Comhairle Cathrach Chorcaí
CORK CITY COUNCIL

Agglomeration: Cork City Annual Environmental Report 2010

Licence Register Number: D0033-01

Licensees: Cork City Council and Cork County Council

12/6/2011

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1 Introduction

1.1 Site Information

Agglomeration: Cork City

Licence No: D0033-01

Licensee: Cork City Council and Cork County Council

The Agglomeration comprises of Cork City and adjacent areas in Cork County, including Tramore Valley, Douglas, and Rochestown, and also includes Glanmire, Glounthaune and Little Island adjacent to the Waste Water Treatment Plant.

The Waste Water Treatment Plant is located at Carrigrennan on Little Island and was commissioned in 2004 with a capacity for an organic load of 413,000 Pop. Equiv. The design capacity of the plant was based on 53% of total load coming from industrial sources. The main discharge from the WWTP is located in Lough Mahon. The current organic plant loading for 2010 is calculated to be 269,000 Pop. Equiv.

A total pipe network of over 550 Kms is in place in the City network comprising approximately 40% Combined Sewers, and 30% each, separated, Foul and Surface Water Sewers. In addition there are approximately 28 km of Rising Mains. There are 34 Pumping Stations in total on the wastewater works, (27 in the City Council Network), a number of which have pumped overflows in the event of storm events, and the majority of which have gravity overflows in the event of emergencies associated with the operation of the pumps. In addition there are approximately fifty other stormwater overflow locations, largely associated with 62 Combined Sewer Overflows (CSO's) and including an untreated Secondary discharge into the River Lee North Channel adjacent to St. Patrick's Bridge in the City Centre.

A central collection chamber, incorporating screening and grit removal, gathers the flows from the City and adjacent areas, including Tramore Valley, Douglas, and Rochestown. Twin 1200mm diameter siphons are laid from this, the Ballinure Header Chamber, under Lough Mahon to the Treatment plant at Carrigrennan, a distance of over 4.5km. Local flows from Glanmire, Glounthaune and Little Island run directly to the plant at Carrigrennan.

The following Annual Environmental Report (2010 AER) has been prepared as per condition 6.11 of the Cork City and County Councils' Discharge licence D0033-01. This licence was granted on 17th December 2009. The 2010 AER is the first AER submitted, and includes information from the date of grant of the licence, i.e. 2 weeks in 2009 (17th Dec to 31st Dec) / the Month of December 2009, as agreed with the EPA, in addition to the information required under schedule D of the licence for 2010.

1.2 Wastewater Treatment Plant

The works consists of essentially two treatment activities, namely Wastewater Treatment and Solids Treatment

1.2.1 Wastewater Treatment

The various treatment stages include the following:

Screening (5mm) and De-gritting: Local flows only, flow from Ballinure previously screened and de-gritted.
InFlow Measurement & Sampling
Storm Water Treatment: 4 Tanks (storage/settlement/return/overflow)
Pre-Aeration, with odour control treatment of removed gases
Primary Clarification: 2 Settlement Tanks, (covered) sedimentation/ removal of settable solids
Secondary Treatment: Sequencing Batch Reactor, 8 Rectangular basins
OutFlow Measurement & Sampling
Effluent Discharge

1.2.2 Solids Treatment

Stages include the following:

Sludge Treatment
Thickening
Digestion
Dewatering and Drying

The sludge is anaerobically digested during which Biogas is produced. This Biogas is used on site to mix the sludge in the digestors, heat the sludge as it is re-circulated, and pasteurise and dry the sludge to 90% dry solids. The Sludge contains 5% Nitrogen, 5% Phosphorous and it has no significant heavy metals making it ideal for agricultural use. Currently all sludge, in dry pellet form, is used for agriculture.

1.2.3 Waste Water Treatment Plant Management

The Cork City Waste Water Treatment plant at Carrigrennan is owned by Cork City Council and is operated by Northumbrian Water Projects Ltd on behalf of Consort Joint Venture on a twenty year contract.

2 Summary of Monitoring Reports

2.1 Flows and Inflow Quality

2.1.1 Monthly Summary Influent and Effluent Flow Report

Influent and effluent flow is measured on a continuous daily basis at the plant. Summary flow statistics on the influent to and effluent from the plant during 2010 based on the 365 (daily) flow measurements are tabulated below. Also included is the summary of flow data collected over the 31 days of December 2009.

Month	Total Inflow incl Flow to Storm Tanks	Dischage to Effluent Outfall	Storm Tank Overflow to Storm Outfall
December 2009	4,107,389	4,044,430	345,130
January 2010	4,608,435	4,367,070	531,970
February 2010	2,935,095	3,099,590	3,140
March 2010	3,149,724	3,233,310	62,920
April 2010	3,027,180	3,128,200	47,460
May 2010	2,401,246	2,486,900	-
June 2010	2,339,551	2,427,900	-
July 2010	2,942,902	3,080,570	35,510
August 2010	2,282,934	2,374,810	-
September 2010	2,433,878	2,603,680	-
October 2010	2,829,238	2,979,510	-
November 2010	3,315,074	3,538,220	47,630
December 2010	3,072,736	3,119,810	78,830
Annual flow Year 2010	**35,337,991**	**36,439,570**	**807,460**
Average Daily flow 2010	**96,816**	**99,834**	**2,212**
Max Daily flow 2010	237,172	161,840	87,900
Min Daily flow 2010	54,487	45,120	-
Max. Daily Flow 2010 / Min Daily flow 2010	**4.35**		

Comment:

The discrepancy between inflow measured compared to discharge is a reflection of the method of flow measurement employed at the respective measurement locations. Discharges from the site are measured via Flume readings. The readings from two Mag. Flow meters in sequence are averaged and combined with a flume meter to the Storm overflow Tanks to calculate the inflow.

Total influent data above represents influent water from the agglomeration arriving at the Carrigrennan Waste Water Treatment Plant. It does not include wastewater lost in combined sewer overflows in the upstream waste water works of the agglomeration.

The maximum hydraulic flow to the Carrigrennan plant during 2010 was a factor of 4.35 times higher than the minimum flow. This quantifies the range of influent flows experienced in the plant, variations being caused mainly by inflow, surface water ingress after rainfall via the combined sewer systems in the agglomeration, and infiltration into the waste water network through various means, from groundwater and sea water ingress experienced at higher tides.

The Average Daily Inflow at Carrigrennan WWTP is larger than would be expected, when taking the design data into consideration.

The Design Data for the Carrigrennan WWTP, based on 2020 figures is as follows:			
2.1.1 Crude Sewage Flow (Excluding the returns)	M3/day	M3/Hr	M3/sec
Crude Sewage Dry Weather Flow (DWF)	59,359	2,473.3	0.687
Crude Sewage Maximum Flow (WWF)	359,592	14,983	4.16
Design Factor, WWF/ DWF	6.06		
2.1.2 Flow to Primary Treatment	M3/day	M3/Hr	M3/sec
DWF	59,359		
Multiplier	3		
Maximum Flow	178,077	7,420	2.06
Excess flows are diverted to Storm Tanks			
2.1.3 Flow to Secondary Treatment	M3/day	M3/Hr	M3/sec
DWF	59,359		
Multiplier	2.5		
Infiltration	9,741		
Maximum Flow (2.5*DWF+ I)	158,139	6,589	1.83
Excess flows are diverted to Storm Tanks			
2.1.4 Annual Average Peak Flow	M3/day	M3/Hr	M3/sec
DWF	59,359	2,473.3	0.687
The Average Daily Flow (ADF) is assumed to be 1.2 *DWF	71,231	2,968	0.824
Average Daily Flow Peak (ADFP) is assumed to be 1.6* ADF	**113,969**	4,749	1.319

The Flows received at the WWTP have not varied appreciably since it was first commissioned as demonstrated by the following Table of Flow Values

	Influent, "Average Value FIT102/3", plus FIT 104				Treated Effluent Fit 1200				Storm Overflow Fit 300-2				Cork Airport
Year	Total Annual inflow	Annual Average Daily inflow	Annual Maximum Daily inflow	annual Minimum Daily inflow	Total Annual Treated Effluent	Annual Average Daily Treated Effluent	Annual Maximum Daily Treated Effluent	Annual Minimum Daily Treated Effluent	Total Annual Storm Overflow	Annual Average Daily Storm overflow	Annual Maximum Daily Storm overflow	Annual Minimum Daily Storm overflow	Rainfall
	M3/Yr	M3/day	M3/day	M3/day	M3/Yr	M3/day	M3/day	M3/day	M3/Yr	M3/day	M3/day	M3/day	mm/year
2010	35,337,991	96,816	237,172	54,487	36,439,570	99,834	161,840	45,120	807,460	2,212	87,900	-	903
2009	39,773,146	108,968	251,556	57,938	40,381,480	110,634	162,330	63,230	1,872,230	5,427	106,700	-	1,572
2008	36,963,177	101,269	209,152	32,442	38,802,080	106,307	157,120	34,800	541,830	1,484	67,860	-	1,341
2007	34,090,510	93,399	230,191	60,809	34,735,070	95,165	162,000	63,990	840,410	2,302	88,700	-	1,057
2006	35,363,499	96,886	229,681	57,670	35,877,800	98,295	163,310	58,770	1,061,790	2,909	79,600	-	1,197
2005	33,423,368	91,571	210,380	34,107	34,149,730	93,561	173,310	43,203	580,960	1,592	52,720	-	1,192
1961-1990 30 yr mean													1,207

2.1.2 Infiltration

Excluding values for 2009 due to the Severe Weather Events of rainfall and floods experienced, and comparing otherwise the variation in average annual daily inflow from 2005 to 2010, the variation from the median value of 96,420 m3/day is + or – 4,849 m3/day. Flow variations such as this can be accounted for by increased/reduced rainfall and the combined sewerage system in a large proportion of the waste water network. When compared with the 2020 Design DWF of 59,359 m3/day & Design ADF of 71,231m3/day the Average Daily Flows received at the WWTP suggest a high background level of inflow and/or infiltration from the start of operation, which has not varied appreciably. A value of 9,741 m3/day (2020) was allowed in the design of the plant for infiltration. This does not account for the level of the infiltration experienced.

The flows received at the WWTP are most likely reflecting the location of the City which is at the head of the Estuary. A good proportion of the city centre, is either land reclaimed from the original marsh at the mouth of the River Lee, is within the tidal range, or is surrounded or adjacent to water. The heart of the city, an area of approx 100 Ha, is an island surrounded by the two channels of the River Lee, 80 Ha of this is below a level of 3.5m AOD. The North Channel is Tidal as far as the City Waterworks, a distance of 3.3 km from the lower end of the Central Island and the start of the Channel split. The South Channel is Tidal to a point 2.2 Km from the lower end of Central Island. The predicted High Tide range for 2010 varied from 0.62m to 2.22m AOD. Given that sewers are, nominally, at least 1.5m below the street level, it can be seen that infiltration from tidal, river waters and ground water could be contributing greatly to background flows in the sewers. The majority of sewers were in the centre city were relaid /separated during the Cork Main Drainage projects but questions arise as to the integrity of the older drain connections to these new sewers.

Infiltration by tidal waters is reinforced by the varying levels of Chloride that have been measured in the inflows to the WWTP. These Chloride levels increase incrementally at times of higher tides, i.e. normally on a fortnightly basis, and are particularly noticeable at Spring and Neap tides. Excavations in the city centre have traditionally been tide-dependent, and in fact this was a feature of work programmes for Cork Main Drainage.

As a crude estimation of the level of infiltration, the flows estimated in the design of the plant for 2002 and 2020 were interpolated and compared to the measured flows. The differences between Measured and Calculated values would appear to be fairly consistent on a year in year out basis, where the higher value for 2009 is discounted due to unusually high rainfall experienced that year causing greater inflows into the system.

Table of Inflows & Infiltration

	Measured Influent, "Average Value FIT102/3", plus FIT 104			Calculations based on Plant Design								
Year	Annual Average Daily inflow = ADF	Annual Maximum Daily inflow =WWF	Annual Minimum Daily inflow	Design DWF	Design ADF =DWF *1.2	Excess /Background Infiltration= (Measured ADF -Design ADF)	% Excess/ Background Infiltration Vs Measured ADF	Infiltration allowed for / included in Design DWF	Infiltration Allowed for / included in Design ADF	% Infiltration Allowed for / included in Design ADF	Total Daily inflow infiltration, Excess Background + allowed for	Total Daily Inflow Infiltration % of Measured inflow
	M3/day	M3/day	M3/day	M3/day	M3/day	M3/day	%	M3/day	M3/day	%	M3/day	%
2010	96,816	237,172	54,487	53,525	64,230	32,586	34%	8,819	10,583	16.5%	43,169	45%
2009	108,968	251,556	57,938	52,961	63,553	45,414	42%	8,727	10,472	16.5%	55,887	51%
2008	101,269	209,152	32,442	52,442	62,930	38,339	38%	8,635	10,362	16.5%	48,701	48%
2007	93,399	230,191	60,809	51,844	62,213	31,186	33%	8,543	10,252	16.5%	41,437	44%
2006	96,886	229,681	57,670	51,291	61,549	35,337	36%	8,451	10,141	16.5%	45,478	47%
2005	91,571	210,380	34,107	50,742	60,890	30,680	34%	8,358	10,030	16.5%	40,710	44%
	5 Year Average Excluding 2009					33,626	35%		10,273	16.5%	43,899	46%

2.1.3 Influent and Effluent flows

Measured Daily influent and effluent flows for the month of December 2009 and the full year 2010 are as Tabulated over:

NOTE: Outflows as measured by *Flume from Storm Tank overflow FIT 300* (807,460m3 Total for 2010) are not directly comparable to the Inflows measured by *Flume to Storm Tanks FIT 104* (464,360 m3). As part of the treatment process, overflows after Primary Treatment, i.e. over and above 1.83m3/sec, also flow to the Storm Tanks adding to the quantities that make up the outflows.

	Inflows		Outflows	
Influent & Effluent Flows Dec 2009	**Average of 2 Mag Flow Meters to PST FIT102/3**	**Flume to Storm Tanks FIT104**	**Flume to Outfall FIT1200**	**Flume from Storm Tank Overflow FIT300**
Date	**m3**	**m3**	**m3**	**m3**
01-Dec-09	152936	14090	145800	29850
02-Dec-09	158401	13200	146470	35040
03-Dec-09	158324	2840	154330	20310
04-Dec-09	160485	2330	161480	13650
05-Dec-09	166926	12640	159630	32050
06-Dec-09	153555	15440	147530	31780
07-Dec-09	152313	8510	153440	23330
08-Dec-09	138765	24500	118480	43190
09-Dec-09	145172	14600	144250	30250
10-Dec-09	138668	1010	145910	7420
11-Dec-09	136190	0	153110	0
12-Dec-09	107417	1780	122370	2340
13-Dec-09	108521	0	130630	0
14-Dec-09	118785	0	120840	0
15-Dec-09	120730	0	132420	0
16-Dec-09	112266	0	118750	0
17-Dec-09	110157	0	116050	0
18-Dec-09	104190	0	112500	0
19-Dec-09	104939	0	112440	0
20-Dec-09	95308	0	102190	0
21-Dec-09	102892	0	108640	0
22-Dec-09	101605	0	108890	0
23-Dec-09	105991	90	114150	0
24-Dec-09	83468	0	88750	120
25-Dec-09	119284	1050	129150	0
26-Dec-09	103338	0	109510	0
27-Dec-09	99366	0	105560	0
28-Dec-09	123247	540	119470	0
29-Dec-09	150919	2360	150960	4670
30-Dec-09	170196	18550	159090	41380
31-Dec-09	165372	4140	151640	29750
Totals m3/Dec 09	3,969,719	137,670	4,044,430	345,130
Average Daily Flow	128,055	4,441	130,465	11,133
m3/Day	132,496		141,599	

	Inflows		Outflows	
Influent & Effluent Flows	**Average of 2 Mag Flow Meters to PST FIT102/3**	**Flume to Storm Tanks FIT104**	**Flume to Outfall FIT1200**	**Flume from Storm Tank Overflow FIT300**
Date	**m3**	**m3**	**m3**	**m3**
01-Jan-10	146,530	-	146,250	8,590
02-Jan-10	153,399	-	150,620	10,940
03-Jan-10	145,890	-	145,050	11,470
04-Jan-10	137,356	-	149,780	660
05-Jan-10	136,012	-	152,220	-
06-Jan-10	111,937	40	133,380	-
07-Jan-10	114,312	-	120,620	-
08-Jan-10	106,129	-	112,550	-
09-Jan-10	104,274	-	111,180	-
10-Jan-10	117,601	-	122,570	-
11-Jan-10	119,684	90	129,670	-
12-Jan-10	171,721	14,970	159,230	26,640
13-Jan-10	159,172	10,080	151,680	26,780
14-Jan-10	158,513	5,270	152,280	21,920
15-Jan-10	177,434	33,470	157,650	65,140
16-Jan-10	178,548	32,480	156,060	63,660
17-Jan-10	154,181	9,850	140,950	31,350
18-Jan-10	157,222	8,320	154,210	21,510
19-Jan-10	169,595	40,080	157,950	61,430
20-Jan-10	159,904	9,500	151,000	26,450
21-Jan-10	184,392	52,780	159,540	87,900
22-Jan-10	170,590	16,530	154,030	39,450
23-Jan-10	154,970	3,010	154,900	19,780
24-Jan-10	138,965	1,740	145,960	5,440
25-Jan-10	134,975	-	139,940	2,860
26-Jan-10	123,724	-	139,000	-
27-Jan-10	121,744	-	131,830	-
28-Jan-10	121,525	-	126,580	-
29-Jan-10	111,251	-	117,990	-
30-Jan-10	114,613	40	119,290	-
31-Jan-10	114,028	-	123,110	-
01-Feb-10	123,538	-	129,000	-
02-Feb-10	125,564	650	134,500	-
03-Feb-10	112,567	2,360	123,950	-
04-Feb-10	157,381	1,210	148,000	2,860
05-Feb-10	139,594	-	156,330	280
06-Feb-10	110,267	210	130,650	-
07-Feb-10	109,361	-	117,900	-
08-Feb-10	104,733	-	110,650	-

	Inflows		Outflows	
Influent & Effluent Flows	**Average of 2 Mag Flow Meters to PST FIT102/3**	**Flume to Storm Tanks FIT104**	**Flume to Outfall FIT1200**	**Flume from Storm Tank Overflow FIT300**
Date	**m3**	**m3**	**m3**	**m3**
09-Feb-10	101,255	-	110,470	-
10-Feb-10	100,105	-	103,760	-
11-Feb-10	98,396	-	101,690	-
12-Feb-10	90,028	-	100,050	-
13-Feb-10	100,205	990	101,960	-
14-Feb-10	96,070	-	102,090	-
15-Feb-10	102,442	-	105,740	-
16-Feb-10	100,302	-	105,490	-
17-Feb-10	104,552	1,450	114,920	-
18-Feb-10	100,421	-	100,990	-
19-Feb-10	89,472	-	100,320	-
20-Feb-10	94,502	-	98,950	-
21-Feb-10	89,628	-	92,240	-
22-Feb-10	90,795	-	94,170	-
23-Feb-10	109,863	1,090	120,040	-
24-Feb-10	101,721	-	107,910	-
25-Feb-10	91,083	-	96,270	-
26-Feb-10	94,438	-	100,300	-
27-Feb-10	101,078	-	100,470	-
28-Feb-10	87,781	-	90,780	-
01-Mar-10	107,665	420	111,150	-
02-Mar-10	97,270	940	109,960	-
03-Mar-10	113,609	1,470	125,480	-
04-Mar-10	103,353	-	104,390	-
05-Mar-10	85,070	-	90,520	-
06-Mar-10	80,318	-	82,840	-
07-Mar-10	73,269	-	76,600	-
08-Mar-10	77,523	-	80,600	-
09-Mar-10	76,437	-	78,450	-
10-Mar-10	73,241	-	76,610	-
11-Mar-10	77,698	-	74,800	-
12-Mar-10	73,598	-	76,880	-
13-Mar-10	74,410	-	78,020	-
14-Mar-10	74,831	-	76,440	-
15-Mar-10	77,038	-	78,330	-
16-Mar-10	91,888	-	98,170	-
17-Mar-10	83,001	-	85,410	-
18-Mar-10	115,738	2,340	123,400	30
19-Mar-10	130,997	-	123,710	3,650

	Inflows		Outflows	
Influent & Effluent Flows	**Average of 2 Mag Flow Meters to PST FIT102/3**	**Flume to Storm Tanks FIT104**	**Flume to Outfall FIT1200**	**Flume from Storm Tank Overflow FIT300**
Date	**m3**	**m3**	**m3**	**m3**
20-Mar-10	97,107	-	123,660	-
21-Mar-10	116,576	140	113,540	-
22-Mar-10	100,539	-	115,610	-
23-Mar-10	129,395	100	118,230	-
24-Mar-10	124,033	250	138,960	-
25-Mar-10	113,853	-	126,380	-
26-Mar-10	104,697	-	115,360	-
27-Mar-10	97,498	-	99,610	-
28-Mar-10	121,349	4,860	116,260	-
29-Mar-10	170,804	13,430	144,540	43,030
30-Mar-10	140,442	110	138,620	16,210
31-Mar-10	121,653	770	130,780	-
01-Apr-10	126,295	1,610	133,550	-
02-Apr-10	132,512	2,580	141,340	2,630
03-Apr-10	114,488	10	132,450	-
04-Apr-10	106,299	-	118,020	-
05-Apr-10	134,570	18,510	121,280	14,500
06-Apr-10	145,927	13,440	147,440	30,330
07-Apr-10	109,174	-	128,370	-
08-Apr-10	104,454	-	109,630	-
09-Apr-10	101,412	-	106,340	-
10-Apr-10	100,428	-	103,800	-
11-Apr-10	89,118	-	89,530	-
12-Apr-10	99,637	-	102,120	-
13-Apr-10	99,241	-	102,100	-
14-Apr-10	103,648	-	105,340	-
15-Apr-10	101,639	-	105,890	-
16-Apr-10	93,382	-	96,630	-
17-Apr-10	89,365	-	92,660	-
18-Apr-10	89,407	-	91,980	-
19-Apr-10	86,861	-	91,140	-
20-Apr-10	84,178	-	85,760	-
21-Apr-10	81,705	-	84,140	-
22-Apr-10	80,039	-	81,800	-
23-Apr-10	80,502	-	85,960	-
24-Apr-10	93,796	-	99,280	-
25-Apr-10	85,405	-	89,800	-
26-Apr-10	84,613	-	86,380	-
27-Apr-10	88,627	-	92,570	-

	Inflows		Outflows	
Influent & Effluent Flows	**Average of 2 Mag Flow Meters to PST FIT102/3**	**Flume to Storm Tanks FIT104**	**Flume to Outfall FIT1200**	**Flume from Storm Tank Overflow FIT300**
Date	**m3**	**m3**	**m3**	**m3**
28-Apr-10	93,294	-	98,430	-
29-Apr-10	92,002	-	97,060	-
30-Apr-10	98,560	460	107,410	-
01-May-10	93,404	-	97,330	-
02-May-10	78,535	-	83,850	-
03-May-10	71,673	-	75,810	-
04-May-10	72,978	-	75,470	-
05-May-10	72,050	-	74,490	-
06-May-10	71,892	-	77,920	-
07-May-10	74,619	-	77,880	-
08-May-10	70,593	-	73,730	-
09-May-10	68,657	-	67,950	-
10-May-10	75,465	-	77,030	-
11-May-10	74,987	-	76,850	-
12-May-10	80,831	-	80,670	-
13-May-10	75,760	-	80,600	-
14-May-10	79,914	-	84,060	-
15-May-10	73,642	-	77,270	-
16-May-10	69,988	180	74,220	-
17-May-10	79,920	-	81,250	-
18-May-10	86,899	-	94,630	-
19-May-10	75,341	-	79,180	-
20-May-10	71,095	-	71,640	-
21-May-10	69,736	-	73,280	-
22-May-10	68,779	-	68,480	-
23-May-10	67,640	-	66,330	-
24-May-10	76,762	-	76,480	-
25-May-10	75,564	-	74,590	-
26-May-10	78,475	-	78,460	-
27-May-10	83,630	-	84,470	-
28-May-10	95,945	-	99,090	-
29-May-10	88,353	-	95,860	-
30-May-10	72,768	-	77,960	-
31-May-10	105,182	-	110,070	-
01-Jun-10	76,870	-	82,930	-
02-Jun-10	75,083	-	75,680	-
03-Jun-10	76,017	-	78,820	-
04-Jun-10	70,544	-	74,060	-
05-Jun-10	68,710	-	70,220	-

	Inflows		Outflows	
Influent & Effluent Flows	**Average of 2 Mag Flow Meters to PST FIT102/3**	**Flume to Storm Tanks FIT104**	**Flume to Outfall FIT1200**	**Flume from Storm Tank Overflow FIT300**
Date	**m3**	**m3**	**m3**	**m3**
06-Jun-10	72,124	-	67,960	-
07-Jun-10	106,105	730	118,970	-
08-Jun-10	120,015	1,970	126,190	-
09-Jun-10	94,440	220	102,900	-
10-Jun-10	77,373	-	81,970	-
11-Jun-10	81,735	-	85,200	-
12-Jun-10	75,230	-	78,150	-
13-Jun-10	79,943	-	82,980	-
14-Jun-10	76,373	-	81,390	-
15-Jun-10	77,397	-	79,680	-
16-Jun-10	76,545	-	79,060	-
17-Jun-10	76,247	-	77,070	-
18-Jun-10	72,048	-	76,950	-
19-Jun-10	67,652	-	71,020	-
20-Jun-10	67,069	-	67,140	-
21-Jun-10	69,891	-	72,050	-
22-Jun-10	69,836	-	73,080	-
23-Jun-10	75,363	-	73,760	-
24-Jun-10	65,348	-	70,230	-
25-Jun-10	78,922	-	80,440	-
26-Jun-10	84,376	-	70,650	-
27-Jun-10	54,487	-	70,830	-
28-Jun-10	77,122	-	82,070	-
29-Jun-10	74,167	-	77,730	-
30-Jun-10	99,609	-	98,720	-
01-Jul-10	103,654	30	116,620	-
02-Jul-10	75,829	-	79,720	-
03-Jul-10	73,054	-	76,570	-
04-Jul-10	64,439	-	67,260	-
05-Jul-10	66,141	-	68,730	-
06-Jul-10	66,821	-	72,910	-
07-Jul-10	69,733	70	69,410	-
08-Jul-10	90,581	-	97,800	-
09-Jul-10	117,579	-	119,290	-
10-Jul-10	145,759	4,130	150,160	-
11-Jul-10	86,015	-	102,550	-
12-Jul-10	92,378	-	97,440	-
13-Jul-10	109,471	800	118,270	-
14-Jul-10	112,708	6,460	122,520	-

	Inflows		Outflows	
Influent & Effluent Flows	**Average of 2 Mag Flow Meters to PST FIT102/3**	**Flume to Storm Tanks FIT104**	**Flume to Outfall FIT1200**	**Flume from Storm Tank Overflow FIT300**
Date	**m3**	**m3**	**m3**	**m3**
15-Jul-10	120,789	12,410	129,330	1,940
16-Jul-10	96,221	-	119,430	-
17-Jul-10	111,939	4,630	110,150	-
18-Jul-10	136,246	15,610	140,030	10,770
19-Jul-10	131,902	11,730	141,560	22,800
20-Jul-10	103,677	-	118,110	-
21-Jul-10	99,217	10	106,100	-
22-Jul-10	81,320	-	85,210	-
23-Jul-10	85,909	-	90,280	-
24-Jul-10	82,245	-	84,620	-
25-Jul-10	73,712	-	79,620	-
26-Jul-10	82,203	-	86,110	-
27-Jul-10	86,135	-	89,090	-
28-Jul-10	84,482	-	89,930	-
29-Jul-10	81,861	-	87,350	-
30-Jul-10	79,950	-	84,120	-
31-Jul-10	75,059	-	80,280	-
01-Aug-10	72,232	-	75,530	-
02-Aug-10	69,956	-	70,740	-
03-Aug-10	66,738	-	70,810	-
04-Aug-10	69,500	-	73,730	-
05-Aug-10	69,362	-	63,250	-
06-Aug-10	70,424	-	74,540	-
07-Aug-10	67,621	-	67,780	-
08-Aug-10	69,165	-	70,140	-
09-Aug-10	83,063	-	82,000	-
10-Aug-10	82,363	-	85,650	-
11-Aug-10	81,654	600	86,280	-
12-Aug-10	80,549	-	86,110	-
13-Aug-10	82,490	-	85,320	-
14-Aug-10	74,611	-	81,570	-
15-Aug-10	70,264	280	71,030	-
16-Aug-10	70,769	-	72,800	-
17-Aug-10	69,767	-	74,730	-
18-Aug-10	70,094	-	70,740	-
19-Aug-10	86,699	-	92,560	-
20-Aug-10	75,750	-	80,510	-
21-Aug-10	73,336	-	75,290	-
22-Aug-10	73,301	-	75,490	-

	Inflows		Outflows	
Influent & Effluent Flows	**Average of 2 Mag Flow Meters to PST FIT102/3**	**Flume to Storm Tanks FIT104**	**Flume to Outfall FIT1200**	**Flume from Storm Tank Overflow FIT300**
Date	**m3**	**m3**	**m3**	**m3**
23-Aug-10	74,912	-	79,390	-
24-Aug-10	69,758	-	74,050	-
25-Aug-10	79,136	-	84,430	-
26-Aug-10	77,571	-	81,430	-
27-Aug-10	74,587	-	78,250	-
28-Aug-10	68,812	-	74,180	-
29-Aug-10	66,081	-	69,710	-
30-Aug-10	71,286	-	72,390	-
31-Aug-10	70,209	-	74,380	-
01-Sep-10	68,146	-	72,030	-
02-Sep-10	63,839	-	65,580	-
03-Sep-10	67,576	-	73,410	-
04-Sep-10	66,497	-	70,760	-
05-Sep-10	94,414	-	94,730	-
06-Sep-10	112,203	410	122,270	-
07-Sep-10	105,021	260	108,950	-
08-Sep-10	95,370	-	106,870	-
09-Sep-10	105,512	-	111,630	-
10-Sep-10	113,598	-	122,680	-
11-Sep-10	87,817	-	99,040	-
12-Sep-10	77,807	-	83,630	-
13-Sep-10	80,551	-	83,680	-
14-Sep-10	74,172	-	82,480	-
15-Sep-10	68,239	-	73,530	-
16-Sep-10	68,815	-	73,160	-
17-Sep-10	69,661	-	70,870	-
18-Sep-10	65,786	-	68,710	-
19-Sep-10	67,385	-	74,230	-
20-Sep-10	75,101	-	77,470	-
21-Sep-10	91,727	830	92,390	-
22-Sep-10	79,600	-	95,440	-
23-Sep-10	80,890	-	84,000	-
24-Sep-10	76,350	-	81,470	-
25-Sep-10	75,030	-	77,240	-
26-Sep-10	71,533	-	77,790	-
27-Sep-10	82,584	-	89,880	-
28-Sep-10	88,650	-	97,510	-
29-Sep-10	75,555	-	77,690	-
30-Sep-10	82,952	-	94,560	-

	Inflows		Outflows	
Influent & Effluent Flows	**Average of 2 Mag Flow Meters to PST FIT102/3**	**Flume to Storm Tanks FIT104**	**Flume to Outfall FIT1200**	**Flume from Storm Tank Overflow FIT300**
Date	**m3**	**m3**	**m3**	**m3**
01-Oct-10	82,717	-	84,650	-
02-Oct-10	77,602	-	83,410	-
03-Oct-10	79,907	-	81,810	-
04-Oct-10	93,564	-	100,380	-
05-Oct-10	97,280	-	101,690	-
06-Oct-10	98,807	-	102,990	-
07-Oct-10	115,543	-	123,460	-
08-Oct-10	115,266	-	126,260	-
09-Oct-10	111,596	-	125,790	-
10-Oct-10	90,719	-	97,780	-
11-Oct-10	88,913	-	94,320	-
12-Oct-10	84,986	-	86,410	-
13-Oct-10	77,950	-	80,530	-
14-Oct-10	60,790	-	64,660	-
15-Oct-10	69,932	-	75,300	-
16-Oct-10	66,925	-	67,240	-
17-Oct-10	63,542	-	67,110	-
18-Oct-10	70,927	-	74,910	-
19-Oct-10	72,188	-	77,940	-
20-Oct-10	74,286	-	76,390	-
21-Oct-10	78,972	-	81,640	-
22-Oct-10	96,051	120	107,540	-
23-Oct-10	81,591	-	81,780	-
24-Oct-10	73,172	-	82,860	-
25-Oct-10	90,600	-	89,890	-
26-Oct-10	81,909	-	96,050	-
27-Oct-10	96,696	200	102,750	-
28-Oct-10	115,218	510	118,960	-
29-Oct-10	129,481	4,610	141,220	-
30-Oct-10	137,327	1,060	137,370	-
31-Oct-10	139,451	8,840	146,420	-
01-Nov-10	109,429	-	130,460	-
02-Nov-10	99,088	-	110,920	18,270
03-Nov-10	99,414	-	105,740	-
04-Nov-10	98,786	-	105,340	-
05-Nov-10	116,572	3,110	125,270	4,970
06-Nov-10	98,219	-	105,560	-
07-Nov-10	115,030	2,530	124,070	-
08-Nov-10	144,688	1,500	149,500	-

	Inflows		Outflows	
Influent & Effluent Flows	**Average of 2 Mag Flow Meters to PST FIT102/3**	**Flume to Storm Tanks FIT104**	**Flume to Outfall FIT1200**	**Flume from Storm Tank Overflow FIT300**
Date	**m3**	**m3**	**m3**	**m3**
09-Nov-10	121,323	-	142,250	-
10-Nov-10	129,290	-	133,100	-
11-Nov-10	111,244	-	125,220	-
12-Nov-10	110,186	-	114,830	-
13-Nov-10	110,685	-	125,790	-
14-Nov-10	91,539	-	91,650	-
15-Nov-10	88,525	-	93,490	-
16-Nov-10	154,566	9,430	141,230	13,210
17-Nov-10	147,271	670	149,910	11,180
18-Nov-10	124,622	-	140,250	-
19-Nov-10	127,149	-	137,740	-
20-Nov-10	122,297	-	136,770	-
21-Nov-10	105,109	-	112,820	-
22-Nov-10	115,129	-	123,080	-
23-Nov-10	112,076	-	117,280	-
24-Nov-10	105,588	-	114,290	-
25-Nov-10	91,354	-	101,420	-
26-Nov-10	107,064	-	110,020	-
27-Nov-10	78,194	-	87,690	-
28-Nov-10	83,365	-	89,600	-
29-Nov-10	89,043	-	95,130	-
30-Nov-10	90,997	-	97,800	-
01-Dec-10	86,676	-	90,400	-
02-Dec-10	87,750	-	94,660	-
03-Dec-10	97,180	-	103,850	-
04-Dec-10	94,463	-	98,210	-
05-Dec-10	106,397	-	112,830	-
06-Dec-10	103,004	-	105,570	-
07-Dec-10	95,485	-	106,360	-
08-Dec-10	89,604	-	97,590	-
09-Dec-10	88,510	-	94,540	-
10-Dec-10	88,834	-	95,170	-
11-Dec-10	83,212	-	89,650	-
12-Dec-10	82,928	-	88,860	-
13-Dec-10	80,356	-	86,270	-
14-Dec-10	78,299	-	82,880	-
15-Dec-10	75,478	-	81,100	-
16-Dec-10	80,219	-	87,460	-
17-Dec-10	82,686	-	86,480	-

	Inflows		Outflows	
Influent & Effluent Flows	**Average of 2 Mag Flow Meters to PST FIT102/3**	**Flume to Storm Tanks FIT104**	**Flume to Outfall FIT1200**	**Flume from Storm Tank Overflow FIT300**
Date	**m3**	**m3**	**m3**	**m3**
18-Dec-10	85,599	-	90,910	-
19-Dec-10	84,597	-	93,150	-
20-Dec-10	95,526	-	96,980	-
21-Dec-10	94,067	-	98,140	-
22-Dec-10	93,819	-	98,710	-
23-Dec-10	88,438	1,550	91,840	-
24-Dec-10	93,199	-	45,120	-
25-Dec-10	90,786	-	80,130	-
26-Dec-10	139,935	17,460	125,460	13,090
27-Dec-10	162,659	41,300	161,840	61,720
28-Dec-10	127,701	2,260	142,740	4,020
29-Dec-10	136,369	150	146,200	-
30-Dec-10	109,273	50	128,040	-
31-Dec-10	106,917	-	118,670	-
Totals m3/Yr	34,873,631	464,360	36,439,570	807,460
Average Daily Flow	95,544	1,272	99,834	2,212
m3/Day	96,816		102,047	

2.1.4 Monthly Summary Influent monitoring results for COD, cBOD and TSS

Influent samples are monitored on 5 out of each 7 days for each of the parameters COD, cBOD and TSS using a 24-hr composite sampler. This information is presented below as a monthly summary for 2010. A total of 23 samples of influent were analysed in December 2009 and 260 samples of influent were analysed during 2010. Values are the Average (or Maximum or Minimum) of the Daily values for the relevant month.

