

CORRIB GAS DEVELOPMENT

Report for PMC Meeting dated 15th April 2009.

**Prepared by Mr. Padraic Walsh, Senior Engineer,
Project Manager for Mayo County Council.**

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.
- 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 68% complete. The flare stack has been erected. Site landscaping has recently commenced.
- 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 is shortly being switched to mains power and a new clarifier will be installed and commissioned by early June. The settlement ponds are due to be cleaned out this month.
- During the last two months the site experienced significant rainfall from time to time which resulted in one minor exceedance in water quality parameters. As outlined above, this exceedance has had no significant impact on the water quality of the Bellanaboy River and Carrowmore Lake.
- 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

- **The Bangor Angling Scheme** – (Budget €185,000).
This project has been completed on budget and the site has recently been handed back to the Angling Club.
- **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 22/01/2009 to 19/03/2009 (9 Samples taken)

Analysis by Bord na Mona Laboratory Newbridge, Co. Kildare

Parameter	Units	Average	Max	Min
Suspended Solids	mg/l	6	15	5
Turbidity	N.T.U	5	13	1
pH	pH units	7.5	8	7
Conductivity	uS/cm	158	194	144
Phosphate	mg/l P	<0.01	<0.01	<0.01
Total Phosphorous	mg/l P	<0.05	0.10	<0.05
Ammonia	mg/l NH ₃ -N	<0.02	<0.02	<0.02
Nitrate	mg/l NO ₃ -N	<0.2	<0.2	<0.2
Nitrite	mg/l NO ₂ -N	<0.02	<0.02	<0.02
Total Aluminium	ug/l Al	108	182	30

ERRIS REGIONAL WATERWORKS (Final Treated Water)

Results from 2/02/2009 to 31/03/2009 (58 Samples)

Analysis carried out at Erris Regional Waterworks

Parameter	Units	Average	Max	Min	Drinking Water Limits
Colour	mg/l	2	11	0	<10 Haz
Turbidity	N.T.U	0.09	0.57	0.03	<2.0 NTU
Ph	pH units	7.1	7.8	6.7	6.5 – 8.5
Free Chlo/Res	mg/l	0.85	1.04	0.32	>0.3
Total Chlo/Res	mg/l	0.96	1.17	0.51	>0.3
Flourine	ppm	0.67	0.93	0.6	0.6-0.8
Total Aluminium	ug/l	16	84	8	200

BELLANABOY RIVER
(Upstream and Downstream of discharge from Terminal site)
Results from 22/01/2009 to 19/03/2009 (9 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	5.7	8.7	2.6	5.7	8	2.6
Dissolved Oxygen	% Sat.	90	96	85	90	95	84
Suspended Solids	mg/l	<5	<5	<5	<5	<5	<5
Turbidity	N.T.U	3	8	1	4	7	2
pH	pH units	7	7.4	6.3	7.1	7.4	6.4
Conductivity	uS/cm	182	225	130	204	293	141
Total Dissolved Solids	mg/l	126	224	92	115	230	50
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	0.06	0.10	<0.05
Ammonia	mg/l NH ₃ -N	0.04	0.06	<0.02	0.04	0.08	<0.02
Nitrate	mg/l NO ₃ -N	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Nitrite	mg/l NO ₂ -N	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Total Aluminium	ug/l Al	80	134	52	84	139	64

SP1 (Discharge point from terminal site)
Results from to 22/01/2009 to 19/03/2009 (9 Samples)
Analysis by Bord na Mona Laboratory Newbridge, Co. Kildare

Parameter	Units	SP 1		
		Average	Max	Min
Suspended Solids	mg/l	5	9	5
Turbidity	N.T.U	6	14	2
pH	pH units	7.6	7.8	7.2
Conductivity	uS/cm	311	356	249
Total Dissolved Solids	mg/l	184	306	124
Phosphate	mg/l P	<0.01	<0.01	<0.01
Total Phosphorus	mg/l P	<0.05	0.08	<0.05
Ammonia	mg/l NH ₃ -N	<0.02	<0.02	<0.02
Nitrate	mg/l NO ₃ -N	<0.2	0.27	<0.2
Nitrite	mg/l NO ₂ -N	<0.02	<0.02	<0.02
Total Aluminium	ug/l Al	342	474	194

