Annual Environmental Report

2018

Lismore

D0176-01

TABLE OF CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2018 AER

This Annual Environmental Report has been prepared for D0176-01, Lismore, in Waterford in accordance with the requirements of the wastewater discharge licence for the agglomeration. Specified reports are included as an appendix to the AER as follows:

1.1 Licence specific reporting included in AER

Assessment / Report	Included in AER
There is no Licence Specific Reports included in the AER.	

1.2 Treatment Type

The agglomeration is served by a wastewater treatment plant Lismore WWTP with a Plant Capacity PE of 3000. The treatment process includes the following:

1.2.1 Lismore WWTP

Treatment type	Yes / No	Details
Preliminary Treatment	Yes	Inlet Screens
Primary Treatment	No	
Secondary Treatment	Yes	Conventional Activated Sludge
Nutrient Removal	Yes	Ferric Dosing
Tertiary Treatment	No	

The overall compliance of the final effluent with the Emission Limit Values (ELVs) is shown below. More detailed information on the below ELV's can be found in Section 2.2 Discharges from the agglomeration.

1.3 ELV Overview

1.3.1 Lismore WWTP

Compliance Status	
Were all parameters compliant for Lismore WWTP treatment plant	Yes
Where noncompliant see table 2.2.1 for details of parameters	

1.4 Sludge Removal

The amount of sludge removed from the wastewater treatment plant is shown below along with the transported destination of the sludge from the treatment plant.

Treatment Plant	Sludge type	Quantity	Unit	% Dry Solids	Destination
Lismore WWTP	Cake Sludge	125.25	Weight (Tonnes)	15.23	Dunagrvan WWTP
Lismore WWTP	Liquid Sludge	241.24	Weight (Tonnes)	4.9	Dungarvan WWTP

Annual Statement of Measures

No capital works were completed in 2018.

2 MONITORING REPORTS SUMMARY

2.1 Summary report on monthly influent monitoring

A summary of influent monitoring for the treatment plant is presented in below. This monitoring is primarily undertaken in order to determine the overall efficiency of the plant in removing pollutants from the raw wastewater.

2.1.1 Influent Monitoring Summary - Lismore WWTP

Parameters	Number of Samples	Annual Max	Annual Mean
Total Phosphorus (as P) mg/l	11	13.2	3.65
COD-Cr mg/l	11	4064	530.05
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	11	1284	174.12
Suspended Solids mg/l	11	3044	296.59
Total Nitrogen mg/l	11	129	42.69
Hydraulic Capacity	0	2231	767

If other inputs in the form of sludge / leachate are added to the WWTP then these are included in Section 3.5 if applicable

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 tretament plant allows for peak values and therefore the peak loads have not impacted on compliance with Emission Limit Values.

2.2 Discharges from the agglomeration

2.2.1 Effluent Monitoring Summary - Lismore WWTP

Parameter	WWDL ELV (Schedule A)	ELV with Condition 2 Interpretation included Note 1	Interim % reduction from influent concentration	Number of sample results	Number of exceedences	Number of with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
Benzo(a)pyrene µg/l	0	0	0	2	0	0	0.01	Pass
Barium - unfiltered µg/l	0	0	0	2	0	0	6.3	Pass
1,2,4-Trichlorobenzene µg/l	0	0	0	2	0	0	5	Pass
Ammonia-Total (as N) mg/l	5	6	0	11	0	0	0.17	Pass
Benzo(g,h,i)perylene µg/l	0	0	0	2	0	0	0.01	Pass
Acenaphthylene µg/l	0	0	0	2	0	0	0.01	Pass
alpha BHC / Alpha-HCH µg/l	0	0	0	2	0	0	1.5	Pass
Chloride mg/l	0	0	0	2	0	0	88	Pass
Cadmium - filtered mg/l	0	0	0	1	0	0	0	Pass
Calcium - filtered mg/l	0	0	0	2	0	0	98.9	Pass
Diuron µg/l	0	0	0	2	0	0	0.06	Pass
Linuron µg/l	0	0	0	2	0	0	0.03	Pass
Lead - unfiltered µg/l	0	0	0	2	0	0	0.45	Pass
Isoproturon µg/l	0	0	0	2	0	0	0.04	Pass

