Annual Environmental Report 2016

Agglomeration Name:	**Clones**
Licence Register No.	**D0206-01**

Contents

Section 1. Executive Summary and Introduction to the 2016 AER

1.1 Summary Report on 2016

This Annual Environmental Report has been prepared for **D0206-01, Clones,** 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:

- Sewer Integrity Risk Assessment in **Appendix 7.3**
- Storm water overflow assessment in **Appendix 7.4**
- Priority substances assessment in **Appendix 7.5**

The agglomeration is served by a wastewater treatment plant with a Plant Capacity PE of 4500. The treatment process includes the following:-

- Preliminary Treatment (Screening)
- Primary Treatment (Settlement)
- Secondary Treatment (Percolation Filters)
- Nutrient Removal (Chemical Dosing for P Removal)

The final effluent from the Primary Discharge Point was compliant with the Emission Limit Values in 2016.

6,650,000kgs sludge as liquid sludge was removed from the wastewater treatment plant in 2016. 3, 550,000kgs sludge was transferred to Monaghan WWTP and 3,100,000kg went to the sludge drying beds (reed beds) onsite.

The following improvement works were undertaken in 2016:-
Chemical Dosing for Phosphorus removal was installed at the plant in 2016.

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	12	12	12	12	12		
Annual Max.	159	399	135	4.6	24.7	4627.2	3,029
Annual Mean	49.86	150.44	76.24	1.62	11.50	1559.02	1620.32

Other inputs, where relevant, are detailed in Section 3.6.

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 greater than the peak Treatment Plant Capacity as detailed further in Section 3.2. The design of the wastewater treatment plant does not allow for peak values. However, the peak loads have not impacted on compliance with Emission Limit Values.

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 *Note Stricter ELV of 2mg/l will apply from the 31/12/19	125.00	35.00	*Note ELV of 0.075mg/l P will apply from the 31/12/19	*Note ELV of 0.1mg/l N will apply from the 31/12/19	6 to 9
ELV with Condition 2 Interpretation included	50.00	250.00	87.50			No allowable exceedances
Interim % Reduction (Schedule A)						
Number of sample results	12	12	12	12	12	12
Number of sample results above WWDL ELV	0	0	0	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)						
Overall Compliance (Pass/Fail)	Pass	Pass	Pass			Pass

Significance of results

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

2.3.1. 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	Bathing Water	Drinking Water	FWPM	Shellfish	Current WFD Status
Upstream Monitoring Point	250444E 325380N	RS36L060200					Moderate
Downstream Monitoring Point	250672E 325280N	RS36L060430	No	No	No	No	Moderate

The results for the upstream and downstream monitoring and/or additional monitoring data sets from Irish Water are included in the Appendix 7.2.

Significance of results

- The WWTP was compliant with the ELV's set in the wastewater discharge licence as detailed in Section 2.2.
- The discharge from the wastewater treatment plant does have an observable negative impact on the water quality.
- The discharge from the WWTP doesn't have an observable negative impact on the Water Framework Directive status.
- Other potential causes of deterioration in water quality relevant to this area are unknown.

2.4 Data collection and reporting requirements under the UWWTD

The electronic submission of data was completed on 11/01/2017

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

A PRTR is not required as the PE is < 100000

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)	35,485	107,061	54,254	1,156	8,182
Effluent mass emission (kg/year)	6,180	24,186	7,434	797	7,266
% Efficiency (% reduction of influent load)	83%	77%	86%	31%	11%

3.2 Treatment Capacity Report

Table 3.2 - Treatment Capacity Report Summary

Hydraulic Capacity – Design / As Constructed (dry weather flow) (m3/day)	1,021
Hydraulic Capacity – Design / As Constructed (peak flow) (m3/day)	3,064
Hydraulic Capacity – Current loading (m3/day)	1,559
Hydraulic Capacity – Remaining (m3/day)	1,505
Organic Capacity - Design / As Constructed (PE)	4,500
Organic Capacity - Current loading (PE)	1,620
Organic Capacity – Remaining (PE)	2,880
Will the capacity be exceeded in the next three years? (Yes / No)	No
Is an upgrade or expansion of the WWTP proposed? (i.e. if on Minor Programme or CIP) (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 P.E. load generated in the agglomeration	Estimated / Measured
Load generated in the agglomeration that is collected in the sewer network	Unknown	Estimated
Load collected in the agglomerations that enters treatment plant	Unknown	Estimated
Load collected in the sewer network but discharges without treatment (includes SWO, EO, and any discharges that are not treated)	Unknown	Estimated

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.

3.4 Complaints Summary

A summary of complaints of an environmental nature is included below.

Table 3.4 - Complaints Summary Table

Number of Complaints	Nature of Complaint	Number Open Complaints	Number Closed Complaints
4	Investigation Sewage Flooding - Below Ground Waste Water	0	4

3.5 Reported Incidents Summary

A summary of reported incidents is included below.

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	Recurring Incident (Yes/No)	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 2016	0
Number of Incidents reported to the EPA via EDEN in 2016	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	P.E.	% of load to WWTP	Included in Influent Monitoring? (Y/N)	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				
Industrial / Commercial Sludge	0	0				
Landfill Leachate (delivered by tanker)	0	0				
Landfill Leachate (delivered by sewer network)	0	0				
Other (specify)	0	0				

Section 4. Infrastructure Assessments and Programme of Improvements

4.1 Storm water overflow identification and inspection report

The Storm Water Overflow Identification & Inspection report is included in Appendix 7.4. A summary of the significance and operation 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 2016 (No. of events)	Total volume discharged in 2016 (m3)	Total volume discharged in 2016 (P.E.)	Estimated / Measured data
SW002	250562E 325312N	Yes	Low	Non Compliant	Unknown	Unknown	Unknown	Estimated
SW003	250510E 325336N	Yes	Low	Non Compliant	Unknown	Unknown	Unknown	Estimated
SW004	250356E 325962N	Yes	Low	Non Compliant	Unknown	Unknown	Unknown	Estimated

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)?	Unknown
How much sewage was discharged via SWOs in the agglomeration in the year (p.e.)?	Unknown
What % of the total volume of sewage generated in the agglomeration was discharged via SWOs in the agglomeration in 2016?	Unknown
Is each SWO identified as non-compliant with DoEHLG Guidance included in the Programme of Improvements?	Yes
The SWO assessment includes the requirements of relevant WWDL Schedules (Yes/No)	Yes
Have the EPA been advised of any additional SWOs / changes to Schedules A/C under Condition 1?	N/A

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

The Improvement Programme report included in Appendix 7.1 addresses the **Specified Improvement Programmes** as detailed in Schedules A3 and C of the WWDL. It should detail other improvements identified through assessments required under the licence.

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
Improvement works to ensure compliance with Condition 1.7	C	31/12/2019	No	Not started	0%		The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis.
Complete improvements to comply with ELVs specified in Schedule A. Implement, in accordance with Condition 5.6.1, either (a) improvements to the existing wastewater works to achieve compliance with the	C	31/12/2019	No	Not started	0%		The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis.

emission limit values specified in Schedule A1: Primary Waste Water Discharge and Monitoring of this licence, or (b) an alternative primary discharge point, or (c) connection to another agglomeration.							

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
10010055	D0206 Clones WWTP Sludge tank	Improved Operational Control	0%		At planning stage
10007268	Flow Monitoring and Sampling MN	Improved Operational Control	100%		Influent sampler and 2 flow meters installed in 2016
	Provision of Ferric dosing to reduce ortho p levels in final effluent	WWTP assessment (Condition 5.2)	100%		Ferric dosing installed and operational 2016
	Upgrade of Clones WWTP Final Clarifer	WWTP assessment (Condition 5.2)	0%		At planning stage

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	Reference to relevant section of AER (e.g. Appendix 2 Section 4.	Specified improvements	Comment
Hydraulic Risk Assessment Score	High	127	Appendix 7.4 AER 2016		
Environmental Risk Assessment Score	Low	215	Appendix 7.4 AER 2016		
Structural Risk Assessment Score	Medium	75	Appendix 7.4 AER 2016		
Operation & Maintenance Risk Assessment Score	Low	75	Appendix 7.4 AER 2016		
Overall Risk Score for the agglomeration	High	492	Appendix 7.4 AER 2016		

Section 5. Licence Specific Reports

Licence Specific Reports Summary Table

Licence Specific Report	Never required by condition 5 in Licence	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	Required	Yes	Yes	Appendix 7.5 AER 2016
Drinking Water Abstraction Point Risk Assessment	Not Required	No	No	
Shellfish Impact Assessment	Not Required	No	No	
Pearl Mussel Report	Not Required	No	No	
Toxicity/Leachate Management	Not Required	No	No	
Toxicity of Final Effluent Report	Not Required	No	No	
Small Stream Risk Score Assessment	Not Required	No	No	
Habitats Impact Assessment	Not Required	No	No	

Licence Specific Reports Summary of Findings

Licence Specific Report	Recommendations in Report	Summary of Recommendations in Report
Priority Substances Assessment	Yes	No further screening required
Drinking Water Abstraction Point Risk Assessment	No	
Shellfish Impact Assessment	No	
Pearl Mussel Report	No	
Toxicity/Leachate Management	No	
Toxicity of Final Effluent Report	No	
Small Stream Risk Score Assessment		
Habitats Impact Assessment	No	

5.1 Priority Substances Assessment

The Priority Substances Assessment Report is included in the Appendix 7.5. A summary of the significance and operation 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	Screening Analysis
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?	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)	N/A
Does the assessment identify that priority substances may be impacting the receiving water?	No
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	No
Status of any improvement measures required	No further screening required

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?	Yes
Ensure the following reports are included	Sewer Integrity Risk Assessment 2016
	Storm water overflow assessment 2016
	Priority substances assessment 2016

Declaration by Irish Water

The AER contains the following:

- Introduction and background to 2016 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:...22/02/2017

Elizabeth Arnett
Head of Corporate Affairs and Environmental Regulation

Section 7. Appendices

Appendix 7.1 Statement of Measures

1	Issue	Clones WWTP Sludge Handling
	Mitigation Measure	Supply and fit a sludge dewatering tank
	Status	At design stage
2	Issue	Improvement works required to comply with ELV's in Schedule A
	Mitigation Measure	Clones WWTP final Clarifier
	Status	At design stage
3	Issue	Compliance with ELV for orthophosphate
	Mitigation Measure	Provision of Ferric dosing
	Status	Ferric dosing installed and operational 2016

Specified Improvement Programme

Specified improvement Programme

Schedule C1 Specified Improvement Programme of the licence outlines the following improvements and the required completion date specified in the licence is the 31/12/19:

1. Complete improvements to comply with ELV's specified in Schedule A: Discharges and Discharge Monitoring. Implement, in accordance with condition 5.6.1 either (a) improvements to the existing wastewater works to achieve compliance with the emission limit values specified in Schedule A.1:Primary Waste Water Discharge and Monitoring of this licence, or (b) an alternative primary discharge point or (c) connection to another agglomeration.

