# Annual Environmental Report

# 2020


Navan

D0059-01

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# 1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2020 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.

Two new inlet screens were installed in Navan WWTP in 2020.

## 1.2 TREATMENT SUMMARY

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

- NAVAN WWTP - 2020 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 - 2020 | 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 - 2020 - TREATED DISCHARGE

### 2.1.1 INFLUENT MONITORING SUMMARY - NAVAN WWTP - 2020

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 |
|---|---|---|---|
| **BOD, 5 days with Inhibition (Carbonaceous) mg/l** | 28 | 436 | 287.62 |
| **Suspended Solids mg/l** | 28 | 470 | 228.1 |
| **COD-Cr mg/l** | 28 | 828 | 563.48 |
| **Total Phosphorus mg/l** | 28 | 8.38 | 5.96 |
| **Total Nitrogen mg/l** | 28 | 64.4 | 39.08 |
| **Hydraulic Capacity** | N/A | 23137 | 13479 |

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) |
|---|---|---|---|---|---|---|---|---|
| **Chemical Oxygen Demand mg/l** | 100 | 200 | N/A | 27 | N/A | N/A | 31.86 | Pass |
| **Suspended Solids mg/l** | 35 | 87.5 | N/A | 27 | N/A | N/A | 9.58 | Pass |
| **BOD, 5 days with Inhibition (Carbonaceous) mg/l** | 13 | 26 | N/A | 27 | N/A | N/A | 6.77 | Pass |
| **pH pH units** | 6-9 | 6-9 | N/A | 6 | N/A | N/A | 6.94 | Pass |
| **Ammonia-Total (as N) mg/l** | 3 | 3.6 | N/A | 27 | N/A | N/A | 0.04 | Pass |
| **Total Phosphorus mg/l** | 1 | 1.2 | N/A | 27 | N/A | N/A | 0.56 | Pass |
| **Total Nitrogen mg/l** | N/A | N/A | N/A | 27 | N/A | N/A | 15.59 | |
| **ortho-Phosphate (as P) - unspecified mg/l** | N/A | N/A | N/A | 27 | N/A | N/A | 0.33 | |

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 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 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.

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

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 - 2020

### *2.1.4.1 Treatment Efficiency Report - NAVAN WWTP - 2020*

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) |
|---|---|---|---|
| **cBOD** | 1349920 | 26994 | 98 |
| **COD** | 2635826 | 125900 | 95 |
| **SS** | 1027489 | 38178 | 96 |
| **TN** | 187380 | 63170 | 66 |
| **TP** | 28166 | 2274 | 92 |

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 - 2020

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 - 2020 | |
|---|---|
| **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)** | 23137 |
| **Average Hydraulic loading to the Treatment Plant ($m^3$/day)** | 13479 |
| **Organic Capacity (PE) - As Constructed** | 50000 |
| **Organic Capacity (PE) - Collected Load (peak week)[Note1]** | 37522 |
| **Organic Capacity (PE) - Remaining** | 12478 |
| **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 - 2020

'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)** | 5701 | Weight (Tonnes) | 69 | 1.66 | Yes | Yes | Yes |
| **Waterworks Sludge** | 5153 | Weight (Tonnes) | 63 | 1 | 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 |
|---|---|---|---|
| **There were no relevant environmental complaints in 2020.** | | | |

## 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) |
|---|---|---|---|---|
| **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** | Adverse Weather | 1 | No | Yes |

| Incident Type | Cause | No. of incident occurrences | Recurring (Y/N) | Closed (Y/N) |
|---|---|---|---|---|
| **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** | Screen not operating | 1 | No | Yes |
| **Abatement Equipment offline** | Plant or equipment breakdown at WWTP | 1 | Yes | Yes |
| **Abatement Equipment offline** | Plant or equipment breakdown at WWTP | 1 | Yes | Yes |
| **Spillage** | Blocked Sewer | 1 | No | No |
| **Uncontrolled release** | EO caused by pump failure | 1 | No | Yes |
| **Uncontrolled release** | Adverse Weather | 1 | No | Yes |
| **Uncontrolled release** | EO caused by power failure | 1 | No | Yes |

## 3.2.2 SUMMARY OF OVERALL INCIDENTS

| Question | Answer |
|---|---|
| **Number of Incidents in 2020** | 12 |
| **Number of Incidents reported to the EPA via EDEN in 2020** | 12 |
| **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 2020 (No. of events) | Total volume discharged in 2020 ($m^3$) | Monitoring Status |
|---|---|---|---|---|---|---|---|
| **SW004** | TBC, TBC | Yes | Unknown | Not yet Assessed | Unknown | Unknown | Unknown |
| **SW11** | 287969, 266644 | Yes | Medium | Meeting | 0 | 0 | Monitored |
| **SW12** | 288482, 265674 | Yes | Medium | Meeting | 0 | 0 | Monitored |
| **SW2** | 288376, 268810 | Yes | Medium | Meeting | Unknown | Unknown | Not Monitored |
| **SW3** | 288083, 268256 | Yes | Medium | Not Meeting | 27 | Unknown | Monitored |
| **SW5** | 287209, 267986 | Yes | Medium | Meeting | Unknown | Unknown | Not Monitored |

