaints received at the site since the last meeting.
- There were No incidents recorded at the site since the last meeting.

**Monitoring Results: Munhin River (2009)**



## Monitoring Results: SW4/104/100&101 (2009)



The average SS mg/l for SW4 for 2009 to date, was 4.9mg/l and 4.0mg/l at the discharge from the site to the Munhin at SW104

### Srahmore Site Update:

#### Personnel:

##### On Site

		Tractor & General Oper.		Environmental	0
BnM (Engineering)	0	Fitters	0	Archaeological	0
Site Admin & Mgt.	1	Electricians	0		
		Site Supervisors	0		
		Excavator & Shovel	0		
<b>TOTAL EMPLOYED</b>					<b>1</b>

##### Contractors

Security	0	Catering	0		
<b>TOTAL EMPLOYED</b>					<b>0</b>

##### Off Site

Head Offices Staff	1			BnM (Support)	1
Environmental Officer	1				
<b>TOTAL EMPLOYED</b>					<b>3</b>

<b>OVERALL TOTAL EMPLOYED</b>					<b>4</b>
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**On-going work:**

Environmental monitoring as per waste licence WL 0199-01. Application for a review of the Waste Licence was submitted to the EPA on the 18 May 2009.

**As of the 7 June 2009, the Srahmore site is Compliant.**

# Bellanaboy Bridge Site

## Report to the Project Monitoring Committee

16<sup>th</sup> June 2009

### Works Undertaken

The following construction operations are ongoing:

- Operation of Axonics plant
- Environmental and geotechnical monitoring
- Civil's and foundations works
- Erection of structural steel
- Scaffolding erection
- Piping installation on pipe racks, on sleeperways and below ground, including export pipeline.
- Building works.
- Electrical and Instrumentation works including cable rack installation and cable installation.
- Process equipment deliveries and installation.
- Tankage grit blasting and painting.
- Testing of pipe work
- Testing of systems.
- Landscaping ( tree planting ) works

### Outlook from June 2009 Onwards:

- Continuation of insulation works
- Continuation of environmental monitoring and Axonics operation.
- Continuation of civil's and foundation works.
- Continuation of structural steel erection.
- Mobilisation of additional electrical resources.
- Continuation of electrical and instrumentation works
- Continuation of scaffolding erection
- Continuation of piping installation
- Continue building works
- Continued testing of pipe work.
- Continuation of installation of process equipment.
- Continuation of tankage grit blasting and painting.
- Continued testing of electrical systems.

### ENVIRONMENTAL REPORT

**Dust** - Dust deposition results of 146, 101, 117 and 115mg/ m<sup>2</sup>/day were recorded at D1, D2, D3 and D4 respectively for April.

Dust deposition results of 101, 98, 88 & 98mg/ m<sup>2</sup>/day were recorded at D1, D2, D3 and D4

respectively for May. All values were within the limit of 350 mg/ m<sup>2</sup> /day.

**Noise** – All construction related noise levels recorded were below the agreed noise limits and any unusual values were attributed to activities immediately adjacent to the monitoring location or elevated wind speeds.

**Vibration Monitoring** – All vibration monitoring results were within guidance values.

**Traffic** -There were approximately 372 construction HCV movements during April and May.

**Fuel** – Approximately 307.14m<sup>3</sup> of fuel was delivered to site in April and May.

**Waste** – 14 skips of refuse (Canteen waste, etc.), 5 skips of cardboard/plastics, and 3 skips of metal waste, 11 skips of timber were removed off site during April and May. The effluent holding tanks were emptied of approximately 14555m<sup>3</sup> during April and May. There were 4 hazardous waste collections for the removal of oily waste and chemical waste for the same period.

**Water Quality** – All monitoring and sampling locations were accessible for download, recalibration and reinstallation during the months of April and May. A summary of the main surface water parameters measured for grab sampling during April and May (available range of lowest to highest) at SP1 is presented below:

pH (pH Units)

6.7 to 7.7

Suspended Solids (mg/l)

2 to 4

Orthophosphate (µg/l P)

10-11

Nitrite (mg/l NO<sub>2</sub>)

0.017 to 0.025

Conductivity (µS/cm)

254 to 350

Turbidity (NTU)

1.5 to 5.6

Groundwater samples were taken and borehole monitoring equipment was downloaded for the months of April and May. A summary of the main groundwater parameters measured (range of lowest to highest) follows:

pH (pH Units)

5.4 to 6.2

Conductivity ( $\mu\text{S}/\text{cm}$ )

208 to 469

Nitrate ( $\text{mg}/\text{l NO}_3$ )

0.020 to 0.022

Total Dissolved Solids ( $\text{mg}/\text{l}$ )

102 to 225

**Complaints** – There were no construction activity related complaints logged with SEPIL during the months of April and May.

**Incidents** – There were no environmental incidents during the months of April and May.

**Exceedances** – There was no exceedances during April & May.

**Necessary Environmental Works**

- Continue operation of on-site surface water treatment plant.
- Removal of all waste and effluent from site on an as needs basis.
- Inspect, repair (when required) and recalibrate all in situ monitoring equipment.
- Monitor/sample and download water (surface and ground) quality monitoring devices.

