Annual Environmental Report 2015

Agglomeration Name:	**Ballybay**
Licence Register No.	**D0207-01**

Contents

Section 1. Executive Summary and Introduction to the 2015 AER

1.1 Summary Report on 2015

This Annual Environmental Report has been prepared for **D0207-01, Ballybay,** in County **Monaghan**, in accordance with the requirements of the wastewater discharge licence for the agglomeration. Specified assessments are included as an appendix to the AER as follows:

- Priority substances assessment (Appendix 7.3: Priority Substance Assessment)

The agglomeration is served by a wastewater treatment plant with a Design PE of 7823. The treatment process includes the following:-

- Preliminary Treatment (Screening & Grit Removal)
- Secondary Treatment (Aeration)
- Chemical dosing for phosphorus removal

The final effluent from the Primary Discharge Point was compliant with the Emission Limit Values in 2015.

55,100kgs sludge (dry solids) was removed from the wastewater treatment plant in 2015 as dewatered sludge cake. Sludge was transferred from Monaghan WWTP to Ballivor in Co Meath.

There were no major capital or operational changes undertaken in 2015.

An Annual Statement of Measures is included in Appendix 7.1.

Section 2. Monitoring Reports Summary

2.1 Summary report on monthly influent monitoring

Table 2.1 Influent Monitoring Summary

2.1.1 Monthly Influent Monitoring	BOD (mg / l)	COD (mg / l)	SS (mg / l)	TP (mg / l)	TN (mg / l)	Hydraulic Loading (m3/d)	Organic Loading (PE/Day)
Number of Samples	9	9	9	9	9		
Annual Max.	746	3080	1475	10.6	65.7	4608	2,856
Annual Mean	316.81	848.73	290.68	4.25	41.48	652	1,930

Significance of results

The annual mean hydraulic loading is less than the peak Treatment Plant Capacity as detailed further in Section 3.2

The annual maximum hydraulic loading is less than the peak Treatment Plant Capacity as detailed further in Section 3.2.

The annual mean organic loading is less than the Treatment Plant Capacity as detailed further in Section 3.2.

The annual maximum organic loading is less than the Treatment Plant Capacity as detailed further in Section 3.2.

2.2 Discharges from the agglomeration

Table 2.2 - Effluent Monitoring

2.2.1 Effluent Monitoring Summary	BOD (mg/l)	COD (mg/l)	TSS (mg/l)	Ortho P (mg/l)	Ammonia NH3 (mg/l)	pH
WWDL ELV (Schedule A) where applicable	25	125	35	N/A	N/A	6 to 9
ELV with Condition 2 Interpretation included	50	250	87.5	N/A	N/A	No allowable exceedances
Number of sample results[1]	9	9	9	9	9	9
Number of sample results above WWDL ELV	0	0	1	N/A	N/A	0
Number of sample results above ELV with Condition 2 Interpretation	0	0	0	N/A	N/A	0
Annual Mean (for parameters where a mean ELV applies)	N/A	N/A	N/A	N/A	N/A	N/A
Overall Compliance (Pass/Fail)	Pass	Pass	Pass	Pass	Pass	Pass

Significance of results

The WWTP was compliant with the ELV's set in the wastewater discharge licence.

[1] The primary discharge has been monitored monthly as required by Schedule A1 of the Waste Water Discharge License since the grant of the License.

2.3. Ambient Monitoring Summary

Table 2.3. Ambient Monitoring Report Summary Table

Ambient Monitoring Point from WWDL (or as agreed with EPA)	***Irish Grid Reference***	**EPA Feature Coding Tool code**	**Receiving Waters Designation (Y/N**				**WFD Status**	**Does assessment of the ambient monitoring results indicate that the discharge is impacting on water quality?**
			Bathing Water	**Drinking Water**	**FWPM**	**Shellfish**		
Upstream monitoring point	271593 320439	RS36D020160	N	N	N	N	Poor	
Downstream monitoring point	271517 320395	RS36D020170	N	N	N	N	Poor	Yes for orthophosphate and ammonia

The results for the upstream and downstream monitoring are included in Appendix 7.2.

Significance of results

The WWTP was compliant with the ELVs set in the wastewater discharge licence as detailed in Section 2.2

The discharge from the wastewater plant has an observable negative impact on the water quality status

The discharge from the wastewater plant doesn't have an observable negative impact on the WFD status

2.4 Data collection and reporting requirements under the UWWTD

The electronic submission of data was completed on 15/01/2015

2.5 Pollutant Release and Transfer Register (PRTR) - report for previous year

A PRTR report is only required from agglomerations where the capacity of the waste water treatment plant is 100,000 p.e. or greater.

Agglomerations greater than 2,000 p.e. and less than 100,000 p.e. have no reporting requirement for 2015. These agglomerations are required to report their mass emissions to Air and Water, and their Waste Transfers using the AER/PRTR Emissions Reporting Workbook every 2 years with the next report due for 2016 i.e. by 28th February 2017.

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Section 3. Operational Reports Summary

3.1 Treatment Efficiency Report

	cBOD (kg/yr)	COD (kg/yr)	SS (kg/yr)	Total P (kg/yr)	Total N (kg/yr)
Influent mass loading (kg/year)	42,271	113,245	38,784	567	5,535
Effluent mass emission (kg/year)	659	5,081	1,412	261	2,180
% Efficiency (% reduction of influent load)	98%	96%	96%	54%	61%

3.2 Treatment Capacity Report

Table 3.2 - Treatment Capacity Report Summary

Hydraulic Capacity – Design / As Constructed (dry weather flow) (m3/year)	603,345
Hydraulic Capacity – Design / As Constructed (peak flow) (m3/year)	1,810,400
Hydraulic Capacity – Current loading (m3/year)	237,836
Hydraulic Capacity – Remaining (m3/year)	1,572,564
Organic Capacity - Design / As Constructed (PE)	7,823
Organic Capacity - Current loading (PE)	1,930
Organic Capacity – Remaining (PE)	5,893
Will the capacity be exceeded in the next three years? (Yes / No)	No

3.3 Extent of Agglomeration Summary Report

In this section Irish Water is required to report on the amount of urban waste water generated within the agglomeration. It does not include any waste water collected and created in a private system and discharged to water under a Section 4 Licence issued under the Water Pollution Acts 1977 (as amended).

