Annual Environmental Report

2019

Navan

D0059-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2019 AER

This Annual Environmental Report has been prepared for D0059-01, Navan, in Meath in accordance with the requirements of the wastewater discharge licence for the agglomeration. Specified reports where relevant are included as an appendix to the AER.

1.1 ANNUAL STATEMENT OF MEASURES

A summary of any improvements undertaken is provided where applicable.

New screens will be installed in Navan WWTP in 2020.

1.2 TREATMENT SUMMARY

The agglomeration is served by a wastewater treatment plant(s)

- NAVAN WWTP with a Plant Capacity PE of 50000, the treatment type is 3NP - Tertiary N&P removal

1.3 ELV OVERVIEW

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.

Discharge Point Reference	Treatment Plant	Discharge Type	Compliance Status	Parameters failing if relevant
TPEFF2300D0059SW001	NAVAN WWTP	Treated	Compliant	N/A

1.4 LICENCE SPECIFIC REPORTING INCLUDED IN AER

Assessment / Report	Included in AER
Toxicity of Final Effluent	Yes

2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

2.1 NAVAN WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - NAVAN WWTP

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

Parameters	Number of Samples	Annual Max	Annual Mean
COD-Cr mg/l	24	1086	543.16
Suspended Solids mg/l	24	606	306.76
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	24	536	304.98
Total Phosphorus (as P) mg/l	24	10	5.5
Total Nitrogen mg/l	24	55.4	37.11
Hydraulic Capacity	N/A	23590	14634

If other inputs in the form of sludge / leachate are added to the WWTP then these are included in Section 2.1.5 if applicable.

Significance of Results:

The annual mean hydraulic loading is less than the peak Treatment Plant Capacity. The annual maximum hydraulic loading is less than the peak Treatment Plant Capacity. Further details on the plant capacity and efficiency can be found under the sectional ‘Operational Performance Summary’. The design of the wastewater treatment plant allows for peak values and therefore the peak loads have not impacted on compliance with Emission Limit Values.

2.1.2 EFFLUENT MONITORING SUMMARY - TPEFF2300D0059SW001

Parameter	WWDL ELV (Schedule A)	ELV with Condition 2 Interpretation included Note 1	Interim % reduction from influent concentration	Number of sample results	Number of exceedances	Number of with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
COD-Cr mg/l	100	200	N/A	24	N/A	N/A	28.53	Pass
Suspended Solids mg/l	35	87.5	N/A	24	N/A	N/A	9.99	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	13	26	N/A	24	N/A	N/A	7.3	Pass
Ammonia-Total (as N) mg/l	3	3.6	N/A	24	N/A	N/A	0.16	Pass
Total Phosphorus (as P) mg/l	1	1.2	N/A	24	N/A	N/A	0.47	Pass
ortho-Phosphate (as P) - unspecified mg/l	N/A	N/A	N/A	24	N/A	N/A	0.28	
Total Nitrogen mg/l	N/A	N/A	N/A	24	N/A	N/A	15.25	

Notes:
1 – This represents the Emission Limit Values after the Interpretation provided for under Condition 2 of the licence is applied

Cause of Exceedance(s):

Not applicable

Significance of Results:

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

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF2300D0059SW001

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.

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	River Station Code	Bathing Water	Drinking Water	FWPM	Shellfish	WFD Status
Upstream	288486, 269101	RS07B041900	No	No	No	No	Unassigned
Downstream	291858, 271311	RS07B042000	No	No	No	No	Moderate

The table below provides a summary of monitoring results for designated ambient monitoring points. The upstream and downstream annual mean values are shown (mg/l), and the difference between both monitoring stations is given as a percentage of the Environmental Quality Standard (EQS) where relevant.

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
BOD - 5 days (Total) mg/l	RS07B041900	1.32	RS07B042000	1.37	1.5	3.2
Ammonia-Total (as N) mg/l	RS07B041900	0.032	RS07B042000	0.023	0.065	-14.7
ortho-Phosphate (as P) - unspecified mg/l	RS07B041900	0.034	RS07B042000	0.028	0.035	-16.7

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
Dissolved Oxygen mg/l	RS07B041900	10.87	RS07B042000	11.02		
Dissolved Oxygen % Saturation	RS07B041900	97.4	RS07B042000	99.71		
pH pH units	RS07B041900	8.11	RS07B042000	8.16		
Total Nitrogen mg/l	RS07B041900	3.66	RS07B042000	3.72		

Significance of Results:

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

The ambient monitoring results meet the required EQS. The EQS relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009.

Based on ambient monitoring results a deterioration in BOD concentrations downstream of the effluent discharge is noted.

A deterioration in water quality has been identified, however it is not known if it or is not caused by the WWTP.