2. Appropriate works to ensure compliance with the ELV's specified in Schedule A: Discharges and discharge monitoring

Under condition 5.2.1 of the licence, the programme of infrastructural improvements shall include an assessment of the wastewater treatment plant having regard to the effectiveness of the treatment provided by reference to the following:

(i) The capacity of the treatment plant and associated equipment:

The existing level of treatment is secondary with chemical dosing for P removal. The WWTP was compliant with licence ELV's in 2016. The capacity of the treatment plant is outlined in section 3.2 of this AER.

(ii)The emission limit values specified in Schedule A: Discharges and Discharge Monitoring

The WWTP was compliant with ELV's for 2016, however new stricter ELV's for Ammonia 0.1mg/l, ortho P 0.75mg/l and BOD 2mg/l , will apply from the 31/12/19.

(iii) Designations of the receiving water body

Clones WWTP discharges to the Legarhill stream which is a tributary of the River Finn. The status of this waterbody IE_XB_36_east_3 is moderate. Upstream ambient monitoring in 2016 indicates contamination upstream of the plant. Monitoring downstream of the discharge shows an increase in orthophosphate and ammonia levels. Ambient monitoring results are included in Appendix 2. New stricter ELV's for cBOD, Ammonia and orthophosphate are due to commence on the 31/12/19.

(iv) Downstream abstractions and uses of water
The receiving water had not been designated as a Sensitive waterbody.

(v) Water Quality objective for the receiving water body:

The receiving water is located within waterbody IE_XB_36_east_3, this water body has been classified as moderate in the final RBMP, 2009-2015.

(vi) The standards and volumetric limitations applied to any industrial wastewater that is licensed to discharge to the waste water works.

There are currently 2 companies licensed to discharge to the Clones WWTP.

Under Condition 5.2.2 of the licence, the programme of infrastructural improvements shall include an assessment of the integrity of the wastewater works having regard to :

(i) Capacity of the waste water works
The capacity of the wastewater treatment plant is currently adequate as outlined in Section 2.1 of this report.

(ii) Leaks from the waste water works
There are no known leaks from the waste water works

(iii) Misconnections between foul sewers and surface water drainage network
Any misconnections identified will be rectified.

(iv) Infiltration by surface water/ ground water
The sewer network integrity risk assessment has been included as part of this AER.

Under condition 5.2.3 of the licence the programme of improvements shall include an assessment of all storm water overflows associated with the wastewater works to determine effectiveness of their operation and in particular identify improvements necessary to comply with requirements of this licence:

A SWO assessment is included as an appendix to this AER.

Appendix 7.2 Ambient Monitoring Results

Upstream Clones WWTP								
Sample Date	Sample Method	DO mg/l	Temp °C	BOD mg/l	Ortho Phosphorus mg/l	Ammonia mg/l	Suspended Solids mg/l	pH units
06/01/16	Grab	7.56	10	< 1	0.046	0.065		7.8
02/02/16	Grab	10.05	9.3	19.5	0.036	0.086	11	7.9
01/03/16	Grab	9.25	9.9	2.6	0.055	0.15	19	7.8
06/04/16	Grab	9.46	8	1.8	0.041	0.092	< 5	8
04/05/16	Grab	9.56	11.3	1.8	0.039	0.091	10	8.2
13/06/16	Grab	5.64	17.7	2.2	0.117	0.41	10	7.9
05/07/16	Grab	7.99	13.1	12	0.504	0.054	9	7.9
09/08/16	Grab	6.3	14.7	2.8	0.197	0.022	7	8.2
07/09/16	Grab	6.88	18.8	2.6	0.161	0.046	5	8.6
10/10/16	Grab	7.43	12.1	2.1	0.048	0.14	9	8
08/11/16	Grab	9.44	8.1	2.1	0.115	0.21	10	7.9
05/12/16	Grab	9.78	4.2	1.1	0.048	0.049	10	7.9
	Average	8.27	11.43	4.6	0.117	0.117	10	8.00

Downstream Clones WWTP								
Sample Date	Sample Method	DO mg/l	Temp °C	BOD mg/l	Ortho Phosphorus mg/l	Ammonia mg/l	Suspended Solids mg/l	pH units
06/01/16	Grab	8.34	7.6	6	0.76	0.25		8.2
02/02/16	Grab	9.93	9.7	2.1	0.101	0.087	14	7.9
01/03/16	Grab	9.08	9.5	3.5	0.102	0.14	21	7.7
06/04/16	Grab	9.33	8.1	3.7	0.105	0.44	9	8.1
04/05/16	Grab	9.28	11	4.4	0.309	1.4	20	7.9
13/06/16	Grab	4.13	17.8	13	0.598	3.1	13	7.8
05/07/16	Grab	7.59	12.7	4.7	0.38	1	23	8
09/08/16	Grab	5.54	14.7	12	0.841	1.5	13	8
07/09/16	Grab	6.29	18.6	3.7	0.295	0.07	13	8.6
10/10/16	Grab	6.13	12.1	3.5	0.227	0.077	15	7.9
08/11/16	Grab	6.68	8.1	7.7	0.439	0.89	12	7.8
05/12/16	Grab	8.6	3.7	2.6	0.189	0.48	6	7.9
	Average	7.57	11.13	5.575	0.362	0.787	14.45	7.98

Appendix 7.3 Sewer Integrity Risk Assessment 2016

	Section 1.1 Agglomeration Details					
	Name	**Clones**				
	Licence Number	**D0206-01**				
	Insert Name of Catchment if the Risk Assessment is for part of an agglomeration (only divide agglomeration where p.e. >5,000p.e. and where such division is warranted)	**Clones**				
	Date Licence Issued	**30/09/2015**				
	Current Date	**20/02/2017**				
			Year	Year	Year	Year
	Waste Water Works - Wastewater Treatment Plant Details	**Unit**	2015	2016	2017	2018
1.1	Is there an existing WWTP in operation?		**Yes**	**Yes**	**Yes**	**Yes**
	Section 1.2 BOD Loading & Population Equivalent					
1.2	Average Daily Influent Flow or Average Total Flow in system (If no measured data exists, insert estimated figure)	l/day, measured	1499000	1559000		
1.3	Average Daily Influent BOD or Average BOD Load from area served (If no measured data exists, insert estimated figure)	mg/l, measured	71.8	49.8		
1.4	Total BOD Load	kg/day	107.6282	77.6382	0	0
1.5	Average Population Equivalent (@0.06kg/person/day)	p.e.	1794	1294	0	0
1.6	Estimated (existing) Non-Domestic Load	p.e.	275	275		
1.7	Estimated Domestic Load	p.e.	1519	1019	0	0
1.8	Occupancy Rate for the Agglomeration	pop/house	2.7	2.7		
1.9	Estimated Number of Connected Properties	houses	563	377	0	0
1.10	Number of properties within the agglomeration when compared with CSO Data or An Post Geodirectory	houses	767	767		
	Section 1.3 Hydraulic Details					
1.11	Average Dry Weather Flow arriving at WWTP OR Total Average DWF in system (If no measured data exists insert estimated figure)	l/s, measured	11.8	2.8125		
1.12	Estimated 3DWF	l/sec	35.40	8.44	0.00	0.00
1.13	Annual Average Peak Flow to WWTP or discharging from whole system if there is no existing WWTP	l/s, measured	56.11111111	35		
1.14	This Annual Average Peak as Multiples of Dry Weather Flow (Peaking Factor)	Nr	4.76	12.44	0.00	0.00
1.15	Highest Peak Flow Recorded (Insert UNKNOWN if no records exist)	l/s	Unknown	Unknown		
1.16	Does this Peak Flow (multiple of DWF) cause hydraulic capacity problems within the network ?	---	No	Yes	Yes	Yes
1.17	Total Rainfall for Previous Year	mm	1269	891		
1.18	Comparison - Mean Annual Rainfall for the agglomeration	mm	1007	1006.9		
1.18.1	Define the Weather Station Used		Ballyhaise	Ballyhaise		
1.19	If Storm Water Storage is available at the Wastewater Treatment plant, what is the volume of the storm tank ?	m^3	Yes, unknown	Yes, unknown		
1.20	Is the capacity of the storm tank sufficient to capture and retain all overflows to the tank ?	---	No	No	No	No
1.21	Total monthly average volume of Storm Water Stored or Returned for Treatment within the Waste Water Treatment Plant	m^3 per month	Unknown	Unknown		
1.22	If the answer to 1.20 above is No, What is the estimated frequency of Overflows from the Storm Tank ? (N/A if no overflow)		N/A	< 1 per month	1 to 2 times per month	< 1 per month
	Waste Water Works - Sewer Network Details	**Unit**	2015	2016	2017	2018
	Section 1.4 Waste Water Works - Gravity Sewer Details					
1.23	What database is used to maintain records of the sewer network		Hard Copy Drawings only	Hard Copy Drawings only	SUS 2002	SUS 2003
1.23.1	If other or combination of the above please describe	Describe				
1.24	Total length of sewers (use drop down menus to define whether these figures are estimated or measured)	km Estimated	19.58	19.58	0.00	0.00
1.24.1	Total length of sewers > 450mm Diameter	km Estimated	0.00	0.00		
1.24.2	Total length of sewers > 300mm but ≤ 450mm in Diameter	km Estimated	1.33	1.33		
1.24.3	Total length of sewers > 225mm but ≤ 300mm in Diameter	km Measured	2.57	2.57		
1.24.4	Total length of sewers ≤ 225mm in Diameter	km Estimated	15.68	15.68		
1.24.5	Other	km Estimated	0.00	0.00		
1.25	Pipeline Material					
1.25.1	What portion of the sewer network consists of Concrete Pipes	% Estimated	0%	0%		
1.25.2	What portion of the sewer network consists of Plastic Pipes	% Estimated	0%	0%		
1.25.3	What portion of the sewer network consists of Clay materials	% Estimated	0%	0%		
1.25.4	What portion of the sewer network consists of Brick Type Sewers	% Estimated	0%	0%		
1.25.5	What portion of the sewer network consists of Other Materials	% Estimated	100%	100%		
1.26	Total number of Storm Water Overflows	Nr	1	1		

