



# BIO BUBBLE WwTP 2019

Biological Performance Reductions

Supported by ALS Environmental Ltd.

UKAS and MCERTs accredited laboratory Analysis

ADVANCED  
AERATION

The logo for AERATION, featuring the word "AERATION" in a serif font. The letter "O" is replaced by a circular graphic composed of two overlapping rings, one green and one blue, with a white center. A horizontal line is positioned below "ADVANCED" and another below "AERATION".

Date	Fat Oil & Grease	Influent								Iron (Fe)	REACTOR	Effluent								Iron (Fe)	%NH3r	%BODr	%P-r	%TKNr			
		PH	Alkalinity	NH3-N	Ammonia	TKN	Nitrogen	Phos Total	SS			BOD	PH	Alkalinity	NH3-N	Ammonia	Nitrite NO2	Nitrate NO3	TKN						Nitrogen	Phos Total	SS
04/01/2018	90	-	234	12.8	18.7	2.8	4.3	128	261			7.6	214	3.03	<0.08	<0.7	4.1	1.5	8	3			76.33%	98.85%	65.12%	78.07%	
02/02/2018	136	6.9	155	13.3	18.5	2.7	5.8	512	463			7.6	220	0.06	<0.08	<0.7	0.7	1	2	-			99.55%		82.76%	96.22%	
08/03/2018	49.2	7.5	247	16.8	17.1	2.4	3.6	107	153			201	0.5	<0.08	<0.7	1.5	1.6	11	5			97.02%	96.73%	55.56%	91.23%		
05/04/2018	46.9	7.5	274	16	21.4	2.6	4.1	148	124			7.8	213	0.06	<0.08	<0.7	0.9	1.1	5	1			99.63%	99.19%	73.17%	95.79%	
03/05/2018	144	6.8	283	22	24.9	8.9	12	616	336			7.3	207	0.06	<0.08	<0.7	1	2.4	4	7			99.73%	97.92%	80.00%	95.98%	
06/06/2018	65.4	7.3	339	20.8	23.9	3.7	5.9	186	356			7.8	199	0.06	0.1	<0.7	1	2.2	7	1			99.71%	99.72%	62.71%	95.82%	
05/07/2018	190	7.3	375	28.5	34.8	7.3	12	2440	995			8.2	240	0.06	0.08	<0.7	0.6	1.8	2	7			99.79%	99.30%	85.00%	98.28%	
13/08/2018	103	7.2	228	23.2	27.7	4.1	6	108	336			8.4	169	0.2	0.31	0.8	2.5	3.2		2			99.14%	99.40%	46.67%	90.97%	
10/09/2018	161	7.2	274	30.3		4.6	7.2	226	516			7.7	173	0.26	0.09	0.8	1.8	3.5	8	3			99.14%	99.42%	51.39%		
09/10/2018		7.1	256	23	28.5	4.4	6.2	230	320			7.4	172	0.23	0.08	<0.7	1.3	2.9	3	3			99.00%	99.06%	53.23%	95.44%	
Nov	November Reactor 2 install, December no sample due to traffic jam																										
08/01/2019	248	6.8	312	35	33.4	8.4	26	2550	1080			R1	8	210	1.78	<0.08	<0.7	2.6	2	9	3			94.91%	99.72%	92.31%	92.22%
												R2	8	215	2.42	<0.08	<0.7	2.7	2	11	3			93.09%	99.72%	92.31%	91.92%
04/02/2019	66.9	7.1	259	20.1	26.6	3.5	5.8	190	267			R1	7.5	216	0.14	<0.08	<0.7	0.8	1.1	6	1			99.30%	96.84%	81.03%	96.99%
												R2	7.6	217	0.12	<0.08	<0.7	0.8	1.1	6	2			99.40%	99.25%	81.03%	96.99%
19/03/2019	78.4	7.4	483	61	64.8	8	12	181	320			R1	7.7	198	3.07	<0.08	<0.7	3.2	3	8	3			94.97%	95.58%	75.00%	95.06%
												R2	7.9	203	0.85	<0.08	<0.7	1	3.5	5	2			98.61%	99.38%	70.83%	98.46%
04/04/2019	275	6.8	248	26.1	25.7	6.1	8.3	596	515	1.85		R1	7.7	220	0.06	<0.08	0.7	1.3	3.3	2	2	<0.23		99.77%	99.66%	60.24%	94.94%
												R2	7.7	222	0.06	<0.08	0.7	2.6	3.4	1	2	<0.23		99.77%	99.61%	59.04%	89.88%
03/05/2019	400	6.5	268	32	32.7	7.4	11	2770	1400	0.72		R1	8.3	196	0.06	<0.08	3.7	4.3	10	14	2	<0.23		99.81%	99.49%	9.09%	86.85%
												R2	7.8	200	0.06	<0.08	3.5	4.7	10	3	2	<0.23		99.81%	99.86%	9.09%	85.63%
07/06/2019	483	7.3	293	22	29	4.5	7.7	6240	349	0.57		R1	8	227	0.25	0.17	1.4	2.3	5.1	5	3	<0.23		98.86%	99.92%	33.77%	92.07%
												R2	8.1	223	0.23	0.14	2.8	2.6	5.6	2	2	<0.23		98.95%	99.43%	27.27%	91.03%
03/07/2019	3770	6.4	244	30.1	32.5	5.3	12	4600	1030	1.1		R1	7.9	234	0.23	0.19	2.7	3.7	4.2	2	2	<0.23		99.24%	99.96%	65.00%	88.62%
												R2	8	244	0.21	0.20	2.8	5.0	4.6	1	9	<0.23		99.30%	99.13%	61.67%	84.62%
01/08/2019	3110	7.1	324	33	27.3	4.8	9.3	8620	593	0.92		R1	8	271	0.5	<0.08	<0.7	0.9	3	5	1	<0.23		98.48%	99.94%	67.74%	96.70%
												R2	8.2	274	0.5	<0.08	<0.7	0.8	3.7	2	1	<0.23		98.48%	99.83%	60.22%	97.07%
06/09/2019	2380	6.2		34.7	31	10.8	37	5050	2300	4.61		R1	7.8	296	0.06	<0.08	<0.7	0.8	3.3	4	1	<0.23		99.83%	99.92%	91.08%	97.42%
												R2	8.0	294	0.06	<0.08	<0.7	0.9	3.9	10	1	<0.23		99.83%	99.96%	89.46%	97.10%
04/10/2019	5.1	5.7	702	29.5	29.8	11.6	60		5790	11		R1	8.5	293	0.08	0.14	1	2.5	4.5	23	1	<0.23		99.73%	99.60%	92.50%	91.61%
												R2	8.3	291	0.1	0.15	1.2	2.4	4.6	4	1	<0.23		99.66%	99.98%	92.33%	91.95%
11/11/2019	35.4	7.6	318	6.56	10.1	0.6	2.3	58	112	0.28		R1	7.9	226	0.12	0.13	2.3	2.5	3.3	4	2	<0.23		98.17%	93.10%	-43.48%	75.25%
												R2	8.0	229	0.06	<0.08	3	2.9	3	8	1	<0.23		99.09%	99.11%	-30.43%	71.29%
05/12/2019		7.1	313	16.4	22.5	2.4	5.5	159	296	0.49		R1	8.0	270	0.17	<0.08	0.7	1.1	2.7	6	2	<0.23		98.96%	96.23%	50.91%	95.11%
												R2	7.9	268	0.16	<0.08	0.7	1	2.8	9	1	<0.23		99.02%	99.66%	49.09%	95.56%
09/01/2020	98.6	7.3	347	18	22.3	3.3	6.3	254	291	0.36		R1	7.7	293	0.15	<0.08	0.7	0.7	2.1	6	3	<0.23		99.17%	97.64%	66.67%	96.86%
												R2	7.8	297	0.2	<0.08	0.7	0.7	1.3	4	2	<0.23		98.89%	99.31%	79.37%	96.86%
06/02/2020	63.8	7.1	320	19.3	21.7	3.1	6	246	271	0.58		R1	7.9	286	0.3	<0.08	0.7	0.8	1.4	2	1	0.12		98.45%	99.19%	76.67%	96.31%
												R2	7.9	286	0.24	<0.08	0.7	0.9	1.5	4	1	0.14		98.76%	99.63%	75.00%	95.85%
04/03/2020	106	7	401	18.2	20.1	3.9	8.3	300	329	0.95		R1	7.9	335	0.18	<0.08	0.7	0.5	1.0	7	1	0.38		99.01%	97.67%	87.95%	97.51%
												R2	8.0	332	0.18	<0.08	0.7	0.6	0.95	7	2	0.54		99.01%	99.39%	88.55%	97.01%