Parameter	WWDL ELV (Schedule A)	ELV with Condition 2 Interpretation included Note 1	Interim % reduction from influent concentration	Number of sample results	Number of exceedences	Number of with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
Mecoprop µg/l	0	0	0	2	0	0	0.03	Pass
Fluorene µg/l	0	0	0	2	0	0	0.01	Pass
Naphthalene µg/l	0	0	0	2	0	0	0.01	Pass
Selenium - unfiltered µg/l	0	0	0	2	0	0	1.5	Pass
Simazine µg/l	0	0	0	2	0	0	0.01	Pass
Zinc - filtered mg/l	0	0	0	1	0	0	0	Pass
Vanadium - filtered µg/l	0	0	0	2	0	0	1.5	Pass
1,2,4-Trimethylbenzene µg/l	0	0	0	2	0	0	5	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	20	40	0	11	0	0	1.21	Pass
Benzene µg/l	0	0	0	2	0	0	0.05	Pass
Antimony - unfiltered µg/l	0	0	0	2	0	0	0.8	Pass
Cadmium - unfiltered µg/l	0	0	0	1	0	0	0	Pass
COD-Cr mg/l	125	250	0	11	0	0	11.34	Pass
Boron - unfiltered µg/l	0	0	0	1	0	0	0	Pass

Parameter	WWDL ELV (Schedule A)	ELV with Condition 2 Interpretation included Note 1	Interim % reduction from influent concentration	Number of sample results	Number of exceedences	Number of with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
Cyanide µg/l	0	0	0	2	0	0	1	Pass
Dichlobenil µg/l	0	0	0	2	0	0	1	Pass
Chromium - filtered mg/l	0	0	0	1	0	0	0	Pass
Chloroform µg/l	0	0	0	2	0	0	0.5	Pass
Carbon Tetrachloride µg/l	0	0	0	2	0	0	0.25	Pass
Magnesium - filtered mg/l	0	0	0	2	0	0	6.8	Pass
Hexachlorobenzene µg/l	0	0	0	2	0	0	1	Pass
MCPA µg/l	0	0	0	2	0	0	0.03	Pass
meta + para-Xylene µg/l	0	0	0	2	0	0	0.25	Pass
Ethylbenzene µg/l	0	0	0	2	0	0	0.25	Pass
Indeno(1,2,3-c,d)pyrene µg/l	0	0	0	2	0	0	0.01	Pass
Fluoride µg/l	0	0	0	2	0	0	0.05	Pass
Mercury - unfiltered µg/l	0	0	0	2	0	0	0.06	Pass
Suspended Solids mg/l	35	87.5	0	11	0	0	2.67	Pass

Parameter	WWDL ELV (Schedule A)	ELV with Condition 2 Interpretation included Note 1	Interim % reduction from influent concentration	Number of sample results	Number of exceedences	Number of with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
Molybdenum - filtered µg/l	0	0	0	2	0	0	1.5	Pass
Trichloroethene (all isomers) µg/l	0	0	0	2	0	0	0.05	Pass
1,2,3-Trichlorobenzene µg/l	0	0	0	2	0	0	5	Pass
Atrazine µg/l	0	0	0	2	0	0	0.01	Pass
Benzo(k)fluoranthene µg/l	0	0	0	2	0	0	0.01	Pass
beta-BHC /BETA-HCH µg/l	0	0	0	2	0	0	1.5	Pass
Cobalt - filtered µg/l	0	0	0	2	0	0	1.5	Pass
Chloromethane µg/l	0	0	0	2	0	0	2.5	Pass
Chrysene µg/l	0	0	0	2	0	0	0.01	Pass
Dibenzo(a,h)anthracene µg/l	0	0	0	2	0	0	0.01	Pass
Copper - unfiltered mg/l	0	0	0	1	0	0	0.01	Pass
Fluoranthene µg/l	0	0	0	2	0	0	0.01	Pass