Table 3.3 - Extent of Agglomeration Summary Report

	% of total load generated in the agglomeration
Load generated in the agglomeration that is collected in the sewer network	100%
Load collected in the agglomerations that enters treatment plant	100%
Load collected in the sewer network but discharges without treatment	0%

Load generated in the agglomeration that is collected in the sewer network is the total load generated and collected in the municipal network within the boundary of the agglomeration.

Load collected in the agglomerations that enters treatment plant is that portion of the previous figure which enters the waste water treatment plant.

Load collected but discharged without treatment is that portion of the first figure which is discharged without treatment.

The data in Table 3.3 is estimated based on the influent monitoring as detailed in section 2.1 above.

3.4 Complaints Summary

There were no complaints of an environmental nature in relation to Ballybay WWTP in 2015.

Table 3.4 - Complaints Summary Table

Number	Date & Time	Nature of Complaint	Cause of Complaint	Actions taken to resolve issue	Closed (Y/N)
None					

3.5 Reported Incidents Summary

There were no incidents in 2015.

Table 3.5.1 - Summary of Incidents

3.5.1 Incident Type (e.g. Non-compliance, Emission, spillage, pollution incident)	Incident Description	Cause	No. of Incidents	Corrective Action	Authorities Contacted. Note 1	Reported to EPA (Yes/No)	Closed (Yes/No)
None							

Note 1: For shellfish waters notify the Marine Institute (MI) Sea Fisheries Protection Authority (SFPA) Food Safety Authority (FSAI) and An Bord Iascaigh Mhara (BIM). This should also include any other authorities that should be contacted arising from the findings of any Licence Specific Reports also e.g. Drinking Water Abstraction Impact Risk Assessment, Fresh Water Pearl Mussel Impact Assessments etc.

Table 3.5.2 - Summary of Overall Incidents

Number of Incidents in 2015	0
Number of Incidents reported to the EPA via EDEN in 2015	0
Explanation of any discrepancies between the two numbers above	N/A

3.6 Sludge / Other inputs to the WWTP

Other inputs to the waste water treatment plant are summarised in Table 3.6 below.

Table 3.6 - Other Inputs

Input Type	m3/year	PE/year	% of load to WWTP	Included in Influent Monitoring (Y/N)?[3]	Is there a leachate/sludge acceptance procedure for the WWTP? (Y/N)	Is there a dedicated leachate/sludge acceptance facility for the WWTP? (Y/N)
Domestic /Septic Tank Sludge	0	0		N/A		
Industrial / Commercial Sludge	0	0		N/A		
Landfill Leachate (delivered by tanker)	0	0		N/A		
Landfill Leachate (delivered by sewer network)	0	0		N/A		
Other (specify)	0	0		N/A		

Notes:

1. Other Inputs include; septic tank sludge, industrial /commercial sludge, landfill leachate and any other sludge that is collected and added to the treatment plant.
2. Sludge that is added to a dedicated sludge reception facility at a waste water treatment plant not include d in Table 3.6. Only include sludge which is added to the waste water treatment process stream. Enter zero where there are no inputs.

Section 4. Infrastructure Assessments and Programme of Improvements

4.1 Storm water overflow identification and inspection report

This is the first AER for this agglomeration – a Storm Water Identification and Inspection Report will be included in the 2nd AER as required. A summary of the significance and operation of SWO is included below.

Table 4.1.1 - SWO Identification and Inspection Summary Report

WWDL Name / Code for Storm Water Overflow	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow (High/Med/ Low)	Compliance with DoEHLG criteria	No. of times activated in 2015 (No. of events)	Total volume discharged in 2015 (m3)	Total volume discharged in 2015 (P.E.)	Estimated / Measured data
Castleblayney road CSO No 1	(271916, 320605)	No	High	Non Compliant	1	185	123	Estimated
Corrybrannan Bridge CSO	(271942, 320148)	No	High	Non Compliant	1	55	37	Estimated
Albert St CSO	(271720, 320644)	No	High	Non Compliant	0	0	0	

Table 4.1.2 - SWO Identification and Inspection Summary Report

How much sewage was discharged via SWOs in the agglomeration in the year (m3/yr)?	240
How much sewage was discharged via SWOs in the agglomeration in the year (p.e.)?	160
What % of the total volume of sewage generated in the agglomeration was discharged via SWOs in the agglomeration in 2015?	0.001%
Is each SWO identified as non-compliant with DoEHLG Guidance included in the Programme of Improvements?	No
The SWO assessment includes the requirements of relevant WWDL Schedules (Yes/No)	No
Have the EPA been advised of any additional SWOs / changes to Schedules A/C under Condition 1 ?	No

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

This is the first AER for this agglomeration – an Improvement Programme will be included in the 2nd AER as required.

Table 4.2.1 - Specified Improvement Programme Summary

Specified Improvement Programmes	Licence Schedule	Licence Completion Date	Date Expired	Status of Works	% Construction Work Completed	Licensee Timeframe for Completing the Work	Comments
Specified Improvement Programme of the licence	C	31/12/2019	No	not reported	0%		Appropriate works to ensure compliance with the ELV's specified in Schedule A: Discharges and Discharge Monitoring. New aeration equipment proposed.

A summary of the status of any improvements identified by under Condition 5.2 is included below.

Table 4.2.2 - Improvement Programme Summary

Improvement Identifier / Name	Improvement Description	Improvement Source	Progress (% complete)	Expected Completion Date	Comments
		WWTP assessment (Condition 5.2).			
		Sewer Integrity Tool (Condition 5.2).			
		Secondary discharges assessment (Condition 5.2).			
		SWO assessment (Condition 4 & 5.2).			
		Pearl Mussel Impact Assessment (Condition 4)			
10007268	Flow Monitoring	Improved		01/06/2016	Critical Asset Programme

	and Sampling MN	Operational Control			

Table 4.2.3 - Sewer Integrity Risk Assessment Tool Summary

The Improvement Programme should include an assessment of the integrity of the existing wastewater works for the following:	Risk Assessment Rating (High, Medium, Low)	Risk Assessment Score	Comment
Hydraulic Risk Assessment Score	Unknown	Unknown	SNIT has not been completed but will be submitted following submission of 2015 AER.
Environmental Risk Assessment Score	Unknown	Unknown	SNIT has not been completed but will be submitted following submission of 2015 AER.
Structural Risk Assessment Score	Unknown	Unknown	SNIT has not been completed but will be submitted following submission of 2015 AER.
Operation & Maintenance Risk Assessment Score	Unknown	Unknown	SNIT has not been completed but will be submitted following submission of 2015 AER.
Overall Risk Score for the agglomeration	Unknown	Unknown	SNIT has not been completed but will be submitted following submission of 2015 AER.

