

CORRIB GAS DEVELOPMENT

Report for PMC Meeting on 25th May 2011.

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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.
- 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. Functional testing with backfeed gas has been deferred.
- 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.
- During this reporting period monitoring on site by Mayo County Council recorded two exceedances at SPI, the main site discharge point. The first exceedance occurred on 20th January when a value of 0.968mg/l was recorded for Nitrite (limit 0.05). The second occurred on 2nd February when a value of 0.732mg/l was recorded for Ammonia (limit is 0.5). Elevated nitrate levels were also recorded in the ground water well MP2 around the same time. The matter was brought to the attention of the developer and on investigation it was discovered that there were difficulties with the permanent waste water treatment unit on site which was put in place in late 2010. This matter has now been rectified and a final report is awaited from the developer on the incident. No further exceedances have been recorded.
- Specific work activities outside normal hours have been ongoing from time to time, subject to noise level restriction and the developer providing continuous noise monitoring which is submitted to Mayo County Council.

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

Transportation/Roads

Pavement strengthening works at five locations on the R313 have been completed at a cost of €630,000. Final surface dressing and lining of these locations will be carried out in the near future. Upgrading of the Ballyglass Pier car park has also been completed at a cost of €130,000. Works to enhance road safety have also been completed at Attawalla Village and Pullathomas School at a total cost of €105,000.

CARROWMORE LAKE
Results from 04/01/2011 to 04/05/2011 (18 Samples taken)
Analysis by ELS Laboratory, Co. Cork

Parameter	Units	Average	Max	Min
Suspended Solids	mg/l	7	14	<5
Turbidity	N.T.U	4	16	2
pH	pH units	7.1	7.5	5.3
Conductivity	uS/cm	110	124	100
Phosphate	mg/l P	0.018	0.058	<0.009
Total Phosphorous	mg/l P	0.026	0.06	<0.01
Ammonia	mg/l NH ₃ -N	0.05	0.335	<0.009
Nitrate	mg/l NO ₃ -N	<0.12	<0.12	<0.12
Nitrite	mg/l NO ₂ -N	<0.013	<0.013	<0.013
Total Aluminium	ug/l Al	86	392	34

ERRIS REGIONAL WATERWORKS (Final Treated Water)
Results from 01/01/2011 to 18/05/2011 (138 Samples)
Analysis carried out at Erris Regional Waterworks

Parameter	Units	Average	Max	Min	Drinking Water Limits
Colour	mg/l	2	7	0	<10 Haz
Turbidity	N.T.U	0.09	0.41	0.01	<2.0 NTU
Ph	pH units	6.9	8	6.4	6.5 – 8.5
Free Chlo/Res	mg/l	1.01	1.4	0.5	>0.3
Total Chlo/Res	mg/l	1.10	1.40	0.50	>0.3
Flourine	ppm	0.70	0.87	0.6	0.6-0.8
Total Aluminium	ug/l	20	176	0	200

BELLANABOY RIVER
(Upstream and Downstream of discharge from Terminal site)
Results from 04/01/2011 to 04/05/2011 (18 Samples taken)
Analysis by ELS Laboratory, Co. Cork

Parameter	Units	BEL 1 (upstream)			BEL 2 (downstream)		
		Average	Max	Min	Average	Max	Min
Suspended Solids	mg/l	7	31	<5	11	91	<5
Turbidity	N.T.U	3.7	9.5	1.4	3.8	12	1.5
pH	pH units	6.9	7.6	6.1	6.9	7.6	5.9
Conductivity	uS/cm	136	233	67	149	241	73
Total Dissolved Solids	mg/l	90	220	15	96	190	1
Phosphate	mg/l P	0.02	0.05	<0.009	0.02	0.04	<0.009
Total Phosphorus	mg/l P	0.04	0.14	0.01	0.05	0.22	0.01
Ammonia	mg/l NH ₃ -N	0.04	0.135	<0.007	0.13	0.80	<0.007
Nitrate	mg/l NO ₃ -N	<0.12	0.13	<0.12	<0.12	<0.12	<0.12
Nitrite	mg/l NO ₂ -N	0.01	0.02	<0.013	<0.013	<0.013	<0.013
Total Aluminium	ug/l Al	107	313	22	103	390	23

