

# **CORRIB GAS DEVELOPMENT**

**Report for PMC Meeting on 18<sup>th</sup> January 2012.**

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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 substantially complete and the facility is now in preservation mode.
- 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.
- Monitoring by Mayo County Council staff recorded one exceedance of the total aluminium parameter on 15<sup>th</sup> September when a value of 218ug/l was recorded against a target limit of 200ug/l. Values returned quickly to lower levels in subsequent monitoring.

## **Community Fund**

- Works have been completed on all projects for which funding was allocated.

## Transportation/Roads

- There are no roadworks underway at present and there have been no transportation issues since the last meeting.

**CARROWMORE LAKE**  
**Results from 1/09/2011 to 21/12/2011 (17 Samples taken)**  
**Analysis by ELS Laboratory, Co. Cork**

Parameter	Units	Average	Max	Min
Suspended Solids	mg/l	12	66	<5
Turbidity	N.T.U	4	7	2
pH	pH units	7.1	7.6	6.6
Conductivity	uS/cm	111	130	89
Phosphate	mg/l P	0.013	0.031	<0.009
Total Phosphorous	mg/l P	0.03	0.08	0.02
Ammonia	mg/l NH <sub>3</sub> -N	0.06	0.18	0.009
Nitrate	mg/l NO <sub>3</sub> -N	<0.12	<0.12	<0.12
Nitrite	mg/l NO <sub>2</sub> -N	<0.013	<0.013	<0.013
Total Aluminium	ug/l Al	89	169	54

**ERRIS REGIONAL WATERWORKS (Final Treated Water)**  
**Results from 16/09/2011 to 31/12/2011 (122 Samples)**  
**Analysis carried out at Erris Regional Waterworks**

Parameter	Units	Average	Max	Min	Drinking Water Limits
Colour	mg/l	2	9	0	<10 Haz
Turbidity	N.T.U	0.10	0.35	0.01	<2.0 NTU
Ph	pH units	6.9	8.2	6.1	6.5 – 8.5
Free Chlo/Res	mg/l	0.99	1.47	0.62	>0.3
Total Chlo/Res	mg/l	1.11	1.56	0.72	>0.3
Flourine	ppm	0.68	0.87	0.50	0.6-0.8

<b>Total Aluminium</b>	<b>ug/l</b>	15	169	0	200
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**BELLANABOY RIVER**  
**(Upstream and Downstream of discharge from Terminal site)**  
**Results from 1/09/2011 to 21/12/2011 (17 Samples taken)**  
**Analysis by ELS Laboratory, Co. Cork**

<b>Parameter</b>	<b>Units</b>	<b>BEL 1 (upstream)</b>			<b>BEL 2 (downstream)</b>		
		<b>Average</b>	<b>Max</b>	<b>Min</b>	<b>Average</b>	<b>Max</b>	<b>Min</b>
Suspended Solids	mg/l	6	14	<5	6	15	<5
Turbidity	N.T.U	2	5	1	2	5	1
pH	pH units	6.7	7.3	6.1	6.6	7.3	6.1
Conductivity	uS/cm	115	186	70	124	196	76
Total Dissolved Solids	mg/l	108	163	52	131	219	45
Phosphate	mg/l P	0.03	0.04	0.01	0.02	0.04	<0.009
Total Phosphorus	mg/l P	0.05	0.09	0.02	0.04	0.08	0.02
Ammonia	mg/l NH <sub>3</sub> -N	0.10	0.21	0.027	0.10	0.3	0.007
Nitrate	mg/l NO <sub>3</sub> -N	<0.12	<0.12	<0.12	<0.12	<0.12	<0.12
Nitrite	mg/l NO <sub>2</sub> -N	0.01	<0.013	<0.013	<0.013	<0.013	<0.013
<b>Total Aluminium</b>	<b>ug/l Al</b>	120	254	62	133	229	73

**SP1 (Discharge point from terminal site)  
Results from to 1/09/2011 to 21/12/2011 (17 Samples)  
Analysis by ELS Laboratory, Co. Cork**

<b>SP 1</b>				
<b>Parameter</b>	<b>Units</b>	<b>Average</b>	<b>Max</b>	<b>Min</b>
Suspended Solids	mg/l	<5	<5	<5
Turbidity	N.T.U	3	6	1
pH	pH units	7.3	7.8	6.6
Conductivity	uS/cm	215	296	144
Total Dissolved Solids	mg/l	186	257	136
Phosphate	mg/l P	0.01	0.07	<0.009
Total Phosphorus	mg/l P	0.02	0.07	<0.01
Ammonia	mg/l NH <sub>3</sub> -N	0.04	0.07	0.007
Nitrate	mg/l NO <sub>3</sub> -N	<0.12	<0.12	<0.12
Nitrite	mg/l NO <sub>2</sub> -N	<0.013	<0.013	<0.013
Total Aluminium	ug/l Al	128	218	35

