

## **Raw Materials Assessment**

Chelson Meadow Leachate Treatment Plant (LTP) uses few raw materials. Water and electricity are the major raw materials. Water is drawn from the mains system and is not stored. It is used to clean tanks, monitoring equipment and hard surfaces (housekeeping). Consumption from 2015 to 2020 is provided in the Appendix to this document. Water usage is essential to the operation of the LTP because tanks must be cleaned periodically. Compared the operational capacity of the LTP, water usage is minimal.

Electricity is required to power pumps, blowers, the computer system, flow meters, lighting, heating in the control room, compressors, agitators in the reaction tanks and the operation of non-manual valves. The blowers use the most electricity because they are 3-phase: they are essential to the biological treatment process. The blowers are being replaced in 2022 in response to a noise assessment. They will use less electricity and are not 3-phase.

Plymouth City Council are exploring the feasibility of installing photovoltaic panels on the adjacent landfill, which will offset energy consumption by the LTP. Consumption from 2014 to 2020 is provided in the Appendix to this document.

Anti-foam is added to the reaction tanks during aeration of the liquor to prevent the build up of bio-foam. The liquor level in the open-topped tanks is high which means foam forming can disperse readily in high winds. Potential sensitive receptors are the adjacent haul road and weighbridge, as well as LTP infrastructure and operatives. On-site storage amounts to around 100l and annual consumption is ca. 200l. Anti-foam is added automatically at a trigger wind speed detected by sensor. The minimum anti-foam consumption occurs when the automated system functions properly, so maintenance of the system is essential.

Hydraulic oil is used as an essential lubricant for blowers, pumps and compressors. Approximately 20l is stored on site at any one time and no more than 100l is consumed annually for maintaining all components.

Permit Number: EPR/CP3731LZ

Operator: Plymouth City Council

Installation: Chelson Meadow LTP

Form Number: Water1 / 30/01/15

**Reporting of Emissions to Water (other than to Sewer) for the period from 01.01.2020 to 31.12.2020**

Emission Point	Substance / Parameter	Emission Limit Value	Result <sup>[1]</sup>	Test Method <sup>[2]</sup>	Sample Date and Times <sup>[3]</sup>	Accreditation/ Certification <sup>[4]</sup>	Uncertainty <sup>[5]</sup>
W1	NH <sub>4</sub> /N	10mg/l	See overleaf	Ammonia as N by Colorimetry Ammonium as NH <sub>4</sub> by Calculation	01.01.2020 – 31.12.2020	UKAS	
	BOD	10mg/l		5 Day ATU as O <sub>2</sub> by ISE		UKAS	
	Suspended Solids 105°C	75mg/l		Solids Suspended at 105°C by Gravimetry		UKAS	

[1]!The result given is the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, the result is given as the 'minimum – maximum' measured values.

[2]!Where an internationally recognised standard test method is used the reference number is given. Where another method that has been! formally agreed with the Agency is used, then the appropriate identifier is given. In other cases the principal technique is stated, e.g. colorimetry.

[3]!For non-continuous measurements the date and time of the sample that produced the result is given. For continuous measurements, or flow/time proportional samples, the percentage of the process operating time covered by the monitoring is given.

[4]!The accreditation status of the equipment and/or the monitoring organisation, as appropriate, for the methods used for both sampling and analysis.

[5]!The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated. The following uncertainties are quoted on a different basis (basis as stated)