**SP1 (Discharge point from terminal site)
Results from to 4/01/2011 to 04/05/2011 (18 Samples)
Analysis by ELS Laboratory, Co. Cork**

SP 1				
Parameter	Units	Average	Max	Min
Suspended Solids	mg/l	<5	8	<5
Turbidity	N.T.U	2	6	1
pH	pH units	7.6	8	7.3
Conductivity	uS/cm	268	368	193
Total Dissolved Solids	mg/l	201	390	95
Phosphate Total	mg/l P	0.011	0.024	<0.009
Phosphorus	mg/l P	0.017	0.03	<0.01
Ammonia	mg/l NH ₃ -N	0.063	0.7	<0.007
Nitrate	mg/l NO ₃ -N	<0.12	0.15	<0.12
Nitrite	mg/l NO ₂ -N	0.06	0.968	<0.013
Total Aluminium	ug/l Al	71	128	20

**Axonics Water Treatment Units (Post-treatment Results)
Results from 4/01/2011 to 04/05/2011 (12 samples)
Analysis by ELS Laboratory, Co. Cork**

Post-Treatment (9Samples)				
Parameter	Units	Average	Max	Min
Suspended Solids	mg/l	6	12	<5
Turbidity	N.T.U	2	3.3	0.4
pH	pH units	6.6	7.2	5.7
Conductivity	uS/cm	417	1057	255
Total Dissolved Solids	mg/l	203	440	70
Phosphate Total	mg/l P	0.012	0.05	<0.009
Phosphorus	mg/l P	<0.01	<0.01	<0.01
Ammonia	mg/l NH ₃ -N	0.03	0.09	<0.007
Nitrate	mg/l NO ₃ -N	0.28	0.98	0.12
Nitrite	mg/l NO ₂ -N	<0.013	<0.013	<0.013
*Total Aluminium	ug/l Al	539	1488	106

Bellanaboy Bridge Site

Report to the Project Monitoring Committee

25th May 2011

Works Undertaken

The following construction and related operations are ongoing:

- Operation of Axonics plant, Environmental and geotechnical monitoring
- Insulation on tanks and pipework.
- Building finishing works.
- Testing and operational qualification of systems including leak testing

Outlook from May 2011 Onwards:

- Continuation of environmental monitoring, geotechnical monitoring and Axonics plant operation.
- Close out of minor snags and un-finished mechanical, electrical and civil works.
- Phased demobilisation of contractor facilities, equipment and personnel.

ENVIRONMENTAL REPORT

Dust - Dust deposition results of 42, 78, 57 and 123mg/ m²/day were recorded at D1, D2, D3 and D4 respectively for February. Dust deposition results of 127, 74, 16 and 171 mg/ m²/day were recorded at D1, D2, D3 and D4 respectively for the month of March. Dust deposition results of 78, 15, 71 and 78 mg/ m²/day were recorded at D1, D2, D3 and D4 respectively for the month of April.

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 - There were approximately 221 traffic movements during February, 183 in March and 94 in April.

Fuel – Approximately 64.5 m³ of fuel was delivered to site during February, March and April.

Waste – The following waste quantities were removed from site during February, March and April: 7 skips of refuse (General Waste, etc.), 4 skips of cardboard/plastics, 4 skip of metal waste, 8 skips of timber, 2 skips of organic waste, 2 skips of electrical waste and 5 skips of rubble.

There were 6 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 2018 m³ of sewage during the same period.

Water Quality – A summary of the main surface water parameters measured for grab sampling during February, March & April (available range of lowest to highest) at SP1 is presented below:

pH (pH Units)

6.3 to 7.6

Suspended Solids (mg/l)

2 to 5

Orthophosphate (µg/l P)

<10 to 13

Nitrite (mg/l NO₂)

<0.017 – 0.041

Conductivity (µS/cm)

194 to 349

Turbidity (NTU)

0.7 to 18.1

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

pH (pH Units)

5.0 to 6.3

Conductivity (µS/cm)

225 to 450

Nitrate (mg/l NO₃)

<0.44 to 2.673

Total Dissolved Solids (mg/l)

119 to 221

Complaints – There were no written construction activity related environmental complaints logged with SEPIL during February to April.