Other causes of deterioration in water quality in the area are unknown.

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

2.1.4 OPERATIONAL PERFORMANCE SUMMARY - NAVAN WWTP

2.1.4.1 Treatment Efficiency Report - NAVAN WWTP

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:

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
TN	193833	69126	64
COD	2837263	129342	95
cBOD	1593087	33071	98
TP	28740	2138	93
SS	1602401	45300	97

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

2.1.4.2 Treatment Capacity Report Summary - NAVAN WWTP

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.

NAVAN WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	33750
DWF to the Treatment Plant (m^3/day)	12500
Current Hydraulic Loading - annual max (m^3/day)	23590
Average Hydraulic loading to the Treatment Plant (m^3/day)	14634
Organic Capacity (PE) - As Constructed	50000
Organic Capacity (PE) - Collected Load (peak week)[Note1]	36382
Organic Capacity (PE) - Remaining	13618
Will the capacity be exceeded in the next three years? (Yes/No)	No

Nominal design capacities can be based on conservative design principles. In some cases assessment of existing plants has shown organic capacities significantly higher than the nominal design capacity. Accordingly plants that appear to be overloaded when comparing a collected peak load with the nominal design capacity can be fully compliant due to the safety factors in the original design.

2.1.5 SLUDGE / OTHER INPUTS - NAVAN 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)?	Is there a leachate/sludge acceptance procedure for the WWTP?	Is there a dedicated leachate/sludge acceptance facility for the WWTP? (Y/N)
Landfill Leachate (delivered by tanker)	5913	Weight (Tonnes)	72	0.11	Yes	Yes	Yes
Waterworks Sludge	7689	Weight (Tonnes)	93	0.14	Yes	Yes	Yes

3 COMPLAINTS AND INCIDENTS

3.1 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
10	Blocked Sewer	0	10

3.2 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.

3.2.1 SUMMARY OF INCIDENTS

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Uncontrolled release	EO caused by power failure	1	No	Yes
Uncontrolled release	EO caused by pump failure	1	No	Yes
Uncontrolled release	Screen not operating	1	No	No

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Uncontrolled release	Plant or equipment breakdown at WWTP	1	No	Yes
Abatement Equipment offline	Plant or equipment breakdown at WWTP	1	No	Yes
Abatement Equipment offline	Plant or equipment breakdown at WWTP	1	No	Yes
Abatement Equipment offline	Plant or equipment breakdown at WWTP	1	No	Yes
Spillage	Blocked Sewer	1	Yes	No

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2019	8
Number of Incidents reported to the EPA via EDEN in 2019	8
Explanation of any discrepancies between the two numbers above	N/A

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:

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 2019 (No. of events)	Total volume discharged in 2019 (m3)	Monitoring Status
SW11	287974, 266636	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
SW12	288478, 265670	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
SW2	288378, 288809	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
SW3	288083, 268258	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
SW5	287209, 267991	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
SW6	286591, 268367	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
SW7	287189,	Yes	Low	Not yet	Unknown	Unknown	Not

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 2019 (No. of events)	Total volume discharged in 2019 (m3)	Monitoring Status
	267932			Assessed			Monitored
SW8	287251, 267762	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
SW9	286789, 266088	Yes	Low	Meeting	Unknown	Unknown	Not Monitored

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m3)?	Unknown
Is each SWO identified as not meeting DoEHLG Guidance included in the Programme of Improvements?	N/A
The SWO Assessment included the requirements of relevant of WWDL schedules?	Yes
Have the EPA been advised of any additional SWOs / changes to Schedule C3 and A4 under Condition 1.7?	N/A

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)	Description	Licence Schedule	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works	Timeframe for Completing the Work	Comments
D0059-SIP:01	Upgrading of sewer network to ensure all SWO's comply with criteria set out in DoEHLG.....	C	31/01/2011	Yes	Works Completed		
D0059-SIP:02	Waste water sewer network rehabilitation works and improvements	C	31/01/2011	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 / or any Operational Improvements	Improvement Source	Expected Completion Date	Comments
D0059-IP:25	New screens will be installed in Navan WWTP in 2020.	Improved Operational Control	30/06/2020	

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.

Licence Specific Report	Required by licence	Year included in AER	Included in this AER	Reference to relevant section of AER
Priority Substances Assessment	Yes	2015	No	
Toxicity of Final Effluent	Yes	2016	Yes	5.2

5.1 PRIORITY SUBSTANCES ASSESSMENT

The Priority Substances Assessment Report has been included in the AER 2015.

5.2 TOXICITY OF FINAL EFFLUENT

The Toxicity of Final Effluent Report is included in Appendix 7.1 - Toxicity of Final Effluent. A summary of the findings of this report is included below.