Section 5. Licence Specific Reports

Licence Specific Reports Summary Table

Licence Specific Report	Required in this AER or outstanding from previous AER	Included in this AER / Remains outstanding	Reference to previous AER containing report or relevant section of this AER
Priority Substances Assessment	Yes	Yes	Appendix 3
Drinking Water Abstraction Point Risk Assessment	Yes	Outstanding	Will be completed in 2016
Habitats Impact Assessment	No	No	
Shellfish Impact Assessment	No	No	
Pearl Mussel Report	No	No	
Toxicity/Leachate Management	No	No	
Toxicity of Final Effluent Report	No	No	

Licence Specific Reports Summary of Findings

Licence Specific Report	Recommendations in Report	Summary of Recommendations in Report	Status of Recommendations
Priority Substances Assessment	Resample influent and receiving water for priority substances in 2016, data based on 2008 result.	Resample and analyse for priority substances 2016.	Planned 2016
Drinking Water Abstraction Point Risk Assessment	Outstanding	Outstanding	Planned 2016

5.1 Priority Substances Assessment

The Priority Substances Assessment report is included in Appendix 3: Priority Substance Assessment. A summary of the findings of this report is included below.

	Licensee self- assessment checks to determine whether all relevant information is included in the Assessment.
Does the assessment use the Desk Top Study Method or Screening Analysis to determine if the discharge contains the parameters in Appendix 1 of the EPA guidance	Desktop Study
Does the assessment include a review of Trade inputs to the works?	Yes
Does the assessment include a review of other inputs to the works?	No
Does the report include an assessment of the significance of the results where a listed material is present in the discharge? (e.g. impact on the relevant EQS standard for the receiving water)	Yes
Does the assessment identify that priority substances may be impacting the receiving water?	Yes
Does the Improvement Programme for the agglomeration include the elimination / reduction of all priority substances identified as having an impact on receiving water quality?	No
Recommendations	Resample and analyse influent and receiving water for priority substances in 2016
Status of any improvement measures required	Priority substances sampling planned 2016

5.2 Drinking Water Abstraction Point Risk Assessment

The Drinking Water Abstraction Point Risk Assessment report is outstanding will be completed 2016.

Table 5.2 - Drinking Water Abstraction Point Risk Assessment Summary

	Licensee self- assessment checks to determine whether all relevant information is included in the Assessment.
Is a Drinking Water Abstraction Risk Assessment required in the AER (or outstanding from a previous AER)	Yes
Does the Drinking Water Abstraction Risk Assessment identify whether any of the discharges in Schedule A of the licence pose a risk to a drinking water abstraction	To be completed in 2016.
Does the assessment identify if any other discharge(s) from the works pose a risk to a drinking water abstraction (includes emergency overflows)	To be completed in 2016.
What is the overall risk ranking applied by the licensee	To be completed in 2016.
Does the risk assessment consider the impacts of normal operation	To be completed in 2016.
Does the risk assessment consider the impacts of abnormal operation (e.g. incidents /overflows)	To be completed in 2016.
Does the risk assessment include control measures for each risk identified	To be completed in 2016.
Does the risk assessment consider operational control measures e.g? waste water incident notification to drinking water abstraction operator	To be completed in 2016.
Does the risk assessment include infrastructural control measures	To be completed in 2016.
Does the Improvement Programme for the agglomeration include control measures / corrective actions to eliminate / reduce priority substances identified as having an impact on receiving water quality?	Yes

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Section 6. Certification and Sign Off

Table 6.1 - Summary of AER Contents

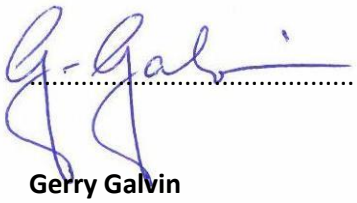
Does the AER include an executive summary?	Yes
Does the AER include an assessment of the performance of the Waste Water Works (i.e. have the results of assessments been interpreted against WWDL requirements and or Environmental Quality Standards)?	Yes
Is there a need to advise the EPA for consideration of a technical amendment / review of the licence?	No
List reason e.g. additional SWO identified	N/A
Is there a need to request/advise the EPA of any modifications to the existing WWDL? Refer to Condition 1.7 (changes to works/discharges) & Condition 4 (changes to monitoring location, frequency etc.)	No
List reason e.g. failure to complete specified works within dates specified in the licence, changes to monitoring requirements	N/A
Have these processes commenced? (i.e. Request for Technical Amendment / Licence Review / Change Request)	N/A
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER?	No
List outstanding reports	Drinking Water Abstraction Assessment, Sewer network Integrity

Declaration by Irish Water

The AER contains the following:

- Introduction and background to 2015 AER.
- Monitoring Reports Summary.
- Operational Reports Summary.
- Infrastructural Assessment and Programme of Improvements.
- Licence specific reports
- Certification and Sign Off
- Appendices

I certify that the information given in this Annual Environmental Report is truthful, accurate and complete:

Signed:  Date: 03/03/2016

Gerry Galvin
Chief Technical Advisor

Section 7. Appendix

In the appendix include all the detailed or site specific reports that are relevant to the AER. Reports omitted from previous AERs should also be appended here.