**Axonics Water Treatment Units (Post-treatment Results)  
Results from 1/09/2011 to 21/12/2011 ( 12 samples)  
Analysis by ELS Laboratory, Co. Cork**

<b>Post-Treatment (12Samples)</b>				
<b>Parameter</b>	<b>Units</b>	<b>Average</b>	<b>Max</b>	<b>Min</b>
Suspended Solids	mg/l	<5	<5	<5
Turbidity	N.T.U	1	2	1
pH	pH units	6.7	7	6.5
Conductivity	uS/cm	254	326	215
Total Dissolved Solids	mg/l	181	227	136
Phosphate	mg/l P	0.01	0.018	<0.009
Total Phosphorus	mg/l P	<0.01	0.09	<0.01
Ammonia	mg/l NH <sub>3</sub> -N	0.04	0.127	0.007
Nitrate	mg/l NO <sub>3</sub> -N	0.13	0.22	<0.12
Nitrite	mg/l NO <sub>2</sub> -N	<0.013	<0.013	<0.013
*Total Aluminium	ug/l Al	416	573.1	222



Srahmore Peat Repository  
 WL 0199-02

**Environmental Management System Up-Date No. 53 (18/01/12)**

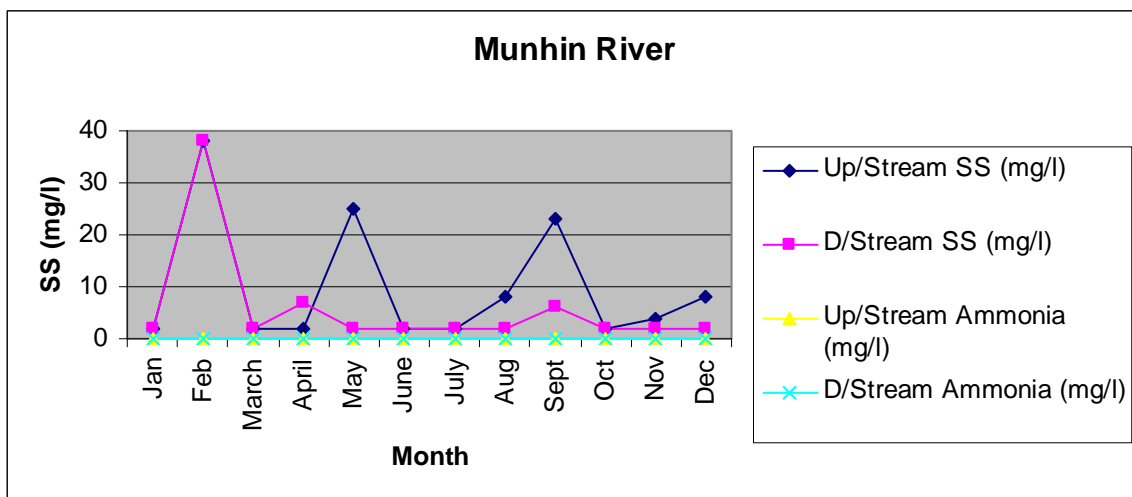
Environmental Monitoring:

- There was one non-compliance since the last meeting in November 2011.

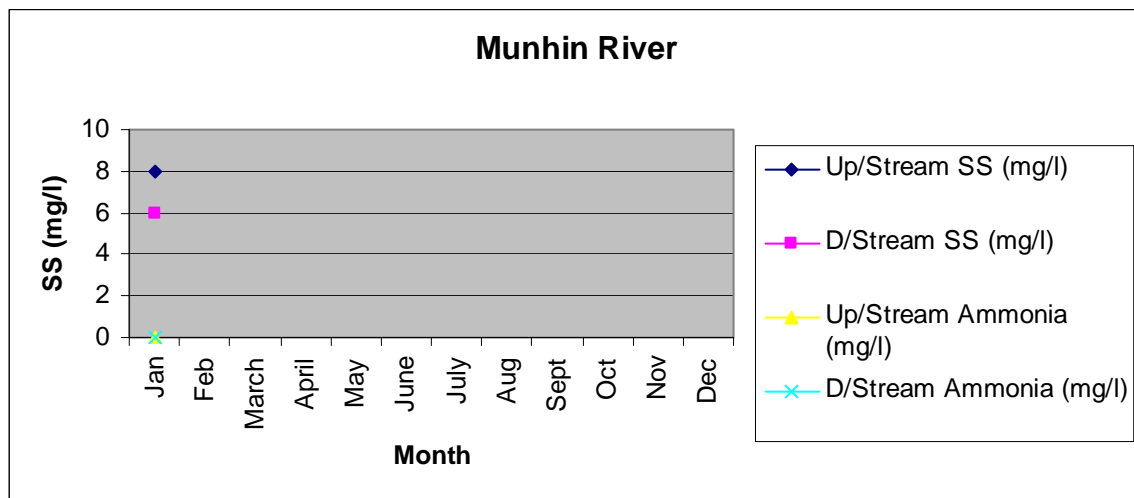
The Dust gauge at DM-02, which is at the entrance to Srahmore, adjacent to the R313, returned a dust level of 377mg/m<sup>2</sup>/day, where the Emission Limit Value is 350mg/m<sup>2</sup>/day. There were no dust complaints received during this period, and wet weather conditions prevailed, so the next round of monitoring will clarify if corrective action is required. This was reported to the EPA.

