Simmonds & Bristow Pty Ltd

The Regional and Remote Water Specialist

S&B Ref No. F1403-692

Lab Ref No. 282960

MD

11 June 2014

GuttaFilta
105 Robinson Road
Geebung QLD 4034

Attention: Kevin Feldman

Dear Sir,

FILTERED WATER ANALYSIS

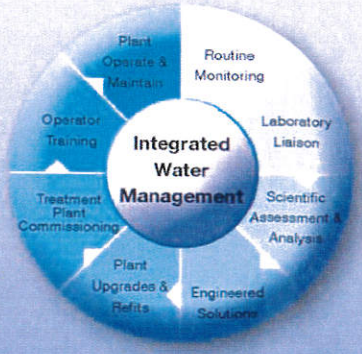
On the 2nd April, 2014, one (1) water sample was collected by a GuttaFilta staff member. The sample was collected from a system designed to test the impact of various filters. Tap water (designated raw water) from the same system as that previously sampled by Simmonds & Bristow staff on 17th April 2013, is collected after having passed through the foam filter under test.

The samples were received at Symbio Alliance's NATA accredited laboratory on 2nd April 2014 for analysis. Comments within this report are based on results presented in Symbio Alliance's Analytical Certificate No. 282960, which is attached in **Appendix A**.

The analytical results were compared with the following guidelines to determine if the water samples are suitable for human or animal consumption and to determine the suitability of the water to be discharged to creeks and other natural watercourses without impacting the receiving environment:

- National Health and Medical Research Council's *Australian Drinking Water Guidelines 2011 (ADWG)*
- *Australian and New Zealand Environment and Conservation Council (ANZECC) Guidelines for Fresh and Marine Water Quality 2000,*
- World Health Organisation (WHO) *Guidelines for Drinking Water 2011*, 4th edition.

The water samples were also compared to a raw water sample, previously analysed, to assess the differences in water quality as a result of the filtration process.



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RESULTS

A summary of the analytical results compliance with the ADWG, WHO and ANZECC limits, as well as the raw water quality, is presented in Table 1. The water quality thresholds from each of these documents are presented in Appendix B.

Results shaded in grey indicate concentrations that exceed the guideline limits. Results shaded in orange indicate concentrations that have increased compared to the raw water sample.

Table 1 Analytical Results and Guideline Compliance

Water Parameter	Units	Raw Water 17 April 2013	New Micro 2 April 2014	ADWG		WHO	ANZECC		
				Health Limit	Aesthetic Limit	Drinking Water Guideline	Primary industries (Livestock)	WQ thresholds for toxicants in slight/moderately disturbed ecosystems	South-East Australia trigger values for slightly disturbed ecosystems
Heavy Metals									
Aluminium	mg/L	0.039	0.024	-	-	✓	✓	✓	-
Antimony	mg/L	<0.001	<0.0001	✓	-	✓	-	-	-
Arsenic	mg/L	<0.001	0.00055	✓	-	✓	✓	✓	-
Barium	mg/L	0.009	0.0097	✓	-	✓	-	-	-
Beryllium	mg/L	<0.001	<0.0001	✓	-	-	-	-	-
Boron	mg/L	0.027	0.027	✓	-	✓	✓	✓	-
Cadmium	mg/L	<0.0001	<0.0001	✓	-	✓	✓	✓	-
Chromium	mg/L	0.003	<0.0005	✓	-	✓	✓	**X (Raw water)**	✓
Cobalt	mg/L	<0.001	<0.0001	-	-	-	✓	-	-
Copper	mg/L	0.005	0.0043	✓	✓	✓	✓	**X**	-
Iron	mg/L	0.24	0.0071	-	✓	-	-	-	-
Lead	mg/L	<0.001	0.00039	✓	-	✓	✓	✓	-
Manganese	mg/L	0.003	0.0025	✓	✓	-	-	✓	-
Molybdenum	mg/L	<0.001	0.00029	✓	-	-	✓	-	-
Nickel	mg/L	0.002	0.00077	✓	-	✓	✓	✓	-
Selenium	mg/L	0.002	<0.0005	✓	-	✓	✓	✓	-
Silver	mg/L	<0.001	-	✓	-	-	-	**X (raw water)**	-
Strontium	mg/L	0.001	-	-	-	-	-	-	-
Thallium	mg/L	<0.001	<0.0001	-	-	-	-	-	-