| 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 2020 (No. of events) | Total volume discharged in 2020 ($m^3$) | Monitoring Status |
|---|---|---|---|---|---|---|---|
| **SW6** | 286591, 268367 | Yes | Medium | Meeting | Unknown | Unknown | Not Monitored |
| **SW7** | 287187, 267931 | Yes | Medium | Not yet Assessed | Unknown | Unknown | Not Monitored |
| **SW8** | 287251, 267761 | Yes | Medium | Meeting | 2 | Unknown | Monitored |
| **SW9** | 286816, 266103 | Yes | Medium | Meeting | 0 | 0 | Monitored |

| SWO Summary | |
|---|---|
| **How much sewage was discharged via SWOs in the agglomeration in the year ($m^3$)?** | 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 |
|---|---|---|---|---|
| **There are no Improvements Programme for this Agglomeration.** | | | | |

## 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 | N/A |
| **Toxicity of Final Effluent** | Yes | 2016 | Yes | **Appendix 7.2** |

## 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 7.2. 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: 28/02/2021

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 - Ambient Monitoring Summary** |
| **Appendix 7.2 - Toxicity of Final Effluent Report** |

# Navan 2020 Ambient Monitoring Summary

| Ambient Monitoring Point from WWDL (or as agreed with EPA) | Irish National Grid Reference (Easting, Northing) | EPA Feature Coding Tool code | Receiving Waters Designation (Yes/No) | | | |
|---|---|---|---|---|---|---|
| | | | Bathing Water | Drinking Water | FWPM | Shellfish |
| Upstream Monitoring Point | 288486, 269101 | RS07B041900 | No | No | No | No |
| Downstream Monitoring Point | 291858, 271311 | RS07B042000 | No | No | No | No |

| Ambient Monitoring Point from WWDL (or as agreed with EPA) | Current WFD Status | cBOD (Mean mgl/l) | o-Phosphate (as P) (Mean mg/l) | Ammonia (as N) (mean mg/l) |
|---|---|---|---|---|
| Upstream Monitoring Point | Unassigned | 1.268 | 0.033 | 0.031 |
| Downstream Monitoring Point | Moderate | 1.249 | 0.031 | 0.026 |
| *Difference* | | *-0.019* | *-0.002* | *-0.005* |
| EQS | | 1.500 | 0.035 | 0.065 |
| % of EQS | | -1.267% | -6.000% | -8.368% |