Axonics Water Treatment Units (Post-treatment Results)
Results from to 22/01/2009 to 19/03/2009 (9 Samples)
Analysis by Bord na Mona Laboratory Newbridge, Co. Kildare

Parameter	Units	Post-Treatment (9 Samples)		
		Average	Max	Min
Suspended Solids	mg/l	5	5	5
Turbidity	N.T.U	4	6	1
pH	pH units	6.9	7.1	6.6
Conductivity	uS/cm	399	472	350
Total Dissolved Solids	mg/l	217	308	50
Phosphate	mg/l P	<0.01	<0.01	<0.01
Total Phosphorus	mg/l P	<0.05	<0.05	<0.05
Ammonia	mg/l NH ₃ -N	0.04	0.07	<0.02
Nitrate	mg/l NO ₃ -N	0.26	0.46	<0.2
Nitrite	mg/l NO ₂ -N	0.06	0.45	<0.02
*Total Aluminium	ug/l Al	391	549	91

Srahmore Peat Repository
WL 0199-01

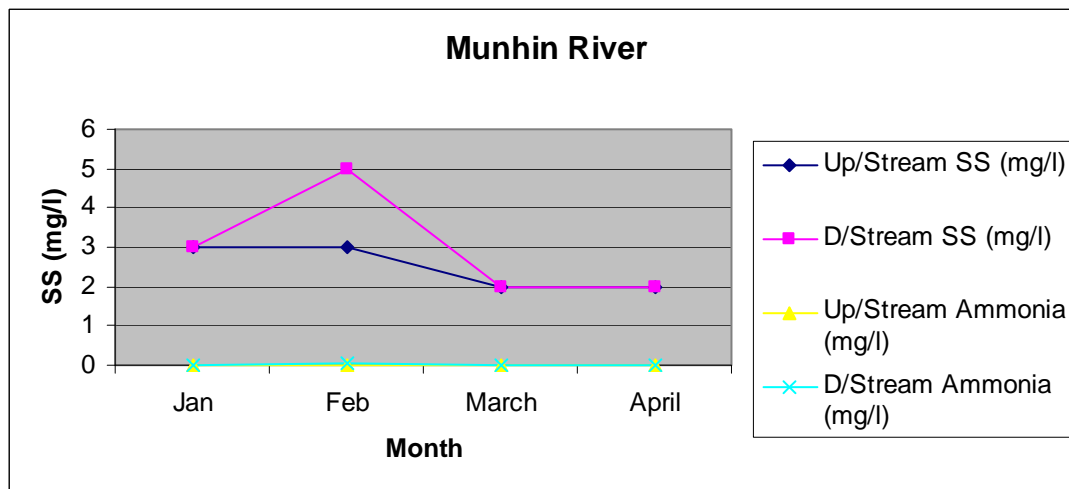
Environmental Management System Up-Date No. 38(15/04/09)