Water Parameter	Units	Raw Water 17 April 2013	New Micro 2 April 2014	ADWG		WHO	ANZECC		
				Health Limit	Aesthetic Limit	Drinking Water Guideline	Primary industries (Livestock)	WQ thresholds for toxicants in slight/moderately disturbed ecosystems	South-East Australia trigger values for slightly disturbed ecosystems
Tin	mg/L	<0.001		-	-	-	-	-	-
Titanium	mg/L	0.039	<0.0005	-	-	-	-	-	-
Vanadium	mg/L	<0.001	0.00027	-	-	-	-	-	-
Zinc	mg/L	<0.001	0.10		✓	-	✓	X	-
Nutrients									
Phosphorus	mg/L	<0.02	<0.02	-	-	-	-	-	✓
Ortho-phosphate	mg/L	-	0.019	-	-	-	-	-	X
Hydrocarbons									
TRH C10-C14	µg/L	<50	<50	-	-	-	-	-	-
TRH C15-C28	µg/L	<200	<100	-	-	-	-	-	-
TRH C29-C36	µg/L	<200	<100	-	-	-	-	-	-
TRH C6-C9	µg/L	71	<10	-	-	-	-	-	-
Benzene	µg/L	-	<1	✓	-	✓	-	✓	-
Ethylbenzene	µg/L	-	<1	✓	✓	✓	-	-	-
Toulene	µg/L	-	<1	✓	✓	✓	-	-	-
Meta/para-Xylenes	µg/L	-	<2	✓	✓	✓	-	✓	-

COMMENTS

Heavy Metals

All concentrations of heavy metals analysed are within their respective ADWG aesthetic and health and WHO guideline values. The new micro water sample is therefore compliant with the drinking water requirements for all heavy metals tested. The new micro water sample was also compliant with the ANZECC livestock thresholds, and should therefore be safe for livestock and other animals to drink.

The raw water samples exceeded the ANZECC guideline threshold values for slightly to moderately disturbed ecosystems for chromium, copper and silver. The new micro sample was slightly elevated in zinc and copper, with the copper concentration mainly related to the raw water copper concentration.

The amounts that these metals vary between the raw water and micro sample are slight and could be due to a difference between raw water used at the time of sampling compared to the raw water baseline sampled in April 2013.

There were observed decreases in all the remaining metals, with the exception of boron being the same in the filtered water. Again, due to the very slight decreases this may be the difference between the raw water used and analysed. The iron concentrations did show a significant reduction, indicating that the filters help to reduce the concentration of iron.

The use of this product indicates that there would be negligible impact from heavy metals from the micro water sample to the receiving environment should the water be discharged into creeks or other watercourses.

Organic Contaminants (Hydrocarbons)

Micro water sample Total Petroleum Hydrocarbons (TPH) or Total Recoverable Hydrocarbons (TRH) concentrations were below the limit of detection for all fractions. There is no guideline for TPH within the ADWG 2011, as concentrations within drinking water are not expected.

The results for BTEX chemicals were below the ADWG and WHO thresholds for drinking water, and below the ANZECC threshold for slightly to moderately disturbed ecosystems.

The new micro filter used appears to contain no hydrocarbon based contaminants and is therefore safe to use as drinking water or to be discharged to watercourses without impacting on the receiving environment.

Nutrients

Total phosphorous was not detected in the raw water sample or the filtered water sample (both <0.02 mg/L). These results are below the ANZECC guideline limit for slightly disturbed ecosystems.

The Ortho-phosphate in the new micro sample was slightly above the ANZECC threshold. No result is available for the raw water sample, but based on the total phosphorus concentrations, it is assumed that the concentrations would be of similar magnitude.

SUMMARY

The **New Micro filtered water** sample was **compliant with the health limits set by the ADWG and WHO** for drinking water and the **ANZECC guidelines** for livestock consumption, and as such is suitable for human and livestock consumption.

The **New Micro filtered water** sample was **mainly compliant with the ANZECC guidelines** for slightly to moderately disturbed ecosystems. Concentrations of copper and zinc were slightly above the ANZECC threshold, most probably due to existing concentrations of these heavy metals within the raw water. The New Micro filtered water sample is therefore considered suitable for discharge into watercourses without impacting on the receiving environment.

Use of the filter utilised in this sampling event may be beneficial in that it appears to filter out some of the heavy metals which may be found in raw water. It may also filter out other heavy metals after the first flush has gone through the filter.

We trust this summary is suitable for your requirements. Please do not hesitate to contact the undersigned should you have any enquires, or if we can be of further assistance to you.