1.27	What Screening or other mechanical devices are employed at the storm water overflows					
	TPEFF2400D0206 @ 250510,325336	Describe	Unknown	Unknown		
1.28	Water Quality at the receiving waters					
1.28.1	Where the receiving water is a river - indicate the EPA Biological Rating of the Receiving Water for each SWO below (Particularly if there is more than one receiving water within the agglomeration)					
	TPEFF2400D0206 @ 250510,325336	Describe	Q3-Q4	Q3-Q4		
1.28.2	Where the receiving water is a coastal water indicate the Status of the Receiving Water for each SWO below (Particularly if there is more than one receiving water within the agglomeration)					
	TPEFF2400D0206 @ 250510,325336	Describe	N/A	N/A		
1.28.3	With reference to the SWO's detailed above define if the receiving waters are sensitive in accordance with the Urban Wastewater Treatment Regulations as amended.					
	TPEFF2400D0206 @ 250510,325336	Describe	Not Listed	Not Listed		
1.28.4	With reference to the SWO's detailed above define are the receiving waters Protected Areas (designated or awaiting designation)					
	TPEFF2400D0206 @ 250510,325336	Designation	Not Listed	Not Listed		
1.28.5	With reference to the SWO's detailed above define do the receiving waters have any other designations.					
	TPEFF2400D0206 @ 250510,325336	Designation	Not Listed	Not Listed		
	Section 1.5 Waste Water Works - Pumping Stations					
1.29	Number of Pumping Stations (operated by the Local Authority)	Nr	3	3		
1.30	Total Length of Rising Mains (operated by the Local Authority)	km	Unknown	Unknown		
1.31	Rising Main Material					
1.31.1	What portion of the rising mains consists of ductile iron pipes	% Measured	Unknown	Unknown		
1.31.2	What portion of the rising mains consists of plastic pipes	% Measured	Unknown	Unknown		
1.31.3	What portion of the rising mains consists of other materials	% Estimated	Unknown	Unknown		
1.32	Discharge Capacity of the Pump Set (s) at normal duty point					
	At Roslea Road at E250386, N326569		Unknown	Unknown		
	At 98 Ave at E250341, N326033		Unknown	Unknown		
	At Carn Dun at E249634, N325939		Unknown	Unknown		
1.33	What percentage of the pumping stations have recorded flow data (i.e. if all pumping stations have flow meters on the rising mains then this would read 100%)	%	0.00%	0.00%		
1.34	Available Storage Capacity at Pump Stations (include pump sump and any storm water/emergency overflow tanks)					
	At Roslea Road at E250386, N326569	m^3	Unknown	Unknown		
	At 98 Ave at E250341, N326033	m^3	Unknown	Unknown		
	At Carn Dun at E249634, N325939	m^3	Unknown	Unknown		

1.35	Total Number of ***"Licenced Secondary Discharge Points and Stormwater Overflows"*** at pumping stations	Nr	0	0		
1.36	Total Number of ***"Emergency Overflow Points"*** at pumping stations	Nr	1	1		
1.37	What Screening or other mechanical devices are employed at the secondary discharge points or emergency overflows ?					
	At Roslea Road at E250386, N326569	Describe	Unknown	Unknown		
	At 98 Ave at E250341, N326033	Describe	Unknown	Unknown		
	At Carn Dun at E249634, N325939	Describe	Unknown	Unknown		
1.38	Water Quality at the receiving waters at each pumping station location					
1.38.1	Where the receiving water is a river - indicate the EPA Biological Rating of the Receiving Water for each secondary discharge point or emergency overflow at each pumping station (Particularly if there is more than one receiving water within the agglomeration)					
	At Roslea Road at E250386, N326569	Describe	Q3-Q4	Q3-Q4		
	At 98 Ave at E250341, N326033	Describe	Q3-Q4	Q3-Q4		
	At Carn Dun at E249634, N325939	Describe	Q3-Q4	Q3-Q4		
1.38.2	Where the receiving water is a coastal water indicate the Status of the Receiving Water for each secondary discharge point or emergency overflow at each pumping station (Particularly if there is more than one receiving water within the agglomeration)					
	At Pump Station 1 at E250386, N326569	Describe	N/A	N/A		
	At Pump Station 2 at E250341, N326033	Describe	N/A	N/A		
	At Pump Station 3 at E266008, N333459	Describe	N/A	N/A		
1.38.3	With reference to the pumping stations, for each secondary discharge point or emergency overflow detailed above, define if the receiving waters are sensitive in accordance with the Urban Wastewater Treatment Regulations as amended.					
	At Pump Station 1 at E250386, N326569		Not Listed	Not Listed		
	At Pump Station 2 at E250341, N326033		Not Listed	Not Listed		
	At Pump Station 3 at E266008, N333459		Not Listed	Not Listed		
1.38.4	With reference to the pumping stations, for each secondary discharge point or emergency overflow detailed above, are the receiving waters Protected Areas (designated or awaiting designation) .					
	At Pump Station 1 at E250386, N326569	Designation	N/A	N/A		
	At Pump Station 2 at E250341, N326033	Designation	N/A	N/A		
	At Pump Station 3 at E266008, N333459	Designation	N/A	N/A		
1.38.5	With reference to the pumping stations, for each secondary discharge point or emergency overflow detailed above, do the receiving waters have any other designations.					
	At Pump Station 1 at E250386, N326569	Designation	N/A	N/A		
	At Pump Station 2 at E250341, N326033	Designation	N/A	N/A		
	At Pump Station 3 at E266008, N333459	Designation	N/A	N/A		

1.39	Estimated Number of Private Pumping Stations within the agglomeration (not operated by the Local Authority)	Nr	1	1		
	Section 1.6 Reporting					
	Section 1.6.1 Reported Number of Sewer Related Complaints ('Complaint' as defined in the Discharge Licence)					
1.40	Number of Reported Complaints	Nr	3			
1.41	Number of Reported Complaints which have been rectified	Nr	3			
	Section 1.6.2 Reported/Recorded/Estimated Number of Secondary Discharges					
1.42	Number of Reported Secondary Discharges	Nr				
1.43	Number of Recorded Secondary Discharges	Nr	6			
1.44	Estimated Total Number of Secondary Discharges	Nr	6	0	0	0
	Section 1.6.3 Reported/Recorded/Estimated Number of Emergency Overflow Discharges from Pumping Stations					
1.45	Number of Reported Emergency Overflow Discharges	Nr	Unknown	Unknown		
1.46	Number of Recorded Emergency Overflow Discharges	Nr	Unknown	Unknown		
1.47	Estimated Total Number of Emergency Overflow Discharges	Nr	0	0	0	0
	Section 1.7 Operational Staff					
1.48	In the four boxes below, describe the extent of operation staff employed by the Local Authority to maintain and operate the sewer network and pumping stations *(The individual personnel shall not be named, only grade and level of training needs to be provided)*					
1.48.1	Caretaker 1 is responsible for the maintenance and operation of the Ballinode network and WWTP. The caretaker is also responsible for the Scotstown, Knockatallon and Tydavnet conglomerations.					
1.48.2	Caretaker operates under the supervision of a Line Manager Technician					
1.48.3	The Line Manager Technician is supervised by the Senior Executive Engineer					
1.48.4						
	Waste Water Works - Investment Details	**Unit**	2015	2016	2017	2018
	Section 1.8 Capital Investment works carried out since most recent report (including works not included on WSIP Programme or not WSIP funded)					
1.49	Sewers Upgraded or Replaced	m	0	0		
1.50	Sewers Rehabilitated	m	0	0		
1.51	Manholes Rehabilitated	Nr	0	0		
1.52	Local Repairs	Nr	0	0		
1.53	Total Length of sewers Upgraded, Replaced or Rehabilitated	m	0	0	0	0
1.54	Pumping Stations Operated by Local Authority Upgraded or Repaired	Nr	0	0		
1.55	WWTW operated by Local Authority Upgraded or Replaced	Nr	0	0		
1.56	In the following two cells describe the actual Capital Investment undertaken in the reporting period.					
1.56.1	Ferric dosing tank installed					
1.56.2	New ducting for above					
	Section 1.9 Licence Specified Improvements Works					
1.57	*2015 AER, Appendix 7.1*					
	Section 1.10 Other Updates Since Last Report					
1.58						
1.59						
1.60						
1.61						
1.62						

