



Certificate of Analysis

Certificate No.: 4853

Date of Report: 21/01/2019

Customer: Water Services Corporation

Gozo Sewage Treatment Plant

Sampling Done by: Laboratory using SOP/C/001, accredited method

Sample Condition received by WSC Laboratory: Satisfactory

Date / Time Job Received at WSC Laboratory 05/12/2018 / 1:00:00 PM

Sample Type: Wastewater

Date / Time Analysis Started: 05/12/2018 / 2:00:00 PM

Date Analysis Completed: 10/01/2019

This certificate shall not be reproduced without the written approval of the WSC Laboratory.

This certificate must not be used for the purpose of any actual or contemplated legal or arbitration proceedings without the prior written consent of the WSC laboratory.

Results

Lab No.:			WW18/5977	WW18/5978	WW18/5979
Sample:			Grit	Screen	Sludge
Parameter	Method	Units	Result	Result	Result
Arsenic	Sub-contracted	mg/kg	0.20	0.017	0.15
Barium	Sub-contracted	mg/kg	0.022	0.28	0.060
Cadmium	Sub-contracted	mg/kg	<0.00020	<0.00020	<0.00020
Chromium	Sub-contracted	mg/kg	0.037	0.021	0.025
Copper	Sub-contracted	mg/kg	0.025	<0.0050	0.042
Mercury	Sub-contracted	mg/kg	<0.00050	<0.00050	<0.00050
Molybdenum	Sub-contracted	mg/kg	0.12	<0.010	<0.010
Nickel	Sub-contracted	mg/kg	0.87	0.042	0.093
Antimony	Sub-contracted	mg/kg	0.020	<0.010	<0.010
Lead	Sub-contracted	mg/kg	<0.0030	<0.0030	<0.0030
Selenium	Sub-contracted	mg/kg	0.0079	0.0053	0.043
Zinc	Sub-contracted	mg/kg	0.32	0.14	0.20
Chloride	Sub-contracted	mg/kg	4300	920	710
Fluoride	Sub-contracted	mg/kg	1.9	2.6	1.6
Sulphate	Sub-contracted	mg/kg	110	14	55
Dissolved Organic Carbon	Sub-contracted	mg/kg	57	150	400
Total Dissolved Solids	Sub-contracted	mg/kg	18000	6700	14000

Overall Comments:

Refer to further details / comments overleaf.

General

1. Samples will be run in duplicate upon request, but an additional charge may be incurred.
2. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.
3. We take responsibility for any test performed by sub - contractors (marked with an asterisk). We endeavour to use Accredited Laboratories. For some determinants there are no Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.
4. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.
5. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.
6. NDP - No determination possible due to insufficient /unsuitable sample.
7. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.
8. Results relate only to the items tested.
9. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.
10. Surrogate recoveries - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.
11. Product analyses - Organic analyses on products can only be semi -quantitative due to the matrix effects and high dilution factors employed.

12. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

Sample Deviations

If a sample is classed as deviated, then the associated results may be compromised.

1	Sample Condition indicate that transportation of samples exceeded 6 hours, and validity of results may be effected.
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before preservation was performed
\$	Sampled on date not provided
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

13. Bacteriological Results

- When counts are not possible due to high background flora, the result is reported as 'N/A'
- When counts are Too numerous to count, the result is reported as '>' (greater than) or 'TNTC'
- When counts are 0, the result is reported as 'Not detected in the Volume tested'
1-2 c.f.u./ volume tested: microorganisms are present in the volume tested
3-9 c.f.u./volume tested: result is an estimated number in the volume tested
- ⁶Result is an extrapolation from the sample analysed and may not be a true representation for 1 litre volume.

			Matrix A	Matrix B	Matrix C
Method		Procedure	Potable Water	Environmental Water	Waste Water
Direct Plating	Without Treatment	1	MW1	ME1	MWW1
	Heat Treatment	2	MW2	ME2	MWW2
	Acid Treatment	3	MW3	ME3	MWW3
	Combination of Heat and Acid Treatment	4	MW4	ME4	MWW4
Membrane filter on plate	Without Treatment	5	MW5	ME5	MWW5
	Heat Treatment	6	MW6	ME6	MWW6
	Acid Treatment	7	MW7	ME7	MWW7
Filtration with washing procedure	Without Treatment	8	MW8	ME8	MWW8
	Heat Treatment	9	MW9	ME9	MWW9
	Acid Treatment	10	MW10	ME10	MWW10
Plating after dilution	Without Treatment	11	MW11	ME11	MWW11
	Heat Treatment	12	MW12	ME12	MWW12
	Acid Treatment	13	MW13	ME13	MWW13
	Combination of Heat and Acid Treatment	14	MW14	ME14	MWW14

Adapted from ISO 11731:2017 Annex J.1