

https://dspace.org/

Challenges of water management at local government municipal level in the Eastern Cape of South Africa

Mulenga, Kasonde

2017

https://hdl.handle.net/10539/24795

Mulenga, Kasonde (2017) Challenges of water management at local government municipal level in the Eastern Cape of South Africa, University of the Witwatersrand, <https://hdl.handle.net/10539/24795>

Downloaded from a DSpace repository. https://dspace.org/

Talbot&
Talbot
20 Pentrich Road, P. O Box 3391, Pietermaritzburg, 3200, KwaZulu- Natal
Tel: +27 (0) 33 346 1444 • Fax: +27 (0) 33 346 1445 • Email: talbot@talbot.co.za • Web: www.talbot.co.za

2017/05/02

ANALYTICAL REPORT

OUR REF: SUNDAYS RIVER VALLEY MUNICIPALITY 6331/17
COMPANY NAME: SUNDAYS RIVER VALLEY MUNICIPALITY
CONTACT ADDRESS: P.O. BOX 147, KIRKWOOD, 6120
CONTACT PERSON: AMBASIWE
SAMPLE TYPE: POTABLE WATER
DATE SUBMITTED: 2017/04/26

Determinand	Units	Method No	SANS 241-1:2015 RECOMMENDED LIMITS	Results	
				6331/17	6332/17
				1. KIRKWOOD TOWN CLINIC 24.04.17 10:25	2. KIRKWOOD WTW 24.04.17 11:30
Dissolved aluminium	µg Al/l	83	< 300	66	72
*E. coli**	colonies per 100ml	31	0	0	0
Electrical conductivity at 25°C	mS/m	2	< 170	51	50
pH at 25°C	pH units	1A	5.0 - 9.7	7.9	8.2
Standard plate count*	colonies per ml	31	<1000	0	1
Total coliforms*	colonies per 100ml	31	<10	0	0
Turbidity	NTU	4	Operational <1 Aesthetic <5	0.4	1.0

Determinand	Units	Method No	SANS 241-1:2015 RECOMMENDED LIMITS	Results	
				6333/17	6334/17
				3. BERSIG CLINIC 24.04.17 11:40	4. MOSES MABIDA COMMUNITY 24.04.17 11:55
Dissolved aluminium	µg Al/l	83	< 300	74	71
*E. coli**	colonies per 100ml	31	0	0	0
Electrical conductivity at 25°C	mS/m	2	< 170	50	51
pH at 25°C	pH units	1A	5.0 - 9.7	8.1	8.0
Standard plate count*	colonies per ml	31	<1000	0	0
Total coliforms*	colonies per 100ml	31	<10	0	0
Turbidity	NTU	4	Operational <1 Aesthetic <5	1.0	0.3

Directors: Dr MMJ- F Talbot, Mr FD Urbaniak- Hedley (British), Mrs VR Talbot, Mr CA Haycock, Mr GM Thompson, Mr CJ Allen
Talbot & Talbot (Pty) Ltd • Company Registration Number: 2000/ 021732/ 07

6331y17

Determinand	Units	Method No	SANS 241-1:2015 RECOMMENDED LIMITS	Results	
				6335/17	6336/17
				5. BERSHEBA WTW 24.04.17 12:15	6. BERSHEBA ALBERT STORES 24.04.17 12:20
Dissolved aluminium	µg Al/l	83	< 300	40	29
*E. coli**	colonies per 100ml	31	0	0	0
Electrical conductivity at 25°C	mS/m	2	< 170	53	54
pH at 25°C	pH units	1A	5.0 - 9.7	7.8	7.8
Standard plate count*	colonies per ml	31	<1000	3	7
Total coliforms*	colonies per 100ml	31	<10	0	0
Turbidity	NTU	4	Operational <1 Aesthetic <5	1.7	3.1