Appendix 7.1 - Annual Statement of Measures
Appendix 7.2 - Ambient monitoring summary
Appendix 7.3 - Priority substances assessment

Appendix 7.1 Annual Statement of Measures

Description of issue	Risk	Mitigation Measure to be taken	Date for Completion/Comment
Ortho Phosphate levels in the discharge from this plant exceed the UWWTD limits. A Ferric dosing system is required to meet UWWTD parameter limits.	Medium	Provision of Ferric dosing	Reduced ELV for ortho P in 2019. Awaiting Approval from Irish Water
Ballybay Sludge Scrapers	Low	Provide new sludge scrapers	Complete
Improved Operational Control	Medium	Flow monitoring at WWTP	Contractor Appointed , Site Survey and Design Underway

Appendix 7.2 Ambient Monitoring Results

Ballybay Upstream Monitoring Results									
Sample location	**Sample Date**	**Sample Type**	**Dissolved Oxygen mg/l**	**Temp**	**Ammonia N mg/l**	**BOD, 5 days with Inhibition (Carbonaceous) mg/l**	**Ortho Phosphate mg/l**	**pH units**	**Suspended Solids mg/l**
Ballybay WWTP Upstream	03/02/2015	Grab	12.27	3	0.038	3	0.04	7.7	
Ballybay WWTP Upstream	13/05/2015	Grab	10.40	11.8	0.059	< 1	0.037	7.9	
Ballybay WWTP Upstream	03/06/2015	Grab	10.67	11.5	0.13	3	0.056	8	< 5
Ballybay WWTP Upstream	15/07/2015	Grab	9.83	11.1	0.068	1	0.054	8	6
Ballybay WWTP Upstream	12/08/2015	Grab	9.51	16.3	0.067	1	0.112	8.1	< 5
Ballybay WWTP Upstream	01/09/2015	Grab	9.62	14.7	0.057	2	0.107	7.9	6
Ballybay WWTP Upstream	07/10/2015	Grab	10.27	13.1	0.045	2	0.06	8	< 5
Ballybay WWTP Upstream	03/11/2015	Grab	10.69	12.4	0.045	< 1	0.065	7.8	< 5
Ballybay WWTP Upstream	09/12/2015	Grab	11.33	8.3	0.027	<2	0.072	7.6	7
Average			**10.55**	**11.35**	**0.06**	**1.77**	**0.067**	**7.89**	**5.57**

Ballybay Downstream Monitoring Results									
Sample Location	**Sample Date**	**Sample Method**	**Dissolved Oxygen mg/l**	**Temp**	**Ammonia N mg/l**	**BOD, 5 days with Inhibition (Carbonaceous) mg/l**	**Ortho - Phosphate P mg/l**	**pH units**	**Suspended Solids mg/l**
Ballybay WWTP Downstream	03/02/2015	Grab			0.036	2	0.037	7.7	
Ballaybay WWTP Downstream	13/05/2015	Grab	10.43	11.5	0.048	< 1	0.134	7.9	
Ballybay WWTP Downstream	03/06/2015	Grab	10.75	12.1	0.15	2	0.063	7.9	7
Ballybay WWTP Downstream	15/07/2015	Grab	9.46	11.5	0.11	3	0.933	7.8	< 5
Ballybay WWTP Downstream	12/08/2015	Grab	9.28	15.9	0.043	2	0.137	8	< 5
Ballaybay WWTP Downstream	01/09/2015	Grab	9.64	14.1	0.054	2	0.158	7.8	5
Ballybay WWTP Downstream	07/10/2015	Grab	9.94	12.7	0.055	2	0.177	7.9	< 5
Ballybay WWTP Downstream	05/11/2015	Grab	10.56	12.9	0.062	< 1	0.076	7.8	< 5
Ballybay WWTP Downstream	09/12/15	Grab	10.54	8.4	0.053	<2	0.075	7.6	<5
Average			**10.08**	**12.39**	**0.068**	**1.8**	**0.199**	**7.82**	**5.28**

Appendix 7.3 Priority Substances Report

Priority Substances Assessment

Agglomeration Name:	**Ballybay**
Licence Register No.	**D0207**

Table of Contents

1 Introduction

This report has been prepared for D0207-02 Ballybay, in County Monaghan in accordance with the requirements of Condition / 4.11 and Schedule D of the wastewater discharge licence for the agglomeration.

This desk top study has been undertaken to determine the necessity, if any, for analysis of the discharge to comply with the condition in the wastewater discharge licence based on the *Guidance on the Screening for Priority Substances for Waste Water Discharge Licences*, issued by the EPA. Relevant inputs to the waste water works and estimates of emissions from the discharge point have been taken into account in the preparation of this report. Relevant inputs to the waste water works, any relevant measurements / calculations / estimates of emissions from the discharge point and any relevant measurements undertaken at representative downstream monitoring locations have been taken into account in the preparation of this report.

Details of the emissions concentration for the primary discharge and impact on the receiving water are included in Appendix 1.

2 Desktop Study

2.1 Assessment of Analysis Required

A. Review of all industrial inputs into WWTP

A list all licensed and unlicensed industrial or trade effluent discharges, leachate discharges and other imports is included in Table 2.1 below. State if all trade / industrial discharges are licensed and include any known unlicensed discharges. "Other Imports" includes any non-domestic imports to the WWTP.

Table 2.1 – List of Non-Domestic Discharges to WWTP

Licensee Name / Landfill Name /Other Imports	Type of Industry	Type of Licence (IED / IPPC / Section 16 / Unlicensed)	Potential Source of Dangerous / Priority Substances (Yes / No)	Dangerous / Priority Substances Monitoring Undertaken (Yes / No)
Burlton	Anodising/Dyeing Aluminium Frames	Section 16	Yes	Unknown

Where the answer to "**Potential Source of Dangerous Substances (Yes / No)"** is Yes, **Table 2.2** below has been completed for each industry/landfill/other import source.

Table 2.2 – List of Dangerous or Priority Substances in Non-Domestic Discharges to WWTP

Licensee Name	List Anticipated Dangerous Substances or state if unknown	Monitoring Undertaken (Yes / No)
Burlton	VOCs, Phenols, Metals	Yes

B. Discharge monitoring

The primary discharge has been analysed for priority substances.
Analysis data is included in Appendix 1 with details of the sample data and/or source of the data. Analysis data does not include the full list of priority substances listed in the EPA's *Guidance on the Screening for Priority Substances for Waste Water Discharge Licences.*

C. Downstream monitoring location's participation in relevant monitoring WFD Monitoring Programme Any analysis data available for a representative downstream monitoring location from the discharge point for the relevant parameters is included in Appendix 3 with details of the sample data and/or source of the data.