Parameter	Type	Dec 2009	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec	Year 2010
COD	Average	260	230	361	443	384	509	490	400	485	468	467	325	402	415
	Max	400	510	540	**930**	640	760	770	730	680	630	760	470	560	930
	Min	160	130	130	190	150	370	300	95	350	340	200	150	170	95
BOD	Average	111	102	167	188	160	204	211	171	204	202	188	141	189	178
	Max	190	220	260	320	270	280	280	270	300	280	290	200	300	320
	Min	63	61	69	90	80	130	120	44	140	140	79	57	72	44
TSS	Average	130	112	181	190	192	235	214	199	242	245	219	153	182	198
	Max	220	250	290	350	320	350	270	330	480	410	540	270	280	540
	Min	68	48	110	80	120	180	150	28	180	160	100	50	120	28
COD/BOD Ratio	Average	2.50	2.33	2.20	2.37	2.41	2.54	2.40	2.38	2.41	2.34	2.54	2.36	2.20	2.37
	Max	5.88	3.28	2.95	3.06	3.20	3.23	4.53	3.58	2.96	3.15	3.38	3.00	3.00	4.53
	Min	1.68	1.62	1.54	1.90	1.88	2.09	1.59	1.78	1.95	1.50	1.83	1.88	1.69	1.50

Comment:

Influent strength depends on discharges of wastewaters from the upstream agglomeration within any 24 hour sampling period. The 24 hour composite influent sewage quality is strongly influenced by rainfall, high tides and other infiltration prior to and during the sample collection period. The average daily values for COD, cBOD and TSS in the table above are representative of a medium to weak strength urban wastewater. Despite the proportion of industrial effluent included in the total composition which should increase

the strength of the influent considerably, the average values monitored support the argument for large volumes of infiltration into the system, thereby weakening the resultant strength.

2.1.5 Influent Monitoring Results for COD, cBOD and TSS

Samples are collected from the composite sampler at 9.00 am each day, Monday to Friday.

Samples collected in the 24-hour period to 9.00 am Monday are dated /designated as Sunday, as they predominately comprise influent received at the plant on Sunday, and so on for remainder of week. No samples are tested on Saturday or Sunday, therefore the 5th sample for the week is collected from influent sample collected on Friday 9.00 am, i.e. Thursday.

Averages values for each parameter are calculated from the 5 No. samples taken each week. These average values are attributed in the table to the Friday and Saturday flows for the purposes of calculation of the Annual Mass Flow for the Wastewater Treatment Plant.

Total number of samples tested for each parameter: 23No. In December 2009, 260 No. in year 2010.

Table as follows:

- Measured Flows for Influent.
- COD, cBOD and TSS for Crude sewage sampled at intake, Results as tested by Laboratory on site.
- Calculated Daily Full Flow Weighted Sewage loads to Site (incl Storm flow)

Note: Days of week where testing carried out are highlighted.

DECEMBER 2009				Crude Sewage Loads			Full Flow Weighted Crude Sewage Loads to Site (inc storm)		
Date	Day	Average of 2 Mag Flow Meters to PST FIT102/3	Flume to Storm Tanks FIT104	COD	BOD	TSS	Flow Weighted COD	Flow Weighted BOD	Flow Weighted TSS
		m3	m3	mg/l	mg/l	mg/l	Kg	Kg	Kg
Date		Average of 2 Mag Flow Meters to PST FIT102/3	Flume to Storm Tanks FIT104	COD	BOD	TSS	Flow Weighted COD	Flow Weighted BOD	Flow Weighted TSS
01-Dec-09	Tue	152936	14090	250	120	150	41,757	20,043	25,054
02-Dec-09	Wed	158401	13200	220	63	96	37,752	10,811	16,474
03-Dec-09	Thu	158324	2840	180	86	82	29,009	13,860	13,215
04-Dec-09	Fri	160485	2330	254	94	116	41,355	15,305	18,821
05-Dec-09	Sat	166926	12640	254	94	116	45,610	16,879	20,758
06-Dec-09	Sun	153555	15440	210	87	110	35,489	14,703	18,589
07-Dec-09	Mon	152313	8510	220	81	76	35,381	13,027	12,223
08-Dec-09	Tue	138765	24500	220	79	78	35,918	12,898	12,735
09-Dec-09	Wed	145172	14600	170	77	110	27,161	12,302	17,575
10-Dec-09	Thu	138668	1010	320	88	130	44,697	12,292	18,158
11-Dec-09	Fri	136190	0	228	82	101	31,051	11,222	13,728
12-Dec-09	Sat	107417	1780	228	82	101	24,897	8,998	11,007
13-Dec-09	Sun	108521	0	240	140	150	26,045	15,193	16,278
14-Dec-09	Mon	118785	0	300	140	160	35,636	16,630	19,006
15-Dec-09	Tue	120730	0	360	150	170	43,463	18,109	20,524
16-Dec-09	Wed	112266	0	360	170	180	40,416	19,085	20,208
17-Dec-09	Thu	110157	0	340	160	160	37,453	17,625	17,625
18-Dec-09	Fri	104190	0	320	152	164	33,341	15,837	17,087
19-Dec-09	Sat	104939	0	320	152	164	33,580	15,951	17,210
20-Dec-09	Sun	95308	0	400	68	130	38,123	6,481	12,390
21-Dec-09	Mon	102892	0	290	150	150	29,839	15,434	15,434
22-Dec-09	Tue	101605	0	340	150	180	34,546	15,241	18,289
23-Dec-09	Wed	105991	90	320	190	220	33,946	20,155	23,338
24-Dec-09	Thu	83468	0	250	130	170	20,867	10,851	14,189
25-Dec-09	Fri	119284	1050	320	138	170	38,507	16,558	20,457
26-Dec-09	Sat	103338	0	320	138	170	33,068	14,219	17,567
27-Dec-09	Sun	99366	0	250	120	120	24,841	11,924	11,924
28-Dec-09	Mon	123247	540	230	92	110	28,471	11,388	13,617
29-Dec-09	Tue	150919	2360	180	83	88	27,590	12,722	13,489
30-Dec-09	Wed	170196	18550	180	65	100	33,974	12,268	18,875
31-Dec-09	Thu	165372	4140	160	69	68	27,122	11,696	11,527

2010				Crude Sewage Loads			Full Flow Weighted Crude Sewage Loads to Site (inc storm)		
Date	Day	Average of 2 Mag Flow Meters to PST FIT102/3	Flume to Storm Tanks FIT104	COD	BOD	TSS	Flow Weighted COD	Flow Weighted BOD	Flow Weighted TSS
		m3	m3	mg/l	mg/l	mg/l	Kg	Kg	Kg
01-Jan-10	Fri	146,530	-	200	86	97	29,306	12,572	14,243
02-Jan-10	Sat	153,399	-	200	86	97	30,680	13,162	14,910
03-Jan-10	Sun	145,890	-	160	66	80	23,342	9,629	11,671
04-Jan-10	Mon	137,356	-	140	67	76	19,230	9,203	10,439
05-Jan-10	Tue	136,012	-	210	92	110	28,563	12,513	14,961
06-Jan-10	Wed	111,937	40	330	140	250	36,952	15,677	27,994
07-Jan-10	Thu	114,312	-	510	160	210	58,299	18,290	24,006
08-Jan-10	Fri	106,129	-	270	105	145	28,655	11,143	15,410
09-Jan-10	Sat	104,274	-	270	105	145	28,154	10,949	15,141
10-Jan-10	Sun	117,601	-	230	75	120	27,048	8,820	14,112
11-Jan-10	Mon	119,684	90	260	120	140	31,141	14,373	16,768
12-Jan-10	Tue	171,721	14,970	200	61	120	37,338	11,388	22,403
13-Jan-10	Wed	159,172	10,080	170	83	74	28,773	14,048	12,525
14-Jan-10	Thu	158,513	5,270	250	98	98	40,946	16,051	16,051
15-Jan-10	Fri	177,434	33,470	222	87	110	46,821	18,433	23,284
16-Jan-10	Sat	178,548	32,480	222	87	110	46,848	18,444	23,297
17-Jan-10	Sun	154,181	9,850	170	72	56	27,885	11,810	9,186
18-Jan-10	Mon	157,222	8,320	200	100	100	33,108	16,554	16,554
19-Jan-10	Tue	169,595	40,080	200	72	76	41,935	15,097	15,935
20-Jan-10	Wed	159,904	9,500	190	83	58	32,187	14,061	9,825
21-Jan-10	Thu	184,392	52,780	130	62	48	30,832	14,705	11,384
22-Jan-10	Fri	170,590	16,530	178	78	68	33,307	14,558	12,649
23-Jan-10	Sat	154,970	3,010	178	78	68	28,120	12,291	10,679
24-Jan-10	Sun	138,965	1,740	160	72	74	22,513	10,131	10,412
25-Jan-10	Mon	134,975	-	210	130	92	28,345	17,547	12,418
26-Jan-10	Tue	123,724	-	240	100	110	29,694	12,372	13,610
27-Jan-10	Wed	121,744	-	280	160	160	34,088	19,479	19,479
28-Jan-10	Thu	121,525	-	360	220	180	43,749	26,736	21,875
29-Jan-10	Fri	111,251	-	250	136	123	27,813	15,175	13,706
30-Jan-10	Sat	114,613	40	250	136	123	28,663	15,639	14,125
31-Jan-10	Sun	114,028	-	230	100	130	26,226	11,403	14,824

Date	Day	Average of 2 Mag Flow Meters to PST FIT102/3	Flume to Storm Tanks FIT104	COD	BOD	TSS	Flow Weighted COD	Flow Weighted BOD	Flow Weighted TSS
		m3	m3	mg/l	mg/l	mg/l	Kg	Kg	Kg
01-Feb-10	Mon	123,538	-	290	130	170	35,826	16,060	21,001
02-Feb-10	Tue	125,564	650	490	190	180	61,845	23,981	22,719
03-Feb-10	Wed	112,567	2,360	330	120	190	37,926	13,791	21,836
04-Feb-10	Thu	157,381	1,210	130	69	160	20,617	10,943	25,375
05-Feb-10	Fri	139,594	-	294	122	166	41,041	17,003	23,173
06-Feb-10	Sat	110,267	210	294	122	166	32,480	13,456	18,339
07-Feb-10	Sun	109,361	-	260	88	110	28,434	9,624	12,030
08-Feb-10	Mon	104,733	-	270	140	130	28,278	14,663	13,615
09-Feb-10	Tue	101,255	-	380	150	150	38,477	15,188	15,188
10-Feb-10	Wed	100,105	-	340	170	240	34,036	17,018	24,025
11-Feb-10	Thu	98,396	-	400	260	180	39,358	25,583	17,711
12-Feb-10	Fri	90,028	-	330	162	162	29,709	14,549	14,585
13-Feb-10	Sat	100,205	990	330	162	162	33,394	16,353	16,394
14-Feb-10	Sun	96,070	-	280	150	190	26,899	14,410	18,253
15-Feb-10	Mon	102,442	-	390	170	180	39,952	17,415	18,440
16-Feb-10	Tue	100,302	-	370	180	180	37,112	18,054	18,054
17-Feb-10	Wed	104,552	1,450	400	160	200	42,401	16,960	21,200
18-Feb-10	Thu	100,421	-	360	170	180	36,152	17,072	18,076
19-Feb-10	Fri	89,472	-	360	166	186	32,210	14,852	16,642
20-Feb-10	Sat	94,502	-	360	166	186	34,021	15,687	17,577
21-Feb-10	Sun	89,628	-	350	150	160	31,370	13,444	14,340
22-Feb-10	Mon	90,795	-	460	200	200	41,765	18,159	18,159
23-Feb-10	Tue	109,863	1,090	540	240	290	59,915	26,629	32,176
24-Feb-10	Wed	101,721	-	380	200	200	38,654	20,344	20,344
25-Feb-10	Thu	91,083	-	440	240	160	40,076	21,860	14,573
26-Feb-10	Fri	94,438	-	434	206	202	40,986	19,454	19,076
27-Feb-10	Sat	101,078	-	434	206	202	43,868	20,822	20,418
28-Feb-10	Sun	87,781	-	360	160	160	31,601	14,045	14,045

Date	Day	Average of 2 Mag Flow Meters to PST FIT102/3	Flume to Storm Tanks FIT104	COD	BOD	TSS	Flow Weighted COD	Flow Weighted BOD	Flow Weighted TSS
		m3	m3	mg/l	mg/l	mg/l	Kg	Kg	Kg
01-Mar-10	Mon	107,665	420	420	160	160	45,395	17,294	17,294
02-Mar-10	Tue	97,270	940	390	160	150	38,302	15,714	14,732
03-Mar-10	Wed	113,609	1,470	400	150	200	46,031	17,262	23,016
04-Mar-10	Thu	103,353	-	300	150	80	31,006	15,503	8,268
05-Mar-10	Fri	85,070	-	374	156	150	31,816	13,271	12,761
06-Mar-10	Sat	80,318	-	374	156	150	30,039	12,530	12,048
07-Mar-10	Sun	73,269	-	450	200	180	32,971	14,654	13,188
08-Mar-10	Mon	77,523	-	530	270	210	41,087	20,931	16,280
09-Mar-10	Tue	76,437	-	930	320	220	71,086	24,460	16,816
10-Mar-10	Wed	73,241	-	560	270	260	41,015	19,775	19,043
11-Mar-10	Thu	77,698	-	580	230	240	45,065	17,870	18,647
12-Mar-10	Fri	73,598	-	610	258	222	44,894	18,988	16,339
13-Mar-10	Sat	74,410	-	610	258	222	45,390	19,198	16,519
14-Mar-10	Sun	74,831	-	520	210	190	38,912	15,714	14,218
15-Mar-10	Mon	77,038	-	550	290	260	42,371	22,341	20,030
16-Mar-10	Tue	91,888	-	600	270	350	55,133	24,810	32,161
17-Mar-10	Wed	83,001	-	390	190	230	32,370	15,770	19,090
18-Mar-10	Thu	115,738	2,340	490	180	230	57,858	21,254	27,158
19-Mar-10	Fri	130,997	-	510	228	252	66,808	29,867	33,011
20-Mar-10	Sat	97,107	-	510	228	252	49,525	22,140	24,471
21-Mar-10	Sun	116,576	140	290	100	140	33,848	11,672	16,340
22-Mar-10	Mon	100,539	-	370	170	180	37,199	17,092	18,097
23-Mar-10	Tue	129,395	100	550	180	180	71,222	23,309	23,309
24-Mar-10	Wed	124,033	250	360	150	250	44,742	18,642	31,071
25-Mar-10	Thu	113,853	-	270	120	130	30,740	13,662	14,801
26-Mar-10	Fri	104,697	-	368	144	176	38,528	15,076	18,427
27-Mar-10	Sat	97,498	-	368	144	176	35,879	14,040	17,160
28-Mar-10	Sun	121,349	4,860	550	230	200	69,415	29,028	25,242
29-Mar-10	Mon	170,804	13,430	190	91	120	35,004	16,765	22,108
30-Mar-10	Tue	140,442	110	220	90	110	30,921	12,650	15,461
31-Mar-10	Wed	121,653	770	270	140	110	33,054	17,139	13,466

Date	Day	Average of 2 Mag Flow Meters to PST FIT102/3	Flume to Storm Tanks FIT104	COD	BOD	TSS	Flow Weighted COD	Flow Weighted BOD	Flow Weighted TSS
		m3	m3	mg/l	mg/l	mg/l	Kg	Kg	Kg
01-Apr-10	Thu	126,295	1,610	290	130	150	37,092	16,628	19,186
02-Apr-10	Fri	132,512	2,580	304	136	138	41,068	18,399	18,643
03-Apr-10	Sat	114,488	10	304	136	138	34,807	15,595	15,801
04-Apr-10	Sun	106,299	-	150	80	140	15,945	8,504	14,882
05-Apr-10	Mon	134,570	18,510	240	91	130	36,739	13,930	19,900
06-Apr-10	Tue	145,927	13,440	250	97	160	39,842	15,459	25,499
07-Apr-10	Wed	109,174	-	290	140	120	31,660	15,284	13,101
08-Apr-10	Thu	104,454	-	280	120	140	29,247	12,534	14,624
09-Apr-10	Fri	101,412	-	242	106	138	24,542	10,709	13,995
10-Apr-10	Sat	100,428	-	242	106	138	24,303	10,605	13,859
11-Apr-10	Sun	89,118	-	310	140	180	27,627	12,477	16,041
12-Apr-10	Mon	99,637	-	390	130	190	38,858	12,953	18,931
13-Apr-10	Tue	99,241	-	430	180	250	42,673	17,863	24,810
14-Apr-10	Wed	103,648	-	370	180	320	38,350	18,657	33,167
15-Apr-10	Thu	101,639	-	380	190	250	38,623	19,311	25,410
16-Apr-10	Fri	93,382	-	376	164	238	35,112	15,315	22,225
17-Apr-10	Sat	89,365	-	376	164	238	33,601	14,656	21,269
18-Apr-10	Sun	89,407	-	350	150	180	31,292	13,411	16,093
19-Apr-10	Mon	86,861	-	430	200	210	37,350	17,372	18,241
20-Apr-10	Tue	84,178	-	450	160	220	37,880	13,468	18,519
21-Apr-10	Wed	81,705	-	510	270	230	41,669	22,060	18,792
22-Apr-10	Thu	80,039	-	500	200	230	40,020	16,008	18,409
23-Apr-10	Fri	80,502	-	448	196	214	36,065	15,778	17,227
24-Apr-10	Sat	93,796	-	448	196	214	42,020	18,384	20,072
25-Apr-10	Sun	85,405	-	390	180	140	33,308	15,373	11,957
26-Apr-10	Mon	84,613	-	480	180	180	40,614	15,230	15,230
27-Apr-10	Tue	88,627	-	640	200	180	56,721	17,725	15,953
28-Apr-10	Wed	93,294	-	490	160	200	45,714	14,927	18,659
29-Apr-10	Thu	92,002	-	450	190	240	41,401	17,480	22,080
30-Apr-10	Fri	98,560	460	490	182	188	48,520	18,022	18,616

Date	Day	Average of 2 Mag Flow Meters to PST FIT102/3	Flume to Storm Tanks FIT104	COD	BOD	TSS	Flow Weighted COD	Flow Weighted BOD	Flow Weighted TSS
		m3	m3	mg/l	mg/l	mg/l	Kg	Kg	Kg
01-May-10	Sat	93,404	-	490	182	188	45,768	16,999	17,560
02-May-10	Sun	78,535	-	420	130	220	32,984	10,209	17,278
03-May-10	Mon	71,673	-	390	150	180	27,952	10,751	12,901
04-May-10	Tue	72,978	-	540	220	260	39,408	16,055	18,974
05-May-10	Wed	72,050	-	610	280	350	43,950	20,174	25,217
06-May-10	Thu	71,892	-	620	210	270	44,573	15,097	19,411
07-May-10	Fri	74,619	-	516	198	256	38,503	14,774	19,102
08-May-10	Sat	70,593	-	516	198	256	36,426	13,977	18,072
09-May-10	Sun	68,657	-	450	200	210	30,895	13,731	14,418
10-May-10	Mon	75,465	-	760	240	250	57,353	18,111	18,866
11-May-10	Tue	74,987	-	540	250	260	40,493	18,747	19,497
12-May-10	Wed	80,831	-	550	220	230	44,457	17,783	18,591
13-May-10	Thu	75,760	-	490	220	200	37,122	16,667	15,152
14-May-10	Fri	79,914	-	558	226	230	44,592	18,060	18,380
15-May-10	Sat	73,642	-	558	226	230	41,092	16,643	16,938
16-May-10	Sun	69,988	180	460	160	210	32,277	11,227	14,735
17-May-10	Mon	79,920	-	460	220	280	36,763	17,582	22,377
18-May-10	Tue	86,899	-	510	240	270	44,318	20,856	23,463
19-May-10	Wed	75,341	-	560	220	240	42,191	16,575	18,082
20-May-10	Thu	71,095	-	610	250	290	43,368	17,774	20,617
21-May-10	Fri	69,736	-	520	218	258	36,262	15,202	17,992
22-May-10	Sat	68,779	-	520	218	258	35,765	14,994	17,745
23-May-10	Sun	67,640	-	440	170	220	29,761	11,499	14,881
24-May-10	Mon	76,762	-	540	180	230	41,451	13,817	17,655
25-May-10	Tue	75,564	-	550	250	230	41,560	18,891	17,380
26-May-10	Wed	78,475	-	460	200	200	36,098	15,695	15,695
27-May-10	Thu	83,630	-	420	200	190	35,124	16,726	15,890
28-May-10	Fri	95,945	-	482	200	214	46,245	19,189	20,532
29-May-10	Sat	88,353	-	482	200	214	42,586	17,671	18,907
30-May-10	Sun	72,768	-	450	140	180	32,745	10,187	13,098
31-May-10	Mon	105,182	-	370	140	200	38,917	14,725	21,036

Date	Day	Average of 2 Mag Flow Meters to PST FIT102/3	Flume to Storm Tanks FIT104	COD	BOD	TSS	Flow Weighted COD	Flow Weighted BOD	Flow Weighted TSS
		m3	m3	mg/l	mg/l	mg/l	Kg	Kg	Kg
01-Jun-10	Tue	76,870	-	620	210	200	47,659	16,143	15,374
02-Jun-10	Wed	75,083	-	440	190	240	33,036	14,266	18,020
03-Jun-10	Thu	76,017	-	350	220	270	26,606	16,724	20,525
04-Jun-10	Fri	70,544	-	446	180	218	31,463	12,698	15,379
05-Jun-10	Sat	68,710	-	446	180	218	30,644	12,368	14,979
06-Jun-10	Sun	72,124	-	470	230	210	33,898	16,589	15,146
07-Jun-10	Mon	106,105	730	480	150	240	51,281	16,025	25,640
08-Jun-10	Tue	120,015	1,970	300	120	190	36,595	14,638	23,177
09-Jun-10	Wed	94,440	220	420	210	200	39,757	19,878	18,932
10-Jun-10	Thu	77,373	-	770	170	180	59,577	13,153	13,927
11-Jun-10	Fri	81,735	-	488	176	204	39,886	14,385	16,674
12-Jun-10	Sat	75,230	-	488	176	204	36,712	13,240	15,347
13-Jun-10	Sun	79,943	-	380	140	150	30,378	11,192	11,991
14-Jun-10	Mon	76,373	-	470	200	180	35,895	15,275	13,747
15-Jun-10	Tue	77,397	-	490	230	210	37,924	17,801	16,253
16-Jun-10	Wed	76,545	-	510	230	220	39,038	17,605	16,840
17-Jun-10	Thu	76,247	-	470	250	210	35,836	19,062	16,012
18-Jun-10	Fri	72,048	-	464	210	194	33,430	15,130	13,977
19-Jun-10	Sat	67,652	-	464	210	194	31,391	14,207	13,124
20-Jun-10	Sun	67,069	-	520	200	190	34,876	13,414	12,743
21-Jun-10	Mon	69,891	-	520	270	260	36,343	18,870	18,172
22-Jun-10	Tue	69,836	-	600	280	260	41,901	19,554	18,157
23-Jun-10	Wed	75,363	-	540	250	240	40,696	18,841	18,087
24-Jun-10	Thu	65,348	-	530	280	230	34,634	18,297	15,030
25-Jun-10	Fri	78,922	-	542	256	236	42,775	20,204	18,625
26-Jun-10	Sat	84,376	-	542	256	236	45,732	21,600	19,913
27-Jun-10	Sun	54,487	-	380	130	170	20,705	7,083	9,263
28-Jun-10	Mon	77,122	-	550	240	230	42,417	18,509	17,738
29-Jun-10	Tue	74,167	-	490	240	210	36,342	17,800	15,575
30-Jun-10	Wed	99,609	-	490	210	210	48,808	20,918	20,918

Date	Day	Average of 2 Mag Flow Meters to PST FIT102/3	Flume to Storm Tanks FIT104	COD	BOD	TSS	Flow Weighted COD	Flow Weighted BOD	Flow Weighted TSS
		m3	m3	mg/l	mg/l	mg/l	Kg	Kg	Kg
01-Jul-10	Thu	103,654	30	730	240	320	75,689	24,884	33,179
02-Jul-10	Fri	75,829	-	528	212	228	40,038	16,076	17,289
03-Jul-10	Sat	73,054	-	528	212	228	38,573	15,487	16,656
04-Jul-10	Sun	64,439	-	440	240	200	28,353	15,465	12,888
05-Jul-10	Mon	66,141	-	510	200	240	33,732	13,228	15,874
06-Jul-10	Tue	66,821	-	520	270	240	34,747	18,042	16,037
07-Jul-10	Wed	69,733	70	480	190	290	33,505	13,263	20,243
08-Jul-10	Thu	90,581	-	530	220	330	48,008	19,928	29,892
09-Jul-10	Fri	117,579	-	496	224	260	58,319	26,338	30,570
10-Jul-10	Sat	145,759	4,130	496	224	260	74,345	33,575	38,971
11-Jul-10	Sun	86,015	-	290	140	170	24,944	12,042	14,623
12-Jul-10	Mon	92,378	-	350	170	140	32,332	15,704	12,933
13-Jul-10	Tue	109,471	800	430	190	210	47,416	20,951	23,157
14-Jul-10	Wed	112,708	6,460	400	150	200	47,667	17,875	23,834
15-Jul-10	Thu	120,789	12,410	430	120	210	57,275	15,984	27,972
16-Jul-10	Fri	96,221	-	380	154	186	36,564	14,818	17,897
17-Jul-10	Sat	111,939	4,630	380	154	186	44,296	17,952	21,682
18-Jul-10	Sun	136,246	15,610	210	77	170	31,890	11,693	25,815
19-Jul-10	Mon	131,902	11,730	95	44	28	13,645	6,320	4,022
20-Jul-10	Tue	103,677	-	290	130	160	30,066	13,478	16,588
21-Jul-10	Wed	99,217	10	270	130	180	26,791	12,899	17,861
22-Jul-10	Thu	81,320	-	320	170	170	26,022	13,824	13,824
23-Jul-10	Fri	85,909	-	237	110	142	20,360	9,467	12,165
24-Jul-10	Sat	82,245	-	237	110	142	19,492	9,063	11,646
25-Jul-10	Sun	73,712	-	310	120	150	22,851	8,845	11,057
26-Jul-10	Mon	82,203	-	410	230	190	33,703	18,907	15,619
27-Jul-10	Tue	86,135	-	400	180	180	34,454	15,504	15,504
28-Jul-10	Wed	84,482	-	560	210	240	47,310	17,741	20,276
29-Jul-10	Thu	81,861	-	430	160	170	35,200	13,098	13,916
30-Jul-10	Fri	79,950	-	422	180	186	33,739	14,391	14,871
31-Jul-10	Sat	75,059	-	422	180	186	31,675	13,511	13,961

Date	Day	Average of 2 Mag Flow Meters to PST FIT102/3	Flume to Storm Tanks FIT104	COD	BOD	TSS	Flow Weighted COD	Flow Weighted BOD	Flow Weighted TSS
		m3	m3	mg/l	mg/l	mg/l	Kg	Kg	Kg
01-Aug-10	Sun	72,232	-	350	160	250	25,281	11,557	18,058
02-Aug-10	Mon	69,956	-	390	140	180	27,283	9,794	12,592
03-Aug-10	Tue	66,738	-	540	220	290	36,039	14,682	19,354
04-Aug-10	Wed	69,500	-	530	210	230	36,835	14,595	15,985
05-Aug-10	Thu	69,362	-	490	230	300	33,987	15,953	20,809
06-Aug-10	Fri	70,424	-	460	192	250	32,395	13,521	17,606
07-Aug-10	Sat	67,621	-	460	192	250	31,106	12,983	16,905
08-Aug-10	Sun	69,165	-	390	200	180	26,974	13,833	12,450
09-Aug-10	Mon	83,063	-	420	180	190	34,886	14,951	15,782
10-Aug-10	Tue	82,363	-	410	140	180	33,769	11,531	14,825
11-Aug-10	Wed	81,654	600	420	170	210	34,546	13,983	17,273
12-Aug-10	Thu	80,549	-	490	210	240	39,469	16,915	19,332
13-Aug-10	Fri	82,490	-	426	180	200	35,141	14,848	16,498
14-Aug-10	Sat	74,611	-	426	180	200	31,784	13,430	14,922
15-Aug-10	Sun	70,264	280	470	180	280	33,155	12,698	19,752
16-Aug-10	Mon	70,769	-	430	170	180	30,430	12,031	12,738
17-Aug-10	Tue	69,767	-	530	240	280	36,977	16,744	19,535
18-Aug-10	Wed	70,094	-	500	220	220	35,047	15,421	15,421
19-Aug-10	Thu	86,699	-	630	300	290	54,620	26,010	25,143
20-Aug-10	Fri	75,750	-	512	222	250	38,784	16,817	18,938
21-Aug-10	Sat	73,336	-	512	222	250	37,548	16,280	18,334
22-Aug-10	Sun	73,301	-	610	250	480	44,713	18,325	35,184
23-Aug-10	Mon	74,912	-	500	230	200	37,456	17,230	14,982
24-Aug-10	Tue	69,758	-	490	220	180	34,181	15,347	12,556
25-Aug-10	Wed	79,136	-	470	220	190	37,194	17,410	15,036
26-Aug-10	Thu	77,571	-	480	230	180	37,234	17,841	13,963
27-Aug-10	Fri	74,587	-	510	230	246	38,039	17,155	18,348
28-Aug-10	Sat	68,812	-	510	230	246	35,094	15,827	16,928
29-Aug-10	Sun	66,081	-	420	150	280	27,754	9,912	18,503
30-Aug-10	Mon	71,286	-	520	190	230	37,069	13,544	16,396
31-Aug-10	Tue	70,209	-	680	230	320	47,742	16,148	22,467

Date	Day	Average of 2 Mag Flow Meters to PST FIT102/3	Flume to Storm Tanks FIT104	COD	BOD	TSS	Flow Weighted COD	Flow Weighted BOD	Flow Weighted TSS
		m3	m3	mg/l	mg/l	mg/l	Kg	Kg	Kg
01-Sep-10	Wed	68,146	-	550	210	300	37,480	14,311	20,444
02-Sep-10	Thu	63,839	-	560	220	410	35,750	14,045	26,174
03-Sep-10	Fri	67,576	-	546	200	308	36,896	13,515	20,813
04-Sep-10	Sat	66,497	-	546	200	308	36,307	13,299	20,481
05-Sep-10	Sun	94,414	-	380	150	360	35,877	14,162	33,989
06-Sep-10	Mon	112,203	410	390	140	240	43,919	15,766	27,027
07-Sep-10	Tue	105,021	260	400	170	220	42,112	17,898	23,162
08-Sep-10	Wed	95,370	-	430	170	200	41,009	16,213	19,074
09-Sep-10	Thu	105,512	-	350	160	220	36,929	16,882	23,213
10-Sep-10	Fri	113,598	-	390	158	248	44,303	17,948	28,172
11-Sep-10	Sat	87,817	-	390	158	248	34,249	13,875	21,779
12-Sep-10	Sun	77,807	-	360	170	160	28,011	13,227	12,449
13-Sep-10	Mon	80,551	-	420	280	270	33,831	22,554	21,749
14-Sep-10	Tue	74,172	-	610	220	240	45,245	16,318	17,801
15-Sep-10	Wed	68,239	-	530	270	240	36,167	18,425	16,377
16-Sep-10	Thu	68,815	-	550	220	230	37,848	15,139	15,827
17-Sep-10	Fri	69,661	-	494	232	228	34,413	16,161	15,883
18-Sep-10	Sat	65,786	-	494	232	228	32,498	15,262	14,999
19-Sep-10	Sun	67,385	-	630	200	240	42,453	13,477	16,172
20-Sep-10	Mon	75,101	-	390	210	390	29,289	15,771	29,289
21-Sep-10	Tue	91,727	830	570	220	250	52,757	20,363	23,139
22-Sep-10	Wed	79,600	-	450	220	200	35,820	17,512	15,920
23-Sep-10	Thu	80,890	-	460	190	180	37,209	15,369	14,560
24-Sep-10	Fri	76,350	-	500	208	252	38,175	15,881	19,240
25-Sep-10	Sat	75,030	-	500	208	252	37,515	15,606	18,908
26-Sep-10	Sun	71,533	-	340	180	180	24,321	12,876	12,876
27-Sep-10	Mon	82,584	-	490	230	210	40,466	18,994	17,343
28-Sep-10	Tue	88,650	-	510	230	220	45,212	20,390	19,503
29-Sep-10	Wed	75,555	-	460	190	200	34,755	14,355	15,111
30-Sep-10	Thu	82,952	-	460	200	220	38,158	16,590	18,249

Date	Day	Average of 2 Mag Flow Meters to PST FIT102/3	Flume to Storm Tanks FIT104	COD	BOD	TSS	Flow Weighted COD	Flow Weighted BOD	Flow Weighted TSS
		m3	m3	mg/l	mg/l	mg/l	Kg	Kg	Kg
01-Oct-10	Fri	82,717	-	452	206	206	37,388	17,040	17,040
02-Oct-10	Sat	77,602	-	452	206	206	35,076	15,986	15,986
03-Oct-10	Sun	79,907	-	520	170	240	41,551	13,584	19,178
04-Oct-10	Mon	93,564	-	440	160	190	41,168	14,970	17,777
05-Oct-10	Tue	97,280	-	420	160	180	40,858	15,565	17,510
06-Oct-10	Wed	98,807	-	440	130	170	43,475	12,845	16,797
07-Oct-10	Thu	115,543	-	390	150	220	45,062	17,331	25,419
08-Oct-10	Fri	115,266	-	442	154	200	50,948	17,751	23,053
09-Oct-10	Sat	111,596	-	442	154	200	49,325	17,186	22,319
10-Oct-10	Sun	90,719	-	350	140	150	31,752	12,701	13,608
11-Oct-10	Mon	88,913	-	430	180	180	38,232	16,004	16,004
12-Oct-10	Tue	84,986	-	420	230	180	35,694	19,547	15,297
13-Oct-10	Wed	77,950	-	480	190	210	37,416	14,811	16,370
14-Oct-10	Thu	60,790	-	500	250	170	30,395	15,198	10,334
15-Oct-10	Fri	69,932	-	436	198	178	30,490	13,847	12,448
16-Oct-10	Sat	66,925	-	436	198	178	29,179	13,251	11,913
17-Oct-10	Sun	63,542	-	520	280	210	33,042	17,792	13,344
18-Oct-10	Mon	70,927	-	550	260	200	39,010	18,441	14,185
19-Oct-10	Tue	72,188	-	630	220	260	45,478	15,881	18,769
20-Oct-10	Wed	74,286	-	630	290	260	46,800	21,543	19,314
21-Oct-10	Thu	78,972	-	470	190	220	37,117	15,005	17,374
22-Oct-10	Fri	96,051	120	560	248	230	53,855	23,850	22,119
23-Oct-10	Sat	81,591	-	560	248	230	45,691	20,235	18,766
24-Oct-10	Sun	73,172	-	460	170	160	33,659	12,439	11,707
25-Oct-10	Mon	90,600	-	440	150	230	39,864	13,590	20,838
26-Oct-10	Tue	81,909	-	350	170	290	28,668	13,924	23,753
27-Oct-10	Wed	96,696	200	760	230	540	73,641	22,286	52,324
28-Oct-10	Thu	115,218	510	410	150	240	47,448	17,359	27,775
29-Oct-10	Fri	129,481	4,610	484	174	292	64,900	23,332	39,155
30-Oct-10	Sat	137,327	1,060	484	174	292	66,979	24,079	40,409
31-Oct-10	Sun	139,451	8,840	200	79	100	29,658	11,715	14,829

