

# Annual Environmental Report

2019



Bundoran

D0130-01

## **CONTENTS**

### **1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2019 AER**

- 1.1 ANNUAL STATEMENT OF MEASURES
- 1.2 TREATMENT SUMMARY
- 1.3 ELV OVERVIEW
- 1.4 LICENSE SPECIFIC REPORT INCLUDED IN AER

### **2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY**

- 2.1 BUNDORAN WWTP - TREATED DISCHARGE
  - 2.1.1 INFLUENT SUMMARY - BUNDORAN WWTP
  - 2.1.2 EFFLUENT MONITORING SUMMARY - BUNDORAN WWTP -
  - 2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE -
  - 2.1.4 OPERATIONAL REPORTS SUMMARY FOR BUNDORAN WWTP
  - 2.1.5 SLUDGE/OTHER INPUTS TO BUNDORAN WWTP

### **3 COMPLAINTS AND INCIDENTS**

- 3.1 COMPLAINTS SUMMARY
- 3.2 REPORTED INCIDENTS SUMMARY
  - 3.2.1 SUMMARY OF INCIDENTS
  - 3.2.2 SUMMARY OF OVERALL INCIDENTS

### **4 INFRASTRUCTURAL ASSESSMENT AND PROGRAMME OF IMPROVEMENTS**

- 4.1 STORM WATER OVERFLOW IDENTIFICATION AND INSPECTION REPORT
  - 4.1.1 SWO IDENTIFICATION AND INSPECTION SUMMARY REPORT
- 4.2 REPORT ON PROGRESS MADE AND PROPOSALS BEING DEVELOPED TO MEET THE IMPROVEMENT PROGRAMME REQUIREMENTS
  - 4.2.1 SPECIFIED IMPROVEMENT PROGRAMME SUMMARY
  - 4.2.2 IMPROVEMENT PROGRAMME SUMMARY
  - 4.2.3 SEWER INTEGRITY RISK ASSESSMENT

### **5 LICENCE SPECIFIC REPORTS**

- 5.1 PRIORITY SUBSTANCES ASSESSMENT

### **6 CERTIFICATION AND SIGN OFF**

- 6.1 SUMMARY OF AER CONTENTS

### **7 APPENDIX**

## 7.1 AMBIENT MONITORING SUMMARY

# 1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2019 AER

This Annual Environmental Report has been prepared for D0130-01, Bundoran, in Donegal 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 WWTW completed 2018 and no further improvement works required.

## 1.2 TREATMENT SUMMARY

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

- Bundoran WWTP with a Plant Capacity PE of 12000, the treatment type is 3N - Tertiary N 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
TPEFF0600D0130SW001	Bundoran WWTP	Treated	Compliant	N/A

## 1.4 LICENCE SPECIFIC REPORTING INCLUDED IN AER

Assessment / Report	Included in AER
<b>There are no Licence Specific Reports included in the AER.</b>	

## 2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

### 2.1 BUNDORAN WWTP - TREATED DISCHARGE

#### 2.1.1 INFLUENT MONITORING SUMMARY - BUNDORAN 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
<b>BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l</b>	12	148	81.58
<b>COD-Cr mg/l</b>	12	370	164.42
<b>Total Nitrogen mg/l</b>	12	52.8	23.53
<b>Suspended Solids mg/l</b>	12	177	91.33
<b>Total Phosphorus (as P) mg/l</b>	12	6.02	2.97
<b>Hydraulic Capacity</b>	N/A	3948	2182

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 - TPEFF0600D0130SW001

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)
<b>COD-Cr mg/l</b>	125	250	N/A	12	N/A	N/A	18	Pass
<b>Suspended Solids mg/l</b>	35	87.5	N/A	12	N/A	N/A	3	Pass
<b>Total Oxidised Nitrogen (as N) mg/l</b>	30	36	N/A	12	N/A	N/A	3.76	Pass
<b>Temperature °C</b>	25	25	N/A	11	N/A	N/A	4.63	Pass
<b>BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l</b>	25	50	N/A	12	N/A	N/A	1.13	Pass
<b>pH pH units</b>	9	9	N/A	12	N/A	N/A	7.47	Pass
<b>Ammonia-Total (as N) mg/l</b>	5	6	N/A	12	N/A	N/A	0.5	Pass
<b>Total Phosphorus (as P) mg/l</b>	N/A	N/A	N/A	12	N/A	N/A	1.43	
<b>Nitrite (as N) mg/l</b>	N/A	N/A	N/A	12	N/A	N/A	0.11	
<b>Conductivity 20 C µS/cm</b>	N/A	N/A	N/A	12	N/A	N/A	537.25	

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)
Dissolved Inorganic Nitrogen (as N) mg/l	N/A	N/A	N/A	12	N/A	N/A	4.25	
Total Nitrogen mg/l	N/A	N/A	N/A	12	N/A	N/A	5.56	
Nitrate (as N) mg/l	N/A	N/A	N/A	12	N/A	N/A	3.64	
Faecal coliforms cfu/100ml	N/A	N/A	N/A	6	N/A	N/A	14416.67	
E. Coli MPN/100ml	N/A	N/A	N/A	6	N/A	N/A	45631.67	
ortho-Phosphate (as P) - unspecified mg/l	N/A	N/A	N/A	12	N/A	N/A	1.35	
Enterococci (Intestinal) cfu/100ml	N/A	N/A	N/A	6	N/A	N/A	4000	

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 TPEFF0600D0130SW001

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

### 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.

During coastal monitoring some pollution/debris was detected on the local beach and is included as investigative monitoring; however, the cause was not attributed to the WWTP.