Parameter	WWDL ELV (Schedule A)	ELV with Condition 2 Interpretation included Note 1	Interim % reduction from influent concentration	Number of sample results	Number of exceedences	Number of with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
Isodrin µg/l	0	0	0	2	0	0	2	Pass
gamma-BHC / HCH (Lindane) µg/l	0	0	0	2	0	0	1.35	Pass
Toluene µg/l	0	0	0	2	0	0	0.25	Pass
Total Phosphorus (as P) mg/l	0	0	0	11	0	0	0.59	Pass
Total Nitrogen mg/l	0	0	0	11	0	0	9.51	Pass
ortho-Phosphate (as P) - unspecified mg/l	3	3.06	0	11	0	0	0.51	Pass
Tetrachloroethene µg/l	0	0	0	2	0	0	0.05	Pass
Pyrene µg/l	0	0	0	2	0	0	0.01	Pass
Nickel - unfiltered µg/l	0	0	0	2	0	0	2.4	Pass
Phenanthrene µg/l	0	0	0	2	0	0	0.01	Pass
ortho-Xylene µg/l	0	0	0	2	0	0	0.25	Pass
pH pH units	0	0	0	12	0	0	7.37	Pass
2,6-Dichlorobenzamidec µg/l	0	0	0	2	0	0	0.11	Pass

Parameter	WWDL ELV (Schedule A)	ELV with Condition 2 Interpretation included Note 1	Interim % reduction from influent concentration	Number of sample results	Number of exceedences	Number of with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
2,4 D µg/l	0	0	0	2	0	0	0.03	Pass
Acenaphthene µg/l	0	0	0	2	0	0	0.01	Pass
Benzo(a)anthracene µg/l	0	0	0	2	0	0	0.01	Pass
Anthracene µg/l	0	0	0	2	0	0	0.01	Pass
Arsenic - unfiltered µg/l	0	0	0	2	0	0	0.5	Pass
Benzo(b)fluoranthene µg/l	0	0	0	2	0	0	0.01	Pass
Conductivity 20 C µS/cm	0	0	0	2	0	0	808	Pass
Boron - unfiltered mg/l	0	0	0	1	0	0	0.25	Pass
Chromium - unfiltered µg/l	0	0	0	1	0	0	0.4	Pass
Copper - filtered µg/l	0	0	0	1	0	0	0	Pass
Dieldrin µg/l	0	0	0	2	0	0	2	Pass
Glyphosate µg/l	0	0	0	2	0	0	1.3	Pass
Hexachlorobutadiene µg/l	0	0	0	2	0	0	0.25	Pass

Parameter	WWDL ELV (Schedule A)	ELV with Condition 2 Interpretation included Note 1	Interim % reduction from influent concentration	Number of sample results	Number of exceedences	Number of with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
Polyaromatic Hydrocarbons (PAH) - Sum µg/l	0	0	0	2	0	0	0.01	Pass
Tin - filtered µg/l	0	0	0	2	0	0	1.5	Pass
Total Hardness (as CaCO3) mg/l	0	0	0	2	0	0	275.2	Pass
Zinc - unfiltered µg/l	0	0	0	1	0	0	62.9	Pass

Notes:
1– This represents the Emission Limit Values after the Interpretation provided for under Condition 2 of the licence is applied
2 - For parameters where a mean ELV applies

Cause of Exceedance(s):

Not Applicable

Significance of Results:

The WWTP is compliant with the ELV's set in the Wastewater Discharge Licence.

2.3 Ambient monitoring summary

A summary of monitoring from ambient monitoring points associated with the wastewater discharge is provided in the sections below. For discharges to rivers upstream (U/S) and downstream (D/S) location data is provided. For other ambient points in lakes, coastal or transitional waters, monitoring data from the most appropriate monitoring station is selected.

2.3.1 Ambient Monitoring Report Summary - Lismore WWTP

The table below provides details of ambient monitoring locations and details of any designations as sensitive areas.

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish Grid Reference	Code	Bathing Water	Drinking Water	FWPM	Shellfish	WFD Status
Upstream	204807, 98767	TPEFF3100D0176SW001	No	No	No	No	Moderate

2.3.2 Ambient Monitoring Parameter Summary - Lismore WWTP

The results for ambient results and / or additional monitoring data sets are included in the **Appendix 7.1 - Ambient monitoring summary**

Significance of Results:

The WWTP discharge was not compliant with the ELV's set in the wastewater discharge licence.

The ambient monitoring results meet the required EQS.

The discharge from the wastewater treatment plant do not have an observable impact on the water quality.

The discharge from the wastewater treatment plant do not have an observable negative impact on the Water Framework Directive status.

Other Potential cause of deterioration in water quality relevant to this area are: No. The EQS assessed relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009, as amended.