Date	Fat Oil & Grease	Influent									Iron (Fe)	REACTOR	Effluent									Iron (Fe)	%NH3r	%BODr	%P+r	%TKNr
		PH	Alkalinity	NH3-N - Ammonia	TKN Nitrogen N	P <sub>Ortho</sub> P	Phos Total	SS	BOD	Alkalinity			NH3-N - Ammonia	Nitrite NO <sub>2</sub>	Nitrate NO <sub>3</sub>	TKN Nitrogen N	Phos Total	SS	BOD							
08/01/2019	248	6.8	312	35	33.4	8.4	26	2550	1080	1.85	R1	8	210	1.78	<0.08	<0.7	2.6	2	9	3	<0.23	94.91%	99.72%	92.31%	92.22%	
											R2	8	215	2.42	<0.08	<0.7	2.7	2	11	3	<0.23	93.09%	99.72%	92.31%	91.92%	
04/02/2019	66.9	7.1	259	20.1	26.6	3.5	5.8	190	267	0.72	R1	7.5	216	0.14	<0.08	<0.7	0.8	1.1	6	1	<0.23	99.30%	96.84%	81.03%	96.99%	
											R2	7.6	217	0.12	<0.08	<0.7	0.8	1.1	6	2	<0.23	99.40%	99.25%	81.03%	96.99%	
19/03/2019	78.4	7.4	483	61	64.8	8	12	181	320	0.57	R1	7.7	198	3.07	<0.08	<0.7	3.2	3	8	3	<0.23	94.97%	95.58%	75.00%	95.06%	
											R2	7.9	203	0.85	<0.08	<0.7	1	3.5	5	2	<0.23	98.61%	99.38%	70.83%	98.46%	
04/04/2019	275	6.8	248	26.1	25.7	6.1	8.3	596	515	1.1	R1	7.7	220	0.06	<0.08	0.7	1.3	3.3	2	2	<0.23	99.77%	99.66%	60.24%	94.94%	
											R2	7.7	222	0.06	<0.08	0.7	2.6	3.4	1	2	<0.23	99.77%	99.61%	59.04%	89.88%	
03/05/2019	400	6.5	268	32	32.7	7.4	11	2770	1400	0.92	R1	8.3	196	0.06	<0.08	3.7	4.3	10	14	2	<0.23	99.81%	99.49%	9.09%	86.85%	
											R2	7.8	200	0.06	<0.08	3.5	4.7	10	3	2	<0.23	99.81%	99.86%	9.09%	85.63%	
07/06/2019	483	7.3	293	22	29	4.5	7.7	6240	349	4.61	R1	8	227	0.25	0.17	1.4	2.3	5.1	5	3	<0.23	98.86%	99.92%	33.77%	92.07%	
											R2	8.1	223	0.23	0.14	2.8	2.6	5.6	2	2	<0.23	98.95%	99.43%	27.27%	91.03%	
03/07/2019	3770	6.4	244	30.1	32.5	5.3	12	4600	1030	11	R1	7.9	234	0.23	0.19	2.7	3.7	4.2	2	2	<0.23	99.24%	99.96%	65.00%	88.62%	
											R2	8	244	0.21	0.20	2.8	5.0	4.6	1	9	<0.23	99.30%	99.13%	61.67%	84.62%	
01/08/2019	3110	7.1	324	33	27.3	4.8	9.3	8620	593	0.92	R1	8	271	0.5	<0.08	<0.7	0.9	3	5	1	<0.23	98.48%	99.94%	67.74%	96.70%	
											R2	8.2	274	0.5	<0.08	<0.7	0.8	3.7	2	1	<0.23	98.48%	99.83%	60.22%	97.07%	
06/09/2019	2380	6.2	34.7	31	10.8	37	5050	2300	4.61	4.61	R1	7.8	296	0.06	<0.08	<0.7	0.8	3.3	4	1	<0.23	99.83%	99.92%	91.08%	97.42%	
											R2	8.0	294	0.06	<0.08	<0.7	0.9	3.9	10	1	<0.23	99.83%	99.96%	89.46%	97.10%	
04/10/2019	5.1	5.7	702	29.5	29.8	11.6	60	5790	11	11	R1	8.5	293	0.08	0.14	1	2.5	4.5	23	1	<0.23	99.73%	99.60%	92.50%	91.61%	
											R2	8.3	291	0.1	0.15	1.2	2.4	4.6	4	1	<0.23	99.66%	99.98%	92.33%	91.95%	
11/11/2019	35.4	7.6	318	6.56	10.1	0.6	2.3	58	112	0.28	R1	7.9	226	0.12	0.13	2.3	2.5	3.3	4	2	<0.23	98.17%	93.10%	-43.48%	75.25%	
											R2	8.0	229	0.06	<0.08	3	2.9	3	8	1	<0.23	99.09%	99.11%	-30.43%	71.29%	
05/12/2019	7.1	313	16.4	22.5	2.4	5.5	159	296	0.49	0.49	R1	8.0	270	0.17	<0.08	0.7	1.1	2.7	6	2	<0.23	98.96%	96.23%	50.91%	95.11%	
											R2	7.9	268	0.16	<0.08	0.7	1	2.8	9	1	<0.23	99.02%	99.66%	49.09%	95.56%	

# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1657255/2019**  
Laboratory Number: **17834703**  
Sample Source: **Advanced Aeration Ltd**  
Sample Point Description:  
Sample Description: **Balance Tank Raw**  
Sample Matrix: **Untreated Sewage**  
Sample Date/Time: **08 January 2019 12:00**  
Sample Received: **09 January 2019**  
Analysis Complete: **23 January 2019**

Issue **1**  
Sample **1** of **1**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	6.8	pH units	09/01/2019	Y Cov	WAS039
Alkalinity as CaCO <sub>3</sub>	312	mg/l	11/01/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N	17.5	mg/l	09/01/2019	Y Cov	WAS036
Ammoniacal Nitrogen as N (LL)	Analyst Com	mg/l	10/01/2019	N Cov	WAS067
Nitrogen as N (Kjeldahl) Calc	33.4	mg/l	14/01/2019	Y Cov	WAS022
Phosphate, Ortho as P	8.4	mg/l	09/01/2019	N Cov	WAS036
Phosphates , Total as P	26	mg/l	10/01/2019	Y Cov	WAS049
Total Suspended Solids	2550	mg/l	11/01/2019	Y Cov	WAS006
BOD + ATU (5 day)	1080	mg/l	14/01/2019	Y Cov	WAS001

Analyst Comments for 17834703: {/}\*}Ammonia too high for clean water analysis.{\*/}

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **A. Horobin**

Date: **23 January 2019**

Title: **Organic Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1657260/2019**  
Laboratory Number: **17834718**  
Sample Source: **Advanced Aeration Ltd**  
Sample Point Description:  
Sample Description: **Reactor FE One**  
Sample Matrix: **Treated Sewage**  
Sample Date/Time: **08 January 2019 09:30**  
Sample Received: **09 January 2019**  
Analysis Complete: **16 January 2019**

Issue **1**  
Sample **1** of **2**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.0	pH units	09/01/2019	Y Cov	WAS039
Alkalinity as CaCO <sub>3</sub>	210	mg/l	11/01/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N	1.83	mg/l	09/01/2019	Y Cov	WAS036
Ammoniacal Nitrogen as N (LL)	1.78	mg/l	10/01/2019	Y Cov	WAS067
Nitrite as N	<0.08	mg/l	09/01/2019	Y Cov	WAS036
Nitrate as N	<0.7	mg/l	09/01/2019	Y Cov	WAS036
Nitrogen, Total as N	2.6	mg/l	15/01/2019	Y Cov	WAS022
Phosphates , Total as P	2.0	mg/l	10/01/2019	Y Cov	WAS049
Total Suspended Solids	9.00	mg/l	11/01/2019	Y Cov	WAS006
BOD + ATU (5 day)	3	mg/l	14/01/2019	Y Cov	WAS001

Analyst Comments for 17834718: No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **P. Johal**

