



Attachment 7-1-3-1

Emissions Compliance Report

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# 1 Introduction

Anglo Beef Processors Ireland Unlimited has been operating its Waterford Proteins site under an IPC licence (P0040-01) from the EPA since 1997. The licence was reviewed in 2001 (P0040-02) and was amended to an Industrial Emissions Licence (IEL) in 2013. The EPA has requested for the current licence to be reviewed due to material changes in the nature and extent of emissions at the installation. This report forms part of the licence review (Attachment 7-1-3-1) for the IEL for the facility.

A compliance report with current emission limit values (ELVs) (where applicable) is included for each relevant existing emission/discharge thematic from the facility which include:

- Air;
- Sewer;
- Surface Water;
- Noise.

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## 2 Emissions to Air

### 2.1 Biofilter

#### 2.1.1 Emission Limits

There is currently one licensed main air emission point at the Waterford Proteins site; a biofilter (AEP-1). Schedule 1(i) of the current licence outlines the emission limits for AEP-1 (Figure 1).

Environmental Protection Agency		IPC Licence Reg. Nº 586
<b>Schedule 1(i) Emissions to Atmosphere</b>		
<b>Emission Point Reference No.:</b>	A1-AEP 1	
<b>Location:</b>	Biofilter (Rear of process building)	
<b>Grid Reference:</b>	N112135 E262130	
<b>Loading Rate:</b>	< 150 m <sup>3</sup> /m <sup>2</sup> /hr	
<b>Minimum discharge height:</b>	2 m above ground	
Parameter	Emission Limit Value	
Ammonia	50 ppm	
Amines	5 ppm	
Hydrogen sulphide & Mercaptans	5 ppm	

**Figure 1: Waterford Proteins Emissions to Air Licence Limits (P0040-02)**

#### 2.1.2 Compliance with Emission Limits Values

Emissions from the biofilter (AEP1) are monitored as required by the IE licence (see Figure 2). The monitoring results from 2018-2020 (see Appendix A) for the biofilter show that no exceedances of the ELVs have been recorded during this period.

### Schedule 1(iii) Monitoring of Emissions to Atmosphere

Emission Point Reference No's: A1-AEP 1

Parameter	Monitoring Frequency	Analysis Method/Technique
Pressure drop across filter	Daily	Differential pressure gauge
Fan operation	Daily	Visual inspection
Olfactory assessment	Daily	Methodology to be agreed in writing with the Agency within one month of date of grant of the licence
Sprinkler system	Daily	Visual inspection
Visual inspection of bed <sup>Note 1</sup>	Weekly	Visual inspection
* Relative humidity <sup>Note 2</sup>	Weekly	Humidity sensor
Temperature <sup>Note 2</sup>	Weekly	Temperature sensor
Gas loading <sup>Note 2</sup>	Weekly	Flow sensor
Ammonia <sup>Note 3</sup>	Weekly	Colorimetric indicator tube
Mercaptans <sup>Note 3</sup>	Weekly	Colorimetric indicator tube
Hydrogen sulphide <sup>Note 3</sup>	Weekly	Colorimetric indicator tube
* Bed material – pH	Quarterly	Standard Methods
* Bed material – moisture	Quarterly	Standard Methods
* Bed material – ammonia	Quarterly	Standard Methods
* Bed material – oils, fats & grease	Quarterly	Standard Methods
* Bed material – total viable counts	Biannually	Standard Methods
Amines	Biannually	NIOSH Method 2010

\* All measurements should be made at peak loadings.

Note 1: The biofilter bed shall be examined to ensure that no channelling or drying out of the bed material is evident. Turning, restructuring and dampening of the bed material and the addition of supplementary bed material, or total bed material replacement shall be carried out, as required, subject to bed performance.

Note 2: Analysis of gases shall be carried out at inlet to biofilter.

Note 3: Analysis for the above parameters shall be carried out at the inlet and outlet to the biofilter

**Figure 2: Waterford Proteins Schedule of Monitoring for Emissions to Atmosphere (P0040-02)**

#### 2.1.3 Proposed Emission Limits Values

Waterford Proteins proposes to continue monitoring the existing biofilter (AEP 1) parameters and retain the current emission limits in the revised licence. The proposed emission parameters and emission limits are compliant with BAT-Associated Emission Levels for Emissions to Air for the sector (BAT Guidance Note for the Disposal or Recycling of Animal Carcasses and Animal Waste, EPA 2008).

Although there have been a number of infrequent complaints relating to odour received at the site in the last five years, the majority of these related to delivery vehicles transporting material to the site or to other off-site sources. Odour from the biofiltration bed is not considered characteristic of the rendering process. The odour from the biofiltration is characteristic of the woodchip media and is not considered offensive.

## 2.2 Thermal Oxidiser

### 2.2.1 Emission Limits Values

There are no emission limits for the thermal oxidiser (TO) in the current Waterford Proteins IE licence. The results of the emissions monitoring undertaken in 2018 – 2020 for the TO are provided in Appendix B.

### 2.2.2 Proposed Emission Limits Values

The proposed ELVs for the TO are outlined in Table 1 below and Attachment-7-4-1-*Emissions-to-Air-Main*. The proposed ELVs for all parameters have been derived from monitoring of the TO. The proposed emission limits are compliant with BAT Associated Emission Limits where applicable.

Parameter	Proposed Emission Limit Value	BAT Associated Emission Range <sup>1</sup>
Volumetric Flow	150,000 m <sup>3</sup> /hr	-
Nitrogen Oxides (as NO <sub>2</sub> )	650 mg/m <sup>3</sup>	-
Sulphur Dioxide (as SO <sub>2</sub> )	400 mg/m <sup>3</sup>	-
Total Organic Compounds (as C)	10 mg/m <sup>3</sup>	50 mg/m <sup>3</sup>
Particulate Matter (as PM <sub>2.5</sub> )	30 mg/m <sup>3</sup>	5 – 50 mg/m <sup>3</sup>

**Table 1: Proposed ELVs for the Thermal Oxidiser (AEP-2)**

<sup>1</sup> BAT Guidance Note for the Disposal or Recycling of Animal Carcasses and Animal Waste, 2008 (EPA)

### 3 Emissions to Sewer

Effluent from the Waterford Proteins site is discharged to the wastewater treatment plant (WWTP) in ABP Waterford (P0205-02). Schedule 2(ii) of the existing Waterford Proteins IE licence outlines the required monitoring frequency for wastewater emissions (see Figure 3).

**Schedule 2(ii) Monitoring of Waste Water Emissions**

Emission Point Reference No.: W1-SEP 1

Parameter	Monitoring Frequency	Analysis Method/Technique
Flow	Continuous	On-line flow meter with recorder
Temperature	Weekly	Temperature probe
pH	Weekly	pH electrode/meter
Biochemical Oxygen Demand	Weekly – grab at peak discharge	Standard Method
Biochemical Oxygen Demand	Weekly <sup>Note 1</sup>	Standard Method
Suspended Solids	Weekly <sup>Note 1</sup>	Gravimetric
Total Nitrogen (as N)	Monthly <sup>Note 1</sup>	Standard Method
Total Ammonia (as N)	Monthly <sup>Note 1</sup>	Standard Method
Total Phosphorus (as P)	Monthly <sup>Note 1</sup>	Standard Method
Oils, Fats & Greases	Monthly	Standard Method

Note 1: All samples shall be collected on a 24 hour flow proportional composite sampling basis.