- There were no complaints received at the site since the last meeting.
- There were no environmental incidents recorded at the site since the last meeting.

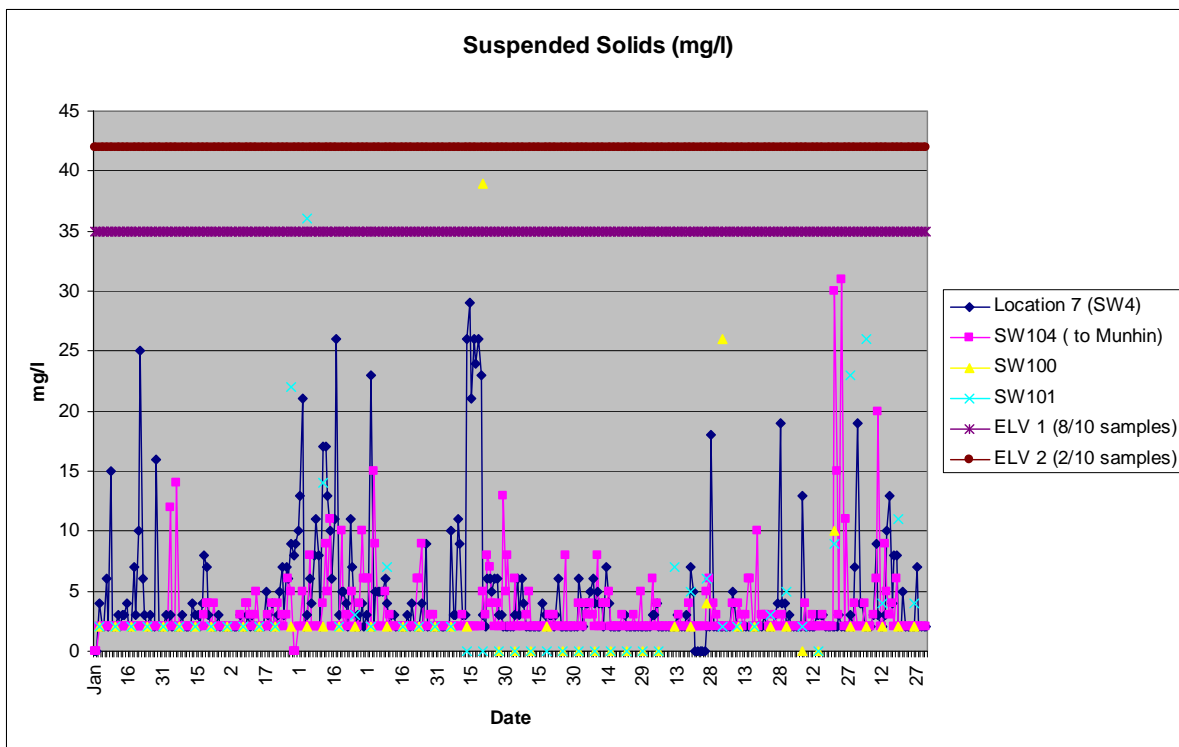
**Monitoring Results: Munhin River (2011)**



## Munhin River (2012)



## Monitoring Results: SW4/104/100&101 (2011)



**SW4/104/100&101 (2012)**



The average Suspended Solids for 2011 was 4.17 mg/l at SW 4 and 3.11mg/l at the discharge from the site to the Munhin at SW104.

**Srahmore Site Update:**

**Personnel:**

**On Site**

		Tractor & General Oper.	9	Environmental	0
BnM (Engineering)	0	Fitters	1	Archaeological	0
Site Admin & Mgt.	4	Electricians	1		
		Site Supervisors	2		
		Excavator & Shovel	5		
<b>TOTAL EMPLOYED</b>					<b>22</b>

**Contractors**

Security	39	Catering	3		
<b>TOTAL EMPLOYED</b>					<b>42</b>

**Off Site**

Head Offices Staff	3			BnM (Support)	0
Environmental Officer	1				
<b>TOTAL EMPLOYED</b>					<b>4</b>

<b>OVERALL TOTAL EMPLOYED</b>					<b>68</b>
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**Srahmore Site Operations:**

Peat deposition operations commenced on 15<sup>th</sup> November 2011 and as of 15th January 2012, 24,677 tonnes have been received on site and deposited in Bay 2

**As of the 8<sup>th</sup> January 2012 the Srahmore site is compliant with Waste Licence W0199-02.**

# Bellanaboy Bridge Site

## Report to the Project Monitoring Committee

18<sup>th</sup> January 2012

### Works Undertaken

The following construction and related operations are ongoing:

- Operation of Axonics plant, Environmental and geotechnical monitoring
- Preservation of systems in the terminal footprint
- Civils snagging work ongoing

### Outlook January 2012 Onwards:

- Continuation of environmental monitoring, geotechnical monitoring and Axonics plant operation.
- Close out of minor snags and un-finished building and civil works.
- Final phase of demobilisation of contractor facilities, equipment and personnel.
- Mobilisation of EMMSC contractor during first quarter.