Determinand	Units	Method No	SANS 241-1:2015 RECOMMENDED LIMITS	Results	
				6337/17	6338/17
				7. ENON POST OFFICE 24.04.17 12:40	8. GLENCONNOR 24.04.17 13:20
Dissolved aluminium	µg Al/l	83	< 300	49	1.88
*E. coli**	colonies per 100ml	31	0	0	0
Electrical conductivity at 25°C	mS/m	2	< 170	53	**216**
pH at 25°C	pH units	1A	5.0 - 9.7	8.1	7.3
Standard plate count*	colonies per ml	31	<1000	11	0
Total coliforms*	colonies per 100ml	31	<10	0	0
Turbidity	NTU	4	Operational <1 Aesthetic <5	0.8	**9.4**

Determinand	Units	Method No	SANS 241-1:2015 RECOMMENDED LIMITS	Results
				6339/17
				9. KLEINPOORT TAP 24.04.17 13:45
Dissolved aluminium	µg Al/l	83	< 300	<1
*E. coli**	colonies per 100ml	31	0	0
Electrical conductivity at 25°C	mS/m	2	< 170	130
pH at 25°C	pH units	1A	5.0 - 9.7	7.0
Standard plate count*	colonies per ml	31	<1000	9
Total coliforms*	colonies per 100ml	31	<10	0
Turbidity	NTU	4	Operational <1 Aesthetic <5	**8.6**

Comments:

1. The parameters tested on the samples submitted (lab number 6331/17 to 6337/17) conform to the SANS 241:2015 requirements for drinking water.

2. The parameters tested on the sample submitted (lab number 6338/17) conform to the SANS 241:2015 requirements for drinking water with the exception of electrical conductivity & turbidity.

3. The parameters tested on the sample submitted (lab number 6339/17) conform to the SANS 241:2015 requirements for drinking water with the exception of turbidity.

Note: Bacteriological samples were analysed at our satellite laboratory in Port Elizabeth.

Technical Signatory: Chemistry_____ Bacteriology_____

- This report relates only to the samples tested. This report shall not be reproduced, except in full, without the written approval of **TALBOT LABORATORIES.**
- Tests marked with an asterisk (*) in this report are not SANAS accredited and are not included in the Schedule of Accreditation for our laboratory.
- Opinions and interpretations expressed herein are outside the scope of SANAS accreditation.
- If the microbiological sample requirements are not met on receipt at the laboratory, the accuracy of the test results may be in question.
- Note: Results marked with a (#) have been sub-contracted to a peer laboratory.
- Note: Estimates of Uncertainty of Measurement may be obtained from the laboratory if required.