3 OPERATIONAL REPORTS SUMMARY

3.1 Treatment Efficiency Report

Treatment efficiency is based on the removal of key pollutants from the influent wastewater by the treatment plant. In essence the calculation is based on the balance of load coming into the plant versus the load leaving the plant. The efficiency is presented as a percentage removal rate.

A summary presentation of the efficiency of the treatment process including information for all the parameters specified in the licence is included below:

3.1.1 Treatment Efficiency Report Summary - Lismore WWTP

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)	Comment
COD	151987.28	3304.45	97.83	
SS	85045.16	777.03	99.09	
TN	12241.85	2772.01	77.36	
TP	1046.89	172.42	83.53	
cBOD	62409.02	351.9	99.44	

Note: The above data is based on sample results for the number of dates reported

3.2 Treatment Capacity Report Summary

Treatment capacity is an assessment of the hydraulic (flow) and organic (the amount of pollutants) load a treatment plant is designed to treat versus the current loading of that plant.

Lismore WWTP	
Peak Hydraulic Capacity (m3/day) - As Constructed	2070

Lismore WWTP	
DWF to the Treatment Plant (m3/day)	690
Current Hydraulic Loading - annual max (m3/day)	2231
Average Hydraulic loading to the Treatment Plant (m3/day)	767
Organic Capacity (PE) - As Constructed	3000
Organic Capacity (PE) - Collected Load (peak week)	2120
Organic Capacity (PE) - Remaining	880
Will the capacity be exceeded in the next three years? (Yes/No)	No

3.3 Complaints Summary

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

Number of Complaints	Nature of Complaint	Number Open Complaints	Number Closed Complaints
3	Blocked Sewer	0	3

3.4 Reported Incidents Summary

Environmental incidents that arise in an agglomeration are reported on an on-going basis in accordance with our waste water discharge licences. Where an incident occurs and it is reportable under the licence, it is reported to the Environmental Protection Agency through their Environmental Data Exchange Network, or in some instances by telephone. Some incidents which arise in the agglomeration are recorded by Irish Water but may not be reportable under our licence for example where the incident does not have an impact on environmental performance.

A summary of reported incidents is included below.

3.4.1 Summary of Incidents

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Uncontrolled release	Inadequate Infrastructure	2	Yes	No

3.4.2 Summary of Overall Incidents

Question	Answer
Number of Incidents in 2018	1
Number of Incidents reported to the EPA via EDEN in 2018	1
Explanation of any discrepancies between the two numbers above	

3.5 Sludge / Other inputs to the WWTP

'Other inputs' to the waste water treatment plant are summarised in table below

Input type	Quantity	Unit	P.E.	% of load to WWTP	Included in Influent Monitoring (Y/N)?[3]	Is there a leachate/sludge acceptance procedure for the WWTP?	Is there a dedicated leachate/sludge acceptance facility for the WWTP?[2](Y/N)
There is no Sludge and Other Input data for the Treatment Plant included in the AER.							

4 INFRASTRUCTURAL ASSESSMENTS AND PROGRAMME OF IMPROVEMENTS

4.1 Storm Water Overflow Identification and Inspection Report

A summary of the operation of the storm water overflows and their significance where known is included below:

No Appendix Included

4.1.1 SWO Identification

WWDL Name / Code for Storm Water Overflow	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow(High / Medium / Low)	Assessed against DoEHLG Criteria	No. of times activated in 2018 (No. of events)	Total volume discharged in 2018 (m3)	Monitoring Status
SWO02	204855, 98755	Yes	Low	Compliant	101	33459	Monitored

4.1.2 Inspection Summary Report

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m3)?	33459
Is each SWO identified as non meeting DoEHLG Guidance included in the Programme of Improvements?	No
The SWO Assessment included the requirements of relevant of WWDL schedules?	Yes
Have the EPA been advised of any additional SWOs / charges to Schedule C3 and A4 under Condition 1.7?	No

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

4.2.1 Specified Improvement Programme Summary

A wastewater discharge licence may require a number of reports on specific subject areas to be prepared for the agglomeration in question. These reports are submitted to the EPA as part of the Annual Environmental Report. This section provides list of the various reports required for this agglomeration and a brief summary of their recommendations.