Date	Day	Average of 2 Mag Flow Meters to PST FIT102/3	Flume to Storm Tanks FIT104	COD	BOD	TSS	Flow Weighted COD	Flow Weighted BOD	Flow Weighted TSS
		m3	m3	mg/l	mg/l	mg/l	Kg	Kg	Kg
01-Nov-10	Mon	109,429	-	320	160	160	35,017	17,509	17,509
02-Nov-10	Tue	99,088	-	350	140	150	34,681	13,872	14,863
03-Nov-10	Wed	99,414	-	340	180	140	33,801	17,894	13,918
04-Nov-10	Thu	98,786	-	420	170	180	41,490	16,794	17,781
05-Nov-10	Fri	116,572	3,110	326	146	146	39,016	17,450	17,474
06-Nov-10	Sat	98,219	-	326	146	146	32,019	14,320	14,340
07-Nov-10	Sun	115,030	2,530	280	120	150	32,917	14,107	17,634
08-Nov-10	Mon	144,688	1,500	230	82	120	33,623	11,987	17,543
09-Nov-10	Tue	121,323	-	250	120	120	30,331	14,559	14,559
10-Nov-10	Wed	129,290	-	270	110	150	34,908	14,222	19,393
11-Nov-10	Thu	111,244	-	330	170	170	36,710	18,911	18,911
12-Nov-10	Fri	110,186	-	272	120	142	29,970	13,266	15,646
13-Nov-10	Sat	110,685	-	272	120	142	30,106	13,326	15,717
14-Nov-10	Sun	91,539	-	320	130	140	29,292	11,900	12,815
15-Nov-10	Mon	88,525	-	390	200	200	34,525	17,705	17,705
16-Nov-10	Tue	154,566	9,430	300	100	150	49,199	16,400	24,599
17-Nov-10	Wed	147,271	670	200	90	76	29,588	13,315	11,244
18-Nov-10	Thu	124,622	-	300	120	140	37,387	14,955	17,447
19-Nov-10	Fri	127,149	-	302	128	141	38,399	16,275	17,953
20-Nov-10	Sat	122,297	-	302	128	141	36,934	15,654	17,268
21-Nov-10	Sun	105,109	-	290	130	120	30,482	13,664	12,613
22-Nov-10	Mon	115,129	-	150	57	50	17,269	6,562	5,756
23-Nov-10	Tue	112,076	-	320	170	130	35,864	19,053	14,570
24-Nov-10	Wed	105,588	-	410	180	170	43,291	19,006	17,950
25-Nov-10	Thu	91,354	-	360	120	120	32,887	10,962	10,962
26-Nov-10	Fri	107,064	-	306	131	118	32,761	14,068	12,633
27-Nov-10	Sat	78,194	-	306	131	118	23,927	10,275	9,227
28-Nov-10	Sun	83,365	-	390	200	230	32,512	16,673	19,174
29-Nov-10	Mon	89,043	-	470	160	240	41,850	14,247	21,370
30-Nov-10	Tue	90,997	-	470	190	270	42,768	17,289	24,569

Date	Day	Average of 2 Mag Flow Meters to PST FIT102/3	Flume to Storm Tanks FIT104	COD	BOD	TSS	Flow Weighted COD	Flow Weighted BOD	Flow Weighted TSS
		m3	m3	mg/l	mg/l	mg/l	Kg	Kg	Kg
01-Dec-10	Wed	86,676	-	340	170	190	29,470	14,735	16,468
02-Dec-10	Thu	87,750	-	510	250	210	44,753	21,938	18,428
03-Dec-10	Fri	97,180	-	436	194	228	42,370	18,853	22,157
04-Dec-10	Sat	94,463	-	436	194	228	41,186	18,326	21,538
05-Dec-10	Sun	106,397	-	330	140	180	35,111	14,896	19,151
06-Dec-10	Mon	103,004	-	420	140	150	43,262	14,421	15,451
07-Dec-10	Tue	95,485	-	490	180	140	46,788	17,187	13,368
08-Dec-10	Wed	89,604	-	390	160	170	34,946	14,337	15,233
09-Dec-10	Thu	88,510	-	450	250	200	39,830	22,128	17,702
10-Dec-10	Fri	88,834	-	416	174	168	36,955	15,457	14,924
11-Dec-10	Sat	83,212	-	416	174	168	34,616	14,479	13,980
12-Dec-10	Sun	82,928	-	380	180	170	31,513	14,927	14,098
13-Dec-10	Mon	80,356	-	440	260	210	35,357	20,893	16,875
14-Dec-10	Tue	78,299	-	520	270	230	40,715	21,141	18,009
15-Dec-10	Wed	75,478	-	550	300	240	41,513	22,643	18,115
16-Dec-10	Thu	80,219	-	560	300	280	44,923	24,066	22,461
17-Dec-10	Fri	82,686	-	490	262	226	40,516	21,664	18,687
18-Dec-10	Sat	85,599	-	490	262	226	41,944	22,427	19,345
19-Dec-10	Sun	84,597	-	360	180	150	30,455	15,227	12,690
20-Dec-10	Mon	95,526	-	430	160	180	41,076	15,284	17,195
21-Dec-10	Tue	94,067	-	360	190	150	33,864	17,873	14,110
22-Dec-10	Wed	93,819	-	420	170	170	39,404	15,949	15,949
23-Dec-10	Thu	88,438	1,550	510	240	230	45,894	21,597	20,697
24-Dec-10	Fri	93,199	-	416	188	176	38,771	17,521	16,403
25-Dec-10	Sat	90,786	-	416	188	176	37,767	17,068	15,978
26-Dec-10	Sun	139,935	17,460	380	160	210	59,810	25,183	33,053
27-Dec-10	Mon	162,659	41,300	170	72	130	34,673	14,685	26,515
28-Dec-10	Tue	127,701	2,260	230	96	120	29,891	12,476	15,595
29-Dec-10	Wed	136,369	150	270	130	130	36,860	17,747	17,747
30-Dec-10	Thu	109,273	50	340	160	170	37,170	17,492	18,585
31-Dec-10	Fri	106,917	-	278	124	152	29,723	13,258	16,251
Annual Totals		**34,873,631**	**464,360**				**13,789,469**	**5,889,101**	**6,615,498**

2.2 Mass loading measurement

Calculated from Data on Previous Tables: The Current Plant Loading is as follows;

				Full Flow Weighted Crude Sewage Loads to Site (inc storm)		
Period	Date	Average of 2 Mag Flow Meters to PST FIT102/3	Flume to Storm Tanks FIT104	Flow Weighted COD	Flow Weighted BOD	Flow Weighted TSS
		m3	m3	Kg	Kg	Kg
	Totals for Month	3,969,719	137,670	1,050,904	439,707	517,369
December 2009	Average Daily Inflows	128,055	4,441			
	Average Daily Value	132,496		33,900	14,184	16,689
	Annual Totals	34,873,631	464,360	13,789,469	5,889,101	6,615,498
Year 2010	Average Daily Inflows	95,544	1,272			
	Average Daily Value	96,816		37,779	16,135	18,125
	Design Loads Carrigrennan			49,938	24,792	23,320
	Design P.E. Carrigrennan				413,200	
	2010 Calculated P.E	(based on 1 P.E. to 60g BOD/day)			268,909	

2.3 Discharges from the Agglomeration, COD, SS & BOD

2.3.1 Limits for Compliance with Discharge Licence D 0033-01

	COD (mg/L)	Suspended Solids (mg/L)	BOD (mg/L)
ELV	**125**	**35**	**25**
No sample to be greater than	**250**	**87.5**	**50**
Number of Samples required by Licence	26	26	26
Number of Samples Taken 2010	260	260	260
Maximum No. Of Samples Which may Exceed ELV	19	19	19

2.3.2 Limits for Compliance with UWWTD

	COD (mg/L)	Suspended Solids (mg/L)	BOD (mg/L)
ELV	**125**	**35**	**25**
% Reductions	**75%**	**90%**	**70%**
UWWTD Compliance	**<125 or 75%**	**<35 or 90%**	**<25 or 70%**

2.3.3 Summary of Test Results and List of Non-Compliances

2.3.4 Final Effluent Summary COD, SS & cBOD

Final Effluent	COD	Suspended Solids	BOD	COD	Suspended Solids	BOD	UWWTD Compliance		
Collected Period	(mg/L)	(mg/L)	(mg/L)	% Reductions			COD	SS	BOD
ELV	125	35	25	75	90	70	<125 or 75%	<35 or 90%	<25 or 70%
Annual Mean 2010	88.1	16.4	13.1	78%	90%	92%			
Non-Compliances							7	5	0
01/03/2010	130	18	23	69%	89%	86%	1	0	0
10/03/2010	120	41	34	79%	84%	87%	0	1	0
17/03/2010	110	52	26	72%	77%	86%	0	1	0
29/04/2010	130	13	19.0	71%	95%	90%	1	0	0
12/09/2010	130	13	11.0	64%	92%	94%	1	0	0
27/09/2010	150	17	12.0	69%	92%	95%	1	0	0
05/12/2010	130	22	18.0	61%	88%	87%	1	0	0
15/12/2010	110	41	34.0	80%	83%	89%	0	1	0
16/12/2010	120	46	40	79%	84%	87%	0	1	0
20/12/2010	200	84	32	53%	53%	80%	1	1	0
21/12/2010	130	31	26	64%	79%	86%	1	0	0

Comment: The Number of Non Compliances is within the limit of number which may exceed the Emission Limit Value (ELV) in accordance with the Discharge Licence.

2.3.5 Final Effluent Quality Values COD, SS & cBOD

Month of December 2009

Final Effluent Collected Period	COD (mg/L)	Suspended Solids (mg/L)	BOD (mg/L)	COD % Reductions	Suspended Solids % Reductions	BOD % Reductions	UWWTD Compliance		
Date	125	35	25	75	90	70	COD <125 or 75%	SS <35 or 90%	BOD <25 or 70%
01/12/2009	38	9	7.8	83%	91%	88%	0	0	0
02/12/2009	29	4	5.9	84%	95%	93%	0	0	0
03/12/2009	33	8	6.9	84%	93%	92%	0	0	0
06/12/2009	30	9	4.9	86%	88%	94%	0	0	0
07/12/2009	23	6	4.3	90%	92%	95%	0	0	0
08/12/2009	31	7	5.2	82%	94%	93%	0	0	0
09/12/2009	29	6	6.0	91%	95%	93%	0	0	0
10/12/2009	52	11	8.8	78%	93%	94%	0	0	0
13/12/2009	43	13	10	86%	92%	93%	0	0	0
14/12/2009	95	46	23	74%	73%	85%	0	1	0
15/12/2009	52	15	8.1	86%	92%	95%	0	0	0
16/12/2009	58	12	10	83%	93%	94%	0	0	0
17/12/2009	64	15	10	84%	88%	85%	0	0	0
20/12/2009	61	12	13	79%	92%	91%	0	0	0
21/12/2009	58	9	11	83%	95%	93%	0	0	0
22/12/2009	74	15	14	77%	93%	93%	0	0	0
23/12/2009	24	12	14	90%	93%	89%	0	0	0
24/12/2009	23	22	12	91%	82%	90%	0	0	0
27/12/2009	78	27	8.3	66%	75%	91%	0	0	0
28/12/2009	46	24	11	74%	73%	87%	0	0	0
29/12/2009	49	16	11	73%	84%	83%	0	0	0
30/12/2009	49	23	14.0	86%	87%	91%	0	0	0

There were no non-compliances in December 2009

Final Effluent	COD	Suspended Solids	BOD	COD	Suspended Solids	BOD	UWWTD Compliance		
Collected Period	(mg/L)	(mg/L)	(mg/L)	% Reductions			COD	SS	BOD
Date	125	35	25	75	90	70	<125 or 75%	<35 or 90%	<25 or 70%
01/01/2010	51	19	11.4	68%	72%	83%	0	0	0
03/01/2010	63	30	12	61%	63%	82%	0	0	0
04/01/2010	30	18	15.0	79%	76%	78%	0	0	0
05/01/2010	46	25	9.2	78%	77%	90%	0	0	0
06/01/2010	114	33	12.0	65%	87%	91%	0	0	0
07/01/2010	99	35	15.0	81%	83%	91%	0	0	0
10/01/2010	59	30	13.0	74%	75%	83%	0	0	0
12/01/2010	50	22	15	75%	82%	75%	0	0	0
13/01/2010	38	14	11	78%	81%	87%	0	0	0
14/01/2010	50	19	11	80%	81%	89%	0	0	0
17/01/2010	36	15	7.7	79%	73%	89%	0	0	0
18/01/2010	70	9	8.5	65%	91%	92%	0	0	0
19/01/2010	49	22	12.0	76%	71%	83%	0	0	0
20/01/2010	45	13	9	76%	78%	90%	0	0	0
21/01/2010	30	16	9.1	77%	67%	85%	0	0	0
24/01/2010	27	14	7.7	83%	81%	89%	0	0	0
25/01/2010	38	12	8	82%	87%	94%	0	0	0
26/01/2010	42	18	8.4	83%	84%	92%	0	0	0
27/01/2010	47	15	11	83%	91%	93%	0	0	0
28/01/2010	55	15	10	85%	92%	95%	0	0	0
31/01/2010	67	10	8.3	71%	92%	92%	0	0	0
01/02/2010	78	21	8.2	73%	88%	94%	0	0	0
02/02/2010	77	9	13.0	84%	95%	93%	0	0	0
03/02/2010	72	14	10.0	78%	93%	92%	0	0	0
04/02/2010	59	20	10	55%	88%	86%	0	0	0
07/02/2010	52	15	11	80%	86%	88%	0	0	0
08/02/2010	55	10	10	80%	92%	93%	0	0	0
09/02/2010	54	14	11	86%	91%	93%	0	0	0
10/02/2010	69	17	15	80%	93%	91%	0	0	0
11/02/2010	83	20	20	79%	89%	92%	0	0	0
14/02/2010	70	16	24	75%	92%	84%	0	0	0
15/02/2010	85	21	14	78%	88%	92%	0	0	0

Final Effluent	COD	Suspended Solids	BOD	COD	Suspended Solids	BOD	UWWTD Compliance		
Collected Period	(mg/L)	(mg/L)	(mg/L)	% Reductions			COD	SS	BOD
Date	125	35	25	75	90	70	<125 or 75%	<35 or 90%	<25 or 70%
16/02/2010	100	17	20	73%	91%	89%	0	0	0
17/02/2010	110	23	18	73%	89%	89%	0	0	0
18/02/2010	110	12	16	69%	93%	91%	0	0	0
21/02/2010	86	14	17	75%	91%	89%	0	0	0
22/02/2010	86	13	15	81%	94%	93%	0	0	0
23/02/2010	92	23	19	83%	92%	92%	0	0	0
24/02/2010	80	14	18	79%	93%	91%	0	0	0
25/02/2010	81	13	19	82%	92%	92%	0	0	0
28/02/2010	120	24	29	67%	85%	82%	0	0	0
01/03/2010	130	18	23	69%	89%	86%	1	0	0
02/03/2010	110	16	24	72%	89%	85%	0	0	0
03/03/2010	110	16	20	73%	92%	87%	0	0	0
04/03/2010	120	13	19	60%	84%	87%	0	0	0
07/03/2010	100	23	30	78%	87%	85%	0	0	0
08/03/2010	93	35	27	82%	83%	90%	0	0	0
09/03/2010	97	29	35	90%	87%	89%	0	0	0
10/03/2010	120	41	34	79%	84%	87%	0	1	0
11/03/2010	110	31	40	81%	87%	83%	0	0	0
14/03/2010	110	25	25	79%	87%	88%	0	0	0
15/03/2010	120	16	18	78%	94%	94%	0	0	0
16/03/2010	120	20	21	80%	94%	92%	0	0	0
17/03/2010	110	52	26	72%	77%	86%	0	1	0
18/03/2010	87	35	15	82%	85%	92%	0	0	0
21/03/2010	98	22	16.0	66%	84%	84%	0	0	0
22/03/2010	83	27	17	78%	85%	90%	0	0	0
23/03/2010	89	21	20	84%	88%	89%	0	0	0
24/03/2010	76	15	16	79%	94%	89%	0	0	0
25/03/2010	84	24	20	69%	82%	83%	0	0	0
28/03/2010	78	33	16	86%	84%	93%	0	0	0
29/03/2010	86	30	17	55%	75%	81%	0	0	0
30/03/2010	72	34	19	67%	69%	79%	0	0	0
31/03/2010	74	17	16	73%	85%	89%	0	0	0

Final Effluent	COD	Suspended Solids	BOD	COD	Suspended Solids	BOD	UWWTD Compliance		
Collected Period	(mg/L)	(mg/L)	(mg/L)	% Reductions			COD	SS	BOD
Date	125	35	25	75	90	70	<125 or 75%	<35 or 90%	<25 or 70%
01/04/2010	78	14	15	73%	91%	88%	0	0	0
04/04/2010	68	21	11	55%	85%	86%	0	0	0
05/04/2010	52	25	13	78%	81%	86%	0	0	0
06/04/2010	49	17	11	80%	89%	89%	0	0	0
07/04/2010	55	17	14	81%	86%	90%	0	0	0
08/04/2010	110	20	13	61%	86%	89%	0	0	0
11/04/2010	62	20	14	80%	89%	90%	0	0	0
12/04/2010	62	22	12	84%	88%	91%	0	0	0
13/04/2010	76	13	10.0	82%	95%	94%	0	0	0
14/04/2010	74	17	15.0	80%	95%	92%	0	0	0
15/04/2010	73	12	13.0	81%	95%	93%	0	0	0
18/04/2010	87	27	12.0	75%	85%	92%	0	0	0
19/04/2010	94	26	12.0	78%	88%	94%	0	0	0
20/04/2010	89	12	12.0	80%	95%	93%	0	0	0
21/04/2010	96	15	14.0	81%	93%	95%	0	0	0
22/04/2010	77	16	15	85%	93%	93%	0	0	0
25/04/2010	81	29	16	79%	79%	91%	0	0	0
26/04/2010	91	13	12.0	81%	93%	93%	0	0	0
27/04/2010	86	13	15.0	87%	93%	93%	0	0	0
28/04/2010	120	14	15.0	76%	93%	91%	0	0	0
29/04/2010	130	13	19.0	71%	95%	90%	1	0	0
02/05/2010	120	20	17.0	71%	91%	87%	0	0	0
03/05/2010	99	10	12.0	75%	94%	92%	0	0	0
04/05/2010	94	16	8.2	83%	94%	96%	0	0	0
05/05/2010	89	15	15.0	85%	96%	95%	0	0	0
06/05/2010	96	22	16	85%	92%	92%	0	0	0
09/05/2010	92	23	18	80%	89%	91%	0	0	0
10/05/2010	97	16	15	87%	94%	94%	0	0	0
11/05/2010	92	15	17.0	83%	94%	93%	0	0	0
12/05/2010	110	16	13.0	80%	93%	94%	0	0	0
13/05/2010	110	15	15	78%	93%	93%	0	0	0
16/05/2010	120	18	13.0	74%	91%	92%	0	0	0

Final Effluent	COD	Suspended Solids	BOD	COD	Suspended Solids	BOD	UWWTD Compliance		
Collected Period	(mg/L)	(mg/L)	(mg/L)	% Reductions			COD	SS	BOD
Date	125	35	25	75	90	70	<125 or 75%	<35 or 90%	<25 or 70%
17/05/2010	120	25	24.0	74%	91%	89%	0	0	0
18/05/2010	120	18	14.0	76%	93%	94%	0	0	0
19/05/2010	110	14	11	80%	94%	95%	0	0	0
20/05/2010	99	13	15.0	84%	96%	94%	0	0	0
23/05/2010	90	13	13.0	80%	94%	92%	0	0	0
24/05/2010	85	11	9.5	84%	95%	95%	0	0	0
25/05/2010	98	7	12.0	82%	97%	95%	0	0	0
26/05/2010	110	11	12.0	76%	95%	94%	0	0	0
27/05/2010	110	13	12.0	74%	93%	94%	0	0	0
30/05/2010	110	10	13.0	76%	94%	91%	0	0	0
31/05/2010	100	7	12.0	73%	97%	91%	0	0	0
01/06/2010	68	7	8.0	89%	97%	96%	0	0	0
02/06/2010	88	6	13.0	80%	98%	93%	0	0	0
03/06/2010	96	30	12.0	73%	89%	95%	0	0	0
06/06/2010	95	18	16.0	80%	91%	93%	0	0	0
07/06/2010	82	22	15.0	83%	91%	90%	0	0	0
08/06/2010	73	10	8.7	76%	95%	93%	0	0	0
09/06/2010	55	11	8	87%	95%	96%	0	0	0
10/06/2010	81	7	10	89%	96%	94%	0	0	0
13/06/2010	110	19	11	71%	87%	92%	0	0	0
14/06/2010	110	10	12	77%	94%	94%	0	0	0
15/06/2010	110	10	13	78%	95%	94%	0	0	0
16/06/2010	95	14	15.0	81%	94%	93%	0	0	0
17/06/2010	100	22	11.0	79%	90%	96%	0	0	0
20/06/2010	120	17	18	77%	91%	91%	0	0	0
21/06/2010	120	14	12.0	77%	95%	96%	0	0	0
22/06/2010	90	11	13.0	85%	96%	95%	0	0	0
23/06/2010	120	11	10.0	78%	95%	96%	0	0	0
24/06/2010	86	10	12.0	84%	96%	96%	0	0	0
27/06/2010	94	14	6.7	75%	92%	95%	0	0	0
28/06/2010	98	7	9.2	82%	97%	96%	0	0	0
29/06/2010	100	11	11.0	80%	95%	95%	0	0	0

Final Effluent	COD	Suspended Solids	BOD	COD	Suspended Solids	BOD	UWWTD Compliance		
Collected Period	(mg/L)	(mg/L)	(mg/L)	% Reductions			COD	SS	BOD
Date	125	35	25	75	90	70	<125 or 75%	<35 or 90%	<25 or 70%
30/06/2010	98	11	11	80%	95%	95%	0	0	0
01/07/2010	71	12	7	90%	96%	97%	0	0	0
04/07/2010	94	6	6.4	79%	97%	97%	0	0	0
05/07/2010	82	9	6.5	84%	96%	97%	0	0	0
06/07/2010	84	6	7.0	84%	98%	97%	0	0	0
07/07/2010	94	28	14.0	80%	90%	93%	0	0	0
08/07/2010	79	20	11.0	85%	94%	95%	0	0	0
11/07/2010	99	11	7.2	66%	94%	95%	0	0	0
12/07/2010	65	6	7.5	81%	96%	96%	0	0	0
13/07/2010	58	9	7.9	87%	96%	96%	0	0	0
14/07/2010	71	5	5.1	82%	98%	97%	0	0	0
15/07/2010	69	7	5.2	84%	97%	96%	0	0	0
18/07/2010	64	8	8.7	70%	95%	89%	0	0	0
19/07/2010	39	12	5.3	59%	57%	88%	0	0	0
20/07/2010	41	27	6.4	86%	83%	95%	0	0	0
21/07/2010	54	10	8.6	80%	94%	93%	0	0	0
22/07/2010	53	6	6.9	83%	96%	96%	0	0	0
25/07/2010	77	15	11.0	75%	90%	91%	0	0	0
26/07/2010	88	8	11.0	79%	96%	95%	0	0	0
27/07/2010	78	11	11.0	81%	94%	94%	0	0	0
28/07/2010	86	6	9.5	85%	98%	95%	0	0	0
29/07/2010	85	10	8.9	80%	94%	94%	0	0	0
01/08/2010	89	8	8.9	75%	97%	94%	0	0	0
02/08/2010	73	6	7	81%	97%	95%	0	0	0
03/08/2010	110	10	10.0	80%	97%	95%	0	0	0
04/08/2010	82	9	7.4	85%	96%	96%	0	0	0
05/08/2010	80	9	12.0	84%	97%	95%	0	0	0
08/08/2010	63	4	7.8	84%	98%	96%	0	0	0
09/08/2010	92	7	7.9	78%	96%	96%	0	0	0
10/08/2010	97	13	9.1	76%	93%	94%	0	0	0
11/08/2010	82	10	9.5	80%	95%	94%	0	0	0
12/08/2010	120	12	10.0	76%	95%	95%	0	0	0

Final Effluent	COD	Suspended Solids	BOD	COD	Suspended Solids	BOD	UWWTD Compliance		
Collected Period	(mg/L)	(mg/L)	(mg/L)	% Reductions			COD	SS	BOD
Date	125	35	25	75	90	70	<125 or 75%	<35 or 90%	<25 or 70%
15/08/2010	120	8	14.0	74%	97%	92%	0	0	0
16/08/2010	96	7	12.0	78%	96%	93%	0	0	0
17/08/2010	89	4	8.5	83%	99%	96%	0	0	0
18/08/2010	86	13	7.9	83%	94%	96%	0	0	0
19/08/2010	91	10	13.0	86%	97%	96%	0	0	0
22/08/2010	94	11	11.0	85%	98%	96%	0	0	0
23/08/2010	94	8	9.4	81%	96%	96%	0	0	0
24/08/2010	89	8	12.0	82%	96%	95%	0	0	0
25/08/2010	110	15	9.9	77%	92%	96%	0	0	0
26/08/2010	110	10	9.8	77%	94%	96%	0	0	0
29/08/2010	120	15	7.5	71%	95%	95%	0	0	0
30/08/2010	110	5	10.0	79%	98%	95%	0	0	0
31/08/2010	100	4	11.0	85%	99%	95%	0	0	0
01/09/2010	94	10	12.0	83%	97%	94%	0	0	0
02/09/2010	86	10	11.0	85%	98%	95%	0	0	0
05/09/2010	86	14	9.8	77%	96%	93%	0	0	0
06/09/2010	62	4	4.8	84%	98%	97%	0	0	0
07/09/2010	79	13	6.8	80%	94%	96%	0	0	0
08/09/2010	110	8	9.9	74%	96%	94%	0	0	0
09/09/2010	75	9	9.8	79%	96%	94%	0	0	0
12/09/2010	130	13	11.0	64%	92%	94%	1	0	0
13/09/2010	120	10	9.9	71%	96%	96%	0	0	0
14/09/2010	120	11	16.0	80%	95%	93%	0	0	0
15/09/2010	100	23	10.0	81%	90%	96%	0	0	0
16/09/2010	100	8	7.4	82%	97%	97%	0	0	0
19/09/2010	87	7	6.4	86%	97%	97%	0	0	0
20/09/2010	97	7	10	75%	98%	95%	0	0	0
21/09/2010	120	11	6.8	79%	96%	97%	0	0	0
22/09/2010	96	6	9.0	79%	97%	96%	0	0	0
23/09/2010	97	8	8.1	79%	96%	96%	0	0	0
26/09/2010	120	11	11.0	65%	94%	94%	0	0	0
27/09/2010	150	17	12.0	69%	92%	95%	1	0	0

Final Effluent	COD	Suspended Solids	BOD	COD	Suspended Solids	BOD	UWWTD Compliance		
Collected Period	(mg/L)	(mg/L)	(mg/L)	% Reductions			COD	SS	BOD
Date	125	35	25	75	90	70	<125 or 75%	<35 or 90%	<25 or 70%
28/09/2010	110	19	12.0	78%	91%	95%	0	0	0
29/09/2010	95	15	13.0	79%	93%	93%	0	0	0
30/09/2010	120	13	15.0	74%	94%	93%	0	0	0
03/10/2010	90	15	13.0	83%	94%	92%	0	0	0
04/10/2010	88	10	9	80%	95%	95%	0	0	0
05/10/2010	77	9	8	82%	95%	95%	0	0	0
06/10/2010	99	10	9	78%	94%	93%	0	0	0
07/10/2010	87	17	13.0	78%	92%	91%	0	0	0
10/10/2010	100	7	11.0	71%	95%	92%	0	0	0
11/10/2010	92	14	10.0	79%	92%	94%	0	0	0
12/10/2010	88	6	10.0	79%	97%	96%	0	0	0
13/10/2010	91	9	11.0	81%	96%	94%	0	0	0
14/10/2010	100	8	10.0	80%	95%	96%	0	0	0
17/10/2010	79	12	10.0	85%	94%	96%	0	0	0
18/10/2010	94	7	9.0	83%	97%	97%	0	0	0
19/10/2010	88	13	8	86%	95%	96%	0	0	0
20/10/2010	95	7	10.0	85%	97%	97%	0	0	0
21/10/2010	100	15	9.7	79%	93%	95%	0	0	0
24/10/2010	110	13	10.0	76%	92%	94%	0	0	0
25/10/2010	110	30	8.7	75%	87%	94%	0	0	0
26/10/2010	85	15	9.5	76%	95%	94%	0	0	0
27/10/2010	120	33	8.5	84%	94%	96%	0	0	0
28/10/2010	100	14	12.0	76%	94%	92%	0	0	0
31/10/2010	51	27	9.5	75%	73%	88%	0	0	0
01/11/2010	57	11	9.4	82%	93%	94%	0	0	0
02/11/2010	63	14	8.3	82%	91%	94%	0	0	0
03/11/2010	55	7	9.0	84%	95%	95%	0	0	0
04/11/2010	89	7	9.4	79%	96%	94%	0	0	0
07/11/2010	86	10	8.8	69%	93%	93%	0	0	0
08/11/2010	57	17	7.6	75%	86%	91%	0	0	0
09/11/2010	54	9	7.6	78%	93%	94%	0	0	0
10/11/2010	51	13	9.8	81%	91%	91%	0	0	0

Final Effluent	COD	Suspended Solids	BOD	COD	Suspended Solids	BOD	UWWTD Compliance		
Collected Period	(mg/L)	(mg/L)	(mg/L)	% Reductions			COD	SS	BOD
Date	125	35	25	75	90	70	<125 or 75%	<35 or 90%	<25 or 70%
11/11/2010	72	13	9.4	78%	92%	94%	0	0	0
14/11/2010	62	14	8.4	81%	90%	94%	0	0	0
15/11/2010	72	10	7.9	82%	95%	96%	0	0	0
16/11/2010	78	27	12.0	74%	82%	88%	0	0	0
17/11/2010	55	10	9.6	73%	87%	89%	0	0	0
18/11/2010	42	15	8.2	86%	89%	93%	0	0	0
21/11/2010	48	10	7.7	83%	92%	94%	0	0	0
22/11/2010	61	13	8.0	59%	74%	86%	0	0	0
23/11/2010	83	10	9.1	74%	92%	95%	0	0	0
24/11/2010	80	10	8.0	80%	94%	96%	0	0	0
25/11/2010	96	8	10.0	73%	93%	92%	0	0	0
28/11/2010	78	14	9.8	80%	94%	95%	0	0	0
29/11/2010	78	28	7.9	83%	88%	95%	0	0	0
30/11/2010	74	33	13.0	84%	88%	93%	0	0	0
01/12/2010	95	17	19.0	72%	91%	89%	0	0	0
02/12/2010	120	35	20.0	76%	83%	92%	0	0	0
05/12/2010	130	22	18.0	61%	88%	87%	1	0	0
06/12/2010	120	26	16.0	71%	83%	89%	0	0	0
07/12/2010	110	32	23.0	78%	77%	87%	0	0	0
08/12/2010	87	23	21.0	78%	86%	87%	0	0	0
09/12/2010	120	20	23.0	73%	90%	91%	0	0	0
12/12/2010	100	22	15.0	74%	87%	92%	0	0	0
13/12/2010	89	22	17	80%	90%	93%	0	0	0
14/12/2010	100	35	27	81%	85%	90%	0	0	0
15/12/2010	110	41	34.0	80%	83%	89%	0	1	0
16/12/2010	120	46	40	79%	84%	87%	0	1	0
19/12/2010	120	30	28	67%	80%	84%	0	0	0
20/12/2010	200	84	32	53%	53%	80%	1	1	0
21/12/2010	130	31	26	64%	79%	86%	1	0	0
22/12/2010	120	25	22	71%	85%	87%	0	0	0
23/12/2010	120	25	20	76%	89%	92%	0	0	0
26/12/2010	110	30	20	71%	86%	88%	0	0	0

Final Effluent	COD	Suspended Solids	BOD	COD	Suspended Solids	BOD	UWWTD Compliance		
Collected Period	(mg/L)	(mg/L)	(mg/L)	% Reductions			COD	SS	BOD
Date	125	35	25	75	90	70	<125 or 75%	<35 or 90%	<25 or 70%
27/12/2010	59	20	14.0	65%	85%	81%	0	0	0
28/12/2010	55	22	11	76%	82%	89%	0	0	0
29/12/2010	73	22	17	73%	83%	87%	0	0	0
30/12/2010	120	33	21.0	65%	81%	87%	0	0	0
							UWWTD Compliance		
							COD	SS	BOD
Averages 2010	**88.1**	**16.4**	**13.1**	**78%**	**90%**	**92%**	**7**	**5**	**0**

2.3.6 Storm & Treated Discharges / Combined Discharge, Summary of COD, SS & cBOD

December 2009

There were no non-compliances for the combined effluent discharge in December 2009. All combined discharges were within the ELV limits

Year 2010

When Treated effluent and Storm Discharge flows and loads are combined and equivalent effluent quality compared, this results in one additional discharge above the ELV limits in 3 counts. This combined with the previous values for Final Effluent alone is still under the limit of number which may exceed ELV in accordance with the Discharge Licence.