**Chelson Meadow Permit CP3731LZ - Weekly Monitoring Results  
Outfall to R Plym - W1**

Date	Time	Limit Value	Result	Limit Value	Result	Limit Value	Result
		BOD mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	SUSPENDED SOLIDS mg/l	NH4N mg/l	NH4N mg/l
1. 05.01.2020	12.45	10	<4	75	36	10	<0.5
2. 06.01.2020	13.50	10	<4	75	19	10	<0.5
3. 13.01.2020	09.00	10	<3.5	75	19	10	<0.5
4. 20.01.2020	11.30	10	<3.5	75	18	10	<0.5
5. 27.01.2020	09.00	10	<3.5	75	32	10	<0.5
6. 02.02.2020	08.50	10	<3.5	75	20	10	<0.5
7. 03.02.2020	11.00	10	<5	75	27	10	<0.5
8. 10.02.2020	08.20	10	<4	75	21	10	<0.5
9. 17.02.2020	09.45	10	<4	75	23	10	<0.5
10. 24.02.2020	14.15	10	<3.5	75	12	10	<0.5
11. 01.03.2020	14.00	10	<3.5	75	25	10	<0.5
12. 02.03.2020	11.10	10	<3.5	75	40	10	<0.5
13. 09.03.2020	08.20	10	<4	75	28	10	<0.5
14. 16.03.2020	11.30	10	<4	75	23	10	<0.5
15. 23.03.2020	11.15	10	<5	75	39	10	<0.5
16. 30.03.2020	10.45	10	-	75	-	10	0.02
17. 08.04.2020	08.30	10		75		10	0.2
18. 16.04.2020	14.10	10		75		10	0.2
19. 21.04.2020	07.55	10		75		10	0.2
20. 27.04.2020	09.50	10		75		10	0.2
21. 04.05.2020	17.15	10		75		10	0.2
22. 11.05.2020	10.20	10		75		10	0.2
23. 18.05.2020	17.15	10		75		10	0.2
24. 26.05.2020	16.35	10		75		10	0.2
25. 02.06.2020	08.20	10	<5	75	19	10	<0.5
26. 02.06.2020	16.50	10	<5	75	24	10	<0.5
27. 10.06.2020	15.20	10	<5	75	26	10	<0.5
28. 18.06.2020	10.30	10	<5	75	19	10	<0.5
29. 24.06.2020	09.30	10	<4	75	21	10	<0.5
30. 01.07.2020	16.10	10	<4	75	23	10	<0.5

Date	Time	Limit Value	Result	Limit Value	Result	Limit Value	Result
		BOD mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	SUSPENDED SOLIDS mg/l	NH4N mg/l	NH4N mg/l
31. 01.07.2020	16.15	10	<4	75	21	10	<0.5
32. 06.07.2020	08.15	10	<4	75	15	10	<0.5
33. 15.07.2020	15.00	10	<4	75	20	10	<0.5
34. 23.07.2020	08.05	10	<5	75	13	10	<0.5
35. 30.07.2020	09.00	10	<5	75	22	10	<0.5
36. 06.08.2020	11.15	10	<4	75	11	10	<0.5
37. 12.08.2020	15.10	10	<5	75	29	10	<0.5
38. 20.08.2020	08.45	10	<5	75	13	10	<0.5
39. 26.08.2020	17.00	10	<5	75	27	10	<0.5
40. 01.09.2020	10.45	10	<3.5	75	28	10	<0.5
41 01.09.2020	11.15	10	<4	75	70	10	<0.5
42. 09.09.2020	11.20	10	<4	75	6	10	<0.5
43. 16.09.2020	07.00	10	<3.5	75	8	10	<0.5
44. 24.09.2020	08.00	10	<4	75	22	10	<0.5
45. 01.10.2020	08.30	10	<4	75	17	10	<0.5
46. 07.10.2020	10.20	10	<4	75	20	10	<0.5
47. 14.10.2020	14.55	10	<5	75	18	10	<0.5
48. 21.10.2020	10.30	10	<4	75	14	10	<0.5
49. 27.10.2020	06.00	10	<4	75	20	10	<0.5
50. 04.11.2020	08.30	10	<4	75	16	10	<0.5
51. 11.11.2020	15.00	10	<4	75	20	10	7.18
52. 18.11.2020	08.15	10	<3.5	75	19	10	<0.5
53. 25.11.2020	15.10	10	<3.5	75	15	10	<0.5
54. 30.11.2020	07.30	10	<4	75	26	10	<0.5
55. 03.12.2020	08.20	10	<3.5	75	19	10	<0.5
56. 07.12.2020	10.45	10	<3.5	75	17	10	<0.5
57. 14.12.2020	08.10	10	<4	75	21	10	<0.5
58. 23.12.2020	09.35	10	<3.5	75	21	10	<0.5
59. 29.12.2020	09.45	10	<4	75	24	10	<0.5

COVID-19 - SWW Lab closed to third party customers 01.04.2020 - 29.05.2020. NH4 results provided by LTP Nanocolor Instrument

30.03.2020 -26.05.2020 - Analysis of Outfall carried out using the PF-12 Portable Analyser



Signed .....

