Annual Environmental Report

2019

Dunmanway

D0160-01

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1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2019 AER

This Annual Environmental Report has been prepared for D0160-01, Dunmanway, in Cork 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.

Compilation of Drainage Area Plan for agglomeration ongoing, completion expected during 2020

1.2 TREATMENT SUMMARY

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

- DUNMANWAY WWTP with a Plant Capacity PE of 3500, the treatment type is 3P - Tertiary 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
TPEFF0500D0160SW001	DUNMANWAY WWTP	Treated	Non-Compliant	Ammonia-Total (as N) mg/l BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l ortho-Phosphate (as P) - unspecified mg/l

1.4 LICENCE SPECIFIC REPORTING INCLUDED IN AER

Assessment / Report	Included in AER
Priority Substances Assessment	Yes

2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

2.1 DUNMANWAY WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - DUNMANWAY 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	12	897	322.6
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	349	122.29
Total Nitrogen mg/l	12	56	27.05
Total Phosphorus (as P) mg/l	12	9.32	4.7
Hydraulic Capacity	N/A	1997	963

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’.

2.1.2 EFFLUENT MONITORING SUMMARY - TPEFF0500D0160SW001

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	125	250	N/A	12	1	N/A	28.68	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	N/A	12	1	1	6.02	Fail
Suspended Solids mg/l	25	62.5	N/A	12	N/A	N/A	5.82	Pass
pH pH units	9	9	N/A	12	N/A	N/A	7.56	Pass
Ammonia-Total (as N) mg/l	1	2	N/A	12	5	5	3.94	Fail
ortho-Phosphate (as P) - unspecified mg/l	0.5	0.6	N/A	12	2	2	0.35	Fail
Total Nitrogen mg/l	N/A	N/A	N/A	12	N/A	N/A	8.31	
Total Phosphorus (as P) mg/l	N/A	N/A	N/A	12	N/A	N/A	0.56	

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):

Operational issues

Significance of Results:

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

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF0500D0160SW001

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	124173, 53023	RS20B020200	No	No	Yes	No	Good
Downstream	125677, 51284	RS20B020300	No	No	Yes	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	RS20B020200	0.8	RS20B020300	0.725	1.5	-5

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
Ammonia-Total (as N) mg/l	RS20B020200	0.02	RS20B020300	0.014	0.065	-8.1
Orthophosphate (MRP) filtered (As P) mg/l	RS20B020200	0.05	RS20B020300	0.018	0.035	-92.1
pH pH units	RS20B020200	7.525	RS20B020300	7.378		
Conductivity 20 C µS/cm	RS20B020200	111.5	RS20B020300	123.75		
Temperature °C	RS20B020200	13.85	RS20B020300	13.6		
Nitrite (as N) mg/l	RS20B020200	0.002	RS20B020300	0.004		
Dissolved Oxygen mg/l	RS20B020200	10.775	RS20B020300	11.244		
Dissolved Oxygen % O2	RS20B020200	104	RS20B020300	102		

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 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 - DUNMANWAY WWTP

2.1.4.1 Treatment Efficiency Report - DUNMANWAY 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)
SS	N/A	2173	N/A
cBOD	47129	2246	95
TP	1810	208	89
TN	10426	3102	70
COD	124321	10704	91

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

2.1.4.2 Treatment Capacity Report Summary - DUNMANWAY 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.

DUNMANWAY WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	2492
DWF to the Treatment Plant (m^3/day)	880
Current Hydraulic Loading - annual max (m^3/day)	1997

DUNMANWAY WWTP	
Average Hydraulic loading to the Treatment Plant (m^3/day)	963
Organic Capacity (PE) - As Constructed	3500
Organic Capacity (PE) - Collected Load (peak week)[Note1]	2183
Organic Capacity (PE) - Remaining	1317
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 - DUNMANWAY 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)
Domestic /Septic Tank Sludge	108	Volume (m3)		0.5	Yes	Yes	No
Domestic /Septic Tank Sludge	60	Volume (m3)		0.5	Yes	Yes	No
Domestic /Septic Tank Sludge	180	Volume (m3)		0.07	Yes	Yes	No

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 2019.			

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)
Breach of ELV	WWTP biological sludge issue	1	No	Yes
Breach of ELV	Inadequate Operational Procedures / Training	1	No	Yes
Abatement Equipment offline	Plant or equipment maintenance at WWTP	1	No	Yes

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Breach of ELV	Inadequate Operational Procedures / Training	1	No	Yes
Breach of ELV	Shock load to the WWTP	1	No	No
Breach of ELV	Other	1	No	No

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2019	6
Number of Incidents reported to the EPA via EDEN in 2019	6
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
SW007	123234.96283492, 52182.05415425	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
TBC	124084.50482321, 52996.84964339	No	Low	Meeting	Unknown	Unknown	Not Monitored
SW008	123722.9301977, 53017.69049515	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
SW009	122760.20750262, 52444.49628189	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
TBC	123556.66194839, 52546.72105595	No	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?	Yes
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?	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)	Description	Licence Schedule	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works	Timeframe for Completing the Work	Comments
There are no Specified Improvement Programmes for this Agglomeration.							