	Storm Discharge to Outfall				Treated Discharge to Outfall				Combined Discharge to Outfall			
Date	Storm Tank Overflow FIT300	Storm COD	Storm SS	Storm cBOD	Flume to Outfall FIT1200	Treated Outfall COD	Treated Outfall SS	Treated Outfall cBOD	Combined Storm & Treated Outfall Flow	Combined Storm & Treated COD	Combined Storm & Treated SS	Combined Storm & Treated cBOD
	m3	mg/l	mg/l	mg/l	m3	mg/l	mg/l	mg/l		mg/l	mg/l	mg/l
	ELV	125	35	25		125	35	25		125	35	25
26-Dec-10	13,090	400	130	92	125,460	110	30	20	138,550	137	39	27

In the following tables the values which are over the ELVs are highlighted for the days in which Stormwater was discharged to outfall

2.3.7 Storm & Treated Discharges / Combined Discharge, Flow & Quality Values, COD, SS & cBOD

	Storm Discharge to Outfall				Treated Discharge to Outfall				Combined Discharge to Outfall			
Date	Storm Tank Overflow FIT300	Storm COD	Storm SS	Storm cBOD	Flume to Outfall FIT1200	Treated Outfall COD	Treated Outfall SS	Treated Outfall cBOD	Combined Storm & Treated Outfall Flow	Combined Storm & Treated COD	Combined Storm & Treated SS	Combined Storm & Treated cBOD
	m3	mg/l	mg/l	mg/l	m3	mg/l	mg/l	mg/l		mg/l	mg/l	mg/l
	ELV	125	35	25		125	35	25		125	35	25
01-Dec-09	29,850	150	71	30	145,800	38	9	7.8	175,650	57	20	12
02-Dec-09	35,040	120	49	35	146,470	29	4	5.9	181,510	47	13	12
03-Dec-09	20,310	100	43	22	154,330	33	8	6.9	174,640	41	12	9
04-Dec-09	13,650	100	43	22	161,480	33	8	6.9	175,130	38	11	8
05-Dec-09	32,050	100	43	22	159,630	33	8	6.9	191,680	44	14	9
06-Dec-09	31,780	120	46	37	147,530	30	9	4.9	179,310	46	16	11
07-Dec-09	23,330	140	72	36	153,440	23	6	4.3	176,770	38	15	8
08-Dec-09	43,190	150	65	40	118,480	31	7	5.2	161,670	63	22	14
09-Dec-09	30,250	150	76	44	144,250	29	6	6.0	174,500	50	18	13
10-Dec-09	7,420	170	83	59	145,910	52	11	8.8	153,330	58	14	11
12-Dec-09	2,340	170	83	59	122,370	52	11	8.8	124,710	54	12	10
24-Dec-09	120	170	83	59	88,750	23	22	12	88,870	23	22	12
29-Dec-09	4,670	97	35	36	150,960	49	16	11	155,630	50	17	12
30-Dec-09	41,380	97	40	38	159,090	49	23	14.0	200,470	59	27	19
31-Dec-09	29,750	65	23	29	151,640	49	23	14.0	181,390	52	23	16

	Storm Discharge to Outfall				Treated Discharge to Outfall				Combined Discharge to Outfall			
Date	**Storm Tank Overflow FIT300**	Storm COD	Storm SS	Storm cBOD	**Flume to Outfall FIT1200**	Treated Outfall COD	Treated Outfall SS	Treated Outfall cBOD	**Combined Storm & Treated Outfall Flow**	Combined Storm & Treated COD	Combined Storm & Treated SS	Combined Storm & Treated cBOD
	m3	**mg/l**	**mg/l**	**mg/l**	**m3**	**mg/l**	**mg/l**	**mg/l**		**mg/l**	**mg/l**	**mg/l**
	ELV	**125**	**35**	**25**		**125**	**35**	**25**		**125**	**35**	**25**
01-Jan-10	8,590	65	29	23	146,250	63	30	12	154,840	63	30	13
02-Jan-10	10,940	65	29	23	150,620	63	30	12	161,560	63	30	13
03-Jan-10	11,470	58	12	18	145,050	63	30	12	156,520	63	29	12
04-Jan-10	660	33	12	12	149,780	30	18	15	150,440	30	18	15
12-Jan-10	26,640	85	29	31	159,230	50	22	15	185,870	55	23	17
13-Jan-10	26,780	100	20	39	151,680	38	14	11	178,460	47	15	15
14-Jan-10	21,920	120	36	48	152,280	50	19	11	174,200	59	21	16
15-Jan-10	65,140	120	36	48	157,650	46	21	13	222,790	68	25	23
16-Jan-10	63,660	120	36	48	156,060	46	21	13	219,720	68	25	23
17-Jan-10	31,350	66	18	21	140,950	36	15	8	172,300	41	16	10
18-Jan-10	21,510	70	28	37	154,210	70	9	9	175,720	70	11	12
19-Jan-10	61,430	130	38	46	157,950	49	22	12	219,380	72	26	22
20-Jan-10	26,450	63	19	22	151,000	45	13	9	177,450	48	14	11
21-Jan-10	87,900	74	22	31	159,540	30	16	9	247,440	46	18	17
22-Jan-10	39,450	74	22	31	154,030	46	15	9	193,480	52	16	14
23-Jan-10	19,780	74	22	31	154,900	46	15	9	174,680	49	16	12
24-Jan-10	5,440	76	20	25	145,960	27	14	8	151,400	29	14	8
25-Jan-10	2,860	73	20	26	139,940	38	12	8	142,800	39	12	8
04-Feb-10	2,860	190	70	61	148,000	59	20	10	150,860	61	21	11
05-Feb-10	280	190	70	61	156,330	52	15	11	156,610	52	15	11
18-Mar-10	30	190	70	61	123,400	87	35	15	123,430	87	35	15
Note: Values over ELV highlighted												

	Storm Discharge to Outfall				Treated Discharge to Outfall				Combined Discharge to Outfall			
Date	Storm Tank Overflow FIT300	Storm COD	Storm SS	Storm cBOD	Flume to Outfall FIT1200	Treated Outfall COD	Treated Outfall SS	Treated Outfall cBOD	Combined Storm & Treated Outfall Flow	Combined Storm & Treated COD	Combined Storm & Treated SS	Combined Storm & Treated cBOD
	m3	mg/l	mg/l	mg/l	m3	mg/l	mg/l	mg/l		mg/l	mg/l	mg/l
	ELV	125	35	25		125	35	25		125	35	25
19-Mar-10	3,650	190	70	61	123,710	98	22	16	127,360	101	23	17
29-Mar-10	43,030	130	46	49	144,540	86	30	17	187,570	96	34	24
30-Mar-10	16,210	130	38	49	138,620	72	34	19	154,830	78	34	22
02-Apr-10	2,630	130	38	49	141,340	68	21	11	143,970	69	21	12
05-Apr-10	14,500	120	56	36	121,280	52	25	13	135,780	59	28	15
06-Apr-10	30,330	66	20	18	147,440	49	17	11	177,770	52	18	12
15-Jul-10	1,940	380	120	89	129,330	69	7	5	131,270	74	9	6
18-Jul-10	10,770	120	46	50	140,030	64	8	9	150,800	68	11	12
19-Jul-10	22,800	74	34	24	141,560	39	12	5	164,360	44	15	8
02-Nov-10	18,270	99	37	40	110,920	63	14	8	129,190	68	17	13
05-Nov-10	4,970	99	37	40	125,270	86	10	9	130,240	86	11	10
16-Nov-10	13,210	200	70	68	141,230	78	27	12	154,440	88	31	17
17-Nov-10	11,180	110	78	42	149,910	55	10	10	161,090	59	15	12
26-Dec-10	13,090	400	130	92	125,460	110	30	20	138,550	137	39	27
27-Dec-10	61,720	95	34	38	161,840	59	20	14	223,560	69	24	21
28-Dec-10	4,020	68	22	18	142,740	55	22	11	146,760	55	22	11

Note: Values over ELV highlighted

2.3.8 Discharges from the Agglomeration Total N, Total P

2.3.9 Limits for Compliance with Discharge Licence D 0033-01

2010	Total Nitrogen (mg/L)	Total Phosphorus (mg/L)	Total Ammonia (Ammonia Nitrogen-as N) (mg/L)	Total Oxidised Nitrogen (as N) (mg/L)	Orthophosphate (Soluble Reactive Phosphorus-as P) (mg/L)
ELV (annual Mean)	**10***	**2.5**			
Individual Result <120% ELV	**12***	**3.0**			
	8 out of 10 consecutive samples < ELV				
Number of Samples required by Licence	26	26	26	26	26
Number of Samples Taken	51	51	**26**	**26**	**26**
Maximum No. Of Samples Which may Exceed ELV	5	5			
	*effective 1/1/2011				

2.3.10 Limits for Compliance with UWWTD

Carrigrennan Waste Water Treatment plant was not designed for Nutrient Removal Treatment.

The discharge point from Carrigrennan Waste Water Treatment Plant, i.e. The Lee Estuary/Lough Mahon, was designated a sensitive area in July 2004 under the Urban Waste Water Treatment (Amendment) Regulations, 2004.

Sensitive Waters**	Total Nitrogen (mg/L)	Total Phosphorus (mg/L)
ELV (annual Mean)	**10.0**	**1.0**
Daily Average ELV	**20.0**	
% Reductions	**70% -80%**	**80%**
UWWTD Compliance	**<10 or 70% -80%**	**<1 or 80%**
** effective 15 July 2004		

2.3.11 Summary of Test Results and List of Non-Compliances

2.3.11.1 Discharge Licence: Partially Compliant

While the Annual mean for Total Phosphorous is within the Emission Limit Value for the Discharge Licence, 8 out of the 51 samples taken were outside the limit of 3.0mg/l for individual samples, and 8 out of 10 consecutive samples were not within the ELV for the first 6 months of 2010. No limits applied to Total Nitrogen for the 2009/ 2010 period

2.3.11.2 UWWTD: Non Compliant

One sample from 51 taken was at the limit of 1.0 mg/l for Total Phosphorous under The Urban Waste Water Treatment Directive Limits. The percentage reductions achieved averaged 36%, achieving a maximum of 72% reduction for Total Phosphorous.
10 samples for Total Nitrogen of the 51 taken were within the Daily Average Emission Limit Value of 20mg/l. No sample was equal to or under 10mg/l. The average reduction in Total Nitrogen was 18% for 2010, with the maximum achieved being 58%

2.3.12 Final Effluent Summary Total N, Total P, NH3-N, TON, Ortho P,

Date	Total Nitrogen (mg/L)	Total Phosphorus (mg/L)	Total Ammonia (Ammonia Nitrogen-as N) (mg/L)	Total Oxidised Nitrogen (as N) (mg/L)	Orthophosphate (Soluble Reactive Phosphorus-as P) (mg/L)
Annual Mean 2010	**24.5**	**2.4**	**18.5**	**5.0**	**2.2**
ELV (annual Mean)	**10***	**2.5**			
No of Samples	**51**	**51**	**26**	**26**	**26**

*Effective 1 Jan2011

2.3.13 Final Effluent Quality Values Total N, Total P, NH3-N, TON, Ortho P,

Note: Includes Influent Monitoring Results for Total N & Total P.

December 2009

	Mixed Crude Sewage		Final Effluent	
Date	Total Nitrogen (mg/L)	Total Phosphorus (mg/L)	Total Nitrogen (mg/L)	Total Phosphorus (mg/L)
07/12/2009	18	2.3	12	1.7
14/12/2009	21	3.0	19	3.3
21/12/2009	24	3.8	23	3.3
Average 2009	26.5	3.4	21.5	2.1

2010 Results

	Mixed Crude Sewage		Final Effluent				
Date	Total Nitrogen (mg/L)	Total Phosphorus (mg/L)	Total Nitrogen (mg/L)	Total Phosphorus (mg/L)	Total Ammonia (Ammonia Nitrogen-as N) (mg/L)	Total Oxidised Nitrogen (as N) (mg/L)	Orthophosphate (Soluble Reactive Phosphorus-as P) (mg/L)
05/01/2010	20.0	2.3	17.0	2.2			
12/01/2010		2.8		2.6			
14/01/2010	22.0		22.0				
19/01/2010		2.4		1.5			
21/01/2010	18.0		14.0				
26/01/2010	21.0	2.5	20.0	2.3			
02/02/2010	30.0	2.8	20.0	2.7			
09/02/2010		3.7		3.0			
11/02/2010	28.0		27.0				
16/02/2010	25.0	3.8	21.0	3.2			
23/02/2010	28.0	2.8	25.0	2.7			
02/03/2010	24.0	3.9	24.0	3.0			
09/03/2010	37.0	5.0	29.0	3.3			
16/03/2010	36.0	5.2	29.0	3.0			
24/03/2010	26.0	3.4	25.0	2.7			
09/04/2010	20.0	3.4	20.0	2.3			
13/04/2010		3.6		2.5			
14/04/2010	28.0		27.0				
20/04/2010	32.0	3.5	28.0	3.2			
27/04/2010	29.0	4.1	25.0	3.3			
05/05/2010	34.0	6.1	28.0	3.6			
12/05/2010	35.0	4.1	31.0	2.9			

	Mixed Crude Sewage		Final Effluent				
Date	Total Nitrogen (mg/L)	Total Phosphorus (mg/L)	Total Nitrogen (mg/L)	Total Phosphorus (mg/L)	Total Ammonia (Ammonia Nitrogen-as N) (mg/L)	Total Oxidised Nitrogen (as N) (mg/L)	Orthophosphate (Soluble Reactive Phosphorus-as P) (mg/L)
18/05/2010	34.0	5.5	34.0	1.9			
26/05/2010	40.0	4.8	28.0	3.4			
02/06/2010	29.0	4.3	20.0	1.8			
09/06/2010	22.0	3.1	21.0	1.9			
15/06/2010	31.0	2.5	26.0	2.4			
22/06/2010	35.0	4.8	28.0	2.7			
29/06/2010	35.0	5.8	25.0	3.0			
02/07/2010					11.70	4.30	0.83
06/07/2010	37.0	4.8	28.0	2.1			
09/07/2010					19.60	8.60	1.58
13/07/2010	31.0	3.8	20.0	1.5			
16/07/2010					9.50	4.00	1.08
21/07/2010	23.0	3.4	16.0	1.5			
23/07/2010					11.70	5.00	0.98
27/07/2010	29.0	4.3	24.0	1.8			
30/07/2010					15.70	4.90	1.17
04/08/2010	33.0	5.0	26.0	2.7			
06/08/2010					17.30	4.60	1.74
10/08/2010	23.0	4.1	24.0	2.2			
13/08/2010					14.20	4.60	1.45
17/08/2010	32.0	4.0	28.0	2.4			
20/08/2010					21.60	5.30	2.49
24/08/2010	31.0	4.2	24.0	1.7			
27/08/2010					20.00	5.30	1.90
01/09/2010	38.0	5.2	27.0	2.6			
03/09/2010					22.60	6.50	1.81
07/09/2010	26.0	4.3	20.0	1.2			
10/09/2010					14.90	5.70	1.93
15/09/2010	35.0	5.0	24.0	2.2			
17/09/2010					21.90	6.00	1.32

	Mixed Crude Sewage		Final Effluent				
Date	Total Nitrogen (mg/L)	Total Phosphorus (mg/L)	Total Nitrogen (mg/L)	Total Phosphorus (mg/L)	Total Ammonia (Ammonia Nitrogen-as N) (mg/L)	Total Oxidised Nitrogen (as N) (mg/L)	Orthophosphate (Soluble Reactive Phosphorus-as P) (mg/L)
24/09/2010	30.0	4.1	23.0	1.8	18.80	5.00	1.65
28/09/2010	35.0	4.6	28.0	3.2			
01/10/2010					20.30	5.10	2.30
05/10/2010	33.0	4.3	26.0	2.2			
08/10/2010					16.50	4.70	1.64
12/10/2010	30.0	3.8	24.0	2.0			
15/10/2010					23.10	5.60	1.86
19/10/2010	48.0	4.9	33.0	2.2			
22/10/2010					21.00	8.60	2.06
27/10/2010	34.0	3.8	27.0	2.2			
29/10/2010					16.30	4.60	2.08
02/11/2010	27.0	2.8	19.0	1.2			
05/11/2010					14.10	5.30	14.50
09/11/2010	19.0	2.3	17.0	1.0			
16/11/2010	31.0	4.0	26.0	2.3			
19/11/2010					9.20	4.80	0.87
23/11/2010	16.0	1.5	22.0	1.8			
26/11/2010					16.80	4.80	1.68
30/11/2010	41.0	2.4	28.0	1.8			
03/12/2010					21.60	8.00	2.16
07/12/2010	53.0	3.5	22.0	2.3			
10/12/2010					21.00	2.30	2.03
14/12/2010	51.0	4.6	30.0	2.7			
17/12/2010					51.30	2.70	2.12
20/12/2010					20.00	2.60	1.49
21/12/2010	37.0	3.4	30.0	3.7			
29/12/2010	18.0	2.0	17.0	1.2			
30/12/2010					11.50	1.30	1.36
Annual Mean 2010	**30.6**	**3.8**	**24.5**	**2.4**	**18.5**	**5.0**	**2.2**
ELV			**10**	**2.5**			
No of Samples	**51**	**51**	**51**	**51**	**26**	**26**	**26**

2.4 Ambient Monitoring Summary

2.4.1 Harbour Monitoring Summary

Monitoring is conditioned to be carried out at a frequency of 10 samples per year at locations designated C5 to C9 within the Harbour.

Monitoring was carried out at monthly intervals (12 times) at each location, and for each location a sample was taken at High and Low Tide, at Bottom, Middle and Top levels in the water. In all, 72 samples were taken at each of the 5 locations rather than 10 as indicated in the licence.

2.4.1.1 Compliance with Standards

Water Quality in Ireland 2007-2009 published by the EPA, indicates that the quality of the estuarine and coastal waters for Lough Mahon are Intermediate status which is an improvement from pre-Cork City Treatment times. Of the 9 locations in Cork Harbour, only North Channel Great Island is designated as Potentially Eutrophic.

2.4.2 River Monitoring Summary

Monitoring is conditioned to be carried out at a frequency of 10 samples per year at locations designated M1 to M15 along the various rivers.

Monitoring was carried out at two monthly intervals (6 times) at each location. This omission was identified in late 2011 and will result in 8 samples being submitted in 2011 with the full 10 samples being complied with for 2012.

2.4.2.1 Compliance with Standards

The overall status of these rivers is designated as Poor. Monitoring demonstrates increased levels in parameters at varying times which may be related to incidents or weather events related to Combined Sewer Overflows. The one area which is consistent however is at Leitrim Street on the Kiln River (M15). This is consistent with diffuse Secondary Discharges directly into the culvert from a number of houses. This is being dealt with under the network operations & maintenance programme.

2.4.3 Harbour Monitoring Test Results

Station No	Station Name	Sample Level	Tide	Date	pH	DO	BOD	Temp	Total Phosphate	mrp-phosphate	Nitrate	Nitrite	Ammonium
					pH unit	mg/l O2	mg/l	°C	µg/l P	µg/ P	µg/l NO3	µg/l NO2	µg/l NH4
C5	Haulbowline	Bottom	High	27/01/10	8.0	8.6	<2	7.3	31	24	2595	<16	22
C5	Haulbowline	Middle	High	27/01/10	8.0	8.7	<2	7.1	30	24	3034	<16	36
C5	Haulbowline	Top	High	27/01/10	7.9	9.7	<2	6.5	43	36	7019	30	122
C5	Haulbowline	Bottom	Low	27/01/10	8.0	8.4	<2	7.5	40	35	3215	16	117
C5	Haulbowline	Middle	Low	27/01/10	8.0	8.5	<2	7.4	44	37	4021	20	149
C5	Haulbowline	Top	Low	27/01/10	7.9	9.8	<2	6.0	47	41	7781	30	165
C5	Haulbowline	Bottom	High	09/02/10	8.0	6.8	<2	7.9	28	26	2006	<16	58
C5	Haulbowline	Middle	High	09/02/10	8.0	8.5	<2	7.9	33	30	3073	20	109
C5	Haulbowline	Top	High	09/02/10	8.0	n/a	<2	6.7	44	39	6585	43	208
C5	Haulbowline	Bottom	Low	09/02/10	7.9	8.4	<2	7.9	42	37	2675	20	174
C5	Haulbowline	Middle	Low	09/02/10	7.9	8.4	<2	7.9	44	34	3680	30	211
C5	Haulbowline	Top	Low	09/02/10	7.9	9.7	<2	6.2	46	40	8521	53	221
C5	Haulbowline	Bottom	High	22/03/10	8.1	7.1	<2	8.2	31	32	1453	39	71
C5	Haulbowline	Middle	High	22/03/10	8.1	7.2	<2	8.3	33	33	1643	46	91
C5	Haulbowline	Top	High	22/03/10	8.2	7.4	<2	8.6	37	35	1931	53	121
C5	Haulbowline	Bottom	Low	22/03/10	8.2	7.1	<2	8.4	42	25	2467	59	147
C5	Haulbowline	Middle	Low	22/03/10	8.2	7.2	<2	8.4	41	25	2569	59	183
C5	Haulbowline	Top	Low	22/03/10	8.2	7.4	<2	8.9	41	27	3410	72	171
C5	Haulbowline	Bottom	High	19/04/10	8.5	11.0	<2	10.6	12	<5	456	<5	<6
C5	Haulbowline	Middle	High	19/04/10	8.5	11.3	<2	10.7	13	<5	779	<5	13
C5	Haulbowline	Top	High	19/04/10	8.5	11.7	<2	10.9	16	<5	886	<5	8
C5	Haulbowline	Bottom	Low	19/04/10	8.5	11.3	<2	11.0	27	<5	1413	16	14
C5	Haulbowline	Middle	Low	19/04/10	8.5	11.8	<2	11.1	22	<5	1515	20	14
C5	Haulbowline	Top	Low	19/04/10	8.6	12.2	<2	11.3	23	<5	1922	23	9

Station No	Station Name	Sample Level	Tide	Date	pH	DO	BOD	Temp	Total Phosphate	mrp-phosphate	Nitrate	Nitrite	Ammonium
					pH unit	mg/l O2	mg/l	°C	µg/l P	µg/ P	µg/l NO3	µg/l NO2	µg/l NH4
C5	Haulbowline	Bottom	High	18/05/10	8.1	8.3	<2	11.5	26	8	416	<16	40
C5	Haulbowline	Middle	High	18/05/10	8.1	8.4	<2	12.0	49	9	540	<16	44
C5	Haulbowline	Top	High	18/05/10	8.1	8.6	<2	12.0	31	12	726	<16	73
C5	Haulbowline	Bottom	Low	18/05/10	8.1	8.3	<2	12.0	50	18	757	16	121
C5	Haulbowline	Middle	Low	18/05/10	8.1	8.4	<2	12.1	46	17	797	<16	113
C5	Haulbowline	Top	Low	18/05/10	8.1	8.5	<2	12.4	47	19	965	20	135
C5	Haulbowline	Bottom	High	22/06/10	8.2	8.7	<2	16.8	22	<5	<22	<16	<6
C5	Haulbowline	Middle	High	22/06/10	8.2	8.6	<2	17.0	21	<5	<22	<16	6
C5	Haulbowline	Top	High	22/06/10	8.2	8.5	<2	17.4	23	<5	<22	<16	<6
C5	Haulbowline	Bottom	Low	22/06/10	8.2	9.0	<2	17.1	35	<5	297	<16	26
C5	Haulbowline	Middle	Low	22/06/10	8.2	9.5	<2	17.6	42	<5	337	16	21
C5	Haulbowline	Top	Low	22/06/10	8.3	10.3	<2	18.2	45	<5	434	26	12
C5	Haulbowline	Bottom	High	21/07/10	8.0	6.6	<2	12.6	<9	8	376	<16	14
C5	Haulbowline	Middle	High	21/07/10	8.0	7.0	<2	13.8	<9	9	651	<16	19
C5	Haulbowline	Top	High	21/07/10	8.2	7.7	<2	16.4	14	11	1643	36	51
C5	Haulbowline	Bottom	Low	21/07/10	7.9	6.6	<2	12.5	26	12	695	<16	69
C5	Haulbowline	Middle	Low	21/07/10	7.9	6.7	<2	13.9	34	15	1169	23	96
C5	Haulbowline	Top	Low	21/07/10	8.0	7.5	<2	16.7	39	16	2817	53	108
C5	Haulbowline	Bottom	High	16/08/10	7.9	8.4	<2	14.6	21	10	168	<16	8
C5	Haulbowline	Middle	High	16/08/10	7.9	8.6	<2	14.9	24	10	235	<16	13
C5	Haulbowline	Top	High	16/08/10	8.0	8.6	<2	15.3	26	13	456	<16	30
C5	Haulbowline	Bottom	Low	16/08/10	7.9	8.3	<2	15.1	29	14	359	<16	35
C5	Haulbowline	Middle	Low	16/08/10	7.9	8.4	<2	15.3	29	14	359	<16	36
C5	Haulbowline	Top	Low	16/08/10	7.9	8.5	<2	15.4	27	13	390	<16	26

Station No	Station Name	Sample Level	Tide	Date	pH	DO	BOD	Temp	Total Phosphate	mrp-phosphate	Nitrate	Nitrite	Ammonium
					pH unit	mg/l O2	mg/l	°C	µg/l P	µg/ P	µg/l NO3	µg/l NO2	µg/l NH4
C5	Haulbowline	Bottom	High	13/09/10	7.9	7.3	<2	15.4	27	15	310	26	51
C5	Haulbowline	Middle	High	13/09/10	7.9	7.4	<2	15.6	29	17	372	26	68
C5	Haulbowline	Top	High	13/09/10	7.9	7.6	<2	15.9	30	17	376	26	81
C5	Haulbowline	Bottom	Low	13/09/10	7.9	7.4	<2	15.8	43	21	478	33	112
C5	Haulbowline	Middle	Low	13/09/10	7.9	7.7	<2	16.2	44	21	505	30	117
C5	Haulbowline	Top	Low	13/09/10	7.9	7.8	<2	16.3	43	21	509	33	113
C5	Haulbowline	Bottom	High	18/10/10	7.7	7.2	<2	13.6	23	20	518	23	64
C5	Haulbowline	Middle	High	18/10/10	7.7	7.3	<2	13.6	25	20	558	23	80
C5	Haulbowline	Top	High	18/10/10	7.7	7.4	<2	13.6	25	22	638	26	112
C5	Haulbowline	Bottom	Low	18/10/10	7.7	7.0	<2	13.7	31	27	748	36	202
C5	Haulbowline	Middle	Low	18/10/10	7.7	7.0	<2	13.7	39	32	868	36	246
C5	Haulbowline	Top	Low	18/10/10	7.7	7.3	<2	13.4	38	30	908	39	251
C5	Haulbowline	Bottom	High	03/11/10	7.8	7.7	<2	12.6	36	29	1041	49	135
C5	Haulbowline	Middle	High	03/11/10	7.8	7.7	<2	12.6	36	30	1160	56	154
C5	Haulbowline	Top	High	03/11/10	7.8	8.0	<2	12.5	45	38	1740	82	228
C5	Haulbowline	Bottom	Low	03/11/10	7.8	7.6	<2	12.6	40	34	1284	66	190
C5	Haulbowline	Middle	Low	03/11/10	7.8	7.7	<2	12.4	46	40	1670	79	243
C5	Haulbowline	Top	Low	03/11/10	7.8	8.0	<2	12.1	50	41	2458	95	253
C5	Haulbowline	Bottom	Low	06/12/10	7.5	7.9	<2	6.4	45	36	2542	30	179
C5	Haulbowline	Middle	Low	06/12/10	7.5	8.0	<2	5.8	46	38	3011	30	203
C5	Haulbowline	Top	Low	06/12/10	7.5	8.1	<2	5.4	45	38	3313	30	207
C5	Haulbowline	Bottom	High	13/12/10	7.6	8.4	<2	7.3	27	27	1399	<16	96
C5	Haulbowline	Middle	High	13/12/10	7.6	8.5	<2	7.0	35	31	1546	<16	131
C5	Haulbowline	Top	High	13/12/10	7.6	8.6	<2	6.9	26	29	1488	<16	109

Station No	Station Name	Sample Level	Tide	Date	pH	DO	BOD	Temp	Total Phosphate	mrp-phosphate	Nitrate	Nitrite	Ammonium
					pH unit	mg/l O2	mg/l	°C	µg/l P	µg/ P	µg/l NO3	µg/l NO2	µg/l NH4
C6	End L. Mahon	Bottom	High	27/01/10	8.0	8.3	<2	7.5	43	30	2586	<16	69
C6	End L. Mahon	Middle	High	27/01/10	8.0	8.4	<2	7.4	40	31	3388	<16	91
C6	End L. Mahon	Top	High	27/01/10	8.0	9.0	<2	6.9	44	36	5638	23	139
C6	End L. Mahon	Bottom	Low	27/01/10	7.9	8.4	<2	7.4	59	52	4340	26	291
C6	End L. Mahon	Middle	Low	27/01/10	7.9	8.4	<2	7.3	67	51	5186	30	274
C6	End L. Mahon	Top	Low	27/01/10	7.8	10.0	<2	5.7	50	40	9282	33	183
C6	End L. Mahon	Bottom	High	09/02/10	8.0	8.4	<2	7.9	38	29	2104	16	107
C6	End L. Mahon	Middle	High	09/02/10	8.0	8.4	<2	8.0	35	26	2502	16	57
C6	End L. Mahon	Top	High	09/02/10	8.0	9.5	<2	6.8	48	41	7949	49	215
C6	End L. Mahon	Bottom	Low	09/02/10	7.9	8.3	<2	8.0	85	76	3175	43	534
C6	End L. Mahon	Middle	Low	09/02/10	7.9	8.3	<2	7.8	93	81	4017	43	612
C6	End L. Mahon	Top	Low	09/02/10	7.9	9.5	<2	6.3	48	41	8215	53	238
C6	End L. Mahon	Bottom	High	22/03/10	8.1	7.2	<2	8.2	39	34	2188	46	148
C6	End L. Mahon	Middle	High	22/03/10	8.1	7.2	<2	8.2	43	38	2945	66	177
C6	End L. Mahon	Top	High	22/03/10	8.1	7.6	<2	8.6	51	39	4212	82	274
C6	End L. Mahon	Bottom	Low	22/03/10	8.2	7.0	<2	8.4	52	30	3366	79	219
C6	End L. Mahon	Middle	Low	22/03/10	8.2	7.3	<2	8.8	48	29	3667	79	210
C6	End L. Mahon	Top	Low	22/03/10	8.3	7.7	<2	9.1	51	28	3809	82	220
C6	End L. Mahon	Bottom	High	19/04/10	8.5	11.2	<2	10.9	21	<5	1275	<16	19
C6	End L. Mahon	Middle	High	19/04/10	8.5	11.5	<2	11.0	24	<5	1670	20	13
C6	End L. Mahon	Top	High	19/04/10	8.5	11.9	<2	11.0	28	<5	3220	30	<6
C6	End L. Mahon	Bottom	Low	19/04/10	8.5	12.7	<2	11.2	35	<5	2378	26	57
C6	End L. Mahon	Middle	Low	19/04/10	8.6	12.2	<2	11.6	24	<5	2405	26	37
C6	End L. Mahon	Top	Low	19/04/10	8.6	12.6	<2	11.7	37	<5	3189	33	12

Station No	Station Name	Sample Level	Tide	Date	pH	DO	BOD	Temp	Total Phosphate	mrp-phosphate	Nitrate	Nitrite	Ammonium
					pH unit	mg/l O2	mg/l	°C	µg/l P	µg/ P	µg/l NO3	µg/l NO2	µg/l NH4
C6	End L. Mahon	Bottom	High	18/05/10	8.0	8.3	<2	12.1	40	19	828	20	116
C6	End L. Mahon	Middle	High	18/05/10	8.1	8.4	<2	12.3	43	21	881	20	118
C6	End L. Mahon	Top	High	18/05/10	8.1	8.4	<2	12.4	41	19	957	23	134
C6	End L. Mahon	Bottom	Low	18/05/10	8.1	8.1	<2	12.7	93	53	1546	36	350
C6	End L. Mahon	Middle	Low	18/05/10	8.1	8.1	<2	12.9	75	34	1723	43	229
C6	End L. Mahon	Top	Low	18/05/10	8.1	8.3	<2	13.0	71	38	1763	39	244
C6	End L. Mahon	Bottom	High	22/06/10	8.2	0.1	<2	17.2	36	<5	266	<16	14
C6	End L. Mahon	Middle	High	22/06/10	8.2	6.5	<2	17.58	37	<5	301	<16	12
C6	End L. Mahon	Top	High	22/06/10	8.3	0.1	<2	17.8	34	<5	<22	<16	8
C6	End L. Mahon	Bottom	Low	22/06/10	8.2	9.1	<2	17.8	50	5	478	30	31
C6	End L. Mahon	Middle	Low	22/06/10	8.2	9.5	<2	18.1	56	5	585	33	21
C6	End L. Mahon	Top	Low	22/06/10	8.4	10.8	3	18.3	57	<5	779	43	13
C6	End L. Mahon	Bottom	High	21/07/10	8.0	6.6	<2	13.3	22	11	762	<16	46
C6	End L. Mahon	Middle	High	21/07/10	8.0	6.8	<2	13.7	20	12	961	20	51
C6	End L. Mahon	Top	High	21/07/10	8.2	7.8	<2	16.9	24	18	2941	49	86
C6	End L. Mahon	Bottom	Low	21/07/10	7.9	6.7	<2	14.1	47	24	1023	26	204
C6	End L. Mahon	Middle	Low	21/07/10	7.9	6.8	<2	15.0	57	33	1603	43	298
C6	End L. Mahon	Top	Low	21/07/10	8.0	6.8	<2	16.8	42	21	3857	62	138
C6	End L. Mahon	Bottom	High	16/08/10	7.9	8.2	<2	15.1	33	16	372	<16	31
C6	End L. Mahon	Middle	High	16/08/10	7.9	8.4	<2	15.2	33	17	474	<16	41
C6	End L. Mahon	Top	High	16/08/10	7.9	8.5	<2	15.8	31	19	624	20	64
C6	End L. Mahon	Bottom	Low	16/08/10	7.9	8.3	<2	15.8	41	22	753	26	75
C6	End L. Mahon	Middle	Low	16/08/10	8.0	8.7	<2	16.1	51	24	837	26	104
C6	End L. Mahon	Top	Low	16/08/10	8.0	9.7	2	16.5	48	16	1116	33	<6

Station No	Station Name	Sample Level	Tide	Date	pH	DO	BOD	Temp	Total Phosphate	mrp-phosphate	Nitrate	Nitrite	Ammonium
					pH unit	mg/l O2	mg/l	°C	µg/l P	µg/ P	µg/l NO3	µg/l NO2	µg/l NH4
C6	End L. Mahon	Bottom	High	13/09/10	7.9	7.4	<2	15.9	42	20	452	30	108
C6	End L. Mahon	Middle	High	13/09/10	7.9	7.5	<2	16.1	39	22	509	30	121
C6	End L. Mahon	Top	High	13/09/10	7.9	7.7	<2	16.2	45	23	571	33	143
C6	End L. Mahon	Bottom	Low	13/09/10	7.9	7.6	2	16.4	79	27	695	43	229
C6	End L. Mahon	Middle	Low	13/09/10	7.9	8.0	3	16.6	83	22	704	46	195
C6	End L. Mahon	Top	Low	13/09/10	8.0	8.1	3	16.6	80	20	766	43	197
C6	End L. Mahon	Bottom	High	18/10/10	7.7	7.0	<2	13.6	33	27	722	33	167
C6	End L. Mahon	Middle	High	18/10/10	7.7	7.1	<2	13.6	34	28	745	36	188
C6	End L. Mahon	Top	High	18/10/10	7.7	7.7	<2	13.5	33	28	810	36	201
C6	End L. Mahon	Bottom	Low	18/10/10	7.6	6.8	<2	13.7	45	35	983	46	324
C6	End L. Mahon	Middle	Low	18/10/10	7.6	6.9	<2	13.6	46	36	1014	62	316
C6	End L. Mahon	Top	Low	18/10/10	7.6	7.2	<2	13.3	50	37	1289	53	368
C6	End L. Mahon	Bottom	High	03/11/10	7.8	7.6	<2	12.4	44	32	1134	56	153
C6	End L. Mahon	Middle	High	03/11/10	7.8	7.7	<2	12.4	42	33	1306	62	176
C6	End L. Mahon	Top	High	03/11/10	7.8	7.9	<2	12.4	42	36	1608	72	213
C6	End L. Mahon	Bottom	Low	03/11/10	7.8	7.4	<2	12.4	52	45	1639	85	337
C6	End L. Mahon	Middle	Low	03/11/10	7.7	7.5	<2	12.3	51	44	2498	102	280
C6	End L. Mahon	Top	Low	03/11/10	7.7	8.1	<2	11.9	51	41	3605	125	234
C6	End L. Mahon	Bottom	Low	06/12/10	7.5	8.0	<2	5.9	54	45	3087	33	280
C6	End L. Mahon	Middle	Low	06/12/10	7.5	8.0	<2	5.6	59	46	3326	36	297
C6	End L. Mahon	Top	Low	06/12/10	7.5	8.2	<2	5.1	57	46	3928	43	288
C6	End L. Mahon	Bottom	High	13/12/10	7.6	8.4	<2	7.0	37	33	1674	<16	153
C6	End L. Mahon	Middle	High	13/12/10	7.6	8.5	<2	6.9	35	34	1785	16	183
C6	End L. Mahon	Top	High	13/12/10	7.6	8.6	<2	6.6	38	37	2312	20	217