Decommissioning and Rehabilitation

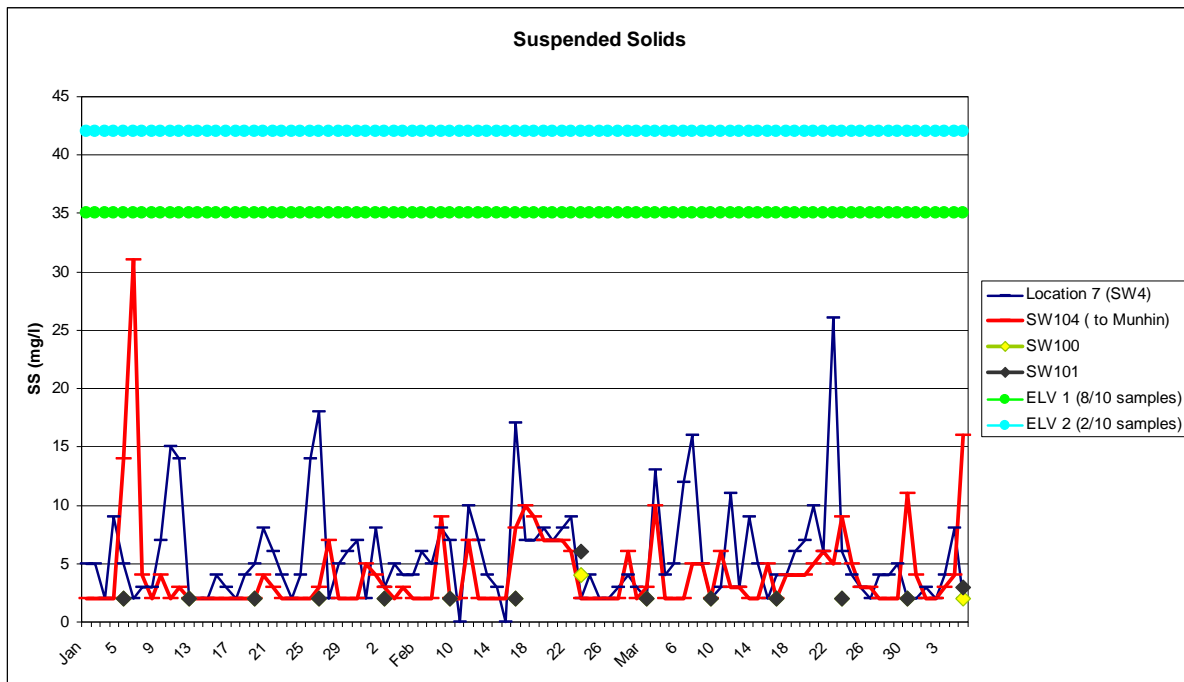
Environmental Monitoring:

- 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 5.8mg/l and 4.1mg/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		
TOTAL EMPLOYED					1

Contractors

Security	0	Catering	0		
TOTAL EMPLOYED					0

Off Site

Head Offices Staff	1			BnM (Support)	1
Environmental Officer	1				
TOTAL EMPLOYED					3

OVERALL TOTAL EMPLOYED					4
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On-going work:

Environmental monitoring as per waste licence WL 0199-01.

As of the 15th April 2009, the Srahmore site is Compliant.

Bellanaboy Bridge Site

Report to the Project Monitoring Committee

15th April 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 May 2009 Onwards:

- Commencement 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.
- Continuation of landscaping works.

ENVIRONMENTAL REPORT

Dust - Dust deposition results of 106, 117, 109 and 110 mg/ m²/day were recorded at D1, D2, D3 and D4 respectively for February.

Dust deposition results of 169, 162, 174 and 183 mg/ m²/day were recorded at D1, D2, D3 and D4 respectively for March. All values were within the limit of 350 mg/ m² /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 395 construction HCV movements during February and March.

Fuel – Approximately 364.68 m³ of fuel was delivered to site in February and March.

Waste – 13 skips of refuse (Canteen waste, etc.), 6 skips of cardboard/plastics, and 3 skips of metal waste were removed off site during February and March. The effluent holding tanks were emptied of approximately 1535m³ during February and March. There were 5 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 February and March. A summary of the main surface water parameters measured for grab sampling during February and March (available range of lowest to highest) at SP1 is presented below:

pH (pH Units)

6.7 to 7.4

Suspended Solids (mg/l)

2 to 14

Orthophosphate (µg/l P)

10

Nitrite (mg/l NO₂)

0.017 to 0.023

Conductivity (µS/cm)

218 to 332

Turbidity (NTU)

2.8 to 7.5

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

pH (pH Units)

5.2 to 6.2

Conductivity (µS/cm)

186 to 435

Nitrate (mg/l NO₃)

<0.44

Total Dissolved Solids (mg/l)

98 to 229

Complaints – There were no construction activity related complaints logged with SEPIL during the months of February and March.

Incidents – There were no environmental incidents during the months of February and March.

Exceedances – There was 1 marginal exceedance at SP1 for total aluminium. The exceedance were dated as outlined below (limit is 200 ug/l):

Date	Total Al (µg/L)
04/02/2009	199
10/02/2009	165
19/02/2009	215
24/02/2009	176
05/03/2009	151
10/03/2009	174
19/03/2009	186
26/03/2009	91

The exceedance was marginal and attributed to heavy, persistent rainfall. The other results, which are all lower than the limit, demonstrate a downward trend in total aluminium values.