### ENVIRONMENTAL REPORT

**Dust** - Dust deposition results for September to December are in the below table.

Dust Results			
D1	D2	D3	D4
September Dust Results			
227	303	202	344
October Dust Results			
122	141	126	231
November Dust Results			
158	136	126	127
December Dust Results			
63	104	110	129

**Noise** – All construction related noise levels recorded were below the agreed noise limits and any unusual values were attributed to instrumentation or weather conditions.

**Traffic** – traffic movements are given in the below table.

Traffic Movements			
September	October	November	December
212	252	67	84

**Fuel** – Approximately 50.3 m<sup>3</sup> of fuel was delivered to site during September, October, November and December.

**Waste** – The following waste quantities were removed from site during September, October, November and December: 1 skip of refuse (General Waste, etc.), 12 skips of cardboard/plastics, 3 skip of metal waste, 8 skips of timber, 5 skips of organic waste, 1 skips of electrical waste, 1 skip of C&D Recycling and 2 skips of rubble.

There were 4 hazardous and oily waste collections for the removal of oily waste and chemical waste for the same period.

The effluent holding tanks were emptied of approximately 2,198 m<sup>3</sup> of sewage during the same period.

**Water Quality** – A summary of the main surface water parameters measured for grab sampling during September, October, November and December (available range of lowest to highest) at SP1 is presented below:

pH (pH Units)

6.4 to 7.8

Suspended Solids (mg/l)

2 to 3

Orthophosphate (µg/l P)

<10 to 43

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

<0.017 – <0.022

Conductivity (µS/cm)

139 to 330

Turbidity (NTU)

0.5 to 7.4

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

pH (pH Units)

5.3 to 6.6

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

254 to 511

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

<0.47 to 0.77

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

127 to 252

**Complaints** – There were no written construction activity related environmental complaints logged with SEPIL during September to December.

**Incidents** – There was no environmental incident during September, October, November and December.

**Exceedances** – There was no exceedance during the reporting period.

#### **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.

#### **Water Quality Monitoring Graphs**

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

**Total Suspended Solids:** The TSS graphs for September, October, November and December show all lower than action limit

**Turbidity:** All values for September, October, November and December are all lower than the action limit.

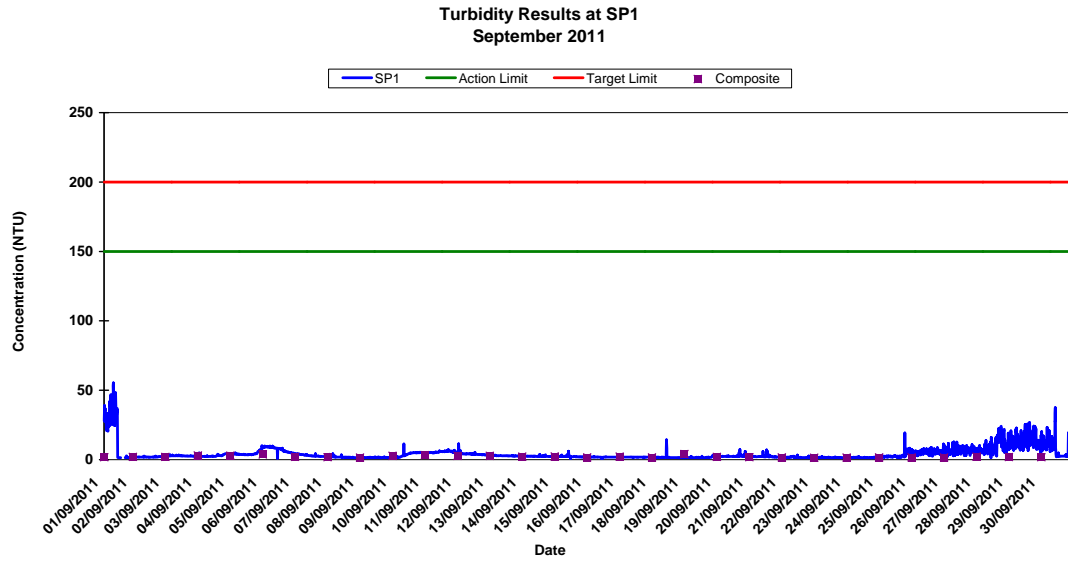
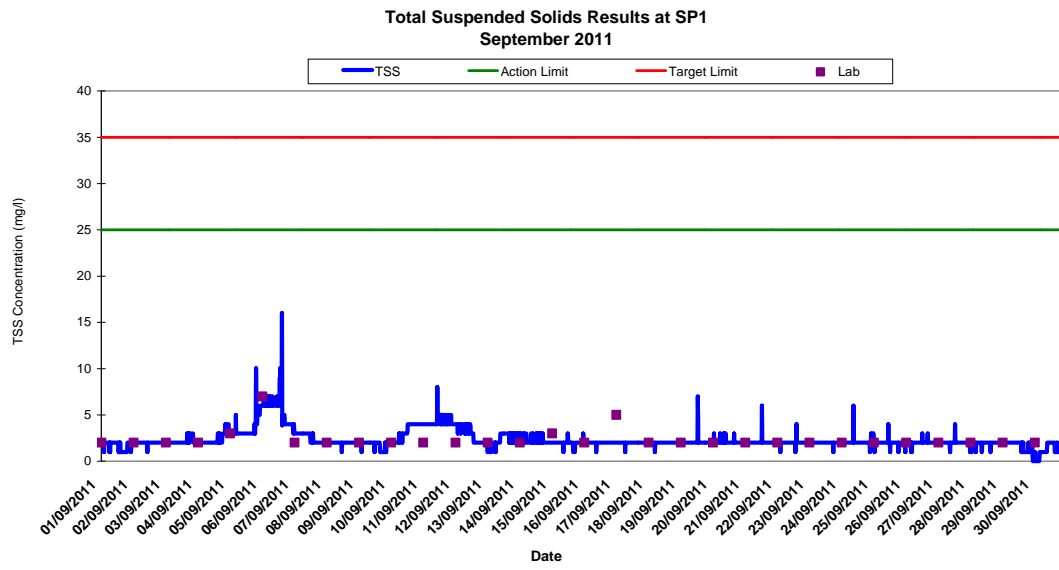
**Orthophosphate:** The results yielded for September, October, November and December were all well within the limits for discharge.