Yours faithfully
SIMMONDS & BRISTOW PTY LTD

Matthew Drury *Certificate III in Water Operations*
Field Officer

Approved by

Dr. Travis Robinson *B Env Man (Hon), PhD*
Senior Scientist

Enc. *Analytical Results*

APPENDIX A

ANALYTICAL RESULTS

CERTIFICATE NO.: 282960 **REVISION NO.:** 00
ISSUE DATE: 9/04/14 This certificate supersedes any previous revisions

CLIENT DETAILS: Debra Smith
Simmonds & Bristow Pty Ltd
PO Box 849
Archerfield QLD 4108

DATE SAMPLED:
DATE RECEIVED: 2/04/2014
CLIENT REF: F1403-692
TEST DATE: Sample tested between date received and reported.

CONDITIONS OF SAMPLE: Receipt Temperature: Chilled (0 ~ 5 °C)
Storage Temperature: Refrigerated

RESULTS OF ANALYSIS:

Test	Method	Units	282960-1 New Micro Apriw 2014
Benzene	ENV105	µg/L	<1
Ethylbenzene	ENV105	µg/L	<1
Toluene	ENV105	µg/L	<1
ortho-Xylenes	ENV105	µg/L	<1
meta- & para-Xylenes	ENV105	µg/L	<2
TPH C6-C9 Fraction	ENV105	µg/L	<10
Surrogate 1,2-dichlorobenzene-d4	ENV105	%	93.0
Surrogate Chlorobenzene-d5	ENV105	%	104.0
Surrogate Fluorobenzene	ENV105	%	107.0
TRPH >C10-C16 Fraction	ENV102	µg/L	<50
TRPH >C16-C34 Fraction	ENV102	µg/L	<100
TRPH >C34-C40 Fraction	ENV102	µg/L	<100
Surrogate o-Terphenyl	ENV102	%	125
Phosphorus (Total)	EWI02	mg/L	<0.02
Ortho-Phosphorus	EFF043	mg/L	0.019
Silicon (Dissolved)	EWI01	mg/L	3.0
Aluminium (Total)	EWM02	mg/L	0.024
Aluminium (Dissolved)	EWM01	mg/L	0.013
Antimony (Total)	EWM02	mg/L	<0.0001
Antimony (Dissolved)	EWM01	mg/L	<0.0001
Arsenic (Total)	EWM02	mg/L	0.00055
Arsenic (Dissolved)	EWM01	mg/L	0.00054
Barium (Total)	EWM02	mg/L	0.0097
Barium (Dissolved)	EWM01	mg/L	0.0094
Beryllium (Total)	EWM02	mg/L	<0.0001
Beryllium (Dissolved)	EWM01	mg/L	<0.0001
Boron (Total)	EWM02	mg/L	0.027
Boron (Dissolved)	EWM01	mg/L	0.024

NATA
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. Accredited for compliance with ISO/IEC 17025.
■ NATA Corporate Accreditation No: 2455

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CERTIFICATE NO.: 282960

Test	Method	Units	282960-1 New Micro Apriw 2014
Cadmium (Total)	EWM02	mg/L	<0.0001
Cadmium (Dissolved)	EWM01	mg/L	<0.0001
Chromium (Total)	EWM02	mg/L	<0.0005
Chromium (Dissolved)	EWM01	mg/L	<0.0005
Cobalt (Total)	EWM02	mg/L	<0.0001
Cobalt (Dissolved)	EWM01	mg/L	<0.0001
Copper (Total)	EWM02	mg/L	0.0043
Copper (Dissolved)	EWM01	mg/L	0.0026
Iron (Total)	EWM02	mg/L	0.0071
Iron (Dissolved)	EWM01	mg/L	<0.005
Lead (Total)	EWM02	mg/L	0.00039
Lead (Dissolved)	EWM01	mg/L	<0.0001
Manganese (Total)	EWM02	mg/L	0.0025
Manganese (Dissolved)	EWM01	mg/L	0.0010
Molybdenum (Total)	EWM02	mg/L	0.00029
Molybdenum (Dissolved)	EWM01	mg/L	0.00023
Nickel (Total)	EWM02	mg/L	0.00077
Nickel (Dissolved)	EWM01	mg/L	0.00071
Selenium (Total)	EWM02	mg/L	<0.0005
Selenium (Dissolved)	EWM01	mg/L	<0.0005
Thallium (Total)	EWM02	mg/L	<0.0001
Thallium (Dissolved)	EWM01	mg/L	<0.0001
Tin (Total)	EWM02	mg/L	<0.0005
Tin (Dissolved)	EWM01	mg/L	<0.0005
Titanium (Total)	EWM02	mg/L	<0.0005
Titanium (Dissolved)	EWM01	mg/L	<0.0005
Vanadium (Total)	EWM02	mg/L	0.00027
Vanadium (Dissolved)	EWM01	mg/L	0.00013
Zinc (Total)	EWM02	mg/L	0.010
Zinc (Dissolved)	EWM01	mg/L	0.0075