Date: **16 January 2019**

Title: **Coventry Operations Manager**

**ALS Environmental Ltd**

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# Certificate of Analysis

ANALYSED BY



1314  
0897  
4409



Report Number: **COV/1657260/2019**  
Laboratory Number: **17834719**  
Sample Source: **Advanced Aeration Ltd**  
Sample Point Description:  
Sample Description: **Reactor FE Two**  
Sample Matrix: **Treated Sewage**  
Sample Date/Time: **08 January 2019 08:30**  
Sample Received: **09 January 2019**  
Analysis Complete: **16 January 2019**

Issue **1**  
Sample **2** of **2**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	8.0	pH units	09/01/2019	Y Cov	WAS039
Alkalinity as CaCO <sub>3</sub>	215	mg/l	11/01/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N	2.49	mg/l	09/01/2019	Y Cov	WAS036
Ammoniacal Nitrogen as N (LL)	2.42	mg/l	10/01/2019	Y Cov	WAS067
Nitrite as N	<0.08	mg/l	09/01/2019	Y Cov	WAS036
Nitrate as N	<0.7	mg/l	09/01/2019	Y Cov	WAS036
Nitrogen, Total as N	2.7	mg/l	15/01/2019	Y Cov	WAS022
Phosphates , Total as P	2.0	mg/l	10/01/2019	Y Cov	WAS049
Total Suspended Solids	11.0	mg/l	10/01/2019	Y Cov	WAS006
BOD + ATU (5 day)	3	mg/l	14/01/2019	Y Cov	WAS001

Analyst Comments for 17834719: No Analyst Comment

This issue replaces all previous issues

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Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **P. Johal**

Date: **16 January 2019**

Title: **Coventry Operations Manager**

**ALS Environmental Ltd**

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# Certificate of Analysis

ANALYSED BY



1314  
0897  
4409



Report Number: **COV/1668752/2019**  
Laboratory Number: **17918993**  
Sample Source: **Advanced Aeration Ltd**  
Sample Point Description:  
Sample Description: **Balance Tank Raw**  
Sample Matrix: **Untreated Sewage**  
Sample Date/Time: **04 February 2019 10:30**  
Sample Received: **05 February 2019**  
Analysis Complete: **18 February 2019**

Issue **1**  
Sample **1** of **1**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.1	pH units	05/02/2019	Y Cov	WAS039
Alkalinity as CaCO <sub>3</sub>	259	mg/l	06/02/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N	20.1	mg/l	12/02/2019	Y Cov	WAS036
Nitrogen as N (Kjeldahl) Calc	26.6	mg/l	08/02/2019	Y Cov	WAS022
Nitrogen, Total as N	26.6	mg/l	08/02/2019	Y Cov	WAS022
Phosphate, Ortho as P	3.5	mg/l	05/02/2019	N Cov	WAS036
Phosphates , Total as P	5.8	mg/l	15/02/2019	Y Cov	WAS049
Total Suspended Solids	190	mg/l	08/02/2019	Y Cov	WAS006
BOD + ATU (5 day)	267	mg/l	10/02/2019	Y Cov	WAS001

**Analyst Comments for 17918993:**

This sample has been analysed for Ammoniacal Nitrogen as N outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **D. Lewis**

Date: **21 February 2019**

Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

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# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1668764/2019**

Laboratory Number: **17919033**

Sample Source: **Advanced Aeration Ltd**

Sample Point Description:

Sample Description: **Reactor FE One**

Sample Matrix: **Treated Sewage**

Sample Date/Time: **04 February 2019 11:00**

Sample Received: **05 February 2019**

Analysis Complete: **18 February 2019**

Issue **1**

Sample **1** of **2**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.5	pH units	05/02/2019	Y Cov	WAS039
Alkalinity as CaCO <sub>3</sub>	216	mg/l	06/02/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.14	mg/l	05/02/2019	Y Cov	WAS067
Nitrite as N	<0.08	mg/l	05/02/2019	Y Cov	WAS036
Nitrate as N	<0.7	mg/l	05/02/2019	Y Cov	WAS036
Nitrogen, Total as N	0.8	mg/l	08/02/2019	Y Cov	WAS022
Phosphates , Total as P	1.1	mg/l	15/02/2019	Y Cov	WAS049
Total Suspended Solids	6.00	mg/l	08/02/2019	Y Cov	WAS006
BOD + ATU (5 day)	1	mg/l	10/02/2019	Y Cov	WAS001

Analyst Comments for 17919033:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **D. Lewis**

Date: **21 February 2019**

Title: **Inorganic Team Leader**

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# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1668764/2019**  
Laboratory Number: **17919034**  
Sample Source: **Advanced Aeration Ltd**  
Sample Point Description:  
Sample Description: **Reactor FE Two**  
Sample Matrix: **Treated Sewage**  
Sample Date/Time: **04 February 2019 10:00**  
Sample Received: **05 February 2019**  
Analysis Complete: **18 February 2019**

Issue **1**  
Sample **2** of **2**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.6	pH units	05/02/2019	Y Cov	WAS039
Alkalinity as CaCO <sub>3</sub>	217	mg/l	06/02/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.12	mg/l	05/02/2019	Y Cov	WAS067
Nitrite as N	<0.08	mg/l	05/02/2019	Y Cov	WAS036
Nitrate as N	<0.7	mg/l	05/02/2019	Y Cov	WAS036
Nitrogen, Total as N	0.8	mg/l	08/02/2019	Y Cov	WAS022
Phosphates , Total as P	1.1	mg/l	15/02/2019	Y Cov	WAS049
Total Suspended Solids	6.00	mg/l	07/02/2019	Y Cov	WAS006
BOD + ATU (5 day)	2	mg/l	10/02/2019	Y Cov	WAS001

Analyst Comments for 17919034: No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **D. Lewis**

Date: **21 February 2019**

Title: **Inorganic Team Leader**

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# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1683942/2019**

Laboratory Number: **18023486**

Issue **1**

Sample **1** of **1**

Sample Source: **Advanced Aeration Ltd**

Sample Point Description:

Sample Description: **Soho Farmhouse Bio-Bubble Balance Tank Raw**

Sample Matrix: **Untreated Sewage**

Sample Date/Time: **08 March 2019 09:00**

Sample Received: **09 March 2019**

Analysis Complete: **22 March 2019**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.4	pH units	11/03/2019	Y Cov	WAS039
Alkalinity as CaCO3	483	mg/l	20/03/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N	61.0	mg/l	12/03/2019	Y Cov	WAS036
Ammonia as NH3, Calculated	73.8	mg/l	12/03/2019	N Cov	WAS036
Nitrogen as N (Kjeldahl) Calc	64.8	mg/l	21/03/2019	Y Cov	WAS022
Phosphate, Ortho as P	8.0	mg/l	12/03/2019	N Cov	WAS036
Phosphates , Total as P	12	mg/l	20/03/2019	Y Cov	WAS049
Total Suspended Solids	181	mg/l	22/03/2019	Y Cov	WAS006
BOD + ATU (5 day)	320	mg/l	16/03/2019	Y Cov	WAS001

**Analyst Comments for 18023486:**

This sample has been analysed for pH, Total Suspended Solids, BOD + ATU (5 day), Nitrogen as N (Kjeldahl) Calc outside recommended stability times. It is therefore possible that the results provided may be compromised. {\*/}Ammonia too high for clean water analysis. {\*/}

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **D. Lewis**

Date: **22 March 2019**

Title: **Inorganic Team Leader**

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# Certificate of Analysis

ANALYSED BY



1314  
0897  
4409



Report Number: **COV/1683948/2019**  
Laboratory Number: **18023500**  
Sample Source: **Advanced Aeration Ltd**  
Sample Point Description:  
Sample Description: **Reactor F.E. One**  
Sample Matrix: **Treated Sewage**  
Sample Date/Time: **08 March 2019 09:30**  
Sample Received: **09 March 2019**  
Analysis Complete: **22 March 2019**

Issue **1**  
Sample **1** of **2**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.7	pH units	11/03/2019	Y Cov	WAS039
Alkalinity as CaCO <sub>3</sub>	198	mg/l	18/03/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	3.07	mg/l	12/03/2019	Y Cov	WAS067
Nitrite as N	<0.08	mg/l	12/03/2019	Y Cov	WAS036
Nitrate as N	<0.7	mg/l	12/03/2019	Y Cov	WAS036
Nitrogen, Total as N	3.2	mg/l	16/03/2019	Y Cov	WAS022
Phosphates , Total as P	3.0	mg/l	20/03/2019	Y Cov	WAS049
Total Suspended Solids	8.00	mg/l	22/03/2019	Y Cov	WAS006
BOD + ATU (5 day)	3	mg/l	16/03/2019	Y Cov	WAS001