Incidents – There was one environmental incident during the reporting period. MP2 yielded elevated levels of ammonia and nitrate. From investigation the elevation was attributed to the testing of the proposed wastewater treatment unit in the Administration Building. The testing resulted in the test wastewater entering the local drainage network due to poor permeability of soil. The well at MP2 indicated the presence of the elevation as the integrity of the well has been compromised. The low permeability soil which had wastewater traces was removed and it is proposed that MP2 well will be re-drilled to ensure that groundwater monitoring can continue.

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 February, March and April show the majority of readings were negligible with some occasional short duration spikes.

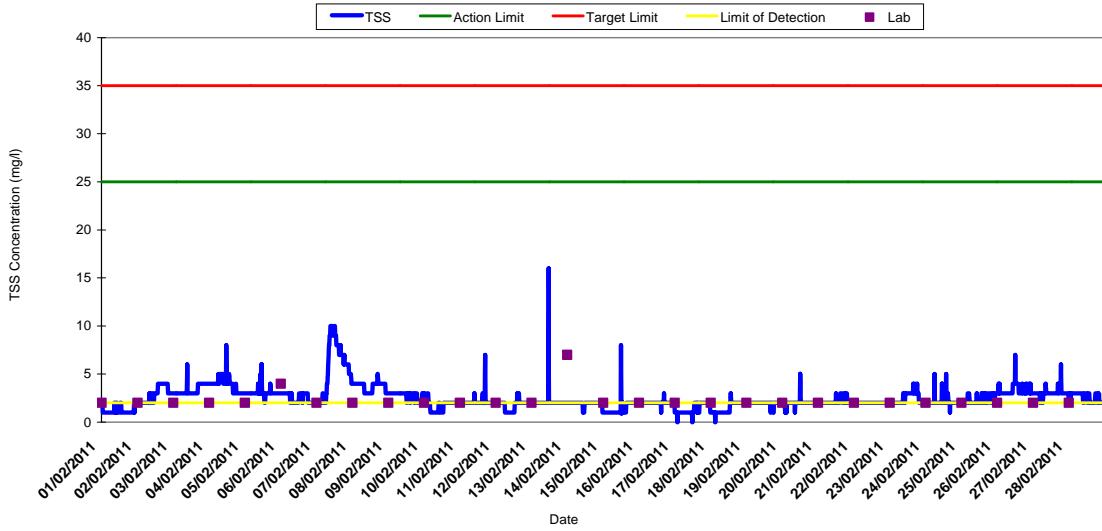
Turbidity: All values for February, March and April are well below the limit and any occasional spikes are short term in nature. These spikes are caused by minor probe interference.

Orthophosphate: The results yielded for February, March and April were all well within the limits for discharge. The March graph shows some recurrent issues with probe interference however the composite results demonstrate that water quality remained good. The probe is checked and cleaned twice a day however it is sensitive to occasional random particles in the water stream. The annual calibration of the analyser was undertaken in April.