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.

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
Pearl Mussel Report	Yes	2014	No	
Priority Substances Assessment	Yes	2014	Yes	5.2

5.1 PEARL MUSSEL REPORT

The Pearl Mussel Report Report has been included in the AER 2014

5.2 PRIORITY SUBSTANCES ASSESSMENT

The Priority Substances Assessment Report is included in Appendix 7.1 - Priority Substances Assessment. A summary of the findings of this report is included below.

Parameter	Value
There is no Finding Question data included in this Licence Specific Report.	

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:

Signed: Date: 16/04/2020

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 - Priority Substances Assessment

Appendix D: Priority Substance Assessment

			Result		Breach of Limit in EQS standard
Dunmanway WWTP	22/10/2013	1,1,1,2-Tetrachloroethane (Industrial Eff.)	<0.66	ug/L	No
Dunmanway WWTP	22/10/2013	1,1,1-Trichloroethane (Industrial Eff.)	<0.39	ug/L	No
Dunmanway WWTP	22/10/2013	1,1,2,2-Tetrachloroethane (Industrial Eff.)	<5.00	ug/L	No
Dunmanway WWTP	22/10/2013	1,1,2-Trichloroethane (Industrial Eff.)	<1.26	ug/L	No
Dunmanway WWTP	22/10/2013	1,1-Dichloroethane (Industrial Eff.)	<0.51	ug/L	No
Dunmanway WWTP	22/10/2013	1,1-Dichloroethene (Industrial Eff.)	<0.50	ug/L	No
Dunmanway WWTP	22/10/2013	1,1-Dichloropropene (Industrial Eff.)	<0.39	ug/L	No
Dunmanway WWTP	22/10/2013	1,2-Dichlorobenzene (Industrial Eff.)	<0.66	ug/L	No
Dunmanway WWTP	22/10/2013	1,2-Dichloropropane (Industrial Eff.)	<0.72	ug/L	No
Dunmanway WWTP	22/10/2013	1,2,3-Trichlorobenzene (Industrial Eff.)	<0.61	ug/L	No
Dunmanway WWTP	22/10/2013	1,2,3-Trichloropropane (Industrial Eff.)	<1.31	ug/L	No
Dunmanway WWTP	22/10/2013	1,2,4-Trichlorobenzene (Industrial Eff.)	<0.48	ug/L	No
Dunmanway WWTP	22/10/2013	1,2,4-Trimethylbenzene (Industrial Eff.)	<0.64	ug/L	No
Dunmanway WWTP	22/10/2013	1,2-Dibromo-3-chloropropane (Industrial Eff.)	<5.00	ug/L	No

Dunmanway WWTP	22/10/2013	1,2-Dibromoethane (Industrial Eff.)	<1.04	ug/L	No
Dunmanway WWTP	22/10/2013	1,2-Dichloroethane (Industrial Eff.)	<0.65	ug/L	No
Dunmanway WWTP	22/10/2013	1,3-Dichloropropane (Industrial Eff.)	<0.77	ug/L	No
Dunmanway WWTP	22/10/2013	1,3,5-Trimethylbenzene (Industrial Eff.)	<0.59	ug/L	No
Dunmanway WWTP	22/10/2013	1,3-Dichlorobenzene (Industrial Eff.)	<0.53	ug/L	No
Dunmanway WWTP	22/10/2013	1,4-Dichlorobenzene (Industrial Eff.)	<1.16	ug/L	No
Dunmanway WWTP	22/10/2013	2,2-Dichloropropane (Industrial Eff)	<5.00	ug/L	No
Dunmanway WWTP	22/10/2013	2-Chlorotoluene (Industrial Eff.)	<0.50	ug/L	No
Dunmanway WWTP	22/10/2013	4-Chlorotoluene (Industrial Eff.)	<0.51	ug/L	No
Dunmanway WWTP	22/10/2013	Benzene (Industrial Eff.)	<0.47	ug/L	No
Dunmanway WWTP	22/10/2013	Bromobenzene (Industrial Eff.)	<0.60	ug/L	No
Dunmanway WWTP	22/10/2013	Bromochloromethane (Industrial Eff.)	<0.71	ug/L	No
Dunmanway WWTP	22/10/2013	Bromodichloromethane (Industrial Eff.)	<0.62	ug/L	No
Dunmanway WWTP	22/10/2013	Bromoform (Industrial Eff.)	<5.00	ug/L	No
Dunmanway WWTP	22/10/2013	Bromomethane (Industrial Eff.)	<5.00	ug/L	No
Dunmanway WWTP	22/10/2013	Carbon tetrachloride (Industrial Eff.)	<5.00	ug/L	No
Dunmanway	22/10/2013	Chlorobenzene (Industrial Eff.)	<0.27	ug/L	No