## Analyst Comments for 18023500:

This sample has been analysed for pH, Total Suspended Solids, BOD + ATU (5 day), Nitrite as N, Nitrate as N outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **D. Lewis**

Date: **22 March 2019**

Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

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# Certificate of Analysis

ANALYSED BY



1314  
0897  
4409



Report Number: **COV/1683948/2019**

Laboratory Number: **18023501**

Issue **1**

Sample **2** of **2**

Sample Source: **Advanced Aeration Ltd**

Sample Point Description:

Sample Description: **Reactor F.E. Two**

Sample Matrix: **Treated Sewage**

Sample Date/Time: **08 March 2019 08:30**

Sample Received: **09 March 2019**

Analysis Complete: **22 March 2019**

Test Description	Result	Units	Analysis Date	Accreditation	Method
pH	7.9	pH units	11/03/2019	Y Cov	WAS039
Alkalinity as CaCO <sub>3</sub>	203	mg/l	18/03/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.85	mg/l	12/03/2019	Y Cov	WAS067
Nitrite as N	<0.08	mg/l	12/03/2019	Y Cov	WAS036
Nitrate as N	<0.7	mg/l	12/03/2019	Y Cov	WAS036
Nitrogen, Total as N	1.0	mg/l	16/03/2019	Y Cov	WAS022
Phosphates , Total as P	3.5	mg/l	20/03/2019	Y Cov	WAS049
Total Suspended Solids	5.00	mg/l	15/03/2019	Y Cov	WAS006
BOD + ATU (5 day)	2	mg/l	16/03/2019	Y Cov	WAS001

**Analyst Comments for 18023501:**

This sample has been analysed for pH, BOD + ATU (5 day), Nitrite as N, Nitrate as N outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **D. Lewis**

Date: **22 March 2019**

Title: **Inorganic Team Leader**

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# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1696218/2019**  
Laboratory Number: **18109252**  
Sample Source: **Advanced Aeration Ltd**  
Sample Point Description:  
Sample Description: **BALANCE TANK RAW**  
Sample Matrix: **Untreated Sewage**  
Sample Date/Time: **04 April 2019**  
Sample Received: **04 April 2019**  
Analysis Complete: **18 April 2019**

Issue **1**  
Sample **1** of **1**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron , Total as Fe	1.85	mg/l	15/04/2019	Y Cov	WAS049
pH	6.8	pH units	06/04/2019	Y Cov	WAS039
Alkalinity as CaCO3	248	mg/l	10/04/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N	26.1	mg/l	09/04/2019	Y Cov	WAS036
Total Kjeld Nitrogen, Filtered	25.7	mg/l	12/04/2019	Y Cov	WAS022
Phosphate, Ortho as P	6.1	mg/l	07/04/2019	N Cov	WAS036
Phosphates , Total as P	8.3	mg/l	15/04/2019	Y Cov	WAS049
Total Suspended Solids	596	mg/l	18/04/2019	Y Cov	WAS006
BOD + ATU (5 day)	515	mg/l	11/04/2019	Y Cov	WAS001

**Analyst Comments for 18109252:**

This sample has been analysed for Total Suspended Solids, Total Kjeld Nitrogen, Filtered outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **A. Horobin**

Date: **18 April 2019**

Title: **Organic Operations Manager**

**ALS Environmental Ltd**

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# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1696216/2019**  
Laboratory Number: **18109242**  
Sample Source: **Advanced Aeration Ltd**  
Sample Point Description:  
Sample Description: **1 DISCHARGE**  
Sample Matrix: **Treated Sewage**  
Sample Date/Time: **04 April 2019**  
Sample Received: **04 April 2019**  
Analysis Complete: **18 April 2019**

Issue **1**  
Sample **1** of **2**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron , Total as Fe	<0.23	mg/l	15/04/2019	Y Cov	WAS049
pH	7.7	pH units	06/04/2019	Y Cov	WAS039
Alkalinity as CaCO3	220	mg/l	10/04/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	08/04/2019	Y Cov	WAS067
Nitrite as N	<0.08	mg/l	07/04/2019	Y Cov	WAS036
Nitrate as N	<0.7	mg/l	07/04/2019	Y Cov	WAS036
Nitrogen as N (Kjeldahl) Calc	1.3	mg/l	10/04/2019	Y Cov	WAS022
Nitrogen, Total as N	1.3	mg/l	10/04/2019	Y Cov	WAS022
Phosphates , Total as P	3.3	mg/l	15/04/2019	Y Cov	WAS049
Total Suspended Solids	2.00	mg/l	18/04/2019	Y Cov	WAS006
BOD + ATU (5 day)	2	mg/l	11/04/2019	Y Cov	WAS001

**Analyst Comments for 18109242:**

This sample has been analysed for Total Suspended Solids outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

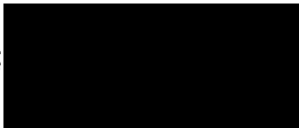
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **A. Horobin**

Date: **18 April 2019**

Title: **Organic Operations Manager**

**ALS Environmental Ltd**

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# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1696216/2019**  
Laboratory Number: **18109243**  
Sample Source: **Advanced Aeration Ltd**  
Sample Point Description:  
Sample Description: **2 DISCHARGE**  
Sample Matrix: **Treated Sewage**  
Sample Date/Time: **04 April 2019**  
Sample Received: **04 April 2019**  
Analysis Complete: **18 April 2019**

Issue **1**  
Sample **2** of **2**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron , Total as Fe	<0.23	mg/l	15/04/2019	Y Cov	WAS049
pH	7.7	pH units	06/04/2019	Y Cov	WAS039
Alkalinity as CaCO3	222	mg/l	10/04/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	08/04/2019	Y Cov	WAS067
Nitrite as N	<0.08	mg/l	07/04/2019	Y Cov	WAS036
Nitrate as N	<0.7	mg/l	07/04/2019	Y Cov	WAS036
Nitrogen as N (Kjeldahl) Calc	2.6	mg/l	10/04/2019	Y Cov	WAS022
Nitrogen, Total as N	2.6	mg/l	10/04/2019	Y Cov	WAS022
Phosphates , Total as P	3.4	mg/l	15/04/2019	Y Cov	WAS049
Total Suspended Solids	1.00	mg/l	18/04/2019	Y Cov	WAS006
BOD + ATU (5 day)	2	mg/l	11/04/2019	Y Cov	WAS001

**Analyst Comments for 18109243:**

This sample has been analysed for Total Suspended Solids outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

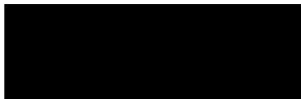
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **A. Horobin**

Date: **18 April 2019**

Title: **Organic Operations Manager**

**ALS Environmental Ltd**

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# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1708424/2019**  
Laboratory Number: **18194494**  
Sample Source: **Advanced Aeration Ltd**  
Sample Point Description:  
Sample Description: **Balance Tank Raw**  
Sample Matrix: **Not In Project**  
Sample Date/Time: **03 May 2019** **10:01**  
Sample Received: **04 May 2019**  
Analysis Complete: **16 May 2019**

Issue **1**  
Sample **1** of **1**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron , Total as Fe	0.72	mg/l	15/05/2019	N Cov	WAS049
pH	6.5	pH units	04/05/2019	N Cov	WAS039
Alkalinity as CaCO3	268	mg/l	13/05/2019	N Cov	WAS025
Ammoniacal Nitrogen as N	32.0	mg/l	09/05/2019	N Cov	WAS036
Total Kjeld Nitrogen, Filtered	32.7	mg/l	08/05/2019	N Cov	WAS022
Phosphate, Ortho as P	7.4	mg/l	09/05/2019	N Cov	WAS036
Phosphates , Total as P	11	mg/l	15/05/2019	N Cov	WAS049
Total Suspended Solids	2770	mg/l	10/05/2019	N Cov	WAS006
BOD + ATU (5 day)	1400	mg/l	12/05/2019	N Cov	WAS001