# Navan 2020 Ambient Monitoring Data

| Station | Sample Date | D.O. mg/l | D.O. % Sat. | pH pH units | B.O.D. mg/l | Ortho-P mg/l | Coliform Bacteria no./100mls | Temp | Total N mg/l | Ammonia mg/l |
|---|---|---|---|---|---|---|---|---|---|---|
| u/s Navan WWTP | 19-Mar-2020 | 11.8 | 96 | 8.10 | 1.21 | 0.052 | | | 3.51 | 0.040 |
| u/s Navan WWTP | 6-May-2020 | 11.7 | 112 | 8.01 | 0.89 | 0.016 | | | 3.42 | 0.023 |
| u/s Navan WWTP | 19-May-2020 | 10.0 | 96 | 8.10 | 1.62 | 0.019 | | | 2.54 | 0.044 |
| u/s Navan WWTP | 24-June-2020 | | | | | | 290.00 | | | |
| u/s Navan WWTP | 22-July-2020 | 9.0 | 93 | 8.02 | 0.93 | 0.042 | | | 2.05 | 0.043 |
| u/s Navan WWTP | 16-Sep-2020 | 10.1 | 102 | 8.08 | 0.66 | 0.033 | | | 2.18 | 0.028 |
| u/s Navan WWTP | 23-Sep-2020 | 9.7 | 94 | 8.04 | 2.56 | 0.023 | | | 2.60 | 0.046 |
| u/s Navan WWTP | 28-Oct-2020 | 11.2 | 99 | 8.08 | 1.58 | 0.033 | | 8.30 | 3.18 | 0.015 |
| | 29-Oct-2020 | | | | | | 410.00 | | | |
| u/s Navan WWTP | 27-Nov-2020 | 11.9 | 100 | 8.14 | 0.95 | 0.028 | | 7.40 | 2.95 | 0.015 |
| u/s Navan WWTP | 4-Dec-2020 | 12.0 | 100 | 8.07 | 0.99 | 0.035 | | 5.70 | 3.44 | < 0.015 |
| u/s Navan WWTP | 16-Dec-2020 | 11.6 | 99 | 8.09 | 1.29 | 0.050 | | 7.50 | 3.64 | 0.050 |
| | **Mean** | **10.9** | **99** | **8.07** | **1.268** | **0.033** | **350.000** | **7.225** | **2.95** | **0.031** |
| | **95%ile** | **12.0** | **108** | **8.12** | **2.137** | **0.051** | **404.000** | **8.180** | **3.58** | **0.048** |
| | | | | | | | | | | |
| d/s Navan WWTP | 19-Mar-2020 | 11.6 | 97 | 8.10 | 1.00 | 0.055 | | | 3.29 | 0.039 |
| d/s Navan WWTP | 6-May-2020 | 13.5 | 129 | 8.04 | 1.19 | 0.017 | | | 3.07 | 0.014 |
| d/s Navan WWTP | 19-May-2020 | 10.1 | 98 | 8.10 | 1.54 | 0.018 | | | 2.60 | 0.033 |
| | 24-June-2020 | | | | | | 420.000 | | | |
| d/s Navan WWTP | 22-July-2020 | 9.0 | 93 | 8.02 | 0.80 | 0.038 | | | 2.31 | 0.034 |
| d/s Navan WWTP | 16-Sep-2020 | 10.3 | 104 | 8.11 | 0.76 | 0.029 | | | 2.28 | 0.024 |
| d/s Navan WWTP | 23-Sep-2020 | 9.8 | 95 | 8.05 | 2.38 | 0.021 | | | 3.63 | 0.031 |
| d/s Navan WWTP | 28-Oct-2020 | 11.4 | 100 | 8.09 | 1.53 | 0.033 | | 8.500 | 2.81 | 0.022 |
| | 29-Oct-2020 | | | | | | 590.000 | | | |
| d/s Navan WWTP | 27-Nov-2020 | 11.9 | 99 | 8.14 | 0.75 | 0.023 | | 7.200 | 3.33 | < 0.015 |
| d/s Navan WWTP | 4-Dec-2020 | 12.1 | 101 | 8.10 | 1.21 | 0.032 | | 5.600 | 3.39 | < 0.015 |
| d/s Navan WWTP | 16-Dec-2020 | 11.6 | 99 | 8.09 | 1.33 | 0.044 | | 7.200 | 3.35 | 0.042 |
| | **Mean** | **11.1** | **102** | **8.08** | **1.249** | **0.031** | **505.000** | **7.125** | **3.01** | **0.026** |
| | **95%ile** | **12.9** | **118** | **8.13** | **2.002** | **0.050** | **581.500** | **8.305** | **3.52** | **0.041** |
| | | | | | | | | | | |

*Note: Where the concentration in the result is less than the limit of detection (LOD), a value of LOD/sqrt(2) was used in calculating the mean and 95%ile concentrations.*

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| | | | |
|---|---|---|---|
| ***Customer*** | **Kieran Cunningham**<br>**Meath Co. Co.**<br>**Environmental Section**<br>**Farganstown**<br>**Navan**<br>**Co. Meath** | ***Lab Report Ref. No.*** | **0490/508/01** |
| | | ***Date of Receipt*** | **24/06/2020** |
| | | ***Sampled On*** | **24/06/2020** |
| | | ***Date Testing Commenced*** | **24/06/2020** |
| | | ***Received or Collected*** | **By Fitz: Pick up DS** |
| | | ***Condition on Receipt*** | **Acceptable** |
| ***Customer PO*** | **51527304** | ***Date of Report*** | **28/07/2020** |
| ***Customer Ref*** | **20-0318 (Navan FE)** | ***Sample Type*** | **Effluent** |
| ***Ref 2*** | **24/06/20 10:20** | | |
| ***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 : 28/07/2020***

***Aoife Harmon - Laboratory Supervisor***

Acc. : Accredited Parameters by ISO/IEC 17025:2017
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



Final results will be issued without any estimated uncertainty of measurement being applied.
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|---|---|---|---|
| ***Customer*** | **Kieran Cunningham**<br>**Meath Co. Co.**<br>**Environmental Section**<br>**Farganstown**<br>**Navan**<br>**Co. Meath** | ***Lab Report Ref. No.*** | **0490/508/02** |
| | | ***Date of Receipt*** | **24/06/2020** |
| | | ***Sampled On*** | **24/06/2020** |
| | | ***Date Testing Commenced*** | **24/06/2020** |
| | | ***Received or Collected*** | **By Fitz: Pick up DS** |
| | | ***Condition on Receipt*** | **Acceptable** |
| ***Customer PO*** | **51527304** | ***Date of Report*** | **03/07/2020** |
| ***Customer Ref*** | **20-0319 (Navan FE)** | ***Sample Type*** | **Effluent** |
| ***Ref 2*** | **24/06/20 10:20** | | |
| ***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 : 03/07/2020***

***Aoife Harmon - Laboratory Supervisor***

Acc. : Accredited Parameters by ISO/IEC 17025:2017
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



Final results will be issued without any estimated uncertainty of measurement being applied.
Fitz scientific maintain all customer information in the strictest confidence which is legally enforceable.