**Figure 3: Waterford Proteins Monitoring Frequency for Wastewater Emissions (P0040-02)<sup>2</sup>**

#### 3.1.1 Compliance with Emission Limits Values

The ELVs for wastewater emissions are outlined in Figure 4 below. The wastewater monitoring results for 2018-2020 (see Appendix C for results) show that there were no exceedances of ELVs during this period.

<sup>2</sup> Oil, Fats & Greases monitoring frequency amended from monthly to quarterly with agreement from the EPA.

### Schedule 2(i) Emissions to Waste Water Treatment

<b>Emission Point Reference No.:</b>	W1-SEP 1	
<b>Location:</b>	Sewer	
<b>Volume to be emitted:</b>	Maximum in any one day:	400 m <sup>3</sup>
	Maximum rate per hour:	30 m <sup>3</sup>

Parameter	Emission Limit Value		
Temperature	35° C (max.)		
pH	6-9		
	Grab Sample (mg/l)	Daily Mean Concentration (mg/l)	Daily Mean Load (Kg/day)
BOD	5,000	2,100	840
Suspended Solids	1,500	-	-

**Figure 4: Waterford Proteins ELVs for Emissions to Sewer (P0040-02)**

#### 3.1.2 Proposed Emission Limits Values

Waterford Proteins has made significant reduction with respect to water usage on site as part of their water stewardship programme. This has had a number of consequences to the discharge to sewer.

It has reduced the volume of wastewater going for treatment. The current IE licence permits 400 m<sup>3</sup>/day but the company is confident that a reduced volume to 300 cubic meters per day will suffice.

As a result, the company requests to increase the concentration limits of licensed parameters in this wastewater as reduced wastewater volume will increase the concentration of contaminants. Overall, the same mass loading will be generated from the facility albeit with a lower water consumption.

The company requests that daily loadings are conditioned within the licence to permit the facility to further reduce water usage on site through their water stewardship programme.

The proposed ELVs for wastewater discharges are outlined in Table 2 below and Attachment-7-3-1-Emissions-to-Sewer.



Parameter	Proposed Emission Limit Values		
Max. Volume/day (m <sup>3</sup> )	300		
Max. Volume/hour (m <sup>3</sup> )	30		
pH	6-9 pH units		
Temperature	<35 °C		
	Daily Mean Concentration (mg/l)	Daily Mean Load (kg/day)	Daily Mean Load (kg/day)
BOD	6,500	2,800	840
Suspended Solids	2,000	-	600

**Table 2: Proposed ELVs for Wastewater Emissions (SEP-1)**

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## 4 Emissions to Surface Water

There is one surface water emission point included in the site's current IE licence. Schedule 4(i) of the IE licence (see Figure 5) outlines the required monitoring frequency. There are no emission limits set out in the licence for emissions to water. However, Condition 11.1.4 of the licence specifies that:

*'No potentially polluting substance or matter shall be permitted to discharge to off-site surface waters or off-site storm drains.'*

Stormwater from SW-1 currently discharges via SEP-1-to the WWTP at ABP Waterford. There are two additional stormwater emission points at the site (SW-2 and SW-3) which currently discharge stormwater from non-process areas to land drains. These stormwater water emission points are described in Attachment 7-7 *Storm-Water-Discharges*.

<b>Schedule 4(i) Surface Water Discharge Monitoring</b>		
<b>Emission Point Reference No.:</b>	SW1	
<b>Grid Reference No:</b>	E262090 N112090	
Parameter	Monitoring Frequency	Analysis Method/Technique
pH	Monthly	pH electrode/meter
BOD	Monthly	Standard Method
Total Ammonia	Monthly	Standard Method
Visual Inspection	Daily	Not Applicable

**Figure 5: Waterford Proteins Monitoring Frequency for Emissions to Surface Water (P0040-02)**

### 4.1 Compliance with Trigger Levels

Trigger values have been established for stormwater emissions in accordance with the EPA Guidance (*Guidance on the Setting of Trigger Values for Storm Water Discharges to Off-Site Surface Waters at EPA IPPC and Waste Licensed Facilities*, 2012). The results of surface water monitoring for Surface Water Emission Point 2 (SW-2) and Surface Water Emission Point 3 (SW-3) from 2018 - 2020 are shown in Appendix D. There were no exceedances of trigger levels during this period.

## 5 Noise Emissions

The Waterford Proteins site operates in accordance with the IE licence noise limits outlined in Table 3.

Max. noise level daytime dB L <sub>Ar,T</sub> (30 mins)	Max. noise level night dB L <sub>eq,T</sub> (15-30 mins)
55	45

**Table 3: Noise Emission Limits at Noise Sensitive Receptors**

Waterford Proteins carries out an annual noise monitoring in accordance with Condition 9.3 of the IE licence.

### 5.1 Compliance with ELVs

There were two noise complaints received by the site over the 2018-2020 period. It was determined that one of these complaints was the result of noise that did not originate at the Waterford Proteins factory. A possible source of noise was identified following the second complaint and corrective action was put in place.

Noise monitoring is carried out at four locations which are outlined in Figure 6. All four monitoring points are considered site boundary locations. Therefore, limits applied in the licence may not be applicable as they are not noise sensitive locations.

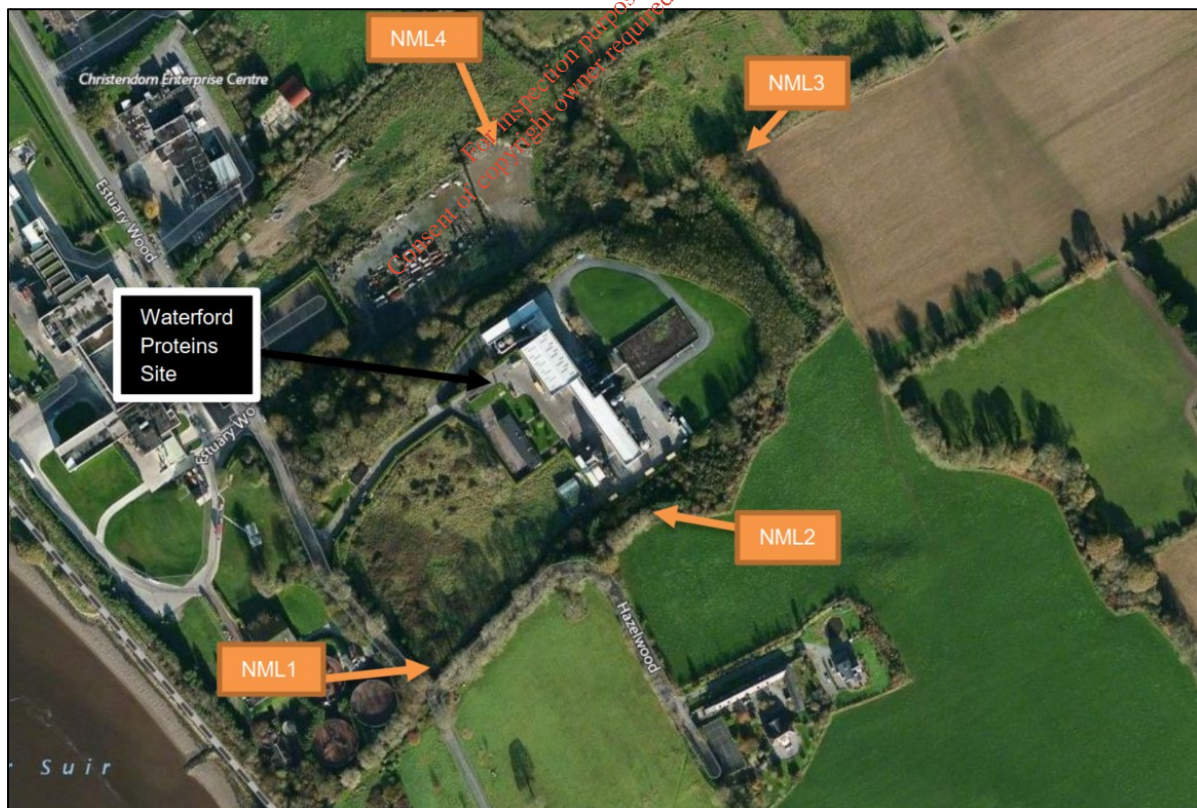
In 2018, all monitoring points were deemed compliant with the Waterford Proteins licence limits. When the L<sub>Aeq</sub> was considered, NML1 and NML3 were within the limits for noise sensitive locations (NSLs) for both day and night. The points NML2 and NML4 were within the daytime licence limit when L<sub>Aeq</sub> was applied. The night-time results exceeded the limit, but this was due to external noise sources.