Station No	Station Name	Sample Level	Tide	Date	pH	DO	BOD	Temp	Total Phosphate	mrp-phosphate	Nitrate	Nitrite	Ammonium
					pH unit	mg/l O2	mg/l	°C	µg/l P	µg/ P	µg/l NO3	µg/l NO2	µg/l NH4
C7	Blackrock Castle	Bottom	High	27/01/10	8.0	8.0	<2	7.5	59	49	3038	20	246
C7	Blackrock Castle	Middle	High	27/01/10	8.0	8.3	<2	7.4	58	48	3383	23	226
C7	Blackrock Castle	Top	High	27/01/10	7.8	9.9	<2	6.6	56	38	13994	39	168
C7	Blackrock Castle	Bottom	Low	27/01/10	7.9	8.3	<2	7.4	55	45	3720	23	242
C7	Blackrock Castle	Middle	Low	27/01/10	7.9	8.3	<2	7.4	52	45	4978	23	225
C7	Blackrock Castle	Top	Low	27/01/10	7.6	10.6	<2	5.7	46	38	13100	36	167
C7	Blackrock Castle	Bottom	High	09/02/10	8.0	8.2	<2	7.9	61	47	3189	33	302
C7	Blackrock Castle	Middle	High	09/02/10	8.0	8.2	<2	7.8	62	50	5305	39	296
C7	Blackrock Castle	Top	High	09/02/10	7.9	9.9	<2	6.1	47	35	11846	49	153
C7	Blackrock Castle	Bottom	Low	09/02/10	7.8	8.2	<2	7.9	64	54	3716	36	320
C7	Blackrock Castle	Middle	Low	09/02/10	7.8	8.2	<2	7.8	62	50	5261	39	291
C7	Blackrock Castle	Top	Low	09/02/10	7.6	10.2	<2	5.9	47	39	11085	56	159
C7	Blackrock Castle	Bottom	High	22/03/10	8.0	6.9	<2	8.3	55	46	3242	82	294
C7	Blackrock Castle	Middle	High	22/03/10	8.1	7.0	<2	8.3	52	39	3902	82	265
C7	Blackrock Castle	Top	High	22/03/10	7.9	8.7	<2	7.8	46	34	8197	85	179
C7	Blackrock Castle	Bottom	Low	22/03/10	8.3	7.1	<2	8.4	52	35	3388	85	282
C7	Blackrock Castle	Middle	Low	22/03/10	8.2	6.8	<2	8.3	54	34	3459	85	273
C7	Blackrock Castle	Top	Low	22/03/10	8.2	7.8	<2	8.8	56	36	7059	112	296
C7	Blackrock Castle	Bottom	High	19/04/10	8.5	11.1	<2	11.2	44	<5	2391	26	48
C7	Blackrock Castle	Middle	High	19/04/10	8.5	11.4	<2	11.3	44	<5	2555	30	60
C7	Blackrock Castle	Top	High	19/04/10	8.5	12.3	<2	11.2	42	<5	6355	39	<6
C7	Blackrock Castle	Bottom	Low	19/04/10	8.5	11.0	<2	11.2	38	<5	2887	36	62
C7	Blackrock Castle	Middle	Low	19/04/10	8.5	11.3	<2	11.1	43	<5	3428	36	51
C7	Blackrock Castle	Top	Low	19/04/10	8.5	12.5	<2	11.3	39	25	11634	39	73

Station No	Station Name	Sample Level	Tide	Date	pH	DO	BOD	Temp	Total Phosphate	mrp-phosphate	Nitrate	Nitrite	Ammonium
					pH unit	mg/l O2	mg/l	°C	µg/l P	µg/ P	µg/l NO3	µg/l NO2	µg/l NH4
C7	Blackrock Castle	Bottom	High	18/05/10	8.0	7.9	<2	12.8	77	44	1661	43	273
C7	Blackrock Castle	Middle	High	18/05/10	8.0	8.0	<2	12.9	78	42	1912	43	262
C7	Blackrock Castle	Top	High	18/05/10	8.0	8.3	<2	13.0	59	31	5407	56	179
C7	Blackrock Castle	Bottom	Low	18/05/10	8.0	7.6	<2	12.6	69	29	3144	49	203
C7	Blackrock Castle	Middle	Low	18/05/10	8.0	7.4	<2	12.6	65	32	3007	49	217
C7	Blackrock Castle	Top	Low	18/05/10	8.0	9.1	<2	13.1	52	20	7932	56	143
C7	Blackrock Castle	Bottom	High	22/06/10	7.6	10.2	2	18.1	59	<5	673	36	28
C7	Blackrock Castle	Middle	High	22/06/10	8.1	10.0	3	18.2	73	6	4243	39	9
C7	Blackrock Castle	Top	High	22/06/10	8.4	14.7	2	20.2	85	11	403	72	<6
C7	Blackrock Castle	Bottom	Low	22/06/10	8.1	8.4	2	17.9	73	9	837	43	24
C7	Blackrock Castle	Middle	Low	22/06/10	8.1	9.3	4	18.2	94	10	983	49	9
C7	Blackrock Castle	Top	Low	22/06/10	8.3	11.9	<2	18.2	78	11	3388	82	8
C7	Blackrock Castle	Bottom	High	21/07/10	8.0	6.4	<2	14.6	40	23	988	26	192
C7	Blackrock Castle	Middle	High	21/07/10	8.1	6.6	<2	14.7	44	24	1205	30	186
C7	Blackrock Castle	Top	High	21/07/10	8.1	7.5	<2	17.4	40	23	4340	69	141
C7	Blackrock Castle	Bottom	Low	21/07/10	7.5	n/a	<2	14.6	58	27	1426	39	204
C7	Blackrock Castle	Middle	Low	21/07/10	7.7	n/a	<2	15.1	49	25	1736	39	195
C7	Blackrock Castle	Top	Low	21/07/10	7.7	n/a	<2	17.2	40	18	4672	72	147
C7	Blackrock Castle	Bottom	High	16/08/10	7.9	7.8	<2	15.9	59	29	979	33	103
C7	Blackrock Castle	Middle	High	16/08/10	7.9	7.9	<2	16.0	58	28	1032	33	82
C7	Blackrock Castle	Top	High	16/08/10	7.8	8.5	<2	16.4	56	21	3007	43	<6
C7	Blackrock Castle	Bottom	Low	16/08/10	7.9	8.3	<2	18.0	57	26	992	33	85
C7	Blackrock Castle	Middle	Low	16/08/10	8.0	8.5	2	17.9	61	24	1094	36	59
C7	Blackrock Castle	Top	Low	16/08/10	8.0	8.9	<2	18.5	47	20	4198	43	<6

Station No	Station Name	Sample Level	Tide	Date	pH	DO	BOD	Temp	Total Phosphate	mrp-phosphate	Nitrate	Nitrite	Ammonium
					pH unit	mg/l O2	mg/l	°C	µg/l P	µg/ P	µg/l NO3	µg/l NO2	µg/l NH4
C7	Blackrock Castle	Bottom	High	13/09/10	7.9	7.4	3	16.5	90	28	797	49	266
C7	Blackrock Castle	Middle	High	13/09/10	7.9	7.3	>8	16.5	124	19	979	49	292
C7	Blackrock Castle	Top	High	13/09/10	7.9	7.6	>8	16.6	167	10	1315	59	363
C7	Blackrock Castle	Bottom	Low	13/09/10	7.9	7.0	>8	16.7	142	15	1178	49	355
C7	Blackrock Castle	Middle	Low	13/09/10	7.9	7.1	>8	17.0	125	14	1209	46	325
C7	Blackrock Castle	Top	Low	13/09/10	8.0	8.9	>8	17.4	111	11	1302	43	237
C7	Blackrock Castle	Bottom	High	18/10/10	7.6	6.7	<2	13.8	47	34	890	46	301
C7	Blackrock Castle	Middle	High	18/10/10	7.6	6.8	<2	13.7	44	34	1023	49	296
C7	Blackrock Castle	Top	High	18/10/10	7.6	7.1	<2	13.7	47	37	1763	62	269
C7	Blackrock Castle	Bottom	Low	18/10/10	7.5	6.3	<2	13.9	51	41	965	59	341
C7	Blackrock Castle	Middle	Low	18/10/10	7.6	6.2	<2	13.9	56	40	1063	49	330
C7	Blackrock Castle	Top	Low	18/10/10	7.5	7.2	<2	12.9	42	36	4287	59	198
C7	Blackrock Castle	Bottom	High	03/11/10	7.3	6.8	<8	12.4	60	45	1581	82	343
C7	Blackrock Castle	Middle	High	03/11/10	7.7	7.2	<2	12.4	55	45	2794	105	315
C7	Blackrock Castle	Top	High	03/11/10	7.7	8.2	<2	12.6	53	41	4570	135	219
C7	Blackrock Castle	Bottom	Low	03/11/10	7.6	6.6	<2	12.4	61	48	1603	89	339
C7	Blackrock Castle	Middle	Low	03/11/10	7.7	6.8	<2	12.4	55	46	2294	102	311
C7	Blackrock Castle	Top	Low	03/11/10	7.7	8.8	<2	11.7	38	31	4964	184	90
C7	Blackrock Castle	Bottom	Low	06/12/10	7.5	7.9	<2	5.9	55	49	3968	49	311
C7	Blackrock Castle	Middle	Low	06/12/10	7.5	7.5	<2	6.3	55	48	4491	46	310
C7	Blackrock Castle	Top	Low	06/12/10	7.4	8.7	<2	4.8	71	48	13029	49	147
C7	Blackrock Castle	Bottom	High	13/12/10	7.5	8.4	<2	6.3	64	51	2166	46	316
C7	Blackrock Castle	Middle	High	13/12/10	7.5	8.3	<2	6.2	57	49	4154	46	301
C7	Blackrock Castle	Top	High	13/12/10	7.5	10.6	<2	5.6	50	42	13999	59	105

Station No	Station Name	Sample Level	Tide	Date	pH	DO	BOD	Temp	Total Phosphate	mrp-phosphate	Nitrate	Nitrite	Ammonium
					pH unit	mg/l O2	mg/l	°C	µg/l P	µg/ P	µg/l NO3	µg/l NO2	µg/l NH4
C8	Mid L. Mahon	Bottom	High	27/01/10	8.0	8.4	<2	7.4	48	40	3069	<16	171
C8	Mid L. Mahon	Middle	High	27/01/10	8.0	8.4	<2	7.4	49	42	4119	20	203
C8	Mid L. Mahon	Top	High	27/01/10	7.9	10.1	<2	6.5	49	40	8901	33	176
C8	Mid L. Mahon	Bottom	Low	27/01/10	7.9	8.4	<2	7.5	56	50	3871	26	267
C8	Mid L. Mahon	Middle	Low	27/01/10	7.9	8.7	<2	7.2	56	49	5474	30	255
C8	Mid L. Mahon	Top	Low	27/01/10	7.7	10.1	<2	5.8	46	39	11390	33	157
C8	Mid L. Mahon	Bottom	High	09/02/10	8.0	8.3	<2	8.0	53	47	3242	26	262
C8	Mid L. Mahon	Middle	High	09/02/10	8.0	8.3	<2	7.9	64	48	4424	36	298
C8	Mid L. Mahon	Top	High	09/02/10	7.9	7.8	<2	6.4	52	45	7679	53	247
C8	Mid L. Mahon	Bottom	Low	09/02/10	7.9	8.2	<2	7.9	77	63	4278	46	345
C8	Mid L. Mahon	Middle	Low	09/02/10	7.9	8.3	<2	7.6	72	59	5819	53	328
C8	Mid L. Mahon	Top	Low	09/02/10	7.8	10.1	<2	5.8	49	44	10323	62	222
C8	Mid L. Mahon	Bottom	High	22/03/10	8.1	7.2	<2	8.3	43	38	2467	56	206
C8	Mid L. Mahon	Middle	High	22/03/10	8.1	7.2	<2	8.3	43	36	2759	66	204
C8	Mid L. Mahon	Top	High	22/03/10	8.1	8.2	<2	8.7	42	35	6559	89	195
C8	Mid L. Mahon	Bottom	Low	22/03/10	8.3	7.2	<2	8.4	49	30	3352	82	216
C8	Mid L. Mahon	Middle	Low	22/03/10	8.3	7.4	<2	8.6	50	29	3618	82	221
C8	Mid L. Mahon	Top	Low	22/03/10	8.3	7.9	<2	9.3	50	30	4234	89	226
C8	Mid L. Mahon	Bottom	High	19/04/10	8.5	11.5	<2	11.1	27	<5	1585	20	21
C8	Mid L. Mahon	Middle	High	19/04/10	8.5	11.6	<2	11.1	28	<5	1807	20	12
C8	Mid L. Mahon	Top	High	19/04/10	8.6	12.2	<2	11.2	35	5	8472	43	28
C8	Mid L. Mahon	Bottom	Low	19/04/10	8.5	11.3	<2	11.3	42	<5	2883	33	21
C8	Mid L. Mahon	Middle	Low	19/04/10	8.5	11.9	<2	11.3	44	<5	3122	33	22
C8	Mid L. Mahon	Top	Low	19/04/10	8.6	12.3	<2	12.0	47	<5	5057	46	6

Station No	Station Name	Sample Level	Tide	Date	pH	DO	BOD	Temp	Total Phosphate	mrp-phosphate	Nitrate	Nitrite	Ammonium
					pH unit	mg/l O2	mg/l	°C	µg/l P	µg/ P	µg/l NO3	µg/l NO2	µg/l NH4
C8	Mid L. Mahon	Bottom	High	18/05/10	8.0	8.3	<2	12.5	54	28	1129	33	180
C8	Mid L. Mahon	Middle	High	18/05/10	8.0	8.3	<2	12.5	58	32	1196	30	193
C8	Mid L. Mahon	Top	High	18/05/10	8.0	8.3	<2	12.9	62	30	1439	36	199
C8	Mid L. Mahon	Bottom	Low	18/05/10	8.1	8.0	<2	12.8	68	33	1701	56	215
C8	Mid L. Mahon	Middle	Low	18/05/10	8.1	8.2	<2	12.9	132	31	1833	43	224
C8	Mid L. Mahon	Top	Low	18/05/10	8.1	8.3	<2	13.0	66	28	1926	46	152
C8	Mid L. Mahon	Bottom	High	22/06/10	8.2	0.1	<2	17.6	47	<5	447	26	39
C8	Mid L. Mahon	Middle	High	22/06/10	8.2	9.0	<2	17.6	51	<5	456	26	32
C8	Mid L. Mahon	Top	High	22/06/10	8.3	10.8	2	18.6	55	<5	221	26	13
C8	Mid L. Mahon	Bottom	Low	22/06/10	8.2	9.1	2	18.0	68	7	514	39	13
C8	Mid L. Mahon	Middle	Low	22/06/10	8.2	9.6	3	18.3	69	7	461	43	12
C8	Mid L. Mahon	Top	Low	22/06/10	8.3	10.7	4	18.6	76	8	425	43	13
C8	Mid L. Mahon	Bottom	High	21/07/10	8.0	6.6	<2	14.0	29	15	686	<16	94
C8	Mid L. Mahon	Middle	High	21/07/10	8.0	6.6	<2	14.0	32	17	1236	26	107
C8	Mid L. Mahon	Top	High	21/07/10	8.2	7.7	<2	17.6	42	24	3326	59	120
C8	Mid L. Mahon	Bottom	Low	21/07/10	7.9	n/a	<2	14.5	60	28	1732	53	186
C8	Mid L. Mahon	Middle	Low	21/07/10	7.9	n/a	<2	15.7	65	30	2759	66	168
C8	Mid L. Mahon	Top	Low	21/07/10	7.9	n/a	<2	16.9	42	24	4074	66	148
C8	Mid L. Mahon	Bottom	High	16/08/10	7.9	8.2	<2	15.6	40	21	642	20	78
C8	Mid L. Mahon	Middle	High	16/08/10	7.9	8.2	<2	15.6	43	21	655	20	73
C8	Mid L. Mahon	Top	High	16/08/10	7.9	8.5	<2	16.0	40	20	735	23	68
C8	Mid L. Mahon	Bottom	Low	16/08/10	8.0	8.5	2	18.2	58	24	828	30	75
C8	Mid L. Mahon	Middle	Low	16/08/10	8.0	8.5	<2	17.9	48	21	846	30	68
C8	Mid L. Mahon	Top	Low	16/08/10	8.0	8.7	2	18.3	54	19	886	30	17

Station No	Station Name	Sample Level	Tide	Date	pH	DO	BOD	Temp	Total Phosphate	mrp-phosphate	Nitrate	Nitrite	Ammonium
					pH unit	mg/l O2	mg/l	°C	µg/l P	µg/ P	µg/l NO3	µg/l NO2	µg/l NH4
C8	Mid L. Mahon	Bottom	High	13/09/10	7.9	7.4	<2	16.1	50	23	536	33	141
C8	Mid L. Mahon	Middle	High	13/09/10	7.9	7.5	<2	16.2	48	23	562	36	144
C8	Mid L. Mahon	Top	High	13/09/10	7.9	7.5	<2	16.2	48	23	562	36	144
C8	Mid L. Mahon	Bottom	Low	13/09/10	7.9	7.4	2	16.4	77	22	722	43	208
C8	Mid L. Mahon	Middle	Low	13/09/10	8.0	8.1	4	16.7	94	16	748	43	224
C8	Mid L. Mahon	Top	Low	13/09/10	8.0	8.1	4	16.7	94	16	748	43	224
C8	Mid L. Mahon	Bottom	High	18/10/10	7.6	6.9	<2	13.7	41	32	762	69	273
C8	Mid L. Mahon	Middle	High	18/10/10	7.6	6.9	<2	13.7	41	32	846	39	284
C8	Mid L. Mahon	Top	High	18/10/10	7.6	6.9	<2	13.7	41	32	846	39	284
C8	Mid L. Mahon	Bottom	Low	18/10/10	7.6	6.5	<2	13.9	53	36	939	53	325
C8	Mid L. Mahon	Middle	Low	18/10/10	7.6	6.8	<2	13.9	53	38	1045	66	333
C8	Mid L. Mahon	Top	Low	18/10/10	7.6	6.8	<2	13.9	53	38	1045	66	333
C8	Mid L. Mahon	Bottom	High	03/11/10	7.8	7.6	<2	12.4	48	38	1475	72	224
C8	Mid L. Mahon	Middle	High	03/11/10	7.8	7.6	<2	12.4	47	38	1621	102	233
C8	Mid L. Mahon	Top	High	03/11/10	7.8	7.6	<2	12.4	47	38	1621	102	233
C8	Mid L. Mahon	Bottom	Low	03/11/10	7.7	7.1	<2	12.4	55	47	1603	85	338
C8	Mid L. Mahon	Middle	Low	03/11/10	7.7	7.2	<2	12.4	60	49	2409	99	336
C8	Mid L. Mahon	Top	Low	03/11/10	7.7	7.2	<2	12.4	60	49	2409	99	336
C8	Mid L. Mahon	Bottom	Low	06/12/10	7.5	8.1	<2	6.1	54	47	3680	43	267
C8	Mid L. Mahon	Middle	Low	06/12/10	7.5	8.0	<2	5.5	57	46	3879	46	267
C8	Mid L. Mahon	Top	Low	06/12/10	7.5	8.0	<2	5.5	57	46	3879	46	267
C8	Mid L. Mahon	Bottom	High	13/12/10	7.6	8.4	<2	6.6	49	44	2724	30	302
C8	Mid L. Mahon	Middle	High	13/12/10	7.6	8.6	<2	6.3	50	46	2910	33	321
C8	Mid L. Mahon	Top	High	13/12/10	7.6	8.6	<2	6.3	50	46	2910	33	321

Station No	Station Name	Sample Level	Tide	Date	pH	DO	BOD	Temp	Total Phosphate	mrp-phosphate	Nitrate	Nitrite	Ammonium
					pH unit	mg/l O2	mg/l	°C	µg/l P	µg/ P	µg/l NO3	µg/l NO2	µg/l NH4
C9	Tivoli	Bottom	High	27/01/10	7.9	8.3	<2	7.4	52	45	4699	26	215
C9	Tivoli	Top	High	27/01/10	7.7	10.1	<2	6.3	50	35	15482	36	102
C9	Tivoli	Bottom	Low	27/01/10	7.8	7.9	<2	7.4	54	41	3658	23	238
C9	Tivoli	Top	Low	27/01/10	7.6	10.7	<2	5.7	43	30	15646	39	93
C9	Tivoli	Bottom	High	09/02/10	7.9	8.0	<2	7.9	54	45	4513	36	319
C9	Tivoli	Top	High	09/02/10	7.6	10.8	<2	5.9	41	33	12249	46	126
C9	Tivoli	Bottom	Low	09/02/10	7.8	8.2	<2	7.9	53	47	4823	36	327
C9	Tivoli	Top	Low	09/02/10	7.6	10.6	<2	5.7	39	34	12604	46	102
C9	Tivoli	Bottom	High	22/03/10	8.0	7.6	<2	8.2	59	42	4398	85	285
C9	Tivoli	Top	High	22/03/10	7.8	8.9	<2	7.5	57	36	9712	108	260
C9	Tivoli	Bottom	Low	22/03/10	8.1	6.2	<2	8.2	56	33	3605	85	314
C9	Tivoli	Top	Low	22/03/10	8.2	7.7	<2	8.7	55	36	9654	112	193
C9	Tivoli	Bottom	High	19/04/10	8.4	10.7	<2	11.1	58	<5	2520	39	45
C9	Tivoli	Top	High	19/04/10	8.5	12.6	<2	10.8	35	21	13613	36	41
C9	Tivoli	Bottom	Low	19/04/10	8.5	10.5	<2	11.1	55	17	4150	39	224
C9	Tivoli	Top	Low	19/04/10	8.3	11.2	<2	10.7	54	45	12152	43	98
C9	Tivoli	Bottom	High	18/05/10	7.8	7.2	<2	12.4	86	37	2538	53	229
C9	Tivoli	Top	High	18/05/10	7.9	8.3	<2	13.2	65	35	9504	69	168
C9	Tivoli	Bottom	Low	18/05/10	7.9	6.9	<2	12.3	75	31	2892	49	244
C9	Tivoli	Top	Low	18/05/10	8.1	8.9	<2	13.1	80	27	3645	53	194
C9	Tivoli	Bottom	High	22/06/10	8.1	9.3	2	17.7	71	8	2307	39	58
C9	Tivoli	Top	High	22/06/10	8.7	12.8	3	19.5	86	9	545	62	8
C9	Tivoli	Bottom	Low	22/06/10	7.9	6.9	2	17.6	77	11	1453	46	76
C9	Tivoli	Top	Low	22/06/10	8.0	10.3	<2	18.4	118	63	8286	95	23

Station No	Station Name	Sample Level	Tide	Date	pH	DO	BOD	Temp	Total Phosphate	mrp-phosphate	Nitrate	Nitrite	Ammonium
					pH unit	mg/l O2	mg/l	°C	µg/l P	µg/ P	µg/l NO3	µg/l NO2	µg/l NH4
C9	Tivoli	Bottom	High	21/07/10	8.0	6.1	<2	15.0	50	30	1014	30	222
C9	Tivoli	Top	High	21/07/10	7.9	7.8	<2	18.2	44	26	5283	69	139
C9	Tivoli	Bottom	Low	21/07/10	7.8	n/a	<2	15.2	85	50	1475	39	249
C9	Tivoli	Top	Low	21/07/10	7.7	n/a	<2	17.4	39	17	5279	92	116
C9	Tivoli	Bottom	High	16/08/10	7.8	7.7	<2	16.0	50	32	7608	46	73
C9	Tivoli	Top	High	16/08/10	7.7	8.5	2	16.7	68	23	1346	36	58
C9	Tivoli	Bottom	Low	16/08/10	7.8	8.0	<2	18.3	63	32	1386	36	161
C9	Tivoli	Top	Low	16/08/10	7.8	8.5	<2	18.5	61	35	4588	53	99
C9	Tivoli	Bottom	High	13/09/10	7.4	0.3	4	16.9	101	22	868	39	305
C9	Tivoli	Top	High	13/09/10	7.7	6.3	<2	16.8	76	32	2281	49	238
C9	Tivoli	Bottom	Low	13/09/10	7.8	6.4	4	16.8	100	25	886	39	336
C9	Tivoli	Top	Low	13/09/10	8.1	9.9	<2	17.5	77	41	3468	49	171
C9	Tivoli	Bottom	High	18/10/10	7.6	6.0	<2	14.0	58	45	806	49	352
C9	Tivoli	Top	High	18/10/10	7.6	6.5	<2	13.9	50	40	2338	49	279
C9	Tivoli	Bottom	Low	18/10/10	7.5	5.9	<2	13.9	51	39	1191	46	343
C9	Tivoli	Top	Low	18/10/10	7.4	7.6	<2	12.5	47	38	5292	49	165
C9	Tivoli	Bottom	High	03/11/10	7.6	5.9	<2	12.4	57	46	1718	89	327
C9	Tivoli	Top	High	03/11/10	7.7	7.2	<2	12.4	50	41	5447	108	206
C9	Tivoli	Bottom	Low	03/11/10	7.5	5.3	<2	12.4	61	49	1709	95	366
C9	Tivoli	Top	Low	03/11/10	7.6	8.1	<2	11.9	44	34	5770	164	82
C9	Tivoli	Bottom	Low	06/12/10	7.4	7.4	<2	6.5	59	49	3968	49	351
C9	Tivoli	Top	Low	06/12/10	7.3	8.8	<2	4.9	62	53	13901	49	149
C9	Tivoli	Bottom	High	13/12/10	7.5	8.0	<2	5.8	57	48	4451	43	302
C9	Tivoli	Top	High	13/12/10	7.5	10.5	<2	5.8	50	41	14543	59	82

2.4.4 River Monitoring Test results

	Twopot -Curraheen River								
Station No.	**Station Name**	**DATE**	**pH**	**D.O.**	**B.O.D.**	**Temp.**	**Total P.**	**Nitrate**	**Ammonia**
			pH units	mg/l	mg/l	C	mgP/l	mg/l	mg/l
M01	Curragheen Road Bridge	05/01/10	7.6	12.0	1.00	5.6	0.050	27.2	0.080
M01	Curragheen Road Bridge	09/03/10	7.8	12.9	1.00	2.8	0.045	31.5	0.050
M01	Curragheen Road Bridge	05/05/10	7.6	9.0	5.00	10.7	0.165	28.4	0.090
M01	Curragheen Road Bridge	14/07/10	7.4	5.7	1.16	14.5	0.140	23.3	0.040
M01	Curragheen Road Bridge	14/09/10	7.5	7.8	1.85	16.6	0.134	31.0	0.040
M01	Curragheen Road Bridge	09/11/10	7.9	8.2	1.00	9.5	0.092	29.2	0.050
M02	Carrigrohane Bridge	05/01/10	7.6	10.8	1.20	5.2	0.063	26.4	0.060
M02	Carrigrohane Bridge	09/03/10	7.7	11.5	1.20	3.8	0.055	31.3	0.040
M02	Carrigrohane Bridge	05/05/10	7.5	8.4	1.00	11.3	0.068	27.5	0.070
M02	Carrigrohane Bridge	14/07/10	7.5	5.8	1.55	14.2	0.127	20.8	0.050
M02	Carrigrohane Bridge	14/09/10	7.4	6.5	1.30	15.8	0.080	29.0	0.040
M02	Carrigrohane Bridge	09/11/10	7.9	8.3	1.20	9.1	0.102	27.9	0.050
M03	County Hall	05/01/10	7.5	10.7	1.20	5.4	0.095	26.2	0.400
M03	County Hall	09/03/10	7.5	10.0	1.00	4.3	0.065	29.5	0.380
M03	County Hall	05/05/10	7.4	8.0	1.20	11.5	0.082	26.4	0.270
M03	County Hall	14/07/10	7.4	4.7	1.47	14.1	0.110	24.4	0.680
M03	County Hall	14/09/10	7.3	5.1	3.60	15.4	0.107	31.0	0.880
M03	County Hall	09/11/10	7.8	7.6	2.40	9.3	0.167	29.4	0.900

	Glasheen River								
Station No.	**Station Name**	**DATE**	**pH**	**D.O.**	**B.O.D.**	**Temp.**	**Total P.**	**Nitrate**	**Ammonia**
			pH units	mg/l	mg/l	C	mgP/l	mg/l	mg/l
M04	Bandon Road	05/01/10	7.1	9.8	1.60	7.6	0.085	34.4	0.070
M04	Bandon Road	09/03/10	7.1	10.0	1.30	4.7	0.167	46.0	0.080
M04	Bandon Road	05/05/10	6.9	8.1	1.70	11.2	0.110	38.5	0.080
M04	Bandon Road	14/07/10	6.6	5.1	3.25	13.6	0.154	33.6	0.020
M04	Bandon Road	14/09/10	6.6	7.4	1.13	14.4	0.088	50.0	0.070
M04	Bandon Road	09/11/10	7.8	7.5	1.02	10.5	0.080	35.6	0.070
M05	Woodhaven Estate	05/01/10	7.4	10.4	1.00	7.5	0.078	28.8	0.110
M05	Woodhaven Estate	09/03/10	7.6	10.2	1.40	4.7	0.088	35.9	0.060
M05	Woodhaven Estate	05/05/10	7.3	7.8	2.00	11.2	0.093	31.4	0.100
M05	Woodhaven Estate	14/07/10	7.2	4.6	1.00	14.6	0.095	21.7	0.040
M05	Woodhaven Estate	14/09/10	7.1	6.7	1.52	15.6	0.135	28.0	0.050
M05	Woodhaven Estate	09/11/10	7.7	7.1	1.00	10.6	0.097	25.7	0.060
M06	Sandbrook Estate	05/01/10	7.5	7.8	1.70	6.8	0.125	22.4	0.230
M06	Sandbrook Estate	09/03/10	7.2	5.9	1.30	6.2	0.144	22.6	0.200
M06	Sandbrook Estate	05/05/10	7.4	3.4	2.40	12.2	0.147	20.7	0.280
M06	Sandbrook Estate	14/07/10	7.3	4.5	9.54	17.2	0.118	4.8	0.150
M06	Sandbrook Estate	14/09/10	7.3	5.2	>16	16.7	0.250	8.5	0.060
M06	Sandbrook Estate	09/11/10	7.9	4.6	1.36	10.9	0.128	13.6	0.250
M07	Clashduv Road	05/01/10	7.4	6.3	1.70	6.8	0.103	21.7	0.200
M07	Clashduv Road	09/03/10	7.2	4.7	1.65	5.7	0.103	23.2	0.200
M07	Clashduv Road	05/05/10	7.3	3.4	2.23	12.2	0.142	19.9	0.250
M07	Clashduv Road	14/07/10	7.4	2.0	2.71	15.8	0.207	6.0	0.520
M07	Clashduv Road	14/09/10	7.4	2.3	3.11	16.0	0.429	3.2	0.720
M07	Clashduv Road	09/11/10	7.6	3.2	1.32	10.3	0.135	11.4	0.270
M08	Glasheen Bridge	05/01/10	7.5	6.9	1.40	6.8	0.100	21.8	0.230
M08	Glasheen Bridge	09/03/10	7.4	6.0	514.00	5.4	0.172	22.6	0.200
M08	Glasheen Bridge	05/05/10	7.4	5.5	1.60	12.0	0.130	18.8	0.270
M08	Glasheen Bridge	14/07/10	7.3	2.4	2.92	15.4	0.199	8.4	0.500
M08	Glasheen Bridge	14/09/10	7.4	3.8	3.80	16.3	0.234	4.7	0.620
M08	Glasheen Bridge	09/11/10	7.6	4.6	1.31	10.3	0.117	11.2	0.290

	Bride (Cork City) River		(Glen Bride Kiln)						
Station No.	**Station Name**	**DATE**	**pH**	**D.O.**	**B.O.D.**	**Temp.**	**Total P.**	**Nitrate**	**Ammonia**
			pH units	mg/l	mg/l	C	mgP/l	mg/l	mg/l
M09	Blackstone Bridge	09/02/10	7.5	11.0	1.00	6.8	0.057	28.5	0.060
M09	Blackstone Bridge	13/04/10	7.6	11.9	1.00	10.0		28.7	0.020
M09	Blackstone Bridge	09/06/10	7.5	5.4	3.55	14.3	0.180	20.0	0.200
M09	Blackstone Bridge	17/08/10	7.6	6.1	1.00	14.1	0.085	27.7	0.030
M09	Blackstone Bridge	12/10/10	7.7	4.9	1.27	8.5	0.092	24.0	0.130
M09	Blackstone Bridge	07/12/10	8.2	10.5	1.00	4.3	0.070	34.1	0.050
M10	Kilnap	09/02/10	7.6	11.0	1.00	6.2	0.102	29.3	0.060
M10	Kilnap	13/04/10	7.7	11.5	2.20	10.4		30.6	0.010
M10	Kilnap	09/06/10	7.7	5.8	4.00	13.9	0.254	26.0	0.190
M10	Kilnap	17/08/10	7.9	9.6	1.00	14.6	0.128	37.2	0.040
M10	Kilnap	12/10/10	7.8	8.8	1.05	10.5	0.180	26.0	0.090
M10	Kilnap	07/12/10	8.1	10.1	1.00	3.7	0.093	35.7	0.040
M11	Fitz's Boreen	09/02/10	7.6	12.0	1.00	6.1	0.088	29.5	0.070
M11	Fitz's Boreen	13/04/10	7.7	12.9	1.02	9.6		30.2	0.030
M11	Fitz's Boreen	09/06/10	7.7	5.5	3.91	14.2	0.274	23.0	0.190
M11	Fitz's Boreen	17/08/10	7.9	10.0	1.20	15.1	0.175	35.1	0.040
M11	Fitz's Boreen	12/10/10	7.7	9.7	2.00	10.1	0.179	24.0	0.190
M11	Fitz's Boreen	07/12/10	8.0	10.7	1.00	4.3	0.115	35.3	0.070
M12	Blackpool	09/02/10	7.4	12.0	1.00	6.1	0.100	29.9	0.050
M12	Blackpool	13/04/10	7.5	10.4	1.20	8.4		29.7	0.040
M12	Blackpool	09/06/10	7.3	5.9	5.04	14.0	0.220	21.0	0.180
M12	Blackpool	17/08/10	7.5	8.4	3.20	14.0	0.137	31.0	0.030
M12	Blackpool	12/10/10	7.2	6.6	8.74	10.5	0.529	22.0	2.000
M12	Blackpool	07/12/10	8.6	10.5	1.00	4.2	0.135	33.5	0.040

	Glen River	(Glen Bride Kiln)							
Station No.	**Station Name**	**DATE**	**pH**	**D.O.**	**B.O.D.**	**Temp.**	**Total P.**	**Nitrate**	**Ammonia**
			pH units	mg/l	mg/l	C	mgP/l	mg/l	mg/l
M13	Glen Rec. Park	09/02/10	7.6	11.0	1.00	5.5	0.127	31.4	0.090
M13	Glen Rec. Park	13/04/10	7.7	12.9	1.41	9.3		30.4	0.100
M13	Glen Rec. Park	09/06/10	7.6	6.2	2.40	13.7	0.239	19.0	0.130
M13	Glen Rec. Park	17/08/10	7.7	8.8	2.40	13.7	0.210	26.7	0.120
M13	Glen Rec. Park	12/10/10	7.5	8.0	2.75	9.4	0.220	19.0	0.350
M13	Glen Rec. Park	07/12/10	8.1	9.1	8.70	4.5	0.704	33.1	2.100
M14	Spring Lane	09/02/10	7.5	11.0	1.00	5.9	0.120	30.6	0.080
M14	Spring Lane	13/04/10	7.6	12.9	1.00	8.5		29.3	0.080
M14	Spring Lane	09/06/10	7.5	6.2	2.65	14.3	0.222	14.0	0.180
M14	Spring Lane	17/08/10	7.7	9.2	1.45	14.5	0.179	24.1	0.060
M14	Spring Lane	12/10/10	7.4	9.6	1.00	9.7	0.242	18.0	0.180
M14	Spring Lane	07/12/10	8.4	10.7	3.14	3.6	0.269	32.6	1.500

	Kiln River	(Glen Bride Kiln)							
Station No.	**Station Name**	**DATE**	**pH**	**D.O.**	**B.O.D.**	**Temp.**	**Total P.**	**Nitrate**	**Ammonia**
			pH units	mg/l	mg/l	C	mgP/l	mg/l	mg/l
M15	Leitrim St.	09/02/10	7.2	10.4	9.70	6.8	0.384	29.1	0.400
M15	Leitrim St.	13/04/10	7.0	9.4	10.26	8.6		28.1	0.900
M15	Leitrim St.	09/06/10	7.0	4.8	15.40	14.4	0.601	20.0	1.500
M15	Leitrim St.	17/08/10	7.2	8.6	9.98	14.5	0.322	28.2	0.470
M15	Leitrim St.	12/10/10	6.6	8.7	2.73	11.2	0.250	21.0	0.640
M15	Leitrim St.	07/12/10	8.5	8.2	27.70	5.7	0.858	33.6	2.600

2.5 Data Collection and reporting requirements under the Urban Waste Water Treatment Directive

The Electronic submission of the 2010 AER Report was made to the EPA on 6th December 2011

2.6 Pollutant Release and transfer register (PRTR) Report for 2009

The PRTR Report for 2009 was submitted to the EPA on 7th February 2011

A Copy of the 2009 PRTR report is included in the Section following.