Specified Improvement Programmes (under Schedule A and C of WWDL)	Licence Schedule	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works	Timeframe for Completing the Work	Comments
Lismore Sewerage Scheme Waste Water Treatment Plant upgrade	C	30/03/2014	Yes	Works Completed		
Provision of storm water holding tank and upgrade of storm water overflow (associated with SW002) to comply with the DoECLG 'Procedures and Criteria in relation to Storm Water Overflows, 1995'.	C	30/03/2014	Yes	Works Completed		

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

4.2.2 Improvement Programme Summary

Improvement Identifier	Improvement Description	Improvement Source	Expected Completion Date	Comments
D0176-IP:60	Upgrading of SWO discharge pipe to outfall.	Incident Reduction	1/1/0001	The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis

4.2.3 Sewer Integrity Risk Assessment

The utilisation of multiple capital maintenance programmes and the outputs of the workshops with the Local Authority Operations Staff held under the programme can be used to satisfy the requirements of Condition 5 regarding network integrity. Improvement works identified by way of these programmes and workshops will be included in the Improvements Summary Table".

5 LICENCE SPECIFIC REPORTS

A wastewater discharge licence may require a number of reports on specific subject areas to be prepared for the agglomeration in question. These reports are submitted to the EPA as part of the Annual Environmental Report. This section provides list of the various reports required for this agglomeration and a brief summary of their recommendations.

5.a Licence Specific Reports Summary Table

Licence Specific Report	Required by licence	Year included in AER	Included in this AER	Reference to relevant section of AER (e.g. Appendix X).
There is no Licence Specific Report Required in this AER Annual Review.				

6 CERTIFICATION AND SIGN OFF

6.1 Summary of AER Contents

Parameter	Answer
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	
Is there a need to request/advise the EPA of any modifications to the existing WWDL?	No
List reason e.g. changes to monitoring requirements	
Have these processes commenced?	No
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER	No

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

Signed: Date: 29/03/2019

This AER has been produced by Irish Water's Environmental Information System (EIMS) and has been electronically signed off in that system for and on behalf of ,

Eleanor Roche

Acting Head of Environmental Regulation.

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
Appendix 7.1 - Ambient monitoring summary

Appendix 7.2 - Ambient Monitoring Summary

The Lismore WWTP discharges to River Blackwater adjacent to the plant.

The WWDL requires bi-monthly Ambient Monitoring of the Receiving Waters at:

- RS1 8B022600 – Lismore Bridge
- RS1 8B022700 – 2km d/s Lismore Bridge

These two locations form part of the EPA River Monitoring locations and therefore the EPA data has been used in this assessment.

Lismore Ambient Monitoring Bi Monthly

SW1u EPA: RS18B022600

]	LOCATION_CODE	code	Stn+Location	River	DATE_COLLECTED	pH	Dissolved Oxygen	BOD	Temperature	Ortho-Phosphate	Nitrate	Ammonia	Total Oxidised Nitrogen
							% sat	mg/l	oC	mg/l	mg/l	mg/l	mg/l
	RS18B022600		Lismore Bridge	Blackwater	16-Jan-18	8	92	2.6	6.7	0.048	2.1	0.055	2.1
	RS18B022600		Lismore Bridge	Blackwater	06-Mar-18	8.3	97	2.8	5.9	0.041	2.7	0.054	2.7
	RS18B022600		Lismore Bridge	Blackwater	01-May-18	7.8	98	1.7	10.4	0.02	3.4	<0.02	3.4
	RS18B022600		Lismore Bridge	Blackwater	03-Jul-18	8.2	97	1.3	20.4	*0.005*	3.8	0.024	3.8
	RS18B022600		Lismore Bridge	Blackwater	04-Sep-18	8.2	110	<1	16	0.014	3.2	*0.01*	3.2
	RS18B022600		Lismore Bridge	Blackwater	06-Nov-18	7.7	106	2.1	9.9	0.025	2.3	0.036	2.3
					Average	**8.0**	**100.0**	**2.1**	**11.6**	**0.0**	**2.9**	**0.0**	**2.9**