**Analyst Comments for 18194494:**

This sample has been analysed for BOD + ATU (5 day) outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **D. Lewis**

Date: **16 May 2019**

Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

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# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1708423/2019**  
Laboratory Number: **18194482**  
Sample Source: **Advanced Aeration Ltd**  
Sample Point Description:  
Sample Description: **Reactor No:1**  
Sample Matrix: **Treated Sewage**  
Sample Date/Time: **03 May 2019 10:15**  
Sample Received: **04 May 2019**  
Analysis Complete: **16 May 2019**

Issue **1**  
Sample **1** of **2**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron , Total as Fe	<0.23	mg/l	15/05/2019	Y Cov	WAS049
pH	8.3	pH units	13/05/2019	Y Cov	WAS039
Alkalinity as CaCO3	196	mg/l	13/05/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	08/05/2019	Y Cov	WAS067
Nitrite as N	<0.08	mg/l	15/05/2019	Y Cov	WAS036
Nitrate as N	3.7	mg/l	15/05/2019	Y Cov	WAS036
Nitrogen, Total as N	4.3	mg/l	08/05/2019	Y Cov	WAS022
Phosphates , Total as P	10	mg/l	15/05/2019	Y Cov	WAS049
Total Suspended Solids	14.0	mg/l	08/05/2019	Y Cov	WAS006
BOD + ATU (5 day)	2	mg/l	12/05/2019	Y Cov	WAS001

**Analyst Comments for 18194482:**

This sample has been analysed for pH, BOD + ATU (5 day), Nitrite as N, Nitrate as N outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **D. Lewis**

Date: **16 May 2019**

Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

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# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1708423/2019**  
Laboratory Number: **18194483**  
Sample Source: **Advanced Aeration Ltd**  
Sample Point Description:  
Sample Description: **Reactor No:2**  
Sample Matrix: **Treated Sewage**  
Sample Date/Time: **03 May 2019 08:30**  
Sample Received: **04 May 2019**  
Analysis Complete: **16 May 2019**

Issue **1**  
Sample **2** of **2**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron , Total as Fe	<0.23	mg/l	15/05/2019	Y Cov	WAS049
pH	7.8	pH units	04/05/2019	Y Cov	WAS039
Alkalinity as CaCO3	200	mg/l	13/05/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	08/05/2019	Y Cov	WAS067
Nitrite as N	<0.08	mg/l	15/05/2019	Y Cov	WAS036
Nitrate as N	3.5	mg/l	15/05/2019	Y Cov	WAS036
Nitrogen, Total as N	4.7	mg/l	08/05/2019	Y Cov	WAS022
Phosphates , Total as P	10	mg/l	15/05/2019	Y Cov	WAS049
Total Suspended Solids	3.00	mg/l	07/05/2019	Y Cov	WAS006
BOD + ATU (5 day)	2	mg/l	12/05/2019	Y Cov	WAS001

#### Analyst Comments for 18194483:

This sample has been analysed for BOD + ATU (5 day), Nitrite as N, Nitrate as N outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **D. Lewis**

Date: **16 May 2019**

Title: **Inorganic Team Leader**

**ALS Environmental Ltd**

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# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1723228/2019**

Laboratory Number: **18294133**

Sample Source: **Advanced Aeration Ltd**

Sample Point Description:

Sample Description: **Soho Farmhouse Bio-Bubble Balance Tank Raw**

Sample Matrix: **Untreated Sewage**

Sample Date/Time: **06 June 2019**

Sample Received: **07 June 2019**

Analysis Complete: **18 June 2019**

Issue **1**

Sample **1** of **1**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron , Total as Fe	0.57	mg/l	14/06/2019	Y Cov	WAS049
pH	7.3	pH units	08/06/2019	Y Cov	WAS039
Alkalinity as CaCO3	293	mg/l	17/06/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N	22.0	mg/l	12/06/2019	Y Cov	WAS036
Nitrogen as N (Kjeldahl) Calc	29.0	mg/l	13/06/2019	Y Cov	WAS022
Phosphate, Ortho as P	4.5	mg/l	12/06/2019	N Cov	WAS036
Phosphates , Total as P	7.7	mg/l	14/06/2019	Y Cov	WAS049
Total Suspended Solids	6240	mg/l	13/06/2019	Y Cov	WAS006
BOD + ATU (5 day)	349	mg/l	13/06/2019	Y Cov	WAS001

Analyst Comments for 18294133:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **P. Johal**

Date: **18 June 2019**

Title: **Coventry Operations Manager**

**ALS Environmental Ltd**

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# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1723248/2019**

Laboratory Number: **18294276**

Issue **1**

Sample **1** of **1**

Sample Source: **Advanced Aeration Ltd**

Sample Point Description:

Sample Description: **Soho Farmhouse Bio-Bubble Reactor No 1**

Sample Matrix: **Treated Sewage**

Sample Date/Time: **06 June 2019**

Sample Received: **07 June 2019**

Analysis Complete: **18 June 2019**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron , Total as Fe	<0.23	mg/l	12/06/2019	Y Cov	WAS049
pH	8.0	pH units	08/06/2019	Y Cov	WAS039
Alkalinity as CaCO3	227	mg/l	15/06/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.25	mg/l	08/06/2019	Y Cov	WAS067
Nitrite as N	0.17	mg/l	13/06/2019	Y Cov	WAS036
Nitrate as N	1.4	mg/l	13/06/2019	Y Cov	WAS036
Nitrogen, Total as N	2.3	mg/l	12/06/2019	Y Cov	WAS022
Phosphates , Total as P	5.1	mg/l	12/06/2019	Y Cov	WAS049
Total Suspended Solids	5.00	mg/l	12/06/2019	Y Cov	WAS006
BOD + ATU (5 day)	3	mg/l	13/06/2019	Y Cov	WAS001

**Analyst Comments for 18294276:**

This sample has been analysed for Nitrite as N, Nitrate as N outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **P. Johal**

Date: **18 June 2019**

Title: **Coventry Operations Manager**

**ALS Environmental Ltd**

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# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1723250/2019**

Laboratory Number: **18294280**

Sample Source: **Advanced Aeration Ltd**

Sample Point Description:

Sample Description: **Soho Farmhouse Bio-Bubble Reactor No 2**

Sample Matrix: **Treated Sewage**

Sample Date/Time: **06 June 2019**

Sample Received: **07 June 2019**

Analysis Complete: **18 June 2019**

Issue **1**

Sample **1** of **1**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron , Total as Fe	<0.23	mg/l	12/06/2019	Y Cov	WAS049
pH	8.1	pH units	08/06/2019	Y Cov	WAS039
Alkalinity as CaCO3	223	mg/l	15/06/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.23	mg/l	08/06/2019	Y Cov	WAS067
Nitrite as N	0.14	mg/l	13/06/2019	Y Cov	WAS036
Nitrate as N	2.8	mg/l	13/06/2019	Y Cov	WAS036
Nitrogen, Total as N	2.6	mg/l	12/06/2019	Y Cov	WAS022
Phosphates , Total as P	5.6	mg/l	12/06/2019	Y Cov	WAS049
Total Suspended Solids	2.00	mg/l	12/06/2019	Y Cov	WAS006
BOD + ATU (5 day)	2	mg/l	13/06/2019	Y Cov	WAS001

**Analyst Comments for 18294280:**

This sample has been analysed for Nitrite as N, Nitrate as N outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **P. Johal**

Date: **18 June 2019**

Title: **Coventry Operations Manager**

**ALS Environmental Ltd**

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# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1735805/2019**  
Laboratory Number: **18373627**  
Sample Source: **Advanced Aeration Ltd**  
Sample Point Description:  
Sample Description: **Balance Tank Raw**  
Sample Matrix: **Untreated Sewage**  
Sample Date/Time: **03 July 2019**  
Sample Received: **04 July 2019**  
Analysis Complete: **18 July 2019**

Issue **1**  
Sample **1** of **1**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron , Total as Fe	1.10	mg/l	17/07/2019	Y Cov	WAS049
pH	6.4	pH units	05/07/2019	Y Cov	WAS039
Alkalinity as CaCO3	244	mg/l	11/07/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N	30.1	mg/l	06/07/2019	Y Cov	WAS036
Nitrogen as N (Kjeldahl) Calc	32.5	mg/l	05/07/2019	Y Cov	WAS022
Phosphate, Ortho as P	5.3	mg/l	06/07/2019	N Cov	WAS036
Phosphates , Total as P	12	mg/l	17/07/2019	Y Cov	WAS049
Total Suspended Solids	4600	mg/l	10/07/2019	Y Cov	WAS006
BOD + ATU (5 day)	1030	mg/l	10/07/2019	Y Cov	WAS001