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Date: 04/01/2021

(authorised to sign as representative of the Operator)

Permit Number: EPR/CP3731LZ

Operator: Plymouth City Council

Installation: Chelson Meadow LTP

Form Number: R1/ 30/01/15

**Reporting of Waste Disposal and Recovery for the year 2020**

Waste Description	Disposal		Recovery Tonnes (t)
	Route	Tonnes (t)	
1) Hazardous Wastes	N/A		
Named Hazardous Waste			
Other Hazardous Wastes			
Total Hazardous Waste			
2) Non-Hazardous Wastes	Discharge to R Plym	701130	N/A
Named Non-Hazardous Waste	Landfill Leachate		
Other Non-Hazardous wastes	(SWW) Sludge		
Other Non-Hazardous Waste			
<b>TOTAL WASTE</b>		701130	

Trends in Waste Disposal and Recovery			
Year	Parameter		
	Named Waste (t)	Total Waste (t)	Waste per Unit Output (t/t)
	Landfill Leachate		
2014	707759	707759	1.0
2015	608117	608117	1.0
2016	593404	593404	1.0
2017	569025	569109.6	1.0
2018	632276	632545.62	1.0
2019	684584	685528.12	1.0
2020	701130	701130	1.0

**Operator's comments:**

The assumption is that leachate discharge equates to waste disposal.  
 Leachate discharged to R Plym is recorded by an MCERTS flow metre. Flow is recorded in l/s and converted to cubic metres, assuming 1m<sup>3</sup> = 1 tonne

Signed ... 

.....Date: 04/01/2021

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Installation: Chelson Meadow LTP

Form Number: R1/ 30/01/15

Reporting of Water Usage for the year 2020

Water Source	Usage (m <sup>3</sup> )	Specific Usage (m <sup>3</sup> /t)
Mains Water	42	5.99 x 10 <sup>-5</sup>
Non-potable water	N/A	
<b>TOTAL WATER USAGE</b>	<b>42</b>	<b>5.99 x 10<sup>-5</sup></b>

Trends in Water Usage				
Year	Parameter			
	Mains Water (m <sup>3</sup> )	Non-potable Water (m <sup>3</sup> )	Total Water Usage (m <sup>3</sup> )	Water per Unit Output (m <sup>3</sup> /t)
2015	41	0	41	7.40 x 10 <sup>-5</sup>
2016	45	0	45	6.91 x 10 <sup>-5</sup>
2017	51	0	51	8.96 x 10 <sup>-5</sup>
2018	101	0	101	1.59 x 10 <sup>-4</sup>
2019	75	0	75	1.09 x 10 <sup>-4</sup>

**Operator's comments:** Mains water is used to clean pumps and associated mechanical/electrical equipment and probes during the monthly/six monthly maintenance regime. No other mains water is used. Water is also used when the bottom of the tanks are being cleaned. The amount required depends on the depth of residual sludge, which is not consistent. 2 tanks were cleaned in 2017; 4 tanks were cleaned in 2018; 2 or 3 tanks were cleaned in 2019, NO TANKS WERE CLEANED IN 2020. Water is also used to clean the bottom of the STOR tanks if needed, which is not a predictable event. More water may be required if the tank is in storm for longer.

Specific usage 42/ 701130 tonnes of leachate

Signed ...



