

Corrib Gas Development

Report for PMC Meeting Dated 12th July 2006

Prepared by : P. Mahon Senior Engineer, Project Manager for Mayo County Council

Water Quality – Carrowmore Lake

- Mayo County Council's Project Team have continued to monitor the surface waters in and around the Bellanaboy site. Summaries of the most recent verified results are attached.
- The results show;
In the last monitoring period the discharge of surface water from the Terminal Site has remained satisfactory. On some occasions, due to the dry weather experienced in June, it has not been possible to get a sample of surface water at the sampling point for discharge from the site (SP1). The discharge from the site has remained satisfactory due to the fact that overtopping of the mineral soil water on site has effectively ceased. The discharge from the site has had no adverse impact on the water quality of the Bellanaboy River and Carrowmore Lake or on the quality of drinking water produced at the Erris Regional Water Supply Scheme at Barnatra.

Environmental Issues at the Bellanaboy Site

- Access to the Bellanaboy site for some personnel working directly with Shell E&P Ireland has been restricted since the last PMC meeting . Environmental Officers working for Mayo County Council on the Environmental Monitoring Programme have been harassed on a number of occasions in the carrying out of their duties in the Bellanaboy area. Access to the site for officials of Mayo County Council and a member of the Project Monitoring Committee was blocked by protestors for a period of one hour on Monday 19th June 2006 and since then has not been restricted.
- The quantity of cloudy water in the excavated area of the terminal footprint has remained static since the last PMC meeting and overtopping has effectively ceased.
- The quality of the surface water leaving the site at SP1 has remained satisfactory in the last month.
- The performance of the existing Axonics treatment plant has been irregular since the last meeting of the Project Monitoring Committee and this has been brought to the attention of the developer. A large quantity of treated water is being stored in a holding tank adjacent to the Axonics unit and will need to be retreated to acceptable levels before being discharged into the site drainage system.
- Shell E & P Ireland have proposed to install a new unit with five times the capacity of the existing Axonics unit. Mayo County Council have recently written to Shell E & P Ireland asking for a programme for the installation and commissioning of the new unit. A plan for dealing with the excavated area of the terminal footprint once all the cloudy water has been treated is also being sought from the developer. Mayo County Council awaits a reply to this letter.

CARROWMORE LAKE

Results from 03/06/2006 to 28/06/2006 (10 samples)

(Awaiting some results)

Analysis by Complete Laboratory Solutions, Rosmuc, Co. Galway

Parameter	Units	Average	Max	Min
Suspended Solids	mg/l	4.2	6	4
Turbidity	N.T.U	4.2	9.4	1.6
pH	pH units	7.4	7.7	6.9
Conductivity	uS/cm	110	116	101
Phosphate	mg/l P	0.01	0.01	0.01
Total Phosphorous	mg/l P	0.031	0.049	0.024
Ortho-P	µg/l PO ₄	28	30	10
Ammonia	mg/l NH ₃ -N	0.018	0.03	0.008
Nitrate	mg/l NO ₃	0.44	0.44	0.44
Nitrite	mg/l NO ₂	0.018	0.023	0.017
Dissolved Aluminium	ug/l Al	85	180	30
Total Aluminium	ug/l Al	116	220	50
Chlorophyll a	µg/dm ³		3.471 (19/06/2006)	2.67 06/06/2006

ERRIS REGIONAL WATERWORKS (Final Treated Water)

Results from 06/06/2006 – 28/06/2006 (19 samples)

Analysis carried out at Erris Regional Waterworks

Parameter	Units	Average	Max	Min	Drinking Water Limits
Colour	mg/l	2.16	14	0	<10 Haz
Turbidity	N.T.U	0.5	0.58	0.44	<2.0 NTU
pH	pH units	6.9	7.3	6.6	6.5 – 8.5
Free Chlo/Res	mg/l	0.66	0.88	0.51	>0.3
Total Chlo/Res	mg/l	0.73	0.94	0.62	>0.3
Flourine	ppm	0.67	0.85	0.5	0.6-0.8
Total Aluminium	ug/l	5	7	4	200

BELLANABOY RIVER
(Upstream and Downstream of discharge from Terminal site)
Results from 02/06/2006 to 28/06/2006 (10 samples)
(Awaiting some results)

