



Sligo County Council
Comhairle Chontae Shligigh

2011
ANNUAL ENVIRONMENTAL REPORT

FOR
BALLISODARE WASTEWATER TREATMENT WORKS

WWDL NO:-D0095-01



Sligo Water Services Section
St Anne's Place,
Riverside,
Sligo.

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE OF CONTENTS			Page
1		Introduction	6
	1.1	Ballisodare Wastewater Treatment Plant	6
	1.2	Annual Environmental Report	7
2		Summary of Monitoring Reports	9
	2.1	Summary Report on Monthly Influent Monitoring	9
	2.1.1	Discussion of Influent Monitoring Results	9
	2.2	Discharges from the Agglomeration	9
	2.2.1	Discussion of Effluent Monitoring Results	12
	2.2.2	Graphical Representation of Monitoring Data	14
	2.2.3	Pollutant Removal Efficiency	14
	2.3	Data Collection and Reporting Requirements under the Urban WWT Directive	14
	2.4	Ambient Water Quality Monitoring	14
	2.5	Pollutant Release and Transfer Register (PRTR) – report for previous year	17
	2.5.1	Flow Weighted Mass Emissions	17
	2.6	Pollutant Release and Transfer Register (PRTR) – proposal for current year	17
	2.7	Treatment and Transfers of Wastes	17
	2.7.1	Sludge Exports	17
	2.7.2	Screenings and Grit Removal	17
3		Complaint & Incident Reports	19
	3.1	Complaints Summary	19
	3.2	Reported Incidents Summary	19
4		Infrastructural Assessments and Programme of Improvements	21
	4.1	Treatment Capacity	21
	4.2	Report on Programme of Improvements	21
	4.3	Storm Water Overflow Identification and Inspection	21
5		Environmental Liability and Financial Provisions	23
	5.1	Introduction	23
	5.2	Environmental Liabilities Risk Assessment (ELRA) Report	23
6		Declaration	25
	6.1	Declaration by Management	25

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE OF CONTENTS			Page
		APPENDIX 1: - Tables and Figures	
Table		List of Tables:	
1		Influent & Effluent Monitoring Results	27
2		Effluent Metals Test Results	50
3		Results of Effluent Screening For <i>Priority Substances</i>	51
4		Pollutant Removal Efficiency at the Ballisodare WWTW - 2011	57
5		Ambient Water Quality Monitoring Results	58
6		Flow Weighted Mass Emissions Calculations (Treated Effluent)	61
7		Sludge Disposal Records (Year 2011)	63
8		Screenings & Grit Disposal Records (Year 2011)	63
Fig.		List of Figures (Graphical Representations):	
1		Plant Inflow & Outflow (m ³ /day)	64
2		Influent & Effluent BOD (mg/l)	64
3		Influent & Effluent COD (mg/l)	65
4		Influent & Effluent Total Suspended Solids (mg/l)	65
5		Influent - Total Nitrogen & Total Phosphorous (mg/l)	66
6		Effluent - Ammonia (mg/l)	66
7		Effluent - TON & MRP (mg/l)	67
8		Effluent - Temp (Deg. C)	67
9		Effluent – pH	68
		APPENDIX 2:- Employers Liability Risk Assessment	69
		APPENDIX 3: - AER Emissions Calculations Toolset	100
		APPENDIX 4: - AER Returns Workbook	110

SECTION 1
INTRODUCTION

1 INTRODUCTION

1.1 Ballisodare Wastewater Treatment Plant

The WWT plant serving Ballisodare was upgraded in 2005 and is currently being run on behalf of Sligo County Council by EPS Ltd under a 20 year Operation & Maintenance Contract. This activated sludge plant was designed to cater for a population equivalent of 4,500 (DWF 11.7l/s) and to achieve final effluent standards as follows:

- BOD – 25mg/l
- Total SS – 35mg/l
- COD – 125mg/l

The treatment process on site incorporates the following:

- Inlet Pumping (up to 6DWF) & Flow Measurement/Sampling
- Screenings Removal incl. Washing & Compacting.
- Grit Removal
- Stormwater Diversion & Temporary Storage within SWHT
- STM Hybrid Activated Sludge Plant
- Ferric Sulphate Dosing facilities for phosphorous removal (off-line in 2011)
- Sludge Recirculation and Control
- Final Clarifier
- Tidal Release Tank
- Effluent Sampling & Flow Measurement
- Sludge Holding & Dewatering Facilities (Belt Press)

After final clarification, the treated effluent is stored in a tidal release tank to be discharged to Ballisodare Estuary in a controlled manner twice a day on high tides, it discharging via an outfall pipe approx. 450m long (at Primary Discharge Point SW1).

The 3 nr inlet pumps provided are configured on a duty/assist/standby arrangement with 2 pumps in parallel designed to deliver a max of 70.2l/s (6DWF) up to the Preliminary Treatment Unit (PTU) to undergo screening, grit removal and forward feed. The plant is designed such that flows up to 3DWF (35.1 l/s) receive full immediate treatment while storm flows of between 3 and 6 DWF are diverted to the SWHT – to be temporarily stored and returned for full treatment after the storm event subsides. Any overflows from the SWHT (which are all screened) discharge to the estuary via the same outfall pipe as the Primary Discharge (at SW1).

The Plant at Ballisodare is currently under loaded and no fugitive overflows were recorded leaving the SWHT during the year.

There are 2 pumping station on the outlying sewer network, one constructed in the 1970's serving c5 houses in the Knox Park area and the second serving 30-40 houses in the Knockmuldowney Park area, this being taken in charge by Sligo County Council in the last couple of years.

1.2 Annual Environmental Report

This Annual Environmental Report (AER) has been prepared in accordance with the requirements of:

- SI 123 of 2007, the **Pollutant Release and Transfer Regulations** – which requires reporting of annual releases (Emissions) by Operators of all such EPA licensed wastewater treatment facilities
- Condition 6.10 of the EPA Wastewater Discharge License No D0095-01 issued on the 13th July 2010 for the Ballisodare Agglomeration and Schedule D of the said license reproduced below.

SCHEDULE D: Annual Environmental Report
Annual Environmental Report Content ^{Note 1}
Discharges from the Agglomeration
Summary Report on Monthly Influent Monitoring
Data Collection and reporting Requirements under the Urban Waste water Directive
Complaints Summary
Pollutant release and Transfer Register - Report for previous year
Pollutant release and Transfer Register - Report for current year
Ambient Monitoring Summary
Stormwater Overflow identification and inspection report
Reported Incidents Summary
Report on progress made and proposals being developed to meet the improvement programme requirements ^{Note 2}
Development/Infrastructural Works summary (completed in previous year or prepared for current Year)
Any other items specified by the Agency

Note 1: Content may be revised subject to the agreement of the Agency

Note 2: This summary report shall provide details on all measures proposed and undertaken under the Water Services Investment Programme for the agglomeration, including progress reports on infrastructural works and a statement of compliance with timeframes set out in the license

This is the 2nd AER to be submitted under the Ballisodare license issued 13/7/10

SECTION 2

SUMMARY OF MONITORING REPORTS

2 SUMMARY OF MONITORING REPORTS

2.1 Summary Report on Monthly Influent Monitoring

Clause 4.15 of the WWDL calls for monthly monitoring of the influent stream to the wastewater treatment plant to check for levels of cBOD, COD, Suspended Solids, Total Nitrogen and Total Phosphorous.

Table 1 (App1) shows all influent monitoring results for the year, together with all daily inflows.

2.1.1 Discussion of Influent Monitoring Results

Table 1 shows an average inflow of **285m³/day** (3.3l/s) over the year and an average incoming BOD load of **79 kg/day**. This equates to a population equivalent of **1,316** (@ 60g BOD/hd/day), which is well below the **4,500** design p.e. The plant is designed to cater for an average BOD load of **270 kg/day** (4,500 persons @ 60g BOD/hd/day)

Influent BOD's averaged **303mg/l** over the year with COD's and Total Suspended Solids averaging **707mg/l** and **233mg/l** respectively.

Incoming Total Nitrogen and Total Phosphorous levels over the year averaged **44mg/l** and **9mg/l** respectively.

2.2 Discharges from the Agglomeration

There are 5 discharges from the agglomeration, the Primary Discharge Point (SW1 at which treated effluent enters the estuary at Co-Ords 166522E, 329823N) together with a further 4 SWO's as listed below. (Note the stormwater overflow on the treatment works site (SWA below) shares a common outfall pipe with the Primary Discharge SW1)

Storm Water Overflows		
Discharge Point Code	Location	Name of Receiving waters
SW2	Ball Alley (166777E, 329066N)	Ballisodare River
SW3	Power Plant (166741E, 329252N)	Ballisodare River
SW5	Main Street (166804E, 329144N)	Ballisodare River
SWA	At WWTP Site	Ballisodare Estuary

The TWS and locations of discharge points SW1, SW2, SW3, SW5 & SWA are shown on the map on page 11

There are no secondary wastewater discharges in the Agglomeration.

Schedule B of the discharge license sets out a range of parameters requiring to be monitored on the treated effluent stream discharging to Ballisodare Estuary through SW1 and the frequency with which testing/analysis has to be undertaken. Parameters to be tested and frequencies are as follows

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

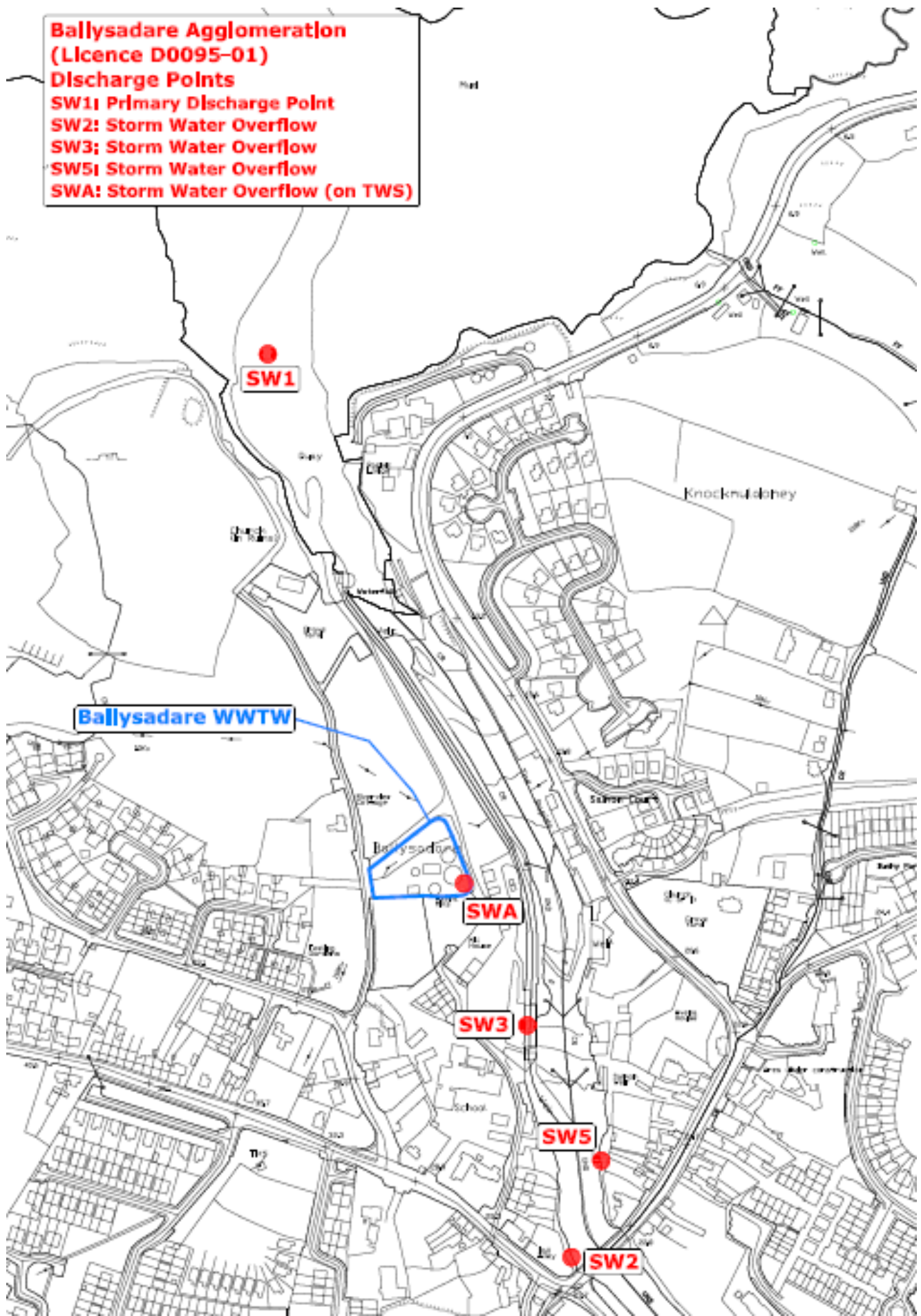
- **Daily:** Outflow, Temp & pH
- **Monthly:** BOD, COD, Total SS, Ammonia (as N) Total Oxidised Nitrogen (TON) & Molybdate Reactive Phosphorous (MRP)
- **Quarterly:** Oils, Fats & Greases
- **Weekly:** Visual Inspection

The license also calls for Metals and Toxicity testing as may be required by the Agency

In addition to the influent monitoring results, **Table 1** (App 1) also shows effluent monitoring results available for the year, together with daily outflows through SW1. This Table also shows the Emission Limit Values (ELV's) set for particular parameters in the License and required monitoring frequencies.

Ballisdare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

**Ballisdare Agglomeration
(Licence D0095-01)
Discharge Points**
SW1: Primary Discharge Point
SW2: Storm Water Overflow
SW3: Storm Water Overflow
SW5: Storm Water Overflow
SWA: Storm Water Overflow (on TWS)



2.2.1 – Discussion of Effluent Monitoring Results

- **Carbonaceous BOD** – The Emission Limit Value (ELV) is **25mg/l**. All samples taken during the year were in compliance with the average BOD leaving the plant being **3mg/l**.
- **COD** – The ELV is **125mg/l**. All samples taken during the year were in compliance with the average COD leaving the plant being **45mg/l**
- **Total Suspended Solids** - The ELV is **35mg/l**. All samples taken during the year were in compliance with the average Total SS leaving the plant being **3mg/l**
- **Ammonia (as N)** - The ELV is **10mg/l**. Monthly sampling over the course of the year yielded an average result of **4.45mg/l**. There was one exceedance recorded – on 23/3/11 – when a result of 19.86mg/l was reported. The total N incoming on that date was unusually high at 91.5mg/l.
- **Total Oxidised Nitrogen (TON)** - The ELV is **25mg/l**. Monthly sampling over the course of the year yielded an average result of **10.9mg/l**. There was one exceedance recorded – on 19/5/11 – when a result of 31.72mg/l was reported. The total N incoming on that date was unusually high at 79mg/l.
- **NOTE:** The treatment plant at Ballisodare was not designed to remove ammonia or nitrate. To be in continuous compliance with the TON and Ammonia limits would require a change of process and extra tankage on the TWS (Nitrification & De-nitrification facilities). Increasing the aeration rate in an effort to enhance nitrification of incoming ammonia (and thus reduce outgoing ammonia levels) can have the converse affect of increasing TON levels. EPS Ltd, on our behalf, are attempting, with careful process management, to run the plant in such a way so as to achieve TON & Ammonia standards in as far as is possible.

At design stage back in '05-06, the Urban Wastewater Treatment Regulations were the applicable regulations, and for a plant the size of Ballisodare, only “Appropriate” treatment was needed (coastal discharge < 10,000 pe). The results for Ammonia and TON are quite good considering the plant was only designed to achieve effluent standards for BOD, COD and Total SS.

- **Molybdate Reactive Phosphorous – MRP (Orthophosphate as PO₄)** – The ELV is **5mg/l**. Monthly testing for this parameter yielded an average result of **3.05mg/l** over the course of the year. There were 3 occasions on which the ELV was exceeded – as follows

Date	MRP Conc (mg/l)
19/5/11	9.59
5/7/11	7.02
9/8/11	6.7

With 12 samples being taken per annum, Schedule B3 of the license allows for a maximum of 2 exceedences

If phosphate breaches become a regular issue into the future, then Sligo County Council will commence ferric sulphate dosing.

- **Temperature** – The ELV is **25 Deg C Max**. Daily temperature monitoring of the effluent throughout the year indicated a maximum of **19.3°C**, a minimum of **5.9°C** and an average of **13.2°C**.
- **pH** – The ELV is **7.0-9.0**. Daily pH monitoring of the effluent throughout the year indicated a maximum of **7.84**, a minimum of **7.00** and an average of **7.36**.
- **Fats, Oils & Greases** – Effluent testing is required quarterly for Fats, Oils & Greases (FOG). 3 of the 4 sample results were reported as being **<5mg/l.**, the remaining being **7mg/l**. No ELV has been set for FOG
- **Organic Compounds & Metals:** Condition 4.11.1 of the license states:

‘A representative sample of effluent from the primary discharge point shall be screened for the presence of organic compounds and metals within six months of the date of grant of this licence. The list of parameters for analysis shall include, as a minimum, those organic compounds and metals identified as relevant having regard to the Water Policy Regulations 2003 and amendments (S.I. No. 722 of 2003 and amendments) and any other relevant legislation. Such screening shall be repeated at intervals as requested by the Agency thereafter’.

Note 3 on Schedule B of the licence further states:

“Having identified the most relevant pollutants from Screening (Condition 4.11), subsequent monitoring for these pollutants shall be carried out at a frequency agreed by the Agency”

An EPA guidance document was received on the 7/12/10 entitled ***Guidance note for licensee’s on the screening of effluent from the discharge(s) in Waste Water Discharge Licensed (WWDL) facilities for the presence of organic compounds and metals (Priority Substances)***”

A composite effluent sample taken 26/1/11 was screened by City Analysts Ltd for an extensive range of *Priority Substances* – 241 nr in total. Analysis was undertaken to determine levels (among other pollutants) of:

1. Poly Aromatic Hydrocarbons (PAH’s)
2. Metals
3. Polychlorinated Biphenols (PCB’s)
4. Phenols
5. Volatile Organic Compounds (VOC’s)
6. Semi Volatile Organic Compounds (SVOC’s)
7. Pesticides (OCP)
8. Pesticides (Triazines)
9. Pesticides (Sub Ureas) - Waste Water.

The screening results, reported by the lab on 15/2/11, were assessed by Sligo County Council Environmental Services. Their review did not identify any specific pollutants with concentrations that appeared to be particularly elevated or that would be a cause for concern.

The results were then forwarded to the EPA under cover of our letter dated 24th June 2011 in which we sought instruction on a list of parameters (if any) to be incorporated into the regular

monitoring programme and the required sampling frequency for each. A reply is still awaited to this letter.

The results of the effluent screening undertaken 26/1/11 for *Priority Substances* are set out in **Table 3** of this AER.

- **Metals:-** Until such time as we receive a response from the EPA's with regard to regular testing for *Priority Substances*, Sligo County Council is monitoring the effluent on a quarterly basis for a range of 9 metals. The results for the year are set out in **Table 2**
- **Toxicity: -** The frequency of effluent toxicity monitoring (if required by the Agency under the License) has yet to be agreed.

2.2.2 Graphical Representation of Monitoring Data

A series of graphs are shown in Figs 1 to 9 (App 1). These illustrate much of the monitoring data gathered during the year

2.2.3 Pollutant Removal Efficiency.

Condition 4.15 of the license requires that the works efficiencies be established for the removal of some specific pollutants.

Table 4 sets out the treatment plant efficiency in the removal of BOD, COD and Total SS for all dates throughout the year on which we have influent and effluent monitoring results simultaneously available for these parameters. It can be seen that on average, the respective pollutant removal efficiencies were as follows:

Pollutant	Removal Efficiency at Plant (%)
BOD	98.5
COD	91.3
S.S.	98.1

2.3 Data Collection and Reporting Requirements under the Urban WWT Directive

Sligo County Council Water Services submit this information via the EPA's EDEN website.

2.4 Ambient Water Quality Monitoring

The requirements for ambient water quality monitoring in the receiving water are set out below (Extract from Schedule B.4 of the license)

Parameter	Monitoring Frequency ¹
pH	4 Samples/Year
Temperature	4 Samples/Year

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

Dissolved Oxygen (% Sat.)	4 Samples/Year
Carbonaceous BOD	4 Samples/Year
Dissolved Inorganic Nitrogen (DIN) - as N	4 Samples/Year
Total Oxidised Nitrogen (TON)	4 Samples/Year
Ammonia	4 Samples/Year
Molybdate Reactive Phosphorous (MRP)	4 Samples/Year
Chlorophyll	4 Samples/Year
Visual Inspection	4 Samples/Year
Metals & Organic Compounds	As Agreed with the EPA ²

1 - Ambient Monitoring to be submitted to the Agency in accordance with Conditions 4.17 & 4.18 of the license.

2 - Following identification of most relevant pollutants from Screening Programme under Clause 4.11

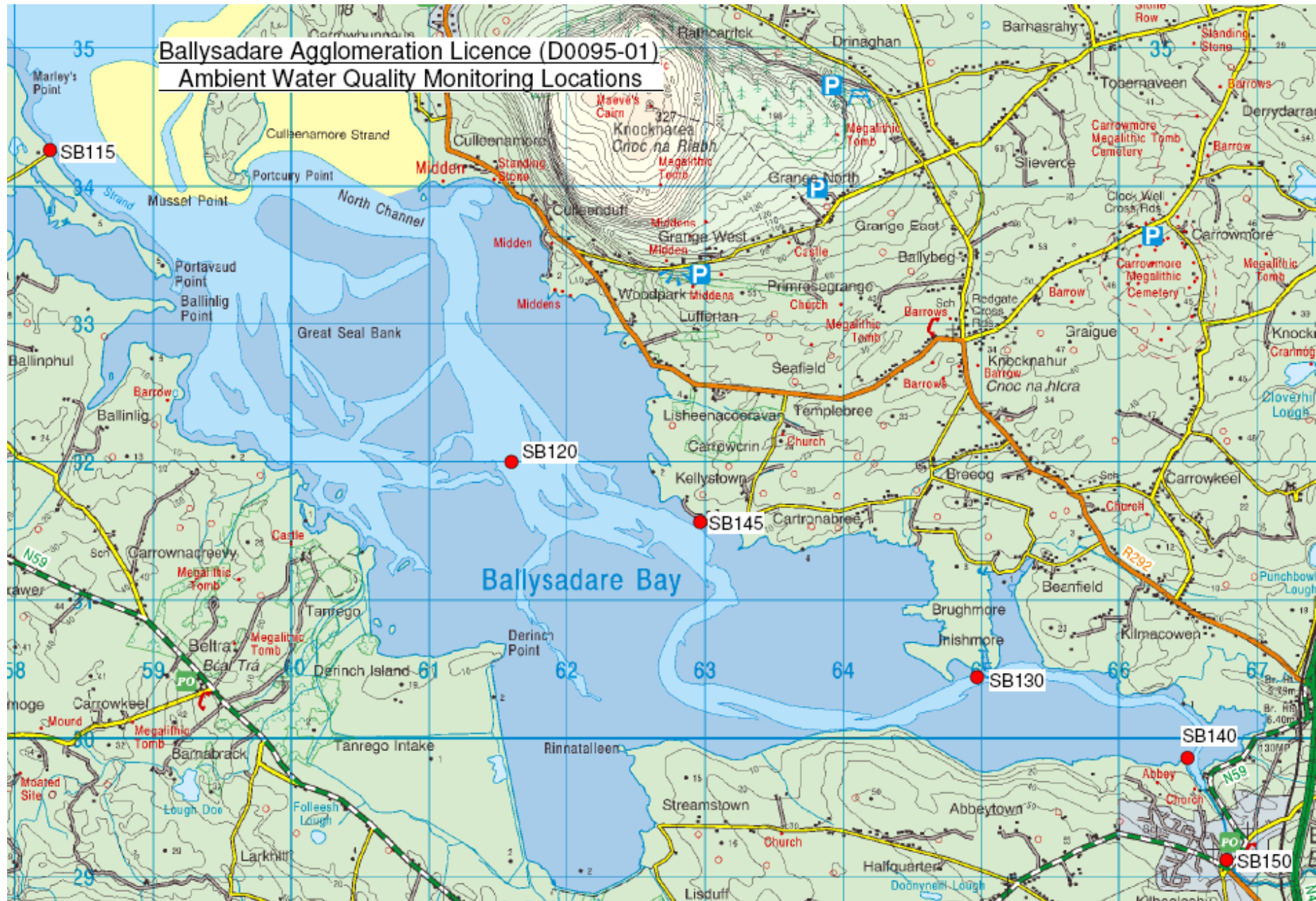
The license allows however for usage of data that is already available from alternative sources – Quote Clause 4.16:

“..... Where such ambient monitoring results are available from any other statutory body, the licensee may submit those results in fulfilment of “Schedule B4 Ambient Monitoring” of this License”

At a meeting with the EPA Inspector in December 2010, it was agreed that Sligo County Council would, for the purposes of the AER's, present instead water quality data from 6 monitoring locations already being gathered in Ballisodare Bay by the EPA's Office of Environmental Assessment (OEA) – as part of the requirements under the EU Water Framework Directive (2000/60/EC). These are stations SB 115, 120, 130, 140, 145 & 150)

The most recently available EPA data is that from the year 2010. This is presented with the approval and kind permission of the EPA in **Table 5**. (It is noted that the only one sample appears to have been taken at each of Stations SB 120 & 130 during 2010)

All 6 EPA monitoring locations are shown on the Discovery Series extract on the following page.



2.5 Pollutant Release and Transfer Register (PRTR) – Report for Previous Year

This information was submitted to the EPA through the AER/PRTR website on 11/4/12. Relevant Sections of the output from the AER Emissions Calculations Toolset are included in **Appendix 3**. Relevant sections of the AER Returns Workbook are included in **Appendix 4**.