## 2.1.4 OPERATIONAL PERFORMANCE SUMMARY - BUNDORAN WWTP

### 2.1.4.1 Treatment Efficiency Report - Bundoran 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	52039	1709	97
TP	1694	814	52
cBOD	46483	641	99
TN	13404	3165	76
COD	93679	10256	89

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

#### **2.1.4.2 Treatment Capacity Report Summary - Bundoran 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.

<b>Bundoran WWTP</b>	
<b>Peak Hydraulic Capacity (m<sup>3</sup>/day) - As Constructed</b>	6065
<b>DWF to the Treatment Plant (m<sup>3</sup>/day)</b>	1440
<b>Current Hydraulic Loading - annual max (m<sup>3</sup>/day)</b>	3948
<b>Average Hydraulic loading to the Treatment Plant (m<sup>3</sup>/day)</b>	2182
<b>Organic Capacity (PE) - As Constructed</b>	12000
<b>Organic Capacity (PE) - Collected Load (peak week)<sup>Note1</sup></b>	6940
<b>Organic Capacity (PE) - Remaining</b>	5060

<b>Will the capacity be exceeded in the next three years? (Yes/No)</b>	<b>No</b>
--	-----------

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 - BUNDORAN 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)
<b>There is no Sludge and Other Input data for the Treatment Plant included in the AER.</b>							

## 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
1	Blocked Sewer	0	1

### 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	SWO exceptional rainfall and overflow expected	1	No	No

### 3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2019	1
Number of Incidents reported to the EPA via EDEN in 2019	1
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
<b>SW2</b>	181509, 359023	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
<b>SW3</b>	179195, 359139	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
<b>SW4</b>	179195, 359139	Yes	Low	Not yet Assessed	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?

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
<b>D0130-SIP:02</b>	Installation of new Main Pumping Station and associated storm water holding tanks	C	30/06/2012	Yes	Works Completed		
<b>D0130-SIP:04</b>	Installation of storm water holding tanks at new WWTP	C	30/06/2012	Yes	Works Completed		
<b>D0130-SIP:08</b>	Wastewater collection system improvements including sewer diversions and new sewers to reduce surcharging and relieve flooding in town	C	30/06/2012	Yes	Works Completed		
<b>D0130-SIP:01</b>	Extension of marine outfall (primary discharge point SW1) as Pollbreen	C	30/06/2012	Yes	Works Completed		

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
<b>D0130-SIP:03</b>	Installation of new West End Pumping Station and associated storm water holding tanks	C	30/06/2012	Yes	Works Completed		
<b>D0130-SIP:05</b>	Provision of new WWTP and ancillary works	C	30/06/2012	Yes	Works Completed		
<b>D0130-SIP:06</b>	SW1 shall be upgraded by 400m subtidal extension of the existing outfall	A	30/06/2012	Yes	Works Completed		
<b>D0130-SIP:07</b>	SW2 shall be upgraded by 40m extension of the existing outfall	A	30/06/2012	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
<b>There are no Improvements Programme for this Agglomeration.</b>				

## 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
<b>Priority Substances Assessment</b>	Yes	2015	No	

### 5.1 PRIORITY SUBSTANCES ASSESSMENT

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

## 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: 18/06/2020

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 - Ambient monitoring summary

Ambient Monitoring

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish Grid Reference	EPA Feature Coding Tool code	Receiving Waters Designation (Y/N)				WFD Status
			Bathing Water	Drinking Water	FWPM	Shellfish	
Downstream Monitoring Point SW001 CW06007036ER2003	179440, 358747	IE_NW_010_0000	Yes	No	No	No	Unassigned

