

Annual Environmental Report 2017

Agglomeration Name:	Smithborough
Licence Register No.	D0464-01



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Section 1. Executive Summary and Introduction to the 2017 AER

1.1 Summary Report on 2017

This Annual Environmental Report has been prepared for **D0464-01, Smithborough**, in County **Monaghan**, in accordance with the requirements of the wastewater discharge licence for the agglomeration.

The agglomeration is served by a wastewater treatment plant with a Plant Capacity PE of 750. The treatment process includes the following:-

- Preliminary Treatment (Screen)
- Secondary Treatment (Aeration)
- Nutrient Removal (Chemical Dosing for P Removal)

The final effluent from the Primary Discharge Point was non-compliant with the Emission Limit Values in 2017.

The following parameters exceeded the emission limit values in 2017:-

- Ortho P / MRP (mg/l)

593,000kgs total weight liquid sludge was removed from the wastewater treatment plant in 2017. Sludge was transferred to Monaghan WWTP (Licence No. D0061)

The following improvement works were undertaken in 2017:-

<i>1. Issue</i>	<i>Faulty measuring cells on DO probes in aeration tanks</i>
<i>Measure</i>	<i>Replacement measuring cells required</i>
<i>Status</i>	<i>Due for completion 2018</i>

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)
Number of Samples	6	6	6	0	0	
Annual Max.	1943	4490	1375	0	0	518
Annual Mean	910.79	2379.40	867.97			167.07

Other inputs in the form of sludge/leachate are added to the WWTP after the influent monitoring point and are therefore not represented by influent monitoring. 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 allows for peak values and therefore the peak loads have not impacted on compliant 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 / MRP (mg/l)	Ammonia N (mg/l)	pH (Range)
WWDL ELV (Schedule A) where applicable	10.00	50.00	10.00	3mg/l From 31/12/19 a new ELV of 0.8mg/l P will apply	1.00	6 to 9
ELV with Condition 2 Interpretation included	20.00	100.00	25.00	3.60	2.00	No Allowable Exceedances
% Reduction (Schedule A)						
Number of sample results	6	6	6	6	6	6
Number of sample results above WWDL ELV	1	0	0	1	0	0
Number of sample results above ELV with Condition 2 Interpretation	0	0	0	1	0	0
Annual Mean (for parameters where a mean ELV applies)						
Overall Compliance (Pass/Fail)	Pass	Pass	Pass	Fail	Pass	Pass

Significance of results

The WWTP was non-compliant with the ELV's set in the wastewater discharge licence. One sample was non-compliant with the ELVs in relation to Ortho P / MRP (mg/l). The non-compliance is due to 20/06/17, breach of ELV for orthophosphate 3.8mg/l . The impact on receiving waters is assessed further in Section 2.3.

2.3 Ambient Monitoring Summary

Table 2.3. Ambient Monitoring Report Summary Table

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish Grid Reference	EPA Feature Coding Tool code	Bathing Water	Drinking Water	FWPM	Shellfish
Upstream Monitoring Point	257862, 329854	IE_NW_36M010200				
Downstream Monitoring Point	257552, 329614	IE_NW_36F010200				
Downstream Monitoring Point #2						

Table 2.3.2 Ambient Impact Assessment Table

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Current WFD Status	cBOD	0-Phosphate (as P)	Ammonia (as N)	Nitrogen		
Upstream Monitoring Point	Poor	5.7	0.071	0.113			
Downstream Monitoring Point	Moderate	3	0.046	0.098			
Downstream Monitoring Point #2							
Difference between Upstream and Downstream		-2.7	-0.025	-0.015			
Difference between Upstream and Downstream #2							
EQS		2.6	0.075	0.14			
% of Eqs		-103.85%	-33.33%	-10.71%			
% of Eqs #2							

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

Significance of results

- The WWTP was non-compliant with the ELV's set in the wastewater discharge licence as detailed in Section 2.2.
- The receiving waters do not meet the EQS required.
- The discharge from the wastewater treatment plant does not have an observable negative impact on the water quality.
- The discharge from the WWTP has no observable negative impact on the Water Framework Directive status.