2.5.1 Flow Weighted Mass Emissions

Flow weighted mass emission calculations were used to estimate quantities of BOD, COD, Total SS, Ammonia, TON & MRP in the treated effluent. These calculations are set out in **Table 6**. Flow weighting was not used to determine any untreated fugitive emissions from the TWS as there were no recorded overflows out of the site's SWHT into the estuary during the year.

2.6 Pollutant Release and Transfer Register (PRTR) – Proposal for Current Year

This requirement is covered under the electronic submission above. No further details require inclusion as part of this AER.

2.7 Treatment and Transfers of Wastes

2.7.1 Sludge Exports

Table 7 sets out the Ballisodare sludge cake disposal records for the year. In total **16.94 tonnes** of dry solids were removed off site to the Sligo Town hub sludge treatment centre during the year - where they underwent further treatment in the form of pasteurisation, anaerobic digestion and dewatering to produce a Class A BioCake suitable for re-use as a fertilizer/soil conditioner on agricultural land.

2.7.2 Screenings and Grit Removal

Totals of **0.4 tonnes** of washed screenings and **1.88 tonnes** of grit were disposed off site during the year, all bins being removed by the licensed Barna Waste Ltd. These records are shown on **Table 8**.

SECTION 3
COMPLAINT & INCIDENT REPORTS

3 COMPLAINT & INCIDENT REPORTS

3.1 Complaints Summary

As per Condition 6.4 of the license and in accordance with the National Environmental Complaints Procedures, Sligo County Council records all complaints of an environmental nature related to the discharge of effluent from the WWT plant. During the year, no complaints were received in relation to the discharge of effluent at the Primary Discharge SW1.

Date & Time	Name of Complainant	Nature of Complaint	Response to Complainant	Closed (Y/N)

3.2 Reported Incidents Summary:

Set out below are the “Incidents” recorded during the year from the monthly effluent sampling programme. There were 3 breaches on the MRP limit and one each on the respective TON & Ammonia limits. However with 12 samples being called for per annum, Schedule B3 of the license allows for a maximum of 2 breaches. Thus there were 3 nr breaches above the permitted number

Date	Incident Description Note 1	Authorities Contacted	Corrective Action	Closed (Y/N)	Note
	Non Compliance of Monthly effluent sample				
23/03/2011	Ammonia 19.86mg/l (ELV = 10mg/l)	EPA	Aeration rate increased in effort to enhance nitrification of incoming ammonia	Y	Influent Total N spike on sampling date at 91.5mg/l. Plant was not designed for nitrification/denitrification
19/05/2011	MRP 9.59mg/l (ELV = 5mg/l)	EPA/Fisheries	Follow on sample taken 23/5/11 passed at 4.89mg/l	Y	
19/05/2011	TON 31.72mg/l (ELV = 25mg/l)	EPA/Fisheries	Aeration rate reduced again as increased aeration following 23/3/11 ammonia breach was conversely affecting TON levels. Follow on effluent sample taken 30/5/11 passed at 13.41mg/l for TON	Y	Influent Total N spike on sampling date at 79mg/l. Plant was not designed for nitrification/denitrification
05/07/2011	MRP 7.02mg/l (ELV = 5mg/l)	EPA/Fisheries		Y	
09/08/2011	MRP 6.7mg/l (ELV = 5mg/l)	EPA/Fisheries	Follow on sample taken 16/8/11 passed at 1.21mg/l	Y	If phosphate breaches become a regular issue then SCC will install ferric dosing facilities

Note 1

An Incident is defined in the license as:

- (1) Any discharge that does not comply with the requirements of this license
- (2) Any incident with the potential for environmental contamination of surface water or ground water, or posing an environmental threat to land, or requiring an emergency response by the relevant Water Services Authority

SECTION 4

INFRASTRUCTURAL ASSESSMENTS AND PROGRAMME OF IMPROVEMENTS

4 INFRASTRUCTURAL ASSESSMENTS AND PROGRAMME OF IMPROVEMENTS

4.1 Treatment Capacity

The Ballisodare WWTW has a design capacity to cater for a Population Equivalent (p.e.) of **4,500** persons. Monitoring during the year indicated that the p.e. actually served was just **1,316** persons (Ref Table 1).

The plant can provide full immediate treatment for peak flows up to 3DWF (35 l/s or **3,024m³/day**). The average daily inflow over the course of the year was just **285m³/day** (Ref Table 1).

The plant has therefore adequate capacity to deal with increased hydraulic and organic loads into the foreseeable future.

4.2 Report on Programme of Improvements

There is no immediate Programme of Improvements specified in Schedule C of the License.

Aeration of the mixed liquor on the TWS is provided at present by two Stahlermatic wheel assemblies. Sligo is hoping to be in a position during the course of 2012 to replace these with a diffused aeration system complete with blowers. This is however dependent on the availability of funding

4.3 Stormwater Overflow Identification and Inspection Report

There are 4 nr Storm Water Overflows (SWO's) on the agglomeration – as listed earlier in Section 2.2. There is no immediate Programme of Improvements specified in Schedule C2 of the EPA License for the SWO's.

The license calls for the submission of a report on the SWO's as part of this 2nd AER. The report on the SWO's is currently not available and Sligo County Council request additional time from the Agency for its completion.

It is Sligo County Council's intention, in the spring of 2012, to commission independent consultants to carry out detailed investigations for the identification and assessment of SWO's on agglomerations attaching to a number of our wastewater treatment plants throughout the County including Ballisodare. This detailed assessment will cover both licensed sites and those still awaiting a discharge license. The assessments will be in accordance with the requirements as set out in the Urban Wastewater Treatment Directive (91/271/EEC) – *Procedures and Criteria in relation to Stormwater Overflows* – DOEHLG: 1995. It is envisaged that this assessment will be completed by the end of 2012.

SECTION 5

ENVIRONMENTAL LIABILITY AND FINANCIAL PROVISIONS

5 ENVIRONMENTAL LIABILITY AND FINANCIAL PROVISIONS

5.1 Introduction

Sligo County Council is aware of the environmental risks associated with the discharges from the agglomeration to sensitive environmental areas as follows - all as set out and discussed in the EPA Inspectors Report dated 21st May '10 on the license application.

- Ballisodare Bay proposed National Heritage Area (pNHA)
- Ballisodare Bay designated Special Protection Area (SPA)
- Ballisodare Bay candidate Special Area of Conservation (cSAC)

Sligo County Council has a monitoring programme in place, in accordance with the conditions of the license. This programme should assist in identifying any problems which may occur with the discharge and, if required, appropriate remedial action will be taken. Every effort will be made to implement any improvement works that may be required into the future under the license - subject to the availability of funding.

5.2 Environmental Liabilities Risk Assessment (ELRA) Report

In accordance with Condition 7 of the license, a comprehensive and fully costed ELRA Report has been prepared. This is set out in **Appendix 2**.

The financial modelling exercise indicated a requirement to set up insurances to the value of **€63,300** to cover for unplanned environmental liabilities

Sligo County Council has currently no insurance policy set up to cover potential environmental damage associated with the discharge. The Council is in discussion with Irish Public Bodies Mutual Insurances Ltd with a view to putting in place environmental liability pollution insurance cover in light of the findings of the risk assessment.

SECTION 6
DECLARATION

6 DECLARATION

6.1 Declaration by Management

I certify that the information set out in this report is truthful, accurate and complete

Signed by: Noel Haram

Date: 25/4/12

Print Signature Name: Noel HARAM

Position held in Sligo County Council: A/SEE

APPENDIX 1
Tables & Figures

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 1 - INFLUENT & EFFLUENT MONITORING RESULTS FOR 2011

Influent										Effluent												
Parameter	Inflow (m3/day)	SW overflow from TWS (m3/day)	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Total Nitrogen (mg/l as N)	Total Phosphorous (mg/l as P)	Incoming BOD Load (kg/day)	PE - @ 60g BOD/h/day	Outflow (m3)	Temp - Deg c	pH	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Ammonia (as N) - mg/l	Total Oxidised Nitrogen (TON) - mg/l	Molybdate Reactive Phosphorous (Ortho P - as PO4) - mg/l	Oils, Fats & Greases (mg/l)	Total Nitrogen (mg/l)	Visual Inspection	
License Monitoring Frequency (Cl 4.15)			Monthly	Monthly	Monthly	Monthly	Monthly			Daily	Daily	Daily	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Quarterly		Weekly	
ELV set in License											25 Max	7.0-9.0	25	125	35	10	25	5				
1/1/11	260									269												
2/1/11	261									269												
3/1/11	261									269												OK
4/1/11	141									159	7.1	7.55										OK
5/1/11	402									416	6.8	7.61										OK
6/1/11	250									266	7.3	7.68										OK
7/1/11	223									250	6.9	7.81										OK
8/1/11	192									214												
9/1/11	193									215												
10/1/11	193									215	6.3	7.81										OK
11/1/11	333									374	6.6	7.64										OK
12/1/11	422									432	6.5	7.72										OK
13/1/11	212									233	7.2	7.67										OK
14/1/11	361									387	7.4	7.77										OK
15/1/11	562									619												
16/1/11	562									619												
17/1/11	562									620	8.4	7.55										OK

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 1 - INFLUENT & EFFLUENT MONITORING RESULTS FOR 2011

Influent										Effluent												
Parameter	Inflow (m3/day)	SW overflow from TWS (m3/day)	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Total Nitrogen (mg/l as N)	Total Phosphorous (mg/l as P)	Incoming BOD Load (kg/day)	PE - @ 60g BOD/h/day	Outflow (m3)	Temp - Deg c	pH	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Ammonia (as N) - mg/l	Total Oxidised Nitrogen (TON) - mg/l	Molybdate Reactive Phosphorous (Ortho P - as PO4) - mg/l	Oils, Fats & Greases (mg/l)	Total Nitrogen (mg/l)	Visual Inspection	
License Monitoring Frequency (Cl 4.15)			Monthly	Monthly	Monthly	Monthly	Monthly			Daily	Daily	Daily	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Quarterly		Weekly	
ELV set in License											25 Max	7.0-9.0	25	125	35	10	25	5				
18/1/11	369									403	7.7	7.66										OK
19/1/11	247									302	7.8	7.73										OK
20/1/11	264									273	8.2	7.79										OK
21/1/11	269									311	8.5	7.81										OK
22/1/11	218									239												
23/1/11	218									240												
24/1/11	218									240	7.7	7.79										OK
25/1/11	242		236	619	270	68	8.6	57.1	952	260	7.9	7.78	2	25	2	5.25	2.05	0.10				OK
26/1/11	193									204	8.4	7.75										OK
27/1/11	229									318	7.8	7.76										OK
28/1/11	507									123	7.6	7.74										OK
29/1/11	162									187												
30/1/11	162									187												
31/1/11	161									188	8.5	7.73										OK
1/2/11	200									195	9.7	7.67										OK
2/2/11	164									178	10.4	7.64										OK

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 1 - INFLUENT & EFFLUENT MONITORING RESULTS FOR 2011

Influent										Effluent												
Parameter	Inflow (m3/day)	SW overflow from TWS (m3/day)	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Total Nitrogen (mg/l as N)	Total Phosphorous (mg/l as P)	Incoming BOD Load (kg/day)	PE - @ 60g BOD/h d/day	Outflow (m3)	Temp - Deg c	pH	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Ammonia (as N) - mg/l	Total Oxidised Nitrogen (TON) - mg/l	Molybdate Reactive Phosphorous (Ortho P - as PO4) - mg/l	Oils, Fats & Greases (mg/l)	Total Nitrogen (mg/l)	Visual Inspection	
License Monitoring Frequency (Cl 4.15)			Monthly	Monthly	Monthly	Monthly	Monthly			Daily	Daily	Daily	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Quarterly		Weekly	
ELV set in License											25 Max	7.0-9.0	25	125	35	10	25	5				
3/2/11	467									491	10.1	7.62										OK
4/2/11	307									302	9.8	7.65										OK
5/2/11	741									763	9.9	7.68										
6/2/11	741									763	9.9	7.72										
7/2/11	742									764	10.2	7.73										OK
8/2/11	1429									1453	9.9	7.76										OK
9/2/11	1155		54	170	78	14	2.4	62.4	1040	1140	9.3	7.75	2	22	2	0.07	4.45	0.30				OK
10/2/11	628									623	9.5	7.81										OK
11/2/11	1026									1015	9.8	7.78										OK
12/2/11	416									424	9.9	7.8										
13/2/11	416									424	9.9	7.82										
14/2/11	417									425	10.1	7.84										OK
15/2/11	413									437	9.6	7.79										OK
16/2/11	350									417	9.9	7.72										OK
17/2/11	249									248	9.7	7.81										OK
18/2/11	343									382	9.9	7.73										OK

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 1 - INFLUENT & EFFLUENT MONITORING RESULTS FOR 2011

Influent										Effluent												
Parameter	Inflow (m3/day)	SW overflow from TWS (m3/day)	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Total Nitrogen (mg/l as N)	Total Phosphorous (mg/l as P)	Incoming BOD Load (kg/day)	PE - @ 60g BOD/h/day	Outflow (m3)	Temp - Deg c	pH	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Ammonia (as N) - mg/l	Total Oxidised Nitrogen (TON) - mg/l	Molybdate Reactive Phosphorous (Ortho P - as PO4) - mg/l	Oils, Fats & Greases (mg/l)	Total Nitrogen (mg/l)	Visual Inspection	
License Monitoring Frequency (Cl 4.15)			Monthly	Monthly	Monthly	Monthly	Monthly			Daily	Daily	Daily	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Quarterly		Weekly	
ELV set in License											25 Max	7.0-9.0	25	125	35	10	25	5				
19/2/11	283									296	9.8	7.6										
20/2/11	283									296	9.7	7.43										
21/2/11	284									295	9.9	7.13										OK
22/2/11	223									241	10.1	7.41										OK
23/2/11	265									283	10.4	7.34										OK
24/2/11	265									305	10.9	7.27										OK
25/2/11	416									487	11.1	7.21										OK
26/2/11	202									221	11.0	7.26										
27/2/11	202									221	10.6	7.3										
28/2/11	202									221	10.2	7.33										OK
1/3/11	217									239	8.9	7.29										OK
2/3/11	208									275	9.4	7.14										OK
3/3/11	210									225	9.3	7.01										OK
4/3/11	140									153	9.8	7.31										OK
5/3/11	170									189	9.9	7.21										
6/3/11	170									189	9.6	7.26										

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 1 - INFLUENT & EFFLUENT MONITORING RESULTS FOR 2011

Influent										Effluent												
Parameter	Inflow (m3/day)	SW overflow from TWS (m3/day)	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Total Nitrogen (mg/l as N)	Total Phosphorous (mg/l as P)	Incoming BOD Load (kg/day)	PE - @ 60g BOD/h/day	Outflow (m3)	Temp - Deg c	pH	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Ammonia (as N) - mg/l	Total Oxidised Nitrogen (TON) - mg/l	Molybdate Reactive Phosphorous (Ortho P - as PO4) - mg/l	Oils, Fats & Greases (mg/l)	Total Nitrogen (mg/l)	Visual Inspection	
License Monitoring Frequency (Cl 4.15)			Monthly	Monthly	Monthly	Monthly	Monthly			Daily	Daily	Daily	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Quarterly		Weekly	
ELV set in License											25 Max	7.0-9.0	25	125	35	10	25	5				
7/3/11	171									190	9.8	7.28										OK
8/3/11	191									207	9.8	7.32										OK
9/3/11	198									217	9.7	7.24										OK
10/3/11	182									184	9.4	7.23										OK
11/3/11	277									297	9.1	7.31										OK
12/3/11	255									289	9.2	7.28										
13/3/11	361									380	9.8	7.21										
14/3/11	201									209	9.6	7.24										OK
15/3/11	174									193	9.5	7.24										OK
16/3/11	170									191	9.2	7.28										OK
17/3/11	170									194	9.7	7.25										OK
18/3/11	142									161	9.6	7.23										OK
19/3/11	140									156	10.1	7.21										
20/3/11	142									165	10.0	7.28										
21/3/11	137									154	9.8	7.27										OK
22/3/11	139									167	10.7	7.2										OK

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 1 - INFLUENT & EFFLUENT MONITORING RESULTS FOR 2011

Influent										Effluent											
Parameter	Inflow (m3/day)	SW overflow from TWS (m3/day)	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Total Nitrogen (mg/l as N)	Total Phosphorous (mg/l as P)	Incoming BOD Load (kg/day)	PE - @ 60g BOD/h/day	Outflow (m3)	Temp - Deg c	pH	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Ammonia (as N) - mg/l	Total Oxidised Nitrogen (TON) - mg/l	Molybdate Reactive Phosphorous (Ortho P - as PO4) - mg/l	Oils, Fats & Greases (mg/l)	Total Nitrogen (mg/l)	Visual Inspection
			Monthly	Monthly	Monthly	Monthly	Monthly			Daily	Daily	Daily	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Quarterly		Weekly
License Monitoring Frequency (Cl 4.15)																					
ELV set in License											25 Max	7.0-9.0	25	125	35	10	25	5			
23/3/11	133		204	559	448	92	5.75	27.1	452	148	12.1	7.12	6	88	2	19.86	1.66	0.73			OK
24/3/11	139									143	13.4	7.19									OK
25/3/11	139									204	10.5	7.03									OK
26/3/11	146									166	11.2	7.16									
27/3/11	140									155	10.9	7.21									
28/3/11	129									143	10.2	7.16									OK
29/3/11	124									139	11.9	7.16									OK
30/3/11	140									155	12.8	7.14									OK
31/3/11	230									250	11.7	7.12				19.08					OK
1/4/11	525									441	10.3	7.19									OK
2/4/11	495									491	10.9	7.08									
3/4/11	272									218	11.1	7.04									
4/4/11	466									413	11.6	7.12									OK
5/4/11	496									522	11.2	7.14									OK
6/4/11	522									473	12.5	7.18									OK
7/4/11	336									279	12.8	7.12									OK

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 1 - INFLUENT & EFFLUENT MONITORING RESULTS FOR 2011

Influent										Effluent											
Parameter	Inflow (m3/day)	SW overflow from TWS (m3/day)	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Total Nitrogen (mg/l as N)	Total Phosphorous (mg/l as P)	Incoming BOD Load (kg/day)	PE - @ 60g BOD/h/day	Outflow (m3)	Temp - Deg c	pH	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Ammonia (as N) - mg/l	Total Oxidised Nitrogen (TON) - mg/l	Molybdate Reactive Phosphorous (Ortho P - as PO4) - mg/l	Oils, Fats & Greases (mg/l)	Total Nitrogen (mg/l)	Visual Inspection
			Monthly	Monthly	Monthly	Monthly	Monthly			Daily	Daily	Daily	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Quarterly		Weekly
License Monitoring Frequency (Cl 4.15)																					
ELV set in License											25 Max	7.0-9.0	25	125	35	10	25	5			
8/4/11	290									237	11.9	7.2	2			6.19				11.56	OK
9/4/11	357									308	12.4	7.21									
10/4/11	249									192	12.2	7.19									
11/4/11	301		486	1203	301	66	6.9	146.3	2438	264	12.9	7.2	2	34	4	6.53	1.52	0.15	<5		OK
12/4/11	256									244	12.1	7.14									OK
13/4/11	366									324	12.5	7.18									OK
14/4/11	257									198	12.3	7.15									OK
15/4/11	243									190	11.8	7.25									OK
16/4/11	242									191	12.2	7.31									
17/4/11	240									186	12.0	7.25									
18/4/11	239									177	13.0	7.58									OK
19/4/11	231									225	12.2	7.44									OK
20/4/11	230									160	14.4	7.18									OK
21/4/11	250									185	14.0	7.2									OK
22/4/11	237									183	13.1	7.16									OK
23/4/11	277									223	13.2	7.2									

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 1 - INFLUENT & EFFLUENT MONITORING RESULTS FOR 2011

Influent										Effluent												
Parameter	Inflow (m3/day)	SW overflow from TWS (m3/day)	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Total Nitrogen (mg/l as N)	Total Phosphorous (mg/l as P)	Incoming BOD Load (kg/day)	PE - @ 60g BOD/h/day	Outflow (m3)	Temp - Deg c	pH	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Ammonia (as N) - mg/l	Total Oxidised Nitrogen (TON) - mg/l	Molybdate Reactive Phosphorous (Ortho P - as PO4) - mg/l	Oils, Fats & Greases (mg/l)	Total Nitrogen (mg/l)	Visual Inspection	
License Monitoring Frequency (Cl 4.15)			Monthly	Monthly	Monthly	Monthly	Monthly			Daily	Daily	Daily	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Quarterly		Weekly	
ELV set in License											25 Max	7.0-9.0	25	125	35	10	25	5				
24/4/11	244									183	13.8	7.28										
25/4/11	237									179	14.1	7.31										OK
26/4/11	233									206	13.3	7.4										OK
27/4/11	229									176	14.3	7.19										OK
28/4/11	215									239	14.1	7.25				1.1						OK
29/4/11	223									159	14.4	7.29				0.6						OK
30/4/11	272									209	14.2	7.32										
1/5/11	109									147	15.1	7.25										
2/5/11	89									113	14.5	7.28										OK
3/5/11	143									174	11.5	7.68										OK
4/5/11	213									292	12.2	7.24										OK
5/5/11	157									205	13.2	7.18										OK
6/5/11	230									306	13.6	7.05										OK
7/5/11	214									236	15.1	7.23										
8/5/11	167									189	14.9	7.14										
9/5/11	280									313	14.8	7.22										OK

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 1 - INFLUENT & EFFLUENT MONITORING RESULTS FOR 2011

Influent										Effluent												
Parameter	Inflow (m3/day)	SW overflow from TWS (m3/day)	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Total Nitrogen (mg/l as N)	Total Phosphorous (mg/l as P)	Incoming BOD Load (kg/day)	PE - @ 60g BOD/h/day	Outflow (m3)	Temp - Deg c	pH	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Ammonia (as N) - mg/l	Total Oxidised Nitrogen (TON) - mg/l	Molybdate Reactive Phosphorous (Ortho P - as PO4) - mg/l	Oils, Fats & Greases (mg/l)	Total Nitrogen (mg/l)	Visual Inspection	
License Monitoring Frequency (Cl 4.15)			Monthly	Monthly	Monthly	Monthly	Monthly			Daily	Daily	Daily	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Quarterly		Weekly	
ELV set in License											25 Max	7.0-9.0	25	125	35	10	25	5				
10/5/11	266									294	15.2	7.19										OK
11/5/11	161									190	16.2	7.23										OK
12/5/11	179									277	14.2	7.21										OK
13/5/11	154									165	13.9	7.18										OK
14/5/11	229									255	13.7	7.14										
15/5/11	177									210	14.1	7.12										
16/5/11	232									394	14.0	7.01										OK
17/5/11	185									184	14.3	7.11										OK
18/5/11	179									244	14.4	7.03										OK
19/5/11	211		217	604	165	79	9.9	45.8	763	210	14.8	7.22	3	58	15	0.11	31.72	9.59			OK	
20/5/11	195									191	14.0	7.11										OK
21/5/11	412									423	13.8	7.18										
22/5/11	263									264	13.4	7.15										
23/5/11	480									490	13.2	7.21					40.77	4.89				OK
24/5/11	218									218	13.8	7.23										OK
25/5/11	240									241	13.3	7.19										OK

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 1 - INFLUENT & EFFLUENT MONITORING RESULTS FOR 2011

Influent										Effluent												
Parameter	Inflow (m3/day)	SW overflow from TWS (m3/day)	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Total Nitrogen (mg/l as N)	Total Phosphorous (mg/l as P)	Incoming BOD Load (kg/day)	PE - @ 60g BOD/h/day	Outflow (m3)	Temp - Deg c	pH	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Ammonia (as N) - mg/l	Total Oxidised Nitrogen (TON) - mg/l	Molybdate Reactive Phosphorous (Ortho P - as PO4) - mg/l	Oils, Fats & Greases (mg/l)	Total Nitrogen (mg/l)	Visual Inspection	
License Monitoring Frequency (Cl 4.15)			Monthly	Monthly	Monthly	Monthly	Monthly			Daily	Daily	Daily	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Quarterly		Weekly	
ELV set in License											25 Max	7.0-9.0	25	125	35	10	25	5				
26/5/11	261									284	13.5	7.21										OK
27/5/11	194									179	13.7	7.27										OK
28/5/11	195									195	13.6	7.24										
29/5/11	193									194	13.2	7.28										
30/5/11	238									268	13.4	7.29					13.41					OK
31/5/11	210									213	12.9	7.43										OK
1/6/11	190									285	14.6	7.14										OK
2/6/11	191									186	16.1	7.15										OK
3/6/11	181									174	18.3	7.18										OK
4/6/11	195									175	17.4	7.26										
5/6/11	333									319	17.1	7.2										
6/6/11	220									196	15.1	7.29										OK
7/6/11	204									209	15.5	7.38										OK
8/6/11	215									217	15.1	7.49										OK
9/6/11	326									331	13.8	7.49										OK
10/6/11	233									235	13.7	7.46										OK

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 1 - INFLUENT & EFFLUENT MONITORING RESULTS FOR 2011

Parameter	Influent									Effluent								Molybdate Reactive Phosphorous (Ortho P - as PO4) - mg/l	Oils, Fats & Greases (mg/l)	Total Nitrogen (mg/l)	Visual Inspection
	Inflow (m3/day)	SW overflow from TWS (m3/day)	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Total Nitrogen (mg/l as N)	Total Phosphorous (mg/l as P)	Incoming BOD Load (kg/day)	PE - @ 60g BOD/h/day	Outflow (m3)	Temp - Deg c	pH	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Ammonia (as N) - mg/l	Total Oxidised Nitrogen (TON) - mg/l				
License Monitoring Frequency (Cl 4.15)			Monthly	Monthly	Monthly	Monthly	Monthly			Daily	Daily	Daily	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Quarterly	Weekly	
ELV set in License											25 Max	7.0-9.0	25	125	35	10	25	5			
11/6/11	204									204	13.9	7.41									
12/6/11	231									234	14.2	7.43									
13/6/11	189									190	14.3	7.4								OK	
14/6/11	219		286	626	150	9	23.6	62.6	1044	239	15.4	7.48	2	32	2	0.18	6.31	3.59	7	OK	
15/6/11	195									247	15.4	7.23								OK	
16/6/11	208									266	16.1	7.28								OK	
17/6/11	204									290	15.8	7.25								OK	
18/6/11	211									213	15.4	7.22									
19/6/11	170									169	15.1	7.21									
20/6/11	170									171	14.7	7.17								OK	
21/6/11	364									390	15.2	7.00								OK	
22/6/11	249									235	15.7	7.05								OK	
23/6/11	191									192	17.0	7.03								OK	
24/6/11	294									298	15.6	7.14								OK	
25/6/11	214									219	15.8	7.18									
26/6/11	200									200	16.2	7.15									