Composite sample data is also presented on the graphs for reference.

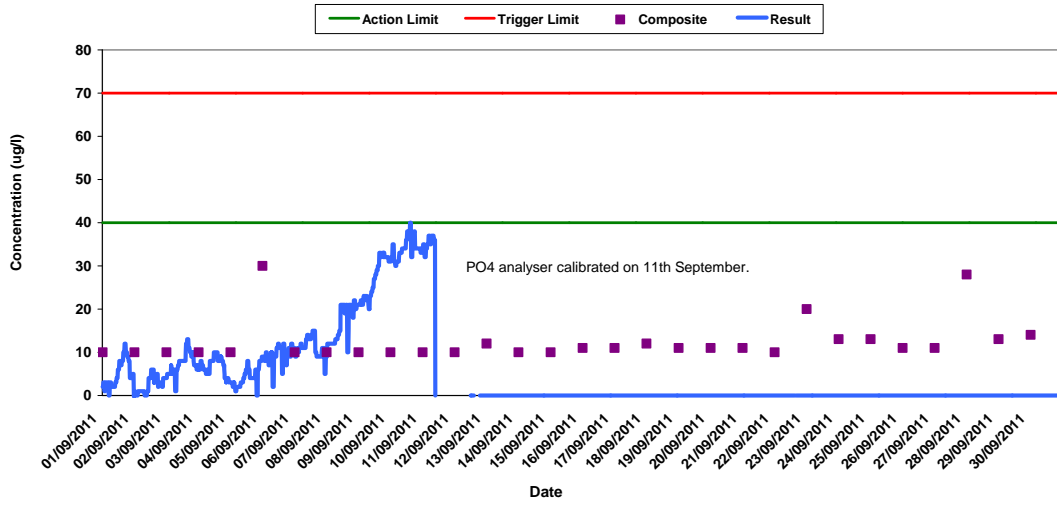
#### **EMS & EMP Revision**

SEPIL have undertaken a review of the EMS & EMP for the Construction (Preservation & Maintenance) phase for the terminal. The revision was approved on 14<sup>th</sup> October 2011 and has been implemented as of 1<sup>st</sup> January 2012.