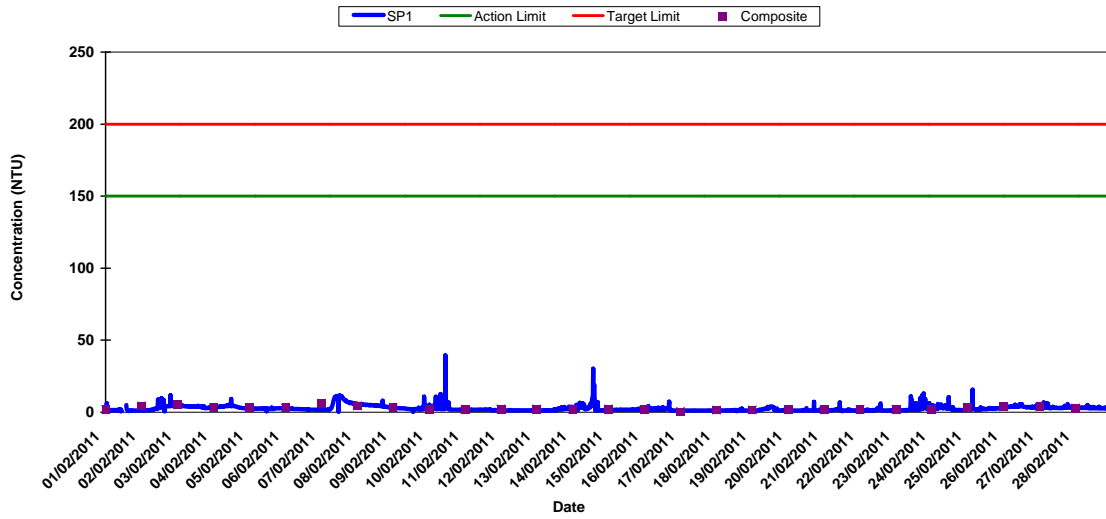
Composite sample data is also presented on the graphs for reference.

February Graphs

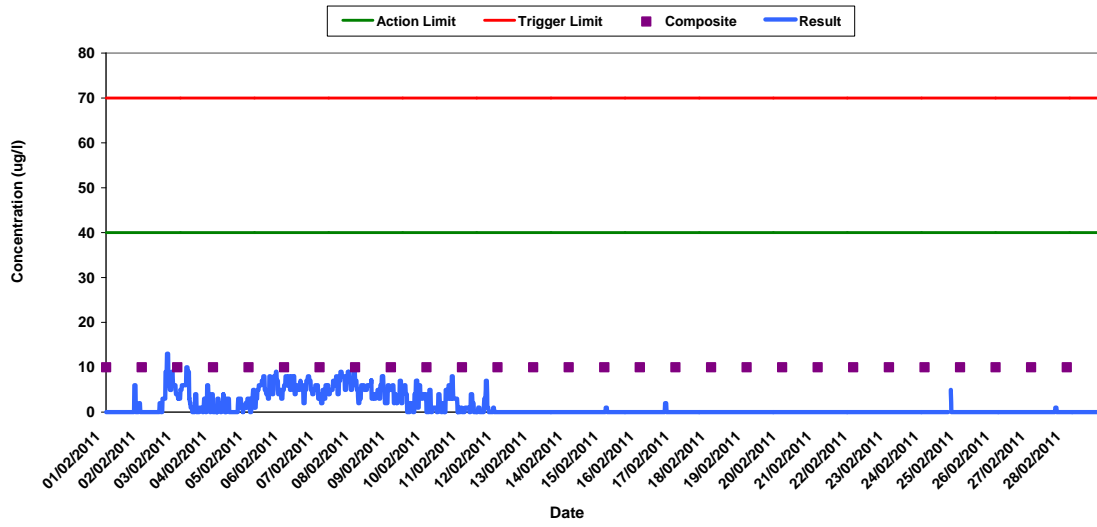
Total Suspended Solids Results at SP1 February 2011