Date: 04/01/2021

(authorised to sign as representative of the Operator)

Permit Number: EPR/CP3731LZ

Operator: Plymouth City Council

Installation: Chelson Meadow LTP

Form Number: R1/ 30/01/15

### Reporting of Energy Usage for the year 2020


Energy Source	Energy Usage		CO <sub>2</sub> Produced (t)
	Quantity	Primary Energy (MWh)	
Electricity *	756,447 KWh	1965.6	265.9
Gas oil	N/A		
TOTAL	756,447 KWh	1965.6	265.9

Year	Trends in Energy Usage		
	Primary Energy Usage (MWh)	CO <sub>2</sub> Produced (t)	CO <sub>2</sub> per Unit Output (t/t)
2014	2450.8	388.4	5.5 x 10 <sup>-4</sup>
2015	1768.0	280.3	4.61 x 10 <sup>-4</sup>
2016	2027.0	321.3	5.42 x 10 <sup>-4</sup>
2017	2386.8	322.7	5.67 x 10 <sup>-4</sup>
2018	1873.6	253.3	4.00 x 10 <sup>-4</sup>
2019	1864.2	252.2	3.68 x 10 <sup>-4</sup>
2020	1965.6	265.9	3.80 x 10 <sup>-4</sup>

\* Conversion factor for delivered electricity to primary energy = 2.6

#### Operator's comments :

756447KWh = 756MWh x 2.6 = 1965.6  
CO<sub>2</sub> calculation made using <http://www.carbon-calculator.org.uk/> = 265937kg CO<sub>2</sub>e = 265.9t



Signed ...

..... Date: 04/01/2021  
(authorised to sign as representative of the Operator)



Permit Number: EPR/CP3731LZ

Operator: Plymouth City Council

Installation: Chelson Meadow LTP

Form Number: R1/ 30/01/15

**Reporting of Performance Indicators for the year 2020**

**Environmental Performance Indicators**

Performance Indicators			Trends in Environmental Performance				
Parameter	Annual Average	Units	Year	Parameter			
				Total Water Usage (m <sup>3</sup> water / t product)	Energy Consumption (MWh energy / t product)	Waste Disposal (t waste / t product)	Treated Effluent Flow (m <sup>3</sup> /year)
Energy Use	0.0011	MWh/tonne	2014	5.5 x 10 <sup>-5</sup>	1.3 x 10 <sup>-3</sup>	1.0	707729
Mains Water Use	5.99 X 10 <sup>-5</sup>	m <sup>3</sup> /tonne	2015	7.40 x 10 <sup>-5</sup>	1.12 x 10 <sup>-3</sup>	1.0	608117
Non-potable water use	N/A	m <sup>3</sup> /tonne	2016	6.91 x 10 <sup>-5</sup>	1.3 x 10 <sup>-3</sup>	1.0	593404
Total Waste	1.0	Tonne/tonne	2017	8.96 x 10 <sup>-5</sup>	0.0016	1.0	569109.6
Treated Effluent	701130	m <sup>3</sup> /year	2018	1.59 x 10 <sup>-4</sup>	0.0011	1.0	632545.62
			2019	1.09 x 10 <sup>-4</sup>	0.0027	1.0	685528.12
<b>Operator's comments:</b>							
The assumption is the product is the leachate discharged to the R. Plym							



Signed

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Date: 04/01/2021

(authorised to sign as representative of the Operator)

Permit Number: EPR/CP3731LZ

Operator: Plymouth City Council

Installation: Chelson Meadow LTP

Form Number: Water1 / 30/01/15

**Reporting of Emissions to Water (other than to Sewer) for the period from 01.01.2021 to 31.12.2021**

Emission Point	Substance / Parameter	Emission Limit Value	Result <sup>[1]</sup>	Test Method <sup>[2]</sup>	Sample Date and Times <sup>[3]</sup>	Accreditation/ Certification <sup>[4]</sup>	Uncertainty <sup>[5]</sup>
W1	NH <sub>4</sub> /N	10mg/l	See overleaf	Ammonia as N by Colorimetry Ammonium as NH <sub>4</sub> by Calculation	01.01.2021 – 31.12.2021	UKAS	
	BOD	10mg/l		5 Day ATU as O <sub>2</sub> by ISE		UKAS	
	Suspended Solids 105°C	75mg/l		Solids Suspended at 105°C by Gravimetry		UKAS	

[1]!The result given is the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, the result is given as the 'minimum – maximum' measured values.