D. Participation in PRTR reporting

The emissions of specific organic compounds and metals (priority substances) have been estimated for the discharge utilising the EPA's urban WWTP calculation tool for PRTR reporting. It is noted from the EPA's report, *An Inventory of Emissions to Waters in Ireland,* that extensive assessment of emission factors was undertaken during 2011 / 2012 that focussed on the evaluation of inputs / output concentrations and removal efficiency using a variety of different sized plants and wastewater treatment options. This has led to the significant refinement of the electronic templates toolkit used for WWTP assessment using the PRTR tool. The estimated emission data relevant to the Ballybay agglomeration pertains to a WWTP <10,000 PE with no saline intrusion providing secondary treatment (activated sludge) with phosphorus reduction consisting of: inlet works with screening and grit removal, two aeration tanks, two settlement tanks, chemical dosing for phosphorus removal and sludge thickening tank.
The emission concentration from the PRTR has been included in the table in Appendix 1 where analysis data of the primary discharge is not available.

2.2 Review outcome of Desktop study

Following the desktop study, all parameters in Appendix 1 have been assessed to establish any potential impact on the receiving waters. A review of all non-domestic loads to the wastewater treatment plant is underway by Irish Water. A review of the national monitoring programme for priority substances in wastewater is proposed to be undertaken by Irish Water in 2016 in consultation with the EPA. It is proposed that this review, in consultation with the EPA, will determine the scope of future Priority Substances monitoring at Irish Water WWTP's.
Priority substance concentrations in the primary discharge were available for all parameters based on either analysis or the EPA PRTR toolkit. This desktop study is considered to provide partial characterisation of the wastewater.

3 Assessment of Significance and Recommendations

An assessment of the potential for impacts on receiving waters from priority substances in the primary discharge has been carried out. The assessment considers the primary discharge relevant to Environmental Quality Standards (EQS) for priority substances in surface waters, as set out in the European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended.
A number of parameters have been identified as potentially being higher than the required EQS, following dilution, as follows:- Benzo[a]pyrene
There is a potential for some impact on the receiving waters based on the assessment carried out. Further analysis is considered necessary to establish the impact, if any, on the receiving

waters. Based on the assessment carried out it is considered that further screening is required due to the fact that data used is from 2008, further screening will be carried out in 2016.
The EPA have prepared a report on priority substances, *An Inventory of Emissions to Waters in Ireland.* This document states that Ireland appears to have relatively few problems associated with the presence of Priority / Priority Hazardous substances in its surface waters. It identifies that wastewater discharges are a potential source of metals in receiving waters with lead being the main metal identified as associated with wastewater discharges. However, metals exceedences, in particular those for cadmium, lead, and nickel are primarily associated with areas of historic mining activity. Similarly PAH's have been identified in stormwater overflows but the most significant source is considered to be rainfall.
A consultation process with the EPA is proposed to be undertaken by Irish Water in 2016 to establish appropriate levels of monitoring for priority and dangerous substances, taking into account the particular requirements of the Water Framework Directive. This will allow a targeted monitoring programme to be undertaken in areas where priority substances have been identified or industrial discharges or imports provide a potential source, and where there is a shortfall of existing monitoring data.

Does the assessment use the Desk Top Study Method or Screening Analysis to determine if the discharge contains the parameters in Appendix 1 of the EPA guidance	Desk Top Study and Screening Anlaysis
Does the assessment include a review of licensed / authorised inputs to the works?	Yes
Does the assessment include a review of other (unauthorised) inputs to the works?	Yes
Does the report include an assessment of the significance of the results where a listed material is present in the discharge? (e.g. impact on the relevant EQS standard for the receiving water)	Yes
Does the assessment identify that priority substances may be impacting the receiving water?	Yes
Does the Improvement Programme for the agglomeration include the elimination / reduction of all priority substances identified as having an impact on receiving water quality?	No

Appendix 1 – Screening of Parameters for Priority Substances

AA: Annual Average
MAC: Maximum Allowable Concentration
EQS: Environmental Quality Standards
Dilution factor in receiving water: 2.7

No.	Compound	Group of compounds	AA-EQS Inland SW (µg/l)	AA-EQS Other SW (µg/l)	Measured /Estimated Conc. (µg/l)[1]	Data Source [Sample / PRTR / Other (state)]	Sample Date (if applicable)	Effluent Concentration above AA concentration (Yes/No)	Effluent Concentration above AA concentration after dilution (Yes/No)
1	Benzene	VOCs	10	8	0.016818	PRTR		No	No
2	Carbon tetrachloride	VOCs	12	12	0	PRTR		No	No
3	1,2-Dichloroethane	VOCs	10	10	0.045455	PRTR		No	No
4	Dichloromethane	VOCs	20	20	0.5 (LOD = 1)	Sample Data	18/06/2008	No	No
5	Tetrachloroethylene	VOCs	10	10	0.059091	PRTR		No	No
6	Trichloroethylene	VOCs	10	10	0	PRTR		No	No
7	Trichlorobenzenes	VOCs	0.4	0.4	0	PRTR		No	No
8	Trichloromethane	VOCs	2.5	2.5	2.386849	PRTR		No	No
9	Xylenes (all isomers)	VOCs	10	10	0.5 (LOD = 1)	Sample Data	18/06/2008	No	No
10	Ethyl Benzene	VOCs	n/a	n/a	0.016591	PRTR		n/a	n/a

No.	Compound	Group of compounds	AA-EQS Inland SW (µg/l)	AA-EQS Other SW (µg/l)	Measured /Estimated Conc. (µg/l)[1]	Data Source [Sample / PRTR / Other (state)]	Sample Date (if applicable)	Effluent Concentration above AA concentration (Yes/No)	Effluent Concentration above AA concentration after dilution (Yes/No)
11	Toluene	VOCs	10	10	0.5 (LOD = 1)	Sample Data	15/06/2008	No	No
12	Naphthlene[2]	PAHs	2	2	0.004	PRTR		No	No
13	Fluoranthene[1]	PAHs	0.0063	0.0063	0.002341	PRTR		No	No
14	Benzo[k]fluoranthene[3]	PAHs	MAC of 0.017	MAC of 0.017	0.002	PRTR		No	No
15	Benzo[ghi]perylene[2]	PAHs	MAC of 8.2×10^{-3}	MAC of 8.2×10^{-4}	0.002	PRTR		No	No
16	Indeno[1,2,3-c,d]pyrene[2]	PAHs			0.002205	PRTR		n/a	n/a
17	Benzo[b]fluoranthene[2]	PAHs	MAC of 0.017	MAC of 0.017	0.002	PRTR		No	No
18	Benzo[a]pyrene	PAHs	1.7×10^{-4}	1.7×10^{-4}	0.002	PRTR		Yes	Yes
19	Di(2-ethylhexyl)phthalate	Plasticiser	1.3	1.3	0.917273	PRTR		No	No