Turbidity Results at SP1 February 2011

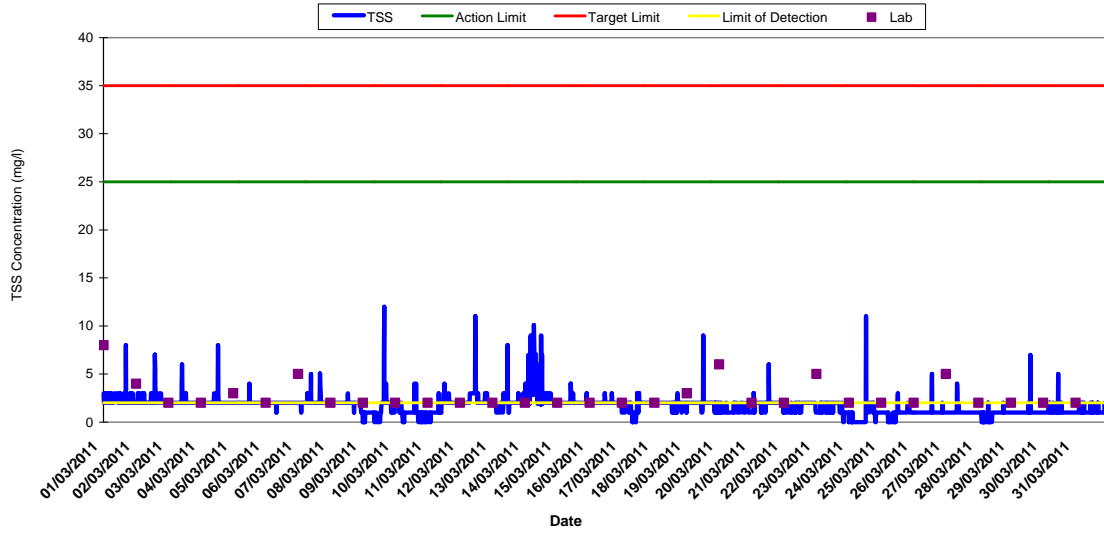


**Orthophosphate Results at SP1
February 2011**

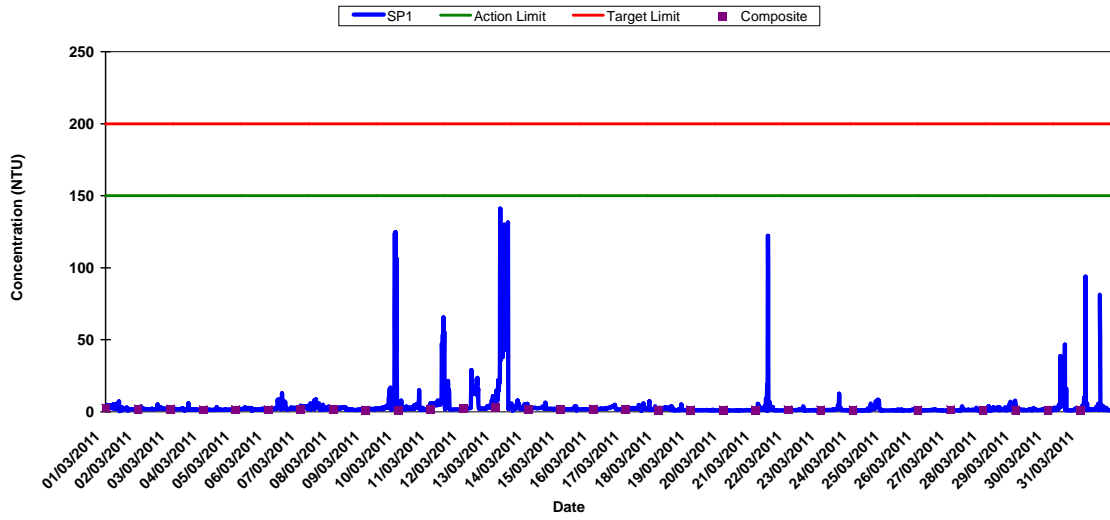


March Graphs

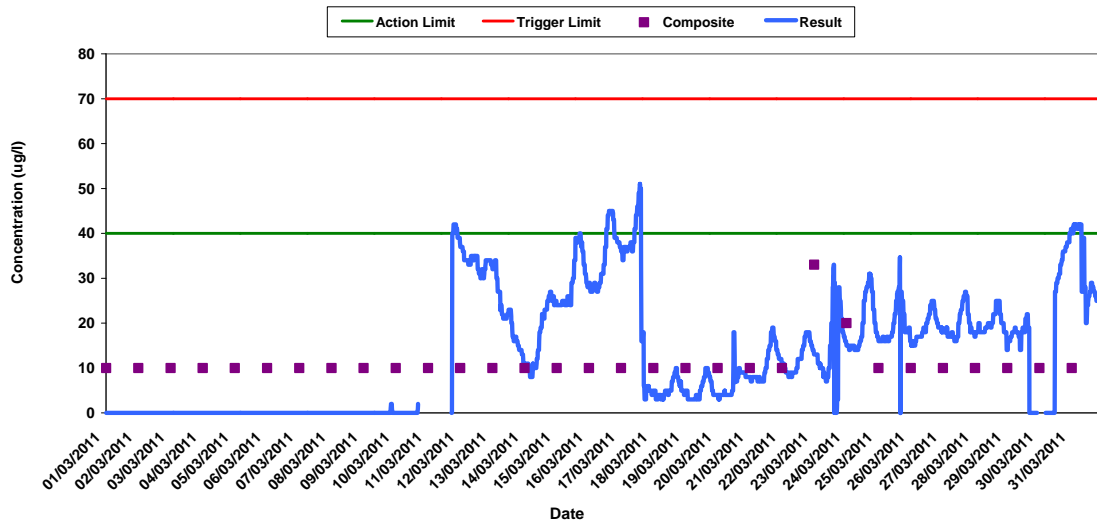
**Total Suspended Solids Results at SP1
March 2011**