**Environmental Improvements**

- Further training undertaken with Emergency Spill Response Team. Exercises were undertaken to assess site procedures and identify areas of improvement.
- Upgrade of Axonics plant clarifier.
- Annual clean of settlement ponds.
- Phase 1 of landscaping was completed which comprised of planting 28,000 trees.

**Water Quality Monitoring Graphs**

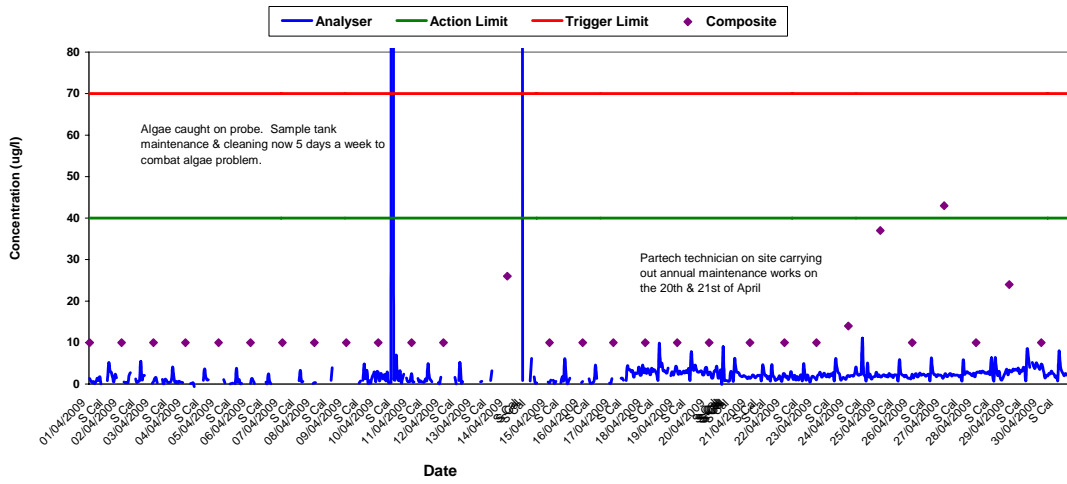
Graphs are attached for monthly continuous monitoring data at SP1 during April and May for total suspended solids, turbidity, and orthophosphate. Please see commentary below for each graph.

**Total Suspended Solids:** Over the period of the two months short term peaks correlate with periods of heavy rainfall.

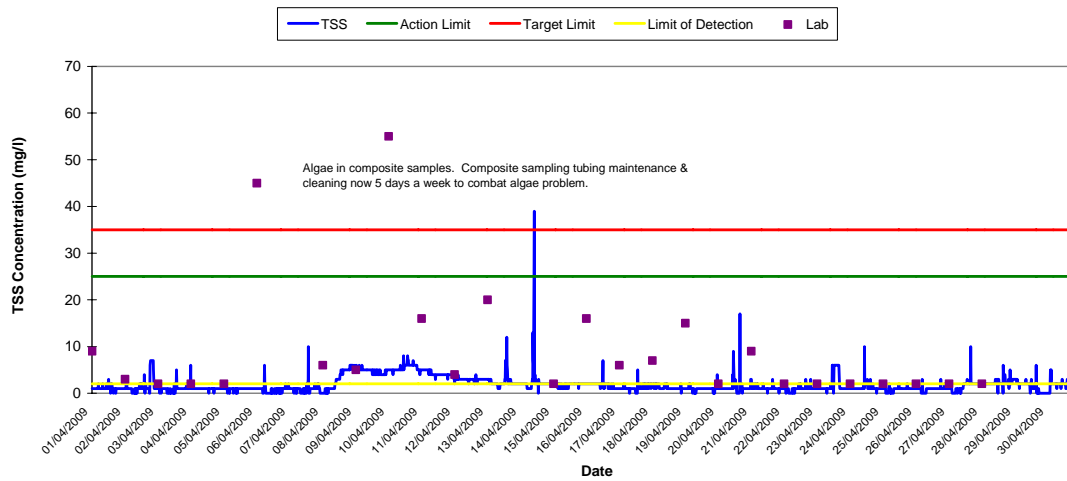
**Turbidity:** The graph showed a series of spikes over the two months however on site testing showed negligible values on these days indicating that the spikes were due to fluctuations in flow rates and material lodging in the probe. The on site testing data is therefore presented in the graphs.