[2] The EQS for these substances shall take effect from 22 December 2015
[3] No indicative parameter is provided for this group of substances

No.	Compound	Group of compounds	AA-EQS Inland SW (µg/l)	AA-EQS Other SW (µg/l)	Measured /Estimated Conc. (µg/l)[1]	Data Source [Sample / PRTR / Other (state)]	Sample Date (if applicable)	Effluent Concentration above AA concentration (Yes/No)	Effluent Concentration above AA concentration after dilution (Yes/No)
	(DEHP)								
20	Isodrin[4]	Pesticides	∑=0.01	∑=0.005	0	PRTR		No	No
21	Dieldrin[3]	Pesticides			0	PRTR		No	No
22	Diuron	Pesticides	0.2	0.2	0.026364	PRTR		No	No
23	Isoproturon	Pesticides	0.3	0.3	0.0075	PRTR		No	No
24	Atrazine	Pesticides	0.6	0.6	0.005 (LOD = 0.01)	Sample Data	18/06/08	No	No
25	Simazine	Pesticides	1	1	0.005 (LOD = 0.01)	Sample Data	18/06/08	No	No
26	Glyphosate	Pesticides	60	-	1.532727	PRTR		No	No
27	Mecoprop	Pesticides	n/a	n/a	0.107045	PRTR		n/a	n/a
28	2,4-D	Pesticides	n/a	n/a	0.051023	PRTR		n/a	n/a
29	MCPA	Pesticides	n/a	n/a	0.088636	PRTR		n/a	n/a

[4] ∑ of Aldrin, Dieldrin, Endrin and Isodrin.

No.	Compound	Group of compounds	AA-EQS Inland SW (µg/l)	AA-EQS Other SW (µg/l)	Measured /Estimated Conc. (µg/l)[1]	Data Source [Sample / PRTR / Other (state)]	Sample Date (if applicable)	Effluent Concentration above AA concentration (Yes/No)	Effluent Concentration above AA concentration after dilution (Yes/No)
30	Linuron	Pesticides	0.7	0.7	0	PRTR		No	No
31	Dichlobenil	Pesticides	n/a	n/a	0.004295	PRTR		n/a	n/a
32	2,6-Dichlorobenzamide	Pesticides	n/a	n/a	0.080455	PRTR		n/a	n/a
33	PCBs	PCBs	n/a	n/a	0	PRTR		No	No
34	Phenols (as Total C)	Phenols	8	8	0.05 (LOD = 0.1)	Sample Data		No	No
35	Lead	Metals	1.2	1.3	3	Sample Data	18/06/08	Yes	No
36	Arsenic	Metals	25	20	1	Sample Data	18/06/08	No	No
37	Copper	Metals	5 or 30[2]	5	5	Sample Data	18/06/08	No	No
38	Zinc	Metals	8 or 50 or 100[3]	40	18.6	Sample Data	18/6/2008	No	No
39	Cadmium	Metals	0.08 or 0.09 or 0.15 or 0.25[4]	0.2	0.045 (LOD = 0.09)	Sample Data	18/6/2008	No	No
40	Mercury	Metals	MAC of 0.07	MAC of 0.07	0.1 (LOD = 0.2)	Sample Data	18/6/2008	Yes	No
41	Chromium VI	Metals	3.4	0.6	1	Sample Data	18/6/2008	No	No

No.	Compound	Group of compounds	AA-EQS Inland SW (µg/l)	AA-EQS Other SW (µg/l)	Measured /Estimated Conc. (µg/l)[1]	Data Source [Sample / PRTR / Other (state)]	Sample Date (if applicable)	Effluent Concentration above AA concentration (Yes/No)	Effluent Concentration above AA concentration after dilution (Yes/No)
42	Selenium	Metals	n/a	n/a	1	Sample Data	18/6/2008	n/a	n/a
43	Antimony	Metals	n/a	n/a	0.154545	PRTR		n/a	n/a
44	Molybdenum	Metals	n/a	n/a	0	PRTR		No	No
45	Tin	Metals	n/a	n/a	0.144444	PRTR		n/a	n/a
46	Barium	Metals	n/a	n/a	8	Sample Data	18/6/2008	n/a	n/a
47	Boron	Metals	n/a	**n/a**	190	Sample Data	18/6/2008	n/a	n/a
48	Cobalt	Metals	n/a	n/a	0.175758	PRTR		n/a	n/a
49	Vanadium	Metals	n/a	n/a	2.727273	PRTR		n/a	n/a
50	Nickel	Metals	4	8.6	2	Sample Data	18/6/2008	No	No
51	Fluoride	General	500	1,500	430	Sample Data	18/6/2008	No	No
52	Chloride	General	n/a	n/a	54120	PRTR		n/a	n/a
53	TOC	General	n/a	n/a	9219.773	PRTR		n/a	n/a
54	Cyanide	General	10	10	2.5 (LOD = 5)	Sample Data	18/6/2008	No	No
	Conductivity	General	n/a	n/a	653	Sample Data	18/6/2008	n/a	n/a
	Hardness (mg/l	General	n/a	n/a				n/a	n/a

No.	Compound	Group of compounds	AA-EQS Inland SW (µg/l)	AA-EQS Other SW (µg/l)	Measured /Estimated Conc. (µg/l)[1]	Data Source [Sample / PRTR / Other (state)]	Sample Date (if applicable)	Effluent Concentration above AA concentration (Yes/No)	Effluent Concentration above AA concentration after dilution (Yes/No)
	$CaCO_3$)								
	pH	General	n/a	n/a	7.4	Sample Data	18/6/2008	n/a	n/a