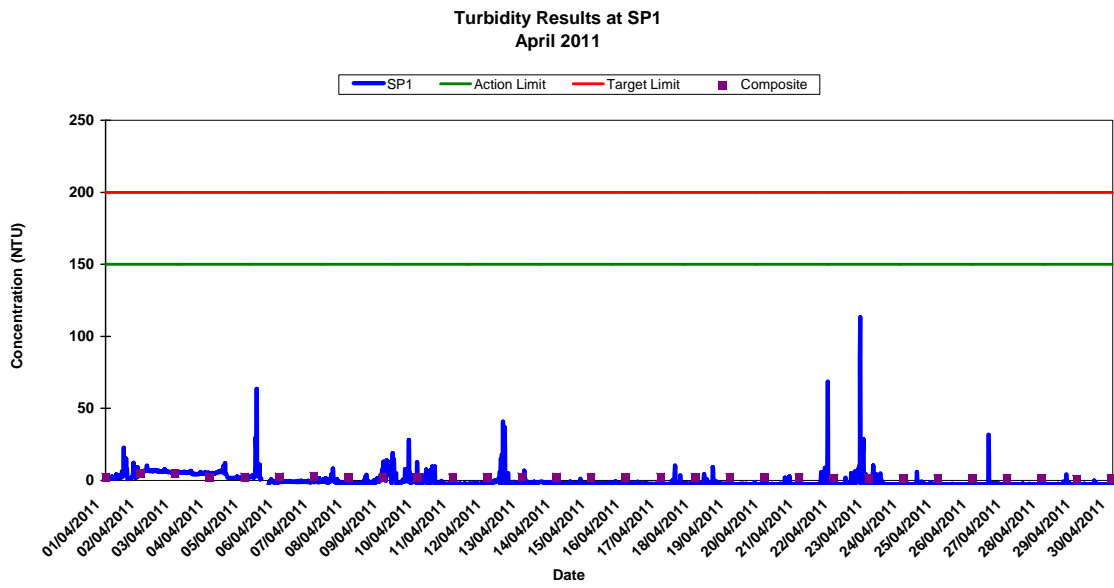
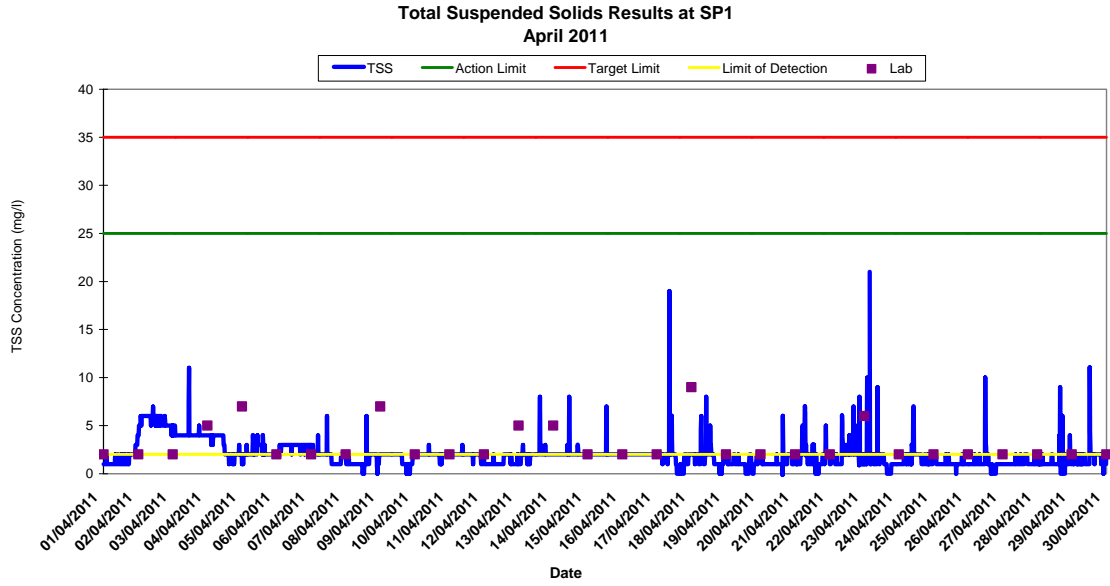
Turbidity Results at SP1
March 2011