In 2019, all monitoring points were deemed compliant with the Waterford Proteins licence limits. There was noise from construction activity which impacted the results at NML1. This activity is not associated with the normal daily activities at the Waterford Proteins site. The daytime noise levels were determined to be within the licence limit. The night noise survey result was above the night level limit but much of this noise was associated with traffic and was deemed to not originate from the site. The results were compliant with the licence limits with the use of the L<sub>A90</sub> to eliminate this interference. NML2 was also exposed to construction activity noise, but with the use of the L<sub>A90</sub> the results were compliant with the licence limits. The night results were above the licence limits due to noise attributed to the rendering plant, but as this is not a noise sensitive location, Condition 3.3 of the licence does not apply. NML3 was compliant with both day and night-time noise limits. The L<sub>A90</sub> was also considered appropriate here as the monitoring point was

impacted from an adjacent distribution facility. This location is not an NSL. NML4 was deemed compliant with the daytime licence limits. The results during the night-time monitoring were over licence limits but this is also not considered an NSL.

In 2020, all monitoring points were deemed compliant with the Waterford Proteins licence limits. There was noise from vegetation rustling and passing traffic, as well as noise from the rendering plant, picked up during monitoring at NML1. Due to this interference,  $L_{A90}$  was used to assess this point. Both day and night results were compliant with licence limits. The noise levels at NML2 were calculated using attenuation by distance calculations. The noise levels at the nearest NSL would have been approximately 46 dB(A) for daytime and 36 dB(A) at night which are compliant with the licence limits. Monitoring results at NML3 were compliant with licence limits. Results at NML4 were compliant with the licence limits for daytime. Monitoring at night-time resulted in a noise level of 52 dB(A) which would approximately equate to 40 dB(A) at the nearest NSL.

It was determined that there was no tonal or impulsive noise originating at the Waterford Proteins site during any monitoring undertaken at the site.



**Figure 6: Current Waterford Proteins Noise Monitoring Points (P0040-02)**

## 5.2 Proposed Noise Emission Limits

The recommended noise limit criteria in the ‘Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4, January 2016)’ are outlined in Table 4 below. The appropriate noise limits for the Waterford Proteins site are outlined in Table 5 and Attachment 7-5 *Noise-Emissions*.

Scenario	Daytime Noise Criterion, dB L <sub>Ar,T</sub> (07:00 to 19:00 hrs)	Evening Noise Criterion, dB L <sub>Ar,T</sub> (19:00 to 23:00 hrs)	Night-time Noise Criterion, dB L <sub>Aeq,T</sub> (23:00 to 07:00 hrs)
Quiet Area	Noise from the licensed site to be at least 10dB below the average daytime background noise level measured during the baseline noise survey.	Noise from the licensed site to be at least 10dB below the average evening background noise level measured during the baseline noise survey.	Noise from the licensed site to be at least 10dB below the average night-time background noise level measured during the baseline noise survey.
Areas of Low Background Noise	45dB	40dB	35dB
All other Areas	55dB	50dB	45dB

**Table 4: Noise Limit Criteria Outlined in NG4**

Max. noise level daytime dB L <sub>Ar,T</sub> (30 mins)	Max. noise level evening dB L <sub>Ar,T</sub> (30 mins)	Max. noise level night dB L <sub>Aeq,T</sub> (15-30 mins)
55	50	45

**Table 5: Proposed Noise Emission Limits at Noise Sensitive Locations for the Waterford Proteins Site**

# Appendix A – Biofilter (AEP-1) Monitoring Results

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Date	Units	Ammonia		Mercaptans		Hydrogen Sulphide		Amines	
		ELV	Result	ELV	Result	ELV	Result	ELV	Result
04/01/2018	ppm v/v	50	<5	5	N/D	5	N/D		
11/01/2018	ppm v/v	50	<5	5	N/D	5	N/D		
18/01/2018	ppm v/v	50	<5	5	N/D	5	N/D		
25/01/2018	ppm v/v	50	<5	5	N/D	5	N/D		
02/02/2018	ppm v/v	50	<5	5	N/D	5	N/D		
08/02/2018	ppm v/v	50	<5	5	N/D	5	N/D		
15/02/2018	ppm v/v	50	<5	5	N/D	5	N/D		
22/02/2018	ppm v/v	50	<5	5	N/D	5	N/D		
28/02/2018	ppm v/v	50	<5	5	N/D	5	N/D		
08/03/2018	ppm v/v	50	<5	5	N/D	5	N/D		
15/03/2018	ppm v/v	50	<5	5	N/D	5	N/D		
22/03/2018	ppm v/v	50	<5	5	N/D	5	N/D		
29/03/2018	ppm v/v	50	<5	5	N/D	5	N/D		
05/04/2018	ppm v/v	50	<5	5	N/D	5	N/D		
11/04/2018	ppm v/v	50	<5	5	N/D	5	N/D		
19/04/2018	ppm v/v	50	<5	5	N/D	5	N/D		
26/04/2018	ppm v/v	50	<5	5	N/D	5	N/D		
02/05/2018	ppm v/v	50	<5	5	N/D	5	N/D		
10/05/2018	ppm v/v	50	<5	5	N/D	5	N/D		
17/05/2018	ppm v/v	50	<5	5	N/D	5	N/D		
24/05/2018	ppm v/v	50	<5	5	N/D	5	N/D		
30/05/2018	ppm v/v	50	<5	5	N/D	5	N/D		
06/06/2018	ppm v/v	50	<5	5	N/D	5	N/D		
14/06/2018	ppm v/v	50	<5	5	N/D	5	N/D		
21/06/2018	ppm v/v	50	<5	5	N/D	5	N/D		
28/06/2018	ppm v/v	50	<5	5	N/D	5	N/D		
05/07/2018	ppm v/v	50	<5	5	N/D	5	N/D		
12/07/2018	ppm v/v	50	<5	5	N/D	5	N/D		
19/07/2018	ppm v/v	50	<5	5	N/D	5	N/D		
26/07/2018	ppm v/v	50	<5	5	N/D	5	N/D		
02/08/2018	ppm v/v	50	<5	5	N/D	5	N/D		
08/08/2018	ppm v/v	50	<5	5	N/D	5	N/D		