# September Graphs

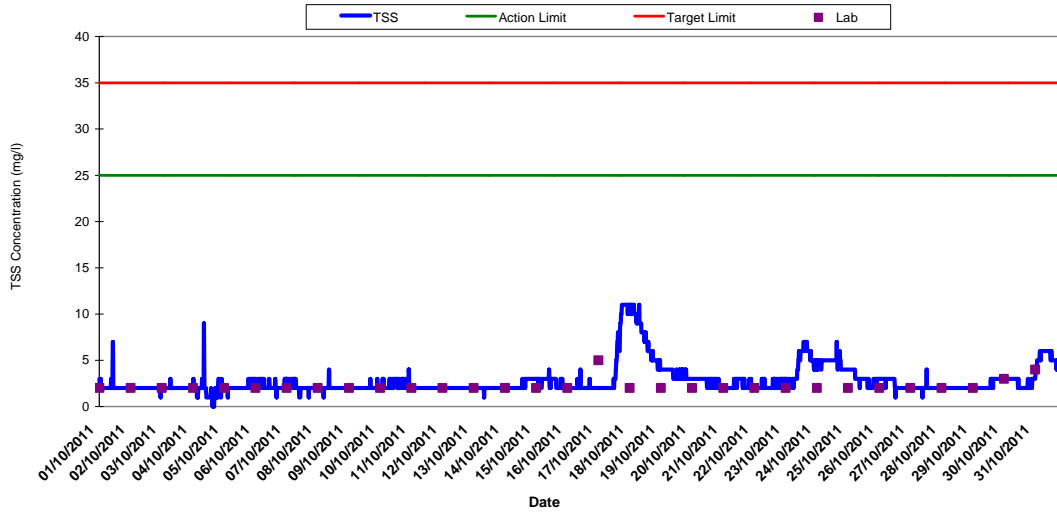


### Orthophosphate Results at SP1 September 2011

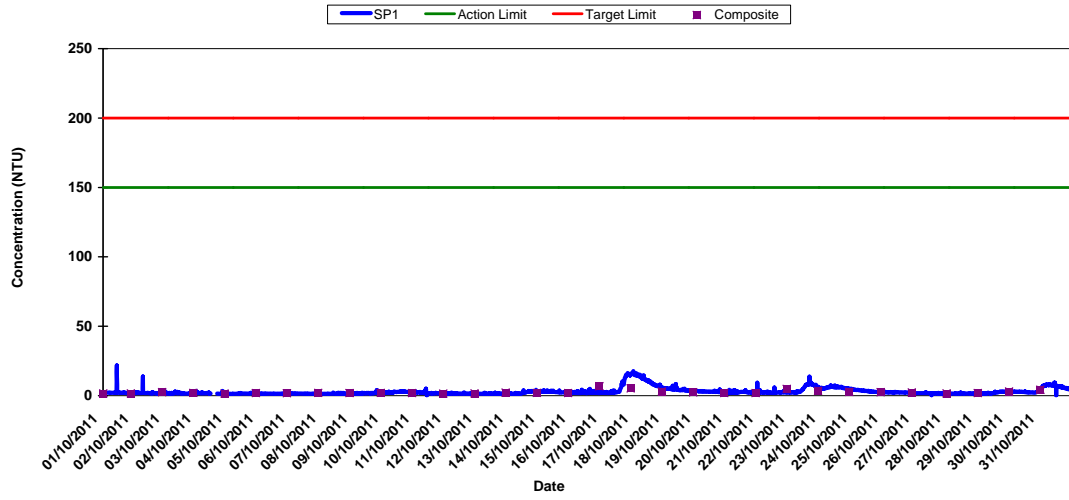


### October Graphs

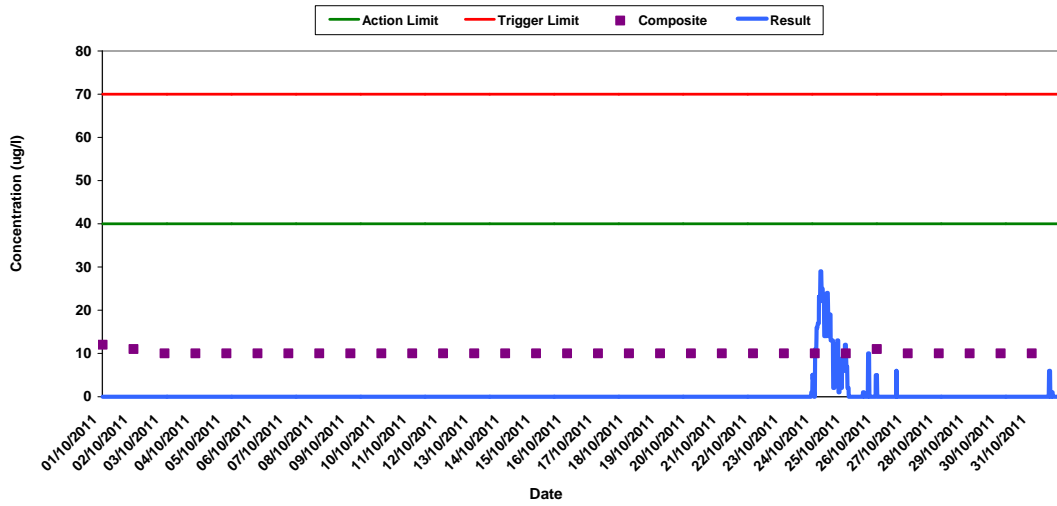
#### Total Suspended Solids Results at SP1 October 2011