[2]!Where an internationally recognised standard test method is used the reference number is given. Where another method that has been! formally agreed with the Agency is used, then the appropriate identifier is given. In other cases the principal technique is stated, e.g. colorimetry.

[3]!For non-continuous measurements the date and time of the sample that produced the result is given. For continuous measurements, or flow/time proportional samples, the percentage of the process operating time covered by the monitoring is given.

[4]!The accreditation status of the equipment and/or the monitoring organisation, as appropriate, for the methods used for both sampling and analysis.

[5]!The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated. The following uncertainties are quoted on a different basis (basis as stated)

A handwritten signature in blue ink, appearing to be 'G. Smith' or similar, written in a cursive style.

Signed .....

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Date: 04/01/2022

(authorised to sign as representative of the Operator)

**Chelson Meadow Permit CP3731LZ - Weekly Monitoring Results  
Outfall to R Plym - W1**

Date	Time	Limit Value	Result	Limit Value	Result	Limit Value	Result
		BOD mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	SUSPENDED SOLIDS mg/l	NH4N mg/l	NH4N mg/l
1. 04.01.2021	10.50	10	<4	75	23	10	<0.5
2. 11.01.2021	07.00	10	<5	75	19	10	<0.5
3. 11.01.2021	17.20	10	<5	75	31	10	<0.5
4. 18.01.2021	10.20	10	<5	75	25	10	SWW
5. 26.01.2021	SWW	10		75		10	0.2
<b>NH4 WAS NOT ANALYSED ON THE 18.01.2021 SAMPLE - SWW - LAB FAULT THE WEEK AFTER SAMPLES WERE NOT SUBMITTED DUE TO SWW STILL HAVING A FAULT. OUTFALL SAMPLE TESTED IN-HOUSE 26.01.2021</b>							
6. 02.02.2021	08.15	10	<4	75	19	10	<0.5
7. 02.02.2021	08.50	10	<3.5	75	20	10	<0.5
8. 09.02.2021	08.50	10	<4	75	19	10	<0.5
9. 15.02.2021	09.00	10	<4	75	27	10	<0.5
10. 22.02.2021	13.40	10	<4	75	5	10	<0.5
11. 01.03.2021	08.00	10	<3.5	75	27	10	<0.5
12. 08.03.2021	13.45	10	<5	75	22	10	<0.5
13. 17.03.2021	09.00	10	<5	75	27	10	<0.5
14. 22.03.2021	12.00	10	<3.5	75	24	10	<0.5
15. 29.03.2021	08.11	10	<3.5	75	23	10	<0.5
16. 01.04.2021	09.30	10	<5	75	27	10	<0.5
17. 08.04.2021	11.10	10	<4	75	15	10	0.881
18. 13.04.2021	08.40	10	<4	75	20	10	<0.5
19. 21.04.2021	12.30	10	<3.5	75	19	10	<0.5
20. 28.04.2021	08.00	10	<4	75	26	10	<0.5
21. 04.05.2021	13.10	10	<4	75	27	10	<0.5
22. 12.05.2021	08.20	10	<5	75	38	10	1.46
23. 17.05.2021	10.45	10	<5	75	32	10	<0.5
24. 25.05.2021	07.50	10	<4	75	40	10	<0.5
25. 01.06.2021	12.30	10	<3.5	75	24	10	<0.5
26. 10.06.2021	07.50	10	<4	75	20	10	<0.5
27. 14.06.2021	10.45	10	<5	75	25	10	<0.5
28. 18.06.2021	07.30	10	<4	75	29	10	<0.5
29. 25.06.2021	07.45	10	<3.5	75	14	10	<0.5