Environmental Protection Agency

AER Returns Worksheet

Version 1.1.10

REFERENCE YEAR	2009

1. FACILITY IDENTIFICATION

Parent Company Name	Cork City Council
Facility Name	Cork City Waste Water Treatment Plant
PRTR Identification Number	D0033
Licence Number	D0033-01

Waste or IPPC Classes of Activity

No.	class_name
30.4	General

Address 1	Carrigrenan
Address 2	Little Island
Address 3	Co. Cork
Address 4	
	Cork
Country	Ireland
Coordinates of Location	-8.3366 51.8892
River Basin District	IESW
NACE Code	3700
Main Economic Activity	Sewerage
AER Returns Contact Name	Eamonn Walsh
AER Returns Contact Email Address	eamonn_walsh@corkcity.ie
AER Returns Contact Position	Senior Engineer
AER Returns Contact Telephone Number	+353 21 4924047

AER Returns Contact Mobile Phone Number	+353 86 2630255
AER Returns Contact Fax Number	+353 21 4924006
Production Volume	0.0
Production Volume Units	
Number of Installations	0
Number of Operating Hours in Year	0
Number of Employees	0
User Feedback/Comments	
Web Address	

2. PRTR CLASS ACTIVITIES

Activity Number	Activity Name
5(f)	Urban waste-water treatment plants

3. SOLVENTS REGULATIONS (S.I. No. 543 of 2002)

Is it applicable?	No
Have you been granted an exemption ?	
If applicable which activity class applies (as per Schedule 2 of the regulations) ?	
Is the reduction scheme compliance route being used ?	

4.1 RELEASES TO AIR

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

RELEASES TO AIR								
POLLUTANT		METHOD				QUANTITY		
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
01	**Methane (CH4)**	E	ESTIMATE	EPA WWTP Tool V4.0	0.0	0.3	0.0	0.3
02	Carbon monoxide (CO)	E	ESTIMATE	EPA WWTP Tool V4.0	0.0	64.3	0.0	64.3
03	Carbon dioxide (CO2)	E	ESTIMATE	EPA WWTP Tool V4.0	0.0	7053567.1	0.0	7053567.1
05	Nitrous oxide (N2O)	E	ESTIMATE	EPA WWTP Tool V4.0	0.0	27.9	0.0	27.9
07	Non-methane volatile organic compounds (NMVOC)	E	ESTIMATE	EPA WWTP Tool V4.0	0.0	20.3	0.0	20.3
08	Nitrogen oxides (NOx/NO2)	E	ESTIMATE	EPA WWTP Tool V4.0	0.0	196.8	0.0	196.8
11	Sulphur oxides (SOx/SO2)	E	ESTIMATE	EPA WWTP Tool V4.0	0.0	19.2	0.0	19.2

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING PRTR POLLUTANTS

RELEASES TO AIR								
POLLUTANT		METHOD				QUANTITY		
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION C : REMAINING POLLUTANT EMISSIONS (As required in your Licence)

RELEASES TO AIR								
POLLUTANT		METHOD				QUANTITY		
			Method Used					
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

Additional Data Requested from Landfill operators

For the purposes of the National Inventory on Greenhouse Gases, landfill operators are requested to provide summary data on landfill gas (Methane) flared or utilised on their facilities to accompany the figures for total methane generated. Operators should only report their Net methane (CH4) emission to the environment under T(total) KG/yr for Section A: Sector specific PRTR pollutants above. Please complete the table below:

Landfill: Cork City Waste Water Treatment Plant

Please enter summary data on the quantities of methane flared and / or utilised	T (Total) kg/Year	M/C/E	Method Used: Method Code	Method Used: Designation or Description	Facility Total Capacity m3 per hour	
Total estimated methane generation (as per site model)	0.0				N/A	
Methane flared	0.0				0.0	(Total Flaring Capacity)
Methane utilised in engine/s	0.0				0.0	(Total Utilising Capacity)
Net methane emission (as reported in Section A above)	0.0				N/A	

4.2 RELEASES TO WATERS

| PRTR# : D0033 | Facility Name : Cork City Waste Water Treatment Plant | Filename : D0033_2009.xls | Return Year : 2009 | 07/02/2011 10:26

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

Data on ambient monitoring of storm/surface water or groundwater, conducted as part of your licence requirements, should NOT be submitted under AER / PRTR Reporting as this onl

RELEASES TO WATERS

POLLUTANT			Method Used		QUANTITY			
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
44	1,2,3,4,5,6-hexachlorocyclohexane(HCH)	E	ESTIMATE	EPA WWTP Tool V2.0	0.121	0.127	0.0	0.006
34	1,2-dichloroethane (EDC)	E	ESTIMATE	EPA WWTP Tool V2.0	2.019	2.113	0.0	0.094
25	Alachlor	E	ESTIMATE	EPA WWTP Tool V2.0	0.422	0.442	0.0	0.02
61	Anthracene	E	ESTIMATE	EPA WWTP Tool V2.0	0.427	0.447	0.0	0.02
17	Arsenic and compounds (as As)	E	ESTIMATE	EPA WWTP Tool V2.0	40.347	42.218	0.0	1.871
27	Atrazine	E	ESTIMATE	EPA WWTP Tool V2.0	2.604	2.725	0.0	0.121
91	Benzo(g,h,i)perylene	E	ESTIMATE	EPA WWTP Tool V2.0	0.162	0.17	0.0	0.008
18	Cadmium and compounds (as Cd)	E	ESTIMATE	EPA WWTP Tool V2.0	2.17	2.271	0.0	0.101
28	Chlordane	E	ESTIMATE	EPA WWTP Tool V2.0	0.081	0.085	0.0	0.004
30	Chlorfenvinphos	E	ESTIMATE	EPA WWTP Tool V2.0	0.04	0.042	0.0	0.002
79	Chlorides (as Cl)	M	OTH	SCA Method	39151169.51	39151169.51	0.0	0.0
31	Chloro-alkanes, C10-C13	E	ESTIMATE	EPA WWTP Tool V2.0	8.481	8.874	0.0	0.393
19	Chromium and compounds (as Cr)	E	ESTIMATE	EPA WWTP Tool V2.0	14.887	15.577	0.0	0.69
20	Copper and compounds (as Cu)	E	ESTIMATE	EPA WWTP Tool V2.0	71.582	74.901	0.0	3.319
82	Cyanides (as total CN)	E	ESTIMATE	EPA WWTP Tool V2.0	70.561	73.832	0.0	3.271
33	DDT	E	ESTIMATE	EPA WWTP Tool V2.0	0.434	0.454	0.0	0.02
70	Di-(2-ethyl hexyl) phthalate (DEHP)	E	ESTIMATE	EPA WWTP Tool V2.0	50.599	52.945	0.0	2.346
36	Dieldrin	E	ESTIMATE	EPA WWTP Tool V2.0	8.386	8.775	0.0	0.389
37	Diuron	E	ESTIMATE	EPA WWTP Tool V2.0	3.809	3.986	0.0	0.177
38	Endosulphan	E	ESTIMATE	EPA WWTP Tool V2.0	0.251	0.263	0.0	0.012
65	Ethyl benzene	E	ESTIMATE	EPA WWTP Tool V2.0	3.227	3.377	0.0	0.15
88	Fluoranthene	E	ESTIMATE	EPA WWTP Tool V2.0	0.558	0.584	0.0	0.026
83	Fluorides (as total F)	E	ESTIMATE	EPA WWTP Tool V2.0	14123.84	14778.67	0.0	654.83
40	Halogenated organic compounds (as AOX)	E	ESTIMATE	EPA WWTP Tool V2.0	96.384	100.853	0.0	4.469
42	Hexachlorobenzene (HCB)	E	ESTIMATE	EPA WWTP Tool V2.0	0.04	0.042	0.0	0.002
43	Hexachlorobutadiene (HCBD)	E	ESTIMATE	EPA WWTP Tool V2.0	0.04	0.042	0.0	0.002
89	Isodrin	E	ESTIMATE	EPA WWTP Tool V2.0	2.372	2.482	0.0	0.11
23	Lead and compounds (as Pb)	E	ESTIMATE	EPA WWTP Tool V2.0	40.171	42.033	0.0	1.862
45	Lindane	E	ESTIMATE	EPA WWTP Tool V2.0	0.101	0.106	0.0	0.005
21	Mercury and compounds (as Hg)	E	ESTIMATE	EPA WWTP Tool V2.0	2.65	2.773	0.0	0.123
68	Naphthalene	E	ESTIMATE	EPA WWTP Tool V2.0	18.494	19.351	0.0	0.857
22	Nickel and compounds (as Ni)	E	ESTIMATE	EPA WWTP Tool V2.0	313.083	327.598	0.0	14.515
64	Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)	E	ESTIMATE	EPA WWTP Tool V2.0	2.674	2.798	0.0	0.124
69	Organotin compounds (as total Sn)	E	ESTIMATE	EPA WWTP Tool V2.0	0.404	0.423	0.0	0.019
48	Pentachlorobenzene	E	ESTIMATE	EPA WWTP Tool V2.0	0.04	0.042	0.0	0.002
71	Phenols (as total C)	E	ESTIMATE	EPA WWTP Tool V2.0	498.89	522.02	0.0	23.13
50	Polychlorinated biphenyls (PCBs)	E	ESTIMATE	EPA WWTP Tool V2.0	0.332	0.347	0.0	0.015
72	Polycyclic aromatic hydrocarbons (PAHs)	E	ESTIMATE	EPA WWTP Tool V2.0	32.582	34.093	0.0	1.511
52	Tetrachloroethylene (PER)	E	ESTIMATE	EPA WWTP Tool V2.0	18.078	18.916	0.0	0.838
73	Toluene	E	ESTIMATE	EPA WWTP Tool V2.0	4.724	4.943	0.0	0.219
12	Total nitrogen	M	OTH	SCA Method	839435.33	839435.33	0.0	0.0
76	Total organic carbon (TOC) (as total C or COD/3)	E	ESTIMATE	EPA WWTP Tool V2.0	1390600.5	1455073.7	0.0	64473.2
13	Total phosphorus	M	OTH	SCA Method	82868.56	82868.56	0.0	0.0
57	Trichloroethylene	E	ESTIMATE	EPA WWTP Tool V2.0	3.063	3.205	0.0	0.142
77	Trifluralin	E	ESTIMATE	EPA WWTP Tool V2.0	0.07	0.073	0.0	0.003
75	Triphenyltin and compounds	E	ESTIMATE	EPA WWTP Tool V2.0	0.079	0.083	0.0	0.004
60	Vinyl chloride	E	ESTIMATE	EPA WWTP Tool V2.0	2.019	2.113	0.0	0.094
78	Xylenes	E	ESTIMATE	EPA WWTP Tool V2.0	11.3	11.824	0.0	0.524
24	Zinc and compounds (as Zn)	E	ESTIMATE	EPA WWTP Tool V2.0	1437.089	1503.718	0.0	66.629

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING PRTR POLLUTANTS

RELEASES TO WATERS

POLLUTANT			Method Used		QUANTITY			
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year

					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION C : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

RELEASES TO WATERS								
POLLUTANT					QUANTITY			
			Method Used					
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0
303	**BOD**	M	OTH	SCA Method	369562.0	369562.0	0.0	0.0
240	Suspended Solids	M	OTH	SCA Method	439490.0	439490.0	0.0	0.0
306	COD	M	OTH	SCA Method	2402259.9	2402259.9	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

4.3 RELEASES TO WASTEWATER OR SEWER

| PRTR# : D0033 | Facility Name : Cork City Waste Water Treatment Plant | Filename : D0033_2009 07/02/2011 10:27

SECTION A : PRTR POLLUTANTS

OFFSITE TRANSFER OF POLLUTANTS DESTINED FOR WASTE-WATER TREATMENT OR SEWER								
POLLUTANT		METHOD			QUANTITY			
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

OFFSITE TRANSFER OF POLLUTANTS DESTINED FOR WASTE-WATER TREATMENT OR SEWER								
POLLUTANT		METHOD			QUANTITY			
			Method Used					
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

4.4 RELEASES TO LAND

SECTION A : PRTR POLLUTANTS

RELEASES TO LAND							
POLLUTANT		METHOD			QUANTITY		
			Method Used				
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year
					0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

RELEASES TO LAND							
POLLUTANT		METHOD			QUANTITY		
			Method Used				
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year
					0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

5. ONSITE TREATMENT & OFFSITE TRANSFERS OF WASTE

| PRTR# : D0033 | Facility Name : Cork City Waste Water Treatment Plant | Filename : D0033_2009.xls | Return Year : 2009 |

07/02/2011 10:27

3

Transfer Destination	European Waste Code	Hazardous	Quantity (Tonnes per Year)	Description of Waste	Waste Treatment Operation	Method Used		Location of Treatment	Haz Waste : Name and Licence/Permit No of Next Destination Facility Non Haz Waste: Name and Licence/Permit No of Recover/Disposer	Haz Waste : Address of Next Destination Facility Non Haz Waste: Address of Recover/Disposer	Name and License / Permit No. and Address of Final Recoverer / Disposer (HAZARDOUS WASTE ONLY)	Actual Address of Final Destination i.e. Final Recovery / Disposal Site (HAZARDOUS WASTE ONLY)
						M/C/E	Method Used					
Within the Country	19 08 01	No	6.84	Wastewater Screenings	D1	M	Weighed	Offsite in Ireland	Greenstar Munster,W0136-02	Sarsfield Court Industrial Estate,Glanmire,.,Co. Cork,Ireland		
Within the Country	19 08 05	No	376.8	Wet Cake Sludge	R10	M	Weighed	Offsite in Ireland	Ormonde Organics,W0237-01	Killowen,Portlaw,Co. Waterford,.,Ireland		
Within the Country	19 08 02	No	1.11	Grit	D1	M	Weighed	Offsite in Ireland	Greenstar Munster,W0136-02	Sarsfield Court Industrial Estate,Glanmire,.,Co. Cork,Ireland		
Within the Country	20 03 01	No	24.62	Mixed domestic type	D1	M	Weighed	Offsite in Ireland	Greenstar Munster,W0136-02	Sarsfield Court Industrial Estate,Glanmire,.,Co. Cork,Ireland		
Within the Country	20 01 01	No	3.305	Waste Paper	R5	M	Weighed	Offsite in Ireland	Greenstar Munster,W0136-02	Sarsfield Court Industrial Estate,Glanmire,.,Co. Cork,Ireland		
Within the Country	13 01 11	Yes	4.73	Used Lubricating Oil	R9	M	Weighed	Offsite in Ireland	Enva,W0145-02	Unit 9 Raffeen Industrial Estate,Raffeen,Monkstown, Co. Cork,Ireland	Enva,W0145-02,Unit 9 Raffeen Industrial Estate,Raffeen,Monkstown, Co.Cork,Ireland	Unit 9 Raffeen Industrial Estate,Raffeen,Monkstown, Co.Cork,Ireland
Within the Country	19 08 05	No	690.58	Wet Cake Sludge	R10	M	Weighed	Onsite in Ireland	Acorn Recycling,WD249-01	Archerstown Industrial Estate,Thurles,Co. Tipperary,.,Ireland		

* Select a row by double-clicking the Description of Waste then click the delete button

Environmental Protection Agency

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CALCULATION OF EMISSIONS FROM URBAN WASTE WATER TREATMENT PLANTS FOR AER AND PRTR REPORTING

Note: Data Entry in the yellow cells only

RELEASES TO AIR

Air: Emissions from WWTP Works

Facility Name:

Address Carrigrenan

Reporting year: 2009 *(Note: completing these details here will also fill in the other worksheets)*

Data Entry Table: Characteristics of the WWTP

For use where no data from on-site monitoring of air emissions from the plant are available.

Nitrous Oxide (N_2O) calculated directly for actual p.e. data

For information only:
Calculated Values (see worksheet: Calculations)

1 Loadings and Works

A Facility Loadings Data for Reporting Year	**Value**	
Total p.e. served	256,737	*Enter Actual Population Equivalent of catchment*
Design p.e.	413,000	*Enter Design Population Equivalent of facility*
Total influent BOD kg/annum (measured)	5,626,402	*Enter total annual quantity;* ***NB note units: kg/annum***
Total Sludge removed offsite kg Dry Matter / annum		*Enter total annual quantity;* ***NB note units: kg/annum***
Total Sludge digested on-site kg Dry Matter / annum	2,867,110	*Enter total annual quantity;* ***NB note units: kg/annum***

TOW kg BOD / annum	*TOW = "Total Organically biodegradable material in domestic (=municipal) Wastewater"*
5,626,391	Total p.e. served TOW equivalent
9,050,895	Design p.e. TOW equivalent
256,737	**Quality check: p.e. of influent BOD kg/annum**
0	*BOD content of sludge removed kg/annum*
0	*BOD content of sludge digested kg/annum*
5,626,402	Residual BOD net of sludge removed/digested kg/annum

B Characteristics of the Works	**Status**	
B1 Aerobic plant		
Does the aerobic section of the plant contain dissolved oxygen?		*Y / N (default is "Y")* **Methane Conversion factor for the aerobic plant will be determined by this answer**
All tanks covered and extracted to on-site flare?		*Y / N (default is "N")* **Releases will be reported as "Fugitive"**
% of Headspace biogas utilised on site (0 - 100)		*Only required if Headspace extraction on site; Calculate by % operation of engine. Default assumption is Zero utilisation*
% of Headspace biogas flared (0 - 100)		*Only required if Headspace extraction on site; Calculate by % operation of flare. Default assumption is Zero flaring*
Total % biogas utilised or flared onsite		
B2 Onsite Anaerobic Digestion for sludge treatment		
Anaerobic digestion on site?	Y	*Y / N (default is "N")* **Releases will be reported as "Emission Point 1"**
% of Digester biogas utilised on site (0 - 100)	95	*Only required if Anaerobic digestion on site; Calculate by % operation of engine. Default assumption is Zero utilisation*
% of Digester biogas flared (0 - 100)	5	*Only required if Anaerobic digestion on site; Calculate by % operation of flare. Default assumption is Zero flaring*
Total % biogas utilised or flared onsite		

2 Fuel use on the WWTP

Total Diesel Use on site in the year	6	*Tonne / annum*	**Releases will be reported as "Fugitive"**

The table here is for illustration only. The output data are presented in the next worksheet "UWWTP Releases to Air", in the precise format for entry directly into the "**Releases to Air**" Worksheet of your Reporting Workbook

PRTR No. Annex II	Name	ESTIMATED QUANTITIES			
		Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
1	Methane (CH4)	0	0		0
3	Carbon Monoxide	0	64		64
3	Carbon Dioxide (CO2)	0	7,053,567		7,053,567
5	Nitrous oxide (N2O)		28		28
7	Non-methane volatile organic compounds (NMVOC)		20		20
8	Nitrogen oxides (NOx/NO2)	0	197		197
11	Sulphur oxides (SOx/SO2)		19		19

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CALCULATION OF EMISSIONS FROM URBAN WASTE WATER TREATMENT PLANTS FOR AER AND PRTR REPORTING

RELEASES TO AIR

Facility Name:

Address Carrigrenan

Reporting year: 2009

Data Output Table Releases to Air from UWWTP facilities

- **The following table combines the estimates from both onsite infrastructure and fuel combustion, and provides the output data in the appropriate format for reporting via the "Releases to Air" Worksheet of the EPA Electronic AER Reporting Workbook**
- **The information must be entered manually; do NOT attempt to use the Cut or Copy methods for this task.**

RELEASES TO AIR									*For info only:*	
POLLUTANT		METHOD				QUANTITY				
PRTR No. Annex II	Name	M/C/E	Method Used		(insert name)				PRTR REPORTING THRESHOLD kg/a	Reportable to European PRTR Website?
			Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year		
1	Methane (CH4)	E	ESTIMATE	EPA UWWTP Tool v4.0	-	0.3	-	0.3	100,000	No
2	Carbon monoxide (CO)	E	ESTIMATE	EPA UWWTP Tool v4.0	-	64.3	-	64.3	500,000	No
3	Carbon dioxide (CO2)	E	ESTIMATE	EPA UWWTP Tool v4.0	-	7,053,567.1	-	7,053,567.1	100,000,000	No
5	Nitrous oxide (N2O)	E	ESTIMATE	EPA UWWTP Tool v4.0	-	27.9	-	27.9	10,000	No
7	Non-methane volatile organic compounds (NMVOC)	E	ESTIMATE	EPA UWWTP Tool v4.0	-	20.3	-	20.3	100,000	No
8	Nitrogen oxides (NOx/NO2)	E	ESTIMATE	EPA UWWTP Tool v4.0	-	196.8	-	196.8	100,000	No
11	Sulphur oxides (SOx/SO2)	E	ESTIMATE	EPA UWWTP Tool v4.0	-	19.2	-	19.2	150,000	No

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CALCULATION OF EMISSIONS FROM URBAN WASTE WATER TREATMENT PLANTS FOR AER AND PRTR REPORTING

This sheet is where the actual calculations of the emissions take place, based on the data entered by the operator

RELEASES TO AIR

A Facility Loadings Data for Reporting Year	Value	TOW kg BOD / annum	
Total p.e. served	256,737	5,626,391	
Design p.e.	413,000	9,050,895	
Total influent BOD kg/annum (measured)	5,626,402	5,626,402	*256,737* Quality check: p.e. of influent
Total Sludge removed offsite kg Dry Matter / annum	0	0	*BOD content of sludge estimated at 40% of dry matter (NIR 2006, p103)*
Total Sludge digested on-site kg Dry Matter / annum	0	0	*BOD content of sludge estimated at 40% of dry matter (NIR 2006, p103)*
Residual BOD net of sludge removed/digested kg/annum		5,626,402	This amount assumed to pass through the plant and to give rise to Fugitive CH4 and CO2 emissions via "Aerobic Plant"
	p.e of residual BOD	*256,737*	For Plant CO_2 generation estimate

TOW = "Total Organically biodegradable material in domestic (=municipal) Wastewater"

B Works

Definition of terms

METHANE (CH4): Fugitive and emitted gas

B1 Aerobic plant	Status	MCF	Emission Factor (Bo x MCF)	CH4 calculations raw	CH4 calculations final	
Is the aerobic section of your plant fully aerobic?	Yes	0.00	0.00	0	0	Fugitive
All tanks covered and extracted to on-site flare?	No	0.00		0		
Residual BOD net of sludge removed kg/annum	0.00	1.00	*proportion remaining after utilisation*			
% of Headspace biogas flared (0 - 100)	0.00	1.00	*proportion remaining after flaring*			
Plant capacity overloaded?	No					
				Plant CO_2 generation	7,034,607	Fugitive

Bo = Default Maximum CH4 producing capacity for domestic wastewater

MCF: Methane Correction Factor (2006 IPCC Guidelines, Ch 6 p. 6.12)

Raw calculation: gross fugitive emissions before abatement by utilisation or flaring

B2 Onsite sludge treatment						
Anaerobic digestion on site?	Y	0.30	0.18	0	0	Emission Point
% of Digester biogas utilised on site (0 - 100)	0.95	0.05	*proportion remaining after utilisation*			
% of Digester biogas flared (0 - 100)	0.05	0.00	*proportion remaining after flaring*			
TOTAL						

CARBON MONOXIDE (CO): Utilised / flared gas	Total CO			0	*EMISSION POINT: (Very approximate) This amount calculated as released via combustion of biogas by utilisation / flaring*
CARBON DIOXIDE (CO_2): Utilised / flared gas AD	Total CO2	1.00	0	0	*EMISSION POINT: This amount calculated as released via combustion of biogas by utilisation / flaring*
Nitrogen Oxides (NOx): Utilised / flared gas	Total NOx			0	*EMISSION POINT: (Very approximate) This amount calculated as released via combustion of biogas by utilisation / flaring*

Note: CO and NOx figures based on stoichoiometric relationships with CO2 - this is a preliminary measure and requires to be improved

		via p.e.	*via influent BOD*	Final	
NITROUS OXIDE (N_2O)	Total N2O	27	27	27	*Fugitive*

C Fuel use on the WWTP

Total Diesel Use in the year Tonne / year 6

Calculations relative to diesel used

Pollutant Emissions kg/Annum

PRTR Pollutant Number	Pollutant	
1	Methane (CH4)	0.33

Emission Factors

PRTR No	Pollutant		E.F kg/Tonne
1	Methane (CH4)	Air	0.055

2	Carbon monoxide (CO)	64.332
3	Carbon dioxide (CO2)	18960
5	Nitrous oxide (N2O)	0.81
7	Non-methane volatile organic compounds (NMVOC)	20.31
8	Nitrogen oxides (NOx/NO2)	196.752
11	Sulphur oxides (SOx/SO2)	19.2

2	Carbon monoxide (CO)	Air	10.722
3	Carbon dioxide (CO2)	Air	3160
5	Nitrous oxide (N2O)	Air	0.135
7	Non-methane volatile or	Air	3.385
8	Nitrogen oxides (NOx/N	Air	32.792
11	Sulphur oxides (SOx/SC	Air	3.2

2 Releases to Water

FLOW

Treated: released via main emission point	40,381,480	
Untreated / Fugitive: released in storm bypasses	1,872,230	

Calculated loads based on flow

Both +ve? TRUE

2007

Influent / Effluent Ratios

COD	0.135	Others assumed
BOD	0.061	unchanged: i.e.
SS	0.109	concentrations best
TN	0.462	approximated by
TP	0.661	effluent
NH3	0.164	concentrations

Characterisation of waste water and sludge

Ringsend WWTP 2007

Av Influent BOD conc	v
Av Sludge Org Matter	0.62
Av Sludge BOD	0.4
Organic Content of Sludge %	60 kg/m³

LastOf Counter	PRTRNo	Pollutant	Modelled effluent load kg/annum	Modelled Influent Load kg/annum	Source	Model concentration mg/l	Model Load kg/a	Threshold	A2 CAS no	PS CAS#	All<LOD?
1	12	Total nitrogen	247,084.54	11,455.72	PS	6.1188	900,400.52	50000		n/a	
2	13	Total phosphorus	95,196.66	4,413.66	PS	2.3574	346,906.04	5000		n/a	
3	17	Arsenic and compounds (as As)	40.35	1.87	PS	0.0010	147.03	5		7440-38-2	
4	18	Cadmium and compounds (as Cd)	2.17	0.10	PS	0.0001	7.91	5		7440-43-9	
5	19	Chromium and compounds (as Cr)	14.89	0.69	PS	0.0004	54.25	50		7440-47-3	
6	20	Copper and compounds (as Cu)	71.58	3.32	PS	0.0018	260.85	50		7440-50-8	
7	21	Mercury and compounds(as Hg)	2.65	0.12	PS	0.0001	9.66	1		7439-97-6	
8	22	Nickel and compounds (as Ni)	313.08	14.52	PS	0.0078	1,140.90	20		7440-02-0	
9	23	Lead and compounds (as Pb)	40.17	1.86	PS	0.0010	146.39	20		7439-92-1	
10	24	Zinc and compounds (as Zn)	1,437.09	66.63	PS	0.0356	5,236.90	10		7440-66-6	
11	25	Alachlor	0.42	0.02	PS	0.0000	1.54	1	15972-60-8	15972-60-8	
12	26	Aldrin	0.10	0.00	PS	0.0000	0.37	1	309-00-2	309-00-2	Yes
13	27	Atrazine	2.60	0.12	PS	0.0001	9.49	1	1912-24-9	1912-24-9	
15	28	Chlordane	0.08	0.00	CoA	0.0000	0.34	1	57-74-9		
16	29	Chlordecone	0.00	0.00				1	143-50-0		
17	30	Chlorfenvinphos	0.04	0.00	CoA	0.0000	0.17	1	470-90-6		
18	31	Chloro-alkanes, C10-C13	8.48	0.39	PS	0.0002	30.91	1	85535-84-8	n/a	
19	32	Chlorpyrifos	0.12	0.01	Av	0.0000	0.70	1	2921-88-2	2921-88-2	Yes
20	33	DDT	0.43	0.02	PS	0.0000	1.58	1	50-29-3	50-29-3	
23	34	1,2-dichloroethane (EDC)	2.02	0.09	PS	0.0001	7.36	10	107-06-2	107-06-2	
24	35	Dichloromethane (DCM)	14.87	0.69	PS	0.0004	54.20	10	75-09-2	75-09-2	Yes
25	36	Dieldrin	8.39	0.39	PS	0.0002	30.56	1	60-57-1	72-20-8	
26	37	Diuron	3.81	0.18	PS	0.0001	13.88	1	330-54-1	330-54-1	
28	38	Endosulfan	0.25	0.01	Av	0.0000	1.44	1	115-29-7	959-98-8	
29	39	Endrin	0.17	0.01	PS	0.0000	0.61	1	72-20-8	60-57-1	Yes
107	40	Halogenated organic compounds (as AOX	96.38	4.47	Add	0.0024	552.84	1000			
108	41	Heptachlor	0.04	0.00	CoA	0.0000	0.17	1	76-44-8		Yes
110	42	Hexachlorobenzene (HCB)	0.04	0.00	CoA	0.0000	0.17	1	118-74-1	118-74-1	
111	43	Hexachlorobutadiene (HCBD)	0.04	0.00	PS	0.0000	0.15	1	87-68-3	87-68-3	
115	44	1,2,3,4,5, 6-hexachlorocyclohexane (HCH	0.12	0.01	CoA	0.0000	0.51	1	608-73-1		
116	45	Lindane	0.10	0.00	PS	0.0000	0.37	1	58-89-9	58-89-9	
117	46	Mirex	0.00	0.00				1	2385-85-5		
135	48	Pentachlorobenzene	0.04	0.00	PS	0.0000	0.15	1	608-93-5	608-93-5	
136	49	Pentachlorophenol (PCP)	1.70	0.08	PS	0.0000	6.18	1	87-86-5	87-86-5	Yes
143	50	Polychlorinated biphenyls (PCBs)	0.33	0.02	Add	0.0000	1.91	0.1	1336-36-3	35693-99-3	
144	51	Simazine	2.61	0.12	PS	0.0001	9.53	1	122-34-9	122-34-9	Yes
145	52	Tetrachloroethylene (PER)	18.08	0.84	PS	0.0004	65.88	10	127-18-4	127-18-4	
146	53	Tetrachloromethane (TCM)	2.02	0.09	PS	0.0001	7.36	1	56-23-5	56-23-5	Yes
149	54	Trichlorobenzenes (TCBs) (all isomers)	0.35	0.02	Add	0.0000	2.03	1000	12002-48-1	108-70-3	Yes
152	57	Trichloroethylene	3.06	0.14	PS	0.0001	11.16	10	79-01-6	79-01-6	
153	58	Trichloromethane	65.28	3.03	PS	0.0016	237.89	10	67-66-3	67-66-3	Yes
154	59	Toxaphene	0.00	0.00				1	8001-35-2		
155	60	Vinyl chloride	2.02	0.09	PS	0.0001	7.36	10	75-01-4	75-01-4	
156	61	Anthracene	0.43	0.02	PS	0.0000	1.56	1	120-12-7	120-12-7	
158	62	Benzene	2.02	0.09	PS	0.0001	7.36	200	71-43-2	71-43-2	Yes
159	63	Brominated diphenylethers (PBDE)	20.18	0.94	CoA	0.0005	84.41	1			Yes
161	64	Nonylphenol and Nonylphenol ethoxylates	2.67	0.12	PS	0.0001	9.75	1		37340-60-6	
162	65	Ethyl benzene	3.23	0.15	PS	0.0001	11.76	200	100-41-4	100-41-4	
163	66	Ethylene oxide	0.00	0.00				10	75-21-8		Yes
164	67	Isoproturon	0.26	0.01	PS	0.0000	0.93	1	34123-59-6	34123-59-6	Yes

165	68	Naphthalene	18.49	0.86	PS	0.0005	67.40	10	91-20-3	91-20-3	
170	69	Organotin compounds (as total Sn)	0.40	0.02	CoA	0.0000	1.69	50			
171	70	Di-(2-ethyl hexyl) phthalate (DEHP)	50.60	2.35	PS	0.0013	184.39	1	117-81-7	117-81-7	
188	71	Phenols (as total C)	498.89	23.13	Add	0.0124	2,861.51	20			
204	72	Polycyclic aromatic hydrocarbons (PAHs)	32.58	1.51	Add	0.0008	186.88	5		205-99-2	
207	73	Toluene	4.72	0.22	Add	0.0001	27.09	200			
208	74	Tributyltin and compounds	0.14	0.01	PS	0.0000	0.52	1		36643-28-4	Yes
209	75	Triphenyltin and compounds	0.08	0.00	Av	0.0000	0.46	1		n/a	
210	76	Total organic carbon (TOC) (as total C or	1,390,600.51	64,473.22	PS	34.4366	5,067,485.93	50000		n/a	
211	77	Trifluralin	0.07	0.00	Av	0.0000	0.40	1	1582-09-8	1582-09-8	
213	78	Xylenes	11.30	0.52	PS	0.0003	41.18	200	1330-20-7	1330-20-7	
214	79	Chlorides (as total Cl)	10,048,106.26	465,866.18	CoA	248.8296	42,034,130.73	2000000		16887-00-6	
215	81	Asbestos	0.00	0.00				1	1332-21-4		
216	82	Cyanides (as total CN)	70.56	3.27	PS	0.0017	257.13	50		57-12-5	
217	83	Fluorides (as total F)	14,123.84	654.83	CoA	0.3498	59,084.12	2000		16984-48-8	
218	87	Octylphenols and Octylphenol ethoxylates	0.00	0.00				1	1806-26-4		
219	88	Fluoranthene	0.56	0.03	Av	0.0000	3.20	1	206-44-0	206-44-0	
221	89	Isodrin	2.37	0.11	PS	0.0001	8.64	1	465-73-6	465-73-6	
222	90	Hexabromobiphenyl	0.00	0.00				0.1	36355-1-8		
223	91	Benzo(g,h,i)perylene	0.16	0.01	PS	0.0000	0.59	1	191-24-2	191-24-2	

Licensed Substances not on PRTR List

1152	Ammonia mg/l as N	972,096.60	45,069.88	DCC Ringsend 2007	24.073
1146	BOD mg/l	9,459,641.32	438,582.84	DCC Ringsend 2007	234.257
1147	COD mg/l	20,419,096.52	946,702.43	DCC Ringsend 2007	505.655
1154	Kjeldahl Nitrogen mg/l as N	1,636,092.17	75,855.09	DCC Ringsend 2007	40.516
1155	Nitrate mg/l as N	15,665.82	726.32	DCC Ringsend 2007	0.388
1150	Phosphorus (React) mg/l as P	139,133.82	6,450.74	DCC Ringsend 2007	3.445
1148	Suspended Solids mg/l	10,508,417.36	487,207.85	DCC Ringsend 2007	260.229

Not yet in reporting workbook list:

1156	Nitrite mg/l as N	3,351.56	155.39	DCC Ringsend 2007	0.083
1153	TON mg/l as N	16,386.55	759.74	DCC Ringsend 2007	0.406

Data from File \\Lapwing:\Cork PRTR\Operator Communications\WWTPs\Development "Influent Effluent 2007.xls" [Influent]

Environmental Protection Agency

VERSION 4.0 27 January 2011

CALCULATION OF EMISSIONS FROM URBAN WASTE WATER TREATMENT PLANTS FOR AER AND PRTR REPORTING

Note: Data Entry in the yellow cells only

Facility Name: 0
Address Carrigrenan
Reporting year: 2009

RELEASES TO WATER

This tool provides a simple model for the estimation of the annual loads of PRTR Substances released to the receiving waterbody from your facility

FOR THOSE SUBSTANCES INCLUDED IN YOUR FACILITY'S REGULAR MONITORING PROGRAMME:

- Please report the annual loads of those substances based on your flow and concentration data.