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 1 - INFLUENT & EFFLUENT MONITORING RESULTS FOR 2011

Influent										Effluent												
Parameter	Inflow (m3/day)	SW overflow from TWS (m3/day)	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Total Nitrogen (mg/l as N)	Total Phosphorous (mg/l as P)	Incoming BOD Load (kg/day)	PE - @ 60g BOD/h/day	Outflow (m3)	Temp - Deg c	pH	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Ammonia (as N) - mg/l	Total Oxidised Nitrogen (TON) - mg/l	Molybdate Reactive Phosphorous (Ortho P - as PO4) - mg/l	Oils, Fats & Greases (mg/l)	Total Nitrogen (mg/l)	Visual Inspection	
License Monitoring Frequency (Cl 4.15)			Monthly	Monthly	Monthly	Monthly	Monthly			Daily	Daily	Daily	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Quarterly		Weekly	
ELV set in License											25 Max	7.0-9.0	25	125	35	10	25	5				
27/6/11	192									192	16.2	7.13										OK
28/6/11	195									195	16.9	7.19										OK
29/6/11	201									200	17.2	7.14										OK
30/6/11	184									185	16.4	7.12										OK
1/7/11	185									185	17.7	7.12										OK
2/7/11	189									190	17.9	7.16										
3/7/11	173									172	18.1	7.14										
4/7/11	177		302	659	213	84	12.3	53.5	891	187	18.9	7.19	2	22	2	0.05	11.50	7.02				OK
5/7/11	212									201	18.5	7.12										OK
6/7/11	177									257	17.6	7.1										OK
7/7/11	476									505	18.0	7.25										OK
8/7/11	360									367	17.3	7.1										OK
9/7/11	196									196	17.9	7.18										
10/7/11	172									171	18.5	7.21										
11/7/11	169									217	18.9	7.22										OK
12/7/11	164									165	18.7	7.29										OK

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 1 - INFLUENT & EFFLUENT MONITORING RESULTS FOR 2011

Influent										Effluent											
Parameter	Inflow (m3/day)	SW overflow from TWS (m3/day)	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Total Nitrogen (mg/l as N)	Total Phosphorous (mg/l as P)	Incoming BOD Load (kg/day)	PE - @ 60g BOD/h/day	Outflow (m3)	Temp - Deg c	pH	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Ammonia (as N) - mg/l	Total Oxidised Nitrogen (TON) - mg/l	Molybdate Reactive Phosphorous (Ortho P - as PO4) - mg/l	Oils, Fats & Greases (mg/l)	Total Nitrogen (mg/l)	Visual Inspection
			Monthly	Monthly	Monthly	Monthly	Monthly			Daily	Daily	Daily	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Quarterly		Weekly
License Monitoring Frequency (Cl 4.15)																					
ELV set in License											25 Max	7.0-9.0	25	125	35	10	25	5			
13/7/11	168									170	18.3	7.17									OK
14/7/11	177									196	18.1	7.19						5.63			OK
15/7/11	159									159	18.8	7.15									OK
16/7/11	342									341	17.9	7.18									
17/7/11	271									279	17.4	7.21									
18/7/11	516									528	16.3	7.22									OK
19/7/11	269									313	15.0	7.46						4.67			OK
20/7/11	191									234	16.3	7.35									OK
21/7/11	171									164	15.4	7.39									OK
22/7/11	177									175	17.5	7.47									OK
23/7/11	169									169	17.7	7.38									
24/7/11	158									157	17.9	7.36									
25/7/11	157									182	18.2	7.39									OK
26/7/11	159									248	17.4	7.26									OK
27/7/11	166									166	18.2	7.05									OK
28/7/11	162									161	18.1	7.12									OK

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 1 - INFLUENT & EFFLUENT MONITORING RESULTS FOR 2011

Influent										Effluent												
Parameter	Inflow (m3/day)	SW overflow from TWS (m3/day)	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Total Nitrogen (mg/l as N)	Total Phosphorous (mg/l as P)	Incoming BOD Load (kg/day)	PE - @ 60g BOD/h/day	Outflow (m3)	Temp - Deg c	pH	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Ammonia (as N) - mg/l	Total Oxidised Nitrogen (TON) - mg/l	Molybdate Reactive Phosphorous (Ortho P - as PO4) - mg/l	Oils, Fats & Greases (mg/l)	Total Nitrogen (mg/l)	Visual Inspection	
License Monitoring Frequency (Cl 4.15)			Monthly	Monthly	Monthly	Monthly	Monthly			Daily	Daily	Daily	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Quarterly		Weekly	
ELV set in License											25 Max	7.0-9.0	25	125	35	10	25	5				
29/7/11	161									143	17.5	7.09										OK
30/7/11	208									212	17.9	7.14										
31/7/11	163									167	17.1	7.17										
1/8/11	165									164	17.4	7.22										OK
2/8/11	161									157	17.6	7.28										OK
3/8/11	154									154	18.2	7.25										OK
4/8/11	170									170	19.3	7.23										OK
5/8/11	159									157	18.5	7.26										OK
6/8/11	231									236	17.8	7.24										
7/8/11	160									161	18.2	7.28										
8/8/11	190									186	18.5	7.42										OK
9/8/11	161		557	1021	364	73	14.8	89.7	1495	164	18.3	7.39	5	50	3	9.67	5.23	6.70				OK
10/8/11	331									336	18.0	7.27										OK
11/8/11	453									464	18.5	7.22										OK
12/8/11	412									438	18.1	7.12										OK
13/8/11	275									282	18.2	7.19										

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 1 - INFLUENT & EFFLUENT MONITORING RESULTS FOR 2011

Influent										Effluent											
Parameter	Inflow (m3/day)	SW overflow from TWS (m3/day)	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Total Nitrogen (mg/l as N)	Total Phosphorous (mg/l as P)	Incoming BOD Load (kg/day)	PE - @ 60g BOD/h/day	Outflow (m3)	Temp - Deg c	pH	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Ammonia (as N) - mg/l	Total Oxidised Nitrogen (TON) - mg/l	Molybdate Reactive Phosphorous (Ortho P - as PO4) - mg/l	Oils, Fats & Greases (mg/l)	Total Nitrogen (mg/l)	Visual Inspection
			Monthly	Monthly	Monthly	Monthly	Monthly			Daily	Daily	Daily	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Quarterly		Weekly
License Monitoring Frequency (Cl 4.15)																					
ELV set in License											25 Max	7.0-9.0	25	125	35	10	25	5			
14/8/11	172									174	17.6	7.23									
15/8/11	270									267	17.2	7.18									OK
16/8/11	196									289	16.9	7.13						1.21			OK
17/8/11	173									158	17.6	7.14									OK
18/8/11	192									261	17.2	7.19									OK
19/8/11	199									176	16.5	7.31									OK
20/8/11	184									184	17.0	7.25									
21/8/11	175									175	16.8	7.34									
22/8/11	171									184	17.0	7.52									OK
23/8/11	175									157	16.0	7.49									OK
24/8/11	218									218	17.5	7.47									OK
25/8/11	223									290	17.2	7.42									OK
26/8/11	239									237	17.0	7.37									OK
27/8/11	296									323	16.4	7.34									
28/8/11	341									346	16.6	7.36									
29/8/11	296									323	15.7	7.34									OK

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 1 - INFLUENT & EFFLUENT MONITORING RESULTS FOR 2011

Influent										Effluent												
Parameter	Inflow (m3/day)	SW overflow from TWS (m3/day)	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Total Nitrogen (mg/l as N)	Total Phosphorous (mg/l as P)	Incoming BOD Load (kg/day)	PE - @ 60g BOD/h/day	Outflow (m3)	Temp - Deg c	pH	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Ammonia (as N) - mg/l	Total Oxidised Nitrogen (TON) - mg/l	Molybdate Reactive Phosphorous (Ortho P - as PO4) - mg/l	Oils, Fats & Greases (mg/l)	Total Nitrogen (mg/l)	Visual Inspection	
License Monitoring Frequency (Cl 4.15)			Monthly	Monthly	Monthly	Monthly	Monthly			Daily	Daily	Daily	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Quarterly			Weekly
ELV set in License											25 Max	7.0-9.0	25	125	35	10	25	5				
30/8/11	215									203	16.1	7.2										OK
31/8/11	175									184	16.4	7.16										OK
1/9/11	168									156	16.5	7.08										OK
2/9/11	197									199	16.8	7.05										OK
3/9/11	257									248	16.6	7.08										
4/9/11	258									248	16.1	7.18										
5/9/11	258									249	16.9	7.12										OK
6/9/11	620									615	16.2	7.19										OK
7/9/11	298									270	16.0	7.21										OK
8/9/11	241									223	16.4	7.25										OK
9/9/11	254									257	16.2	7.29										OK
10/9/11	338									327	16.1	7.31										
11/9/11	338									327	16.3	7.34										
12/9/11	338									328	15.8	7.39										OK
13/9/11	340									364	15.1	7.29										OK
14/9/11	215									194	15.7	7.05										OK

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 1 - INFLUENT & EFFLUENT MONITORING RESULTS FOR 2011

Influent										Effluent												
Parameter	Inflow (m3/day)	SW overflow from TWS (m3/day)	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Total Nitrogen (mg/l as N)	Total Phosphorous (mg/l as P)	Incoming BOD Load (kg/day)	PE - @ 60g BOD/h/day	Outflow (m3)	Temp - Deg c	pH	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Ammonia (as N) - mg/l	Total Oxidised Nitrogen (TON) - mg/l	Molybdate Reactive Phosphorous (Ortho P - as PO4) - mg/l	Oils, Fats & Greases (mg/l)	Total Nitrogen (mg/l)	Visual Inspection	
License Monitoring Frequency (Cl 4.15)			Monthly	Monthly	Monthly	Monthly	Monthly			Daily	Daily	Daily	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Quarterly		Weekly	
ELV set in License											25 Max	7.0-9.0	25	125	35	10	25	5				
15/9/11	198									206	15.5	7.07										OK
16/9/11	317									291	16.3	7.34										OK
17/9/11	252									244	15.7	7.31										
18/9/11	339									316	15.9	7.34										
19/9/11	357									349	15.8	7.31										OK
20/9/11	281									255	15.2	7.34										OK
21/9/11	293									263	14.8	7.37										OK
22/9/11	245									230	15.0	7.35										OK
23/9/11	226									221	15.1	7.36										OK
24/9/11	229									205	15.7	7.42										
25/9/11	214									197	15.4	7.46										
26/9/11	199									171	15.1	7.51										OK
27/9/11	170									152	15.8	7.5										OK
28/9/11	167		728	1746	258	8	14.8	121.6	2026	156	16.6	7.5	12	87	2	2.50	3.22	1.90	<5		OK	
29/9/11	186									178	16.5	7.43										OK
30/9/11	486									481	16.4	7.32										OK

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 1 - INFLUENT & EFFLUENT MONITORING RESULTS FOR 2011

Parameter	Influent									Effluent								Molybdate Reactive Phosphorous (Ortho P - as PO4) - mg/l	Oils, Fats & Greases (mg/l)	Total Nitrogen (mg/l)	Visual Inspection
	Inflow (m3/day)	SW overflow from TWS (m3/day)	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Total Nitrogen (mg/l as N)	Total Phosphorous (mg/l as P)	Incoming BOD Load (kg/day)	PE - @ 60g BOD/h/day	Outflow (m3)	Temp - Deg c	pH	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Ammonia (as N) - mg/l	Total Oxidised Nitrogen (TON) - mg/l				
License Monitoring Frequency (Cl 4.15)			Monthly	Monthly	Monthly	Monthly	Monthly			Daily	Daily	Daily	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Quarterly		Weekly
ELV set in License											25 Max	7.0-9.0	25	125	35	10	25	5			
1/10/11	288									288	16.1	7.28									
2/10/11	179									181	15.4	7.26									
3/10/11	159									161	15.8	7.22									OK
4/10/11	156									153	15.2	7.18									OK
5/10/11	346									352	15.5	7.12									OK
6/10/11	267									268	14.6	7.24									OK
7/10/11	201									200	13.9	7.49									OK
8/10/11	202									203	14.2	7.46									
9/10/11	228									229	14.8	7.34									
10/10/11	447									451	15.7	7.23									OK
11/10/11	557									562	15.9	7.25									OK
12/10/11	338		327	649	323	7	5.9	110.5	1842	339	15.6	7.26	2	25	2	0.02	12.30	1.43			OK
13/10/11	278									291	14.4	7.36									OK
14/10/11	309									330	15.2	7.25									OK
15/10/11	364									367	14.9	7.21									
16/10/11	246									246	14.5	7.16									

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 1 - INFLUENT & EFFLUENT MONITORING RESULTS FOR 2011

Influent										Effluent												
Parameter	Inflow (m3/day)	SW overflow from TWS (m3/day)	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Total Nitrogen (mg/l as N)	Total Phosphorous (mg/l as P)	Incoming BOD Load (kg/day)	PE - @ 60g BOD/h/day	Outflow (m3)	Temp - Deg c	pH	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Ammonia (as N) - mg/l	Total Oxidised Nitrogen (TON) - mg/l	Molybdate Reactive Phosphorous (Ortho P - as PO4) - mg/l	Oils, Fats & Greases (mg/l)	Total Nitrogen (mg/l)	Visual Inspection	
License Monitoring Frequency (Cl 4.15)			Monthly	Monthly	Monthly	Monthly	Monthly			Daily	Daily	Daily	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Quarterly		Weekly	
ELV set in License											25 Max	7.0-9.0	25	125	35	10	25	5				
17/10/11	1255									1483	14.0	7.03										OK
18/10/11	926									949	12.0	7.28										OK
19/10/11	629									687	10.7	7.63										OK
20/10/11	452									447	12.4	7.79										OK
21/10/11	393									398	13.0	7.77										OK
22/10/11	476									480	13.4	7.74										
23/10/11	641									688	13.8	7.68										
24/10/11	650									661	13.1	7.63										OK
25/10/11	526									535	12.8	7.76										OK
26/10/11	331									336	12.2	7.72										OK
27/10/11	254									259	12.5	7.75										OK
28/10/11	254									260	11.4	7.65										OK
29/10/11	603									743	11.5	7.61										
30/10/11	384									387	11.2	7.66										
31/10/11	466									466	12.8	7.54										OK
1/11/11	300									303	12.1	7.63										OK

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 1 - INFLUENT & EFFLUENT MONITORING RESULTS FOR 2011

Influent										Effluent												
Parameter	Inflow (m3/day)	SW overflow from TWS (m3/day)	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Total Nitrogen (mg/l as N)	Total Phosphorous (mg/l as P)	Incoming BOD Load (kg/day)	PE - @ 60g BOD/h/day	Outflow (m3)	Temp - Deg c	pH	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Ammonia (as N) - mg/l	Total Oxidised Nitrogen (TON) - mg/l	Molybdate Reactive Phosphorous (Ortho P - as PO4) - mg/l	Oils, Fats & Greases (mg/l)	Total Nitrogen (mg/l)	Visual Inspection	
License Monitoring Frequency (Cl 4.15)			Monthly	Monthly	Monthly	Monthly	Monthly			Daily	Daily	Daily	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Quarterly		Weekly	
ELV set in License											25 Max	7.0-9.0	25	125	35	10	25	5				
2/11/11	303									365	12.6	7.7										OK
3/11/11	351									483	13.1	7.44										OK
4/11/11	184									185	12.2	7.52										OK
5/11/11	178									183	11.9	7.58										
6/11/11	171									174	11.4	7.63										
7/11/11	137									139	10.6	7.73										OK
8/11/11	135									133	11.8	7.72										OK
9/11/11	119									124	12.3	7.63										OK
10/11/11	117									131	11.5	7.6										OK
11/11/11	160									147	11.7	7.55										OK
12/11/11	154									158	12.3	7.53										
13/11/11	154									158	12.9	7.48										
14/11/11	141									143	12.9	7.42										OK
15/11/11	124									126	12.4	7.47										OK
16/11/11	156									152	11.5	7.43										OK
17/11/11	279									327	11.4	7.22										OK

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 1 - INFLUENT & EFFLUENT MONITORING RESULTS FOR 2011

Influent										Effluent												
Parameter	Inflow (m3/day)	SW overflow from TWS (m3/day)	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Total Nitrogen (mg/l as N)	Total Phosphorous (mg/l as P)	Incoming BOD Load (kg/day)	PE - @ 60g BOD/h/day	Outflow (m3)	Temp - Deg c	pH	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Ammonia (as N) - mg/l	Total Oxidised Nitrogen (TON) - mg/l	Molybdate Reactive Phosphorous (Ortho P - as PO4) - mg/l	Oils, Fats & Greases (mg/l)	Total Nitrogen (mg/l)	Visual Inspection	
License Monitoring Frequency (Cl 4.15)			Monthly	Monthly	Monthly	Monthly	Monthly			Daily	Daily	Daily	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Quarterly		Weekly	
ELV set in License											25 Max	7.0-9.0	25	125	35	10	25	5				
18/11/11	204									224	13.0	7.21										OK
19/11/11	227									233	12.7	7.24										
20/11/11	204									206	12.1	7.16										
21/11/11	286									280	13.0	7.19										OK
22/11/11	190									192	12.9	7.22										OK
23/11/11	566									579	12.6	7.25										OK
24/11/11	495									524	11.4	7.01										OK
25/11/11	280									269	10.2	7.52										OK
26/11/11	516									521	10.9	7.43										
27/11/11	406									443	11.4	7.58										
28/11/11	691									732	11.3	7.52										OK
29/11/11	1267									1300	11.4	7.55										OK
30/11/11	830		168	436	141	14	3.3	139.4	2324	862	11.1	7.6	2	47	2	0.01	6.17	0.65			OK	
1/12/11	546									552	10.5	7.7										OK
2/12/11	430									447	10.4	7.72										OK
3/12/11	330									341	10.1	7.64										

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 1 - INFLUENT & EFFLUENT MONITORING RESULTS FOR 2011

Influent										Effluent												
Parameter	Inflow (m3/day)	SW overflow from TWS (m3/day)	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Total Nitrogen (mg/l as N)	Total Phosphorous (mg/l as P)	Incoming BOD Load (kg/day)	PE - @ 60g BOD/h/day	Outflow (m3)	Temp - Deg c	pH	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Ammonia (as N) - mg/l	Total Oxidised Nitrogen (TON) - mg/l	Molybdate Reactive Phosphorous (Ortho P - as PO4) - mg/l	Oils, Fats & Greases (mg/l)	Total Nitrogen (mg/l)	Visual Inspection	
License Monitoring Frequency (Cl 4.15)			Monthly	Monthly	Monthly	Monthly	Monthly			Daily	Daily	Daily	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Quarterly		Weekly	
ELV set in License											25 Max	7.0-9.0	25	125	35	10	25	5				
4/12/11	520									531	9.7	7.68										
5/12/11	554									549	9.0	7.72										OK
6/12/11	428		73	194	79	11	2.4	31.2	521	433	8.9	7.74	2	52	2	0.01	11.90	0.28	<5			OK
7/12/11	368									390	8.7	7.76										OK
8/12/11	561									573	9.5	7.72										OK
9/12/11	521									527	8.8	7.72										OK
10/12/11	619									627	8.5	7.74										
11/12/11	310									318	7.4	7.61										
12/12/11	231									236	7.1	7.43										OK
13/12/11	218									258	6.8	7.81										OK
14/12/11	163									207	5.9	7.7										OK
15/12/11	136									155	6.2	7.72										OK
16/12/11	287									290	7.3	7.62										OK
17/12/11	250									257	7.6	7.64										
18/12/11	252									255	7.9	7.61										
19/12/11	367									371	8.3	7.53										OK

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 1 - INFLUENT & EFFLUENT MONITORING RESULTS FOR 2011

Influent										Effluent												
Parameter	Inflow (m3/day)	SW overflow from TWS (m3/day)	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Total Nitrogen (mg/l as N)	Total Phosphorous (mg/l as P)	Incoming BOD Load (kg/day)	PE - @ 60g BOD/h/day	Outflow (m3)	Temp - Deg c	pH	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Ammonia (as N) - mg/l	Total Oxidised Nitrogen (TON) - mg/l	Molybdate Reactive Phosphorous (Ortho P - as PO4) - mg/l	Oils, Fats & Greases (mg/l)	Total Nitrogen (mg/l)	Visual Inspection	
License Monitoring Frequency (Cl 4.15)			Monthly	Monthly	Monthly	Monthly	Monthly			Daily	Daily	Daily	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Quarterly		Weekly	
ELV set in License											25 Max	7.0-9.0	25	125	35	10	25	5				
20/12/11	474									497	8.6	7.53										OK
21/12/11	295									283	9.8	7.55										OK
22/12/11	408									428	10.4	7.61										OK
23/12/11	211									232	9.0	7.67										OK
24/12/11	229									234	9.4	7.61										
25/12/11	207									212	8.8	7.53										
26/12/11	311									312	9.8	7.64										OK
27/12/11	276									286	10.2	7.51										OK
28/12/11	226									215	10.5	7.48										OK
29/12/11	281									286	9.8	7.53										OK
30/12/11	225									227	9.9	7.45										OK
31/12/11	282									281	9.2	7.48										
Total For Year		0								106,948												
Average	285		303	707	233	44	9	79	1,316		13.2	7.36	3	45	3	4.44	10.9	3.03				
Max											19.3	7.84										

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 1 - INFLUENT & EFFLUENT MONITORING RESULTS FOR 2011

Parameter	Influent								Effluent								Molybdate Reactive Phosphorous (Ortho P - as PO4) - mg/l	Oils, Fats & Greases (mg/l)	Total Nitrogen (mg/l)	Visual Inspection
	Inflow (m3/day)	SW overflow from TWS (m3/day)	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Total Nitrogen (mg/l as N)	Total Phosphorous (mg/l as P)	Incoming BOD Load (kg/day)	PE - @ 60g BOD/h d/day	Outflow (m3)	Temp - Deg c	pH	BOD (mg/l)	COD (mg/l)	Total SS (mg/l)	Ammonia (as N) - mg/l				
License Monitoring Frequency (Cl 4.15)			Monthly	Monthly	Monthly	Monthly	Monthly			Daily	Daily	Daily	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Quarterly	Weekly
ELV set in License																				
Min										25 Max	7.0-9.0		25	125	35	10	25	5		
										5.9	7.00									

Denotes ELV Exceeded on required monthly sample

Date	Arsenic, Total - As (ug/l)	Cadmium - Cd (ug/l)	Chromium, Total - Cr (ug/l)	Copper, Total - Cu (ug/l)	Lead, Total - Pb (ug/l)	Mercury - Hg (ug/l)	Nickel, Total - Ni (ug/l)	Tin (ug/l)	Zinc, Total - Zn (ug/l)
26/01/2011 *	2	<200	<200	<200	<200	<0.1	<200	<5.0	257
28/06/2011	0.6	<0.5	<0.5	7	0.5	<0.02	0.8	<0.5	42
28/09/2011	0.5	<0.5	<0.5	3	<0.5	<0.02		0.5	68
06/12/2011	<0.5	<0.5	<0.5	1	<0.5	<0.02	1	<0.5	11

* - From sample taken 26/1/11 and analysed for full range of Priority Substances (Ref Table 3)

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 3			
Results of Effluent Screening For Priority Substances (241 Parameters)			
Date Sampled: 26th January 2011			
All Sampling & Analysis by City Analysts Ltd			
Lab Report Reference: 11-00348-EPS_DU			
Lab Report Date: 15th February 2011			
Parameter	Result	Units	Accreditation
Antimony	<0.002	mg/l	UKAS
Boron, Total	<100	ug/l	NON
Chloride	50	mg/l	INAB
Cobalt	<0.001	mg/l	UKAS
Conductivity	491	µs/cm at 20°C	NON
Cyanide, Total	<0.1	mg/l	UKAS
Fluoride	0.4	mg/l	INAB
Glyphosate	0.098	ug/l	UKAS
Hardness as CaCO3	158.34	mg/l	NON
Molybdenum	<0.002	mg/l	UKAS
pH	7.85	pH Units	INAB
Selenium, Total as Se	0.006	mg/l	UKAS
Total organic carbon	9.64	mg/l	NON
Vanadium	<0.002	mg/l	NON
Barium	<20	ug/l	NON
PAH (Poly aromatic hydrocarbons)			
Naphthalene	<0.01	ug/l	UKAS
Acenaphthylene	<0.01	ug/l	UKAS
Acenaphthene	<0.01	ug/l	UKAS
Fluorene	<0.01	ug/l	UKAS
Phenanthrene	<0.01	ug/l	UKAS
Anthracene	<0.01	ug/l	UKAS
Fluoranthene	<0.01	ug/l	UKAS
Pyrene	<0.01	ug/l	UKAS
Benzo(a)anthracene	<0.01	ug/l	UKAS
Chrysene	<0.01	ug/l	UKAS
Benzo(b)fluoranthene	<0.01	ug/l	UKAS
Benzo(k)fluoranthene	<0.01	ug/l	UKAS
Benzo(a)pyrene	<0.01	ug/l	UKAS
Indeno(123cd)pyrene	<0.01	ug/l	UKAS
Dibenzo(ah)Anthracene	<0.01	ug/l	UKAS
Benzo(ghi)perylene	<0.01	ug/l	UKAS
PAH, Total	<0.01	ug/l	UKAS
Metals			
Arsenic, Total as As	0.002	mg/l	UKAS
Cadmium	<0.2	mg/l	INAB
Chromium, Total	<0.2	mg/l	INAB
Copper, Total	<0.2	mg/l	INAB
Lead, Total	<0.2	mg/l	INAB
Mercury, Total as Hg	<0.0001	mg/l	UKAS
Nickel, Total	<0.2	mg/l	INAB
Zinc, total	0.257	mg/l	INAB
Tin	<0.005	mg/l	UKAS