Section 2.1 Hydraulic Risk Assessment

Query	Description	Prompt	Risk Score	Short Commentary by the Local Authority	Comment or Action to be Taken
2.1	**Has a Hydraulic Performance Assessment been undertaken for the Sewer Network (e.g., Computer Model or other Engineering Design or Design Review) ?**	No	40	dentified, therefore a	If the answer is **No** assess the need and cost benefit of developing a computer model or engineering design assessment of the Sewer Network and complete Query 2.12. If the answer is **Yes** proceed to Queries 2.1.1 to 2.1.4 inclusive
2.1.1	If Answer to Query 2.1 is Yes, what % of the Network is covered by the hydraulic assessment ?	N/A	0		The % coverage of the Network by the Hydraulic Assessment can be estimated by the area assessed against the area served by the Network. ENTER "N/A" IF COMPUTER MODEL or DESIGN DOES NOT EXIST. DO NOT LEAVE BLANK OR ENTER "0".
2.1.2	How many years has it been since the **completion** of the hydraulic assessment ?	N/A	0		Select N/A response if no design assessment or design exists.
2.1.3	Are the outcomes of the Hydraulic Assessment being implemented ?	No	0		Select N/A response if no design assessment or design exists.
2.1.4	How many years has it been since the **outcomes** of the hydraulic assessment have been implemented ?	N/A	0		Select N/A response if no hydraulic performance assessment or design exists. For onging works select "less than 5".
2.2	**Has a Dynamic Computer Model been used to Assess the Hydraulic Performance of the Sewer Network ?**	No	10		Computer Model means a Hydroworks/Infoworks Model, Micro-Drainage Model or equivalent.
2.3	**Has a Manhole Survey been undertaken in accordance with WRc Documentation "Model Contract Document for Manhole Location Surveys and the Production of Record Maps" ?**	No	10		If the answer is **No** assess the need and cost benefit of undertaking a Manhole Survey and complete Query 2.12. If the answer is **Yes** proceed to Query 2.2.1
2.3.1	If yes, how many years has it been since the survey was undertaken or updated?	N/A	0		Select N/A if no Manhole Survey has been undertaken. Enter N/A value for Confidence Grade if Prompt Box is "N/A"
2.4	**Has a Flow Survey been undertaken in accordance with WRc Documentation "A Guide to Short Term Flow Surveys of Sewer Systems" and "Contract Documents for Short Term Sewer Flows" ?**	No	20		If the answer is **No** assess the need and cost benefit of undertaking a Flow Monitoring Survey and complete Query 2.12. . If answer is **Yes** Proceed to Query 2.5
2.5	**What was this Flow Survey Information Used for ?**				
2.5.1	To Determine the extent of Problematic Sewer Catchments	No	0		Select N/A if no Flow Survey has been undertaken.
2.5.2	To Verify a Computer or Mathematical Model of the Network	No	0		Select N/A if no Flow Survey has been undertaken.
2.6	**Have Performance Criteria been developed to determine the short, medium or long term capacity of the sewer network ?**	No	10		If the answer is **No** assess the Future Needs of the Sewer Network and complete Query 2.12. If the answer is **Yes** proceed to Query 2.8
2.7	**How many flood events resulting from surcharge in the network have occurred in the past 3 years?**	3 to 6	7		Flood events in this context means water/sewage backing up from the Network causing flooding of properties or causing disruption of traffic
2.8	**Are there deficiencies in performance criteria within the sewer network ?**	Yes	20	3 blockages in the past year	If the answer is **No**, Proceed to Query 2.10 and complete Query 2.12. If the answer is **Yes** proceed to Query 2.9
2.9	**Have the causes of these deficiencies in the Performance Criteria been identified and rectified ?**	Yes	0	Blocked sewer was jetted	If the answer is **No**, consider further examination of the hydraulic model (if available) and complete Query 2.12. If the answer is **Yes** proceed to Query 2.10
2.10	**Can the Hydraulic Assessment (defined in Query 2.1 above) be used to determine the benefit of reducing the contributory Impermeable Areas or extent of surface water contributions**	N/A	0		If the answer is **No**, consider further development of the Hydraulic Assessment (or model if available) and complete Query 2.12. If the answer is **Yes** proceed to Query 2.11
2.11	**Has an Impermeable Area Survey been carried out for the agglomeration or parts of the agglomeration ?**	No	10		If the answer is **No**, consider the need and cost benefit of undertaking an Impermeable Survey for parts of the agglomeration which are under hydraulic pressure and complete Query 2.12. .
	Total Risk Assessment Score (RAS)		127		
2.12	**Prepare Assessment of Needs & Sewer Upgrade Implementation Plan**	In the AER Attach Assessment of Needs and Rehabilitation Implementation Plan as separate documents			
2.13	In the AER provide Summary of Proposed Works or Direction to be taken to improve hydraulic efficiency				

Section 3.1 Environmental Risk Assessment					
Query	**Description**	**Prompt**	**Risk Score**	**Short Commentary by the Local Authority**	**Comment or Action to be Taken**
3.1	What Environmental or Discharge Quality Data is available with regard to the sewer network ?	largely anecdotal	20	?	Select N/A if no discharges, secondary discharges or overflows from network; if discharges do exist complete Query 3.12
3.1.1	Do trade effluents discharge to the sewer network?	Yes	20		If the answer is **No**, proceed to Query 3.1.2. If the answer is **Yes**, Proceed to Query 3.2
3.1.2	Are there Storm Water Overflows within the network ?	Yes	20		If the answer is **No**, proceed to Query 3.1.3. If the answer is **Yes,** Proceed to Query 3.3
3.1.3	Are there Secondary Discharges within the network (excluding Emergency Overflows at Pump Stations)?	Yes	20		If the answer is **No**, proceed to Query 3.1.4.
3.1.4	Is there any evidence that exfiltration is occurring from the network ?	No	0		If the answer is **No**, does all wastewater enter a wastewater treatment plant (insert summary details in the AER)? If **Yes**, Proceed to Query 3.6
3.2	If Answer to Query 3.1.1 is "Yes", what % of trade effluents have a licence to Discharge to the Public Sewer ?	>90%	0		Select N/A if answer to Query 3.1.1 is **No**. If not all trade effleunts are licenced, Local Authority should consider issuing and controlling such discharges under the appropriate Legislation.
3.2.1	Are all licenced trade Discharges compliant with their relevant licence and associated conditions	Yes	0		Answer N/A if none of the trade effluents are licenced. Answer No if this information is unknown. If the answer is **Unknown** or **No**, consider issuing a direction to the relevant Licencee. If the answer is **Yes,** no further action is needed.
3.2.2	If Answer to Query 3.2.1 is "No", state what % of Trade Discharges are NOT compliant with their relevant licence and associated conditions (where that non-compliance led to enforcement action)	N/A	0		Select **N/A** if answer to Query 3.2.1 is Yes. If N/A is selected as answer to Query 3.2.2
3.3	In accordance with the DoEHLG paper "Procedures & Criteria in relation to Storm Water Overflows", what % of storm water overflows in the system have been classified for their significance?	<25%	50		If the answer is **No,** consider a review of each discharge within the sewer network complete and Query 3.11. If the answer is **Yes**, proceed to Query 3. 6
3.4	Have samples from any Secondary Discharges within the system been analysed ?	No	30		Select N/A if no secondary discharges in system. If the answer to Query 3.4 is **No**, consider examining the quality of each secondary discharge within the sewer network complete Query 3.11. If the answer is **Yes**, proceed to Query
3.5	What percentage of discharges from the system are known to cause environmental pollution of the receiving waters ?	None	0		If the answer is greater than 50% then detail, in the AER, the Improvement Programme necessary to reduce this percentage.
3.6	In relation to possible exfiltration has a risk analysis of ground water contamination or pollution been undertaken ?	N/A	0		Select N/A if answer to Query 3.1.4 is NO. If the answer is **No**, consider undertaking ground water risk analysis and complete Query 3.12 If the answer is **Yes**, proceed to Query 3.6
3.6.1	If Answer to Query 3.6 is "Yes", have any groundwater aquifers been identified in the area of the Network and/or Discharge Points?	N/A	0		Select **N/A** if no risk analysis of groundwater contamination has been undertaken.
3.6.2	If Answer to Query 3.6.1 is "Yes", state the classification of groundwater aquifer identified in the area?	N/A	0		Select **N/A** if no risk analysis of groundwater contamination has been undertaken.
3.6.3	In relation to Query 3.6.1, is the aquifer used as a source for Public, Private or Group Water Supply Schemes?	N/A	0		Select **N/A** if no risk analysis of groundwater contamination has been undertaken.
3.7	Has an Impact Assessment of each Storm Water Overflow been undertaken in accordance with the DoEHLG paper "Procedures & Criteria in relation to Storm Water Overflows" including setting performance criteria?	No	40		If the answer is **No**, consider assessing the risk category of the receiving waters. If the answer is **Yes**, proceed to Query 3.8 and provide summary details of the assessment in the AER.
3.8	What percentage of storm water overflows comply with the performance criteria referred to in Query 3.7?	N/A	0		Select N/A if answer to Query 3.7 is **No** or if there are no SWOs in system. **(Risk Score is locked at 0 if no SWOs in system is stated in Agglomeration Details)**
3.9	Have the causes of these Capacity Deficiencies (storm water overflows & Secondary Discharges) been identified ?	No	15		Select N/A if answer to Query 3.7 is NO or if there are no SWOs in system. If the answer to Query 3.9 is **No**, consider further examination of the environmental model or assimilative model
		Total Risk Assessment Score (RAS)	**215**		
3.10	Prepare Assessment of Needs & Sewer Upgrade Implementation Plan	In the AER Attach Assessment of Needs and Rehabilitation Implementation Plan as separate documents			
3.11	Provide Summary Details (in the AER) of records upstream and downstream of licenced discharges with regard to Environmental Performance of the network. These details can be included as part of the AER submitted for the agglomeration.				