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.
- Environmental noise training carried out with all contractors.
- Axonics water treatment plant now operated on mains electricity replacing the two temporary diesel generators. This make for more efficient plant operation and significant reductions in site diesel consumption.

Water Quality Monitoring Graphs

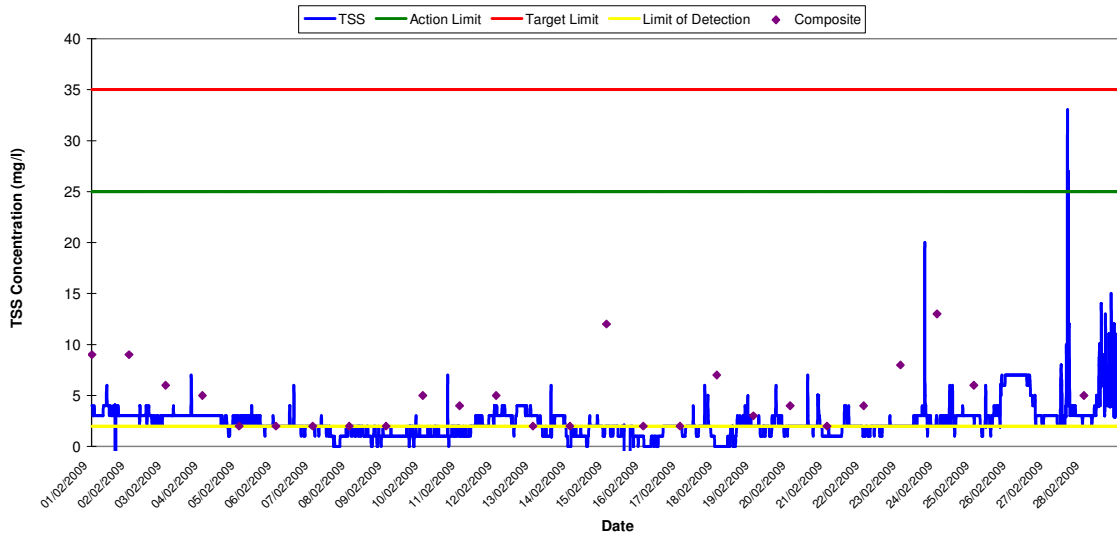
Graphs are attached for monthly continuous monitoring data at SP1 during February and March for total suspended solids, turbidity, and orthophosphate. Please see commentary below for each graph.

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

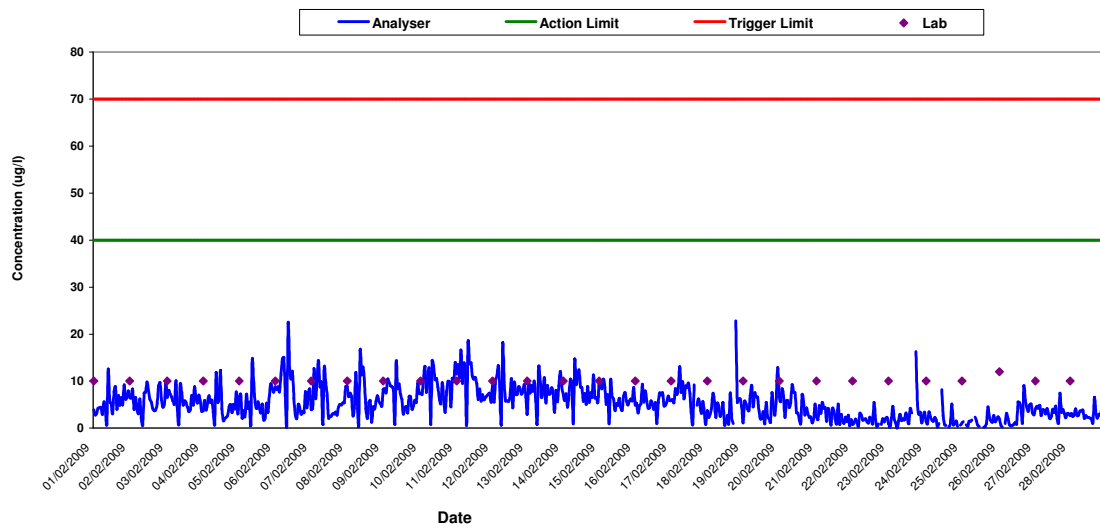
Turbidity: The graph showed a series of spikes over the two months however on site testing showed negligible values on these days indicating that the spikes were due to fluctuations in flow rates and material lodging in the probe. The on site testing data is therefore presented in the graphs.