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 3			
Results of Effluent Screening For Priority Substances (241 Parameters)			
Date Sampled: 26th January 2011			
All Sampling & Analysis by City Analysts Ltd			
Lab Report Reference: 11-00348-EPS_DU			
Lab Report Date: 15th February 2011			
Parameter	Result	Units	Accreditation
PCBs (Polychlorinated Biphenyls): -			
PCB101	<4.000	ng/l	UKAS
PCB118	<4.000	ng/l	UKAS
PCB138	<4.000	ng/l	UKAS
PCB153	<4.000	ng/l	UKAS
PCB180	<4.000	ng/l	UKAS
PCB28	<4.000	ng/l	UKAS
PCB52	<4.000	ng/l	UKAS
Phenols (Wastewater)			
2,4 Dichlorophenol	<1.0000	ug/l	UKAS
2,4,6 Trichlorophenol	<1.0000	ug/l	UKAS
2- Chlorophenol	<1.0000	ug/l	UKAS
2,4 Dimethylphenol	<1.0000	ug/l	UKAS
3,5 Dimethylphenol	<1.0000	ug/l	UKAS
4 Chlorophenol	<1.0000	ug/l	UKAS
2 methylphenol	<1.000	ug/l	UKAS
3/4 Methylphenol	<1.000	ug/l	UKAS
Phenol	<5.0000	ug/l	UKAS
SVOC (Semi - Volatile Organic Compounds)			
Acenaphthene	<1.0	ug/l	UKAS
Acenaphthylene	<1.0	ug/l	UKAS
Anthracene	<1.0	ug/l	UKAS
Benzo (a) anthracene	<1.0	ug/l	UKAS
Benzo (a) pyrene	<1.0	ug/l	UKAS
Benzo (b) flouranthene	<1.0	ug/l	UKAS
Benzo (ghi) perylene	<1.0	ug/l	UKAS
Benzo (k) fluoranthene	<1.0	ug/l	UKAS
Chrysene	<1.0	ug/l	UKAS
Dibenz(a,h) anthracene	<1.0	ug/l	UKAS
Fluorene	<1.0	ug/l	UKAS
Fluoranthene	<1.0	ug/l	UKAS
Indeno(1,2,3-cd)pyrene	<1.0	ug/l	UKAS
Naphthalene	<2.0	ug/l	UKAS
Phenanthrene	<1.0	ug/l	UKAS
Pyrene	<1.0	ug/l	UKAS
2-Chlorophenol	<1.0	ug/l	UKAS
4-Chloro-3-methylPhenol	<1.0	ug/l	UKAS
2,4-Dichlorophenol	<1.0	ug/l	UKAS
2,4-Dimethylphenol	<1.0	ug/l	UKAS
2 Nitrophenol	<1.0	ug/l	UKAS
Pentachlorophenol	<1.0	ug/l	UKAS
2,4,5-Trichlorophenol	<1.0	ug/l	UKAS
2,4,6-Trichlorophenol	<1.0	ug/l	UKAS
4-Nitrophenol	<5.0	ug/l	UKAS

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 3			
Results of Effluent Screening For Priority Substances (241 Parameters)			
Date Sampled: 26th January 2011			
All Sampling & Analysis by City Analysts Ltd			
Lab Report Reference: 11-00348-EPS_DU			
Lab Report Date: 15th February 2011			
Parameter	Result	Units	Accreditation
Bis(2-chloroisopropyl)ether	<1.0	ug/l	UKAS
Bis(2-chloroethyl)ether	<1.0	ug/l	UKAS
4-Chlorophenyl-phenylether	<1.0	ug/l	UKAS
4-Bromophenyl-phenylether	<1.0	ug/l	UKAS
Bis(2-ethylhexyl)phthalate	<5.0	ug/l	UKAS
Benzylbutylphthalate	<1.0	ug/l	UKAS
Dimethylphthalate	<1.0	ug/l	UKAS
Di-n-butylphthalate	<1.0	ug/l	UKAS
Di-n-octylphthalate	<1.0	ug/l	UKAS
1,2 Dichlorobenzene	<1.000	ug/l	UKAS
1,2,4-Trichlorobenzene	<1.000	ug/l	UKAS
1,3 Dichlorobenzene	<1.000	ug/l	UKAS
1,4 Dichlorobenzene	<1.000	ug/l	UKAS
2,4-Dinitrotoluene	<1.000	ug/l	UKAS
2,6-Dinitrotoluene	<1.000	ug/l	UKAS
2-Chloronaphthalene	<1.000	ug/l	UKAS
2-Methylnaphthalene	<1.000	ug/l	UKAS
2-Methylphenol	<1.000	ug/l	UKAS
3&4-Methylphenol	<1.000	ug/l	UKAS
bis(2-chloroethoxy)methane	<1.000	ug/l	UKAS
Dibenzofuran	<1.000	ug/l	UKAS
Diphenylamine	<1.000	ug/l	UKAS
Hexachlorobenzene	<1.000	ug/l	UKAS
Hexachlorobutadiene	<1.000	ug/l	UKAS
Hexachloroethane	<1.000	ug/l	UKAS
Isophorone	<1.000	ug/l	UKAS
N-nitrosodi-n-propylamine	<1.000	ug/l	UKAS
Nitrobenzene	<1.000	ug/l	UKAS
Phenol	<1.000	ug/l	UKAS
Diethylphthalate	<1.000	ug/l	UKAS
Volatile Organic Compounds (VOC)			
Dichlorodifluoromethane	<1.0	ug/l	UKAS
Chloromethane	<1.0	ug/l	UKAS
Bromomethane	<1.0	ug/l	UKAS
Vinyl Chloride	<0.5	ug/l	UKAS
Chloroethane	<1.0	ug/l	UKAS
Trichlorofluoromethane	<1.0	ug/l	UKAS
1,2-Dichloroethane	<1.0	ug/l	UKAS
Cis-1,2-dichloroethene	<1.0	ug/l	UKAS
2,2-Dichloropropane	<1.0	ug/l	UKAS
Chloroform	<1.0	ug/l	UKAS
1,1-Dichloroethene	<1.0	ug/l	UKAS
1,1,1-Trichloroethane	<1.0	ug/l	UKAS
1,1-Dichloropropene	<1.0	ug/l	UKAS

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 3			
Results of Effluent Screening For Priority Substances (241 Parameters)			
Date Sampled: 26th January 2011			
All Sampling & Analysis by City Analysts Ltd			
Lab Report Reference: 11-00348-EPS_DU			
Lab Report Date: 15th February 2011			
Parameter	Result	Units	Accreditation
Benzene	<1.0	ug/l	UKAS
Carbon Tetrachloride	<1.0	ug/l	UKAS
1,2-Dichloropropane	<1.0	ug/l	UKAS
Trichloroethene	<1.0	ug/l	UKAS
Dibromomethane	<1.0	ug/l	UKAS
Bromodichloromethane	<1.0	ug/l	UKAS
Trans-1,3-dichloropropene	<1.0	ug/l	UKAS
Cis-1,3-dichloropropene	<1.0	ug/l	UKAS
Toluene	<1.0	ug/l	UKAS
1,1,2-trichloroethane	<1.0	ug/l	UKAS
Dibromochloromethane	<1.0	ug/l	UKAS
1,2-dibromoethane	<1.0	ug/l	UKAS
Tetrachloroethene	<1.0	ug/l	UKAS
Chlorobenzene	<1.0	ug/l	UKAS
1,1,1,2-tetrachloroethane	<1.0	ug/l	UKAS
Ethyl Benzene	<1.0	ug/l	UKAS
m,p-xylene	<1.0	ug/l	UKAS
Bromoform	<1.0	ug/l	UKAS
Stryrene	<1.0	ug/l	UKAS
1,1,2,2-tetrachloroethane	<1.0	ug/l	UKAS
o-xylene	<1.0	ug/l	UKAS
1,2,3-trichloropropane	<1.0	ug/l	UKAS
Isopropylbenzene	<1.0	ug/l	UKAS
2-chlorotoluene	<1.0	ug/l	UKAS
n-propylbenzene	<1.0	ug/l	UKAS
4-chlorotoluene	<1.0	ug/l	UKAS
1,3,5-trimethylbenzene	<1.0	ug/l	UKAS
tert-butylbenzene	<1.0	ug/l	UKAS
sec-butylbenzene	<1.0	ug/l	UKAS
p-isopropyltoluene	<1.0	ug/l	UKAS
1,2,4-trimethylbenzene	<1.0	ug/l	UKAS
1,3-dichlorobenzene	<1.0	ug/l	UKAS
1,4-dichlorobenzene	<1.0	ug/l	UKAS
1,2-dichlorobenzene	<1.0	ug/l	UKAS
n-butylbenzene	<1.0	ug/l	UKAS
1,2-dibromo-3-chloropropane	<1.0	ug/l	UKAS
Bromochloromethane	<1.0	ug/l	UKAS
1,3-dichloropropane	<1.0	ug/l	UKAS
Bromobenzene	<1.0	ug/l	UKAS
1,2,3-trichlorobenzene	<1.0	ug/l	UKAS
1,2,4-trichlorobenzene	<1.0	ug/l	UKAS
Dichloromethane	<1.000	ug/l	UKAS
Hexachlorobutadiene	<1.0	ug/l	UKAS
MTBE	<1.0	ug/l	UKAS

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 3			
Results of Effluent Screening For Priority Substances (241 Parameters)			
Date Sampled: 26th January 2011			
All Sampling & Analysis by City Analysts Ltd			
Lab Report Reference: 11-00348-EPS_DU			
Lab Report Date: 15th February 2011			
Parameter	Result	Units	Accreditation
Naphthalene	<1.0	ug/l	UKAS
Trans-1,2-dichloroethene	<1.0	ug/l	UKAS
1,1-Dichloroethane	<1.0	ug/l	UKAS
2,3,6 TBA	<0.05	ug/l	UKAS
2,4 D	<0.05	ug/l	UKAS
2,4 Db	<0.05	ug/l	UKAS
2,4,5-T	<0.05	ug/l	UKAS
Bentazone	<0.05	ug/l	UKAS
Bromoxynil	<0.05	ug/l	UKAS
Clopyralid	0.09	ug/l	UKAS
Dicamba	<0.05	ug/l	UKAS
Dichlorprop	<0.05	ug/l	UKAS
Fluroxypyr	<0.10	ug/l	UKAS
loxynil	<0.05	ug/l	UKAS
MCPA	<0.05	ug/l	UKAS
MCPB	<0.05	ug/l	UKAS
Mecoprop (Total)	<0.04	ug/l	UKAS
Triclopyr	0.19	ug/l	UKAS
Benazolin	<0.06	ug/l	UKAS
Fenoprop	<0.05	ug/l	UKAS
Pesticides (OCP):			
124 TCB	<20.00	ng/l	UKAS
Aldrin	<8.00	ng/l	UKAS
Alpha HCH	<6.00	ng/l	UKAS
Beta HCH	<6.00	ng/l	UKAS
Dichlobenil	<4.00	ng/l	UKAS
Dieldrin	<8.00	ng/l	UKAS
EndosulfanA (alpha-Endosulfan)	<8.00	ng/l	UKAS
EndosulfanB (beta-Endosulfan)	<8.00	ng/l	UKAS
Endrin	<8.00	ng/l	UKAS
Hexachlorobenzene	<4.00	ng/l	UKAS
Hexachlorobutadiene	<14.00	ng/l	UKAS
Gamma-HCH (Lindane)	<6.00	ng/l	UKAS
Heptachlor Epoxide	<4.00	ng/l	UKAS
Isodrin	<8.00	ng/l	UKAS
op`-DDE	<4.00	ng/l	UKAS
op`-DDT	<4.00	ng/l	UKAS
op`-DDD (TDE)	<4.00	ng/l	UKAS
pp`-DDE	<4.00	ng/l	UKAS
pp`-DDD (TDE)	<4.00	ng/l	UKAS
pp`-DDT	<4.00	ng/l	UKAS
1,3,5 Trichlorobenzene	<20.00	ng/l	UKAS
Tecnazene	<20.00	ng/l	UKAS
Triallate	<20.00	ng/l	UKAS

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 3			
Results of Effluent Screening For Priority Substances (241 Parameters)			
Date Sampled: 26th January 2011			
All Sampling & Analysis by City Analysts Ltd			
Lab Report Reference: 11-00348-EPS_DU			
Lab Report Date: 15th February 2011			
Parameter	Result	Units	Accreditation
1,2,3 Trichlorobenzene	<20.00	ng/l	UKAS
Trifluralin	<60.00	ng/l	UKAS
alpha - Chlordane	<8.00	ng/l	UKAS
gamma - Chlordane	<4.00	ng/l	UKAS
Pesticides Triazines:			
Atrazine	<0.040	ug/l	UKAS
Prometryn	<0.040	ug/l	UKAS
Propazine	<0.040	ug/l	UKAS
Simazine	<0.040	ug/l	UKAS
Terbutryn	<0.040	ug/l	UKAS
Trietazine	<0.020	ug/l	UKAS
Ametyrn	<0.040	ug/l	UKAS
Cyanazine	<0.060	ug/l	UKAS
Diflufenican	<0.020	ug/l	UKAS
EPTC	<0.040	ug/l	UKAS
Ethofumesate	<0.040	ug/l	UKAS
Fenpropidin	<0.040	ug/l	UKAS
Fenpropimorph	<0.040	ug/l	UKAS
Flutriafol	<0.040	ug/l	UKAS
Pendimethalin	<0.080	ug/l	UKAS
Pirimicarb	<0.040	ug/l	UKAS
Propachlor	<0.020	ug/l	UKAS
Propiconazole, Total	<0.040	ug/l	UKAS
Pesticides (Sub Ureas) - Waste Water			
Chlortoluron	<0.15	ug/l	UKAS
Diuron	<0.20	ug/l	UKAS
Isoproturon	<0.15	ug/l	UKAS
Linuron	<0.15	ug/l	UKAS
Monuron	<0.15	ug/l	UKAS
Methabenzthiazuron	<0.05	ug/l	UKAS
Monolinuron	<0.15	ug/l	UKAS

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 4
Pollutant Removal Efficiency at Ballisodare WWTW

Sampling Date	BOD			COD			Total Suspended Solids		
	Influent (mg/l)	Effluent (mg/l)	Removal Efficiency (%)	Influent (mg/l)	Effluent (mg/l)	Removal Efficiency (%)	Influent (mg/l)	Effluent (mg/l)	Removal Efficiency (%)
25/01/2011	236	2	99.2	619	25	96.0	270	2	99.3
09/02/2011	54	2	96.3	170	22	87.1	78	2	97.4
23/03/2011	204	6	97.1	559	88	84.3	448	2	99.6
11/04/2011	486	2	99.6	1203	34	97.2	301	4	98.7
19/05/2011	217	3	98.6	604	58	90.4	165	15	90.9
14/06/2011	286	2	99.3	626	32	94.9	150	2	98.7
04/07/2011	302	2	99.3	659	22	96.7	213	2	99.1
09/08/2011	557	5	99.1	1021	50	95.1	364	3	99.2
28/09/2011	728	12	98.4	1746	87	95.0	258	2	99.2
12/10/2011	327	2	99.4	649	25	96.1	323	2	99.4
30/11/2011	168	2	98.8	436	47	89.2	141	2	98.6
06/12/2011	73	2	97.3	194	52	73.2	79	2	97.5

Average Removal Efficiency

98.5

BOD

91.3

COD

98.1

TSS

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 5
AMBIENT WATER QUALITY MONITORING
RESULTS OF 2010 MONITORING UNDERTAKEN BY THE EPA UNDER THE WATER FRAMEWORK DIRECTIVE ^{Note 1}

Sample Label *	Survey Date	Sample Depth S	Salinity S ‰	Temp S °C	pH	Transparency - Secchi m	DO S % Sat	B.O.D. mg/l O2	Total Oxidised Nitrogen TON mg/l N	Ammonia NH3 mg/l N	Orthophosphate PO4 µg/l P	Chlorophyll a mg/m	Si _e st µg/l Si	Dissolved Inorganic Nitrogen DIN mg/l N	Free Ammonia NH3 mg/l N	TON: NH3	DIN:P O4 µMol	DO mg/l
Required Monitoring Frequency under License D0095-01				4 samples/year	4 samples/year	4 samples/year	4 samples/year	4 samples/year	4 samples/year	4 samples/year	4 samples/year	4 samples/year		4 samples/year				
STATION NO SB 115																		
SB115S	15/02/10	0	33.4	6.3	8.0		96	0.50	0.10	0.01	18.00	1.0	100	0.1150	0.0003	6.67	14.13	9.5
SB115SR	15/02/10	0	31.6	6.7	8.0	VOB	94	0.50	0.05	0.01	17.00	2.8	200	0.0650	0.0003	3.33	8.45	9.3
SB115S	14/06/10	0	34.2	13.5	8.1	NR	98.6		0.05	0.01	6.00	4.4	50	0.0650	0.0006	3.33	23.95	8.3
SB115SR	14/06/10	0	34.9	14.2	8.1	NR	102		0.05	0.01	6.00	2.0	50	0.0650	0.0006	3.33	23.95	8.4
SB115SR	19/07/10	0	33.4	16.6	8.2	VOB	105		0.05	0.01	6.00	6.0	50	0.0650	0.0009	3.33	23.95	8.4
SB115S	19/07/10	0	34.0	15.8	8.2	VOB	105	0.50	0.05	0.01	6.00	1.0	50	0.0650	0.0008	3.33	23.95	8.5
SB115S	26/08/10	0	33.8	15.2	8.0	VOB	93.8	0.50	0.05	0.01	6.00	2.4	50	0.0650	0.0005	3.33	23.95	7.6
STATION NO SB 120																		
SB120S	19/07/10	0	27.5	18.5	8.1	.4	115.5	0.50	0.05	0.01	6.00	6.9	200	0.0650	0.0008	3.33	23.95	9.2
STATION NO SB 130																		
SB130SR	19/07/10	0	1.1	18.2	8.2	3.0	101.1	1.80	0.34	0.01	33.00	9.3	1400	0.3550	0.0010	22.67	23.79	9.5
STATION NO SB 140																		
SB140SR	15/02/10	0	0.3	4.5	8.2	0.5	98	0.50	0.70	0.01	31.00	2.0	1800	0.7150	0.0003	46.67	51	12.6
SB140S	15/02/10	0	3.1	4.0	8.1	1.5	99	0.50	0.50	0.04	34.00	1.0	1800	0.5400	0.0007	12.5	35.12	12.7
SB140B	15/02/10	2	18.7	5.0	8.0	1.5	96	0.50	0.40	0.01	32.00	4.4	1300	0.4150	0.0002	26.67	28.68	10.8
SB140SR	14/06/10	0	3.7	19.2	8.4	NR	115.4	1.90	0.14	0.01	13.00	27.0	300	0.1550	0.0016	9.33	26.37	10.4
SB140S	14/06/10	0	7.5	15.6	8.2	1.0	92.2	0.50	0.12	0.01	18.00	11.0	400	0.1350	0.0008	8	16.59	8.8

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 5
AMBIENT WATER QUALITY MONITORING
RESULTS OF 2010 MONITORING UNDERTAKEN BY THE EPA UNDER THE WATER FRAMEWORK DIRECTIVE ^{Note 1}

Sample Label *	Survey Date	Sample Depth S	Salinity S ‰	Temp S °C	pH	Transparency - Secchi m	DO S % Sat	B.O.D. mg/l O2	Total Oxidised Nitrogen TON mg/l N	Ammonia NH3 mg/l N	Orthophosphate PO4 µg/l P	Chlorophyll a mg/m	Si est µg/l Si	Dissolved Inorganic Nitrogen DIN mg/l N	Free Ammonia NH3 mg/l N	TON: NH3	DIN:P O4 µMol	DO mg/l
Required Monitoring Frequency under License D0095-01				4 samples/year	4 samples/year	4 samples/year	4 samples/year	4 samples/year	4 samples/year	4 samples/year	4 samples/year	4 samples/year		4 samples/year				
SB140B	14/06/10	1.7	24.3	16.5	8.0	1.0	80.6	0.50	0.05	0.07	15.00	9.3	200	0.1200	0.0025	0.71	17.69	6.8
SB140S	19/07/10	0	0.2	17.3	8.2	1	104	1.70	0.36	0.01	32.00	8.9	150	0.3750	0.0009	24	25.91	10
SB140SR	19/07/10	0	1.0	17.6	8.2	.25	103.6	1.60	0.30	0.01	32.00	7.3	140	0.3150	0.0009	20	21.77	9.8
SB140S	26/08/10	0	1.8	13.8	8.1	.25	99		0.18	0.01	30.00	4.8	120	0.1950	0.0006	12	14.37	10.1
SB140B	26/08/10	0.8	13.4	15.0	8.0	.25	90.1		0.05	0.01	26.00	16.0	700	0.0650	0.0005	3.33	5.53	8.4
STATION NO SB 145																		
SB145SR	15/02/10	0	23.5	7.9	8.0	VOB	96		0.20	0.01	20.00	8.6	500	0.2150	0.0003	13.33	23.77	9.8
SB145S	15/02/10	0	27.7	5.8	8.0	VOB	96		0.05	0.01	19.00	2.4	400	0.0650	0.0002	3.33	7.56	10
SB145SR	14/06/10	0	31.7	19.1	8.1	NR	118.8		0.05	0.01	6.00	8.5	100	0.0650	0.0008	3.33	23.95	9.1
SB145S	14/06/10	0	33.0	14.5	8.1	NR	97.9		0.05	0.01	6.00	6.9	50	0.0650	0.0006	3.33	23.95	8.1
SB145SR	19/07/10	0	17.2	19.4	8.2	.3	115.4	1.00	0.05	0.01	17.00	15.0	600	0.0650	0.0010	3.33	8.45	9.6
SB145S	19/07/10	0	22.2	18.2	8.2	.4	122	1.40	0.05	0.01	16.00	13.0	400	0.0650	0.0010	3.33	8.98	10.1
SB145S	26/08/10	0	29.4	15.1	8.1	VOB	95.9	0.50	0.05	0.01	6.00	8.1	50	0.0650	0.0006	3.33	23.95	8
STATION NO SB 150																		
SB150S	15/02/10	0	0.0	3.7	8.1		93	0.50	0.50	0.01	31.00	1.0	190	0.5150	0.0003	33.33	36.74	12.3
SB150S	14/06/10	0	0.0	16.4	8.4	NR	105	1.20	0.15	0.01	6.00	4.8	400	0.1650	0.0013	10	60.81	10.3
SB150S	19/07/10	0	0.0	17.7	8.1	NR	98	1.70	0.30	0.01	37.00	9.7	150	0.3150	0.0007	20	18.83	9.3
SB150S	26/08/10	0	0.2	13.6	8.0	NR	91.7	0.50	0.13	0.01	30.00	2.8	120	0.1450	0.0004	8.67	10.69	9.5

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 5
AMBIENT WATER QUALITY MONITORING
RESULTS OF 2010 MONITORING UNDERTAKEN BY THE EPA UNDER THE WATER FRAMEWORK DIRECTIVE ^{Note 1}

Sample Label *	Survey Date	Sample Depth S	Salinity S %	Temp S °C	pH	Transparency - Secchi m	DO S % Sat	B.O.D. mg/l O2	Total Oxidised Nitrogen TON mg/l N	Ammonia NH3 mg/l N	Orthophosphate PO4 µg/l P	Chlorophyll a mg/m	Si_e st µg/l Si	Dissolved Inorganic Nitrogen DIN mg/l N	Free Ammonia NH3 mg/l N	TON: NH3	DIN:P O4 µMol	DO mg/l
Required Monitoring Frequency under License D0095-01				4 samples /year	4 samples /year	4 samples /year	4 samples /year	4 samples /year	4 samples /year	4 samples /year	4 samples /year	4 samples /year		4 samples /year				
													0					

Note 2

Note 1 - Data above presented with approval and kind permission of the EPA

Note 2 - Licence calls for Molybdate Reactive Phosphorous (MRP) sampling 4 times per annum (EPA's OrthoP - as PO4 results being presented here)

- * S = Surface Sample
- B = Bottom Sample
- C = Composite Sample (S & B Mix of equal volumes)
- R = Return Sample (2nd sample taken at that site on the same day)