Date	Time	Limit Value	Result	Limit Value	Result	Limit Value	Result
		BOD mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	SUSPENDED SOLIDS mg/l	NH4N mg/l	NH4N mg/l
30. 01.07.2021	12.40	10	<3.5	75	22	10	<0.5
31. 05.07.2021	16.20	10	<5	75	37	10	<0.5
32. 12.07.2021	09.00	10	<5	75	20	10	<0.5
33. 19.07.2021	13.45	10	<3.5	75	21	10	<0.5
34. 22.07.2021	10.20	10	<4	75	30	10	<0.5
35. 27.07.2021	10.00	10	<4	75	18	10	<0.5
36. 04.08.2021	10.30	10	<3.5	75	23	10	<0.5
37. 04.08.2021	16.40	10	<5	75	17	10	<0.5
38. 09.08.2021	08.00	10	<3.5	75	10	10	<0.5
39. 17.08.2021	14.15	10	<4	75	29	10	<0.5
40. 23.08.2021	16.00	10	<5	75	19	10	<0.5
41. 02.09.2021	15.50	10	<4	75	12	10	5.45
42. 08.09.2021	08.20	10	<3.5	75	16	10	<0.5
43. 15.09.2021	14.10	10	<4	75	19	10	<0.5
44. 23.09.2021	10.00	10	<4	75	21	10	<0.5
45. 28.09.2021	11.45	10	<5	75	14	10	<0.5
46. 06.10.2021	07.15	10	<4	75	30	10	<0.5
47. 06.10.2021	08.00	10	<4	75	27	10	<0.5
48. 11.10.2021	SWW	10		75		10	0.2
49. 18.10.2021	SWW	10		75		10	0.2
<b>SWW Lab Nutrient Analysis was broken from the 07.10.2021 - 20.10.2021.Outfall tested in house</b>							
50. 21.10.2021	14.10	10	<5	75	50	10	<0.5
51. 25.10.2021	10.00	10	<4	75	23	10	<0.5
52. 02.11.2021	09.30	10	<3.5	75	20	10	<0.5
53. 03.11.2021	08.15	10	<3.5	75	21	10	<0.5
54. 09.11.2021	09.50	10	<3.5	75	15	10	<0.5
55. 19.11.2021	08.00	10	<5	75	9	10	<0.5
56. 25.11.2021	09.30	10	<3.5	75	17	10	<0.5
57. 30.11.2021	14.50	10	<4	75	17	10	2.50
58. 01.12.2021	16.00	10	<4	75	22	10	<0.5
59. 08.12.2021	08.00	10	<5	75	52	10	<0.5
60. 13.12.2021	14.20	10	<4	75	11	10	<0.5
61. 20.12.2021	11.10	10	NR	75	19	10	<0.5

Date	Time	Limit Value	Result	Limit Value	Result	Limit Value	Result
		BOD mg/l	BOD mg/l	SUSPENDED SOLIDS mg/l	SUSPENDED SOLIDS mg/l	NH4N mg/l	NH4N mg/
62. 30.12.2021	08.00	10	NR	75	18	10	<0.5

**NR = Result not provided by SWW due to Christmas opening times**

From: Lab Commercial <[labcommercial@southwestwater.co.uk](mailto:labcommercial@southwestwater.co.uk)>

Sent: 19 January 2021 09:11

To: 'leppitt-associates@live.com' <[leppitt-associates@live.com](mailto:leppitt-associates@live.com)>

Cc: Lab Quality Management <[LabQualityManagement@southwestwater.co.uk](mailto:LabQualityManagement@southwestwater.co.uk)>

Subject: SWW instrument breakdown clean and waste nutrients - PLYMCCCM

Good morning

I regret to inform you, that we are currently experiencing a breakdown with our instrument used to analyse clean and waste nutrients.

Until the issue is resolved, we are unable to report any results for TON, Ammonium, Ammonia, Nitrate, Nitrite, Chloride, Orthophosphate or Silica, for any samples received.

Due to the labile nature of the analysis, it is not possible to subcontract the samples. Regrettably, we have had to cancel the nutrients analysis from the samples listed in the table below, the remaining analysis requested will be reported to you as usual.