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Date	Units	Ammonia		Mercaptans		Hydrogen Sulphide		Amines	
		ELV	Result	ELV	Result	ELV	Result	ELV	Result
16/08/2018	ppm v/v	50	<5	5	N/D	5	N/D		
21/08/2018	ppm v/v	50	<5	5	N/D	5	N/D		
29/08/2018	ppm v/v	50	<5	5	N/D	5	N/D		
04/09/2018	ppm v/v	50	<5	5	N/D	5	N/D		
13/09/2018	ppm v/v	50	<5	5	N/D	5	N/D		
20/09/2018	ppm v/v	50	<5	5	N/D	5	N/D		
27/09/2018	ppm v/v	50	<5	5	N/D	5	N/D		
04/10/2018	ppm v/v	50	<5	5	N/D	5	N/D		
11/10/2018	ppm v/v	50	<5	5	N/D	5	N/D		
16/10/2018	ppm v/v	50	<5	5	N/D	5	N/D		
24/10/2018	ppm v/v	50	<5	5	N/D	5	N/D		
01/11/2018	ppm v/v	50	<5	5	N/D	5	N/D		
08/11/2018	ppm v/v	50	<5	5	N/D	5	N/D		
15/11/2018	ppm v/v	50	<5	5	N/D	5	N/D		
22/11/2018	ppm v/v	50	<5	5	N/D	5	N/D		
29/11/2018	ppm v/v	50	<5	5	N/D	5	N/D		
06/12/2018	ppm v/v	50	<5	5	N/D	5	N/D		
12/12/2018	ppm v/v	50	<5	5	N/D	5	N/D		
19/12/2018	ppm v/v	50	<5	5	N/D	5	N/D		
28/12/2018	ppm v/v	50	<5	5	N/D	5	N/D		
03/01/2019	ppm v/v	50	<5	5	N/D	5	N/D		
09/01/2019	ppm v/v	50	5	5	N/D	5	N/D		
17/01/2019	ppm v/v	50	5	5	N/D	5	N/D		
24/01/2019	ppm v/v	50	5	5	N/D	5	N/D		
31/01/2019	ppm v/v	50	5	5	N/D	5	N/D		
06/02/2019	ppm v/v	50	5	5	N/D	5	N/D		
14/02/2019	ppm v/v	50	5	5	N/D	5	N/D	5	4.62
21/02/2019	ppm v/v	50	5	5	N/D	5	N/D		
28/02/2019	ppm v/v	50	5	5	N/D	5	N/D		
07/03/2019	ppm v/v	50	5	5	N/D	5	N/D		
14/03/2019	ppm v/v	50	5	5	N/D	5	N/D		
21/03/2019	ppm v/v	50	5	5	N/D	5	N/D		

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Date	Units	Ammonia		Mercaptans		Hydrogen Sulphide		Amines	
		ELV	Result	ELV	Result	ELV	Result	ELV	Result
28/03/2019	ppm v/v	50	5	5	N/D	5	N/D		
04/04/2019	ppm v/v	50	5	5	N/D	5	N/D		
11/04/2019	ppm v/v	50	5	5	N/D	5	N/D		
18/04/2019	ppm v/v	50	5	5	N/D	5	N/D		
25/04/2019	ppm v/v	50	5	5	N/D	5	N/D		
01/05/2019	ppm v/v	50	5	5	N/D	5	N/D		
09/05/2019	ppm v/v	50	5	5	N/D	5	N/D		
15/05/2019	ppm v/v	50	5	5	N/D	5	N/D		
23/05/2019	ppm v/v	50	5	5	N/D	5	N/D		
29/05/2019	ppm v/v	50	5	5	N/D	5	N/D		
06/06/2019	ppm v/v	50	5	5	N/D	5	N/D		
13/06/2019	ppm v/v	50	5	5	N/D	5	N/D	5	4.07
20/06/2019	ppm v/v	50	5	5	N/D	5	N/D		
27/06/2019	ppm v/v	50	5	5	N/D	5	N/D		
04/07/2019	ppm v/v	50	5	5	N/D	5	N/D		
11/07/2019	ppm v/v	50	5	5	N/D	5	N/D		
18/07/2019	ppm v/v	50	5	5	N/D	5	N/D		
25/07/2019	ppm v/v	50	5	5	N/D	5	N/D		
31/07/2019	ppm v/v	50	5	5	N/D	5	N/D		
07/08/2019	ppm v/v	50	5	5	N/D	5	N/D		
13/08/2019	ppm v/v	50	5	5	N/D	5	N/D		
22/08/2019	ppm v/v	50	5	5	N/D	5	N/D		
29/08/2019	ppm v/v	50	5	5	N/D	5	N/D		
05/09/2019	ppm v/v	50	5	5	N/D	5	N/D		
12/09/2019	ppm v/v	50	5	5	N/D	5	N/D	5	0.35
18/09/2019	ppm v/v	50	5	5	N/D	5	N/D		
24/09/2019	ppm v/v	50	5	5	N/D	5	N/D		
02/10/2019	ppm v/v	50	5	5	N/D	5	N/D		
09/10/2019	ppm v/v	50	5	5	N/D	5	N/D		
17/10/2019	ppm v/v	50	5	5	N/D	5	N/D		
24/10/2019	ppm v/v	50	5	5	N/D	5	N/D		
31/10/2019	ppm v/v	50	5	5	N/D	5	N/D		

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Date	Units	Ammonia		Mercaptans		Hydrogen Sulphide		Amines	
		ELV	Result	ELV	Result	ELV	Result	ELV	Result
06/11/2019	ppm v/v	50	5	5	N/D	5	N/D		
14/11/2019	ppm v/v	50	5	5	N/D	5	N/D		
20/11/2019	ppm v/v	50	5	5	N/D	5	N/D		
28/11/2019	ppm v/v	50	5	5	N/D	5	N/D		
04/12/2019	ppm v/v	50	5	5	N/D	5	N/D		
11/12/2019	ppm v/v	50	5	5	N/D	5	N/D		
19/12/2019	ppm v/v	50	5	5	N/D	5	N/D		
24/12/2019	ppm v/v	50	5	5	N/D	5	N/D		
02/01/2020	ppm v/v	50	5	5	N/D	5	N/D		
09/01/2020	ppm v/v	50	5	5	N/D	5	N/D		
17/01/2020	ppm v/v	50	5	5	N/D	5	N/D		
23/01/2020	ppm v/v	50	5	5	N/D	5	N/D		
30/01/2020	ppm v/v	50	5	5	N/D	5	N/D		
06/02/2020	ppm v/v	50	5	5	N/D	5	N/D		
12/02/2020	ppm v/v	50	5	5	N/D	5	N/D	5	0.12
20/02/2020	ppm v/v	50	5	5	N/D	5	N/D		
27/02/2020	ppm v/v	50	5	5	N/D	5	N/D		
04/03/2020	ppm v/v	50	5	5	N/D	5	N/D		
12/03/2020	ppm v/v	50	5	5	N/D	5	N/D		
19/03/2020	ppm v/v	50	5	5	N/D	5	N/D		
26/03/2020	ppm v/v	50	5	5	N/D	5	N/D		
02/04/2020	ppm v/v	50	5	5	N/D	5	N/D		
09/04/2020	ppm v/v	50	5	5	N/D	5	N/D		
15/04/2020	ppm v/v	50	5	5	N/D	5	N/D		
22/04/2020	ppm v/v	50	5	5	N/D	5	N/D		
29/04/2020	ppm v/v	50	5	5	N/D	5	N/D		
07/05/2020	ppm v/v	50	5	5	N/D	5	N/D		
12/05/2020	ppm v/v	50	5	5	N/D	5	N/D		
20/05/2020	ppm v/v	50	5	5	N/D	5	N/D		
26/05/2020	ppm v/v	50	5	5	N/D	5	N/D		
03/06/2020	ppm v/v	50	5	5	N/D	5	N/D		
10/06/2020	ppm v/v	50	5	5	N/D	5	N/D		