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

A PRTR is not required as the PE is < 2000

Section 3. Operational Reports Summary

3.1 Treatment Efficiency Report

	cBOD (kg/yr)	COD (kg/yr)	SS (kg/yr)
Influent mass loading (kg/year)	50,087	130,851	47,733
Effluent mass emission (kg/year)	61	454	96
% Efficiency (% reduction of influent load)	100%	100%	100%

3.2 Treatment Capacity Report

Table 3.2 - Treatment Capacity Report Summary

Hydraulic Capacity – Design / As Constructed (dry weather flow) (m3/day)	170
Hydraulic Capacity – Design / As Constructed (peak flow) (m3/day)	510
Hydraulic Capacity – Current loading (m3/day)	167
Hydraulic Capacity – Remaining (m3/day)	343
Organic Capacity - Design / As Constructed (PE)	750
Organic Capacity - Collected Load (PE)	604
Organic Capacity – Remaining (PE)	146
Will the capacity be exceeded in the next three years? (Yes / No)	Yes

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	100%	Estimated
Load collected in the agglomerations that enters treatment plant		Estimated
Load collected in the sewer network but discharges without treatment (includes SWO, EO, and any discharges that are not treated)		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
1	Investigation sewage flooding - below ground	0	1

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)
INCI012407 Breach of ELV	Breach of ELV for orthophosphate , 3.8mg/l P on the 20/06/17	Other	1	No	Ferric dosing adjusted	IFI	Yes	Yes

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 2017	1
Number of Incidents reported to the EPA via EDEN in 2017	1
Explanation of any discrepancies between the two numbers above	N/A

3.6 Sludge / Other inputs to the WWTP

There were no sludge/other imports to the WWTP in 2017.

Section 4. Infrastructure Assessments and Programme of Improvements

4.1 Storm water overflow identification and inspection report

There are no stormwater overflows associated with the WWTP.

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

The Improvement Programme is included in Appendix 7.1. The Improvement Programme 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	Expected Completion Date	Comments
upgrade WWTP to provide chemical dosing for phosphorus removal to comply with ELVs specified in Schedule A	C	31/12/2019	No	Completed	100%		

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
10007268	Flow Monitoring and Sampling MN	Improved Operational Control	100%		Complete 2016

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	Medium	100	2016		
Environmental Risk Assessment Score	Low	55	2016		
Structural Risk Assessment Score	High	140	2016		
Operation & Maintenance Risk Assessment Score	Low	48	2016		
Overall Risk Score for the agglomeration	Low	343	2016		

Section 5. Licence Specific Reports

Licence Specific Reports Summary Table

Licence Specific Report	Required by Condition 5 in Licence	Required in this AER or outstanding from previous AER?	Included in this AER?	Reference to previous AER containing report or relevant section of this AER
Priority Substances Assessment	Required	No	No	AER 2014
Drinking Water Abstraction Point Risk Assessment	Required	No	No	AER 2016
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	Yes	The preliminary DW risk assessment in 2014 recommended that a ZOC was delineated for the Smithborough wells. This was completed in 2016. This report concluded that location of the discharge from the Smithborough WWTP is outside of the Zone of Contribution of the Smithborough Borewells
Shellfish Impact Assessment	No	
Pearl Mussel Report	No	

Toxicity/Leachate Management	No	
Toxicity of Final Effluent Report	No	
Habitats Impact Assessment	No	

5.1 Priority Substances Assessment

The Priority Substance Assessment Report was submitted previously in AER 2014. A summary of the significance and operation is included below.