**Analyst Comments for 18373627:**

{/\*}Sample filtered through 0.45um filter prior to Total and Kjeldahl Nitrogen analysis.{\*/}

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **P. Johal**

Date: **18 July 2019**

Title: **Coventry Operations Manager**

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# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1735809/2019**  
Laboratory Number: **18373642**  
Sample Source: **Advanced Aeration Ltd**  
Sample Point Description:  
Sample Description: **Reactor No1**  
Sample Matrix: **Treated Sewage**  
Sample Date/Time: **03 July 2019 10:30**  
Sample Received: **04 July 2019**  
Analysis Complete: **15 July 2019**

Issue **1**  
Sample **1** of **2**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron , Total as Fe	<0.23	mg/l	12/07/2019	Y Cov	WAS049
pH	7.9	pH units	05/07/2019	Y Cov	WAS039
Alkalinity as CaCO3	234	mg/l	06/07/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.23	mg/l	05/07/2019	Y Cov	WAS067
Nitrite as N	0.19	mg/l	06/07/2019	Y Cov	WAS036
Nitrate as N	2.7	mg/l	06/07/2019	Y Cov	WAS036
Nitrogen, Total as N	3.7	mg/l	05/07/2019	Y Cov	WAS022
Phosphates , Total as P	4.2	mg/l	12/07/2019	Y Cov	WAS049
Total Suspended Solids	2.00	mg/l	08/07/2019	Y Cov	WAS006
BOD + ATU (5 day)	2	mg/l	10/07/2019	Y Cov	WAS001

Analyst Comments for 18373642: No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **D. Lewis**

Date: **15 July 2019**

Title: **Inorganic Team Leader**

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# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1750266/2019**  
Laboratory Number: **18461611**  
Sample Source: **Advanced Aeration Ltd**  
Sample Point Description:  
Sample Description: **Balance Tank Raw**  
Sample Matrix: **Untreated Sewage**  
Sample Date/Time: **01 August 2019 12:00**  
Sample Received: **02 August 2019**  
Analysis Complete: **15 August 2019**

Issue **1**  
Sample **1** of **1**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron , Total as Fe	0.92	mg/l	14/08/2019	Y Cov	WAS049
pH	7.1	pH units	03/08/2019	Y Cov	WAS039
Alkalinity as CaCO3	324	mg/l	03/08/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N	27.3	mg/l	03/08/2019	Y Cov	WAS036
Ammonia as NH3, Calculated	33.0	mg/l	03/08/2019	N Cov	WAS036
Nitrogen as N (Kjeldahl) Calc	34.1	mg/l	06/08/2019	Y Cov	WAS022
Phosphate, Ortho as P	4.8	mg/l	03/08/2019	N Cov	WAS036
Phosphates , Total as P	9.3	mg/l	14/08/2019	Y Cov	WAS049
Total Suspended Solids	8620	mg/l	06/08/2019	Y Cov	WAS006
BOD + ATU (5 day)	593	mg/l	08/08/2019	Y Cov	WAS001

Analyst Comments for 18461611:

{/\*}Ammonia too high for low level analysis.{\*/}

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **P. Johal**

Date: **15 August 2019**

Title: **Coventry Operations Manager**

**ALS Environmental Ltd**

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# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1750268/2019**  
Laboratory Number: **18461613**  
Sample Source: **Advanced Aeration Ltd**  
Sample Point Description:  
Sample Description: **Reactor No.1**  
Sample Matrix: **Treated Sewage**  
Sample Date/Time: **01 August 2019 10:30**  
Sample Received: **02 August 2019**  
Analysis Complete: **15 August 2019**

Issue **1**  
Sample **1** of **2**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron , Total as Fe	<0.23	mg/l	14/08/2019	Y Cov	WAS049
pH	8.0	pH units	03/08/2019	Y Cov	WAS039
Alkalinity as CaCO3	271	mg/l	03/08/2019	Y Cov	WAS025
Ammonia as NH3, Calculated	<0.5	mg/l	03/08/2019	N Cov	WAS036
Ammoniacal Nitrogen as N (LL)	0.16	mg/l	02/08/2019	Y Cov	WAS067
Nitrite as N	<0.08	mg/l	03/08/2019	Y Cov	WAS036
Nitrate as N	<0.7	mg/l	03/08/2019	Y Cov	WAS036
Nitrogen, Total as N	0.9	mg/l	06/08/2019	Y Cov	WAS022
Phosphates , Total as P	3.0	mg/l	14/08/2019	Y Cov	WAS049
Total Suspended Solids	5.00	mg/l	03/08/2019	Y Cov	WAS006
BOD + ATU (5 day)	1	mg/l	08/08/2019	Y Cov	WAS001

Analyst Comments for 18461613: No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **P. Johal**

Date: **15 August 2019**

Title: **Coventry Operations Manager**

**ALS Environmental Ltd**

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# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1750268/2019**  
Laboratory Number: **18461614**  
Sample Source: **Advanced Aeration Ltd**  
Sample Point Description:  
Sample Description: **Reactor No.2**  
Sample Matrix: **Treated Sewage**  
Sample Date/Time: **01 August 2019 09:30**  
Sample Received: **02 August 2019**  
Analysis Complete: **15 August 2019**

Issue **1**  
Sample **2** of **2**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron , Total as Fe	<0.23	mg/l	14/08/2019	Y Cov	WAS049
pH	8.2	pH units	03/08/2019	Y Cov	WAS039
Alkalinity as CaCO3	274	mg/l	03/08/2019	Y Cov	WAS025
Ammonia as NH3, Calculated	<0.5	mg/l	03/08/2019	N Cov	WAS036
Ammoniacal Nitrogen as N (LL)	0.16	mg/l	02/08/2019	Y Cov	WAS067
Nitrite as N	<0.08	mg/l	03/08/2019	Y Cov	WAS036
Nitrate as N	<0.7	mg/l	03/08/2019	Y Cov	WAS036
Nitrogen, Total as N	0.8	mg/l	06/08/2019	Y Cov	WAS022
Phosphates , Total as P	3.7	mg/l	14/08/2019	Y Cov	WAS049
Total Suspended Solids	2.00	mg/l	03/08/2019	Y Cov	WAS006
BOD + ATU (5 day)	1	mg/l	08/08/2019	Y Cov	WAS001

Analyst Comments for 18461614: No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **P. Johal**

Date: **15 August 2019**

Title: **Coventry Operations Manager**

**ALS Environmental Ltd**

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# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1766542/2019**  
Laboratory Number: **18565899**  
Sample Source: **Advanced Aeration Ltd**  
Sample Point Description:  
Sample Description: **Balance Tank Raw**  
Sample Matrix: **Untreated Sewage**  
Sample Date/Time: **05 September 2019 10:00**  
Sample Received: **06 September 2019**  
Analysis Complete: **24 September 2019**

Issue **1**  
Sample **1** of **1**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron , Total as Fe	4.61	mg/l	13/09/2019	Y Cov	WAS049
pH	6.2	pH units	07/09/2019	Y Cov	WAS039
Alkalinity as CaCO3	Analyst Com	mg/l	20/09/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N	34.7	mg/l	10/09/2019	Y Cov	WAS036
Nitrogen as N (Kjeldahl) Calc	31.0	mg/l	09/09/2019	Y Cov	WAS022
Phosphate, Ortho as P	10.8	mg/l	10/09/2019	N Cov	WAS036
Phosphates , Total as P	37	mg/l	13/09/2019	Y Cov	WAS049
Total Suspended Solids	5050	mg/l	12/09/2019	Y Cov	WAS006
BOD + ATU (5 day)	Analyst Com	mg/l	12/09/2019	Y Cov	WAS001

**Analyst Comments for 18565899:**

{/\*}Sample filtered through 0.45um filter prior to Total and Kjeldahl Nitrogen.  
No BOD due to underdilution of sample, indications are that the expected result will be > 2300 mg/l  
{/\*}  
Integrity breach between ammonia and kjeldahl nitrogen, results confirmed by repeat analysis. Unable to report result for alkalinity due to suldgy sample matrix