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

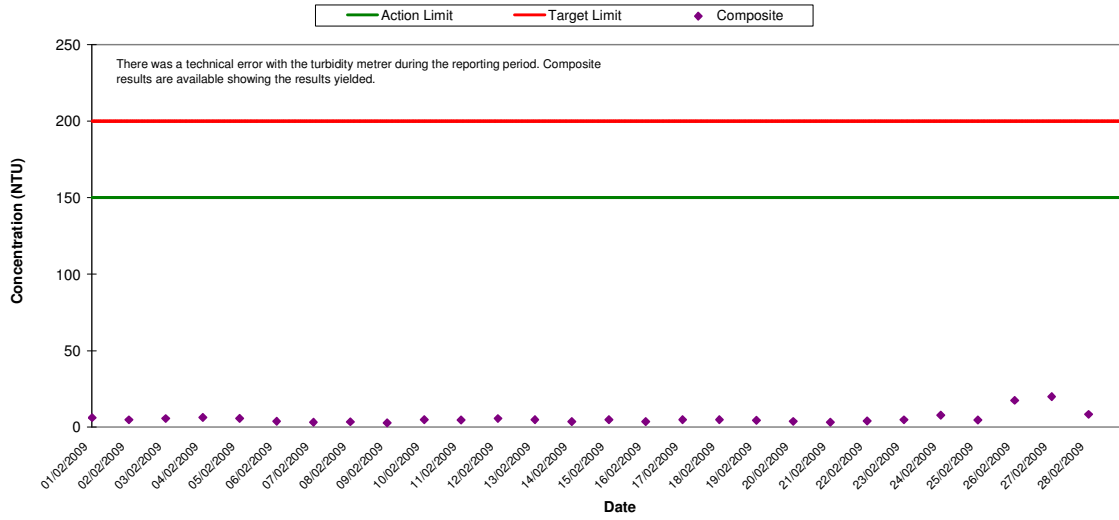
Total Suspended Solids Results at SP1 February 2009



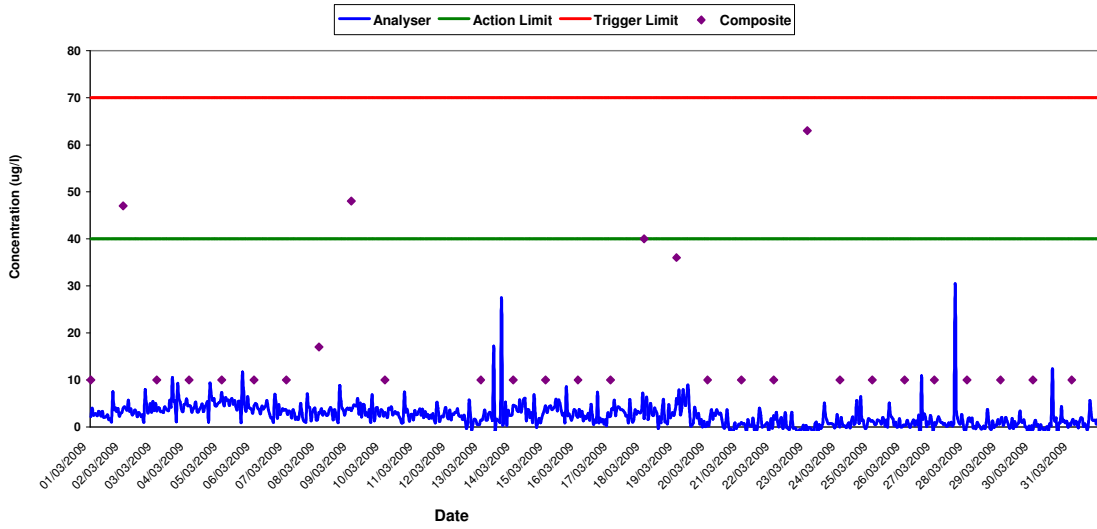
Orthophosphate Results at SP1 February 2009