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Date	Units	Ammonia		Mercaptans		Hydrogen Sulphide		Amines	
		ELV	Result	ELV	Result	ELV	Result	ELV	Result
17/06/2020	ppm v/v	50	5	5	N/D	5	N/D		
23/06/2020	ppm v/v	50	5	5	N/D	5	N/D		
02/07/2020	ppm v/v	50	5	5	N/D	5	N/D	5	0.27
07/07/2020	ppm v/v	50	5	5	N/D	5	N/D		
16/07/2020	ppm v/v	50	5	5	N/D	5	N/D		
21/07/2020	ppm v/v	50	5	5	N/D	5	N/D		
28/07/2020	ppm v/v	50	5	5	N/D	5	N/D		
05/08/2020	ppm v/v	50	5	5	N/D	5	N/D		
12/08/2020	ppm v/v	50	5	5	N/D	5	N/D		
20/08/2020	ppm v/v	50	5	5	N/D	5	N/D		
26/08/2020	ppm v/v	50	5	5	N/D	5	N/D		
03/09/2020	ppm v/v	50	5	5	N/D	5	N/D	5	0.28
09/09/2020	ppm v/v	50	5	5	N/D	5	N/D		
17/09/2020	ppm v/v	50	5	5	N/D	5	N/D		
24/09/2020	ppm v/v	50	5	5	N/D	5	N/D		
30/09/2020	ppm v/v	50	5	5	N/D	5	N/D		
08/10/2020	ppm v/v	50	5	5	N/D	5	N/D		
15/10/2020	ppm v/v	50	5	5	N/D	5	N/D		
22/10/2020	ppm v/v	50	5	5	N/D	5	N/D		
29/10/2020	ppm v/v	50	5	5	N/D	5	N/D		
05/11/2020	ppm v/v	50	5	5	N/D	5	N/D		
12/11/2020	ppm v/v	50	5	5	N/D	5	N/D		
19/11/2020	ppm v/v	50	5	5	N/D	5	N/D		
26/11/2020	ppm v/v	50	5	5	N/D	5	N/D		
03/12/2020	ppm v/v	50	5	5	N/D	5	N/D	5	0.33
10/12/2020	ppm v/v	50	5	5	N/D	5	N/D		
16/12/2020	ppm v/v	50	5	5	N/D	5	N/D		
24/12/2020	ppm v/v	50	5	5	N/D	5	N/D		

**Table 1: Biofilter Monitoring Results**

## Appendix B – Thermal Oxidiser (AEP-2) Monitoring Results

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Date	Total Particulate Matter (TPM) (mg/m <sup>3</sup> )	Carbon Monoxide (CO) (mg/m <sup>3</sup> )	Oxides of Nitrogen (NO <sub>x</sub> ) as NO <sub>2</sub> (mg/m <sup>3</sup> )	Total Gaseous Organic Carbon (TOC) (mg/m <sup>3</sup> )	Sulphur Dioxide (SO <sub>2</sub> ) (mg/m <sup>3</sup> )	Volumetric Flow Rate (Ref.) (m <sup>3</sup> /h)	Measured Oxygen (Vol %)
30/03/2018	19.88	<1.7 0	204.10	4.00	8.50	56,562	7.80
26/06/2018	<0.18	<1.7 0	198.90	1.00	<4.84	59,695	17.00
14/08/2018	<0.18	<1.7 0	175.30	7.00	48.76	70,244	5.50
01/02/2019	<0.57	<1.7 0	6.10	1.00	8.50	40,493	6.80
14/02/2019	0.43	< 1.70	6.10	< 0.80	14.88	87,194	6.80
07/06/2019	3.22	2.90	97.20	0.50	46.83	79,476	13.70
04/09/2019	0.52	<1.7 0	181.20	1.00	42.37	78,982	8.30
28/11/2019	0.98	<1.7 0	180.80	1.00	14.47	63,333	4.60
20/02/2020	4.00	<1.7 0	158.10	2.50	41.10	77,781	5.20
24/06/2020	0.63	<1.7 0	180.60	3.50	9.40	86,981	5.10
21/08/2020	1.80	2.70	128.40	1.50	25.40	22,047	15.10
08/12/2020	1.63	<1.70	204.20	<0.80	<6.10	71,693	8.30
02/01/2021	<0.36	<1.70	157.60	2.10	<6.10	86,382	6.80

**Table 1: Thermal Oxidiser (AEP-2) Monitoring Results<sup>3</sup>**

<sup>3</sup> Reference Conditions: 101.325kPa, 273.15K, 17% Oxygen Reference, Dry.