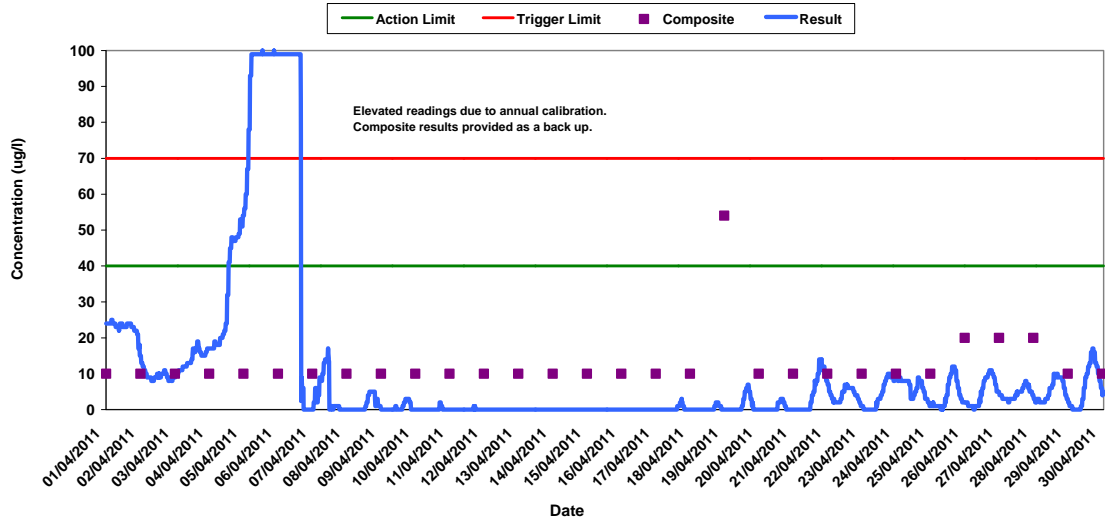
Orthophosphate Results at SP1
March 2011