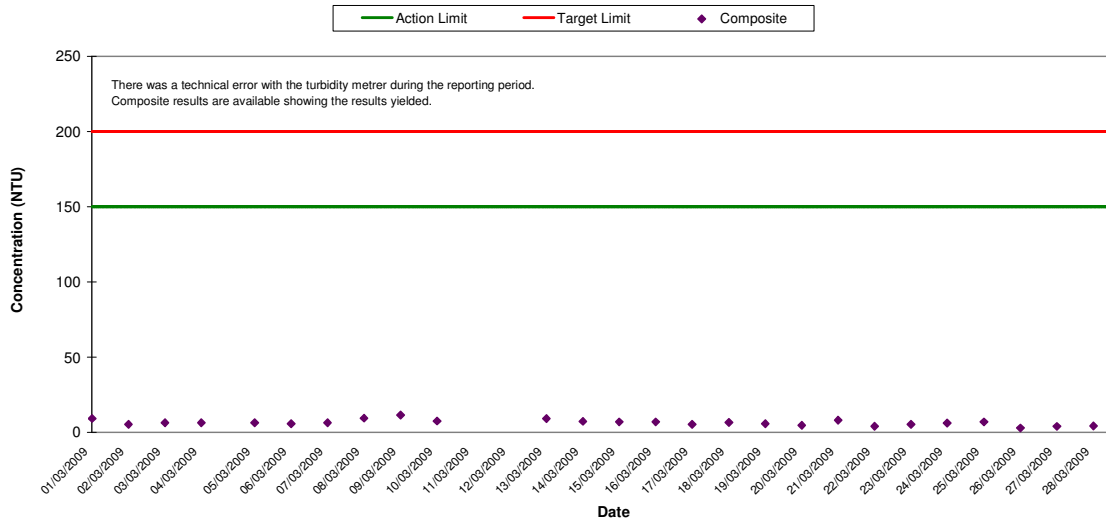
Turbidity Results at SP1 February 2009



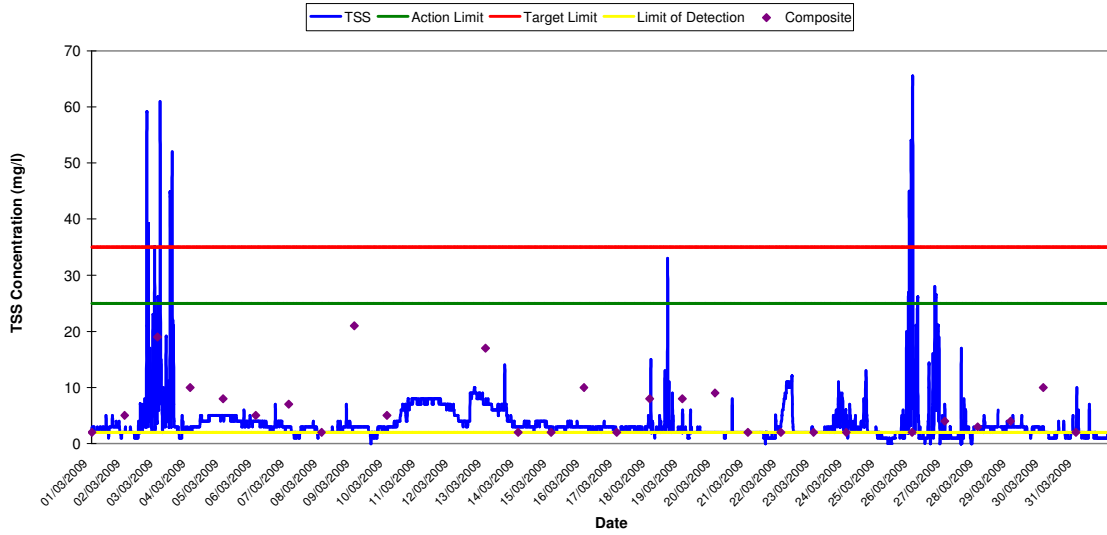
Orthophosphate Results at SP1 March 2009



Turbidity Results at SP1 March 2009



Total Suspended Solids Results at SP1 March 2009



Total Suspended Solids Results at SP1
March 2009