Analysis by Complete Laboratory Solutions, Rosmuc, Co. Galway

Parameter	Units	BEL 1 (upstream)			BEL 2 (downstream)		
		Average	Max	Min	Average	Max	Min
Temp.	°C	14.93	16.4	13.6	14.75	16.1	13.4
Dissolved Oxygen	% Sat.	89	96	82	86	95	80
Suspended Solids	mg/l	6.8	16	4	5.6	13	4
Turbidity	N.T.U	9.2	16.7	4.5	8.8	15.6	4.8
pH	pH units	7.3	7.9	7	7.2	7.7	6.5
Conductivity	uS/cm	224	248	197	225	248	188
Total Dissolved Solids	mg/l	124	133	111	124	133	114
Phosphate	mg/l P	0.027	0.045	0.018	0.028	0.041	0.018
Phosphate	µg/l PO ₄	78	140	63	86	127	56
Total Phosphorus	mg/l P	0.057	0.084	0.043	0.054	0.064	0.047
Ammonium	mg/l NH ₄	0.085	0.117	0.013	0.098	0.134	0.065
Ammonia	mg/l NH ₃	0.064	0.091	0.008	0.076	0.104	0.051
Nitrate	mg/l NO ₃	0.45	0.55	0.44	0.46	0.64	0.44
Nitrite	mg/l NO ₂	0.018	0.023	0.017	0.018	0.023	0.017
Dissolved Aluminium	ug/l Al	88	180	30	68	130	20
Total Aluminium	ug/l Al	140	280	70	125	240	70

SP 1
(Discharge point from terminal site)
Results from 02/06/2006 to 23/06/2006 (3 samples)
Analysis by Complete Laboratory Solutions, Rosmuc, Co. Galway

		SP 1		
Parameter	Units	Average	Max	Min
Suspended Solids	mg/l	<4	<4	<4
Turbidity	N.T.U	2.43	2.6	2.3
pH	pH units	7	7.2	6.8
Conductivity	uS/cm	226	251	203
Total Dissolved Solids	mg/l	131	150	121
Phosphate	mg/l P	0.02	0.037	0.011
Phosphate	µg/l PO₄	61	113	33
Total Phosphorus	mg/l P	0.05	0.066	0.04
Ammonium	mg/l NH₄	0.072	0.12	0.026
Ammonia	mg/l NH₃-N	0.056	0.093	0.02
Nitrate	mg/l NO₃	0.49	0.598	0.44
Nitrite	mg/l NO₂	0.02	0.023	0.017
Dissolved Auminium	ug/l Al	80	120	40
Total Aluminium	ug/l Al	95	120	70

Axonics Water Treatment Units
(Pre-treatment and Post-treatment Results)
Results from 01/06/2006 to 28/06/2006 (2 samples)
(Awaiting some results)
Analysis by Complete Laboratory Solutions, Rosmuc, Co. Galway

Parameter	Units	Pre-Treatment(No samples)			Post-Treatment (1 Sample)		
		Average *	Max	Min	Average *	Max	Min
Suspended Solids	mg/l				4		
Turbidity	N.T.U				1.3		
pH	pH units				6.9		
Conductivity	uS/cm				222		
Total Dissolved Solids	mg/l				129		
Phosphate	mg/l P				0.01		
Phosphate	µg/l PO₄				0.03		
Total Phosphorus	mg/l P				0.013		
Ammonium	mg/l NH₄				0.018		
Ammonia	mg/l NH₃-N				0.014		
Nitrate	mg/l NO₃				1.896		
Nitrite	mg/l NO₂				0.029		
Dissolved Aluminium	ug/l Al				1000		
Total Aluminium	ug/l Al				1000		

* Only 1 set of results available, awaiting other results

Srahmore Peat Repository
 WL 199-1

Environmental Management System Up-Date No. 15 (12/07/06)

Environmental Monitoring:

- The Srahmore site was fully compliant regarding emissions, since the last meeting (14/06/06)
- There were no complaints received at the site since the last meeting.
- There were no incidents recorded at the site since the last meeting.

The 2nd Quarter results will be submitted to the EPA this week, for SW4, 100, 101 and upstream/downstream of the Munhin River (see attached).