Data Entry Table: FLOW DATA

Please enter Total Annual Flow (m³/annum):	*Enter data*
Treated: Final effluent volume released via main emission point	40,381,480
Untreated / Fugitive: Estimated volume released in storm bypasses	1,872,230

Data Output Table: Releases to water

- **The following table provides the output data in the appropriate format for reporting via the "Releases to Water" Worksheet of the EPA Electronic AER Reporting Workbook.**
- **These figures should be used for all parameters where no actual monitoring data are available.**
- **The information from this table must be entered into the "Releases to water" worksheet manually; do NOT attempt to use the Cut or Copy methods for this task.**
- **If the value returned by the toolset is zero (to 3 decimal places), the pre-entered value is valid and does not have to be retyped**
- **PLEASE NOTE: FOR TECHNICAL REASONS, THE REPORTING WORKSHEET REQUIRES THAT YOU ENTER DATA INTO AT LEAST ONE "QUANTITY" CELL FOR EACH OF THE SUBSTANCES LISTED BELOW.**
- **IF YOU CHOOSE NOT TO REPORT THE MODELLED FIGURE, PLEASE ENTER THE DUMMY VALUE: "0.000999" IN THE "ACCIDENTAL" COLUMN**

Data Output Table: Releases to water

RELEASES TO WATERS										For info only:	
POLLUTANT			Method Used		QUANTITY						
No. Annex II	Name	M/C/E	Method Code	Designation or Description *(Note: replace with site-specific data if applicable)*	SW 1 Emission Point 1	T (Total) kg/year	A (Accidental) kg/year *(Enter site specific data)*	F (Fugitive) kg/year		PRTR reporting threshold kg/a	Is this figure Reportable to the EU Commission under the PRTR?
SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS											
44	1,2,3,4,5, 6-hexachlorocyclohexane (HCH)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.121	0.127		0.006		1	No
34	1,2-dichloroethane (EDC)	E	ESTIMATE	EPA UWWTP Tool v4.0	2.019	2.113		0.094		10	No
25	Alachlor	E	ESTIMATE	EPA UWWTP Tool v4.0	0.422	0.441		0.020		1	No
61	Anthracene	E	ESTIMATE	EPA UWWTP Tool v4.0	0.427	0.447		0.020		1	No
17	Arsenic and compounds (as As)	E	ESTIMATE	EPA UWWTP Tool v4.0	40.347	42.217		1.871		5	**Yes**
27	Atrazine	E	ESTIMATE	EPA UWWTP Tool v4.0	2.604	2.724		0.121		1	**Yes**
91	Benzo(g,h,i)perylene	E	ESTIMATE	EPA UWWTP Tool v4.0	0.162	0.170		0.008		1	No
18	Cadmium and compounds (as Cd)	E	ESTIMATE	EPA UWWTP Tool v4.0	2.170	2.271		0.101		5	No
28	Chlordane	E	ESTIMATE	EPA UWWTP Tool v4.0	0.081	0.084		0.004		1	No
30	Chlorfenvinphos	E	ESTIMATE	EPA UWWTP Tool v4.0	0.040	0.042		0.002		1	No
79	Chlorides (as total Cl)	E	ESTIMATE	EPA UWWTP Tool v4.0	10,048,106.3	10,513,972.4		465,866.2		2,000,000	**Yes**
31	Chloro-alkanes, C10-C13	E	ESTIMATE	EPA UWWTP Tool v4.0	8.481	8.874		0.393		1	**Yes**
19	Chromium and compounds (as Cr)	E	ESTIMATE	EPA UWWTP Tool v4.0	14.887	15.577		0.690		50	No
20	Copper and compounds (as Cu)	E	ESTIMATE	EPA UWWTP Tool v4.0	71.582	74.901		3.319		50	**Yes**
82	Cyanides (as total CN)	E	ESTIMATE	EPA UWWTP Tool v4.0	70.561	73.833		3.271		50	**Yes**
33	DDT	E	ESTIMATE	EPA UWWTP Tool v4.0	0.434	0.454		0.020		1	No
70	Di-(2-ethyl hexyl) phthalate (DEHP)	E	ESTIMATE	EPA UWWTP Tool v4.0	50.599	52.944		2.346		1	**Yes**
36	Dieldrin	E	ESTIMATE	EPA UWWTP Tool v4.0	8.386	8.775		0.389		1	**Yes**
37	Diuron	E	ESTIMATE	EPA UWWTP Tool v4.0	3.809	3.986		0.177		1	**Yes**
38	Endosulfan	E	ESTIMATE	EPA UWWTP Tool v4.0	0.251	0.263		0.012		1	No
65	Ethyl benzene	E	ESTIMATE	EPA UWWTP Tool v4.0	3.227	3.377		0.150		200	No
88	Fluoranthene	E	ESTIMATE	EPA UWWTP Tool v4.0	0.558	0.583		0.026		1	No
83	Fluorides (as total F)	E	ESTIMATE	EPA UWWTP Tool v4.0	14,123.84	14,778.68		654.83		2,000	**Yes**
40	Halogenated organic compounds (as AOX)	E	ESTIMATE	EPA UWWTP Tool v4.0	96.384	100.853		4.469		1,000	No
42	Hexachlorobenzene (HCB)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.040	0.042		0.002		1	No
43	Hexachlorobutadiene (HCBD)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.040	0.042		0.002		1	No
89	Isodrin	E	ESTIMATE	EPA UWWTP Tool v4.0	2.372	2.482		0.110		1	**Yes**
23	Lead and compounds (as Pb)	E	ESTIMATE	EPA UWWTP Tool v4.0	40.171	42.033		1.862		20	**Yes**
45	Lindane	E	ESTIMATE	EPA UWWTP Tool v4.0	0.101	0.106		0.005		1	No

Data Output Table: Releases to water

RELEASES TO WATERS									*For info only:*	
POLLUTANT					**QUANTITY**					
No. Annex II	Name	M/C/E	Method Used: Method Code	Method Used: Designation or Description *(Note: replace with site-specific data if applicable)*	SW 1 Emission Point 1	T (Total) kg/year	A (Accidental) kg/year *(Enter site specific data)*	F (Fugitive) kg/year	PRTR reporting threshold kg/a	Is this figure Reportable to the EU Commission under the PRTR?
21	Mercury and compounds(as Hg)	E	ESTIMATE	EPA UWWTP Tool v4.0	2.650	2.773		0.123	1	**Yes**

Data Output Table: Releases to water

RELEASES TO WATERS									For info only:	
POLLUTANT			Method Used		QUANTITY					
No. Annex II	Name	M/C/E	Method Code	Designation or Description *(Note: replace with site-specific data if applicable)*	SW 1 Emission Point 1	T (Total) kg/year	A (Accidental) kg/year *(Enter site specific data)*	F (Fugitive) kg/year	PRTR reporting threshold kg/a	Is this figure Reportable to the EU Commission under the PRTR?
68	Naphthalene	E	ESTIMATE	EPA UWWTP Tool v4.0	18.494	19.352		0.857	10	**Yes**
22	Nickel and compounds (as Ni)	E	ESTIMATE	EPA UWWTP Tool v4.0	313.083	327.598		14.516	20	**Yes**
64	Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)	E	ESTIMATE	EPA UWWTP Tool v4.0	2.674	2.798		0.124	1	**Yes**
69	Organotin compounds (as total Sn)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.404	0.422		0.019	50	No
48	Pentachlorobenzene	E	ESTIMATE	EPA UWWTP Tool v4.0	0.040	0.042		0.002	1	No
71	Phenols (as total C)	E	ESTIMATE	EPA UWWTP Tool v4.0	498.890	522.021		23.130	20	**Yes**
50	Polychlorinated biphenyls (PCBs)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.332	0.348		0.015	0	**Yes**
72	Polycyclic aromatic hydrocarbons (PAHs)	E	ESTIMATE	EPA UWWTP Tool v4.0	32.582	34.092		1.511	5	**Yes**
52	Tetrachloroethylene (PER)	E	ESTIMATE	EPA UWWTP Tool v4.0	18.078	18.916		0.838	10	**Yes**
73	Toluene	E	ESTIMATE	EPA UWWTP Tool v4.0	4.724	4.943		0.219	200	No
12	Total nitrogen	E	ESTIMATE	EPA UWWTP Tool v4.0	247,084.54	271,866.50		24,781.97	50,000	**Yes**
76	Total organic carbon (TOC) (as total C or COD/3)	E	ESTIMATE	EPA UWWTP Tool v4.0	1,390,600.5	1,455,073.7		64,473.2	50,000	**Yes**
13	Total phosphorus	E	ESTIMATE	EPA UWWTP Tool v4.0	95,196.66	101,877.27		6,680.61	5,000	**Yes**
57	Trichloroethylene	E	ESTIMATE	EPA UWWTP Tool v4.0	3.063	3.205		0.142	10	No
77	Trifluralin	E	ESTIMATE	EPA UWWTP Tool v4.0	0.070	0.073		0.003	1	No
75	Triphenyltin and compounds	E	ESTIMATE	EPA UWWTP Tool v4.0	0.079	0.083		0.004	1	No
60	Vinyl chloride	E	ESTIMATE	EPA UWWTP Tool v4.0	2.019	2.113		0.094	10	No
78	Xylenes	E	ESTIMATE	EPA UWWTP Tool v4.0	11.300	11.824		0.524	200	No
24	Zinc and compounds (as Zn)	E	ESTIMATE	EPA UWWTP Tool v4.0	1,437.089	1,503.718		66.629	10	**Yes**

The following estimated Fugitive Loads (stormwater bypass) for non PRTR substances are provided for use where own influent monitoring data are not available.
Use Facility's influent data in preference to these estimated figures if available.

SECTION C : REMAINING POLLUTANT EMISSIONS (As required in your Licence) ***(SECTION B NOT APPLICABLE TO UWWTPS)***

238	Ammonia (as N)	M	OTH	*(enter method)*		45,069.88		45,069.88
303	BOD	M	OTH	*(enter method)*		438,582.84		438,582.84
306	COD	M	OTH	*(enter method)*		946,702.43		946,702.43
362	Kjeldahl Nitrogen	M	OTH	*(enter method)*		75,855.09		75,855.09
327	Nitrate (as N)	M	OTH	*(enter method)*		75,855.09		75,855.09
372	Nitrite (as N)	M	OTH	*(enter method)*		726.32		726.32
332	Ortho-phosphate (as PO4)	M	OTH	*(enter method)*		6,450.74		6,450.74

Data Output Table: Releases to water

RELEASES TO WATERS									*For info only:*	
POLLUTANT					**QUANTITY**					
No. Annex II	Name	M/C/E	Method Used: Method Code	Method Used: Designation or Description *(Note: replace with site-specific data if applicable)*	SW 1 Emission Point 1	T (Total) kg/year	A (Accidental) kg/year *(Enter site specific data)*	F (Fugitive) kg/year	PRTR reporting threshold kg/a	Is this figure Reportable to the EU Commission under the PRTR?
240	Suspended Solids	M	OTH	*(enter method)*		487,207.85		487,207.85		

2.7 Pollutant Release and transfer register (PRTR) for 2010

The PRTR Report for 2010 was submitted to the EPA on 1st November 2011.

A Copy of the 2010 PRTR report is included in the Section following.

Guidance to completing the PRTR workbook

AER Returns Workbook

Version 1.1.12

REFERENCE YEAR	2010

1. FACILITY IDENTIFICATION

Parent Company Name	Cork City Council
Facility Name	Cork City Waste Water Treatment Plant
PRTR Identification Number	D0033
Licence Number	D0033-01

Waste or IPPC Classes of Activity

No.	class_name
30.4	General

Address 1	Carrigrenan
Address 2	Little Island
Address 3	Co. Cork
Address 4	
	Cork
Country	Ireland
Coordinates of Location	-8.33527 51.8878
River Basin District	IESW
NACE Code	3700
Main Economic Activity	Sewerage
AER Returns Contact Name	ANNE HENNESSY
AER Returns Contact Email Address	anne_hennessy@corkcity.ie
AER Returns Contact Position	Senior Executive Engineer
AER Returns Contact Telephone Number	+353 21 4924461
AER Returns Contact Mobile Phone Number	+353 86 2772648
AER Returns Contact Fax Number	+353 21 4924006
Production Volume	0.0
Production Volume Units	
Number of Installations	0
Number of Operating Hours in Year	0
Number of Employees	0
User Feedback/Comments	
Web Address	

2. PRTR CLASS ACTIVITIES

Activity Number	Activity Name
5(f)	Urban waste-water treatment plants

3. SOLVENTS REGULATIONS (S.I. No. 543 of 2002)

Is it applicable?	
Have you been granted an exemption ?	
If applicable which activity class applies (as per Schedule 2 of the regulations) ?	
Is the reduction scheme compliance route being used ?	

4.1 RELEASES TO AIR Link to previous years emissions data | PRTR# : D0033 | Facility Name : Cork City Waste Water Treatment Plant | Filename : D0033_2010.xls | Return Year : 2010 | 01/11/2011 16:27

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

RELEASES TO AIR					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
01	Methane (CH4)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.0	1.8	0.0	1.8
02	Carbon monoxide (CO)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.0	356.6	0.0	356.6
03	Carbon dioxide (CO2)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.0	7468154.2	0.0	7468154.2
05	Nitrous oxide (N2O)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.0	32.9	0.0	32.9
07	Non-methane volatile organic compounds (NMVOC)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.0	112.6	0.0	112.6
08	Nitrogen oxides (NOx/NO2)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.0	1090.6	0.0	1090.6
11	Sulphur oxides (SOx/SO2)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.0	106.4	0.0	106.4

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING PRTR POLLUTANTS

RELEASES TO AIR					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION C : REMAINING POLLUTANT EMISSIONS (As required in your Licence)

RELEASES TO AIR					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
			Method Used					
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

Additional Data Requested from Landfill operators

For the purposes of the National Inventory on Greenhouse Gases, landfill operators are requested to provide summary data on landfill gas (Methane) flared or utilised on their facilities to accompany the figures for total methane generated. Operators should only report their Net methane (CH4) emission to the environment under T(total) KG/yr for Section A: Sector specific PRTR pollutants above. Please complete the table below:

Landfill: Cork City Waste Water Treatment Plant

Please enter summary data on the quantities of methane flared and / or utilised	T (Total) kg/Year	M/C/E	Method Used: Method Code	Method Used: Designation or Description	Facility Total Capacity m3 per hour	
Total estimated methane generation (as per site model)	0.0				N/A	
Methane flared	0.0				0.0	(Total Flaring Capacity)
Methane utilised in engine/s	0.0				0.0	(Total Utilising Capacity)
Net methane emission (as reported in Section A above)	0.0				N/A	

4.2 RELEASES TO WATERS

Link to previous years emissions data

| PRTR# : D0033 | Facility Name : Cork City Waste Water Treatment Plant | Filename : D0033_2010.xls | Return Year : 2010 | 01/11/2011 16:27

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SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

Data on ambient monitoring of storm/surface water or groundwater, conducted as part of your licence requirements, should NOT be submitted under AER / PRTR Reporting as this only concerns Releases from your facility

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT					QUANTITY			
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
44	1,2,3,4,5,6-hexachlorocyclohexane(HCH)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.109	0.111	0.0	0.002
34	1,2-dichloroethane (EDC)	E	ESTIMATE	EPA UWWTP Tool v4.0	1.822	1.862	0.0	0.04
25	Alachlor	E	ESTIMATE	EPA UWWTP Tool v4.0	0.38	0.388	0.0	0.008
61	Anthracene	E	ESTIMATE	EPA UWWTP Tool v4.0	0.386	0.395	0.0	0.009
17	Arsenic and compounds (as As)	E	ESTIMATE	EPA UWWTP Tool v4.0	36.408	37.215	0.0	0.807
27	Atrazine	E	ESTIMATE	EPA UWWTP Tool v4.0	2.349	2.401	0.0	0.052
91	Benzo(g,h,i)perylene	E	ESTIMATE	EPA UWWTP Tool v4.0	0.147	0.15	0.0	0.003
18	Cadmium and compounds (as Cd)	E	ESTIMATE	EPA UWWTP Tool v4.0	1.959	2.002	0.0	0.043
28	Chlordane	E	ESTIMATE	EPA UWWTP Tool v4.0	0.073	0.075	0.0	0.002
30	Chlorfenvinphos	E	ESTIMATE	EPA UWWTP Tool v4.0	0.036	0.037	0.0	0.001
79	Chlorides (as Cl)	M	OTH	SCA Method	57152176.46	57152176.46	0.0	0.0
31	Chloro-alkanes, C10-C13	E	ESTIMATE	EPA UWWTP Tool v4.0	7.653	7.823	0.0	0.17
19	Chromium and compounds (as Cr)	E	ESTIMATE	EPA UWWTP Tool v4.0	13.434	13.732	0.0	0.298
20	Copper and compounds (as Cu)	E	ESTIMATE	EPA UWWTP Tool v4.0	64.595	66.026	0.0	1.431
82	Cyanides (as total CN)	E	ESTIMATE	EPA UWWTP Tool v4.0	63.673	65.084	0.0	1.411
33	DDT	E	ESTIMATE	EPA UWWTP Tool v4.0	0.391	0.4	0.0	0.009
70	Di-(2-ethyl hexyl) phthalate (DEHP)	E	ESTIMATE	EPA UWWTP Tool v4.0	45.659	46.671	0.0	1.012
36	Dieldrin	E	ESTIMATE	EPA UWWTP Tool v4.0	7.567	7.735	0.0	0.168
37	Diuron	E	ESTIMATE	EPA UWWTP Tool v4.0	3.437	3.513	0.0	0.076
38	Endosulphan	E	ESTIMATE	EPA UWWTP Tool v4.0	0.227	0.232	0.0	0.005
65	Ethyl benzene	E	ESTIMATE	EPA UWWTP Tool v4.0	2.912	2.977	0.0	0.065
88	Fluoranthene	E	ESTIMATE	EPA UWWTP Tool v4.0	0.503	0.514	0.0	0.011
83	Fluorides (as total F)	E	ESTIMATE	EPA UWWTP Tool v4.0	12745.12	13027.54	0.0	282.42
40	Halogenated organic compounds (as AOX)	E	ESTIMATE	EPA UWWTP Tool v4.0	86.976	88.903	0.0	1.927
42	Hexachlorobenzene (HCB)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.036	0.037	0.0	0.001
43	Hexachlorobutadiene (HCBD)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.036	0.037	0.0	0.001
89	Isodrin	E	ESTIMATE	EPA UWWTP Tool v4.0	2.14	2.187	0.0	0.047
23	Lead and compounds (as Pb)	E	ESTIMATE	EPA UWWTP Tool v4.0	36.249	37.052	0.0	0.803
45	Lindane	E	ESTIMATE	EPA UWWTP Tool v4.0	0.091	0.093	0.0	0.002
21	Mercury and compounds (as Hg)	E	ESTIMATE	EPA UWWTP Tool v4.0	2.391	2.444	0.0	0.053
68	Naphthalene	E	ESTIMATE	EPA UWWTP Tool v4.0	16.689	17.059	0.0	0.37
22	Nickel and compounds (as Ni)	E	ESTIMATE	EPA UWWTP Tool v4.0	282.521	288.781	0.0	6.26
64	Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)	E	ESTIMATE	EPA UWWTP Tool v4.0	2.413	2.466	0.0	0.053
69	Organotin compounds (as total Sn)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.364	0.372	0.0	0.008
48	Pentachlorobenzene	E	ESTIMATE	EPA UWWTP Tool v4.0	0.036	0.037	0.0	0.001
71	Phenols (as total C)	E	ESTIMATE	EPA UWWTP Tool v4.0	450.19	460.166	0.0	9.976
50	Polychlorinated biphenyls (PCBs)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.3	0.307	0.0	0.007
72	Polycyclic aromatic hydrocarbons (PAHs)	E	ESTIMATE	EPA UWWTP Tool v4.0	29.401	30.052	0.0	0.651
52	Tetrachloroethylene (PER)	E	ESTIMATE	EPA UWWTP Tool v4.0	16.314	16.675	0.0	0.361
73	Toluene	E	ESTIMATE	EPA UWWTP Tool v4.0	4.262	4.356	0.0	0.094
12	Total nitrogen	M	OTH	SCA Method	861714.26	861714.26	0.0	0.0
76	Total organic carbon (TOC) (as total C or COD/3)	E	ESTIMATE	EPA UWWTP Tool v4.0	1254854.6	1282660.8	0.0	27806.2
57	Trichloroethylene	E	ESTIMATE	EPA UWWTP Tool v4.0	2.764	2.825	0.0	0.061
77	Trifluralin	E	ESTIMATE	EPA UWWTP Tool v4.0	0.063	0.064	0.0	0.001
75	Triphenyltin and compounds	E	ESTIMATE	EPA UWWTP Tool v4.0	0.072	0.074	0.0	0.002
60	Vinyl chloride	E	ESTIMATE	EPA UWWTP Tool v4.0	1.822	1.862	0.0	0.04
78	Xylenes	E	ESTIMATE	EPA UWWTP Tool v4.0	10.197	10.423	0.0	0.226
24	Zinc and compounds (as Zn)	E	ESTIMATE	EPA UWWTP Tool v4.0	1296.805	1325.541	0.0	28.736
13	Total phosphorus	M	OTH	SCA Method	83723.92	83723.92	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING PRTR POLLUTANTS

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT					QUANTITY			
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION C : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT					QUANTITY			
			Method Used					
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
238	Ammonia (as N)	M	OTH	SCA Method	647646.46	647646.46	0.0	0.0

303	BOD	M	OTH	SCA Method	503415.27	503415.27	0.0	0.0
306	COD	M	OTH	SCA Method	3167270.75	3167270.75	0.0	0.0
332	Ortho-phosphate (as PO4)	M	OTH	SCA Method	78960.0	78960.0	0.0	0.0
240	Suspended Solids	M	OTH	SCA Method	638719.47	638719.47	0.0	0.0
379	Total Oxidised Nitrogen (TON)	M	OTH	SCA Method	177548.0	177548.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

4.3 RELEASES TO WASTEWATER OR SEWER

Link to previous years emissions data

SECTION A : PRTR POLLUTANTS

OFFSITE TRANSFER OF POLLUTANTS DESTINED FOR WASTE-WATER TREATMENT OR SEWER					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

OFFSITE TRANSFER OF POLLUTANTS DESTINED FOR WASTE-WATER TREATMENT OR SEWER					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
			Method Used					
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

4.4 RELEASES TO LAND

Link to previous years emissions data

SECTION A : PRTR POLLUTANTS

RELEASES TO LAND					Please enter all quantities in this section in KGs		
POLLUTANT		METHOD			QUANTITY		
			Method Used				
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year
					0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

RELEASES TO LAND					Please enter all quantities in this section in KGs		
POLLUTANT		METHOD			QUANTITY		
			Method Used				
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year
					0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

5. ONSITE TREATMENT & OFFSITE TRANSFERS OF WASTE

| PRTR# : D0033 | Facility Name : Cork City Waste Water Treatment Plant | Filename : D0033_2010.xls | Return Year : 2010 | 01/12/2011 13:39

Please enter all quantities on this sheet in Tonnes 0

Transfer Destination	European Waste Code	Hazardous	Quantity (Tonnes per Year)	Description of Waste	Waste Treatment Operation	Method Used		Location of Treatment	Haz Waste : Name and Licence/Permit No of Next Destination Facility Non Haz Waste: Name and Licence/Permit No of Recover/Disposer	Haz Waste : Address of Next Destination Facility Non Haz Waste: Address of Recover/Disposer	Name and License / Permit No. and Address of Final Recoverer / Disposer (HAZARDOUS WASTE ONLY)	Actual Address of Final Destination i.e. Final Recovery / Disposal Site (HAZARDOUS WASTE ONLY)
						M/C/E	Method Used					
Within the Country	19 08 01	No	2.049	screenings	D1	M	Weighed	Offsite in Ireland	Greenstar Munster ,W013602	Sarsfield Court Industrial Estate,Glanmire,.,County Cork,Ireland		
Within the Country	19 08 05	No	122.3	sludges from treatment of urban waste water	R10	M	Weighed	Offsite in Ireland	Ormonde Organics,W023701	Killowen,Portlaw,.,County Waterford,Ireland		
Within the Country	19 08 02	No	4.47	waste from desanding	D1	M	Weighed	Offsite in Ireland	Greenstar Munster ,W013602	Sarsfield Court Industrial Estate,Glanmire,.,County Cork,Ireland		
Within the Country	20 03 01	No	15.156	mixed municipal waste	D1	M	Weighed	Offsite in Ireland	Greenstar Munster ,W013602	Sarsfield Court Industrial Estate,Glanmire,.,County Cork,Ireland		
Within the Country	20 01 01	No	6.496	paper and cardboard	R3	M	Weighed	Offsite in Ireland	Greenstar Munster ,W013602	Sarsfield Court Industrial Estate,Glanmire,.,County Cork,Ireland		
Within the Country	13 01 11	Yes	5.82	synthetic hydraulic oils	R9	M	Volume Calculation	Offsite in Ireland	Enva Ireland Ltd,W0145-02	Unit 9 Raffeen Industrial Estate ,Raffeen,Monkstown,Co.Cork ,Ireland	Enva Ireland Ltd,W0145-02,Unit 9 Raffeen Industrial Estate ,Raffeen,Monkstown,County Cork,Ireland	Unit 9 Raffeen Industrial Estate ,Raffeen,Monkstown,County Cork,Ireland
Within the Country	19 08 05	No	2850.28	sludges from treatment of urban waste water	R10	M	Weighed	Onsite in Ireland	Quinns of Baltinglass,.	Main Street,Baltinglass,.,County Wicklow,Ireland		

* Select a row by double-clicking the Description of Waste then click the delete button

Link to previous years waste data
Link to previous years waste summary data & percentage change

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CALCULATION OF EMISSIONS FROM URBAN WASTE WATER TREATMENT PLANTS FOR AER AND PRTR REPORTING

Note: Data Entry in the yellow cells only

RELEASES TO AIR

Air: Emissions from WWTP Works

Facility Name: Cork City Waste Water Treatment Plant

Address Carrigrennan, Little Island, Co.Cork

Reporting year: 2010 *(Note: completing these details here will also fill in the other worksheets)*

Data Entry Table: Characteristics of the WWTP

For use where no data from on-site monitoring of air emissions from the plant are available.

Nitrous Oxide (N_2O) calculated directly for actual p.e. data

For information only:
Calculated Values (see worksheet: Calculations)

1 Loadings and Works

A Facility Loadings Data for Reporting Year	**Value**	
Total p.e. served	268,909	*Enter Actual Population Equivalent of catchment*
Design p.e.	413,000	*Enter Design Population Equivalent of facility*

TOW kg BOD / annum	*TOW = "Total Organically biodegradable material in domestic (=municipal) Wastewater"*
5,893,141	Total p.e. served TOW equivalent
9,050,895	Design p.e. TOW equivalent

Total influent BOD kg/annum (measured)	5,889,101	*Enter total annual quantity;* ***NB note units: kg/annum***
Total Sludge removed offsite kg Dry Matter / annum		*Enter total annual quantity;* ***NB note units: kg/annum***
Total Sludge digested on-site kg Dry Matter / annum	2,665	*Enter total annual quantity;* ***NB note units: kg/annum***

268,725	**Quality check: p.e. of influent BOD kg/annum**
0	*BOD content of sludge removed kg/annum*
0	*BOD content of sludge digested kg/annum*
5,889,101	Residual BOD net of sludge removed/digested kg/annum

B Characteristics of the Works	**Status**	
B1 Aerobic plant		
Does the aerobic section of the plant contain dissolved oxygen?		*Y / N (default is "Y")* **Methane Conversion factor for the aerobic plant will be determined by this answer**
All tanks covered and extracted to on-site flare?		*Y / N (default is "N")* **Releases will be reported as "Fugitive"**
% of Headspace biogas utilised on site (0 - 100)		*Only required if Headspace extraction on site; Calculate by % operation of engine. Default assumption is Zero utilisation*
% of Headspace biogas flared (0 - 100)		*Only required if Headspace extraction on site; Calculate by % operation of flare. Default assumption is Zero flaring*
Total % biogas utilised or flared onsite		
B2 Onsite Anaerobic Digestion for sludge treatment		
Anaerobic digestion on site?	y	*Y / N (default is "N")* **Releases will be reported as "Emission Point 1"**
% of Digester biogas utilised on site (0 - 100)	95	*Only required if Anaerobic digestion on site; Calculate by % operation of engine. Default assumption is Zero utilisation*
% of Digester biogas flared (0 - 100)	5	*Only required if Anaerobic digestion on site; Calculate by % operation of flare. Default assumption is Zero flaring*
Total % biogas utilised or flared onsite		

2 Fuel use on the WWTP

Total Diesel Use on site in the year	33.259	*Tonne / annum*	**Releases will be reported as "Fugitive"**

The table here is for illustration only. The output data are presented in the next worksheet "UWWTP Releases to Air", in the precise format for entry directly into the "**Releases to Air**" Worksheet of your Reporting Workbook

PRTR No. Annex II	Name	ESTIMATED QUANTITIES			
		Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
1	Methane (CH4)	0	2		2
3	Carbon Monoxide	0	357		357
3	Carbon Dioxide (CO2)	0	7,468,154		7,468,154
5	Nitrous oxide (N2O)		33		33
7	Non-methane volatile organic compounds (NMVOC)		113		113
8	Nitrogen oxides (NOx/NO2)	0	1,091		1,091
11	Sulphur oxides (SOx/SO2)		106		106

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CALCULATION OF EMISSIONS FROM URBAN WASTE WATER TREATMENT PLANTS FOR AER AND PRTR REPORTING

RELEASES TO AIR

Facility Name: Cork City Waste Water Treatment Plant

Address: Carrigrennan, Little Island, Co.Cork

Reporting year: 2010

Data Output Table Releases to Air from UWWTP facilities

- **The following table combines the estimates from both onsite infrastructure and fuel combustion, and provides the output data in the appropriate format for reporting via the "Releases to Air" Worksheet of the EPA Electronic AER Reporting Workbook**
- **The information must be entered manually; do NOT attempt to use the Cut or Copy methods for this task.**

RELEASES TO AIR									*For info only:*	
POLLUTANT		METHOD			QUANTITY					
PRTR No. Annex II	Name	M/C/E	Method Used		(insert name)				PRTR REPORTING THRESHOLD kg/a	Reportable to European PRTR Website?
			Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year		
1	Methane (CH4)	E	ESTIMATE	EPA UWWTP Tool v4.0	-	1.8	-	1.8	100,000	No
2	Carbon monoxide (CO)	E	ESTIMATE	EPA UWWTP Tool v4.0	-	356.6	-	356.6	500,000	No
3	Carbon dioxide (CO2)	E	ESTIMATE	EPA UWWTP Tool v4.0	-	7,468,154.2	-	7,468,154.2	100,000,000	No
5	Nitrous oxide (N2O)	E	ESTIMATE	EPA UWWTP Tool v4.0	-	32.9	-	32.9	10,000	No
7	Non-methane volatile organic compounds (NMVOC)	E	ESTIMATE	EPA UWWTP Tool v4.0	-	112.6	-	112.6	100,000	No
8	Nitrogen oxides (NOx/NO2)	E	ESTIMATE	EPA UWWTP Tool v4.0	-	1,090.6	-	1,090.6	100,000	No
11	Sulphur oxides (SOx/SO2)	E	ESTIMATE	EPA UWWTP Tool v4.0	-	106.4	-	106.4	150,000	No

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CALCULATION OF EMISSIONS FROM URBAN WASTE WATER TREATMENT PLANTS FOR AER AND PRTR REPORTING

Note: Data Entry in the yellow cells only

Facility Name:	Cork City Waste Water Treatment Plant
Address	Carrigrennan, Little Island, Co.Cork
Reporting year:	2010

RELEASES TO WATER

This tool provides a simple model for the estimation of the annual loads of PRTR Substances released to the receiving waterbody from your facility

FOR THOSE SUBSTANCES INCLUDED IN YOUR FACILITY'S REGULAR MONITORING PROGRAMME:

- Please report the annual loads of those substances based on your flow and concentration data.

Data Entry Table: FLOW DATA

Please enter Total Annual Flow (m³/annum):	*Enter data*
Treated: Final effluent volume released via main emission point	36,439,570
Untreated / Fugitive: Estimated volume released in storm bypasses	807,460

Data Output Table: Releases to water

- **The following table provides the output data in the appropriate format for reporting via the "Releases to Water" Worksheet of the EPA Electronic AER Reporting Workbook.**
- **These figures should be used for all parameters where no actual monitoring data are available.**
- **The information from this table must be entered into the "Releases to water" worksheet manually; do NOT attempt to use the Cut or Copy methods for this task.**
- **If the value returned by the toolset is zero (to 3 decimal places), the pre-entered value is valid and does not have to be retyped**
- **PLEASE NOTE: FOR TECHNICAL REASONS, THE REPORTING WORKSHEET REQUIRES THAT YOU ENTER DATA INTO AT LEAST ONE "QUANTITY" CELL FOR EACH OF THE SUBSTANCES LISTED BELOW.**
- **IF YOU CHOOSE NOT TO REPORT THE MODELLED FIGURE, PLEASE ENTER THE DUMMY VALUE: "0.000999" IN THE "ACCIDENTAL" COLUMN**

Data Output Table: Releases to water

RELEASES TO WATERS										For info only:	
POLLUTANT			Method Used		QUANTITY						
No. Annex II	Name	M/C/E	Method Code	Designation or Description *(Note: replace with site-specific data if applicable)*	SW 1 Emission Point 1	T (Total) kg/year	A (Accidental) kg/year *(Enter site specific data)*	F (Fugitive) kg/year		PRTR reporting threshold kg/a	Is this figure Reportable to the EU Commission under the PRTR?
SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS											
44	1,2,3,4,5, 6-hexachlorocyclohexane (HCH)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.109	0.112		0.002		1	No
34	1,2-dichloroethane (EDC)	E	ESTIMATE	EPA UWWTP Tool v4.0	1.822	1.862		0.040		10	No
25	Alachlor	E	ESTIMATE	EPA UWWTP Tool v4.0	0.380	0.389		0.008		1	No
61	Anthracene	E	ESTIMATE	EPA UWWTP Tool v4.0	0.386	0.394		0.009		1	No
17	Arsenic and compounds (as As)	E	ESTIMATE	EPA UWWTP Tool v4.0	36.408	37.215		0.807		5	**Yes**
27	Atrazine	E	ESTIMATE	EPA UWWTP Tool v4.0	2.349	2.402		0.052		1	**Yes**
91	Benzo(g,h,i)perylene	E	ESTIMATE	EPA UWWTP Tool v4.0	0.147	0.150		0.003		1	No
18	Cadmium and compounds (as Cd)	E	ESTIMATE	EPA UWWTP Tool v4.0	1.959	2.002		0.043		5	No
28	Chlordane	E	ESTIMATE	EPA UWWTP Tool v4.0	0.073	0.074		0.002		1	No
30	Chlorfenvinphos	E	ESTIMATE	EPA UWWTP Tool v4.0	0.036	0.037		0.001		1	No
79	Chlorides (as total Cl)	E	ESTIMATE	EPA UWWTP Tool v4.0	9,067,242.5	9,268,162.4		200,919.9		2,000,000	**Yes**
31	Chloro-alkanes, C10-C13	E	ESTIMATE	EPA UWWTP Tool v4.0	7.653	7.823		0.170		1	**Yes**
19	Chromium and compounds (as Cr)	E	ESTIMATE	EPA UWWTP Tool v4.0	13.434	13.732		0.298		50	No
20	Copper and compounds (as Cu)	E	ESTIMATE	EPA UWWTP Tool v4.0	64.595	66.026		1.431		50	**Yes**
82	Cyanides (as total CN)	E	ESTIMATE	EPA UWWTP Tool v4.0	63.673	65.084		1.411		50	**Yes**
33	DDT	E	ESTIMATE	EPA UWWTP Tool v4.0	0.391	0.400		0.009		1	No
70	Di-(2-ethyl hexyl) phthalate (DEHP)	E	ESTIMATE	EPA UWWTP Tool v4.0	45.659	46.671		1.012		1	**Yes**
36	Dieldrin	E	ESTIMATE	EPA UWWTP Tool v4.0	7.567	7.735		0.168		1	**Yes**
37	Diuron	E	ESTIMATE	EPA UWWTP Tool v4.0	3.437	3.513		0.076		1	**Yes**
38	Endosulfan	E	ESTIMATE	EPA UWWTP Tool v4.0	0.227	0.232		0.005		1	No
65	Ethyl benzene	E	ESTIMATE	EPA UWWTP Tool v4.0	2.912	2.976		0.065		200	No
88	Fluoranthene	E	ESTIMATE	EPA UWWTP Tool v4.0	0.503	0.514		0.011		1	No
83	Fluorides (as total F)	E	ESTIMATE	EPA UWWTP Tool v4.0	12,745.12	13,027.54		282.42		2,000	**Yes**
40	Halogenated organic compounds (as AOX)	E	ESTIMATE	EPA UWWTP Tool v4.0	86.976	88.903		1.927		1,000	No
42	Hexachlorobenzene (HCB)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.036	0.037		0.001		1	No
43	Hexachlorobutadiene (HCBD)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.036	0.037		0.001		1	No
89	Isodrin	E	ESTIMATE	EPA UWWTP Tool v4.0	2.140	2.188		0.047		1	**Yes**
23	Lead and compounds (as Pb)	E	ESTIMATE	EPA UWWTP Tool v4.0	36.249	37.052		0.803		20	**Yes**
45	Lindane	E	ESTIMATE	EPA UWWTP Tool v4.0	0.091	0.093		0.002		1	No

Data Output Table: Releases to water

RELEASES TO WATERS										*For info only:*	
POLLUTANT					**QUANTITY**						
No. Annex II	Name	M/C/E	Method Used: Method Code	Method Used: Designation or Description *(Note: replace with site-specific data if applicable)*	SW 1 Emission Point 1	T (Total) kg/year	A (Accidental) kg/year *(Enter site specific data)*	F (Fugitive) kg/year		PRTR reporting threshold kg/a	Is this figure Reportable to the EU Commission under the PRTR?
21	Mercury and compounds(as Hg)	E	ESTIMATE	EPA UWWTP Tool v4.0	2.391	2.444		0.053		1	**Yes**

Data Output Table: Releases to water

RELEASES TO WATERS										For info only:
POLLUTANT			Method Used		QUANTITY					
No. Annex II	Name	M/C/E	Method Code	Designation or Description *(Note: replace with site-specific data if applicable)*	SW 1 Emission Point 1	T (Total) kg/year	A (Accidental) kg/year *(Enter site specific data)*	F (Fugitive) kg/year	PRTR reporting threshold kg/a	Is this figure Reportable to the EU Commission under the PRTR?
68	Naphthalene	E	ESTIMATE	EPA UWWTP Tool v4.0	16.689	17.059		0.370	10	**Yes**
22	Nickel and compounds (as Ni)	E	ESTIMATE	EPA UWWTP Tool v4.0	282.521	288.781		6.260	20	**Yes**
64	Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)	E	ESTIMATE	EPA UWWTP Tool v4.0	2.413	2.467		0.053	1	**Yes**
69	Organotin compounds (as total Sn)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.364	0.372		0.008	50	No
48	Pentachlorobenzene	E	ESTIMATE	EPA UWWTP Tool v4.0	0.036	0.037		0.001	1	No
71	Phenols (as total C)	E	ESTIMATE	EPA UWWTP Tool v4.0	450.190	460.166		9.976	20	**Yes**
50	Polychlorinated biphenyls (PCBs)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.300	0.307		0.007	0	**Yes**
72	Polycyclic aromatic hydrocarbons (PAHs)	E	ESTIMATE	EPA UWWTP Tool v4.0	29.401	30.053		0.651	5	**Yes**
52	Tetrachloroethylene (PER)	E	ESTIMATE	EPA UWWTP Tool v4.0	16.314	16.675		0.361	10	**Yes**
73	Toluene	E	ESTIMATE	EPA UWWTP Tool v4.0	4.262	4.357		0.094	200	No
12	Total nitrogen	E	ESTIMATE	EPA UWWTP Tool v4.0	222,964.94	233,652.97		10,688.03	50,000	**Yes**
76	Total organic carbon (TOC) (as total C or COD/3)	E	ESTIMATE	EPA UWWTP Tool v4.0	1,254,854.6	1,282,660.7		27,806.2	50,000	**Yes**
13	Total phosphorus	E	ESTIMATE	EPA UWWTP Tool v4.0	85,903.87	88,785.10		2,881.23	5,000	**Yes**
57	Trichloroethylene	E	ESTIMATE	EPA UWWTP Tool v4.0	2.764	2.825		0.061	10	No
77	Trifluralin	E	ESTIMATE	EPA UWWTP Tool v4.0	0.063	0.064		0.001	1	No
75	Triphenyltin and compounds	E	ESTIMATE	EPA UWWTP Tool v4.0	0.072	0.073		0.002	1	No
60	Vinyl chloride	E	ESTIMATE	EPA UWWTP Tool v4.0	1.822	1.862		0.040	10	No
78	Xylenes	E	ESTIMATE	EPA UWWTP Tool v4.0	10.197	10.423		0.226	200	No
24	Zinc and compounds (as Zn)	E	ESTIMATE	EPA UWWTP Tool v4.0	1,296.805	1,325.541		28.736	10	**Yes**

The following estimated Fugitive Loads (stormwater bypass) for non PRTR substances are provided for use where own influent monitoring data are not available.
Use Facility's influent data in preference to these estimated figures if available.