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 6													
BALLISODARE WWTW - FLOW WEIGHTED MASS EMISSIONS (Treated Effluent)													
Date	Outflow (m3)	BOD		COD		Total SS		Ammonia		Total Oxidised Nitrogen (TON)		Molybdate Reactive Phosphorous (Ortho P - as PO4)	
		BOD (mg/l)	Daily Mass Load (kg/Day)	COD (mg/l)	Daily Mass Load (kg/Day)	Total SS (mg/l)	Daily Mass Load (kg/Day)	Ammonia (as N) - mg/l	Daily Mass Load (kg/Day)	Total Oxidised Nitrogen (TON) - mg/l	Daily Mass Load (kg/Day)	Molybdate Reactive Phosphorous (mg/l)	Daily Mass Load (kg/Day)
25/1/11	260	2	0.5	25	6.5	2	0.5	5.25	1.36	2.05	0.53	0.10	0.03
9/2/11	1140	2	2.3	22	25.1	2	2.3	0.07	0.08	4.45	5.07	0.30	0.34
23/3/11	148	6	0.9	88	13.0	2	0.3	19.86	2.91	1.66	0.25	0.73	0.11
31/3/11	250							19.08	4.77				
8/4/11	237	2	0.5					6.19	1.47				
11/4/11	264	2	0.5	34	9.0	4	1.1	6.53	1.72	1.52	0.40	0.15	0.04
28/4/11	239							1.1	0.26				
29/4/11	159							0.6	0.10				
19/5/11	210	3	0.6	58	12.2	15	3.2	0.11	0.02	31.72	6.66	9.59	1.95
23/5/11	490									40.77	19.98	4.89	2.39
30/5/11	268									13.41	3.59		
14/6/11	239	2	0.5	32	7.6	2	0.5	0.18	0.04	6.31	1.51	3.59	0.86
4/7/11	187	2	0.4	22	4.1	2	0.4	0.05	0.01	11.50	2.15	7.02	1.31
14/7/11	196											5.63	1.10
19/7/11	313											4.67	1.46
9/8/11	164	5	0.8	50	8.2	3	0.5	9.67	1.59	5.23	0.86	6.70	1.10
16/8/11	289											1.21	0.35
28/9/11	156	12	1.9	87	13.6	2	0.3	2.50	0.39	3.22	0.50	1.90	0.30
12/10/11	339	2	0.7	25	8.5	2	0.7	0.02	0.01	12.30	4.17	1.43	0.48
30/11/11	862	2	1.7	47	40.5	2	1.7	0.01	0.00	6.17	5.32	0.65	0.56
6/12/11	433	2	0.9	52	22.5	2	0.9	0.01	0.00	11.90	5.15	0.28	0.12
Total	6,843												

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 6													
BALLISODARE WWTW - FLOW WEIGHTED MASS EMISSIONS (Treated Effluent)													
		BOD		COD		Total SS		Ammonia		Total Oxidised Nitrogen (TON)		Molybdate Reactive Phosphorous (Ortho P - as PO4)	
Date	Outflow (m3)	BOD (mg/l)	Daily Mass Load (kg/Day)	COD (mg/l)	Daily Mass Load (kg/Day)	Total SS (mg/l)	Daily Mass Load (kg/Day)	Ammonia (as N) - mg/l	Daily Mass Load (kg/Day)	Total Oxidised Nitrogen (TON) - mg/l	Daily Mass Load (kg/Day)	Molybdate Reactive Phosphorous (mg/l)	Daily Mass Load (kg/Day)
A - Sum of all Daily Mass Loads for dates on which outflow monitoring results are available (Kg/day)			12.1		170.8		12.2		14.7		56.1		12.5
B - Sum of all Daily Outflows for dates on which outflow monitoring results are available (m3/day)			4,639		4,402		4,402		5,287		5,160		5,690
C - Flow Weighted Average Concentration (A/B) - Kg/m3			0.0026		0.0388		0.0028		0.0028		0.0109		0.0022
D - Total Mass (Effluent) Flow for Year (m3) - From Table 1			106,948		106,948		106,948		106,948		106,948		106,948
E - Flow Weighted Mass Emission for 2011 (Cx D) - Kg/annum			280		4150		297		298		1,164		235
			BOD		COD		TSS		Ammonia		TON		MRP

Note

1 Emissions from above transferred into *Releases to Waters* table in AER Returns Workbook (Appendix 4)

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE 7					
Ballisodare WWTW - Sludge Disposal Records For 2011					
DATE	SLUDGE QUANTITY (WET TONNES)	TYPE OF SLUDGE	SLUDGE DRY SOLIDS (% DS)	TONNE DRY SOLIDS (tDS)	DESTINATION OF PRODUCT
19/01/2011	7.6	Cake	17.00	1.29	Sligo Town WWTW (for Parteurisation & Digestion)
23/02/2011	7.5	Cake	16.90	1.27	Do
25/03/2011	8.52	Cake	16.13	1.37	Do
19/04/2011	7.34	Cake	15.90	1.17	Do
03/05/2011	7.84	Cake	17.05	1.34	Do
10/05/2011	6.22	Cake	18.30	1.14	Do
27/05/2011	6.72	Cake	18.23	1.23	Do
16/06/2011	6.6	Cake	17.26	1.14	Do
13/07/2011	6.4	Cake	18.20	1.16	Do
27/07/2011	7.4	Cake	17.90	1.32	Do
01/09/2011	6.58	Cake	17.20	1.13	Do
28/10/2011	6.48	Cake	17.04	1.10	Do
09/11/2011	5.78	Cake	16.60	0.96	Do
20/12/2011	7.72	Cake	17.1	1.32	Do

Exported Sludge Totals (tonnes)
--

98.7

16.94

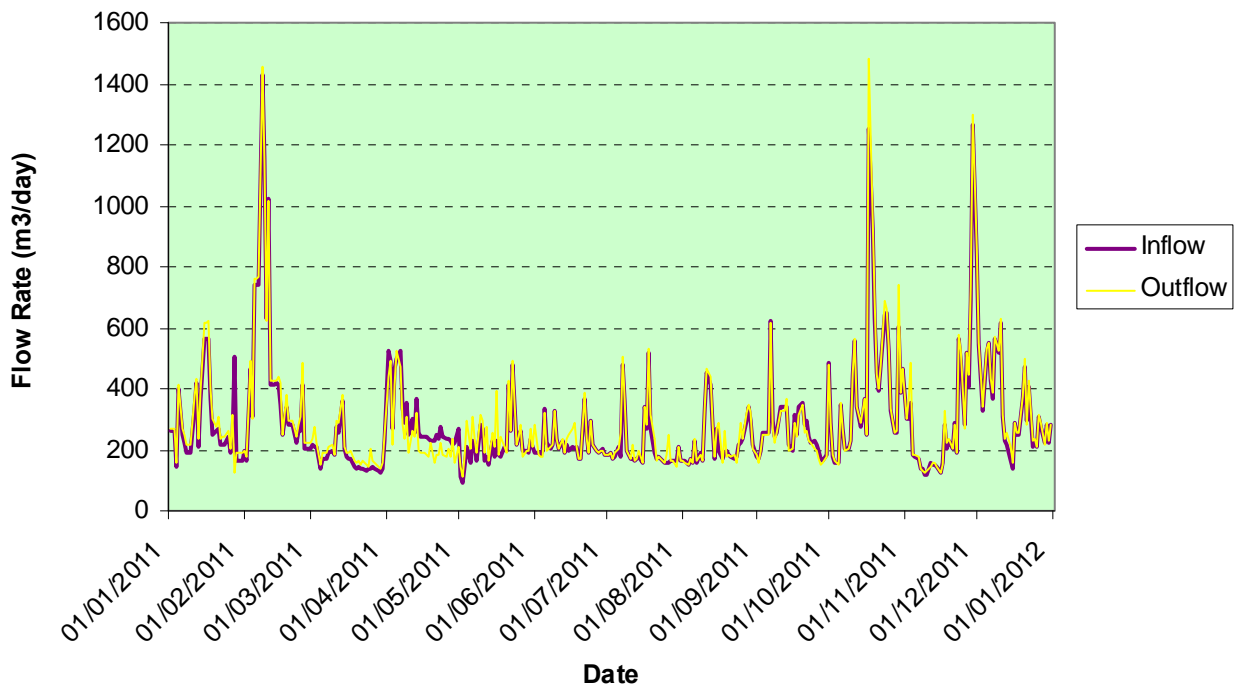
TABLE 8			
SCREENINGS & GRIT DISPOSAL RECORDS FOR 2011			
Removed off Site by Barna Waste Ltd			
(Barna Waste Permit No WCP-MO-08-0604-01)			
Date	Waste Description	Amount of Screenings removed (Kgs)	Amount of Grit removed (Kgs)
17/02/2011	Screenings	100	
17/02/2011	Grit		150
07/04/2011	Screenings	37	
07/04/2011	Grit		80
May-11	Grit		147
May-11	Screenings	160	
02/06/2011	Screenings	60	
02/06/2011	Grit		120
14/07/2011	Grit		150
01/09/2011	Grit		65
01/09/2011	Screenings	46	
03/11/2011	Grit		1,170

Totals (Kgs)

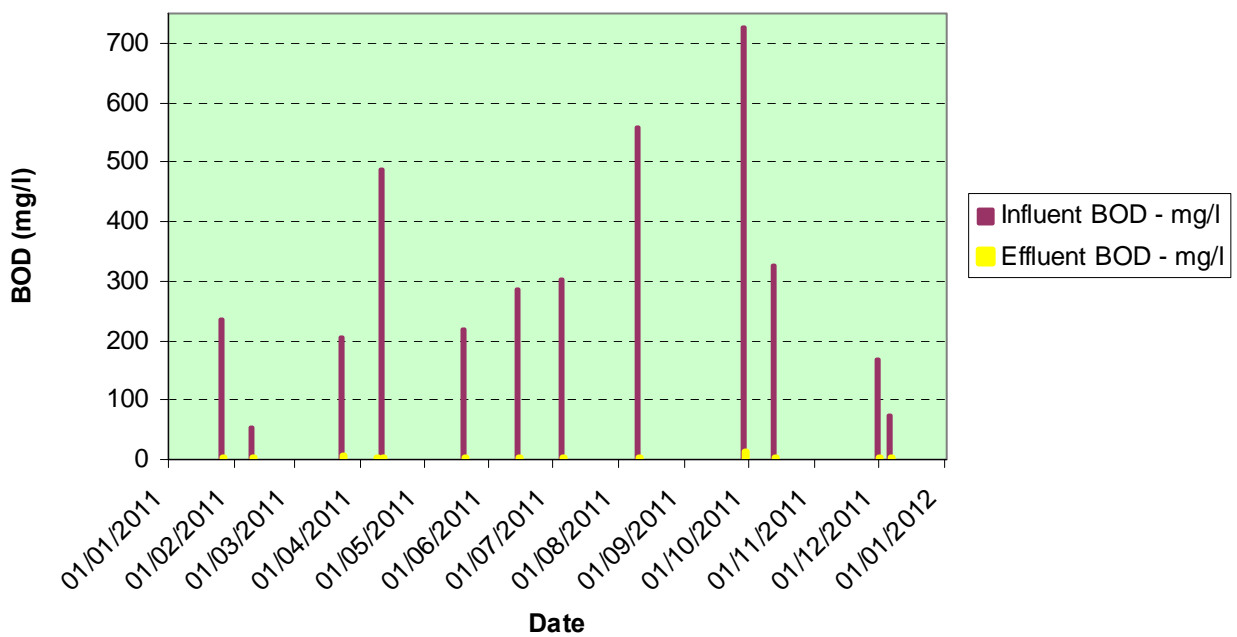
403

1,882

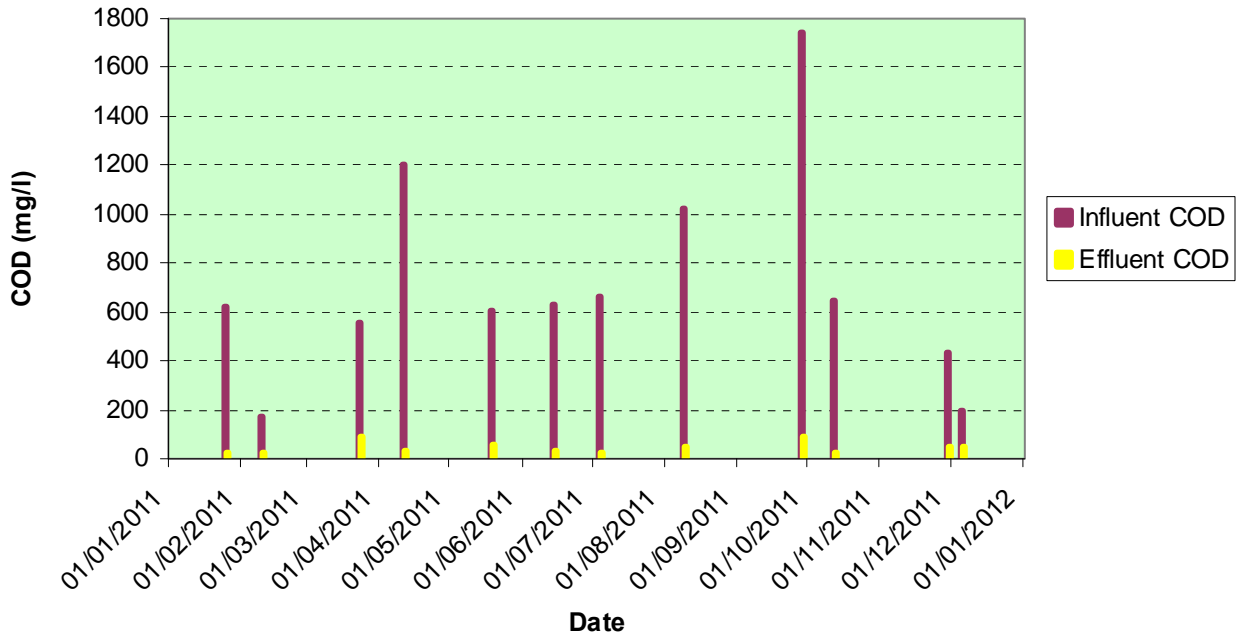
Fig.1 - Plant Inflow & Outflow (m³/day)



**Fig.2 - Influent & Effluent BOD - mg/l
(ELV = 25mg/l)**



**Fig. 3 - Influent & Effluent COD - mg/l
(ELV = 125mg/l)**



**Fig. 4 - Influent & Effluent Total Suspended Solids - mg/l
(ELV = 35mg/l)**

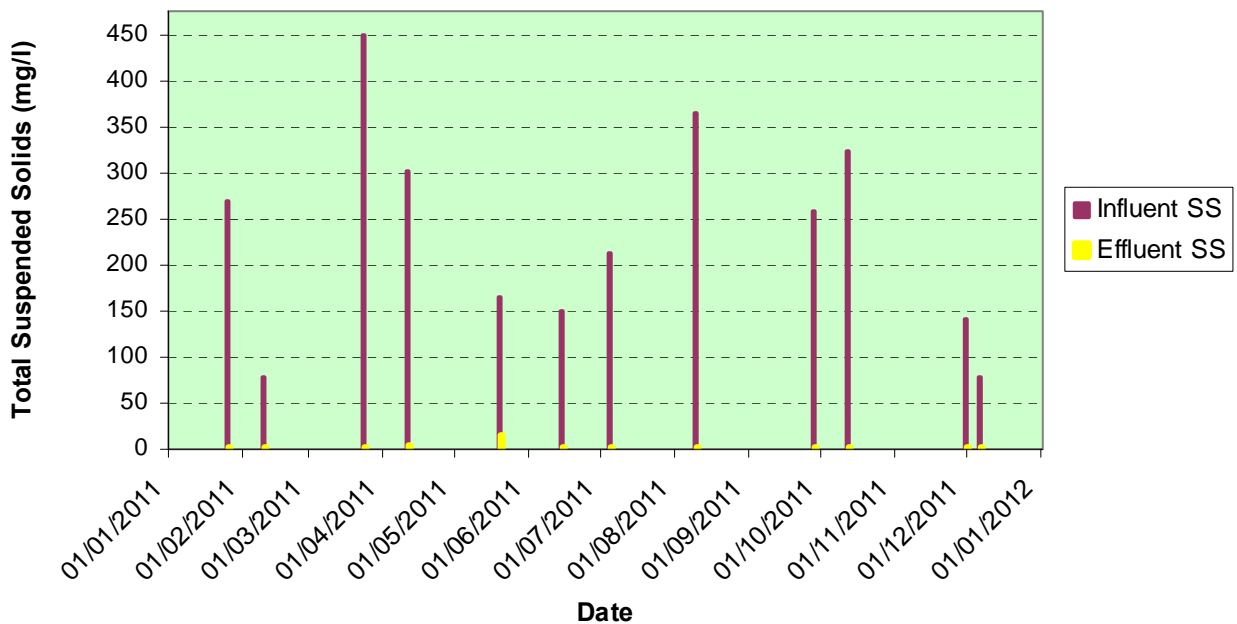
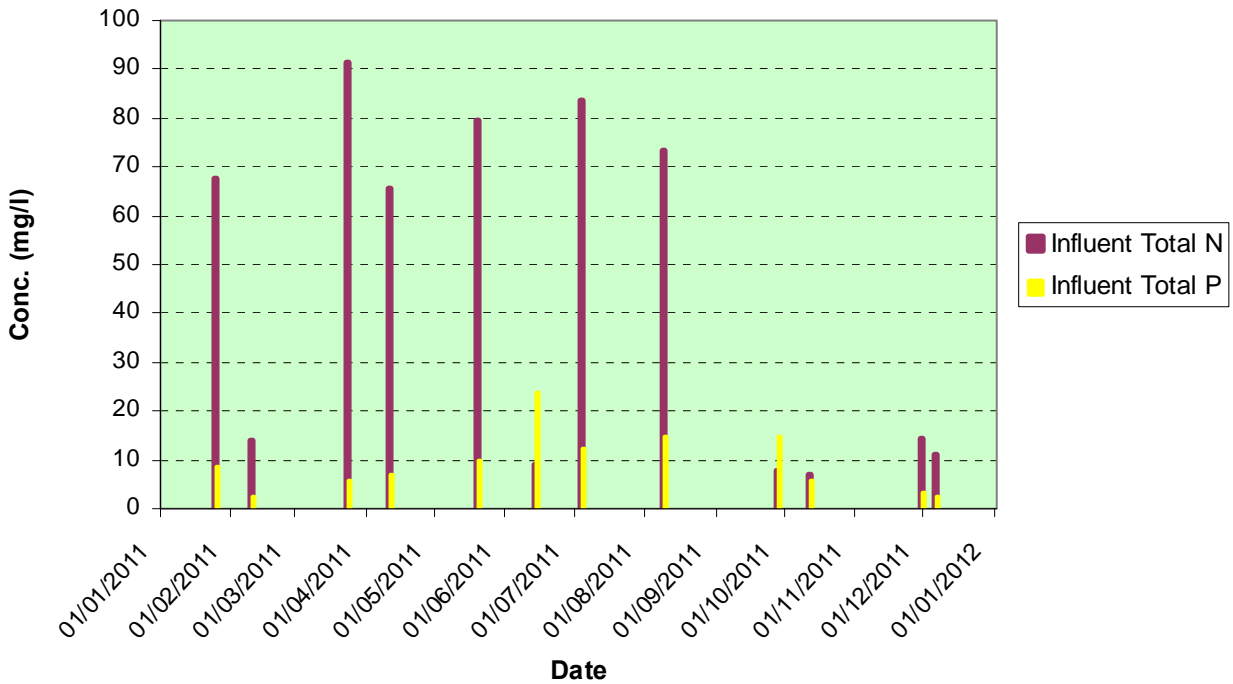
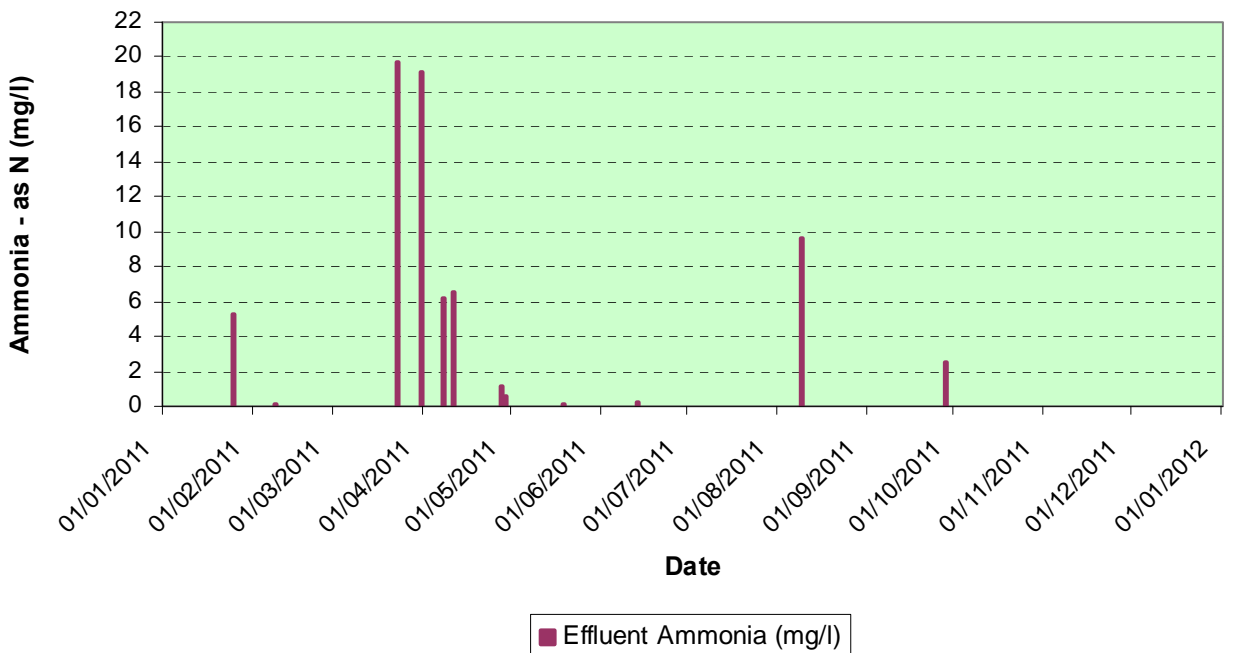


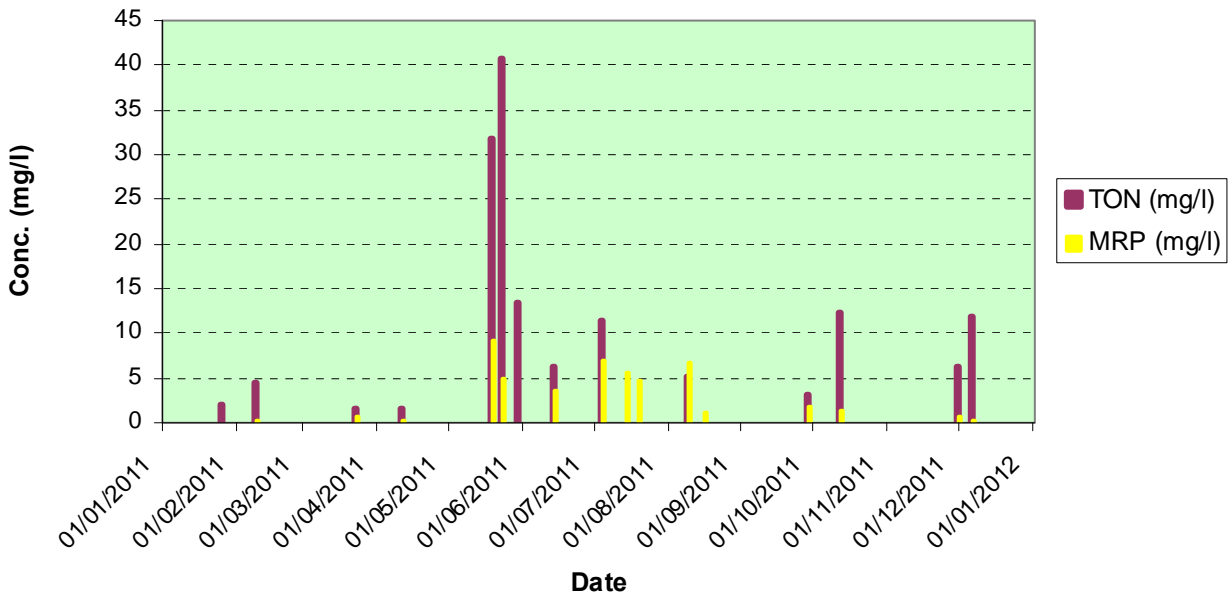
Fig. 5 - Influent: - Total Nitrogen & Total Phosphorous - (mg/l)