DEFINITIONS: < = Less than, > = Greater than, - = Not Tested, DWB = Dry Weight Basis.
* This test is not covered by the scope of our NATA accreditation.
# The result is derived from calculation.

Results were reported on an "as received" basis unless otherwise indicated.
Sampling was carried out by the customer and results reported pertain only to the samples submitted, responsibility for representative sampling rests with the customer.

Betty Bi, Analyst

Jason Roumimper, Chemist

NATA
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APPENDIX B

GUIDELINE THRESHOLDS

Water Quality Threshold Values

Parameter (mg/L unless specified)	Drinking Water			Receiving Environment		
	ADWG (2011)		WHO	ANZECC Water Quality Guidelines (2000)		
	Health Limit	Aesthetic Limit	Guidelines for Drinking Water (2011) 4th edn.	Primary Industries (Livestock)	WQ- thresholds for toxicants in slightly to moderately disturbed ecosystem	South-East Australia trigger values for slightly disturbed ecosystems
Physio-chemical						
pH (pH units)	-	6.5-8.5	-	-	6.5-8.0	-
Total dissolved solids	-	600	-	2000 (poultry – minimum value for livestock)	-	-
Turbidity (NTU)	-	5	-	-	-	-
Colour (HU)	-	15	-	-	-	-
Sulphate	500	250	-	1000	-	-
Heavy Metals						
Aluminium		-	0.9	5	0.055	-
Antimony	0.003	-	0.02	-	-	-
Arsenic	0.01	-	0.01	0.5	0.013	-
Barium	2	-	0.7	-	-	-
Beryllium	0.06	-	-	-	-	-
Boron	4	-	2.4	5	0.37	-
Cadmium	0.002	-	0.003	0.01	0.0002	-
Chromium	0.05	-	0.05	1	0.001	-
Cobalt		-	-	1		-
Copper	2	1	2	0.4 (sheep - minimum for livestock)	0.0014	-
Iron		0.3	-	-	-	-
Lead	0.01	-	0.01	0.1	0.0034	-
Manganese	0.5	0.1	-	-	1.9	-
Mercury	0.001	-	0.006	0.002	0.0006	-
Molybdenum	0.05	-	-	0.15		-
Nickel	0.02	-	0.07	1	0.0011	-
Selenium	0.01	-	0.04	0.02	0.011	-
Silver	0.1	-	-	-	0.00005	-
Zinc	-	3	-	20	0.008	-
Nutrients						
Total N	-	-	-	-	-	0.5
Ammonia	-	0.5	-	-	0.9	0.02
Nitrate	50 (as NO3)	-	50 (as NO3)	400	0.7	-
Nitrite	3 (as NO2)	-	3 (as NO2)	30	-	-

Parameter (mg/L unless specified)	Drinking Water			Receiving Environment		
	ADWG (2011)		WHO	ANZECC Water Quality Guidelines (2000)		
	Health Limit	Aesthetic Limit	Guidelines for Drinking Water (2011) 4th edn.	Primary Industries (Livestock)	WQ- thresholds for toxicants in slightly to moderately disturbed ecosystem	South-East Australia trigger values for slightly disturbed ecosystems
Total P	-	-	-	-	-	0.05
Ortho-phosphate	-	-	-	-	-	0.015
Hydrocarbons						
TRH C10-C14	-	-	-	-	-	-
TRH C15-C28	-	-	-	-	-	-
TRH C29-C36	-	-	-	-	-	-
TRH C6-C9	-	-	-	-	-	-
Benzene	0.001	-	0.01	-	0.95	-
Toulene	0.8	0.025	0.7	-	-	-
Ethylbenzene	0.3	0.003	0.3	-	-	-
Xylene	0.6	0.02	0.5	-	0.2 (*p*-xylene)	-
PAHs	0.00001			-	-	-