SECTION C : REMAINING POLLUTANT EMISSIONS (As required in your Licence) ***(SECTION B NOT APPLICABLE TO UWWTPS)***

238	Ammonia (as N)	M	OTH	*(enter method)*		19,437.85		19,437.85
303	BOD	M	OTH	*(enter method)*		189,153.10		189,153.10
306	COD	M	OTH	*(enter method)*		408,296.17		408,296.17
362	Kjeldahl Nitrogen	M	OTH	*(enter method)*		32,714.97		32,714.97
327	Nitrate (as N)	M	OTH	*(enter method)*		32,714.97		32,714.97
372	Nitrite (as N)	M	OTH	*(enter method)*		313.25		313.25
332	Ortho-phosphate (as PO4)	M	OTH	*(enter method)*		2,782.09		2,782.09

Data Output Table: Releases to water

RELEASES TO WATERS									For info only:	
POLLUTANT					QUANTITY					
No. Annex II	Name	M/C/E	Method Used: Method Code	Method Used: Designation or Description *(Note: replace with site-specific data if applicable)*	SW 1 Emission Point 1	T (Total) kg/year	A (Accidental) kg/year *(Enter site specific data)*	F (Fugitive) kg/year	PRTR reporting threshold kg/a	Is this figure Reportable to the EU Commission under the PRTR?
240	Suspended Solids	M	OTH	*(enter method)*		210,124.21		210,124.21		

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CALCULATION OF EMISSIONS FROM URBAN WASTE WATER TREATMENT PLANTS FOR AER AND PRTR REPORTING

This sheet is where the actual calculations of the emissions take place, based on the data entered by the operator

RELEASES TO AIR

A Facility Loadings Data for Reporting Year	**Value**	**TOW kg BOD / annum**	*TOW = "Total Organically biodegradable material in domestic (=municipal) Wastewater"*
Total p.e. served	268,909	5,893,141	
Design p.e.	413,000	9,050,895	
Total influent BOD kg/annum (measured)	5,889,101	5,889,101	*268,725* *Quality check: p.e. of influent*
Total Sludge removed offsite kg Dry Matter / annum	0	0	*BOD content of sludge estimated at 40% of dry matter (NIR 2006, p103)*
Total Sludge digested on-site kg Dry Matter / annum	0	0	*BOD content of sludge estimated at 40% of dry matter (NIR 2006, p103)*
Residual BOD net of sludge removed/digested kg/annum		5,889,101	This amount assumed to pass through the plant and to give rise to Fugitive CH4 and CO2 emissions via "Aerobic Plant"
	p.e of residual BOD	*268,725*	For Plant CO_2 generation estimate

B Works

Definition of terms

METHANE (CH4): Fugitive and emitted gas

B1 Aerobic plant	**Status**	**MCF**	**Emission Factor (Bo x MCF)**	**CH4 calculations raw**	**CH4 calculations final**	
Is the aerobic section of your plant fully aerobic?	Yes	0.00	0.00	0	0	Fugitive
All tanks covered and extracted to on-site flare?	No	0.00		0		
Residual BOD net of sludge removed kg/annum	0.00	1.00	*proportion remaining after utilisation*			
% of Headspace biogas flared (0 - 100)	0.00	1.00	*proportion remaining after flaring*			
Plant capacity overloaded?	No					
				Plant CO_2 generation	7,363,056	Fugitive
B2 Onsite sludge treatment						
Anaerobic digestion on site?	y	0.30	0.18	0	0	Emission Point
% of Digester biogas utilised on site (0 - 100)	0.95	0.05	*proportion remaining after utilisation*			
% of Digester biogas flared (0 - 100)	0.05	0.00	*proportion remaining after flaring*			
TOTAL						

Bo = Default Maximum CH4 producing capacity for domestic wastewater

MCF: Methane Correction Factor (2006 IPCC Guidelines, Ch 6 p. 6.12)

Raw calculation: gross fugitive emissions before abatement by utilisation or flaring

CARBON MONOXIDE (CO): Utilised / flared gas	Total CO			0	*EMISSION POINT: (Very approximate) This amount calculated as released via combustion of biogas by utilisation / flaring*
CARBON DIOXIDE (CO_2): Utilised / flared gas AD	Total CO2	1.00	0	0	*EMISSION POINT: This amount calculated as released via combustion of biogas by utilisation / flaring*
Nitrogen Oxides (NOx): Utilised / flared gas	Total NOx			0	*EMISSION POINT: (Very approximate) This amount calculated as released via combustion of biogas by utilisation / flaring*

Note: CO and NOx figures based on stoichoiometric relationships with CO2 - this is a preliminary measure and requires to be improved

		via p.e.	*via influent BOD*	Final	
NITROUS OXIDE (N_2O)	Total N2O	28	28	28	*Fugitive*

C Fuel use on the WWTP

Total Diesel Use in the year — Tonne / year: 33

Calculations relative to diesel used

Pollutant Emissions kg/Annum			Emission Factors			
PRTR Pollutant Number	**Pollutant**		PRTR No	**Pollutant**		E.F kg/Tonne
1	Methane (CH4)	1.829245	1	Methane (CH4)	Air	0.055

2	Carbon monoxide (CO)	356.602998		2	Carbon monoxide (CO)	Air	10.722									
3	Carbon dioxide (CO2)	105098.44		3	Carbon dioxide (CO2)	Air	3160									
5	Nitrous oxide (N2O)	4.489965		5	Nitrous oxide (N2O)	Air	0.135									
7	Non-methane volatile organic compounds (NMVOC)	112.581715		7	Non-methane volatile o	Air	3.385									
8	Nitrogen oxides (NOx/NO2)	1090.629128		8	Nitrogen oxides (NOx/N	Air	32.792									
11	Sulphur oxides (SOx/SO2)	106.4288		11	Sulphur oxides (SOx/SO	Air	3.2									

2 Releases to Water

					2007		Characterisation of waste water and sludge									
FLOW				**Influent / Effluent Ratios**		Others assumed	Ringsend WWTP 2007									
		Both +ve?		COD	0.135	unchanged: i.e.	Av Influent BOD conc									v
Treated: released via main emission point	36,439,570	TRUE		BOD	0.061	Influent										
Untreated / Fugitive: released in storm bypasses	807,460			SS	0.109	concentrations best	Av Sludge Org Matter		0.62							
				TN	0.462	approximated by	Av Sludge BOD		0.4							
Calculated loads based on flow				TP	0.661	effluent	Organic Content of Sludge %		60 kg/m³							
				NH3	0.164	concentrations										

LastOf Counter	PRTRNo	Pollutant	Modelled effluent load kg/annum	Modelled Influent Load kg/annum	Source	Model concentration mg/l	Model Load kg/a	Threshold	A2 CAS no	PS CAS#	All<LOD?
1	12	Total nitrogen	222,964.94	4,940.65	PS	6.1188	900,400.52	50000		n/a	
2	13	Total phosphorus	85,903.87	1,903.53	PS	2.3574	346,906.04	5000		n/a	
3	17	Arsenic and compounds (as As)	36.41	0.81	PS	0.0010	147.03	5		7440-38-2	
4	18	Cadmium and compounds (as Cd)	1.96	0.04	PS	0.0001	7.91	5		7440-43-9	
5	19	Chromium and compounds (as Cr)	13.43	0.30	PS	0.0004	54.25	50		7440-47-3	
6	20	Copper and compounds (as Cu)	64.59	1.43	PS	0.0018	260.85	50		7440-50-8	
7	21	Mercury and compounds(as Hg)	2.39	0.05	PS	0.0001	9.66	1		7439-97-6	
8	22	Nickel and compounds (as Ni)	282.52	6.26	PS	0.0078	1,140.90	20		7440-02-0	
9	23	Lead and compounds (as Pb)	36.25	0.80	PS	0.0010	146.39	20		7439-92-1	
10	24	Zinc and compounds (as Zn)	1,296.81	28.74	PS	0.0356	5,236.90	10		7440-66-6	
11	25	Alachlor	0.38	0.01	PS	0.0000	1.54	1	15972-60-8	15972-60-8	
12	26	Aldrin	0.09	0.00	PS	0.0000	0.37	1	309-00-2	309-00-2	Yes
13	27	Atrazine	2.35	0.05	PS	0.0001	9.49	1	1912-24-9	1912-24-9	
15	28	Chlordane	0.07	0.00	CoA	0.0000	0.34	1	57-74-9		
16	29	Chlordecone	0.00	0.00				1	143-50-0		
17	30	Chlorfenvinphos	0.04	0.00	CoA	0.0000	0.17	1	470-90-6		
18	31	Chloro-alkanes, C10-C13	7.65	0.17	PS	0.0002	30.91	1	85535-84-8	n/a	
19	32	Chlorpyrifos	0.11	0.00	Av	0.0000	0.70	1	2921-88-2	2921-88-2	Yes
20	33	DDT	0.39	0.01	PS	0.0000	1.58	1	50-29-3	50-29-3	
23	34	1,2-dichloroethane (EDC)	1.82	0.04	PS	0.0001	7.36	10	107-06-2	107-06-2	
24	35	Dichloromethane (DCM)	13.42	0.30	PS	0.0004	54.20	10	75-09-2	75-09-2	Yes
25	36	Dieldrin	7.57	0.17	PS	0.0002	30.56	1	60-57-1	72-20-8	
26	37	Diuron	3.44	0.08	PS	0.0001	13.88	1	330-54-1	330-54-1	
28	38	Endosulfan	0.23	0.01	Av	0.0000	1.44	1	115-29-7	959-98-8	
29	39	Endrin	0.15	0.00	PS	0.0000	0.61	1	72-20-8	60-57-1	Yes
107	40	Halogenated organic compounds (as AOX	86.98	1.93	Add	0.0024	552.84	1000			
108	41	Heptachlor	0.04	0.00	CoA	0.0000	0.17	1	76-44-8		Yes
110	42	Hexachlorobenzene (HCB)	0.04	0.00	CoA	0.0000	0.17	1	118-74-1	118-74-1	
111	43	Hexachlorobutadiene (HCBD)	0.04	0.00	PS	0.0000	0.15	1	87-68-3	87-68-3	
115	44	1,2,3,4,5, 6-hexachlorocyclohexane (HCH	0.11	0.00	CoA	0.0000	0.51	1	608-73-1		
116	45	Lindane	0.09	0.00	PS	0.0000	0.37	1	58-89-9	58-89-9	
117	46	Mirex	0.00	0.00				1	2385-85-5		
135	48	Pentachlorobenzene	0.04	0.00	PS	0.0000	0.15	1	608-93-5	608-93-5	
136	49	Pentachlorophenol (PCP)	1.53	0.03	PS	0.0000	6.18	1	87-86-5	87-86-5	Yes
143	50	Polychlorinated biphenyls (PCBs)	0.30	0.01	Add	0.0000	1.91	0.1	1336-36-3	35693-99-3	
144	51	Simazine	2.36	0.05	PS	0.0001	9.53	1	122-34-9	122-34-9	Yes
145	52	Tetrachloroethylene (PER)	16.31	0.36	PS	0.0004	65.88	10	127-18-4	127-18-4	
146	53	Tetrachloromethane (TCM)	1.82	0.04	PS	0.0001	7.36	1	56-23-5	56-23-5	Yes
149	54	Trichlorobenzenes (TCBs) (all isomers)	0.32	0.01	Add	0.0000	2.03	1000	12002-48-1	108-70-3	Yes
152	57	Trichloroethylene	2.76	0.06	PS	0.0001	11.16	10	79-01-6	79-01-6	
153	58	Trichloromethane	58.91	1.31	PS	0.0016	237.89	10	67-66-3	67-66-3	Yes
154	59	Toxaphene	0.00	0.00				1	8001-35-2		
155	60	Vinyl chloride	1.82	0.04	PS	0.0001	7.36	10	75-01-4	75-01-4	
156	61	Anthracene	0.39	0.01	PS	0.0000	1.56	1	120-12-7	120-12-7	
158	62	Benzene	1.82	0.04	PS	0.0001	7.36	200	71-43-2	71-43-2	Yes
159	63	Brominated diphenylethers (PBDE)	18.21	0.40	CoA	0.0005	84.41	1			Yes
161	64	Nonylphenol and Nonylphenol ethoxylates	2.41	0.05	PS	0.0001	9.75	1		37340-60-6	
162	65	Ethyl benzene	2.91	0.06	PS	0.0001	11.76	200	100-41-4	100-41-4	
163	66	Ethylene oxide	0.00	0.00				10	75-21-8		Yes
164	67	Isoproturon	0.23	0.01	PS	0.0000	0.93	1	34123-59-6	34123-59-6	Yes

165	68	Naphthalene	16.69	0.37	PS	0.0005	67.40	10	91-20-3	91-20-3							
170	69	Organotin compounds (as total Sn)	0.36	0.01	CoA	0.0000	1.69	50									
171	70	Di-(2-ethyl hexyl) phthalate (DEHP)	45.66	1.01	PS	0.0013	184.39	1	117-81-7	117-81-7							
188	71	Phenols (as total C)	450.19	9.98	Add	0.0124	2,861.51	20									
204	72	Polycyclic aromatic hydrocarbons (PAHs)	29.40	0.65	Add	0.0008	186.88	5		205-99-2							
207	73	Toluene	4.26	0.09	Add	0.0001	27.09	200									
208	74	Tributyltin and compounds	0.13	0.00	PS	0.0000	0.52	1		36643-28-4	Yes						
209	75	Triphenyltin and compounds	0.07	0.00	Av	0.0000	0.46	1		n/a							
210	76	Total organic carbon (TOC) (as total C or	1,254,854.56	27,806.17	PS	34.4366	5,067,485.93	50000		n/a							
211	77	Trifluralin	0.06	0.00	Av	0.0000	0.40	1	1582-09-8	1582-09-8							
213	78	Xylenes	10.20	0.23	PS	0.0003	41.18	200	1330-20-7	1330-20-7							
214	79	Chlorides (as total Cl)	9,067,242.49	200,919.92	CoA	248.8296	42,034,130.73	2000000		16887-00-6							
215	81	Asbestos	0.00	0.00				1	1332-21-4								
216	82	Cyanides (as total CN)	63.67	1.41	PS	0.0017	257.13	50		57-12-5							
217	83	Fluorides (as total F)	12,745.12	282.42	CoA	0.3498	59,084.12	2000		16984-48-8							
218	87	Octylphenols and Octylphenol ethoxylates	0.00	0.00				1	1806-26-4								
219	88	Fluoranthene	0.50	0.01	Av	0.0000	3.20	1	206-44-0	206-44-0							
221	89	Isodrin	2.14	0.05	PS	0.0001	8.64	1	465-73-6	465-73-6							
222	90	Hexabromobiphenyl	0.00	0.00				0.1	36355-1-8								
223	91	Benzo(g,h,i)perylene	0.15	0.00	PS	0.0000	0.59	1	191-24-2	191-24-2							
Licensed Substances not on PRTR List																	
1152		Ammonia mg/l as N	877,203.66	19,437.85	DCC Ringsend 2007	24.073											
1146		BOD mg/l	8,536,221.60	189,153.10	DCC Ringsend 2007	234.257											
1147		COD mg/l	18,425,850.09	408,296.17	DCC Ringsend 2007	505.655											
1154		Kjeldahl Nitrogen mg/l as N	1,476,382.13	32,714.97	DCC Ringsend 2007	40.516											
1155		Nitrate mg/l as N	14,136.57	313.25	DCC Ringsend 2007	0.388											
1150		Phosphorus (React) mg/l as P	125,552.03	2,782.09	DCC Ringsend 2007	3.445											
1148		Suspended Solids mg/l	9,482,619.50	210,124.21	DCC Ringsend 2007	260.229											
Not yet in reporting workbook list:																	
1156		Nitrite mg/l as N	3,024.39	67.02	DCC Ringsend 2007	0.083											
1153		TON mg/l as N	14,786.95	327.66	DCC Ringsend 2007	0.406											
Data from File \\Lapwing:\Cork PRTR\Operator Communications\WWTPs\Development "Influent Effluent 2007.xls" [Influent]																	

2.7.1 Summary Data used for 2010 PRTR return

2010 Treated Effluent	COD	Suspended Solids	BOD	Chloride	Total Nitrogen	Total Phosphorus	Total Ammonia (Ammonia Nitrogen-as N)	Total Oxidised Nitrogen (as N)	Orthophosphate (Soluble Reactive Phosphorus-as P)
No.Tests	260	260	260	260	51	51	26	26	26
Sample Quantity in Kg	**2,201,404**	**436,415**	**337,236**	**40,806,571**	119,958	11,628	44,794	12,280	5,461
Related Flow in M3	26,017,800	26,017,800	26,017,800	26,017,800	5,072,700	5,060,810	2,520,330	2,520,330	2,520,330
Equivalent Kg/M3	0.084611	0.016774	0.012962	1.568	0.02365	0.002298	0.017773	0.004872	0.002167
Av Conc mg/l	84.611	16.774	12.962	1,568	23.65	2.298	17.773	4.872	2.167
Total Flow to Outfall M3	36,439,570	36,439,570	36,439,570	36,439,570	36,439,570	36,439,570	36,439,570	36,439,570	36,439,570
Total Quantity in Effluent Kg	**3,083,206**	**611,227**	**472,320**	**57,152,176**	**861,714**	**83,724**	**647,646**	**177,548**	**78,960**
2010 Storm overflow	COD	Suspended Solids	BOD						
No.Tests	37	37	37						
Sample Quantity in Kg	**84,065**	**27,492**	**31,095**						
Related Flow in M3	807,460	807,460	807,460						
Equivalent Kg/M3	0.104110	0.034048	0.038510						
Av Conc mg/l	104.110	34.048	38.510						
Total Flow to Outfall M3	807,460	807,460	807,460						
Total Quantity in Storm Kg	**84,065**	**27,492**	**31,095**						
Total 2010 Emissions to Water	**3,167,270.75**	**638,719.47**	**503,415.27**	**57,152,176.46**	**861,714.26**	**83,723.92**	**647,646.46**	**177,548**	**78,960**
2009									
No.Tests	261	261	258	261	51	51			
Sample Quantity in Kg	1,737,859	317939.175	264,885	28,323,001	117,011	11,638			
Related Flow in M3	29,213,040	29,213,040	28,943,543	29,213,040	5,628,873	5,670,943			
Equivalent Kg/M3	0.05949	0.01088	0.00915	0.96953	0.02079	0.00205			
Av Conc mg/l	59.49	10.88	9.15	969.53	20.79	2.05			
Total Flow to Outfall M3	40,381,480	40,381,480	40,381,480	40,381,480	40,381,480	40,381,480			
Total Quantity in Effluent Kg	**2,402,260**	**439,491**	**369,562**	**39,151,170**	**839,435**	**82,869**			
Increase in 2010 over 2009 (only compares Treated Effluent)	**128.3%**	**139.1%**	**127.8%**	**146.0%**	**102.7%**	**101.0%**			
Increase in 2010 over 2009 (All Effluent Vs Treated only)	**131.8%**	**145.3%**	**136.2%**						

3 Complaints and Incidents Reports

3.1 Waste Water Treatment Plant

3.1.1 Complaints Summary

3.1.1.1 December 2009

No complaints were received by the Plant for December 2009.

3.1.1.2 Full Year 2010

There were no complaints received at the Plant in 2010 related to discharges. In all, 59 individual odour related complaints were received, related to 38 separate days, 22 of which were in May & June

3.1.2 Incidents Summary

3.1.2.1 December 2009 & full Year 2010

See Sections 2.3.8 *Discharges from the Agglomeration Total N, Total P* for details

Phosphorous ELV exceedence, from date of Licence 17th Dec 2009.

Condition 2.1.2 (iv) compliant, Annual Mean for Total Phosphorus within ELV value for 2010

Incidents /Breaches relate to Condition 2.1.2 (v) that 8 out of 10 samples shall not exceed the emission limit value and no individual result shall exceed the ELV by more than 20%.

3.2 City Council Environmetal Pollution Control Section

One complaint was received which related to inappropriate FOG (Fats, Oil Grease) discharges to sewer from a restaurant in December 2009. This was resolved by the Drainage section.

In 2010 there were 9 complaints related to spillages/discharges to streams or rivers. These were investigated and most found to be either transient or accidental. There was no significant pollution found in any case, and in all instances where a responsible person was found undertakings were given to stop potential discharges and clean up spillages.

3.3 County Council Environmetal Pollution Control Section

There were no complaints received with respect to discharges to water /groundwater in the Cork City Agglomeration during the period. 3 complaints were received with respect to smells from WWWTP during the months of May/June 2010.

3.3.1 City Network Complaints & Incidents

The Drainage Section of Cork City Council maintains a Complaints Register which logs queries and complaints concerning the Drainage Network and Rivers within the city. The system also logs when sewers are flushed to prevent blockages. A callout system is operated by Drainage

ground staff to respond out of hours to issues /complaints received. Typically calls from the public relate to blocked drains, road gullies or sewers, displaced manhole covers, or localised stormwater flooding.

3.3.1.1 December 2009 Complaints & Incidents

There were 111 issues logged in December 2009. 38 of these were routine flushing, the remainder were normal operational issues, blockages, flooding etc which were all resolved within a short time period. 34 of these latter were out-of- hours calls, but not of the nature that required an emergency environmental response. None of the issues had the potential to cause environmental contamination of surface water or groundwater or posed a threat to land.

3.3.1.2 Full Year 2010 Complaints & Incidents

There were 1,410 issues logged on the Drainage system in 2010. 573 of these were routine flushing, 158 of the 837 remaining were out-of- hours calls, but again not of the nature that required an emergency environmental response. All operational issues, blockages, flooding, etc, were resolved within a short period of time. There were 6 issues raised that were related to discharges to river waters. 2 of these were due to blockages on a CSO which were rectified immediately, another was a transient discharge from a storm pipe which was reported by the South Western Fisheries. A further discharge was overcome by discharge licence review. 2 complaints related to a large amount of grey water discharging to river which on investigation was from very diffuse sources over a large sub-catchment. Of all the issues this had the most potential to cause environmental nuisance. While recurring and ongoing in 2011, it was temporarily abated by re-directing the stormwater to foul, until full investigation can eliminate the multiple sources and the stormwater can be directed back to river.

3.3.2 County Council Network Complaints & Incidents

3.3.2.1 December 2009 & Full year 2010

No complaints were received, or incidents recorded within the County Council Networks for the agglomeration, Glanmire, Glounthane, Little Island, Tramore Valley or Rochestown.

4 Infrastructural Assessments and Programme of Improvements

4.1 Treatment Capacity

4.1.1 Hydraulic Load

Refer to Sections 2.1.1 *Monthly Summary Influent and Effluent Flow Report* and Section 2.1.2 *Infiltration*

The Inflows to the WWTP, i.e. Average Daily Flow for 2010equal to 96,816m3/day, are in excess of designed inflows for the population served and Population Equivalent calculated. It is proposed that these excessive inflows are as a result of an excess/ background inflow and /or

infiltration, exacerbated due to the location of the catchment at the head of an Estuary. This is supported by measured chloride levels in the influent, together with the time range of the inflows, and is also borne out by the low organic loads received at the plant compared to the inflows received. The amount of infiltration is in the order of 46% of the Average Daily Flow received at the WWTP compared to an original estimate of 16.5% at design stage.

WWTP Design Flows

Crude Sewage Dry Weather Flow of DWF	= 59,359 m3/day,
Equating to Average Daily Flow (DWF*1.2)	= 71,231 m3/day
Crude Sewage Maximum flow (WWF)	= 359,592 m3/day (design factor 6.06)

The plant has been designed to cater for a maximum flow to the plant of 359,592 m3/day (14,983m3/hr). The maximum daily flow experienced at the WWTP since commissioning is 251,556 m3/day (during floods in 2009). This value represents 70% of the maximum flow possible for the WWTP.
The Annual Maximum Treated Effluent for 2010 was 161,840 m3/day, which is consistent with the design of the plant.
Approximately half of the outflows from the storm holding tanks have undergone full Primary Treatment before overflowing to storm holding tanks (flow >1.83m3/sec), the remainder has undergone a form of Primary Treatment, i.e. partial settlement, within the storm holding tanks prior to discharge. All outflows from the storm holding tanks have undergone screening and grit removal. The Primary /Partially Treated outflows from the Storm Holding tanks in 2010 consisted of less than 2.3% of the total flows from the WWTP.

4.1.2 Organic Load

See Section 2.2 *Mass loading Measurement* and Section 2.3.6 *Storm & Treated Discharges / Combined Discharge, Summary of COD, SS & cBOD*

The tables and results show that the calculated Population Equivalent using inflow cBOD loading for 2010 is 268,909, which is 65%, i.e. considerably less than, the 2020 design figure for the WWTP of 413,200.

Monitoring results Sections 2.3.6 and 2.3.7 for Storm Water Discharges, combined with Treated Effluent Discharges, and resultant flow related loading, illustrate that the resultant effluent in all cases, bar one, was within the ELV limits. When frequency of sampling was taken into account this did not give rise to a non-compliance issue.

4.2 Storm water overflow identification and inspection report

This information is not required until the Second AER which is due to be submitted in February 2012

4.3 Report on progress made and proposals being developed to meet the improvement programme requirements

This information is not required until the Second AER which is due to be submitted in February 2012

5 Environmental Liability and Financial Provisions

5.1 Annual Statement on prevention of environmental damage

The Cork City Waste Water Treatment plant at Carrigrennan is operated by Northumbrian Water Projects Ltd on behalf of Consort Joint Venture on a twenty year contract. Full Performance Management Systems, independently certified to ISO 9001 and ISO 14001, are in place, with appropriate controls and monitoring for the operation, and maintenance of the plant and equipment. Carrigrennan WWTP is operated to the highest standards for secondary treatment of effluent and all environmental monitoring required by the licence is undertaken. Process monitoring is also undertaken and alarm and call-out systems are in place to address any accidents/incidents should they arise.

Atlantic Pond Pump Station and the Ballinure Header Chamber are the key items of infrastructure on the system apart from the Treatment Plant. They are operated and maintained under separate contract, and are under constant surveillance.

The City Council P&M department carry out maintenance of the older pump stations (pre Cork Main Drainage). The department operates a callout system for fitters and electricians. This call out system has been further enhanced with the upgrade of all the control panels which now includes a text alert system which is activated by alarm set points. The alarm texts are now directly issued to the P&M foreman.

The remaining pump stations, constructed more recently within the Cork Main Drainage projects are inspected regularly, up to twice weekly, depending on risk level attached to the installation, by City Council technicians. A maintenance programme is in place and service and repairs are carried out as required by contractors.

Pump replacement and refurbishment is an ongoing feature of the preventive maintenance carried out under both systems. This results in any pump station failures being mitigated.

Cork City Council operates and maintains the Drainage Network within the City. Regular inspection, repair and maintenance are carried out by the Drainage maintenance staff, who respond to all complaints that are received concerning the network operation. A specialist crew inspects and cleans all Combined Sewer Overflows on a fortnightly basis. Cork City Council also operates a call-out /emergency response system for out- of- hour's problems that arise.

Cork County Council via their Area Network Maintenance Divisions, operate and maintain the County Council Drainage Network which discharges to Carrigrennan WWTP.

As required it is proposed to carry out the Environmental Liability Risk Assessment as part of the Second AER

5.2 Management of Financial Risk.

Cork City Council does not hold a specific Environmental Liability Insurance policy but the standard insurance policy held from Irish Public Bodies Mutual/ACE Europe includes cover where legal liability attaches to Cork City Council as follows:

Products Liability and Sudden/ Unforeseen Pollution as defined in policy -€13m any one event/any one period. Also increased to €25m any one event /any one period by way of excess layer.

The terms of the WWTP contract include provision of insurances, and, in addition, a Performance Bond of €3m for the satisfactory execution of duties under the contract. The insurance held by Northumbrian Water includes cover as follows

Products / Pollution Liability -€15m any one accident/ in the aggregate.
(Pollution is defined as sudden, accidental and unintended pollution)

Part copies of letters confirming insurance of Cork City Council and Northumbrian Water are attached. Both entities use Marsh as brokers.

MARSH

CONFIRMATION OF INSURANCE – CORK CITY COUNCIL

As requested by you, we are writing to confirm that we act as your Insurance Broker and that we have arranged insurances on your behalf as detailed below. A copy of this letter may be provided by you to third parties who have a legitimate need to receive confirmation of your insurance cover.

TYPE OF INSURANCE	Employers and Public Liability Insurance
INSURER:	Irish Public Bodies Mutual / ACE Europe
POLICY NUMBER:	*CBL 110*
PERIOD OF INSURANCE:	*1ST June 2011 – 31st May 2012*

MARSH

CONFIRMATION OF INSURANCE – Northumbrian Water Projects Limited
Carrigrennan Waste Water Treatment Plant

TYPE OF INSURANCE	Employers, Public and Products Liability Insurance
INSURER:	Chubb Insurance Company
POLICY NUMBER:	35911521
BUSINESS DESCRIPTION:	Operation and Maintenance of Waste Water Treatment Plant and Associated Treatment Plant/Pumping Stations/Sewers
PERIOD OF INSURANCE:	01 April 2011 – 31 March 2012

6 Licence Specific Reports

6.1 Chemical, Ecological and Trophic status of the receiving waters

Report for South Western River Basin Management Plan (2009-2015) refers. Status of receiving waters is Intermediate.

6.2 Development/ Infrastructural Works Summary (completed in 2010 or prepared for 2011)

6.2.1 Water Services Investment Programme 2010-2012.

6.2.1.1 List of Schemes at Construction Stage

There is no Cork City or Cork County Council Contract at Construction Stage within the Catchment

6.2.1.2 Contracts to Start 2011-2012

Upon review in 2011, the following scheme was added to the WSIP programme to facilitate compliance with condition A.3 of the WWDL

Cork City Agglomeration 2010

Cork City Sewerage Scheme (St Patricks Culvert) Estimated Cost €500,000

6.2.1.3 List of Schemes at Planning Stage

Cork City
Carrigrennan Wastewater Treatment Plant upgrade
Docklands Sewerage Scheme
Upon review in 2011, the following scheme was added to the WSIP programme
Cork City Sewerage Scheme (Collection Network)

Cork County
Cork City Sewerage Scheme (Tramore River Valley –Study)
Glanmire / Riverstown/ Little Island, Stormwater Separation Study

6.2.2 Works carried out within Council Funded Programmes / Budgets 2009/2010

A Contract to upgrade control panels in older pump stations was completed in 2010. This incorporates a text alarm system. In addition 7 new, larger or improved pumps were installed in 4 pump stations to reduce the risk of blockages and/or failure at vulnerable locations. One of these pumps is a screw impellor type pump which is proving extremely effective in resisting blockages.

6.3 Toxicity Report

This information is not required until the Second AER which is due to be submitted in February 2012.

6.4 Environmental Liabilities Risk Assessment (ELRA)

This information is not required until the Second AER which is due to be submitted in February 2012

6.5 Screening of Organic Compounds and Metals

Screening of the WWTP primary discharge effluent for organic compounds and metals (Priority Substances) is conditioned to be carried out within twelve months of the date of grant of licence, i.e. by 17th Dec 2010.

The Environmental Protection Agency is undertaking an Effluent Characterisation with consultants Mott MacDonald Ireland Ltd, and 88 pollutants, (including all the priority substances) are being monitored on a quarterly basis at 11 WWTPs around Ireland including Cork City WWTP. This study's objective is to determine which pollutants are likely to be found in Irish WWTPs and also to refine the UWW Calculation Tool for PRTR reporting purposes. The full dataset will be available by Q2 of 2011.

It has been agreed with the EPA that Cork City does not have to carry out screening of the Priority Substances, i.e. Organic Compounds and Metals, as this testing is included in the Effluent Characterisation monitoring for Cork City WWTP.

7 Approval

As per condition 6.12 of Discharge Licence D0033-01, I certify the above report is true and accurate.

Prepared by: Anne Hennessy
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Water Services(Drainage)

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Approved by: James O'Donovan
Director of Service
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