Srahmore Waste Licence W199-1		Munhin River			
Month:	Date	Up/Stream		D/Stream	
		SS (mg/l)	Ammonia (mg/l)	SS (mg/l)	Ammonia (mg/l)
Jan	09/01/2006	4	0.029	<4	0.009
Feb	06/02/2006	<4	0.008	<4	0.018
March	06/03/2006	<4	0.005	23	0.023
April	03/04/2006	7	0.013	9	0.011
May	08/05/2006	<4	0.008	4	0.008
June	05/06/2006	<4	0.015	<4	0.015

Environmental Work:

Environmental work at the site is on-going. This includes daily, weekly and monthly visual inspections at all emissions points.

END.

Bellanaboy Bridge Site

Report to the Project Monitoring Committee

12th July 2006

Works undertaken

- No construction activities were carried out during the month of June.
- Environmental monitoring works continue.
- Limited geotechnical monitoring carried out.
- The Axonics water treatment equipment is treating silt laden water from the excavated area to the required level.

Outlook from July 2006 onwards

- Carry out service/maintenance on Axonics unit – this requires the unit to be taken off line for several days. Due to commence shortly.
- Construct foundations and erect shed for Axonics water treatment plant extension.
- Continue with ongoing environmental care, monitoring & maintenance works.
- Operate surface water treatment equipment to deal with surface water residing on the terminal footprint and to mitigate against run off erosion of fine silt into watercourses.
- Attempt to recommence full Geotechnical monitoring.

ENVIRONMENTAL REPORT

Dust – The results for the monitoring period June 2006 at the monitoring locations (D1, D2 and D4) were 21, 196, and 32 mg per m² per day averaged over a 30 day period. The sample collected at D3 was not suitable for analysis, and there is therefore no result for June for that location. The Consent Limit is 350 mg per m² per day averaged over a 30 day period. The results for the monitoring period July 2006 will be presented in next month's report.

Fuel – Approximately 14.1m³ (~14,100 litres or 3102 gallons) were delivered to site in May and approximately 16.2m³ (~16,150 litres or 3553 gallons) were delivered in June.

Noise – No noise monitoring was undertaken (no construction work undertaken).

Traffic – There were no HCV (heavy construction traffic) traffic movements on or off site during the reporting period.

Waste – Two skips of domestic refuse (canteen waste, etc.), were removed off site during June. No recyclable or hazardous waste was removed. The effluent holding tanks were emptied of approximately 106m³ (23,500 gallons) during June. Approximately 1.2m³ (1,200 litres or 264 gallons) were removed from the on site portaloos in the same period.

Water quality – All monitoring and sampling locations were accessible for download, recalibration and reinstallation during the month of June.

The Phosphate (PO₄) analyser was removed in May and sent to the manufacturer for repair. A composite sampler has been deployed to extract samples for lab analyses, as per the EMP. The PO₄ analyser was returned and reinstated at SP1 on the 26-06-06. Initially problems were had but these have since been resolved.

The weir structures continue to log data and this data can be accessed both manually and via telemetry. All other monitoring equipment continues to operate without fault.

As a result of the equipment problems at SP1 (the PO₄ meter) grab samples

were continued until consistent running has been achieved.

A summary of the main surface water parameters measured for the grab sampling events in June at SP1 (range of lowest to highest) are presented below:

<u>pH</u>	7.0 – 7.65
<u>Suspended solids (mg/l)</u>	<4 – 8
<u>Phosphate (µg/l P)</u>	<10 - 13
<u>Conductivity (µS/cm)</u>	252 - 204
<u>Turbidity (mg/l)</u>	<4 - 6
<u>Nitrate (mg/l NO₃)</u>	<0.44 – 0.51

Monthly graphs for TSS, Orthophosphate (only grab samples results are provided due to equipment malfunction) and Turbidity are attached for the month of June. Action and Trigger Levels presented on the graphs are described in Section 7.0 of the Environmental Monitoring Plan.

Groundwater samples were taken and down hole monitoring equipment was downloaded for the month of June. A summary of the main groundwater parameters measured (range of lowest to highest):

<u>pH</u>	6.0 – 6.8
<u>Conductivity (µS/cm)</u>	229-649
<u>Nitrate (mg/l NO₃)</u>	<0.44 – 0.924
<u>Phosphate (µg/l P)</u>	<10 - 480
<u>Total Dissolved Solids</u>	<124 – 355

Vibration monitoring – No vibration monitoring was undertaken (no construction work undertaken).