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **P. Johal**

Date: **24 September 2019**

Title: **Coventry Operations Manager**

**ALS Environmental Ltd**

Torrington Avenue, Coventry, CV4 9GU  
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# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1766535/2019**  
Laboratory Number: **18565820**  
Sample Source: **Advanced Aeration Ltd**  
Sample Point Description:  
Sample Description: **Reactor No: 1**  
Sample Matrix: **Treated Sewage**  
Sample Date/Time: **05 September 2019 10:30**  
Sample Received: **06 September 2019**  
Analysis Complete: **18 September 2019**

Issue **1**  
Sample **1** of **2**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron , Total as Fe	<0.23	mg/l	13/09/2019	Y Cov	WAS049
pH	7.8	pH units	07/09/2019	Y Cov	WAS039
Alkalinity as CaCO <sub>3</sub>	296	mg/l	17/09/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	09/09/2019	Y Cov	WAS067
Nitrite as N	<0.08	mg/l	09/09/2019	Y Cov	WAS036
Nitrate as N	<0.7	mg/l	09/09/2019	Y Cov	WAS036
Nitrogen, Total as N	0.8	mg/l	09/09/2019	Y Cov	WAS022
Phosphates , Total as P	3.3	mg/l	13/09/2019	Y Cov	WAS049
Total Suspended Solids	4.00	mg/l	12/09/2019	Y Cov	WAS006
BOD + ATU (5 day)	<1	mg/l	12/09/2019	Y Cov	WAS001

**Analyst Comments for 18565820:**

This sample has been analysed for Nitrite as N, Nitrate as N outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **P. Johal**

Date: **18 September 2019**

Title: **Coventry Operations Manager**

**ALS Environmental Ltd**

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# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1766535/2019**  
Laboratory Number: **18565821**  
Sample Source: **Advanced Aeration Ltd**  
Sample Point Description:  
Sample Description: **Reactor No: 2**  
Sample Matrix: **Treated Sewage**  
Sample Date/Time: **05 September 2019 09:30**  
Sample Received: **06 September 2019**  
Analysis Complete: **18 September 2019**

Issue **1**  
Sample **2** of **2**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron , Total as Fe	<0.23	mg/l	13/09/2019	Y Cov	WAS049
pH	8.0	pH units	07/09/2019	Y Cov	WAS039
Alkalinity as CaCO <sub>3</sub>	294	mg/l	17/09/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	09/09/2019	Y Cov	WAS067
Nitrite as N	<0.08	mg/l	09/09/2019	Y Cov	WAS036
Nitrate as N	<0.7	mg/l	09/09/2019	Y Cov	WAS036
Nitrogen, Total as N	0.9	mg/l	09/09/2019	Y Cov	WAS022
Phosphates , Total as P	3.9	mg/l	13/09/2019	Y Cov	WAS049
Total Suspended Solids	10.0	mg/l	12/09/2019	Y Cov	WAS006
BOD + ATU (5 day)	1	mg/l	12/09/2019	Y Cov	WAS001

**Analyst Comments for 18565821:**

This sample has been analysed for Nitrite as N, Nitrate as N outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **P. Johal**

Date: **18 September 2019**

Title: **Coventry Operations Manager**

**ALS Environmental Ltd**

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# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1780359/2019**  
Laboratory Number: **18660894**  
Sample Source: **Advanced Aeration Ltd**  
Sample Point Description:  
Sample Description: **Balance Tank Raw**  
Sample Matrix: **Untreated Sewage**  
Sample Date/Time: **04 October 2019 11:00**  
Sample Received: **05 October 2019**  
Analysis Complete: **23 October 2019**

Issue **1**  
Sample **1** of **1**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron , Total as Fe	11.0	mg/l	15/10/2019	Y Cov	WAS049
pH	5.7	pH units	08/10/2019	Y Cov	WAS039
Alkalinity as CaCO <sub>3</sub>	702	mg/l	17/10/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N	29.5	mg/l	08/10/2019	Y Cov	WAS036
Nitrogen as N (Kjeldahl) Calc	29.8	mg/l	07/10/2019	Y Cov	WAS022
Phosphate, Ortho as P	11.6	mg/l	08/10/2019	N Cov	WAS036
Phosphates , Total as P	60	mg/l	15/10/2019	Y Cov	WAS049
Total Suspended Solids	Analyst Com	mg/l	23/10/2019	Y Cov	WAS006
BOD + ATU (5 day)	5790	mg/l	12/10/2019	Y Cov	WAS001

**Analyst Comments for 18660894:**

This sample has been analysed for pH, BOD + ATU (5 day) outside recommended stability times. It is therefore possible that the results provided may be compromised. {(\*)}Sample filtered through 0.45um filter prior to Total Nitrogen analysis  
unable to report result for Suspended solid due to nature of sample matrix {(\*)}

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **D. Lewis**

Date: **23 October 2019**

Title: **Inorganic Team Leader**

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# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1780358/2019**  
Laboratory Number: **18660876**  
Sample Source: **Advanced Aeration Ltd**  
Sample Point Description:  
Sample Description: **Reactor No: 1**  
Sample Matrix: **Treated Sewage**  
Sample Date/Time: **04 October 2019 10:30**  
Sample Received: **05 October 2019**  
Analysis Complete: **16 October 2019**

Issue **1**  
Sample **1** of **2**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron , Total as Fe	<0.23	mg/l	15/10/2019	Y Cov	WAS049
pH	8.5	pH units	09/10/2019	Y Cov	WAS039
Alkalinity as CaCO3	293	mg/l	12/10/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.08	mg/l	08/10/2019	Y Cov	WAS067
Nitrite as N	0.14	mg/l	07/10/2019	Y Cov	WAS036
Nitrate as N	1.0	mg/l	07/10/2019	Y Cov	WAS036
Nitrogen, Total as N	2.5	mg/l	07/10/2019	Y Cov	WAS022
Phosphates , Total as P	4.5	mg/l	15/10/2019	Y Cov	WAS049
Total Suspended Solids	12.0	mg/l	11/10/2019	Y Cov	WAS006
BOD + ATU (5 day)	1	mg/l	12/10/2019	Y Cov	WAS001

**Analyst Comments for 18660876:**

This sample has been analysed for pH, BOD + ATU (5 day) outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **P. Johal**

Date: **16 October 2019**

Title: **Coventry Operations Manager**

**ALS Environmental Ltd**

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# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1780358/2019**  
Laboratory Number: **18660877**  
Sample Source: **Advanced Aeration Ltd**  
Sample Point Description:  
Sample Description: **Reactor No: 2**  
Sample Matrix: **Treated Sewage**  
Sample Date/Time: **04 October 2019 09:00**  
Sample Received: **05 October 2019**  
Analysis Complete: **16 October 2019**

Issue **1**  
Sample **2** of **2**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron , Total as Fe	<0.23	mg/l	15/10/2019	Y Cov	WAS049
pH	8.3	pH units	14/10/2019	Y Cov	WAS039
Alkalinity as CaCO <sub>3</sub>	291	mg/l	12/10/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.10	mg/l	08/10/2019	Y Cov	WAS067
Nitrite as N	0.15	mg/l	07/10/2019	Y Cov	WAS036
Nitrate as N	1.2	mg/l	07/10/2019	Y Cov	WAS036
Nitrogen, Total as N	2.4	mg/l	07/10/2019	Y Cov	WAS022
Phosphates , Total as P	4.6	mg/l	15/10/2019	Y Cov	WAS049
Total Suspended Solids	4.00	mg/l	11/10/2019	Y Cov	WAS006
BOD + ATU (5 day)	1	mg/l	12/10/2019	Y Cov	WAS001

**Analyst Comments for 18660877:**

This sample has been analysed for pH, BOD + ATU (5 day) outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **P. Johal**

Date: **16 October 2019**

Title: **Coventry Operations Manager**

**ALS Environmental Ltd**

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# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1796808/2019**  
Laboratory Number: **18775042**  
Sample Source: **Advanced Aeration Ltd**  
Sample Point Description:  
Sample Description: **Balance Tank Raw**  
Sample Matrix: **Untreated Sewage**  
Sample Date/Time: **11 November 2019 11:15**  
Sample Received: **11 November 2019**  
Analysis Complete: **20 November 2019**