## Appendix C – SEP-1 Wastewater Monitoring Results

For inspection purposes only.  
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Date	Daily Volumetric Flow m <sup>3</sup>		Temperature °C		pH		BOD Grab Sample mg/l		BOD Daily Mean Conc. mg/l		BOD Daily Mean Load kg/day		Suspended Solids mg/l	
	ELV	Result	ELV	Result	ELV	Result	ELV	Result	ELV	Result	ELV	Result	ELV	Result
03/01/2018	400	31	35	18	6-9	7.45	5,000	1930	2,100	1470	840	46	1,500	328
10/01/2018	400	20	35	21	6-9	6.78	5,000	1504	2,100	1324	840	26	1,500	1356
17/01/2018	400	30	35	16	6-9	7.19	5,000	270	2,100	255	840	8	1,500	1356
24/01/2018	400	39	35	16	6-9	7.06	5,000	630	2,100	526	840	20	1,500	1076
31/01/2018	400	77	35	16.2	6-9	7.01	5,000	2040	2,100	1580	840	122	1,500	556
07/02/2018	400	26	35	18	6-9	7.08	5,000	1480	2,100	908	840	24	1,500	872
14/02/2018	400	33	35	16	6-9	7.13	5,000	740	2,100	584	840	19	1,500	1064
21/02/2018	400	8	35	18	6-9	7.03	5,000	1840	2,100	1208	840	10	1,500	1370
28/02/2018	400	12	35	15.6	6-9	6.96	5,000	2408	2,100	1868	840	22	1,500	1040
28/02/2018	400	12	35	16	6-9	12	5,000	2408	2,100	1,868	840	22	1,500	1040
07/03/2018	400	33	35	20	6-9	33	5,000	2050	2,100	1,360	840	45	1,500	1176
14/03/2018	400	168	35	23	6-9	168	5,000	2260	2,100	1,785	840	300	1,500	772
21/03/2018	400	21	35	17	6-9	21	5,000	3346	2,100	1,755	840	37	1,500	988
28/03/2018	400	25	35	19	6-9	25	5,000	2138	2,100	1,770	840	44	1,500	828
04/04/2018	400	79	35	15	6-9	7.06	5,000	2248	2,100	1,414	840	112	1,500	848
11/04/2018	400	35	35	18	6-9	6.99	5,000	3458	2,100	1,782	840	62	1,500	1248
18/04/2018	400	38	35	16	6-9	7.01	5,000	2648	2,100	1,669	840	63	1,500	864
25/04/2018	400	28	35	19	6-9	7.4	5,000	2866	2,100	1,762	840	49	1,500	1064
02/05/2018	400	40	35	14	6-9	7.02	5,000	2490	2,100	1,680	840	67	1,500	1260
09/05/2018	400	28	35	14	6-9	7.11	5,000	2490	2,100	1,680	840	47	1,500	1280
16/05/2018	400	37	35	14	6-9	7.24	5,000	2400	2,100	1,580	840	58	1,500	1320
23/05/2018	400	42	35	14	6-9	7.04	5,000	2350	2,100	1,620	840	68	1,500	1200
30/05/2018	400	48	35	15	6-9	7.14	5,000	2260	2,100	1,570	840	75	1,500	1024
06/06/2018	400	66	35	16	6-9	6.99	5,000	2100	2,100	1,360	840	90	1,500	1116
13/06/2018	400	60	35	18	6-9	7.14	5,000	2100	2,100	1,360	840	82	1,500	988
20/06/2018	400	46	35	21	6-9	7.09	5,000	2210	2,100	1,560	840	72	1,500	1000
27/06/2018	400	73	35	26	6-9	7.16	5,000	2340	2,100	1,540	840	112	1,500	964
04/07/2018	400	71	35	28	6-9	7.25	5,000	2040	2,100	1,460	840	104	1,500	1024
11/07/2018	400	79	35	24	6-9	7.17	5,000	2367	2,100	1,520	840	121	1,500	988
18/07/2018	400	63	35	21	6-9	7.09	5,000	1724	2,100	1,497	840	94	1,500	844
25/07/2018	400	87	35	23	6-9	7.19	5,000	2190	2,100	1,450	840	126	1,500	1024
01/08/2018	400	81	35	22.4	6-9	7.19	5,000	2260	2,100	1,370	840	111	1,500	988
08/08/2018	400	18	35	20	6-9	7.2	5,000	2250	2,100	1,390	840	25	1,500	744
15/08/2018	400	50	35	16	6-9	7.36	5,000	2490	2,100	1,395	840	70	1,500	922
22/08/2018	400	74	35	18	6-9	7.49	5,000	2416	2,100	1,400	840	104	1,500	968
29/08/2018	400	88	35	14.8	6-9	7.49	5,000	2270	2,100	1,458	840	128	1,500	656
05/09/2018	400	43	35	18	6-9	7.56	5,000	2355	2,100	1,360	840	58	1,500	968
12/09/2018	400	21	35	24	6-9	7.49	5,000	2220	2,100	1,260	840	26	1,500	1060
19/09/2018	400	9	35	18	6-9	7.24	5,000	2100	2,100	990	840	9	1,500	800
26/09/2018	400	12	35	20	6-9	7.54	5,000	2290	2,100	1,450	840	17	1,500	780

Date	Daily Volumetric Flow m <sup>3</sup>		Temperature °C		pH		BOD Grab Sample mg/l		BOD Daily Mean Conc. mg/l		BOD Daily Mean Load kg/day		Suspended Solids mg/l	
	ELV	Result	ELV	Result	ELV	Result	ELV	Result	ELV	Result	ELV	Result	ELV	Result
03/10/2018	400	37	35	18	6-9	7.25	5,000	2100	2,100	1,800	840	67	1,500	840
10/10/2018	400	33	35	19	6-9	7.11	5,000	2100	2,100	1,990	840	66	1,500	1200
17/10/2018	400	24	35	18	6-9	7.28	5,000	2440	2,100	1,820	840	44	1,500	1120
24/10/2018	400	26	35	22	6-9	7.54	5,000	2510	2,100	1,910	840	50	1,500	1240
31/10/2018	400	26	35	19	6-9	7.12	5,000	1990	2,100	1,750	840	46	1,500	936
07/11/2018	400	53	35	22	6-9	7	5,000	2270	2,100	1,840	840	98	1,500	860
14/11/2018	400	38	35	22	6-9	6.94	5,000	2290	2,100	2,080	840	79	1,500	924
21/11/2018	400	17	35	19	6-9	6.74	5,000	2210	2,100	1,863	840	32	1,500	968
28/11/2018	400	52	35	16	6-9	6.62	5,000	2121	2,100	1,780	840	93	1,500	812
05/12/2018	400	144	35	17	6-9	6.54	5,000	2117	2,100	1,765	840	254	1,500	796
13/12/2018	400	198	35	12	6-9	6.42	5,000	2210	2,100	1,863	840	369	1,500	632
19/12/2018	400	78	35	11	6-9	6.55	5,000	2236	2,100	2,009	840	157	1,500	652
28/12/2018	400	18	35	15	6-9	6.74	5,000	1867	2,100	1,661	840	30	1,500	832
02/01/2019	400	28	35	13	6-9	6.41	5,000	1788	2,100	1677	840	47	1,500	788
09/01/2019	400	20	35	15	6-9	6.84	5,000	2145	2,100	1899	840	38	1,500	624
16/01/2019	400	48	35	11	6-9	6.56	5,000	1433	2,100	1370	840	66	1,500	784
23/01/2019	400	18	35	10	6-9	6.29	5,000	1679	2,100	1452	840	28	1,500	636
30/01/2019	400	7	35	9	6-9	6.34	5,000	1710	2,100	1689	840	12	1,500	812
06/02/2019	400	14	35	10	6-9	6.21	5,000	1674	2,100	1532	840	21	1,500	860
13/02/2019	400	12	35	15	6-9	6.45	5,000	2060	2,100	1455	840	17	1,500	752
20/02/2019	400	44	35	15	6-9	6.31	5,000	2260	2,100	1890	840	83	1,500	832
27/02/2019	400	13	35	15	6-9	6.14	5,000	2335	2,100	2050	840	27	1,500	656
06/03/2019	400	42	35	14	6-9	6.29	5,000	2320	2,100	1995	840	84	1,500	752
13/03/2019	400	11	35	16	6-9	6.1	5,000	1860	2,100	1690	840	19	1,500	640
20/03/2019	400	14	35	12	6-9	6.24	5,000	1950	2,100	1675	840	23	1,500	584
27/03/2019	400	11	35	15	6-9	6.41	5,000	2566	2,100	1890	840	23	1,500	812
03/04/2019	400	8	35	11	6-9	6.24	5,000	2150	2,100	1980	840	20	1,500	928
10/04/2019	400	9	35	14	6-9	6.34	5,000	2004	2,100	1766	840	16	1,500	688
17/04/2019	400	16	35	16	6-9	6.29	5,000	1965	2,100	1659	840	28	1,500	824
24/04/2019	400	50	35	16	6-9	6.32	5,000	1670	2,100	1565	840	78	1,500	604
01/05/2019	400	21	35	14	6-9	6.4	5,000	1986	2,100	1740	840	38	1,500	928
08/05/2019	400	47	35	16	6-9	6.32	5,000	2011	2,100	1665	840	78	1,500	864
15/05/2019	400	15	35	17	6-9	6.47	5,000	2096	2,100	1245	840	19	1,500	1228
22/05/2019	400	25	35	14	6-9	6.52	5,000	2455	2,100	1975	840	49	1,500	836
19/05/2019	400	27	35	17	6-9	6.72	5,000	2005	2,100	1850	840	57	1,500	656
05/06/2019	400	24	35	15	6-9	6.45	5,000	1986	2,100	1875	840	45	1,500	392
12/06/2019	400	21	35	18	6-9	6.21	5,000	1825	2,100	1566	840	33	1,500	484
19/06/2019	400	24	35	14	6-9	6.34	5,000	2250	2,100	1835	840	44	1,500	432
26/06/2019	400	18	35	18	6-9	6.05	5,000	1988	2,100	1544	840	28	1,500	516
03/07/2019	400	11	35	19	6-9	6.51	5,000	1766	2,100	1440	840	19	1,500	876