April Graphs



Orthophosphate Results at SP1 April 2011



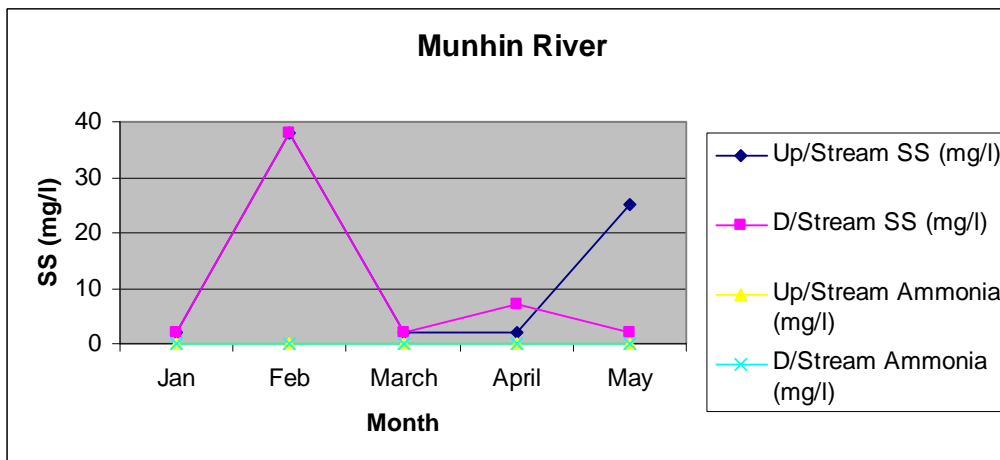
Srahmore Peat Repository
WL 0199-02

Environmental Management System Up-Date No. 49 (25/05/11)

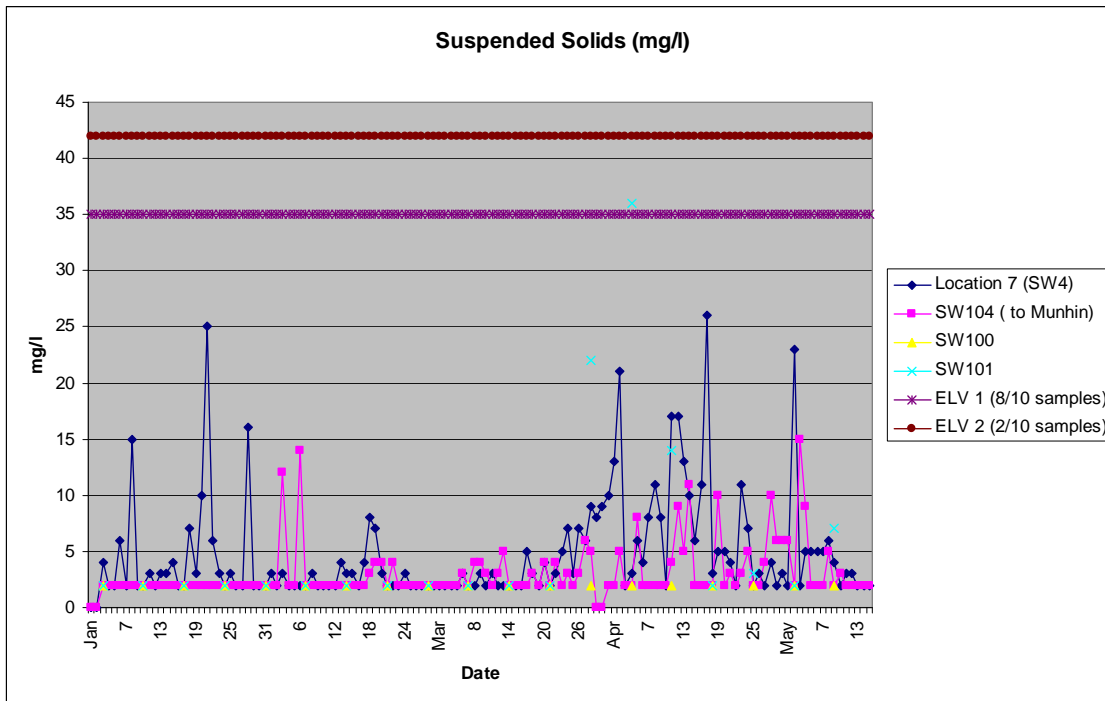
Environmental Monitoring:

- There were no non-compliances since the last meeting in January 2011. There was one exceedance at Sw101 in April of 36mg/l, 1mg/l above the 35mg/l ELV, but condition 4.1.2 allows up to 1.2 times the ELV (42mg/l)
- 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 (2011)



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



The average Suspended Solids for 2011 to date was 4.7 mg/l at SW 4 and 3mg/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	1	Archaeological	0
Site Admin & Mgt.	1	Electricians	0		
		Site Supervisors	1		
		Excavator & Shovel	3		
TOTAL EMPLOYED					6

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					9
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Srahmore Site Operations:

Activities on-site at present include installation of the weight bridge and wheel wash, commissioning of environmental monitoring equipment and upgrade/repairs to internal haul roads.

As of the 15th May 2011 the Srahmore site is compliant with Waste Licence W0199-02.