Section 4.1 Structural Risk Assessment

Query	Description	Prompt	Risk Score	Short Commentary by the Local Authority	Comment or Action to be Taken
4.1	Has a CCTV Survey been undertaken in accordance with WRc Documentation "Model Contract Document for Sewer Condition Inspections" and "Manual of Sewer Condition Classification" ?	No	10		If the answer is **No** assess the need and benefit of undertaking CCTV Survey. If **Yes** Proceed to Query 4.2
4.1.1	How many years has it been since the **completion** of the CCTV Survey?	N/A	0		If no CCTV has been undertaken, select "N/A" response
4.2	What was this CCTV Survey Information Used for?	N/A	10		Select N/A if answer to Query 4.1 is NO.
4.3	Has the CCTV Survey been used to Assess the Structural Condition of the Sewer Network or targeted sections of the Sewer Network?	No	5		If no CCTV has been undertaken, select "No" response. If the answer is **No** assess the need and benefit of undertaking an assessment of the Structural Condition of the Sewer Network. If the answer is **Yes** proceed to Q
4.4	Have Performance Criteria been developed to determine the short, medium or long term structural condition of the sewer network ?	No	5		If the answer is **No**, enter "unknown" in response to Queries 4.4.1 to 4.4.5; consider assessing the Future Needs of the Sewer Network. If the answer is **Yes** proceed to Queries 4
4.4.1	What % of the Total Sewer Length contains Collapsed or Imminent Collapse of Sewers (Grade 5)		0		Insert Percentage of Overall Network Length; If a sewer length contains a Grade 5 collapse, include the total length of that sewer in calcuating the %. If information is not available type "Unknown" into Prompt Box
4.4.2	What % of Total Sewer Length contains Sewers Likely to Collapse (Grade 4)		0		Insert Percentage of Overall Network Length; If a sewer length contains a Grade 4 condition, include the total length of that sewer in calcuating the %. If information is not available type "Unknown" into Prompt Box
4.4.3	What % of Total Sewer Length contains sewers with Further Possible Deterioration (Grade 3)		0		Insert Percentage of Overall Network Length; If a sewer length contains a Grade 3 deterioration, include the total length of that sewer in calcuating the %. If information is not available type "Unknown" into Prompt Box
4.4.4	What % of Total Sewer Length contains sewers with Minimal Collapse (Grade 2)		5		Insert Percentage of Overall Network Length; If a sewer length contains a Grade 2 feature, include the total length of that sewer in calcuating the %. If information is not available type "Unknown" into Prompt Box
4.4.5	What % of Total Sewer Length contains sewers of Acceptable Structural Condition (Grade 1)		5		Insert Percentage of Overall Network Length. If information is not available type "Unknown" into Prompt Box
If all % lengths are known, Check Total Length = 100%		**0%**	**10**		If answers to Queries 4.4.1, 4.4.2 or 4.4.3 are above a set level, the RAS for Query 4 is automitically set at the maximum of 140.
4.5	What % of the deficiencies, as detailed in Items 4.4.1, 4.4.2 and 4.4.3, have been rectified ?	N/A	35		Select N/A if answer to Query 4.4 is **No**. If the answer is **No**, Proceed to Query 4.6 If the answer is **Yes**, what monitoring is in place to ensure continued acceptance of structural condition? Proceed to Query 4.7
4.6	Have the causes of the Structural Deficiencies (Grades 3, 4 and 5) been identified or is there a Preventative Maintenance Programme in place?	N/A	0		If the answer is **No**, consider further examination of the sewer network, the structural loading conditions, gradients and possible H_2S Formation. If Yes completed Query 4.7
		Total Risk Assessment Score (RAS)	**75**		

4.7	Prepare Assessment of Needs & Sewer Rehabilitation Implementation Plan	In the AER Attach Assessment of Needs and Rehabilitation Implementation Plan as separate documents

Section 5.1 O&M Risk Assessment

Query	Description	Prompt	Risk Score	Short Commentary by the Local Authority	Comment or Action to be Taken
5.1	Are complaints of an environmental nature recorded and held in a central database?	Yes	0		Consider setting up Central Database for Complaints
5.2	Is there an emergency response procedure in place?	No	20	?	Consider setting up target response times for dealing with Complaints
5.3	What has been the highest frequency of flooding in the network due to hydraulic inadequacy, over the past 5 years?	3 times/yr	12	Blocked sewers causing discharge	Refers to flooding from the Network only, not natural flooding from rivers/streams/high tides. Select the highest number of events in any 12 month period.
5.4	What has been the highest frequency of flooding in the network due to operational causes over the past 5 years?	None	0	?	Refers to flooding from the Network only, not natural flooding from rivers/streams/high tides. Select the highest number of events in any 12 month period.
5.5	What has been the highest frequency of surcharging of critical sewers in the network, over the past 5 years?	3 times/yr	8	Blocked sewers causing discharge	Select the highest number of events in any 12 month period.
5.6	What has been the highest frequency of reportable incidents in the network, over the past 5 years?	4 times/yr	15	Problem with valve in storm tank caused some untreated storm flow to	Select the highest number of events in any 12 month period.
5.7	What has been the highest frequency of reportable incidents due to discharges, for whatever reason, from Pumping Station Emergency Overflows in the network, over the past 5 years?	None	0		Select the highest number of events at any given Pumping Station in any 12 month period.
5.8	What has been the highest frequency of blockages in sewers in the network over the past 5 years?	unknown	20	3 instances of blockages in the last year	Select the highest number of events per km of sewer network in any 12 month period.
5.9	What has been the highest frequency of collapses in sewers in the network over the past 5 years?	None	0		Select the highest number of events in any 12 month period.
5.10	What has been the highest frequency of bursts in rising mains in the network over the past 5 years?	None	0		Select the highest number of events in any 12 month period.
	Total Risk Assessment Score (RAS)		75		

5.11	Prepare Up Dated Operational and Maintenance Plan	

Section 6.1 Summary of Risk Assessment Scores

Element	Risk Assessment Score	Risk Category	% Risk Score	Maximum Risk Score
Section 2.1 Hydraulic Risk Assessment	127	High Risk	85%	150
Section 3.1 Environmental Risk Assessment	215	Low Risk	43%	500
Section 4.1 Structural Risk Assessment	75	Medium Risk	50%	150
Section 5.1 O&M Risk Assessment	75	Low Risk	38%	200
Total RAS for Network	492	High Risk	49%	1000

If the total RAS is greater than 750, or if any of the individual RASs are greater than 75% of the Maximum Available Score, the Risk category for the Network is graded "High Risk"

Appendix 7.4 Storm water overflow assessment

Storm Water Overflow Assessment

Agglomeration Name:	**Clones and Environs**
Licence Register No.	**D0206-01**

Table of Contents

1 Introduction

This report has been prepared for D0206-01, Clones and Environs, in County Monaghan in accordance with the requirements of Condition 3.6 of the wastewater discharge licence for the agglomeration. This report identifies storm water overflows within the agglomeration and assesses the compliance of the storm water overflows with the criteria set out in the DoEHLG document on *'Procedures and Criteria in Relation to Storm Water Overflows', 1995.*

There are 3Nr. SWOs within the agglomeration on the licence and one identified during the site visit. These are listed in Table 1 and shown in Figure 1.

Table 1: Storm Water Overflows in the Agglomeration

Licence Code	**Discharge Location**		**Receiving Water Name and WFD Code**	**WFD Status of Receiving Water**	**Other designation of receiving water**
	Easting	Northing			
SW002	250562	325312	Unnamed tributary of the Legarhill River	Moderate	
SW003	250510	325336	Unnamed tributary of the Legarhill River	Moderate	
SW004	250356	325962	Unnamed tributary of the Legarhill River	Moderate	
SW0PS (Not on licence)	250385	326569	Unnamed tributary of the Legarhill River	Moderate	