Date	Daily Volumetric Flow m <sup>3</sup>		Temperature °C		pH		BOD Grab Sample mg/l		BOD Daily Mean Conc. mg/l		BOD Daily Mean Load kg/day		Suspended Solids mg/l	
	ELV	Result	ELV	Result	ELV	Result	ELV	Result	ELV	Result	ELV	Result	ELV	Result
10/07/2019	400	31	35	18	6-9	6.68	5,000	1585	2,100	1345	840	46	1,500	988
17/07/2019	400	36	35	21	6-9	6.4	5,000	1805	2,100	1640	840	61	1,500	744
25/07/2019	400	9	35	21	6-9	6.32	5,000	1245	2,100	1150	840	10	1,500	828
31/07/2019	400	15	35	22	6-9	6.14	5,000	1705	2,100	1690	840	27	1,500	636
07/08/2019	400	15	35	18	6-9	6.42	5,000	1565	2,100	1242	840	19	1,500	769
14/08/2019	400	61	35	24	6-9	6.41	5,000	1978	2,100	1786	840	109	1,500	724
21/08/2019	400	15	35	21	6-9	6.14	5,000	1977	2,100	1522	840	23	1,500	852
28/08/2019	400	14	35	20	6-9	6.05	5,000	2080	2,100	1980	840	28	1,500	544
04/09/2019	400	19	35	21.5	6-9	6.4	5,000	1450	2,100	1250	840	24	1,500	652
11/09/2019	400	19	35	21.4	6-9	6.41	5,000	1675	2,100	1134	840	22	1,500	552
18/09/2019	400	13	35	19.4	6-9	6.47	5,000	1554	2,100	1342	840	17	1,500	852
25/09/2019	400	21	35	17.4	6-9	6.24	5,000	1788	2,100	1112	840	23	1,500	928
02/10/2019	400	11	35	23	6-9	6.24	5,000	1842	2,100	1828	840	24	1,500	848
09/10/2019	400	23	35	20	6-9	6.42	5,000	1562	2,100	1225	840	28	1,500	872
16/10/2019	400	45	35	21	6-9	6.49	5,000	1509	2,100	1427	840	64	1,500	816
23/10/2019	400	57	35	20	6-9	6.43	5,000	1483	2,100	1451	840	83	1,500	832
30/10/2019	400	23	35	19	6-9	6.49	5,000	1512	2,100	1358	840	31	1,500	816
06/11/2019	400	43	35	22	6-9	6.26	5,000	1568	2,100	1418	840	61	1,500	1024
13/11/2019	400	89	35	20	6-9	6.21	5,000	1583	2,100	1448	840	129	1,500	968
20/11/2019	400	74	35	20	6-9	6.37	5,000	1685	2,100	1511	840	112	1,500	916
27/11/2019	400	70	35	19.4	6-9	6.34	5,000	1695	2,100	1568	840	109.76	1,500	784
04/12/2019	400	20	35	20	6-9	6.51	5,000	1776	2,100	1622	840	32	1,500	992
11/12/2019	400	15	35	20	6-9	6.46	5,000	1866	2,100	1774	840	27	1,500	1048
18/12/2019	400	128	35	19	6-9	6.44	5,000	1941	2,100	1871	840	239	1,500	844
24/12/2019	400	26	35	19	6-9	6.62	5,000	1885	2,100	1830	840	48	1,500	916
02/01/2020	400	35	35	20	6-9	6.57	5,000	2244	2,100	1930	840	67.55	1,500	1096
08/01/2020	400	51	35	17	6-9	6.65	5,000	2123	2,100	1907	840	97.257	1,500	928
15/01/2020	400	18	35	16	6-9	6.73	5,000	1840	2,100	1690	840	30.42	1,500	1076
22/01/2020	400	14	35	15	6-9	6.68	5,000	1790	2,100	1695	840	23.73	1,500	1144
29/01/2020	400	14	35	14	6-9	6.62	5,000	1940	2,100	1755	840	24.57	1,500	924
05/02/2020	400	15	35	16	6-9	6.55	5,000	2226	2,100	1348	840	20.22	1,500	1052
12/02/2020	400	86	35	14	6-9	6.58	5,000	2076	2,100	1209	840	105.18	1,500	968
19/02/2020	400	35	35	16	6-9	6.63	5,000	2010	2,100	1260	840	3	1,500	916
26/02/2020	400	18	35	17	6-9	6.56	5,000	1825	2,100	1684	840	44.1	1,500	984
04/03/2020	400	24	35	16	6-9	6.86	5,000	2583	2,100	1914	840	30.312	1,500	748
11/03/2020	400	20	35	15	6-9	6.48	5,000	1995	2,100	1785	840	45.936	1,500	836
18/03/2020	400	38	35	16	6-9	6.76	5,000	1960	2,100	1750	840	35.7	1,500	724
25/03/2020	400	16	35	15	6-9	6.42	5,000	1885	2,100	1660	840	68.25	1,500	948
01/04/2020	400	11	35	18	6-9	6.3	5,000	1710	2,100	1548	840	26.56	1,500	860
											840	17.028	1,500	