**Fig. 6 - Effluent Ammonia (as N)
ELV = 10mg/l**



**Fig. 7 - Effluent
Total Oxidised Nitrogen (ELV = 25mg/l) &
Molybdate Reactive Phosphorous (ELV = 5mg/l)**



**Fig. 8 - Effluent Temperature
ELV = 25 Deg C Max**

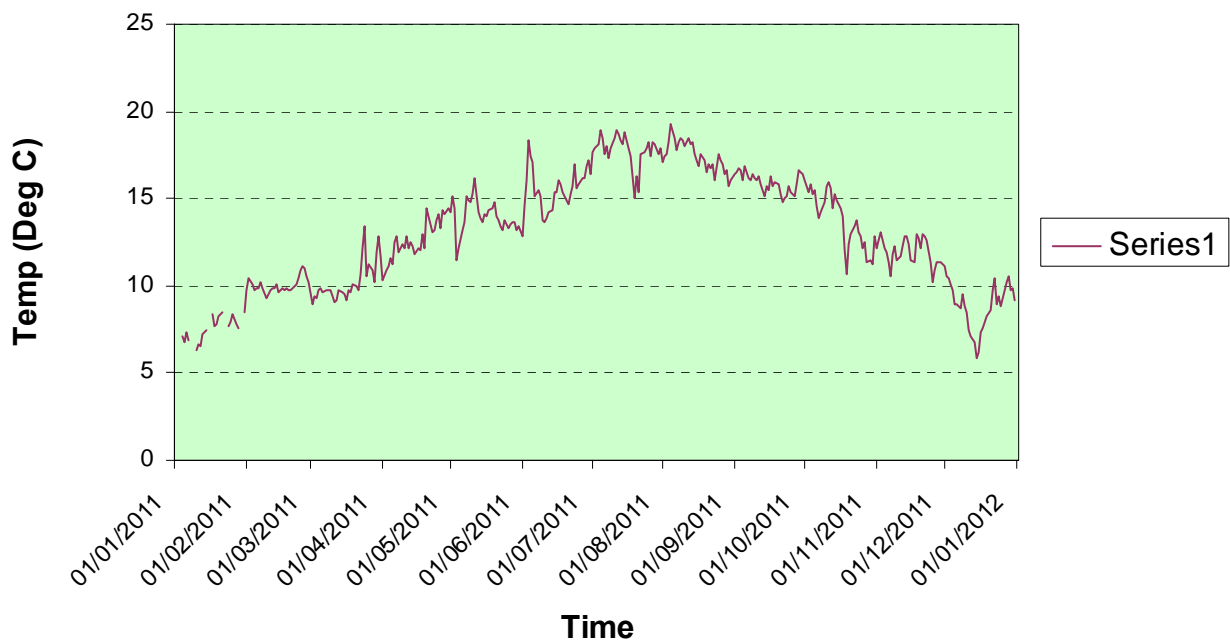
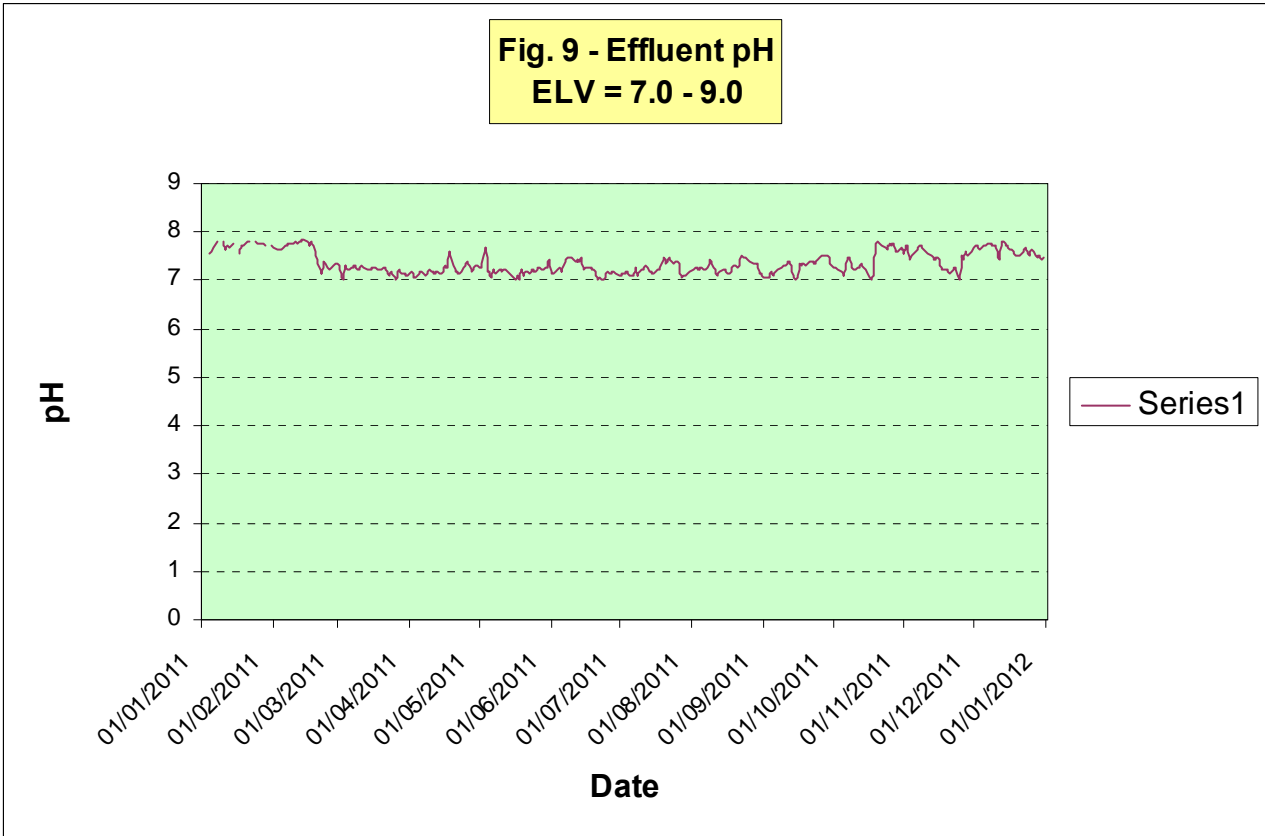


Fig. 9 - Effluent pH
ELV = 7.0 - 9.0



APPENDIX 2

Employers Liability Risk Assessment

Sligo County Council

Environmental Liability Risk Assessment & Statement of Measures for Ballisodare Agglomeration

2011

Urban Waste Water Discharge
Licence No. D0095-01

Revision History

Version	Status	Author	Reviewed By (Grade)	Description	Date
1		JM			5-2-12
2		JM	NH (A/SEE)		25-4-12

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

TABLE OF CONTENTS		Page
1	Introduction	73
1.1	ELRA Requirement	73
1.2	Background	73
1.3	ELRA Methodology	75
2	Environmental Sensitivity	76
2.1	Sensitivity of Receiving Waters	76
2.1.1	Classifications in the “ <i>Water Quality in Ireland Report 2007-2009</i> ”	77
2.1.2	Classifications under the Water Framework Directive	77
2.1.3	Designation under the Urban WWT Regulations	78
2.1.4	Ballisodare Salmon Fishery	78
2.1.5	Summary	78
2.2	Groundwater Protection	78
2.3	Protected Ecological Sites & Species	78
2.4	Human Health	79
2.4.1	Shellfish Waters	79
2.4.2	Designated Bathing Waters	79
2.4.3	Drinking Water Sources	79
3	Risk Assessment	81
3.1	Risk Assessment Methodology	81
3.1.1	Initial Screening & Operational Risk Assessment	81
3.1.2	Risk Classification Tables	83
3.2	Risk Assessment Form	84
3.3	Risk Matrix	92
3.4	Risk Prevention & Mitigation	93
4	Statement of Measures	93
5	Financial Provision	98
5.1	Quantification of Unknown Environmental Liabilities	98
5.2	Future Review of Risk Assessment	99
<u>LIST OF TABLES</u>		
1	Environmental Sensitivity Sub-Matrix	80
2	Risk Classification Table - Severity	83
3	Risk Classification Table - Occurrence	83
4	Risk Assessment Form	85

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

5	Risk Matrix	92
6	Statement of Measures	94
7	Financial Scenario – Based on Median Remediation Costs & Median Probability of Risk Occurrence	98

1 Introduction

1.1 ELRA Requirement

This ELRA for the Ballisodare Agglomeration has been prepared in compliance with Condition 7.2 of Wastewater Discharge License D0095-01 issued on the 13th July 2010 – reproduced below.

7.2 Environmental Liabilities

7.2.1 The Licensee shall as part of the AER provide an annual statement as to the measures taken or adopted in relation to the prevention of environmental damage, and the financial provisions in place in relation to the underwriting of costs for remedial actions following anticipated events (including closure) or accidents/incidents, as may be associated with discharges or overflows from the waste water works.

7.2.2 The licensee shall arrange for the completion, by an independent and appropriately qualified consultant, of a comprehensive and fully costed Environmental Liabilities Risk Assessment (ELRA) to address the liabilities from present or planned discharges. A report on this assessment shall be submitted to the Agency for agreement as part of the second AER (required under Condition 6.10). The ELRA shall be reviewed as necessary to reflect any significant changes to the volume or character of effluent discharged, and in any case every three years following initial agreement (the results of the review shall be notified as part of the AER)

7.2.3 As part of the measures identified in Condition 7.2.1, the licensee shall, to the satisfaction of the Agency, make financial provision to cover any liabilities identified in Condition 7.2.2. The amount of indemnity held shall be reviewed and revised as necessary, but at least triennially. Proof of renewal or revision of such financial indemnity shall be included in the annual “Statement of Measures” report identified in Condition 7.2.1

7.2.4 The licensee shall have regard to the Environmental Protection Agency Guidance on Environmental Liability Risk Assessment, Residuals Management Plans and Financial Provision when implementing Conditions 7.2.1, 7.2.2, and 7.2.3 above.

At an EPA Workshop on AER preparation held in Castlebar in January 2011, Local Authority personnel were encouraged to consider completing the ELRA’s in-house rather than engaging consultants. This ELRA was prepared by the Water Services Dept. of Sligo County Council

1.2 Background

The WWT plant serving Ballisodare was upgraded in 2005 and is currently being run on behalf of Sligo County Council by EPS Ltd under a 20 year Operation & Maintenance Contract. This activated sludge plant was designed to cater for a population equivalent of 4,500 (DWF 11.7l/s) and to achieve final effluent standards as follows:

- BOD – 25mg/l
- Total SS – 35mg/l
- COD – 125mg/l

The treatment process on site incorporates the following:

- Inlet Pumping (up to 6DWF) & Flow Measurement/Sampling
- Screenings Removal incl. Washing & Compacting.
- Grit Removal
- Stormwater Diversion & Temporary Storage within SWHT
- STM Hybrid Activated Sludge Plant
- Ferric Sulphate Dosing facilities for phosphorous removal (off-line in 2011)
- Sludge Recirculation and Control
- Final Clarifier
- Tidal Release Tank
- Effluent Sampling & Flow Measurement
- Sludge Holding & Dewatering Facilities (Belt Press)

After final clarification, the treated effluent is stored in a tidal release tank to be discharged to Ballisodare Estuary in a controlled manner twice a day on high tides, it discharging via an outfall pipe approx. 450m long (at Primary Discharge Point SW1).

The 3 nr inlet pumps provided are configured on a duty/assist/standby arrangement with 2 pumps in parallel designed to deliver a max of 70.2l/s (6DWF) up to the Preliminary Treatment Unit (PTU) to undergo screening, grit removal and forward feed. The plant is designed such that flows up to 3DWF (35l/s) receive full immediate treatment while storm flows of between 3 and 6 DWF are diverted to the SWHT – to be temporarily stored and returned for full treatment after the storm event subsides and the inflow drops to below 1.5DWF. Any overflows from the SWHT (which are all screened) discharge to the estuary via the same outfall pipe as the Primary Discharge (at SW1).

Sludge cake at 18-20% dry solids is removed from the plant into the sludge hub at Sligo Town WWTW for pasteurisation, digestion and eventual re-use as a fertilizing agent/soil conditioner on agricultural land.

There are 5 discharges from the agglomeration, the Primary Discharge Point (SW1 at which treated effluent enters the estuary together with a further 4 SWO's as listed below. (Note the stormwater overflow on the treatment works site (SWA below) shares a common outfall pipe with the Primary Discharge SW1)

Storm Water Overflows		
Discharge Point Code	Location	Name of Receiving waters
SW2	Ball Alley (166777E, 329066N)	Ballisodare River
SW3	Power Plant (166741E, 329252N)	Ballisodare River
SW5	Main Street (166804E, 329144N)	Ballisodare River
SWA	At WWTP Site	Ballisodare Estuary

Monitoring under the Wastewater Discharge Licence during 2011 indicated an actual PE loading on the Ballisodare treatment plant of 1,316 persons (Ref AER for 2011). With a design PE of 4,500 the plant has adequate capacity to cater for increased loadings well into the future.

1.3 ELRA Methodology

This ELRA was completed using the guidance set out in the:

- EPA’s 2006 Publication “*Guidance on Environmental Liability Risk Assessment, Residuals Management Plans and Financial Provision*”
- EPA document “*Guidance on the Preparation and Submission of the Environmental Liability Risk Assessment (ELRA) for the Annual Environmental Report (AER) for Waste Water Discharge Licenses*” – Rev 2 Issue 1 dated 22/12/10 available on the EPA Website.

The EPA’s excel template sheets 2010 were used to complete the ELRA tables included in this report.

The EPA’s **Dynamic Risk Enforcement Assessment Methodology (DREAM)** was also utilized. Inherent in this is a decision making framework and toolset to assess the risks posed to the receiving water by the primary discharge from the agglomeration. DREAM allocates an Enforcement Category to wastewater agglomerations based on 5 environmental attributes

- Level of Treatment
- Discharge Compliance
- Observed impact
- Possible impact, and
- Enforcement record

From the EPA’s www.edenireland.ie, the Enforcement Category currently allocated to the Ballisodare WWTW Primary Discharge SW1 is medium, **B1**, with an Overall Riskscore Allocation of **20**.

Ballisodare Agglomeration – WWDL No D0095-01 Annual Environmental Report for 2011

The screenshot displays the DREAM Risk Assessment interface. The central panel shows the following information for Ballisodare (TPEFF2700D0095SW001):

Overall Riskscore:	20
Agglomeration Size:	1000
Licence Status:	Licensed
Water Services Authority:	Sligo County Council
River Basin District:	Western
Licence Inspector:	Unassigned
Enforcement Inspector:	Unassigned

The right sidebar lists various attributes and their values:

- Works Name: Ballisodare
- Enforcement Category: B1
- Overall Riskscore: 20
- Level of Treatment: S.T. Within Capacity
- Discharge Compliance: Compliant
- Observed Impact: Receiving Water < Good
- Possible Impacts: SPA, SAC, NHA
- Selected Default Criteria: None Apply
- Receiving Water: Transitional
- Agglomeration Size: 1,000
- County: Sligo
- Water Services Authority: Sligo County Council
- Regional Office: Castlebar: LE Castlebar
- River Basin District: Western
- Licence Status: Licensed
- Licence Inspector: Unassigned
- Enforcement Inspector: Unassigned
- Discharge Pt Mapping Reliability: High

2 Environmental Sensitivity.

This relates to the sensitivity of the receiving environment in the vicinity of the primary discharge. The guidance documents set out 6 potential environmental receptors for consideration

- Surface (Receiving) Waters
- Groundwater
- Protected Ecological Sites & Species
- Human Health
- Air Quality & Topography
- Sensitive Agricultural Receptors

This assessment for Ballisodare has focused on the first 4 potential receptors listed above. Each has been designated a score through the risk enforcement methodology developed by the EPA. The sub-matrix results are set out in Table 1

2.1 Sensitivity of Receiving Waters

The treated effluent discharges into the Ballisodare river estuary through SW1, located c. 450m from the WWTW. Ballisodare Estuary is a transitional water body in the Western River Basin District (WRBD) and merges into Ballisodare Bay and in turn Sligo Bay.

2.1.1 Classifications in the “*Water Quality in Ireland Report 2007-2009*”

In the EPA’s *Water Quality in Ireland Report 2007-2009*, Ballisodare Estuary and Bay were both classified as having an *Intermediate* status under the EPA’s Trophic Status Assessment Scheme (TSAS), a scheme designed to detect the occurrence of eutrophication in estuarine and coastal waters – with designations as follows:

- Unpolluted
- Intermediate
- Potentially Eutrophic
- Eutrophic

The Ballisodare River itself (within Hydrometric Area 35 - Western RBD) has been categorised as “*Class A - Unpolluted*” in the EPA’s *Water Quality in Ireland Report 2007-2009* (See maps within Appendices to same). This is based on the EPA’s older four water quality breakdown classifications:

- A – Unpolluted ^(Note 1)
- B – Slight Pollution
- C – Moderate Pollution
- D – Serious Pollution

The 2007-2009 report is available to download on the EPA website www.epa.ie

2.1.2 Classifications under the Water Framework Directive

Under the newer Water Framework Directive (WFD) ecological status classifications (five classifications –High, Good, Moderate, Poor and Bad), as reported to Europe in July 2010, the quality of the Ballisodare river waterbody is classified as “*Good*”. The Ballisodare Estuary transitional water body is classified as having a “*Moderate*” status while the water quality in the coastal water body of Ballisodare Bay is classified as “*Good*”.

Further details can be viewed using the Interactive map viewer Watermaps on www.wfdireland.ie

(Note 1: The older *Class A – Unpolluted* category for Rivers has now been split into 2 new sub-categories under the WFD monitoring programme: *High* and *Good* ecological status)

2.1.3 Designation under the Urban WWT Regulations

Neither the Ballisodare River nor Estuary is designated as a Sensitive Water Body under S.I. No. 48 of 2010 - Urban Waste Water Treatment (Amendment) Regulations.

2.1.4 Ballisodare Salmon Fishery

The Ballisodare River is not designated under the Salmonid Water Regulations SI No 293 of 1988 – European Communities (Quality of Salmonid Waters) Regulations, 1988. However the river is a well recognised salmon fishery. The river is formed from the confluence of the Owenmore and Unshin rivers. It runs the short distance from the confluence point just outside Collooney into Ballisodare Bay. Despite its short length (approx 5km long), it is one of the most prolific and popular salmon rivers in the country. Most of the fishing takes place in the tidal section below the “Butt” of the Ballisodare Falls and the river itself above the falls is also productive throughout the season. The Salmon fishing is controlled by the Ballisodare Fishing Club. Due to extensive conservation measures by the club and the fisheries board in recent years, there is now a substantial run of spring salmon in the river from April to mid June, and in June – July the peak of its large grilse run is seen. There is some very good sea trout fishing in the estuary in the evenings on a rising tide.

2.1.5 Summary

In light of the above classifications and the receiving waters importance as a salmon fishery, a risk score of 3 is being allocated for Sensitivity of Receiving Waters in Table 1 - Environmental Sensitivity Sub-Matrix.

2.2 Groundwater Protection:

The bedrock in the agglomeration area site is generally classified as being a *Locally Important Aquifer- Karstified (Lk)* on the National Draft Bedrock Aquifer Map available from the GSI Website - <http://spatial.dcenr.gov.ie/imf/imf.jsp?site=Groundwater>

The associated Vulnerability rating is generally classified as “High” throughout the agglomeration except for a narrow NW-SE running band to the immediate west of the river which is classified as “Extreme”. The TWS itself is situated within this band.

A total score of 4 is being allocated in Table 1 - Environmental Sensitivity Sub-Matrix. The *Lk Locally Important* (Score of 1) plus the *Extreme* Vulnerability (Score of 3) classifications are being applied to the entire agglomeration area.

2.3 Protected Ecological Sites and Species:

The Primary Discharge from the WWTW is located within the following sites proposed or already designated for protection under wildlife legislation. The boundaries of all sites are available for viewing on the National Parks & Wildlife Services website www.npws.ie

- Ballisodare Bay Proposed National Heritage Area (**pNHA**) Site Code 000622 designated under the Wildlife (Amendment) Act, 2000
- Ballisodare Bay designated Special Protection Area (**SPA**) - under the Birds Directive – Site Code 004129
- Ballisodare Bay designated Special Area of Conservation (**SAC**) – under the Habitats Directive (92/43/EEC) - Site Code 000622.

A score of 2 is being allocated in Table 1 - Environmental Sensitivity Sub-Matrix in respect of Protected Ecological Sites and Species.

2.4 Human Health

2.4.1 Shellfish Waters

Neither Ballisodare Estuary nor Ballisodare Bay, both located within the Western RBD, are designated as “*Shellfish Waters*” under SI 55 of 2009: European Communities (Quality of Shellfish Waters) (Amendment) Regulations 2009. The closest designated shellfish waters to Ballisodare are in Sligo Bay (8km distant) and Drumcliffe Bay (12km distant). These designated areas are naturally separated from Ballisodare Bay by the Coolera and Rosses Point peninsular land masses respectively.

With the designated areas in excess of 5km from the primary discharge SW1, the risk score is zero in Table 1 - Environmental Sensitivity Sub-Matrix

2.4.2 Designated Bathing Waters

Ballisodare Estuary does not have any designated bathing areas within the meaning of the Quality of Bathing Waters Regulations 1992 (S.I 155 of 1992), as amended. The closest designated area is at Rosses Point which again received an International Blue Flag award in 2011. However this beach is some 9 km from the Ballisodare primary discharge SW1. The risk score is thus zero in Table 1 - Environmental Sensitivity Sub-Matrix

2.4.3 Drinking Water Sources

There are no drinking water abstraction points in the Ballisodare Estuary or Bay downstream of any discharge. The GSI Website <http://spatial.dcenr.gov.ie/imf/imf.jsp?site=Groundwater> indicates no wells within 4km. The nearest source of public water supply is Lough Gill some 6km to the northwest and at a much higher elevation. The discharges from the agglomeration pose no known risks to drinking water sources.

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

Table 1 Environmental Sensitivity Sub-Matrix

Environmental Attribute	Environmental Attribute Score	Designated Score	Comment
Sensitivity of Receiving Waters			
Class A (Q5, Q4-5, Q4)	3	3	
Class B (Q3-Q4)	2		
Class C (Q3, Q2-3)	1		
Class D (Q2, Q1-Q2, Q1)	0		
Designated Coastal & Estuarine Waters	2		Receiving water is not a designated <i>Sensitive Area</i> under S.I. No. 48 of 2010 - Urban Waste Water Treatment (Amendment) Regulations
Potentially Eutrophic Coastal & Estuarine Waters	1		Ballisodare Estuary & Bay both classified as having "Intermediate" status under the EPA's Trophic Status Assessment Scheme (TSAS) - Ref EPA's <i>Water Quality in Ireland Report 2007-2009</i> . Deeming "Intermediate" equivalent to "Class B" would indicate a risk score of 2. However because of rivers importance as a salmon fishery. A risk score of 3 is being allocated
Groundwater Protection			
Regionally Important Aquifer	2		
Locally Important Aquifer	1	1	Locally Important Aquifer – Karstified (Lk) in Ballisodare area
Poor Aquifer	0		
Vulnerability Rating - Extreme	3	3	<i>Extreme</i> vulnerability classification being applied to the area of the entire agglomeration
Vulnerability Rating - High	2		
Vulnerability Rating - Moderate	1		
Vulnerability Rating - Low	0		
Protected Ecological Sites and Species (Shortest distance from any discharge)			
Discharge within or directly bordering a designated site	2	2	Ballisodare Bay pNHA, SPA & SAC.
< 1km	1		
> 1km	0		
Human Health			
Discharge within or directly bordering a designated shellfish area:-			

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

Within 0 - 5 km	1		
>5 km distant	0	0	designated shellfish areas in Sligo Bay and Drumcliffe Bay in excess of 5km distant and separated from Ballisodare Estuary by Collera and Rosses Point peninsulas respectively
Designated Bathing Water:-			
Within 0 - 5 km	1		
>5 km distant	0	0	Rosses Point Blue Flag Beach is located 10km from the primary discharge (at its closest point)
Drinking Water Source:-			
Within 0 - 10 km	1	1	Closest well recorded on GSI website is 4.6km distant. Lough Gill public source 6km to the northwest and at a much higher elevation.
>10 km distant	0		

Environmental Sensitivity (Attribute) Score*

10

* Used to establish Environmental Sensitivity Classification for the facility

3 Risk Assessment

3.1 Risk Assessment Methodology

3.1.1 Initial Screening & Operational Risk Assessment

Complexity: This can be defined as the extent and magnitude of potential hazards present due to the operation of the facility. From Appendix B of the EPA publication “*Guidance on Environmental Liability Risk Assessment, Residuals Management Plans and Financial Provision*”, the complexity band applicable to the licensed facility in Ballisodare is **G3** (Reference D6 under Waste Disposal Activities – reproduced below).

Ref	Waste Disposal Activities	Complexity Band (Score)
D6	Biological Treatment not referred to elsewhere in this Schedule which results in final compounds or mixtures which are disposed of by means of an activity referred to in this Schedule	G3 (3)

The Complexity Score for the Facility is thus **3**.

Environmental Sensitivity: A total Environmental Sensitivity (Attribute) score of 10 has been established from the Sensitivity sub-matrix in Table 1 above.

The following Table (extracted from the EPA 2006 Publication “*Guidance on Environmental Liability Risk Assessment, Residuals Management Plans and Financial Provision*”) places this score in the “Moderate” Range.

Environmental Sensitivity Classification

TOTAL Environmental Attribute Score ¹	Environmental Sensitivity Classification
Low < 7	1
Moderate 7 - 12	2
High - > 12	3

¹ Total Score equal to the addition of Environmental Attribute Scores

The Environmental Sensitivity Score for the facility is therefore **2**

Compliance Record: In 2011 there were 3 breaches on the MRP limit and one each on the respective TON & Ammonia limits, 5 in total. However with 12 samples being called for per annum, Schedule B3 of the license allows for a maximum of 2 breaches. Thus there were 3 nr breaches above the permitted number

Following the guidance set out in Sect 2.4 of the EPA 2006 Publication “*Guidance on Environmental Liability Risk Assessment, Residuals Management Plans and Financial Provision*” the facility is deemed to currently have a Compliance Record score of **3** (*Licensed facilities with “Minor Emission Non-compliances”*)

Site Specific Risk Category:

The total *Risk Score* for the facility is calculated as follows:

Total Risk Score =	Complexity Score x Environmental Sensitivity Score x Compliance Record Score =	3 x 2 x 3 =	18
---------------------------	---	--------------------	-----------

With a total *Risk Score* of **18**, the site specific *Risk Category* is therefore Category **2** – from the table below (extract from EPA Guidance Documents)

Risk Category

Risk Category	Total Risk Score = (Complexity x Env. Sensitivity x Compliance Record)
Category 1 (Low)	<5
Category 2 (Medium)	5 - 23
Category 3 (High)	> 23

For such Category 2 medium risk facilities a generic approach is adopted. The potential for unplanned events to occur that could result in *Unknown* liabilities need to be considered and financial provision put in place to cover such eventualities.

Unknown unplanned liabilities in this instance are as distinct from *Known* planned liabilities for a landfill site for example in the IPPC licensing context, where costings can be reasonably estimated in advance under a **Closure, Restoration and Aftercare Management Plan (CRAMP)**

A walkover of the Ballisodare WWTW was undertaken on 12th January 2012 between technical staff of SCC Water Services and the plant operators EPS Ltd. The aspects of the WWT processes that pose potential hazards to the Environmental Receptors were identified as were the key risks associated with these processes.

3.1.2 Risk Classification Tables

In accordance with the EPA guidance documents the key environmental risks which were identified during the risk management workshop were assigned a risk score using the Severity and Occurrence Rating tables 2 & 3 below.