Complaints – There were no construction activity related complaints logged with either SEPIL or RBL during the month of June. Protest action at the main gates remained.

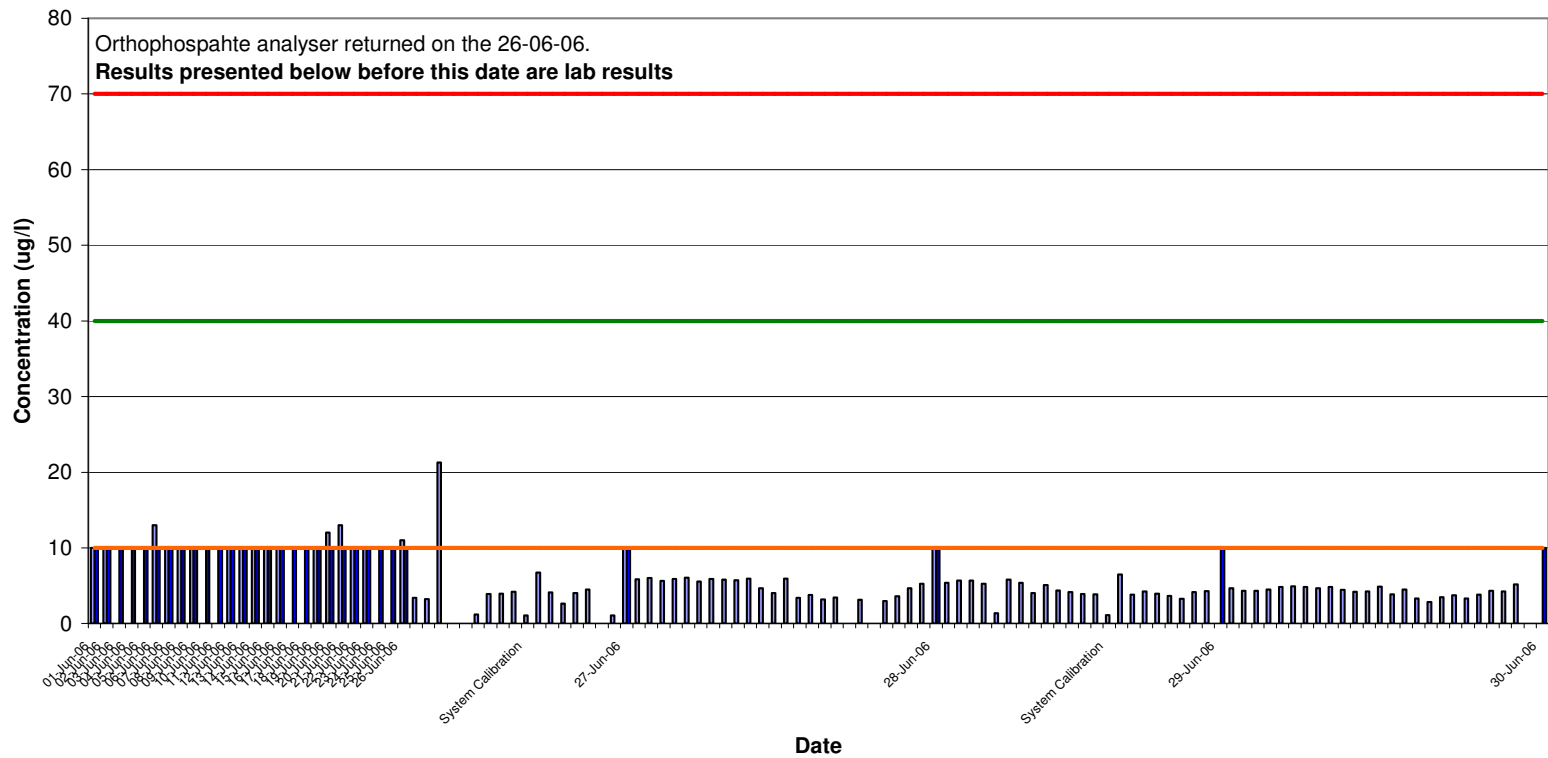
Incidents – There were no environmental notifications or exceedances during the reporting period.