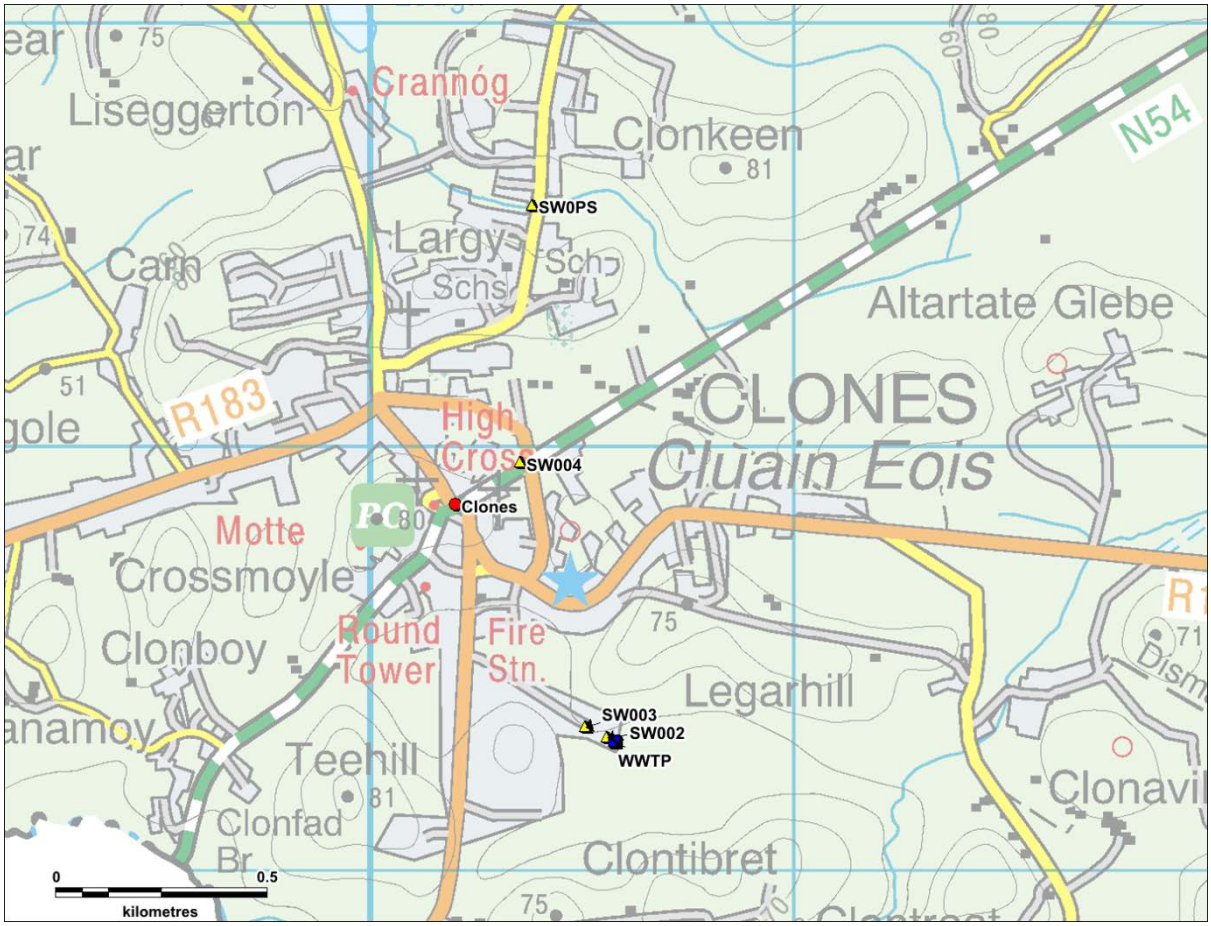


Figure 1: Locations of SWO's in Clones

A storm water overflow assessment is required to comply with the requirements of the wastewater discharge licence condition as detailed below.

Condition 3.6 - Storm Water Overflows

3.6 *Storm water overflows shall be as specified in Schedule A.3: Storm Water Overflows, of this licence. The licensee shall carry out an investigation to identify any additional storm water overflows within the waste water works as part of the programme of improvements. The Agency shall be notified in writing of any additional storm water overflows not listed in Schedule A.3. All storm water overflows shall be in compliance with the criteria for storm water overflows, as set out in the DoEHLG Procedures and Criteria in Relation to Storm Water Overflows', 1995, and any other guidance as may be specified by the Agency.*

2 Storm Water Overflow Assessment

2.1 Description of SWOs

Two of the storm water overflows (SWO) on the wastewater discharge licence are loacted at the waste water treatment plant (WWTP). SW002 is located at the final effluent discharge location into the Legarhill River. SW002 consists of a 300mm diameter discharge pipe. SW003 is located adjacent the inlet channel to the WWTP on Scothouse Road. Excess overflow discharges to the nearby watercourse via an unscreened high level 300mm diameter pipe. SW004 is located adjacent a

pumping station at 98 Avenue pump station. The inlet within the pumping station could not be accessed (over 6m deep). The outlet is presumed to discharge into a small stream via an underground culvert at the junction of the R183 and the N54 at Barry McGuigan Park but this could also not be accessed.

The caretaker also noted an additional overflow from a pumping station on the Roslea Road (Approximately located at 250385E, 326569N) that is currently not on the Licence. This is referenced as SW0PS in Table 1. The SWO is only activated when there is failure of the pumps. An asset survey should be carried out on this overflow to assess its location, operation and capacity.

A flow meter was installed at SW002 in July 2016. The reading on the flow meter was 1440m^3. The inlet manhole for SW003 was not located on the day of inspection. Therefore, an assessment of the manhole could not be carried out. However, the caretaker noted that regular flow is not observed to be discharging the SWO pipe. Access to SW004 was not possible at the time of inspection. The SWO discharges via a culvert into an unanamed tributary of the Legarhill River.

The WWTP has a 58m^3 storm water storage tank. The storage tank was empty on the day of inspection. Cracks in the concrete walls of the storage tank were observed.

According to the caretaker of the WWTP:

- No complaints are received in relation to pollution.
- The SWOs do not operate in dry weather flow conditions.

Photo 1 – SW002 discharging adjacent primary discharge

Photo 2 – SW003 adjacent prior to the WWTP inlet works

Photo 3 – 58m^3 storm water holding tank (2 compartments)

2.2 Assessment of Operating Criteria of SWOs

The following criteria for each SWO on the network have been examined in accordance with the assessment criteria set out in *Procedures and Criteria in Relation to Storm Water Overflows* in order to determine possible capacity constraints.

1. Does the SWO cause significant visual or aesthetic impact and public complaints
2. Does the SWO cause deterioration in water quality in the receiving water (i.e. is there a deterioration in ecological quality status attributable to the SWO)
3. Does the SWO gives rise to failure in meeting the requirements of national regulations on foot of EU Directives (e.g. bathing water quality standards, shellfish water quality standards, Water Framework Directive status etc.),
4. Does the SWO operate in dry weather.

Table 2: Assessment of Operating Criteria

CSO Ref	Causes significant visual or aesthetic impact and public complaints.	Causes deterioration in water quality in the receiving water	Gives rise to failure in meeting the requirements of national Regulations on foot of EU Directives.	Operates in dry weather	Compliant / Non-Compliant
SW002	No	Unknown	Unknown	No	Compliant
SW003	No	Unknown	Unknown	No	Compliant
SW004	No	Unknown	Unknown	No	Compliant

2.3 Assessment of Design Criteria of SWOs

2.3.1 Compliance with Formula A

Formula A is used in the *Procedures and Criteria in Relation to Storm Water Overflows* as follows:-

Formula A = DWF + 1.36P + 2E (m^3/day)

P = design domestic population contributing to SWO (to be estimated)

E = design industrial effluent flow (estimated to be 20% of domestic PE unless otherwise by LA)

*DWF = Dry weather flow m^3/day (dry weather flow of total PE, based on **0.175m^3**/PE/day)*

Formula A has been calculated for SW002 only as the spill settings or operation of the remaining 3 overflows could not be assessed.

SW002

According to the Annual Environmental Report the design loading for the Clones agglomeration is 4500PE. The current loading for the plant is 2056PE. Formula A is calculated for the design loading below:

Total Design PE = 4500PE

E (Non-domestic load) = 4500PE * 20% = 900PE

P (Domestic) = 4500PE – 900PE = 3600PE

DWF = 4500PE * 0.175 m^3/PE/day = 787.50 m^3/day

Formula A (Design) = 787.50 m^3/day + 1.36(3600) + 2(900)
= 7483.50 m^3/day
= 86.61 l/s

Design DWF = 1022 m^3/day

Design 3DWF = 3066 m^3/day

Formula A (Design) – 3DWF = 7483.50 - 3066 m^3/day
= 4417.50 m^3/day

Storm tank storage requirements = 368.12 m^3 for 2 hours storage

Storm storage vs storm inflow = 58 m^3 / 368.12 m^3

= 0.16 times the required storage

2.3.2 Significance of Spill

Monitoring information in relation to frequency and duration of overflows is only available as given in Section 2.1.

The significance of overflows to inland freshwaters has been assessed as follows:

Low Significance: >8:1 Dilutions in Receiving water (average SWO DWF / 95%ile river flow) No interaction with other discharges
Medium Significance - only if all these criteria apply. Dilution < 8 : 1 Limited or no interaction with other discharges > 2,000 population equivalent Cyprinid fishery
High Significance - only if all these criteria apply. Dilution < 2 : 1 Interaction with other discharges > 10,000 population equivalent Cyprinid or salmonid fishery

Table 3: Assessment of Significance

CSO Ref	Dilution	PE Range	Designation of Receiving Water	Significance
SW002	Not available	2,000 – 10,000	None	Low
SW003	Not available	2,000 – 10,000	None	Low
SW004	N/A	> 2,000	None	Low

2.4 Assessment of Requirement for Storage

The necessity for a storm tank within the sewer network has been assessed based on available dilution as detailed in Table 3 (from Procedures and Criteria in Relation to Storm Water Overflows) included as Table 4 below. The requirement for a storm tank at a wastewater treatment plant shall be based on an overflow setting of 3 DWF.

Table 4 – SDD Method Recommended Storage at Overflows[1]

Dilution Factor[2]	Overflow Setting	Storage Tank
> 8	Formula A	None
> 6	Formula A + 455 P or Formula A	None 40 l/PE
> 4	Formula A	40 l/PE
> 2	Formula A	80 l/PE
> 1	Formula A	120 l/PE

1. Table 3 extracted from Procedures and Criteria in Relation to Storm Water Overflows
2. Dilution factor = 95%ile river flow / average DWF

Table 5 – Stormwater Storage within Agglomeration

CSO Ref	Dilution Factor[1]	Required Overflow Setting (l/s)	Actual Overflow Setting (l/s)	Required Storage Tank Volume (m^3)	Actual Storage Tank Volume (m^3)	Compliant / Non-Compliant
SW002	N/A	Unknown	Unknown	368.12	58	Non-compliant
SW003	N/A	Unknown	Unknown	Unknown	Unknown	Non-compliant
SW004	N/A	Unknown	Unknown	Unknown	Unknown	Non-compliant

2. Dilution factor = average DWF / 95%ile river flow

3 Remedial Measures to Ensure Compliance

3.1 Specified Improvement and Improvement Programme Works

There are no specified improvement works or improvement programmes relating to stormwater overflows.