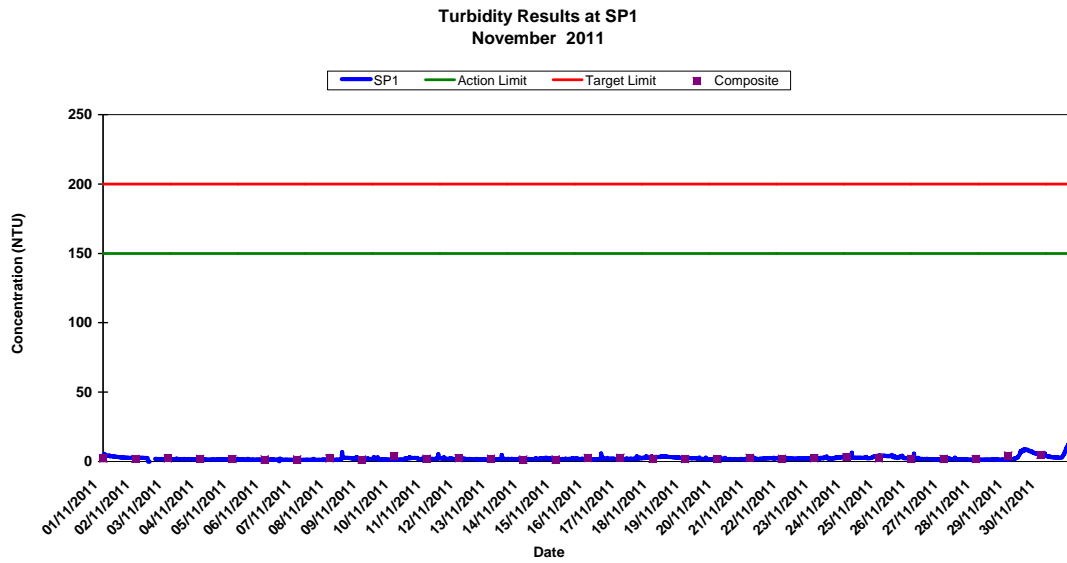
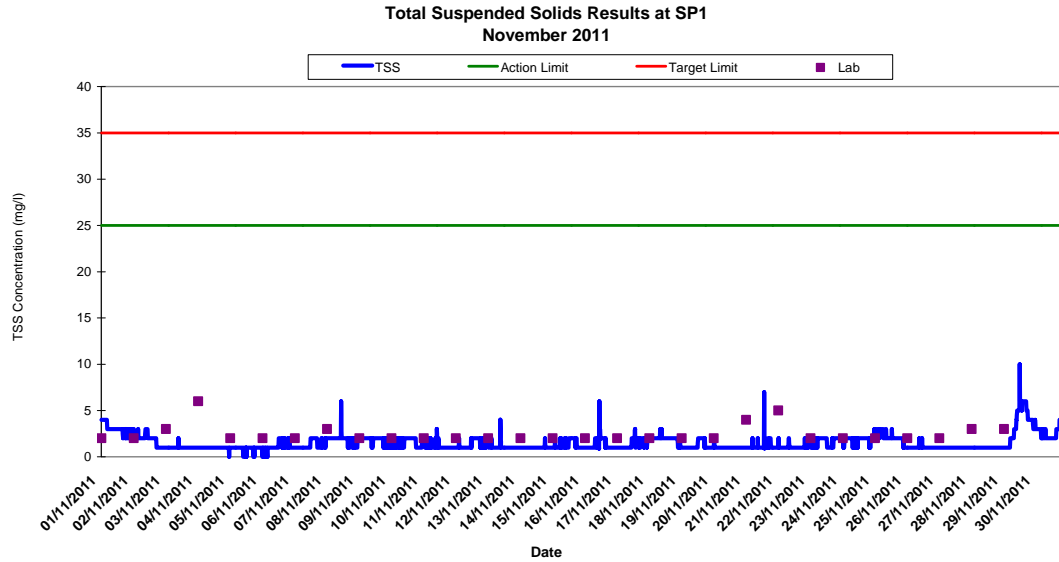
**Turbidity Results at SP1  
October 2011**



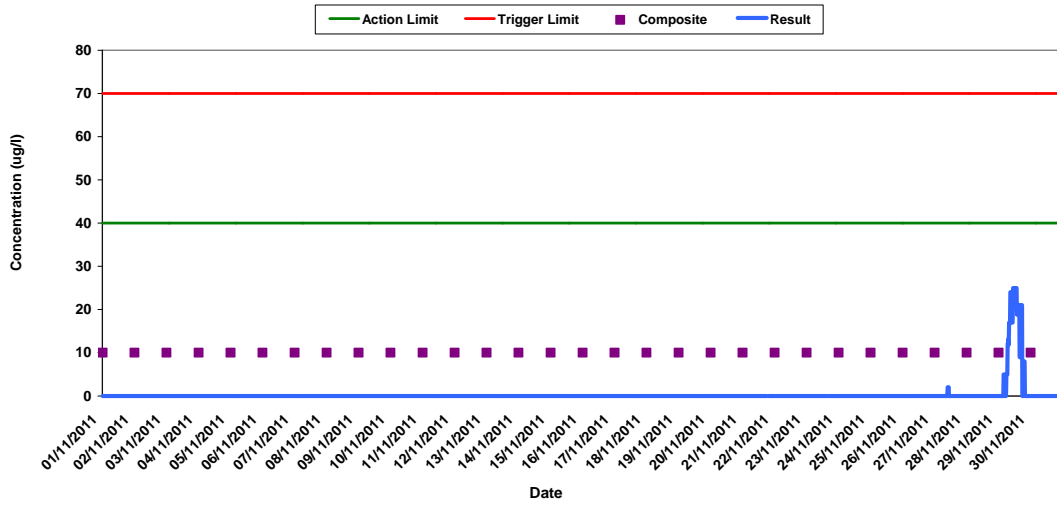
**Orthophosphate Results at SP1  
October 2011**