APPENDIX
UNCERTAINTY OF MEASUREMENT

Determinand	Method No	Uncertainty of Measurement (%)	Determinand	Method No	Uncertainty of Measurement (%)
Ammonia	64	± 5.60	Molybdenum (ICP-MS)	83	± 9.84
Aluminium (ICP-MS)	83	± 12.61	Nickel (AAS)	55A	± 4.00
Antimony (ICP-MS)	83	± 11.24	Nickel (ICP-MS)	83	± 10.50
Arsenic (ICP-MS)	83	± 10.81	Nitrate/Nitrite	65	± 3.60
Barium (ICP-MS)	83	± 9.73	Orthophosphate	66	± 6.80
Beryllium (ICP-MS)	83	± 9.44	Oxygen Absorbed	39	± 5.60
Boron (ICP-MS)	83	± 12.73	Potassium (AAS)	7A	± 5.70
Cadmium (ICP-MS)	83	± 10.05	pH at 25°C (Radiometer)	1	± 1.36
Calcium (AAS)	8A	± 2.20	pH Value 25°C (Eutech)	1A	± 1.36
Chromium (ICP-MS)	83	± 8.94	Reactive Silica	-	± 6.12
Cobalt (ICP-MS)	83	± 9.01	Selenium (ICP-MS)	83	± 14.51
Copper (AAS)	24A	± 4.60	Silver (ICP-MS)	83	± 17.90
Copper (ICP-MS)	83	± 13.19	Sodium (AAS)	6A	± 5.72
Chemical Oxygen Demand	3	± 3.01	Strontium (ICP-MS)	83	± 8.10
Chloride	16	± 2.64	Sulphate	67	± 2.64
Electrical Conductivity at 25°C	2	± 2.98	Suspended Solids at 105°C	5	± 3.84
Fluoride (MultiDirect)	18A	± 5.54	Thallium (ICP-MS)	83	± 9.34
Hexavalent Chromium	68	± 6.67	Tin (ICP-MS)	83	± 10.67
Iron (AAS)	20A	± 7.20	Titanium (ICP-MS)	83	± 15.30
Iron (ICP-MS)	83	± 15.46	Total Alkalinity	10	± 2.40
Lead (AAS)	26A	± 3.80	Total Dissolved Solids at 180°C	41	± 1.41
Lead (ICP-MS)	83	± 10.06	Total Solids at 105°C	59	± 0.51
Lithium (ICP-MS)	83	± 12.39	Turbidity	4	± 1.90
Magnesium (AAS)	9A	± 6.04	Uranium (ICP-MS)	83	± 8.26
Manganese (AAS)	19A	± 6.00	Vanadium (ICP-MS)	83	± 11.16
Manganese (ICP-MS)	83	± 9.01	Zinc (AAS)	23A	± 5.20
Mercury (ICP-MS)	83	± 12.00	Zinc (ICP-MS)	83	± 13.63

Note: The Uncertainty of Measurement is calculated as a percentage and should be applied to the respective results.

For ICP elements, the UoM applies to total, dissolved and acid soluble metals.

Estimates of Uncertainty of Measurement for microbiological analyses can be provided on request.

Talbot& Talbot

20 Pentrich Road, P. O Box 3391, Pietermaritzburg, 3200, KwaZulu- Natal

Tel: +27 (0) 33 346 1444 • Fax: +27 (0) 33 346 1445 • Email: talbot@talbot.co.za • Web: www.talbot.co.za

2017/04/28

ANALYTICAL REPORT

OUR REF: SUNDAYS RIVER VALLEY MUNICIPALITY 5815/17
COMPANY NAME: SUNDAYS RIVER VALLEY MUNICIPALITY
CONTACT ADDRESS: P.O. BOX 147, KIRKWOOD, 6120
CONTACT PERSON: AMBASIWE
SAMPLE TYPE: POTABLE WATER
DATE SUBMITTED: 2017/04/19

Determinand	Units	Method No	SANS 241-1:2015 RECOMMENDED LIMITS	Results	
				5815/17	5816/17
				1. VALENCIA 18.04.17 10:40	2. SONWABO STREET 18.04.17 11:00
Dissolved aluminium	µg Al/l	83	< 300	56	59
*E. coli**	colonies per 100ml	31	0	0	0
Electrical conductivity at 25°C	mS/m	2	< 170	61	59
Free chlorine*	mg Cl_2/l	-	< 5	<0.1	<0.1
pH at 25°C	pH units	1A	5.0 - 9.7	8.2	8.1
Standard plate count*	colonies per ml	31	<1000	5	3
Total coliforms*	colonies per 100ml	31	<10	0	0
Turbidity	NTU	4	Operational <1 Aesthetic <5	1.5	0.7

Determinand	Units	Method No	SANS 241-1:2015 RECOMMENDED LIMITS	Results	
				5817/17	5818/17
				3. NOMATHAM-SANQA COMMUNAL TAP 18.04.17 11:10	4. NOMATHAM-SANQA RENT OFFICE 18.04.17 11:20
Dissolved aluminium	µg Al/l	83	< 300	59	61
*E. coli**	colonies per 100ml	31	0	0	0
Electrical conductivity at 25°C	mS/m	2	< 170	59	59
Free chlorine*	mg Cl_2/l	-	< 5	<0.1	<0.1
pH at 25°C	pH units	1A	5.0 - 9.7	8.2	8.2
Standard plate count*	colonies per ml	31	<1000	0	0
Total coliforms*	colonies per 100ml	31	<10	0	0
Turbidity	NTU	4	Operational <1 Aesthetic <5	0.5	1.0