WWTP					
Dunmanway WWTP	22/10/2013	Chloroethane (Industrial Eff.)	<5.00	ug/L	No
Dunmanway WWTP	22/10/2013	Chloroform (Industrial Eff.)	<0.62	ug/L	No
Dunmanway WWTP	22/10/2013	Chloromethane (Industrial Eff.)	<5.00	ug/L	No
Dunmanway WWTP	22/10/2013	cis-1,2-Dichloroethene (Industrial Eff.)	<0.58	ug/L	No
Dunmanway WWTP	22/10/2013	cis-1,3-Dichloropropene (Industrial Eff.)	<0.85	ug/L	No
Dunmanway WWTP	22/10/2013	Dibromochloromethane (Industrial Eff.)	<0.43	ug/L	No
Dunmanway WWTP	22/10/2013	Dibromomethane (Industrial Eff.)	<0.88	ug/L	No
Dunmanway WWTP	22/10/2013	Dichlorodifluoromethane (Industrial Eff.)	<5.00	ug/L	No
Dunmanway WWTP	22/10/2013	Dichloromethane (Industrial Eff.)	<5.00	ug/L	No
Dunmanway WWTP	22/10/2013	Ethylbenzene (Industrial Eff.)	<0.45	ug/L	No
Dunmanway WWTP	22/10/2013	Hexachlorobutadiene (Industrial Eff.)	<0.70	ug/L	No
Dunmanway WWTP	22/10/2013	Isopropylbenzene (Industrial Eff.)	<0.36	ug/L	No
Dunmanway WWTP	22/10/2013	m- + p-Xylene (Industrial Eff.)	<0.70	ug/L	No
Dunmanway WWTP	22/10/2013	Naphthalene (Industrial Eff.)	<0.70	ug/L	No
Dunmanway WWTP	22/10/2013	n-Butylbenzene (Industrial Eff.)	<0.41	ug/L	No
Dunmanway WWTP	22/10/2013	n-Propylbenzene (Industrial Eff.)	<0.31	ug/L	No

Dunmanway WWTP	22/10/2013	o-Xylene (Industrial Eff.)	<0.48	ug/L	No
Dunmanway WWTP	22/10/2013	sec-Butylbenzene (Industrial Eff.)	<0.34	ug/L	No
Dunmanway WWTP	22/10/2013	Styrene (Industrial Eff.)	<0.53	ug/L	No
Dunmanway WWTP	22/10/2013	tert-Butylbenzene (Industrial Eff.)	<0.49	ug/L	No
Dunmanway WWTP	22/10/2013	Tetrachloroethene (Industrial Eff.)	<0.39	ug/L	No
Dunmanway WWTP	22/10/2013	Toluene (Industrial Eff.)	<0.54	ug/L	No
Dunmanway WWTP	22/10/2013	trans-1,2-Dichloroethene (Industrial Eff.)	<0.61	ug/L	No
Dunmanway WWTP	22/10/2013	trans-1,3-Dichloropropene (Industrial Eff.)	<4.00	ug/L	No
Dunmanway WWTP	22/10/2013	Trichloroethene (Industrial Eff)	<5.00	ug/L	No
Dunmanway WWTP	22/10/2013	Trichlorofluoromethane (Industrial Eff.)	<5.00	ug/L	No
Dunmanway WWTP	22/10/2013	Vinyl chloride (Industrial Eff.)	<5.00	ug/L	No
Dunmanway WWTP	22/10/2013	p-Isopropyltoluene (Industrial Eff.)	<0.67	ug/L	No
Dunmanway WWTP	22/10/2013	Total Xylene (Industrial Eff.)	<0.70	ug/L	No
Dunmanway WWTP	22/10/2013	Volatile Organic Compounds	<1	ug/L	No
Dunmanway WWTP	22/10/2013	Polyaromatic Hydrocarbons	<0.10	ug/L	No
Dunmanway WWTP	22/10/2013	Napthalene HPLC	<0.01	ug/L	No
Dunmanway	22/10/2013	Fluoranthene HPLC	<0.010	ug/L	No