Table 2 Risk Classification Table – Severity

Rating	Severity		
	Category	Description	Cost of Remediation (€)
1	Trivial	No damage or negligible change to the environment.	<1,000
2	Minor	Minor impact/localised or nuisance	1,000 – 20,000
3	Moderate	Moderate damage to environment	20,000 – 100,000
4	Major	Severe damage to local environment	100,000 - 200,000
5	Massive	Massive damage to a large area, irreversible in medium term	200,000 – 1,000,000

Table 3 Risk Classification Table – Occurrence

Rating	Occurrence		
	Category	Description	Probability of Occurrence (%)
1	Very Low	Very low chance (0-5%) of hazard occurring in 30 yr period *	0 – 5
2	Low	Low chance (5-10%) of hazard occurring in 30 yr period	5 - 10
3	Medium	Medium chance (10-20%) of hazard occurring in 30 yr period	10 - 20

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

4	High	High chance (20-50%) of hazard occurring in 30 yr period	20 - 50
5	Very High	Greater than 50% chance of hazard occurring in 30 yr period	>50

* The assessment of the environmental liabilities has been limited to a 30 year period in accordance with Article 17 of the ENVIRONMENTAL LIABILITIES DIRECTIVE 2004/35/CE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 21 April 2004 - on environmental liability with regard to the prevention and remedying of environmental damage

3.2 Risk Assessment Form.

The tailored Risk Assessment Form tabulates all the identified risks which are associated with the process. Risk rankings were applied to each risk for severity and occurrence in accordance with the risk classification ratings in Tables 2 & 3 above. The overall risk score for each identified risk is the product of the risk severity and risk occurrence ratings.

The completed risk assessment form for the Ballisodare Agglomeration is presented in Table 4.

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

Table 4 - Risk Assessment Form

Risk ID	Process	Potential Hazards	Environmental Effect	Table 2 Severity Rating	Basis of Severity	Table 3 Occurrence Rating	Basis of Occurrence	Risk Score (= Severity x Occurrence)
Wastewater Treatment Works								
I	WWTW - General	Main ESB Power Supply Failure	Washout of MLSS, failure of biological treatment, untreated wastewater discharge to receiving waters	3	Cost of remediation to protected ecological sites (Ballisodare Bay pNHA, SPA & SAC.). Also Ballisodare River salmon fishery. High dilution available in river estuary however. From experience main power outage would unlikely exceed 1 day	2	Standby Power Generator in place c/w auto changeover and integral bunded fuel tank. TWS is continuously monitored by SCADA. Alarms and call out system in place. Caretaker lives within Ballisodare village. Incoming flow <30% of design flow during 2011 and SWHT could be utilized for temporary storage (manual flow diversion). Chances of prolonged plant outage which would cause environmental damage are low	6
II	WWTW - General	General - Pipe Failure	Pollution with subsequent impact on waterways, protected sites	2	Cost of remediation to protected ecological sites (Ballisodare Bay pNHA, SPA & SAC.). Also Ballisodare River salmon fishery. High dilution available in river estuary however. Severity of a minor localised nature	3	Pipelines were pressure tested at commissioning stage in 2006. Any serious failure would be noticed immediately by full time staff.	6
III	WWTW - General	General - Tank Failure	Pollution with subsequent impact on waterways, protected sites	3	Cost of remediation to protected ecological sites (Ballisodare Bay pNHA, SPA & SAC.). Also Ballisodare River salmon fishery. High dilution available in river estuary however. Vulnerability of elevated PFT is a	3	Tanks were tested for watertightness at commissioning stage in 2006. Any serious failure would be noticed immediately by full time staff. However vehicle collision with the steel PFT is a risk (Only water	9

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

Table 4 - Risk Assessment Form

Risk ID	Process	Potential Hazards	Environmental Effect	Table 2 Severity Rating	Basis of Severity	Table 3 Occurrence Rating	Basis of Occurrence	Risk Score (= Severity x Occurrence)
					concern at bottom of steep access road into site – IIT Ltd. circular powder coated steel tank (in event of brake failure on incoming vehicle)		retaining structure that is not of reinforced concrete construction)	
IV	WWTW - General	Flooding	Flooding overwhelms WWTW leading to washout of untreated effluent or sludge	3	Remediation of receiving water, protected ecological sites and Ballisodare salmon fishery.	1	Highly unlikely - Plant is constructed well above max recorded river flood levels. Site slopes steeply towards river. All tanks (Aeration, clarification, SWHT, PFT and Tidal Release Tank are elevated	3
V	WWTW - General	Fire within control building/electrical panels/sludge press building	Pollution with subsequent impact on waterways from firewater discharge through surface water drains and via groundwater paths	2	Costs of remediation to protected ecological sites and salmon fishery. Low severity. Firewater unlikely to be highly toxic. 2 buildings on site are small and it's expected that volumes of firewater required would be low. High dilution available in estuary.	2	Fire alarms and text out facilities in place, fire extinguishers provided within all buildings. EPS Ltd have an agreement in place with a nationally recognised Fire Protection Company for annual maintenance of all protection equipment	4
VI	Inlet Pumping Station on TWS	Failure of critical equipment, blockage on rising main up to the Preliminary Treatment Unit (PTU)	Incoming wastewater overflows out onto paved area and gravitates into river. High level overflow out of this inlet sump has been blocked off	3	Cost of remediation to protected ecological sites (Ballisodare Bay pNHA, SPA & SAC.). Also Ballisodare River salmon fishery.	2	3 nr inlet pumps provided - configured on a duty/assist/standby basis with 2 pumps in parallel designed to deliver a max of 70.2l/s (6DWF) up to the Preliminary Treatment Unit (PTU). However incoming flows are currently low (App 30% of design flow). No histories of overflows or pump failure since 3 pumps were replaced in June 2010 by EPS Ltd.	6

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

Table 4 - Risk Assessment Form

Risk ID	Process	Potential Hazards	Environmental Effect	Table 2 Severity Rating	Basis of Severity	Table 3 Occurrence Rating	Basis of Occurrence	Risk Score (= Severity x Occurrence)
							All pumps are alarmed. Low chance of serious incident occurring while incoming flow rates remain low. SWO's upstream on network	
VII	Preliminary Treatment Unit (PTU) comprising screening, grit removal & forward feed facilities	Failure of critical equipment, blockage on line to aeration basin	Possible untreated wastewater discharge to groundwater/surface water	2	Cost of remediation to protected ecological sites (Ballisodare Bay pNHA, SPA & SAC.) and Ballisodare River salmon fishery.	2	New plant is only commissioned since 2006. Manually raked by-pass screen in place. Blockage on inlet to PTU would be of short duration as alarms would be activated. Caretaker visits site daily. Kuhn Screenings compactor has given trouble in the past however causing some carryover of screenings into aeration basin (screen is oversized for current duty and tends to block)	4
VIII	Aeration Basin	Both Stahlermatic (STM) Wheels simultaneously out of service. DO depletion & biomass washout	Untreated wastewater discharge to surface water	3	Cost of remediation to protected ecological sites (Ballisodare Bay pNHA, SPA & SAC.) and Ballisodare River salmon fishery.	2	Duty & assist STM wheels in place. DO sensors installed and control process is monitored by SCADA. Failure would be noticed immediately. Chain breakages have caused problems in the past but incoming flows are low at present and a single wheel is capable of maintaining a generally healthy biomass. Unlikely that both wheels would fail simultaneously. Time period would elapse	6

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

Table 4 - Risk Assessment Form

Risk ID	Process	Potential Hazards	Environmental Effect	Table 2 Severity Rating	Basis of Severity	Table 3 Occurrence Rating	Basis of Occurrence	Risk Score (= Severity x Occurrence)
							before situation became critical with regard to effluent quality. Portable blowers could be installed by EPS at short notice	
IX	Final Clarifier	Failure of critical equipment leading to solids carryover in effluent	SS increase in the receiving water following discharge of treated effluent through tidal release tank	2	Cost of remediation to protected ecological sites (Ballisodare Bay pNHA, SPA & SAC.) and Ballisodare River salmon fishery. High dilution in river estuary however	2	Single final clarifier on site. Drive motor for sludge scraping mechanism is checked/maintained regularly by experienced staff. Alarm call out in place in event of malfunction. Time period would elapse before solids built up and situation became critical with regard to effluent quality. Effluent could be retained within the tidal release tank for retreatment as necessary	4
X	Tidal Release Tank	Failure of actuator on outlet leading to 24 continuous discharge from the plant (rather than twice daily on high tides as designed)	Uncontrolled release of effluent and possible adverse affects on river estuary water quality during low tides	2	Av daily outflow from plant during 2011 was only approx 290m3 (3.3l/s if continuously discharged over 24 hours). This is negligible compared with river flows even on low tide low water periods. High dilution available	3	Actuator mechanism is checked/maintained regularly. Discharges are monitored by SCADA	6
XI	Receipt of shock load at the plant	High plug load of BOD/COD/Nitrogen which may not be metabolized by the plant and result in discharge outside ELV's	Temporary deterioration in effluent quality.	2	Cost of remediation to protected ecological sites and Ballisodare River salmon fishery.	4	High dilution available in river estuary. Event would likely be temporary. Facility for emergency diversion of inflow to SWHT in place. Plant is currently underloaded (2011 PE of 1316 compares with	8

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

Table 4 - Risk Assessment Form

Risk ID	Process	Potential Hazards	Environmental Effect	Table 2 Severity Rating	Basis of Severity	Table 3 Occurrence Rating	Basis of Occurrence	Risk Score (= Severity x Occurrence)
							design PE of 4,500). Reseeding sludge immediately available at nearby SCC plants.	
XII	Storm Water Holding Tank	Uncontrolled and prolonged fugitive discharge from SWHT on TWS	Discharge of untreated wastewater to receiving water	3	Cost of remediation to protected ecological sites and Ballisodare River salmon fishery. Wastewater would however be dilute and further dilution available in river estuary	2	No fugitive overflows occurred during 2010 or 2011. SWHT has come into operation for flows of between 3-6 DWF but has not overflowed since discharge license was first issued. All flows are returned for full treatment.	6
XIII	Recirculation pumps	RAS/WAS pump failure	Effluent quality compromised	2	Deterioration in effluent quality would be gradual	3	All pumpsets on site have duty & standby units c/w auto switchover to standby unit in event of duty pump malfunction. All pumpsets alarmed and linked to SCADA system. Malfunction would be noticed immediately. Preventative maintenance programme in place.	6
XIV	Laboratory	Chemical spill	Lab drains to on-site foul drainage system	1	No lab work as such undertaken on site with exception of cone tests to determine MLSS levels. All analysis for license compliance is subcontracted to accredited external lab	1	Very low chance of serious incident occurring	1
XV	WWTW Management	Noise & Odour emissions detectable beyond site boundary	Nuisance complaints from nearby residents	2	Odour and noise abatement measures in place. No residents in immediate vicinity. Any impacts likely to be minor and localised	3	Complaints procedure & regular monitoring programme in place. Odour control (Carbon filtration). Noise levels are monitored monthly.	6

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

Table 4 - Risk Assessment Form

Risk ID	Process	Potential Hazards	Environmental Effect	Table 2 Severity Rating	Basis of Severity	Table 3 Occurrence Rating	Basis of Occurrence	Risk Score (= Severity x Occurrence)
XVI	Chemical/Diesel storage and handling	Spill or leak on site	Threat of groundwater contamination and leaching into river estuary	2	Materials harmful to environment. However spill would be contained within bunds or intercepted by site drainage	2	Only chemicals currently used are small quantities of polyelectrolyte for sludge conditioning, diesel for Genny and some lubricants oils. Diesel usage is negligible (occasional manual start up to check for serviceability) Diesel fuel contained within bund. Trained operatives on site. Low chance of serious incident occurring	4
XVII	Sludge Dewatering & Disposal	Spill or leakage from a vehicle removing sludge cake off site	Slight threat of groundwater contamination and leaching into river estuary	2	Impact would be minor and localised as sludge leaving site is in cake form (16-20% ds) as distinct from liquid form and is easily cleaned up.	2	Full Skip removed while parked on impermeable hardstanding area under supervision of trained personnel. Any spills are immediately cleaned up. Only approx 1 nr 6-7t skip of cake is removed monthly off site. Low chance of serious hazard occurring	4
Outlying sewer collection system including SWO's and pumping stations								
XVIII	Sewer collection system	Significant pipework failure	Groundwater & Soils contamination	3	Groundwater monitoring/pumping may be required following soil replacement/clean up after a significant pipe failure. Contamination could be ongoing over a long period if not detected	2	Low chance of significant failure occurring. Reduced inflow to TWS would be noticeable after such an event. SCC network maintenance ongoing as necessary and as Dept. funding becomes available.	6

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

Table 4 - Risk Assessment Form

Risk ID	Process	Potential Hazards	Environmental Effect	Table 2 Severity Rating	Basis of Severity	Table 3 Occurrence Rating	Basis of Occurrence	Risk Score (= Severity x Occurrence)
XIX	Stormwater Overflows on outlying sewer network	Release of dilute untreated wastewater to river estuary	Surface water contamination	2	Good assimilative capacity in Ballisodare River & Estuary. However sensitive river has been categorised as “ <i>Class A Unpolluted</i> ” in the EPA’s Water Quality in Ireland Report 2007-2009. Ballisodare salmon fishery is also a concern.	4	Overflows expected to occur during storm conditions	8
XX	Knox Park Pumping Station	Failure of single duty pump	Threat of groundwater contamination and eventual leaching into river estuary. No high level overflow in place	2	Impact would be minor as only 5 houses served.	4	No history of regular failures. Continuous monitoring by SCC staff ongoing. Repairs undertaken promptly. However pumping station is quite old - dating back to the 1970’s	8
XXI	Knockmuldowney Park Pumping Station	Pump failure	Threat of groundwater contamination and eventual leaching into river estuary.	3	Moderate impact as 30-40 houses being served	3	Duty & standby pumps in place. Relatively new pumping station only taken in charge by SCC 1-2 yrs ago. HL overflow in place discharging to SW sewer system – which in turn would generally provide some dilution .	9

3.3 Risk Matrix

A Risk Matrix has been developed to allow the risks to be easily displayed and prioritised. The severity and occurrence ratings are used in the matrix; with the level of severity forming the x-axis and the likelihood of occurrence forming the y-axis. The matrix will provide a visual tool for regular risk reviews since the success of mitigation can be easily identified.

The Risk Matrix is set out in Table 5 below. The risks have been colour coded to provide a broad indication of the critical nature of each risk.

Table 5 Risk Matrix

Occurrence	V. High	5					
	High	4		XI, XIX, XX			
	Medium	3		II, X, XIII, XV,	III, XXI		
	Low	2		V, VII, IX, XVI, XVII	I, VI, VIII, XII, XVIII,		
	V. Low	1	XIV		IV		
			Trivial	Minor	Moderate	Major	Massive
			1	2	3	4	5
			Severity				

	These are considered to be high-level risks requiring priority attention. These risks have the potential to be catastrophic and as such should be addressed quickly.
	These are medium-level risks requiring action, but are not as critical as a red coded risk.
	Green (light and dark green) – These are lowest-level risks and indicate a need for continuing awareness and monitoring on a regular basis. Whilst they are currently low or minor risks, some have the potential to increase to medium or even high-level risks and must therefore be regularly monitored and if cost effective mitigation can be carried out to reduce the risk even further this should be pursued.

3.4 Risk Prevention and Mitigation

The Risk Matrix shows that there are currently no risks in the red or yellow zones – which would indicate a requirement for priority attention. All risks are located in the green zones indicating a need for continuing awareness and monitoring on a regular basis. Green zone risks may however have the potential to move into the yellow or red zones. It is considered that management procedures already in place are adequate to maintain the discharge at a quality that generally complies with the license conditions and does not significantly impact on the sensitive environmental receptors.

The works operators EPS Ltd have implemented and maintain management systems which fulfil the requirements of the following standards as certified by IQNet and NSAI

- I.S. EN ISO 14001:2004 – Environmental Management System Standard
- I.S. EN ISO 9001:2008 – Quality Management Systems.

EPS Ltd management systems also satisfy the requirements of standards set out under OHSAS 18001:2007 the international Occupational Health and Safety Management System Specification.

Nonetheless existing procedures have been reviewed and a Statement of Measures prepared to manage the identified risks at their current levels and to reduce them further in as far as is reasonable possible

4 Statement of Measures

The measures to be undertaken by Sligo County Council and the works operators EPS Ltd on our behalf are set out in Table 6.

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

Table 6 Statement of Measures

Risk I.D. *	Risk Score*	Process*	Potential Hazards*	Mitigation measure to be taken	Outcome	Action	Date for completion	Contact Person
Wastewater Treatment Works								
I	6	WWTW - General	Main ESB Power Supply Failure	Continue regular maintenance and inspection of equipment	Reduced risk of prolonged shutdown of treatment process	Continue with regular maintenance and inspection of standby power generator. Set up liaison with the ESB. Ensure diesel tank for Genny is full at all times and that battery remains fully charged during cold weather. Have jump leads available. Simulate power failure monthly.	Ongoing	EPS /SCC Water Services
II	6	WWTW - General	General - Pipe Failure	Continue regular maintenance and inspection. Review documented inspection programme	Reduced risk of wastewater or sludge spillages	Lag any external pipework which may be vulnerable to freezing/fracture	Regular inspections ongoing and any required lagging due for completion by Autumn 2012	EPS/SCC Water Services
III	9	WWTW - General	General - Tank Failure	Continue regular maintenance and inspection. Review documented inspection programme	Reduced risk of tank failure	Install further bollards/crash barriers in front of the steel PFT to prevent possible damage by vehicle impact	December 2012	EPS/SCC Water Services
IV	3	WWTW - General	Flooding	Set up programme for regular inspection and cleaning of SW drainage gullies	Reduced on site flooding risk	Set up programme for regular inspection and cleaning of SW drainage gullies	Summer of 2012	EPS/SCC Water Services
V	4	WWTW - General	Fire within control buildings/electrical panels/sludge press building	Continue regular maintenance and inspection of equipment. Review and update as necessary the site specific Emergency Plan	Reduced risk of fire	Continue regular maintenance and inspection of equipment. Review and update as necessary the site specific Emergency Plan	Ongoing	EPS /SCC Water Services
VI	6	Inlet Pumping Station on TWS.	Failure of critical equipment, blockage on rising main up to Preliminary Treatment Unit (PTU)	Continue regular maintenance and inspection of equipment	Reduced risk of blockage/overflow	Continue regular maintenance and inspection. Review documented inspection programme	Ongoing	EPS /SCC Water Services

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

Table 6 Statement of Measures

Risk I.D. *	Risk Score*	Process*	Potential Hazards*	Mitigation measure to be taken	Outcome	Action	Date for completion	Contact Person
VII	4	Preliminary Treatment Unit (PTU) comprising screening, grit removal and forward feed facilities	Failure of critical equipment. Blockage on line to aeration basin	Continue regular maintenance and inspection of equipment	Reduced risk of screenings blockage, odour nuisance Reduced risk of deterioration in effluent quality	Review documented inspection programme. Determine costs associated with downsizing Kuhn screenings compactor and work towards having it replaced.	Ongoing	EPS/SC C Water Services
VIII	6	Aeration Basin	Both Stahlermatic (STM) Wheels simultaneously out of service. DO depletion & biomass washout	Continue regular maintenance and inspection of equipment. Solve ongoing issue with chain breakages	Reduce risk of DO depletion & deterioration in effluent quality.	Replace STM's with diffused aeration system	Autumn 2012	EPS /SCC Water Services
IX	4	Final Clarifier	Failure of critical equipment leading to solids carryover in effluent	Continue regular maintenance and inspection of equipment	Reduced risk of solids carry over & deterioration in effluent quality	Continue regular maintenance and inspection. Review documented inspection programme	Ongoing	EPS /SCC Water Services
X	6	Tidal Release Tank	Failure of actuator on outlet leading to 24 continuous discharge from the plant (rather than twice daily on high tides as designed)	Continue regular maintenance and inspection of actuator	Reduced risk of effluent release on low tides	Continue regular maintenance and inspection. Review documented inspection programme and continue annual reprogramming of PLC to take account of tide tables for Sligo area	Ongoing	EPS/SC C Water Services

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

Table 6 Statement of Measures

Risk I.D. *	Risk Score*	Process*	Potential Hazards*	Mitigation measure to be taken	Outcome	Action	Date for completion	Contact Person
XI	8	Receipt of shock load at the plant	High plug load of BOD/COD/Nitrogen which may not be metabolized by the plant and result in discharge outside ELV's	Continue close monitoring of influent. Have contingency plan in place to divert flow to SWHT and to hold outflow back in Tidal Release tank	Early identification of any shock loads entering	Review documented inspection programme and emergency/contingency plans	Ongoing	EPS/SC C Water Services
XII	6	Storm Water Holding Tank	Uncontrolled and prolonged fugitive discharge from SWHT on TWS	Continue regular maintenance and inspection of equipment.	Reduced volumes of untreated fugitive releases (No fugitive overflows actually recorded in 2010 or 2011)	Ensure tank is emptied promptly after each storm event (return of SW flows is automatic)	Ongoing	EPS/SC C Water Services
XIII	6	Recirculation pumps	RAS/WAS pump failure	Continue regular maintenance and inspection.	Reduced risk of wastewater or sludge spillages	Review documented inspection programme	Ongoing	EPS/SC C Water Services
XIV	1	Laboratory	Chemical spill	Continue regular maintenance and inspection.	Reduced risk of spillages	Review emergency procedures for spillages	Ongoing	EPS/SC C Water Services
XV	6	WWTW Management	Noise & Odour emissions detectable beyond site boundary	Continue regular maintenance and inspection.	Reduced risk of noise and odour emissions	Continue with monthly noise and odour monitoring at the site periphery and regular maintenance and inspection of odour abatement facilities	Ongoing	EPS/SC C Water Services
XVI	4	Chemical/Diesel storage and handling	Spill or leak on site	Continue regular maintenance and inspection.	Reduced risk of spillages	Review emergency procedures for spillages and SOPS for chemical handling. Ensure spill kits are available on site	Ongoing	EPS/SC C Water Services
XVII	4	Sludge Dewatering & Disposal	Spill or leakage from a vehicle removing sludge cake off site	Continue with supervision of sludge cake exports	Reduced risk of spillages	Continue with supervision of sludge cake exports	Ongoing	EPS/SC C Water Services

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

Table 6 Statement of Measures

Risk I.D. *	Risk Score*	Process*	Potential Hazards*	Mitigation measure to be taken	Outcome	Action	Date for completion	Contact Person
Outlying sewer collection system including SWO's and pumping stations								
XVIII	6	Sewer collection system	Significant Pipework failure	SCC to continue regular maintenance and inspection of outlying sewer lines.	Reduced risk of groundwater contamination	Upgrade existing sewer network as necessary and as Dept. funding becomes available	Ongoing	Sligo CC Water Services
XIX	8	Stormwater Overflows on outlying sewer network	Release of dilute untreated wastewater to river/estuary	Determine compliance with the assessment criteria set out in the DoEHLG <i>'Procedures and Criteria in relation to Stormwater Overflows'</i>	Ensure Compliance with DoEHLG publication	Carry out SWO assessment and implement recommendations. Further reduce SW inflow to network in as far as is possible and as funding becomes available	Autumn 2012	Sligo CC Water Services
XX	8	Knox Park Pumping Station	Failure of single duty pump	SCC to continue regular maintenance and inspection	Reduced risk of failure	Fit standby pump and alarm call out	January 2013	Sligo CC Water Services
XXI	9	Knockmuldowney Park Pumping Station	Pump Failure	SCC to continue regular maintenance and inspection	Reduced risk of failure	Fit alarm call out in event of failure	January 2013	Sligo CC Water Services

* From Table 4

Statement:-

I confirm the above are the measures which will be taken by the Local Authority in 2012/2013 (subject to availability of funding)

Signed: (On behalf of SCC)

Noel Haran _____

Date:

25 April 2012 _____

5 Financial Provision:

5.1 Quantification of Unknown Environmental Liabilities

For the *Unknown* unplanned liabilities identified during the course of this assessment a financial model is necessary to estimate the environmental liability associated with these risks.

Each risk has 2 characteristics that are derived from the Risk Classification Tables for Severity and Occurrence (Tables 2 & 3)

- The range in cost implications (€A-B) if the risk occurs – Table 2
- The range in probability (X-Y%) of the risk occurring – Table 3

The best case scenario for Sligo County Council would be for none of the risks to transform into actual accidents over the 30 year period. The worst case scenario would be for a significant number of these unplanned events to occur resulting in appreciable remediation costs being incurred.

In order to establish an indicative level of environmental liability insurance required, a simple financial model has been used with the output based on occurrence of the most likely scenario i.e. with median remediation cost (severity) and median probabilities of risk occurrence being multiplied by each other to establish the respective elemental costs, all of which are then added to arrive at a total level of insurance cover required.

The output of this financial model is shown in Table 7 below

Table 7

- Financial Scenario -

Based on Median Remediation Costs & Median Probability of Risk Occurrence

Risk I.D. (From Table 4)	Severity			Occurrence			Most Likely Cost Scenario (€) *
	Table 2 Severity Rating	Remediation Cost Range (€)	Median Remediation Cost (€)	Table 3 Occurrence Rating	Probability of Risk Occurrence (% Range)	Median Probability (%)	
I	3	20,000 - 100,000	60,000	2	5-10%	7.5	4,500
II	2	1,000 - 20,000	10,500	3	10-20%	15	1,575
III	3	20,000 - 100,000	60,000	3	10-20%	15	9,000
IV	3	20,000 - 100,000	60,000	1	0-5%	2.5	1,500
V	2	1,000 - 20,000	10,500	2	5-10%	7.5	788
VI	3	20,000 - 100,000	60,000	2	5-10%	7.5	4,500
VII	2	1,000 - 20,000	10,500	2	5-10%	7.5	788
VIII	3	20,000 - 100,000	60,000	2	5-10%	7.5	4,500
IX	2	1,000 - 20,000	10,500	2	5-10%	7.5	788
X	2	1,000 - 20,000	10,500	3	10-20%	15	1,575
XI	2	1,000 - 20,000	10,500	4	20-50%	35	3,675
XII	3	20,000 - 100,000	60,000	2	5-10%	7.5	4,500
XIII	2	1,000 - 20,000	10,500	3	10-20%	15	1,575
XIV	1	< 1,000	1,000	1	0-5	2.5	25
XV	2	1,000 - 20,000	10,500	3	10-20%	15	1,575
XVI	2	1,000 - 20,000	10,500	2	5-10%	7.5	788
XVII	2	1,000 - 20,000	10,500	2	5-10%	7.5	788

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

XVIII	3	20,000 - 100,000	60,000		2	5-10%	7.5		4,500
XIX	2	1,000 - 20,000	10,500		4	20-50%	35		3,675
XX	2	1,000 - 20,000	10,500		4	20-50%	35		3,675
XXI	3	20,000 - 100,000	60,000		3	10-20%	15		9,000

* Most Likely Cost Scenario = Median Remediation Cost x

Median Probability

Total

63,288

The financial modelling exercise indicates a requirement to set up insurances to the value of approx **€63,300** to cover for unplanned environmental liabilities

Sligo County Council is currently in discussion with Irish Public Bodies Mutual Insurances Ltd with a view to putting in place environmental liability pollution insurance cover in light of the findings of this risk assessment.