Necessary Environmental Works

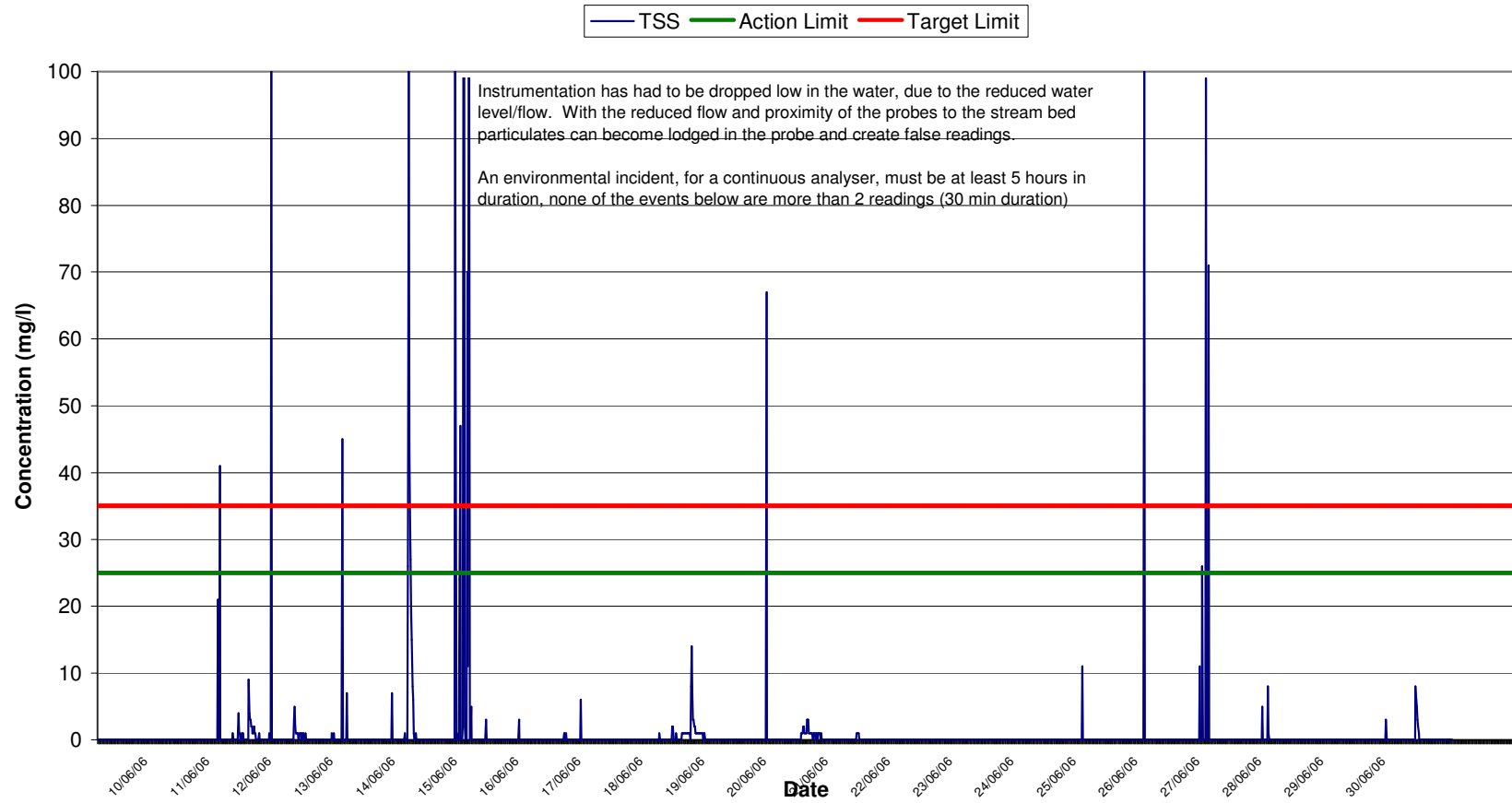
- Continuous drainage maintenance
- Continuous operation of on-site surface water treatment plant.
- Remove of all waste and effluent from site on an as needs basis.
- Inspect, repair (when required) and recalibrate all in situ monitoring equipment.
- Monitor/sample and download water (surface and ground)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

Orthophosphate Results, at SP1 and the composite sampler June 2006

SP1 Composite Action Limit Trigger Limit Limit of Detection



Total Suspended Solids Results, at SP1 for June 2006



Turbidity Results, at SP1 for June 2006