WWTP					
Dunmanway WWTP	22/10/2013	Benzo(k)fluoranthene HPLC	<0.01	ug/L	No
Dunmanway WWTP	22/10/2013	Benzo(g,h,i)perylene HPLC	<0.01	ug/L	No
Dunmanway WWTP	22/10/2013	Indeno(1,2,3-cd)pyrene HPLC	<0.01	ug/L	No
Dunmanway WWTP	22/10/2013	Benzo(b)fluoranthene HPLC	<0.01	ug/L	No
Dunmanway WWTP	22/10/2013	Benzo(a)pyrene HPLC	<0.01	ug/L	No
Dunmanway WWTP	22/10/2013	Atrazine	<0.01	ug/L	No
Dunmanway WWTP	22/10/2013	Simazine	<0.01	ug/L	No
Dunmanway WWTP	22/10/2013	Polychlorinated Biphenyls	<0.05	ug/L	No
Dunmanway WWTP	22/10/2013	Phenols (Total)	<0.10	ug/L	No
Dunmanway WWTP	22/10/2013	Lead (Industrial Eff.)	2.038	ug/L	No
Dunmanway WWTP	22/10/2013	Arsenic (Industrial Eff.)	0.426	ug/L	No
Dunmanway WWTP	22/10/2013	Copper (Industrial Eff.)	15.77	ug/L	No
Dunmanway WWTP	22/10/2013	Zinc (Industrial Eff.)	141.4	ug/L	No (confirmed by calculation using Mass balance Eqn)
Dunmanway WWTP	22/10/2013	Cadmium (Industrial Eff.)	0.098	ug/L	No
Dunmanway	22/10/2013	Mercury (Ind Effluent)	<0.04	ug/L	No

WWTP					
Dunmanway WWTP	22/10/2013	Chromium (Industrial Eff.)	0.825	ug/L	No
Dunmanway WWTP	22/10/2013	Selenium (Industrial Eff.)	<2.12	ug/L	No
Dunmanway WWTP	22/10/2013	Antimony (Industrial Eff.)	<2.06	ug/L	No
Dunmanway WWTP	22/10/2013	Molybdenum	<5	ug/L	No
Dunmanway WWTP	22/10/2013	Tin	<2.8	ug/L	No
Dunmanway WWTP	22/10/2013	Barium (Industrial Eff.)	8.092	ug/L	No
Dunmanway WWTP	22/10/2013	Boron (Industrial Eff.)	110.1	ug/L	No
Dunmanway WWTP	22/10/2013	Cobalt (Industrial Eff.)	0.171	ug/L	No
Dunmanway WWTP	22/10/2013	Vanadium (Industrial Eff.)	0.615	ug/L	No
Dunmanway WWTP	22/10/2013	Nickel (Industrial Eff.)	9.331	ug/L	No
Dunmanway WWTP	22/10/2013	Fluoride (Industrial Eff.)	0.12	mg/L	No
Dunmanway WWTP	22/10/2013	Chloride (Industrial Eff.)	18.72	mg/L	No
Dunmanway WWTP	22/10/2013	Total Organic Carbon	4.60	mg/L	No
Dunmanway WWTP	22/10/2013	Cyanide	<5	ug/L	No
Dunmanway WWTP	22/10/2013	Conductivity (Industrial Eff at 20C)	170	uscm-1 @20C	No

Dunmanway WWTP	22/10/2013	Hardness Total (Industrial Eff.)	49	mg/L CaCO3	No
Dunmanway WWTP	22/10/2013	pH (Industrial Eff.)	7.0	pH Units	No
Dunmanway WWTP	22/10/2013	DEHP*	<0.001	ug/L	No
Dunmanway WWTP	22/10/2013	Isodrin (OC)*	<0.001	ug/L	No
Dunmanway WWTP	22/10/2013	Dieldrin (OC)*	<0.0010	ug/L	No
Dunmanway WWTP	22/10/2013	Diuron (SU)*	<0.0010	ug/L	No
Dunmanway WWTP	22/10/2013	Isoproturon* (SU)	<0.0010	ug/L	No
Dunmanway WWTP	22/10/2013	Glyphosate*	0.0080	ug/L	No
Dunmanway WWTP	22/10/2013	Mecoprop Total (AH)*	<0.0010	ug/L	No
Dunmanway WWTP	22/10/2013	Mecoprop-P*	<0.001	ug/L	No
Dunmanway WWTP	22/10/2013	2,4 D (AH)*	<0.0010	ug/L	No
Dunmanway WWTP	22/10/2013	MCPA (AH)*	0.0020	ug/L	No
Dunmanway WWTP	22/10/2013	Linuron (SU)*	<0.0010	ug/L	No
Dunmanway WWTP	22/10/2013	Dichlobenil (OC)*	<0.0010	ug/L	No
Dunmanway WWTP	22/10/2013	2,6-Dichlorobenzamide*	<0.0001	ug/L	No