5.2 Future Review of Risk Assessment

This report provides a baseline assessment of the environmental risks currently associated with the Ballisodare agglomeration. In accordance with Condition 7.2 of the discharge license, it will be reviewed and updated as necessary, but at least triennially, to reflect any significant changes to the volume or character of effluent being discharged and as a consequence to reflect any changes in the risks posed to sensitive environmental receptors. The review will include for

- Updating of Risk Assessment Form as necessary through addition of new risks and omission of redundant risks.
- Ensuring that adequate financial provision continues to be in place to cover for unplanned environmental liabilities at the facility
- Verification that the Risk Management Plan (Statement of Measures) is being implemented.

APPENDIX 3

AER Emissions Calculations Toolset

Air Emissions Data Input Table

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

RELEASES TO AIR

Air: Emissions from WWTP Works

Facility Name: Ballisodare Wastewater Treatment Works

Address: Ballisodare, Co. Sligo

Reporting year: 2011 *(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 (N2O) 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	1,316
Design p.e.	4,500
Total influent BOD kg/annum (measured)	28,835
Total Sludge removed offsite kg Dry Matter / annum	17
Total Sludge digested on-site kg Dry Matter / annum	0

Enter Actual Population Equivalent of catchment

Enter Design Population Equivalent of facility

Enter total annual quantity; NB note units: kg/annum

Enter total annual quantity; NB note units: kg/annum

Enter total annual quantity; NB note units: kg/annum

TOW kg BOD / annum	TOW = "Total Organically biodegradable material in domestic (=municipal) Wastewater"
28,840	Total p.e. served TOW equivalent
98,618	Design p.e. TOW equivalent
1,316	Quality check: p.e. of influent BOD kg/annum
7	BOD content of sludge removed kg/annum
7	BOD content of sludge digested kg/annum
28,821	Residual BOD net of sludge removed/digested kg/annum

B Characteristics of the Works

B1 Aerobic plant

Status
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

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

All tanks covered and extracted to on-site flare?	N	Y / N (default is "N")	Releases will be reported as "Fugitive"
% of Headspace biogas utilised on site (0 - 100)	0	Only required if Headspace extraction on site; Calculate by % operation of engine. Default assumption is Zero utilisation	
% of Headspace biogas flared (0 - 100)	0	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?	N	Y / N (default is "N")	Releases will be reported as "Emission Point 1"
% of Digester biogas utilised on site (0 - 100)	0	Only required if Anaerobic digestion on site; Calculate by % operation of engine. Default assumption is Zero utilisation	
% of Digester biogas flared (0 - 100)	0	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	0.1	Tonne / annum	Releases will be reported as "Fugitive"
---	-----	---------------	---

	PRTR No. Annex II	Name	ESTIMATED QUANTITIES			
			Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
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	1	Methane (CH4)	0	0		0
	3	Carbon Monoxide (CO)	0	1		1
	3	Carbon Dioxide (CO2)	0	36,351		36,351
	5	Nitrous oxide (N2O)		0		0
	7	Non-methane volatile organic compounds (NMVOC)		0		0
	8	Nitrogen oxides (NOx/NO2)	0	3		3
	11	Sulphur oxides (SOx/SO2)		0		0

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

Releases to Air Output Table

Environmental Protection Agency

VERSION 4.0 27 January 2011

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

RELEASES TO AIR

Facility Name: Ballisodare Wastewater Treatment Works

Address: Ballisodare, Co. Sligo

Reporting year: 2011

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:		
PRTR No. Annex II	POLLUTANT Name	M/C/E	METHOD		Emission Point 1	QUANTITY			PRTR REPORTING THRESHOLD kg/a	Reportable to European PRTR Website?	
			Method Code	Designation or Description		T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year			
1	Methane (CH4)	E	ESTIMATE	EPA UWWTP Tool v4.0	(insert name)	-	0.0	-	0.0	100,000	No
2	Carbon monoxide (CO)	E	ESTIMATE	EPA UWWTP Tool v4.0	-	1.1	-	1.1	500,000	No	
3	Carbon dioxide (CO2)	E	ESTIMATE	EPA UWWTP Tool v4.0	-	36,351.0	-	36,351.0	100,000,000	No	
5	Nitrous oxide (N2O)	E	ESTIMATE	EPA UWWTP Tool v4.0	-	0.2	-	0.2	10,000	No	
7	Non-methane volatile organic compounds (NMVOC)	E	ESTIMATE	EPA UWWTP Tool v4.0	-	0.3	-	0.3	100,000	No	
8	Nitrogen oxides (NOx/NO2)	E	ESTIMATE	EPA UWWTP Tool v4.0	-	3.3	-	3.3	100,000	No	
11	Sulphur oxides (SOx/SO2)	E	ESTIMATE	EPA UWWTP Tool v4.0	-	0.3	-	0.3	150,000	No	

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

Releases to Water

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: Ballisodare Wastewater Treatment Works
 Address: Ballisodare, Co. Sligo
 Reporting year: 2011

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 (m ³ /annum):	Enter data
Treated: Final effluent volume released via main emission point	106,948
Untreated / Fugitive: Estimated volume released in storm bypasses	0

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.

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

- 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			PRTR reporting threshold kg/a	Is this figure Reportable to the EU Commission under the PRTR?
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)		

*Note
#VALUE!
error
messages
will
disappear
when flow
data are
entered
above*

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

44	1,2,3,4,5, 6-hexachlorocyclohexane (HCH)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.000	#VALUE!			1	#VALUE!
34	1,2-dichloroethane (EDC)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.005	#VALUE!			10	#VALUE!
25	Alachlor	E	ESTIMATE	EPA UWWTP Tool v4.0	0.001	#VALUE!			1	#VALUE!
61	Anthracene	E	ESTIMATE	EPA UWWTP Tool v4.0	0.001	#VALUE!			1	#VALUE!
17	Arsenic and compounds (as As)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.107	#VALUE!			5	#VALUE!
27	Atrazine	E	ESTIMATE	EPA UWWTP Tool v4.0	0.007	#VALUE!			1	#VALUE!
91	Benzo(g,h,i)perylene	E	ESTIMATE	EPA UWWTP Tool v4.0	0.000	#VALUE!			1	#VALUE!
18	Cadmium and compounds (as Cd)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.006	#VALUE!			5	#VALUE!

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

28	Chlordane	E	ESTIMATE	EPA UWWTP Tool v4.0	0.000	#VALUE!			1	#VALUE!
30	Chlorfenvinphos	E	ESTIMATE	EPA UWWTP Tool v4.0	0.000	#VALUE!			1	#VALUE!
79	Chlorides (as total Cl)	E	ESTIMATE	EPA UWWTP Tool v4.0	26,611.8	#VALUE!			2,000,000	#VALUE!
31	Chloro-alkanes, C10-C13	E	ESTIMATE	EPA UWWTP Tool v4.0	0.022	#VALUE!			1	#VALUE!
19	Chromium and compounds (as Cr)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.039	#VALUE!			50	#VALUE!
20	Copper and compounds (as Cu)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.190	#VALUE!			50	#VALUE!
82	Cyanides (as total CN)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.187	#VALUE!			50	#VALUE!
33	DDT	E	ESTIMATE	EPA UWWTP Tool v4.0	0.001	#VALUE!			1	#VALUE!
70	Di-(2-ethyl hexyl) phthalate (DEHP)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.134	#VALUE!			1	#VALUE!
36	Dieldrin	E	ESTIMATE	EPA UWWTP Tool v4.0	0.022	#VALUE!			1	#VALUE!
37	Diuron	E	ESTIMATE	EPA UWWTP Tool v4.0	0.010	#VALUE!			1	#VALUE!
38	Endosulfan	E	ESTIMATE	EPA UWWTP Tool v4.0	0.001	#VALUE!			1	#VALUE!
65	Ethyl benzene	E	ESTIMATE	EPA UWWTP Tool v4.0	0.009	#VALUE!			200	#VALUE!
88	Fluoranthene	E	ESTIMATE	EPA UWWTP Tool v4.0	0.001	#VALUE!			1	#VALUE!
83	Fluorides (as total F)	E	ESTIMATE	EPA UWWTP Tool v4.0	37.41	#VALUE!			2,000	#VALUE!
40	Halogenated organic compounds (as AOX)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.255	#VALUE!			1,000	#VALUE!
42	Hexachlorobenzene (HCB)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.000	#VALUE!			1	#VALUE!
43	Hexachlorobutadiene (HCBD)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.000	#VALUE!			1	#VALUE!
89	Isodrin	E	ESTIMATE	EPA UWWTP Tool v4.0	0.006	#VALUE!			1	#VALUE!
23	Lead and compounds (as Pb)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.106	#VALUE!			20	#VALUE!
45	Lindane	E	ESTIMATE	EPA UWWTP Tool v4.0	0.000	#VALUE!			1	#VALUE!
21	Mercury and compounds(as Hg)	E	ESTIMATE	EPA UWWTP Tool	0.007	#VALUE!			1	#VALUE!

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

				v4.0						
68	Naphthalene	E	ESTIMATE	EPA UWWTP Tool v4.0	0.049	#VALUE!			10	#VALUE!
22	Nickel and compounds (as Ni)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.829	#VALUE!			20	#VALUE!
64	Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.007	#VALUE!			1	#VALUE!
69	Organotin compounds (as total Sn)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.001	#VALUE!			50	#VALUE!
48	Pentachlorobenzene	E	ESTIMATE	EPA UWWTP Tool v4.0	0.000	#VALUE!			1	#VALUE!
71	Phenols (as total C)	E	ESTIMATE	EPA UWWTP Tool v4.0	1.321	#VALUE!			20	#VALUE!
50	Polychlorinated biphenyls (PCBs)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.001	#VALUE!			0	#VALUE!
72	Polycyclic aromatic hydrocarbons (PAHs)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.086	#VALUE!			5	#VALUE!
52	Tetrachloroethylene (PER)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.048	#VALUE!			10	#VALUE!
73	Toluene	E	ESTIMATE	EPA UWWTP Tool v4.0	0.013	#VALUE!			200	#VALUE!
12	Total nitrogen	E	ESTIMATE	EPA UWWTP Tool v4.0	654.39	#VALUE!			50,000	#VALUE!
76	Total organic carbon (TOC) (as total C or COD/3)	E	ESTIMATE	EPA UWWTP Tool v4.0	3,682.9	#VALUE!			50,000	#VALUE!
13	Total phosphorus	E	ESTIMATE	EPA UWWTP Tool v4.0	252.12	#VALUE!			5,000	#VALUE!
57	Trichloroethylene	E	ESTIMATE	EPA UWWTP Tool v4.0	0.008	#VALUE!			10	#VALUE!
77	Trifluralin	E	ESTIMATE	EPA UWWTP Tool v4.0	0.000	#VALUE!			1	#VALUE!
75	Triphenyltin and compounds	E	ESTIMATE	EPA UWWTP Tool v4.0	0.000	#VALUE!			1	#VALUE!
60	Vinyl chloride	E	ESTIMATE	EPA UWWTP Tool v4.0	0.005	#VALUE!			10	#VALUE!
78	Xylenes	E	ESTIMATE	EPA UWWTP Tool v4.0	0.030	#VALUE!			200	#VALUE!
24	Zinc and compounds (as Zn)	E	ESTIMATE	EPA UWWTP Tool v4.0	3.806	#VALUE!			10	#VALUE!

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.

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

(SECTION B NOT APPLICABLE TO UWWTPS)

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

238	Ammonia (as N)	M	OTH	(enter method)		#VALUE!		
303	BOD	M	OTH	(enter method)		#VALUE!		
306	COD	M	OTH	(enter method)		#VALUE!		
362	Kjeldahl Nitrogen	M	OTH	(enter method)		#VALUE!		
327	Nitrate (as N)	M	OTH	(enter method)		#VALUE!		
372	Nitrite (as N)	M	OTH	(enter method)		#VALUE!		
332	Ortho-phosphate (as PO4)	M	OTH	(enter method)		#VALUE!		
240	Suspended Solids	M	OTH	(enter method)		#VALUE!		

The following PRTR substances could not be included in this table as no data were available for the current model.

29	Chlordecone
81	Asbestos
66	Ethylene oxide
90	Hexabromobiphenyl
46	Mirex
87	Octylphenols and Octylphenol ethoxylates
59	Toxaphene

The following PRTR substances could not be included in this table as the current model did not provide quantitative (i.e. > L.o.D) empirical data.

26	Aldrin
32	Chlorpyrifos
35	Dichloromethane (DCM)
39	Endrin
41	Heptachlor
49	Pentachlorophenol (PCP)
51	Simazine
53	Tetrachloromethane (TCM)
54	Trichlorobenzenes (TCBs) (all isomers)
58	Trichloromethane
62	Benzene
63	Brominated diphenylethers

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

(PBDE)

66	Ethylene oxide
67	Isoproturon
74	Tributyltin and compounds

APPENDIX 4
AER Returns Workbook

Facility ID & Activities



Environmental Protection Agency

| PRTR# : D0095 | Facility Name : Ballisodare Waste Water Treatment Plant |
Filename : 2011 AER Returns Workbook uploaded 11-4-11.xls | Return Year :
2011 |

[Guidance to completing the PRTR workbook](#)

AER Returns Workbook

REFERENCE YEAR	2011
-----------------------	------

1. FACILITY IDENTIFICATION

Parent Company Name	Sligo County Council
Facility Name	Ballisodare Waste Water Treatment Plant
PRTR Identification Number	D0095
Licence Number	D0095-01

Waste or IPPC Classes of Activity

No.	class_name
30.4	General
Address 1	Old Jail
Address 2	St. Annes Place
Address 3	Sligo
Address 4	
	Sligo
Country	Ireland
Coordinates of Location	-8.51119 54.2122
River Basin District	IEWE
NACE Code	3700
Main Economic Activity	Sewerage
AER Returns Contact Name	John Morris (Sligo CoCo Water Services)
AER Returns Contact Email Address	jmorris@sligococo.ie
AER Returns Contact Position	Executive Engineer, Water Services
AER Returns Contact Telephone Number	071 9111387
AER Returns Contact Mobile Phone Number	086 8584889
AER Returns Contact Fax Number	071 9143960
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 ?	

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

Releases to Air

[Link to previous years emissions data](#)

| PRTR# : D0095 | Facility Name : Ballisodare Waste Water Treatment Plant | Filename : 2011 AER Returns Workbook uploaded 11-4-11.xls | Return Year : 2011 |

17/04/2012
09:28

4.1 RELEASES TO AIR

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

RELEASES TO AIR					Please enter this section i			
POLLUTANT		METHOD			QUANTI TY			
No. Annex II	Name	M/C/E	Method Used		Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
			Method Code	Designation or Description				
01	Methane (CH4)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.0	0.0	0.0	0.0
02	Carbon monoxide (CO)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.0	1.1	0.0	1.1
03	Carbon dioxide (CO2)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.0	36351.0	0.0	36351.0
05	Nitrous oxide (N2O)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.0	0.2	0.0	0.2
07	Non-methane volatile organic compounds (NMVOC)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.0	0.3	0.0	0.3
08	Nitrogen oxides (NOx/NO2)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.0	3.3	0.0	3.3
11	Sulphur oxides (SOx/SO2)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.0	0.3	0.0	0.3

ADD NEW ROW DELETE ROW *

* 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			QUANTI TY			
No. Annex II	Name	M/C/E	Method Used		Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
			Method Code	Designation or Description				
					0.0	0.0	0.0	0.0

ADD NEW ROW DELETE ROW *

* Select a row by double-clicking

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

on the Pollutant Name (Column B) then click the delete button

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

Please enter all quantities in this section in KGs

RELEASES TO AIR

POLLUTANT		METHOD			QUANTITY			
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

ADD NEW ROW DELETE ROW *

* 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: Ballisadare 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		Facility Total Capacity m3 per hour
			Method Code	Designation or Description	
Total estimated methane generation (as per site model)	0.0				N/A
Methane flared	0.0				0.0

(Total Flaring Capacity)

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

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	

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

Releases to Water

4.2
RELEASES
TO
WATERS

[Link to previous years
emissions data](#)

| PRTR# : D0095 | Facility Name : Ballisodare Waste Water Treatment Plant | Filename : 2011 AER Returns Workbook
uploaded 11-4-11.xls | Return Year : 2011 |

17/04/2012
09:28

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			
No. Annex II	Name	M/C/E	Method Used		Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
			Method Code	Designation or Description				
44	1,2,3,4,5,6-hexachlorocyclohexane(HCH)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.0	0.0	0.0	0.0
34	1,2-dichloroethane (EDC)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.005	0.005	0.0	0.0
25	Alachlor	E	ESTIMATE	EPA UWWTP Tool v4.0	0.001	0.001	0.0	0.0
61	Anthracene	E	ESTIMATE	EPA UWWTP Tool v4.0	0.001	0.001	0.0	0.0
17	Arsenic and compounds (as As)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.107	0.107	0.0	0.0
27	Atrazine	E	ESTIMATE	EPA UWWTP Tool v4.0	0.007	0.007	0.0	0.0
91	Benzo(g,h,i)perylene	E	ESTIMATE	EPA UWWTP Tool v4.0	0.0	0.0	0.0	0.0
18	Cadmium and compounds (as Cd)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.006	0.006	0.0	0.0
28	Chlordane	E	ESTIMATE	EPA UWWTP Tool v4.0	0.0	0.0	0.0	0.0
30	Chlorfenvinphos	E	ESTIMATE	EPA UWWTP Tool v4.0	0.0	0.0	0.0	0.0
79	Chlorides (as Cl)	E	ESTIMATE	EPA UWWTP Tool v4.0	26611.8	26611.8	0.0	0.0
31	Chloro-alkanes, C10-C13	E	ESTIMATE	EPA UWWTP Tool v4.0	0.022	0.022	0.0	0.0
19	Chromium and compounds (as Cr)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.039	0.039	0.0	0.0
20	Copper and compounds (as Cu)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.19	0.19	0.0	0.0
82	Cyanides (as total CN)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.187	0.187	0.0	0.0
33	DDT	E	ESTIMATE	EPA UWWTP Tool v4.0	0.001	0.001	0.0	0.0
70	Di-(2-ethyl hexyl) phthalate (DEHP)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.134	0.134	0.0	0.0
36	Dieldrin	E	ESTIMATE	EPA UWWTP Tool v4.0	0.022	0.022	0.0	0.0
37	Diuron	E	ESTIMATE	EPA UWWTP Tool v4.0	0.01	0.01	0.0	0.0

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

38	Endosulphan	E	ESTIMATE	EPA UWWTP Tool v4.0	0.001	0.001	0.0	0.0
65	Ethyl benzene	E	ESTIMATE	EPA UWWTP Tool v4.0	0.009	0.009	0.0	0.0
88	Fluoranthene	E	ESTIMATE	EPA UWWTP Tool v4.0	0.001	0.001	0.0	0.0
83	Fluorides (as total F)	E	ESTIMATE	EPA UWWTP Tool v4.0	37.41	37.41	0.0	0.0
40	Halogenated organic compounds (as AOX)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.255	0.255	0.0	0.0
42	Hexachlorobenzene (HCB)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.0	0.0	0.0	0.0
43	Hexachlorobutadiene (HCBd)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.0	0.0	0.0	0.0
89	Isodrin	E	ESTIMATE	EPA UWWTP Tool v4.0	0.006	0.006	0.0	0.0
23	Lead and compounds (as Pb)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.106	0.106	0.0	0.0
45	Lindane	E	ESTIMATE	EPA UWWTP Tool v4.0	0.0	0.0	0.0	0.0
21	Mercury and compounds (as Hg)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.007	0.007	0.0	0.0
68	Naphthalene	E	ESTIMATE	EPA UWWTP Tool v4.0	0.049	0.049	0.0	0.0
22	Nickel and compounds (as Ni)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.829	0.829	0.0	0.0
64	Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.007	0.007	0.0	0.0
69	Organotin compounds (as total Sn)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.001	0.001	0.0	0.0
48	Pentachlorobenzene	E	ESTIMATE	EPA UWWTP Tool v4.0	0.0	0.0	0.0	0.0
71	Phenols (as total C)	E	ESTIMATE	EPA UWWTP Tool v4.0	1.321	1.321	0.0	0.0
50	Polychlorinated biphenyls (PCBs)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.001	0.001	0.0	0.0
72	Polycyclic aromatic hydrocarbons (PAHs)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.086	0.086	0.0	0.0
52	Tetrachloroethylene (PER)	E	ESTIMATE	EPA UWWTP Tool v4.0	0.048	0.048	0.0	0.0
73	Toluene	E	ESTIMATE	EPA UWWTP Tool v4.0	0.013	0.013	0.0	0.0
12	Total nitrogen	E	ESTIMATE	EPA UWWTP Tool v4.0	654.39	654.39	0.0	0.0
76	Total organic carbon (TOC) (as total C or COD/3)	E	ESTIMATE	EPA UWWTP Tool v4.0	3682.9	3682.9	0.0	0.0
13	Total phosphorus	E	ESTIMATE	EPA UWWTP Tool v4.0	252.12	252.12	0.0	0.0
57	Trichloroethylene	E	ESTIMATE	EPA UWWTP Tool v4.0	0.008	0.008	0.0	0.0
77	Trifluralin	E	ESTIMATE	EPA UWWTP Tool v4.0	0.0	0.0	0.0	0.0
75	Triphenyltin and compounds	E	ESTIMATE	EPA UWWTP Tool v4.0	0.0	0.0	0.0	0.0
60	Vinyl chloride	E	ESTIMATE	EPA UWWTP Tool v4.0	0.005	0.005	0.0	0.0
78	Xylenes	E	ESTIMATE	EPA UWWTP Tool v4.0	0.03	0.03	0.0	0.0
24	Zinc and compounds (as Zn)	E	ESTIMATE	EPA UWWTP Tool v4.0	3.806	3.806	0.0	0.0

SECTION B : REMAINING PRTR

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

POLLUTANTS

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT					ADD EMISSION POINT	QUANTITY		
No. Annex II	Name	M/C/E	Method Code	Method Used 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

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

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT					ADD EMISSION POINT	QUANTITY		
Pollutant No.	Name	M/C/E	Method Code	Method Used Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
238	Ammonia (as N)	M	OTH	Salicylate method based on "Methods for the Examination of Water and Associated Materials" Ammonia in Waters 1981 - (For Emission Point 1 treated effluent Quantity).	298.0	298.0	0.0	0.0
303	BOD	M	OTH	"Alpha Standard Methods for the Examination of Waters & Wastewaters" - 21st Edition 2005 - (For Emission Point 1 treated effluent Quantity).	280.0	280.0	0.0	0.0
306	COD	M	OTH	Based on Hach Procedures - 9th Edition 1999 (For Emission Point 1 treated effluent Quantity).	4150.0	4150.0	0.0	0.0

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

240	Suspended Solids	M	OTH	"Alpha Standard Methods for the Examination of Waters & Wastewaters" - 21st Edition 2005 - (For Emission Point 1 treated effluent Quantity).	297.0	297.0	0.0	0.0
379	Total Oxidised Nitrogen (TON)	M	OTH	Accredited lab testing using "Alpha Standard Methods for the Examination of Waters & Wastewaters" - 21st Edition 2005 - for Emission Point 1 effluent load - flow weighted	1164.0	1164.0	0.0	0.0
332	Ortho-phosphate (as PO4)	M	OTH	Accredited lab testing using "Alpha Standard Methods for the Examination of Waters and Wastewaters" 21st Edition:2005 - for Emission Point 1 effluent load - flow weighted	235.0	235.0	0.0	0.0

Ballisodare Agglomeration – WWDL No D0095-01
Annual Environmental Report for 2011

Treatment & Transfers of Waste

5. ONSITE TREATMENT & OFFSITE TRANSFERS OF WASTE

| PRTR# : D0095 | Facility Name : Ballisodare Waste Water Treatment Plant | Filename : 2011 AER Returns Workbook uploaded 11-4-11.xls | Return Year : 2011 |

17/04/2012 09:28

Please enter all quantities on this sheet in Tonnes

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	0.403	screenings	D1	M	Weighed	Offsite in Ireland	Barna Waste Recycling.,WCP-MO-08-0604-01	Carrowbrowne ,Headford Road,Galway,,Ireland		
Within the Country	19 08 99	No	1.882	Grit	D1	M	Weighed	Offsite in Ireland	Barna Waste Recycling.,WCP-MO-08-0604-01 McBreen Env. Services Ltd (Delivered to SCC Sludge Treatment Hub at Sligo Town for parteurisation anaerobic digestion and eventual landspreading as a Class A Bio-Solids),WCP-MH-08-0072-01	Carrowbrowne ,Headford Road,Galway,,Ireland		
Within the Country	19 08 05	No	16.94	sludges from treatment of urban waste water	R12	M	Weighed	Offsite in Ireland		Unit 2,Fairtown ,Cavan ,Co. Cavan,Ireland		