Kind Regards

**Janice Leembruggen**  
Customer Account Co-ordinator



D: 01392 205704

M: 07825174670

[labcommercial@southwestwater.co.uk](mailto:labcommercial@southwestwater.co.uk)

[www.southwestwater.co.uk](http://www.southwestwater.co.uk)

**From:** Lab Commercial <[labcommercial@southwestwater.co.uk](mailto:labcommercial@southwestwater.co.uk)>

**Sent:** 25 January 2021 17:16

**To:** Lab Commercial <[labcommercial@southwestwater.co.uk](mailto:labcommercial@southwestwater.co.uk)>

**Cc:** Lab Quality Management <[LabQualityManagement@southwestwater.co.uk](mailto:LabQualityManagement@southwestwater.co.uk)>

**Subject:** URGENT update regarding SWW instrument breakdown clean and waste Nutrients.

**PLEASE READ THIS EMAIL IF YOU SUBMIT SAMPLES TO SWW LABORATORY FOR THE FOLLOWING PARAMETERS: TON, AMMONIUM, AMMONIA NITRATE, NITRITE, CHLORIDE, ORTHOPHOSPHATE OR SILICATE.**

Good afternoon

Further to my email of 22Jan21, I regret to inform you that after working successfully over the weekend our Nutrients instrument has suffered a re-occurrence of the same fault. We are therefore unable to carry out any Nutrient analysis until further notice.

The Nutrients analysis will be cancelled from any samples received, and all remaining analysis reported as usual.

Please accept our apologies for the inconvenience that this breakdown has caused to you and your clients.

Kind Regards

**Janice Leembruggen**  
**Customer Account Co-ordinator**



**South West Water**

D: 01392 205704

M: 07825174670

Permit Number: EPR/CP3731LZ

Operator: Plymouth City Council

Installation: Chelson Meadow LTP

Form Number: R1/ 30/01/15

**Reporting of Waste Disposal and Recovery for the year 2021**

Waste Description	Disposal		Recovery Tonnes (t)
	Route	Tonnes (t)	
1) Hazardous Wastes	N/A		
Named Hazardous Waste			
Other Hazardous Wastes			
Total Hazardous Waste			
2) Non-Hazardous Wastes	Discharge to R Plym	670291	N/A
Named Non-Hazardous Waste	Landfill Leachate		
Other Non-Hazardous wastes	(SWW) Sludge	89.02	
Other Non-Hazardous Waste			
<b>TOTAL WASTE</b>		<b>670380.02</b>	

Trends in Waste Disposal and Recovery			
Year	Parameter		
	Named Waste (t)	Total Waste (t)	Waste per Unit Output (t/t)
	Landfill Leachate		
2014	707759	707759	1.0
2015	608117	608117	1.0
2016	593404	593404	1.0
2017	569025	569109.6	1.0
2018	632276	632545.62	1.0
2019	684584	685528.12	1.0
2020	701130	701130	1.0
2021	670380.02	670380.02	1.0

**Operator's comments:**

The assumption is that leachate discharge equates to waste disposal.  
 Leachate discharged to R Plym is recorded by an MCERTS flow metre. Flow is recorded in l/s and converted to cubic metres, assuming 1m<sup>3</sup> = 1 tonne

Signed ...



.....Date: 04/01/2022

(authorised to sign as representative of the Operator)



Permit Number: EPR/CP3731LZ

Operator: Plymouth City Council

Installation: Chelson Meadow LTP

Form Number: R1/ 30/01/15

Reporting of Water Usage for the year 2021

Water Source	Usage (m <sup>3</sup> )	Specific Usage (m <sup>3</sup> /t)
Mains Water	95	1.417 x 10 <sup>-4</sup>
Non-potable water	N/A	
<b>TOTAL WATER USAGE</b>	<b>95</b>	<b>1.417 x 10<sup>-4</sup></b>

Trends in Water Usage				
Year	Parameter			
	Mains Water (m <sup>3</sup> )	Non-potable Water (m <sup>3</sup> )	Total Water Usage (m <sup>3</sup> )	Water per Unit Output (m <sup>3</sup> /t)
2016	45	0	45	6.91 x 10 <sup>-5</sup>
2017	51	0	51	8.96 x 10 <sup>-5</sup>
2018	101	0	101	1.59 x 10 <sup>-4</sup>
2019	75	0	75	1.09 x 10 <sup>-4</sup>
2020	42	0	42	5.99 x 10 <sup>-5</sup>

**Operator's comments:**

Mains water is used to clean pumps and associated mechanical/electrical equipment and probes during the monthly/six monthly maintenance regime. No other mains water is used.