Table 5.1 - Priority Substance Assessment Summary Report

Does the assessment use the Desk Top Study Method or Screening Analysis to determine if the discharge contains the parameters in Appendix 1 of the EPA guidance?	Desktop Study and 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?	No
Does the report include an assessment of the significance of the results where a listed material is present in the discharge? (e.g. impact on the relevant EQS standard for the receiving water)	Yes
Does the assessment identify that priority substances may be impacting the receiving water?	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 further screening required
Status of any improvement measures required	N/A

5.2 Drinking Water Abstraction Point Risk Assessment

The Drinking Water Risk Assessment was submitted previously in AER 2016. A summary of the significance and operation is included below.

Table 5.2 - Drinking Water Abstraction Point Risk Assessment Summary

Is a Drinking Water Abstraction Risk Assessment required in the 2017 AER (or outstanding from a previous AER)?	No
Does the Drinking Water Abstraction Risk Assessment identify whether any of the discharges in Schedule A of the licence pose a risk to a drinking water abstraction?	No
Does the assessment identify if any other discharge(s) from the works pose a risk to a drinking water abstraction (includes emergency overflows)?	No
What is the overall risk ranking applied by the licensee?	Low
Does the risk assessment consider the impacts of normal operation?	Yes
Does the risk assessment consider the impacts of abnormal operation (e.g. incidents /overflows)?	Yes
Does the risk assessment include control measures for each risk identified?	
Does the risk assessment consider operational control measures?	
Does the risk assessment include infrastructural control measures?	
Recommendations	The preliminary DW risk assessment in 2014 recommended that a ZOC was delineated for the Smithborough wells. This was completed in 2016. This report concluded that location of the discharge from the Smithborough WWTP is outside of the

	Zone of Contribution of the Smithborough Borewells
Does the Improvement Programme for the agglomeration include control measures / corrective actions to eliminate / reduce priority substances identified as having an impact on receiving water quality?	No
Status of any improvement measures required.	N/a

A copy of the detailed assessment should be included as an appendix to the AER. Where relevant, findings from this assessment should be considered under the Programme of Improvements required under Condition 5.

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	
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	

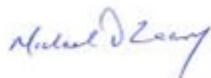
Declaration by Irish Water

The AER contains the following:

- Introduction and background to 2017 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: 20/02/2018

Michael O'Leary
Acting Head of Environmental Regulation

Section 7. Appendices

Appendix 7.1 Statement of Measures / Improvement Programme

1. Issue	Faulty measuring cells on DO probes in aeration tanks
Measure	Replacement measuring cells required
Status	Due for completion 2018

Appendix 7.2 Ambient Monitoring

Upstream

Date	Ammonia (mg/l)	Ortho P (mg/l)	BOD (mg/l)	Total N (mg/l)	D.O. (% Sat)	D.O. (mg/l)	pH (mg/l)	Temp °C
14/02/2017	0.04	0.03	4.30			10.89	8.10	6.60
19/04/2017	0.10	0.06	11.00			9.56	8.10	11.20
20/06/2017	0.08	0.08	9.40			7.96	8.00	16.80
09/08/2017	0.01	0.16	4.80			9.50	8.10	16.60
17/10/2017	0.12	0.03	3.40			8.11	8.00	12.30
05/12/2017	0.34	0.08	1.30			9.92	7.90	8.00
Mean	0.11	0.07	5.70			9.32	8.03	11.92
95%ile	0.29	0.14	10.60			10.65	8.10	16.75

Downstream

Date	Ammonia (mg/l)	Ortho P (mg/l)	BOD (mg/l)	Total N (mg/l)	D.O. (% Sat)	D.O. (mg/l)	pH (mg/l)	Temp °C
14/02/2017	0.04	0.03	2.00			11.07	8.00	6.30
19/04/2017	0.00	0.04	7.10			10.10	8.10	10.90
20/06/2017	0.04	0.07	1.90			8.15	8.00	15.90
09/08/2017	0.01	0.06	2.40			9.72	8.10	16.80
17/10/2017	0.13	0.04	2.10			9.46	8.00	10.20
05/12/2017	0.36	0.05	2.50			10.27	8.00	8.10
Mean	0.10	0.05	3.00			9.80	8.03	11.37
95%ile	0.30	0.07	5.95			10.87	8.10	16.58