# November Graphs

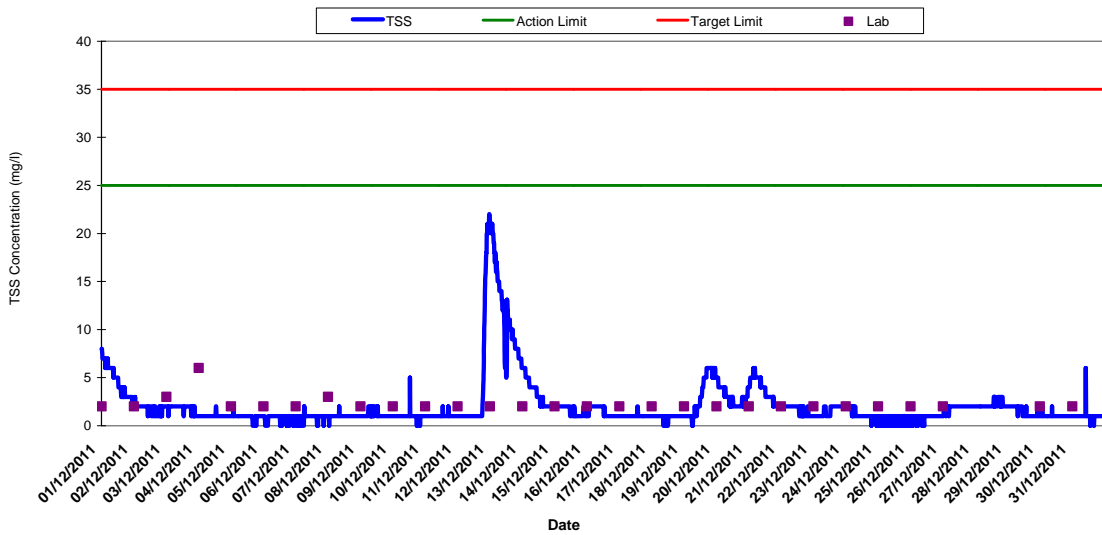


Orthophosphate Results at SP1  
November 2011

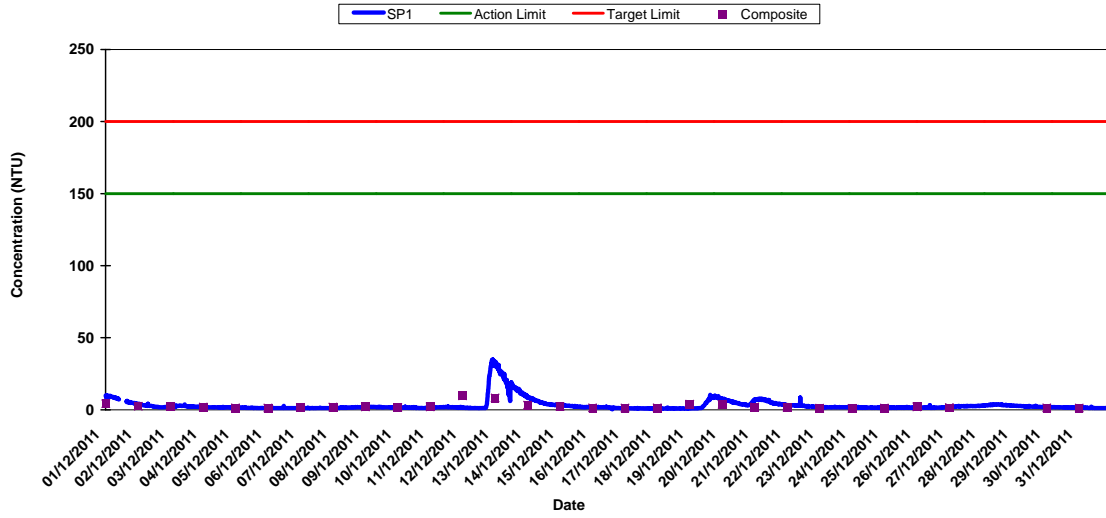


December Graphs

Total Suspended Solids Results at SP1  
December 2011



**Turbidity Results at SP1  
December 2011**



**Orthophosphate Results at SP1  
December 2011**