SW1d EPA

SAMPLE_NO	LOCATION_CODE	code	Stn+Location	River	DATE_COLLECTED	pH	Dissolved Oxygen	BOD	Temperature	Ortho-Phosphate	Nitrate	Ammonia	Total Oxidised Nitrogen
							% sat	mg/l	oC	mg/l	mg/l	mg/l	mg/l
	RS18B022700		2km d/s Lismore Br	Blackwater	16-Jan-18	7.9	92	2.7	6.7	0.046	2.1	0.053	2.1
	RS18B022700		2km d/s Lismore Br	Blackwater	06-Mar-18	7.9	96	1.4	5.9	0.043	2.7	0.055	2.7
	RS18B022700		2km d/s Lismore Br	Blackwater	01-May-18	7.8	99	1.3	10.4	0.021	3.3	*0.01*	3.3
	RS18B022700		2km d/s Lismore Br	Blackwater	03-Jul-18	8.4	113	1.3	21.4	*0.005*	3.5	0.024	3.5
	RS18B022700		2km d/s Lismore Br	Blackwater	04-Sep-18	8.2	113	*0.5*	16.2	0.013	3.1	0.021	3.1
	RS18B022700		2km d/s Lismore Br	Blackwater	06-Nov-18	7.6	100	2.5	9.9	0.028	1.8	0.032	1.8
					Average	**7.97**	**102.17**	**1.62**	**11.75**	**0.026**	**2.750**	**0.033**	**2.75**

Figure 7.2.1 *– Lismore WWTP Ambient Monitoring Results 2018*

Table 7.2.3 Ambient Monitoring Results SW1u							
Parameter	**SW0u**	**SW0u**	**SW0u**	**SW0u**	**SW0u**	**SW0u**	**EQS (River Water**
Date	16/01/2018	06/03/2018	01/05/2018	03/07/2018	04/09/2018	06/11/2018	-
pH	8	8.3	7.8	8.2	8.2	7.7	**6.0 < pH <9.0**
DO%	92	97	98	97	110	106	**120% > 95%ile > 80%**
Temp	6.7	5.9	10.4	20.4	16	9.9	
BOD	2.6	2.8	1.7	1.3	*0.5*	2.1	**High Status ≤1.3** **Good Status ≤1.5**
Orthophosphate (as P)	0.048	0.041	0.02	0.005	0.014	0.03	**High Status ≤0.025** **Good Status ≤0.035**
Nitrogen	2.1	2.7	3.4	3.8	3.2	2.3	**Not specified**
Total Ammonia (as N)	0.055	0.054	<0.02	0.024	0.01	0.036	**High Status ≤0.040** **Good Status ≤0.065**

Table 7.2.4 Ambient Monitoring Results SW1d							
Parameter	**SW0d**	**SW0d**	**SW0d**	**SW0d**	**SW0d**	**SW0d**	**EQS (River Water Body)**
Date	16/01/2018	06/03/2018	01/05/2018	03/07/2018	04/09/2018	06/11/2018	-
pH	7.9	7.9	7.8	8.4	8.2	7.6	**6.0 < pH <9.0**
DO%	92	96	99	113	113	100	**120% > 95%ile > 80%**
Temp	6.7	5.9	10.4	21.4	16.2	9.9	
BOD	2.7	1.4	1.3	1.3	0.5	2.5	**High Status ≤1.3** **Good Status ≤1.5**
Orthophosphate (as P)	0.046	0.043	0.021	0.005	0.005	0.03	**High Status ≤0.025** **Good Status ≤0.035**
Nitrogen	2.1	2.7	3.3	3.5	3.1	1.8	**Not specified**
Total Ammonia (as N)	0.053	0.055	0.01	0.024	0.021	0.032	**High Status ≤0.040** **Good Status ≤0.065**

Table 7.2.5 Ambient Monitoring Results Up and Down Stream Annual Average Comparison						
Parameter	**pH**	**DO%**	**BOD**	**Orthophosphate (as P)**	**Total Oxidised Nitrogen**	**Total Ammonia (as N)**
SW1u **[Annual Average]**	8.03	100.00	1.83	0.03	2.92	0.04
SW1d **[Annual Average]**	7.97	102.17	1.62	0.02	2.75	0.03
Difference between SW1u & SW2d	0.07	-2.17	0.22	0.00	0.17	0.00
EQS (River Water Body)	**6.0 < pH <9.0**	**120% > 95%ile > 80%**	**High Status ≤1.3**	**High Status ≤0.025**	**Not specified**	**High Status ≤0.040**
			Good Status ≤1.5	**Good Status ≤0.035**		**Good Status ≤0.065**

Figure 7.2.2 *– Lismore WWTP Ambient Monitoring – Comparison of Upstream and Downstream Results*