3.2 Additional Measures

The additional measures required, identified in this report are as follows:

- An asset survey should be carried out on SW0PS to assess its location, operation and capacity.
- An asset survey should be carried out on SW004 to assess its location, operation and capacity.
- Flow monitoring should be carried out at SW003 to assess its operation.
- Additional storm tank volume to be supplied at WWTP for SW002

Appendix 7.5 Priority substances assessment

Priority Substances Assessment

Agglomeration Name:	**Clones**
Licence Register No.	**D0206**

Table of Contents

1 Introduction

This report has been prepared for D0206-01, Clones, in County Monaghan in accordance with the requirements of Condition 4.11 of the wastewater discharge licence for the agglomeration.

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 of all licensed and unlicensed industrial or trade effluent discharges, leachate discharges and other imports are included in Table 2.1 below. "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)
Feldhues	Production, processing and preserving of meat and meat products	Section 16	Yes	No
McAdam Foods	Production, processing and preserving of meat and meat products	Section 16	Yes	No

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	Monitoring Undertaken (Yes / No)
McAdam Foods, Feldhues	Priority substances associated with the sector: Napthlene, Trichloroethylene, Cadmium, Hexachlorocylhexane, Chromium, Cypermethrin, Toluene, Xylene	No

Hairdressers	Priority substances associated with the sector Nickel Cadmium	No
Garages and Filling Stations	Priority substances associated with the sector Benzene, Di (2-ethylhexyl) phthalate (DEHP), Lead and its compounds, Naphthalene, Nickel and its compounds, Cadmium and its compounds, Mercury and its compounds, Chromium (III), Copper, Toluene, Xylenes Zinc	No

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 includes 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 programme

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 source of the data.

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 consultation process with the EPA is being undertaken by Irish Water to establish appropriate levels of monitoring for priority and dangerous substances nationally, taking into account the particular requirements of the Water Framework Directive. 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.

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.

No parameters have been identified as potentially being higher than the required EQS following dilution therefore no impact on the receiving waters is anticipated.

Based on the assessment carried out it is not considered that any further sampling or analysis is required.

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	Screening Analysis
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)	N/A
Does the assessment identify that priority substances may be impacting the receiving water?	No
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: 0.003m^3/sec

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	<0.1	24 hr composite sample	11/08/16	No	No
2	Carbon tetrachloride	VOCs	12	12	<0.5	24 hr composite sample	11/08/16	No	No
3	1,2-Dichloroethane	VOCs	10	10	<0.1	24 hr composite sample	11/08/16	No	No
4	Dichloromethane	VOCs	20	20	<5	24 hr composite sample	11/08/16	No	No
5	Tetrachloroethylene	VOCs	10	10	<0.1	24 hr composite sample	11/08/16	No	No
6	Trichloroethylene	VOCs	10	10	<0.1	24 hr composite sample	11/08/16	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)
7	Trichlorobenzenes	VOCs	0.4	0.4	Not measured (NM)	24 hr composite sample	11/08/16		
8	Trichloromethane	VOCs	2.5	2.5	Not measured	24 hr composite sample	11/08/16		
9	Xylenes (all isomers)	VOCs	10	10	<0.5	24 hr composite sample	11/08/16	No	No
10	Ethyl Benzene	VOCs	n/a	n/a	<0.5	24 hr composite sample	11/08/16	No	No
11	Toluene	VOCs	10	10	<0.5	24 hr composite sample	11/08/16	No	No
12	Naphthlene[1]	PAHs	2	2	<2.0	24 hr composite sample	11/08/16	No	No
13	Fluoranthene[1]	PAHs	0.0063	0.0063	<1.0	24 hr composite sample	11/08/16	No	No
14	Benzo[k]fluoranthene[2]	PAHs	MAC of 0.017	MAC of 0.017	<1.0	24 hr composite sample	11/08/16	No	No

[1] The EQS for these substances shall take effect from 22 December 2015
[2] 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)
15	Benzo[g,h,i]perylene[2]	PAHs	MAC of 8.2 x 10^{-3}	MAC of 8.2 x 10^{-4}	<1.0	24 hr composite sample	11/08/16	No	No
16	Indeno[1,2,3-c,d]pyrene[2]	PAHs			<1.0	24 hr composite sample	11/08/16	No	No
17	Benzo[b]fluoranthene[2]	PAHs	MAC of 0.017	MAC of 0.017	<1.0	24 hr composite sample	11/08/16	No	No
18	Benzo[a]pyrene	PAHs	1.7 x 10^{-4}	1.7 x 10^{-4}	<1.0	24 hr composite sample	11/08/16	No	No
19	Di(2-ethylhexyl)phthalate (DEHP)	Plasticiser	1.3	1.3	<1.0	24 hr composite sample	11/08/16	No	No
20	Isodrin[3]	Pesticides	∑=0.01	∑=0.005	<6	24 hr composite sample	11/08/16	No	No
21	Dieldrin[3]	Pesticides			<0.5	24 hr composite sample	11/08/16	No	No
22	Diuron	Pesticides	0.2	0.2	<0.16	24 hr composite sample	11/08/16	No	No
23	Isoproturon	Pesticides	0.3	0.3	<0.17	24 hr	11/08/16	No	No

[3] ∑ 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)
						composite sample			
24	Atrazine	Pesticides	0.6	0.6	<0.02	24 hr composite sample	11/08/16	No	No
25	Simazine	Pesticides	1	1	<0.022	24 hr composite sample	11/08/16	No	No
26	Glyphosate	Pesticides	60	-	Not measured				
27	Mecoprop	Pesticides	n/a	n/a	<0.04	24 hr composite sample	11/08/16	No	No
28	2,4-D	Pesticides	n/a	n/a	<0.05	24 hr composite sample	11/08/16	n/a	n/a
29	MCPA	Pesticides	n/a	n/a	<0.05	24 hr composite sample	11/08/16	n/a	n/a
30	Linuron	Pesticides	0.7	0.7	<0.18	24 hr composite sample	11/08/16	No	No
31	Dichlobenil	Pesticides	n/a	n/a	<4	24 hr composite sample	11/08/16	n/a	n/a
32	2,6-Dichlorobenzamide	Pesticides	n/a	n/a	Not measured			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)
33	PCBs	PCBs	n/a	n/a	BLD (below limit of detection)	24 hr composite sample	11/08/16	n/a	n/a
34	Phenols (as Total C)	Phenols	8	8	<0.1	24 hr composite sample	11/08/16	No	No
35	Lead	Metals	1.2	1.3	<0.9	24 hr composite sample	11/08/16	No	No
36	Arsenic	Metals	25	20	16.1	24 hr composite sample	11/08/16	No	No
37	Copper	Metals	5 or 30[2]	5	0.024	24 hr composite sample	11/08/16	No	No
38	Zinc	Metals	8 or 50 or 100[3]	40	13	24 hr composite sample	11/08/16	No	No
39	Cadmium	Metals	0.08 or 0.09 or 0.15 or 0.25[4]	0.2	<0.3	24 hr composite sample	11/08/16	No	No
40	Mercury	Metals	MAC of 0.07	MAC of 0.07	<0.06	24 hr composite sample	11/08/16	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)
41	Chromium Total	Metals	3.4	0.6	<3	24 hr composite sample	11/08/16	No	No
42	Selenium	Metals	n/a	n/a	<3	24 hr composite sample	11/08/16	n/a	n/a
43	Antimony	Metals	n/a	n/a	0.5	24 hr composite sample	11/08/16	n/a	n/a
44	Molybdenum	Metals	n/a	n/a	<3	24 hr composite sample	11/08/16	n/a	n/a
45	Tin	Metals	n/a	n/a	<3	24 hr composite sample	11/08/16	n/a	n/a
46	Barium	Metals	n/a	n/a	49	24 hr composite sample	11/08/16	n/a	n/a
47	Boron	Metals	n/a	n/a	<0.5	24 hr composite sample	11/08/16	n/a	n/a
48	Cobalt	Metals	n/a	n/a	<3	24 hr composite sample	11/08/16	n/a	n/a
49	Vanadium	Metals	n/a	n/a	<3	24 hr composite sample	11/08/16	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)
50	Nickel	Metals	4	8.6	3.3	24 hr composite sample	11/08/16	No	No
51	Fluoride	General	500	1,500	0.5	24 hr composite sample	11/08/16	No	No
52	Chloride	General	n/a	n/a	88	24 hr composite sample	11/08/16	n/a	n/a
53	TOC	General	n/a	n/a	10.97	n/a	n/a	n/a	n/a
54	Cyanide	General	10	10	<9	24 hr composite sample	11/08/16	No	No
	Conductivity	General	n/a	n/a	882	24 hr composite sample	11/08/16	n/a	n/a
	Alkalinity(mg/l $CaCO_3$)	General	n/a	n/a	Not measured			n/a	n/a
	pH	General	n/a	n/a	8.4	24 hr composite sample	11/08/16	n/a	n/a

Notes:

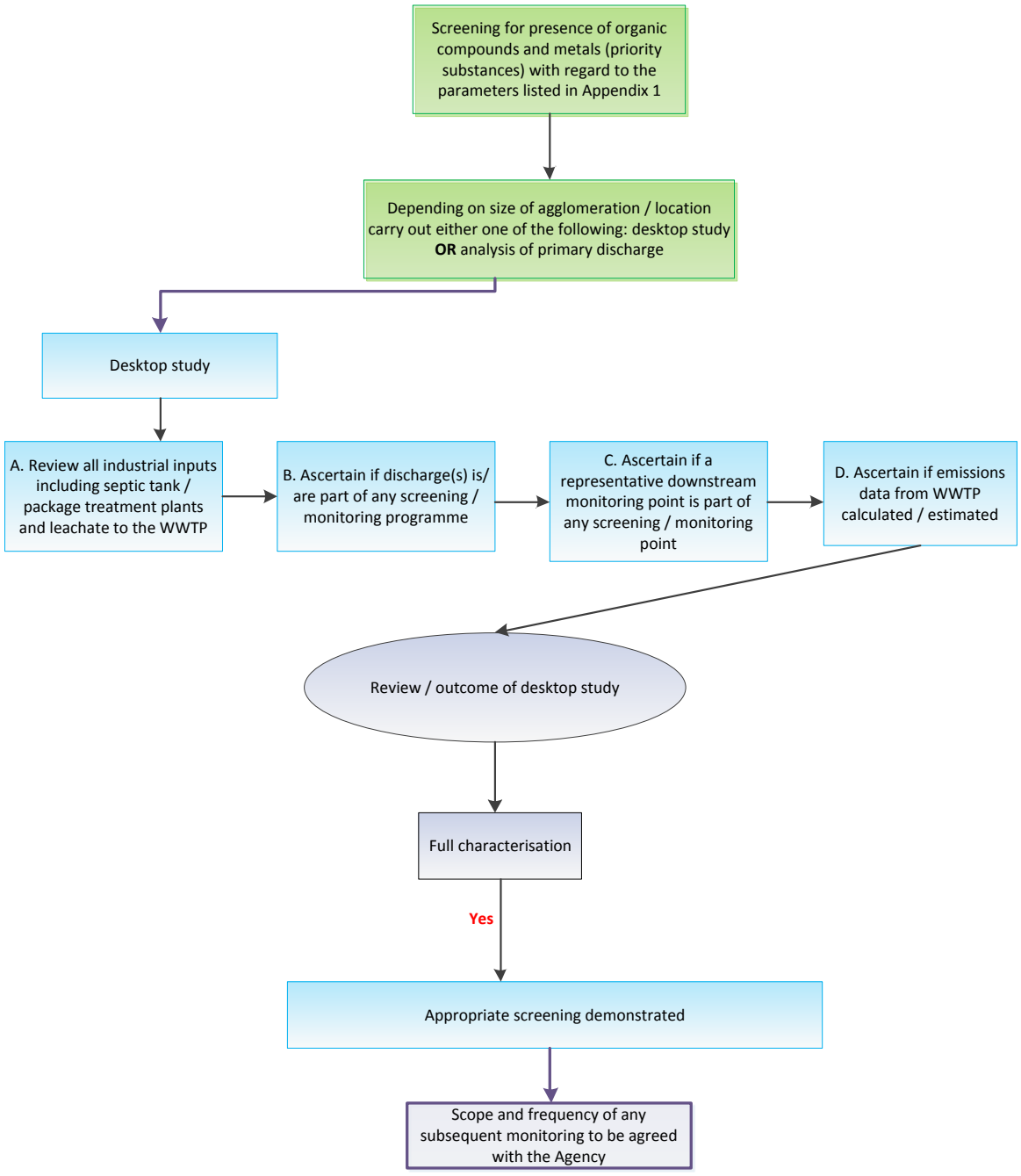
1. Where measured values are available these should be used instead of estimated values from PRTR tool.
2. In the case of Copper the value 5 applies where the water hardness measured in mg/l $CaCO_3$ is less than or equal to 100; the value 30 applies where the water hardness exceeds 100 mg/l $CaCO_3$. 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.

Full Characterisation



Appendix 3 – Receiving Waters Priority Substance Data

No.	Compound	Group of compounds	AA-EQS Inland SW (µg/l)	Measured /Estimated Conc. (µg/l)[1]	Data Source [Sample / PRTR / Other (state)]	Sample Date (if applicable)
1	Benzene	VOCs	10	<0.1	Downstream grab sample	11/08/16
2	Carbon tetrachloride	VOCs	12	<0.5	Downstream grab sample	11/08/16
3	1,2-Dichloroethane	VOCs	10	<0.1	Downstream grab sample	11/08/16
4	Dichloromethane	VOCs	20	<5	Downstream grab sample	11/08/16
5	Tetrachloroethylene	VOCs	10	<0.1	Downstream grab sample	11/08/16
6	Trichloroethylene	VOCs	10	<0.1	Downstream grab sample	11/08/16
7	Trichlorobenzenes	VOCs	0.4	Not measured	Downstream grab sample	11/08/16
8	Trichloromethane	VOCs	2.5	Not measured	Downstream grab sample	11/08/16
9	Xylenes (all isomers)	VOCs	10	<0.5	Downstream grab sample	11/08/16
10	Ethyl Benzene	VOCs	n/a	<0.5	Downstream grab sample	11/08/16
11	Toluene	VOCs	10	<0.5	Downstream grab sample	11/08/16
12	Naphthlene[4]	PAHs	2	<0.010	Downstream grab sample	11/08/16
13	Fluoranthene[1]	PAHs	0.0063	<0.010	Downstream grab sample	11/08/16
14	Benzo[k]fluoranthene[5]	PAHs	MAC of 0.017	<0.010	Downstream grab sample	11/08/16
15	Benzo[g,h,i]perylene[2]	PAHs	MAC of 8.2 x 10^{-3}	<0.010	Downstream grab sample	11/08/16
16	Indeno[1,2,3-c,d]pyrene[2]	PAHs		<0.005	Downstream grab sample	11/08/16
17	Benzo[b]fluoranthene[2]	PAHs	MAC of 0.017	<0.010	Downstream grab sample	11/08/16
18	Benzo[a]pyrene	PAHs	1.7 x 10^{-4}	<0.003	Downstream grab sample	11/08/16
19	Di(2-ethylhexyl)phthalate	Plasticiser	1.3	NM		

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

No.	Compound	Group of compounds	AA-EQS Inland SW (µg/l)	Measured /Estimated Conc. (µg/l)[1]	Data Source [Sample / PRTR / Other (state)]	Sample Date (if applicable)
	(DEHP)					
20	Isodrin[6]	Pesticides	∑=0.01	<4	Downstream grab sample	11/08/16
21	Dieldrin[3]	Pesticides		<4	Downstream grab sample	11/08/16
22	Diuron	Pesticides	0.2	0.029	Downstream grab sample	11/08/16
23	Isoproturon	Pesticides	0.3	<0.005	Downstream grab sample	11/08/16
24	Atrazine	Pesticides	0.6	<0.005	Downstream grab sample	11/08/16
25	Simazine	Pesticides	1	<0.005	Downstream grab sample	11/08/16
26	Glyphosate	Pesticides	60	8.099	Downstream grab sample	11/08/16
27	Mecoprop	Pesticides	n/a	0.019	Downstream grab sample	11/08/16
28	2,4-D	Pesticides	n/a	0.006	Downstream grab sample	11/08/16
29	MCPA	Pesticides	n/a	<0.05	Downstream grab sample	11/08/16
30	Linuron	Pesticides	0.7	<0.005	Downstream grab sample	11/08/16
31	Dichlobenil	Pesticides	n/a	<2	Downstream grab sample	11/08/16
32	2,6-Dichlorobenzamide	Pesticides	n/a	NM		
33	PCBs	PCBs	n/a	BLD (below limit of detection)	Downstream grab sample	11/08/16
34	Phenols (as Total C)	Phenols	8	<0.1	Downstream grab sample	11/08/16
35	Lead	Metals	1.2	<0.3	Downstream grab sample	11/08/16
36	Arsenic	Metals	25	6	Downstream grab sample	11/08/16
37	Copper	Metals	5 or 30[2]	0.005	Downstream grab sample	11/08/16
38	Zinc	Metals	8 or 50 or 100[3]	4.9	Downstream grab sample	11/08/16
39	Cadmium	Metals	0.08 or 0.09 or 0.15 or 0.25[4]	<0.1	Downstream grab sample	11/08/16
40	Mercury	Metals	MAC of 0.07	0.02	Downstream grab sample	11/08/16

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

No.	Compound	Group of compounds	AA-EQS Inland SW (µg/l)	Measured /Estimated Conc. (µg/l)[1]	Data Source [Sample / PRTR / Other (state)]	Sample Date (if applicable)
41	Chromium Total	Metals	3.4	<1.0	Downstream grab sample	11/08/16
42	Selenium	Metals	n/a	0.7	Downstream grab sample	11/08/16
43	Antimony	Metals	n/a	0.3	Downstream grab sample	11/08/16
44	Molybdenum	Metals	n/a	<1	Downstream grab sample	11/08/16
45	Tin	Metals	n/a	<1	Downstream grab sample	11/08/16
46	Barium	Metals	n/a	48.7	Downstream grab sample	11/08/16
47	Boron	Metals	n/a	0.02	Downstream grab sample	11/08/16
48	Cobalt	Metals	n/a	<1	Downstream grab sample	11/08/16
49	Vanadium	Metals	n/a	<1	Downstream grab sample	11/08/16
50	Nickel	Metals	4	2.5	Downstream grab sample	11/08/16
51	Fluoride	General	500	0.4	Downstream grab sample	11/08/16
52	Chloride	General	n/a	52	Downstream grab sample	11/08/16
53	TOC	General	n/a	10.99	n/a	n/a
54	Cyanide	General	10	11	Downstream grab sample	11/08/16
55	Conductivity	General	n/a	747	Downstream grab sample	11/08/16
56	Alkalinity (mg/l $CaCO_3$)	General	n/a	299	Downstream grab sample	11/08/16
57	pH	General	n/a	8.6	Downstream grab sample	11/08/16