Issue **1**  
Sample **1** of **1**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron , Total as Fe	0.28	mg/l	15/11/2019	Y Cov	WAS049
pH	7.6	pH units	12/11/2019	Y Cov	WAS039
Alkalinity as CaCO3	318	mg/l	18/11/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	6.56	mg/l	12/11/2019	N Cov	WAS067
Nitrogen as N (Kjeldahl) Calc	10.1	mg/l	13/11/2019	Y Cov	WAS022
Phosphate, Ortho as P	<0.6	mg/l	12/11/2019	N Cov	WAS036
Phosphates , Total as P	2.3	mg/l	15/11/2019	Y Cov	WAS049
Total Suspended Solids	58.0	mg/l	18/11/2019	Y Cov	WAS006
BOD + ATU (5 day)	112	mg/l	17/11/2019	Y Cov	WAS001

Analyst Comments for 18775042: No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **A. Zunzunegui**

Date: **20 November 2019**

Title: **Organic Team Leader**

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# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1796804/2019**  
Laboratory Number: **18775012**  
Sample Source: **Advanced Aeration Ltd**  
Sample Point Description:  
Sample Description: **Reactor No: 1**  
Sample Matrix: **Treated Sewage**  
Sample Date/Time: **11 November 2019 09:30**  
Sample Received: **11 November 2019**  
Analysis Complete: **20 November 2019**

Issue **1**  
Sample **1** of **1**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron , Total as Fe	<0.23	mg/l	15/11/2019	Y Cov	WAS049
pH	7.9	pH units	12/11/2019	Y Cov	WAS039
Alkalinity as CaCO <sub>3</sub>	226	mg/l	19/11/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.12	mg/l	12/11/2019	Y Cov	WAS067
Nitrite as N	0.13	mg/l	12/11/2019	Y Cov	WAS036
Nitrate as N	2.3	mg/l	12/11/2019	Y Cov	WAS036
Nitrogen, Total as N	2.5	mg/l	13/11/2019	Y Cov	WAS022
Phosphates , Total as P	3.3	mg/l	15/11/2019	Y Cov	WAS049
Total Suspended Solids	4.00	mg/l	18/11/2019	Y Cov	WAS006
BOD + ATU (5 day)	2	mg/l	17/11/2019	Y Cov	WAS001

Analyst Comments for 18775012:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **A. Zunzunegui**

Date: **20 November 2019**

Title: **Organic Team Leader**

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# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1796806/2019**  
Laboratory Number: **18775023**  
Sample Source: **Advanced Aeration Ltd**  
Sample Point Description:  
Sample Description: **Reactor No: 2**  
Sample Matrix: **Treated Sewage**  
Sample Date/Time: **11 November 2019 14:00**  
Sample Received: **11 November 2019**  
Analysis Complete: **20 November 2019**

Issue **1**  
Sample **1** of **1**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron , Total as Fe	<0.23	mg/l	15/11/2019	Y Cov	WAS049
pH	8.0	pH units	12/11/2019	Y Cov	WAS039
Alkalinity as CaCO <sub>3</sub>	229	mg/l	19/11/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	<0.06	mg/l	12/11/2019	Y Cov	WAS067
Nitrite as N	<0.08	mg/l	12/11/2019	Y Cov	WAS036
Nitrate as N	3.0	mg/l	12/11/2019	Y Cov	WAS036
Nitrogen, Total as N	2.9	mg/l	13/11/2019	Y Cov	WAS022
Phosphates , Total as P	3.0	mg/l	15/11/2019	Y Cov	WAS049
Total Suspended Solids	8.00	mg/l	18/11/2019	Y Cov	WAS006
BOD + ATU (5 day)	1	mg/l	17/11/2019	Y Cov	WAS001

Analyst Comments for 18775023:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:	Name: <b>A. Zunzunegui</b>	Date: <b>20 November 2019</b>
	Title: <b>Organic Team Leader</b>	

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# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1808340/2019**  
Laboratory Number: **18853825**  
Sample Source: **Advanced Aeration Ltd**  
Sample Point Description:  
Sample Description: **Balance Tank Raw**  
Sample Matrix: **Untreated Sewage**  
Sample Date/Time: **04 December 2019 12:30**  
Sample Received: **05 December 2019**  
Analysis Complete: **13 December 2019**

Issue **1**  
Sample **1** of **1**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron , Total as Fe	0.49	mg/l	12/12/2019	Y Cov	WAS049
pH	7.1	pH units	06/12/2019	Y Cov	WAS039
Alkalinity as CaCO3	313	mg/l	12/12/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N	16.4	mg/l	06/12/2019	Y Cov	WAS036
Nitrogen as N (Kjeldahl) Calc	22.5	mg/l	06/12/2019	Y Cov	WAS022
Phosphate, Ortho as P	2.4	mg/l	06/12/2019	N Cov	WAS036
Phosphates , Total as P	5.5	mg/l	12/12/2019	Y Cov	WAS049
Total Suspended Solids	159	mg/l	11/12/2019	Y Cov	WAS006
BOD + ATU (5 day)	296	mg/l	11/12/2019	Y Cov	WAS001

Analyst Comments for 18853825: No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **P. Johal**

Date: **18 December 2019**

Title: **Coventry Operations Manager**

**ALS Environmental Ltd**

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# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1808339/2019**  
Laboratory Number: **18853817**  
Sample Source: **Advanced Aeration Ltd**  
Sample Point Description:  
Sample Description: **Reactor No:1**  
Sample Matrix: **Treated Sewage**  
Sample Date/Time: **04 December 2019 10:15**  
Sample Received: **05 December 2019**  
Analysis Complete: **17 December 2019**

Issue **1**  
Sample **1** of **2**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron , Total as Fe	<0.23	mg/l	16/12/2019	Y Cov	WAS049
pH	8.0	pH units	06/12/2019	Y Cov	WAS039
Alkalinity as CaCO <sub>3</sub>	270	mg/l	13/12/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.17	mg/l	05/12/2019	Y Cov	WAS067
Nitrite as N	<0.08	mg/l	06/12/2019	Y Cov	WAS036
Nitrate as N	0.7	mg/l	06/12/2019	Y Cov	WAS036
Nitrogen, Total as N	1.1	mg/l	06/12/2019	Y Cov	WAS022
Phosphates , Total as P	2.7	mg/l	16/12/2019	Y Cov	WAS049
Total Suspended Solids	6.00	mg/l	11/12/2019	Y Cov	WAS006
BOD + ATU (5 day)	2	mg/l	11/12/2019	Y Cov	WAS001

Analyst Comments for 18853817: No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **A. Zunzunegui**

Date: **18 December 2019**

Title: **Organic Team Leader**

**ALS Environmental Ltd**

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# Certificate of Analysis

ANALYSED BY



Report Number: **COV/1808339/2019**  
Laboratory Number: **18853818**  
Sample Source: **Advanced Aeration Ltd**  
Sample Point Description:  
Sample Description: **Reactor No:2**  
Sample Matrix: **Treated Sewage**  
Sample Date/Time: **04 December 2019 09:55**  
Sample Received: **05 December 2019**  
Analysis Complete: **17 December 2019**

Issue **1**  
Sample **2** of **2**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Iron , Total as Fe	<0.23	mg/l	16/12/2019	Y Cov	WAS049
pH	7.9	pH units	06/12/2019	Y Cov	WAS039
Alkalinity as CaCO <sub>3</sub>	268	mg/l	12/12/2019	Y Cov	WAS025
Ammoniacal Nitrogen as N (LL)	0.16	mg/l	05/12/2019	Y Cov	WAS067
Nitrite as N	<0.08	mg/l	06/12/2019	Y Cov	WAS036
Nitrate as N	0.7	mg/l	06/12/2019	Y Cov	WAS036
Nitrogen, Total as N	1.0	mg/l	06/12/2019	Y Cov	WAS022
Phosphates , Total as P	2.8	mg/l	16/12/2019	Y Cov	WAS049
Total Suspended Solids	9.00	mg/l	11/12/2019	Y Cov	WAS006
BOD + ATU (5 day)	<1	mg/l	11/12/2019	Y Cov	WAS001

Analyst Comments for 18853818:

No Analyst Comment

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), CTD = Coatbridge(ML5 4FR), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG).

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:



Name: **A. Zunzunegui**

Date: **18 December 2019**

Title: **Organic Team Leader**

**ALS Environmental Ltd**

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