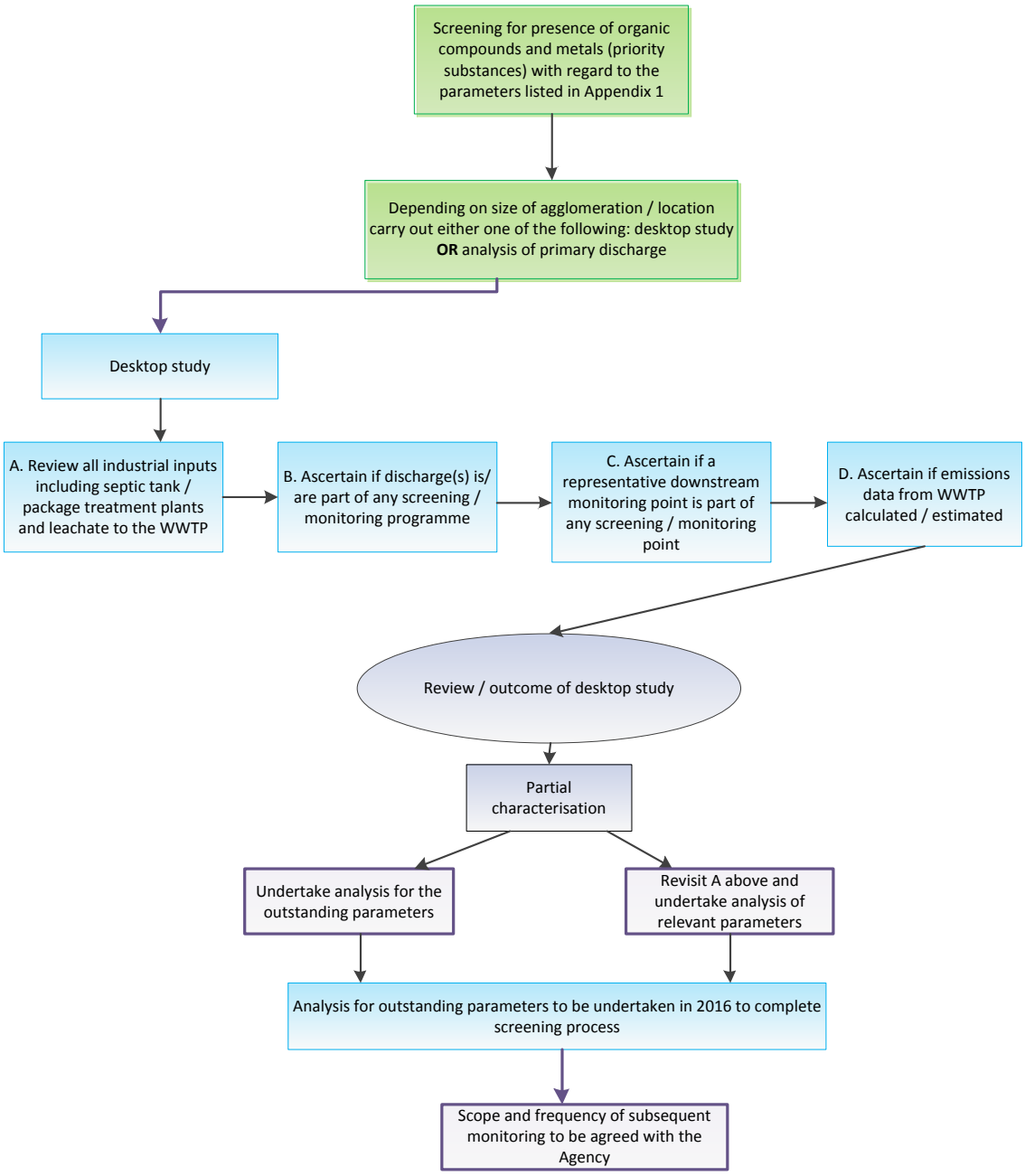
Notes:

1. Where measured values are available these should be used instead of estimated values from PRTR tool.
2. In the case of Copper the value 5 applies where the water hardness measured in mg/l $CaCO_3$ is less than or equal to 100; the value 30 applies where the water hardness exceeds 100 mg/l $CaCO_3$. Estimated $CaCO_3$ value > 100 where no sampling data available (based on PRTR tool)
3. In the case of Zinc, the standard shall be 8 µg/l for water hardness with annual average values less than or equal to 10 mg/l CaCO3, 50 µg/l for water hardness greater than 10 mg/l $CaCO_3$ and less than or equal to 100 mg/l CaCO3 and 100 µg/l elsewhere. Estimated $CaCO_3$ value > 100 where no sampling data available
4. For Cadmium and its compounds the EQS values vary dependent upon the hardness of the water as specified in five class categories (Class 1: <40 mg CaCO3/l, Class 2: 40 to <50 mg CaCO3/l, Class 3: 50 to <100 mg CaCO3/l, Class 4: 100 to <200 mg CaCO3/l and Class 5: _200 mg CaCO3/l)

Appendix 2 – Priority Substance Screening Flowchart

A flow chart for the screening of the presence of organic compounds and metals (Priority Substances) from WWTP is included below. This flowchart shows that appropriate screening has been demonstrated in line with the assessment undertaken in this report.

Partial Characterisation



Appendix 3 – Receiving Waters Priority Substance Data

St 150 Bridge in Ballybay

This bridge is upstream of the wastewater treatment plant in Ballybay.