TRAC 2015 Ambient Monitoring Data

Station No	Sample Label	Salinity S ‰	Temp S °C	pH	DO S % Sat	TON mg/l N	NH3 mg/l N	PO4 µg/l P	Chlorophyll a mg/m <sup>3</sup>	DIN mg/l N	Free NH3 mg/l N	DO mg/l	Season	WB
ER070	ER070S	6.62	14.36		8.1	112.6	0.39	0.014	26	2	0.404	0.00054	11 Summer	Donegal Bay (Erne)
ER070	ER070C	30.06	15.06		8.1	102	0.011	0.012	2.5	1	0.023	0.00049	8.5 Summer	Donegal Bay (Erne)
ER070	ER070C	31.84	15.05		8.1	101.5	0.011	0.012	2.5	1	0.023	0.00049	8.4 Summer	Donegal Bay (Erne)
ER070	ER070B	31.74	11.85		8.1	100.8	0.044	0.018	12	1	0.062	0.00058	8.9 Summer	Donegal Bay (Erne)
ER070	ER070C	5.72	15.48		8	93.4	0.23	0.045	21	3	0.275	0.00151	9 Summer	Donegal Bay (Erne)
ER070	ER070C	3.81	15.53		8	93.2	0.23	0.045	21	3	0.275	0.00151	9.1 Summer	Donegal Bay (Erne)
ER070	ER070S				8.1		0.39	0.014	26	2	0.404		Summer	Donegal Bay (Erne)
ER070	ER070B				8.1		0.044	0.018	12	1	0.062		Summer	Donegal Bay (Erne)
ER070	ER070C	20.82	6.41		7.9	101.7	0.4	0.01	30	1	0.41	0.00013	10.9 Winter	Donegal Bay (Erne)

Bundoran Ambient Monitoring										Parameter	Enterococci	E Coli	Visual Inspection
Report No:20DL146										Limit	100	250	--
Season 2019													
Category	Station	River Basin District	Ground Waterb	Sample Template	Sample Refere	Sample Date	Sample Time	Reason	Comments	Units	cfu/100mls	MPN/100mls	Descriptive
Bathing Waters	Bundoran Beach	North Western	Bundoran	DCC Non Blue Flag Beach Monitoring	192501951	22-May-2019	14:35	Compliance	-	-	< 1	< 10	Nothing Observed
Bathing Waters	Bundoran Beach	North Western	Bundoran	DCC Non Blue Flag Beach Monitoring	192502261	5-June-2019	09:40	Compliance	-	-	60	120	Nothing Observed
Bathing Waters	Bundoran Beach	North Western	Bundoran	DCC Non Blue Flag Beach Monitoring	192502416	19-June-2019	10:40	Compliance	-	-	2	10	Nothing Observed
Bathing Waters	Bundoran Beach	North Western	Bundoran	DCC Non Blue Flag Beach Monitoring	192502484	26-June-2019	10:15	Compliance	-	-	5	41	Nothing Observed
Bathing Waters	Bundoran Beach	North Western	Bundoran	DCC Non Blue Flag Beach Monitoring	192502768	3-July-2019	10:45	Compliance	-	-	1	< 10	Nothing Observed
Bathing Waters	Bundoran Beach	North Western	Bundoran	DCC Non Blue Flag Beach Monitoring	192502872	17-July-2019	10:15	Compliance	-	-	16	41	Nothing Observed
Bathing Waters	Bundoran Beach	North Western	Bundoran	DCC Non Blue Flag Beach Monitoring	192503021	22-July-2019	15:45	Investigative	-	-	72	432	Visible Pollution observed on beach
Bathing Waters	Bundoran Beach	North Western	Bundoran	DCC Non Blue Flag Beach Monitoring	192502985	23-July-2019	13:30	Investigative	Bundoran Beach mid tide weather dry warm overcast	-	3	10	No Pollution evident on beach
Bathing Waters	Bundoran Beach	North Western	Bundoran	DCC Non Blue Flag Beach Monitoring	192503032	24-July-2019	10:15	Compliance	-	-	2	41	Nothing Observed
Bathing Waters	Bundoran Beach	North Western	Bundoran	DCC Non Blue Flag Beach Monitoring	192503286	7-Aug-2019	10:20	Compliance	-	-	12	30	Nothing Observed
Bathing Waters	Bundoran Beach	North Western	Bundoran	DCC Non Blue Flag Beach Monitoring	192503269	9-Aug-2019	16:00	Investigative	Post visible signs of pollution on beach.	-	11	10	Signs of visible pollution on beach
Bathing Waters	Bundoran Beach	North Western	Bundoran	DCC Non Blue Flag Beach Monitoring	192503338	14-Aug-2019	10:15	Compliance	-	-	1	< 10	Nothing Observed
Bathing Waters	Bundoran Beach	North Western	Bundoran	DCC Non Blue Flag Beach Monitoring	192503375	21-Aug-2019	10:10	Compliance	-	-	250	6488	Nothing Observed
Bathing Waters	Bundoran Beach	North Western	Bundoran	DCC Non Blue Flag Beach Monitoring	192503441	22-Aug-2019	10:00	Investigative	End Sample for the Incident that occurred 21/08/2019	-	8	20	Nothing Observed
Bathing Waters	Bundoran Beach	North Western	Bundoran	DCC Non Blue Flag Beach Monitoring	192503494	23-Aug-2019	08:25	Investigative	Replacement Sample for sample taken on the 21/08/2019 incident	-	1	< 10	Nothing Observed
Bathing Waters	Bundoran Beach	North Western	Bundoran	DCC Non Blue Flag Beach Monitoring	192503776	4-Sep-2019	10:00	Compliance	-	-	6	20	Nothing Observed