Water is also used when the bottom of the tanks are being cleaned. The amount required depends on the depth of residual sludge, which is not consistent. 2 tanks were cleaned in 2017; 4 tanks were cleaned in 2018; 2 or 3 tanks were cleaned in 2019.

TWO TANKS WERE CLEANED IN 2021. Water is also used to clean the bottom of the STOR tanks if needed, which is not a predictable event. More water may be required if the tank is in storm for longer.

Specific usage 95/ 670291 tonnes of leachate

Signed ...



Date: 04/01/2022

(authorised to sign as representative of the Operator)

Permit Number: EPR/CP3731LZ

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Installation: Chelson Meadow LTP

Form Number: R1/ 30/01/15

### Reporting of Energy Usage for the year 2021

Energy Source	Energy Usage		CO <sub>2</sub> Produced (t)
	Quantity	Primary Energy (MWh)	
Electricity *	787,479 KWh	2047.45	276.8
Gas oil	N/A		
TOTAL	787,479 KWh	2047.45	276.8

Year	Trends in Energy Usage		
	Primary Energy Usage (MWh)	CO <sub>2</sub> Produced (t)	CO <sub>2</sub> per Unit Output (t/t)
2014	2450.8	388.4	5.5 x 10 <sup>-4</sup>
2015	1768.0	280.3	4.61 x 10 <sup>-4</sup>
2016	2027.0	321.3	5.42 x 10 <sup>-4</sup>
2017	2386.8	322.7	5.67 x 10 <sup>-4</sup>
2018	1873.6	253.3	4.00 x 10 <sup>-4</sup>
2019	1864.2	252.2	3.68 x 10 <sup>-4</sup>
2020	1965.6	265.9	3.80 x 10 <sup>-4</sup>

\* Conversion factor for delivered electricity to primary energy = 2.6

#### Operator's comments :

787479KWh = 787.479MWh x 2.6 = 2047.45  
CO<sub>2</sub> calculation made using <http://www.carbon-calculator.org.uk/> = 276846kg CO<sub>2</sub>e = 276.8t



Signed ...

..... Date: 04/01/2022  
(authorised to sign as representative of the Operator)

Permit Number: EPR/CP3731LZ

Operator: Plymouth City Council

Installation: Chelson Meadow LTP

Form Number: R1/ 30/01/15

**Reporting of Performance Indicators for the year 2021**

**Environmental Performance Indicators**

Performance Indicators			Trends in Environmental Performance				
Parameter	Annual Average	Units	Year	Parameter			
				Total Water Usage (m <sup>3</sup> water / t product)	Energy Consumption (MWh energy / t product)	Waste Disposal (t waste / t product)	Treated Effluent Flow (m <sup>3</sup> /year)
Energy Use	0.0012	MWh/tonne	2014	5.5 x 10 <sup>-5</sup>	1.3 x 10 <sup>-3</sup>	1.0	707729
Mains Water Use	1.417 X 10 <sup>-4</sup>	m <sup>3</sup> /tonne	2015	7.40 x 10 <sup>-5</sup>	1.12 x 10 <sup>-3</sup>	1.0	608117
Non-potable water use	N/A	m <sup>3</sup> /tonne	2016	6.91 x 10 <sup>-5</sup>	1.3 x 10 <sup>-3</sup>	1.0	593404
Total Waste	1.0	Tonne/tonne	2017	8.96 x 10 <sup>-5</sup>	0.0016	1.0	569109.6
Treated Effluent	670380.02	m <sup>3</sup> /year	2018	1.59 x 10 <sup>-4</sup>	0.0011	1.0	632545.62
			2019	1.09 x 10 <sup>-4</sup>	0.0027	1.0	685528.12
<b>Operator's comments:</b>							
The assumption is the product is the leachate discharged to the R. Plym							

2020 5.99 x 10<sup>-5</sup> 0.0011 1.0 701130

Signed



.....

Date: 04/01/2022

(authorised to sign as representative of the Operator)