**Orthophosphate:** The results yielded were all within the limits of discharge.

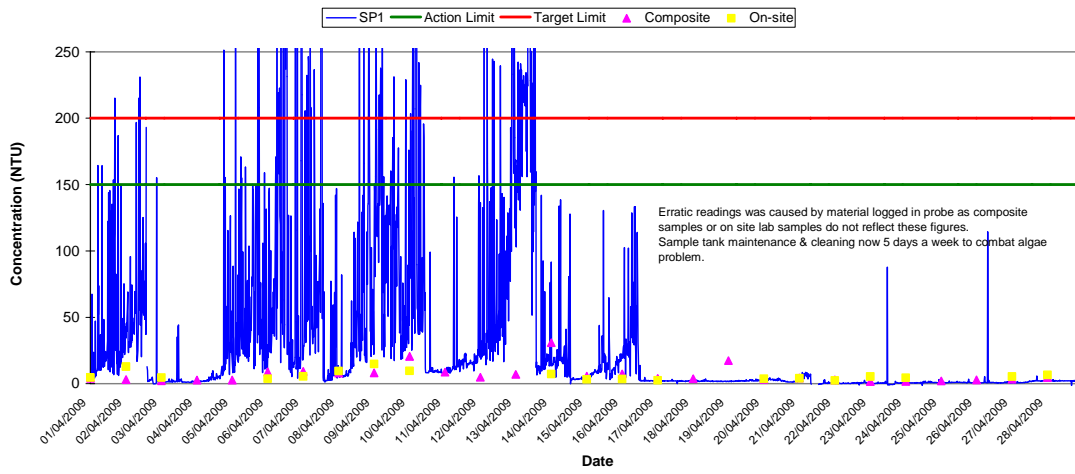
### Orthophosphate Results at SP1 April 2009



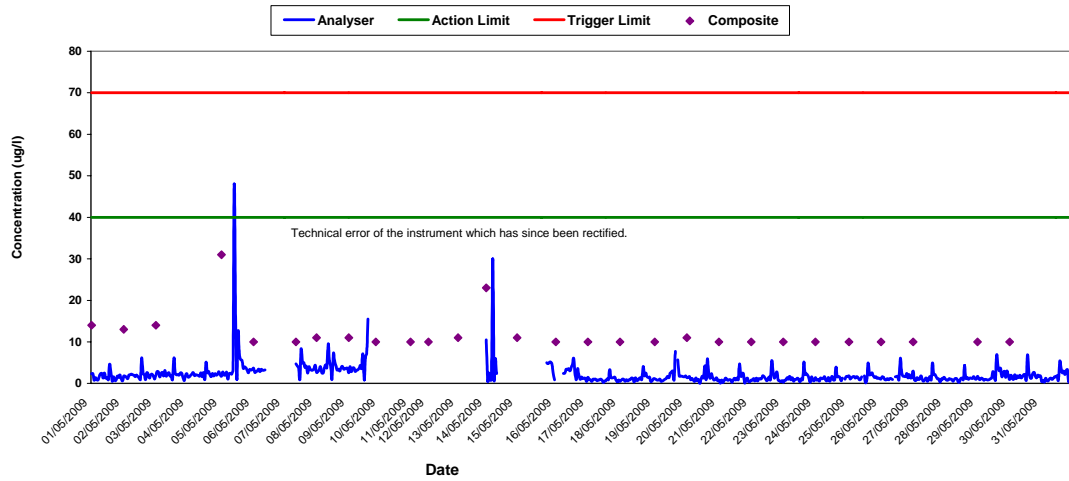
### Total Suspended Solids Results at SP1 April 2009



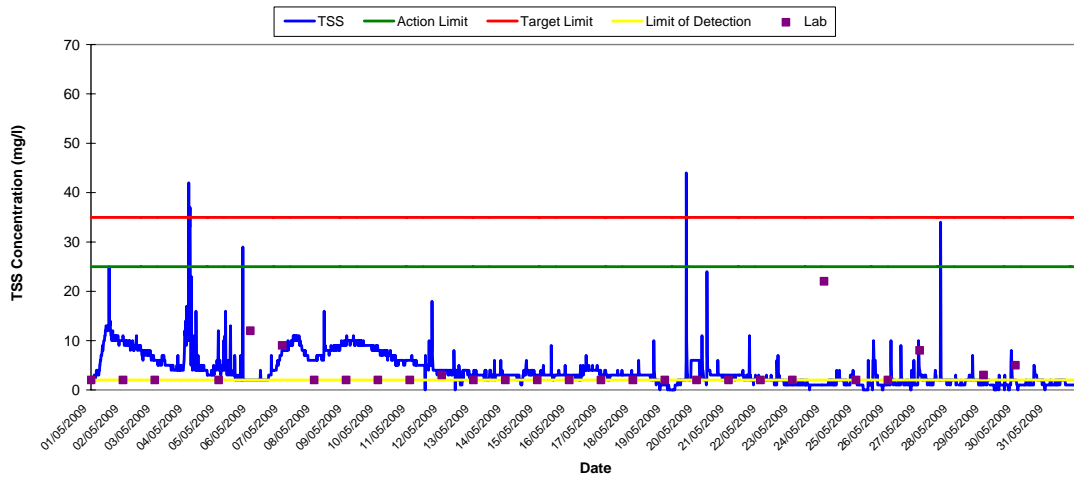
### Turbidity Results at SP1 April 2009



### Orthophosphate Results at SP1 May 2009



**Total Suspended Solids Results at SP1  
May 2009**



**Turbidity Results at SP1  
May 2009**