Date	Daily Volumetric Flow m <sup>3</sup>		Temperature °C		pH		BOD Grab Sample mg/l		BOD Daily Mean Conc. mg/l		BOD Daily Mean Load kg/day		Suspended Solids mg/l	
	ELV	Result	ELV	Result	ELV	Result	ELV	Result	ELV	Result	ELV	Result	ELV	Result
08/04/2020	400	22	35	22	6-9	6.21	5,000	1640	2,100	1384	840	30.448	1,500	728
15/04/2020	400	16	35	22	6-9	6.14	5,000	1705	2,100	1404	840	22.464	1,500	608
22/04/2020	400	9	35	15	6-9	6.3	5,000	1880	2,100	1596	840	14.364	1,500	628
29/04/2020	400	83	35	23	6-9	6.47	5,000	2025	2,100	1840	840	152.72	1,500	1048
06/05/2020	400	20	35	21	6-9	6.22	5,000	2190	2,100	1945	840	38.9	1,500	1128
13/05/2020	400	17	35	20	6-9	6.36	5,000	2202	2,100	1855	840	31.535	1,500	912
20/05/2020	400	15	35	18	6-9	6.24	5,000	2218	2,100	1952	840	31.232	1,500	1248
27/05/2020	400	19	35	15	6-9	6.11	5,000	2256	2,100	1860	840	40.92	1,500	1164
03/06/2020	400	14	35	25	6-9	6.36	5,000	2562	2,100	1625	840	24.375	1,500	1292
10/06/2020	400	23	35	19	6-9	6.29	5,000	2492	2,100	1965	840	49.125	1,500	1104
17/06/2020	400	16	35	18	6-9	6.33	5,000	2562	2,100	1770	840	30.09	1,500	1356
24/06/2020	400	16	35	23	6-9	6.25	5,000	2653	2,100	1865	840	29.84	1,500	976
01/07/2020	400	19	35	25	6-9	6.19	5,000	2583	2,100	1895	840	49.27	1,500	1172
08/07/2020	400	12	35	20	6-9	6.31	5,000	2541	2,100	1930	840	28.95	1,500	1292
15/07/2020	400	24	35	17	6-9	6.33	5,000	2412	2,100	1985	840	47.64	1,500	1060
22/07/2020	400	29	35	19	6-9	6.28	5,000	2499	2,100	1940	840	58.2	1,500	1180
29/07/2020	400	13	35	23	6-9	6.2	5,000	2382	2,100	1905	840	24.765	1,500	1068
05/08/2020	400	24	35	24	6-9	6.19	5,000	2286	2,100	1860	840	44.64	1,500	1196
12/08/2020	400	14	35	21	6-9	6.22	5,000	2106	2,100	1680	840	25.2	1,500	1188
19/08/2020	400	52	35	25	6-9	6.25	5,000	2112	2,100	1865	840	96.98	1,500	1276
26/08/2020	400	12	35	20	6-9	6.16	5,000	2088	2,100	1795	840	23.335	1,500	1252
02/09/2020	400	9	35	24	6-9	6.28	5,000	2055	2,100	1705	840	15.345	1,500	1156
09/09/2020	400	12	35	16	6-9	6.41	5,000	2005	2,100	1805	840	23.465	1,500	1272
16/09/2020	400	12	35	23	6-9	6.45	5,000	1990	2,100	1672	840	20.064	1,500	1104
23/09/2020	400	12	35	17	6-9	6.36	5,000	2109	2,100	1772	840	23.036	1,500	1068
07/10/2020	400	45	35	22	6-9	6.24	5,000	2160	2,100	1860	840	85.56	1,500	1356
14/10/2020	400	18	35	18	6-9	6.17	5,000	2094	2,100	1870	840	33.66	1,500	1276
21/10/2020	400	14	35	13	6-9	6.28	5,000	2202	2,100	1935	840	27.09	1,500	1320
28/10/2020	400	15	35	15	6-9	6.31	5,000	2268	2,100	1855	840	27.825	1,500	1020
04/11/2020	400	23	35	16	6-9	6.19	5,000	2298	2,100	1795	840	41.285	1,500	1176
11/11/2020	400	98	35	13	6-9	6.26	5,000	2220	2,100	1740	840	170.52	1,500	1352
18/11/2020	400	8	35	15	6-9	6.24	5,000	2370	2,100	1980	840	15.84	1,500	1232
25/11/2020	400	2	35	19	6-9	6.38	5,000	2298	2,100	1915	840	3.83	1,500	1264
02/12/2020	400	25	35	20	6-9	6.22	5,000	2256	2,100	1855	840	46.375	1,500	1308
09/12/2020	400	58	35	16	6-9	6.26	5,000	2166	2,100	1925	840	111.65	1,500	1268
16/12/2020	400	46	35	17	6-9	6.14	5,000	2280	2,100	1955	840	89.93	1,500	940
24/12/2020	400	10	35	23	6-9	6.21	5,000	2394	2,100	2010	840	22.11	1,500	1196

**Table 1: Wastewater Monitoring Results**

## Appendix D – Surface Water Monitoring Results

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Date	Surface Emission Point 2 (SW2)			Surface Emission Point 3 (SW3)		
	pH	BOD (mg/l)	Total Ammonia (mg/l)	pH	BOD (mg/l)	Total Ammonia (mg/l)
<b>Trigger Limits:</b>	<b>6 to 9</b>	<b>5</b>	<b>0.5</b>	<b>6 to 9</b>	<b>5</b>	<b>0.5</b>
11/01/2018	7.94	<2	0.2	7.86	< 2	0.24
08/02/2018	7.46	<2	0.27	7.51	<2	0.25
15/03/2018	7.46	<2	0.32	7.31	<2	0.37
18/04/2018	7.98	<2	0.24	7.78	<2	0.23
21/05/2018	7.52	<2	0.22	7.45	<2	0.2
11/06/2018	7.61	<2	0.2	7.54	<2	0.2
23/07/2018	7.5	<2	0.22	7.46	<2	0.2
22/08/2018	7.6	<2	0.16	7.55	<2	0.19
20/09/2018	7.45	<2	0.11	7.51	<2	0.09
04/10/2018	7.32	<2	0.06	7.41	<2	0.09
05/11/2018	7.42	<2	0.21	7.47	<2	0.26
13/12/2018	7.55	<2	0.11	7.41	<2	0.12
03/01/2019	7.45	<2	0.21	7.52	2	0.2
21/02/2019	7.41	2	0.22	7.59	2	0.2
13/03/2019	7.45	2	0.39	7.41	2	0.41
24/04/2019	7.04	2	0.39	6.87	2	0.2
08/05/2019	7.62	2	0.41	7.48	2	0.36
12/06/2019	7.61	2	0.24	7.74	2	0.14
17/07/2019	7.42	2	0.2	7.56	2	0.35
14/08/2019	7.12	2	0.2	7.34	2	0.21
24/09/2019	7.47	2	0.2	7.61	2	0.2

Date	Surface Emission Point 2 (SW2)			Surface Emission Point 3 (SW3)		
	pH	BOD (mg/l)	Total Ammonia (mg/l)	pH	BOD (mg/l)	Total Ammonia (mg/l)
<b>Trigger Limits:</b>	<b>6 to 9</b>	<b>5</b>	<b>0.5</b>	<b>6 to 9</b>	<b>5</b>	<b>0.5</b>
14/10/2019	7.26	2	0.23	7.45	2	0.2
21/11/2019	7.38	2	0.21	7.42	2	0.26
04/12/2019	7.45	2	0.24	7.29	2	0.22
14/01/2020	7.4	2	0.22	7.31	2	0.23
07/02/2020	7.64	2	0.21	7.55	2	0.22
09/03/2020	7.6	2	0.22	7.62	2	0.24
29/04/2020	7.46	2	0.2	7.74	2	0.23
22/05/2020	7.27	2	0.23	7.51	2	0.21
22/06/2020	7.44	2	0.21	7.2	2	0.25
08/07/2020	7.52	2	0.2	7.17	2	0.24
25/08/2020	7.47	2	0.22	7.14	2	0.21
08/09/2020	7.18	2	0.2	7.12	2	0.2
06/10/2020	7.19	2	0.2	7.08	2	0.2
09/11/2020	7.04	2	0.2	7.11	2	0.2
01/12/2020	7.08	2	0.2	7.11	2	0.2

**Table 1: Surface Water Monitoring Results**