Parameter	Value
Are any procedural and/or infrastructural works to reduce the toxicity of the final discharge included?	No
Does the report identify that the discharge is toxic to any of the species in the study?	No
Has the study been carried out against 4 species in 3 trophic levels?	Yes

Parameter	Value
Is a Toxicity report required?	Yes
List species impacted	None
Recommendations	None
Status of any improvement measures required	No

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	N/A
Is there a need to request/advise the EPA of any modification to the existing WWDL with respect to condition 4 changes to monitoring location, frequency etc	No
List reason e.g. changes to monitoring requirements	N/A
Have these processes commenced?	N/A
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER	Yes

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

Date: 05/03/2020

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,

Katherine Walshe

Acting Head of Environmental Regulation.

7 APPENDIX

Appendix
Appendix 7.1 - Toxicity of Final Effluent

Fitz scientific
Monitoring and Testing Services

Unit 35,
Boyne Business Park,
Drogheda,
Co. Louth
Ireland
Tel: +353 41 9845440
Fax: +353 41 9846171
Web: www.fitzsci.ie
email info@fitzsci.ie

A copy of this certificate is available on www.fitzsci.ie

Customer	**Kieran Cunningham** **Meath Co. Co.** **Environmental Section** **Farganstown** **Navan** **Co. Meath**	***Lab Report Ref. No.***	**0490/495/01**
		Date of Receipt	**19/11/2019**
		Sampled On	**19/11/2019**
		Date Testing Commenced	**19/11/2019**
		Received or Collected	**By Fitz: Pick up NB**
		Condition on Receipt	**Acceptable**
Customer PO	**51482146**	***Date of Report***	**19/12/2019**
Customer Ref	**19-0761 Navan F.E**	***Sample Type***	**Effluent**
Ref 2			
Ref 3			

CERTIFICATE OF ANALYSIS

Test Parameter	SOP	Analytical Technique	Result	Units	Acc.
Toxicity (Daphnia Magna) 24hrs	0	LC50	>100	% v/v	
Toxicity (Daphnia magna) 48 hrs	0	LC50	>100	% v/v	

Signed : A Harmon ***Date : 19/12/2019***

Aoife Harmon - Laboratory Supervisor

Acc. : Accredited Parameters by ISO 17025:2005
PVL - Parametric Value Limit as per EU (Drinking water) Regulations (SI 122 2014)
For bacterial analysis a result of 0 means none detected in volume examined
All organic results are analysed as received and all results are corrected for dry weight at 104 C

Results contained in this report relate only to the samples tested (P) : Presumptive Results

** : The test result for this parameter may be invalid as it has exceeded the recommended holding time (BS EN ISO 5667-3:2018)

* Subcontracted

Fitz scientific
Monitoring and Testing Services

Unit 35,
Boyne Business Park,
Drogheda,
Co. Louth
Ireland
Tel: +353 41 9845440
Fax: +353 41 9846171
Web: www.fitzsci.ie
email info@fitzsci.ie

A copy of this certificate is available on www.fitzsci.ie

Customer	**Kieran Cunningham** **Meath Co. Co.** **Environmental Section** **Farganstown** **Navan** **Co. Meath**	***Lab Report Ref. No.***	**0490/495/02**
		Date of Receipt	**19/11/2019**
		Sampled On	**19/11/2019**
		Date Testing Commenced	**19/11/2019**
		Received or Collected	**By Fitz: Pick up NB**
		Condition on Receipt	**Acceptable**
Customer PO	**51482146**	***Date of Report***	**19/12/2019**
Customer Ref	**19-0761 Navan F.E**	***Sample Type***	**Effluent**
Ref 2	**19/11/19**		
Ref 3			

CERTIFICATE OF ANALYSIS

Test Parameter	SOP	Analytical Technique	Result	Units	Acc.
Toxicity (Vibrio Fischeri)	0	By Subcontractor	>45	% v/v	Yes

<2.2 toxic units

Signed : A Harmon ***Date : 19/12/2019***

Aoife Harmon - Laboratory Supervisor

Acc. : Accredited Parameters by ISO 17025:2005
PVL - Parametric Value Limit as per EU (Drinking water) Regulations (SI 122 2014)
For bacterial analysis a result of 0 means none detected in volume examined
All organic results are analysed as received and all results are corrected for dry weight at 104 C
Results shall not be reproduced, except in full, without the approval of Fitz Scientific
Results contained in this report relate only to the samples tested (P) : Presumptive Results
** : The test result for this parameter may be invalid as it has exceeded the recommended holding time (BS EN ISO 5667-3:2018)

* Subcontracted