Results above LOD and past 2009 only

Parameter	Min	Average	Max
2,4-D (µg/L)	0.191	0.191	0.191
2,6-Dichlorobenzamide (µg/L)	0.106	0.106	0.106
Alkalinity-total (as mg/L CaCO3)	47.000	111.912	176.000
Aluminium - unspecified (µg/L)	13.000	26.333	43.000
Ammonia-Total (as mg/L N)	0.020	0.071	0.290
Arsenic - unspecified (µg/L)	0.500	0.825	1.400
Atrazine (µg/L)	0.080	0.080	0.080
Barium - unspecified (µg/L)	23.600	29.975	34.100
Benzo(a)pyrene (µg/L)	0.018	0.018	0.018
Benzo(g,h,i)perylene (µg/L)	0.001	0.003	0.011
BOD - 5 days (Total - mg/L)	1.000	2.308	8.000
Boron - unspecified (µg/L)	11.000	14.100	18.000
Cadmium - unspecified (µg/L)	0.100	0.100	0.100
Calcium - unspecified (mg/L)	22.100	37.100	50.700
Chloride (mg/L)_	8.500	15.899	25.000
Chromium - unspecified (µg/L)	0.500	0.850	1.300
Cobalt - unspecified (µg/L)	0.600	0.650	0.700
Conductivity @20°C (µS/cm)	198.000	261.333	319.000
Conductivity @25°C (µS/cm)	171.000	298.821	414.000
Copper - unspecified (µg/L)	1.500	3.417	8.100
Dissolved Organic Carbon (mg/L)	8.000	13.250	25.000
Dissolved Oxygen (% saturation)	50.000	87.003	101.000
Dissolved Oxygen (mg/L)	6.900	9.933	13.100
Fluoride (mg/L)	0.050	0.066	0.100
Indeno(1,2,3-c,d)pyrene (µg/L)	0.001	0.004	0.010
Iron - unspecified (µg/L)	169.000	395.833	588.000
Lead - unspecified (µg/L)	0.900	0.900	0.900
Magnesium - unspecified (mg/L)	3.210	5.790	7.870
Manganese - unspecified (µg/L)	26.000	190.250	669.000
MCPA (µg/L)	0.056	0.119	0.196
Mecoprop (µg/L)	0.100	0.167	0.300
Mercury - unspecified (µg/L)	0.050	0.050	0.050
Molybdenum - unspecified (µg/L)	0.600	0.750	0.900
Nickel - unspecified (µg/L)	2.200	3.200	5.500
Nitrite (as mg/L N)	0.003	0.011	0.033
ortho-Phosphate (as mg/L P) - unspecified	0.017	0.065	0.180
pH	7.100	7.621	7.900
Potassium - unspecified (mg/L)	3.550	5.126	8.210

Q-Value	2.500	3.000	3.500
Selenium - unspecified (µg/L)	0.700	0.700	0.700
Sodium - unspecified (mg/L)	6.900	10.342	15.800
Strontium - unspecified (µg/L)	64.700	122.925	169.000
Sum 4_IWW: Benzo[b]fluoranthene+Benzo[k]fluoranthene (µg/L)	0.011	0.012	0.012
Temperature (°C)	0.800	10.169	22.400
Total Hardness (as mg/L Ca)	32.000	43.083	51.000
Total Hardness (as CaCO3)	66.000	129.179	192.000
Total Oxidised Nitrogen (as mg/L N)	0.250	0.835	2.400
True Colour (Hazen)	18.000	56.824	188.000
Uranium - unspecified (µg/L)	0.100	0.278	0.500
Vanadium - unspecified (µg/L)	0.500	0.625	0.800
Zinc - unspecified (µg/L)	3.300	21.508	107.000

Data below extracted from White Lough Site 1 which is downstream of the wastewater treatment plant. Results are based on 2010 monitoring data.

Parameter	Units	Min	Max	Average
1,4-Dichlorobenzene	µg/l	0.10	0.10	0.10
Alkalinity-total (as CaCO3)	mg/l	50.00	99.00	78.75
Aluminium - unspecified	µg/l	9.00	142.00	45.29
Ammonia-Total (as N)	mg/l	0.03	0.21	0.07
Arsenic - unspecified	µg/l	0.60	1.00	0.77
Barium - unspecified	µg/l	20.70	24.90	22.38
Boron - unspecified	µg/l	12.00	17.00	14.50
Calcium - unspecified	mg/l	19.20	32.50	26.33
Chlorophyll	µg/l	3.00	69.00	22.81
Cobalt - unspecified	µg/l	0.50	0.60	0.57
Conductivity @20°C	µS/cm	188.00	228.00	213.00
Conductivity @25°C	µS/cm	164.00	270.00	233.86
Copper - unspecified	µg/l	2.00	6.50	3.67
Dissolved Organic Carbon	mg/l	11.00	11.00	11.00
Dissolved Oxygen	% Saturation	46.00	128.00	89.27
Dissolved Oxygen	mg/l	6.10	13.50	9.78
Fluoride	mg/l	0.05	1.82	0.51
Hexachlorobutadiene	µg/l	0.10	0.10	0.10
Indeno(1,2,3-c,d)pyrene	µg/l	0.00	0.00	0.00
Iron - unspecified	µg/l	69.00	512.00	231.17
Lead - unspecified	µg/l	0.70	0.70	0.70
Magnesium - unspecified	mg/l	2.76	5.05	3.95
Manganese - unspecified	µg/l	32.00	357.00	147.08

meta + para-Xylene	µg/l	0.10	0.20	0.15
Molybdenum - unspecified	µg/l	0.50	0.50	0.50
Nickel - unspecified	µg/l	3.00	5.00	3.77
Nitrate (as N)	mg/l	0.10	0.70	0.37
Nitrite (as N)	mg/l	0.01	0.03	0.01
ortho-Phosphate (as P) - unspecified	mg/l	0.02	0.10	0.05
ortho-Xylene	µg/l	0.10	0.10	0.10
pH	pH units	7.00	8.60	7.74
Potassium - unspecified	mg/l	3.00	5.50	4.51
Silica (as Si)	mg/l	0.70	3.30	2.03
Silica (as SiO2)	mg/l	0.45	7.35	3.60
Sodium - unspecified	mg/l	6.20	11.10	8.88
Strontium - unspecified	µg/l	69.70	121.00	89.15
Sulphate	mg/l	6.80	15.50	11.24
Temperature	°C	0.80	25.30	12.37
Thorium - unspecified	µg/l	4.00	4.00	4.00
Toluene	µg/l	0.10	0.10	0.10
Total Oxidised Nitrogen (as N)	mg/l	0.10	1.40	0.71
Total Phosphorus (as P)	mg/l	0.04	0.18	0.08
Transparency	m	0.50	3.00	1.25
True Colour	Hazen/PtCo Units	20.00	95.00	47.83
Uranium - unspecified	µg/l	0.10	0.20	0.13
Zinc - unspecified	µg/l	2.00	23.20	7.03