Directors: Dr MMJ- F Talbot, Mr FD Urbaniak- Hedley (British), Mrs VR Talbot, Mr CA Haycock, Mr GM Thompson, Mr CJ Allen
Talbot & Talbot (Pty) Ltd • Company Registration Number: 2000/ 021732/ 07

Determinand	Units	Method No	SANS 241-1:2015 RECOMMENDED LIMITS	Results	
				5819/17	5820/17
				5. ADDO WATER TREATMENT WORKS 18.04.17 11:30	6. MORESON STAND PIPE 18.04.17 12:30
Dissolved aluminium	µg Al/l	83	< 300	54	6.90
*E. coli**	colonies per 100ml	31	0	0	0
Electrical conductivity at 25°C	mS/m	2	< 170	59	**297**
Free chlorine*	mg Cl_2/l	-	< 5	<0.1	<0.1
pH at 25°C	pH units	1A	5.0 - 9.7	8.1	7.3
Standard plate count*	colonies per ml	31	<1000	5	2
Total coliforms*	colonies per 100ml	31	<10	0	0
Turbidity	NTU	4	Operational <1 Aesthetic <5	1.0	1.2

Comments:

1. The parameters tested on the samples submitted (lab number 5815/17 to 5819/17) conform to the SANS 241:2015 requirements for drinking water.

2. The parameters tested on the sample submitted (lab number 5820/17) conform to the SANS 241:2015 requirements for drinking water with the exception of electrical conductivity.

Note: Bacteriological samples were analysed at our satellite laboratory in Port Elizabeth.

Technical Signatory: Chemistry_____ Bacteriology_____

- This report relates only to the samples tested. This report shall not be reproduced, except in full, without the written approval of **TALBOT LABORATORIES.**
- Tests marked with an asterisk (*) in this report are not SANAS accredited and are not included in the Schedule of Accreditation for our laboratory.
- Opinions and interpretations expressed herein are outside the scope of SANAS accreditation.
- If the microbiological sample requirements are not met on receipt at the laboratory, the accuracy of the test results may be in question.
- Note: Results marked with a (#) have been sub-contracted to a peer laboratory.
- Note: Estimates of Uncertainty of Measurement may be obtained from the laboratory if required.

APPENDIX
UNCERTAINTY OF MEASUREMENT

Determinand	Method No	Uncertainty of Measurement (%)	Determinand	Method No	Uncertainty of Measurement (%)
Ammonia	64	± 5.60	Molybdenum (ICP-MS)	83	± 9.84
Aluminium (ICP-MS)	83	± 12.61	Nickel (AAS)	55A	± 4.00
Antimony (ICP-MS)	83	± 11.24	Nickel (ICP-MS)	83	± 10.50
Arsenic (ICP-MS)	83	± 10.81	Nitrate/Nitrite	65	± 3.60
Barium (ICP-MS)	83	± 9.73	Orthophosphate	66	± 6.80
Beryllium (ICP-MS)	83	± 9.44	Oxygen Absorbed	39	± 5.60
Boron (ICP-MS)	83	± 12.73	Potassium (AAS)	7A	± 5.70
Cadmium (ICP-MS)	83	± 10.05	pH at 25°C (Radiometer)	1	± 1.36
Calcium (AAS)	8A	± 2.20	pH Value 25°C (Eutech)	1A	± 1.36
Chromium (ICP-MS)	83	± 8.94	Reactive Silica	-	± 6.12
Cobalt (ICP-MS)	83	± 9.01	Selenium (ICP-MS)	83	± 14.51
Copper (AAS)	24A	± 4.60	Silver (ICP-MS)	83	± 17.90
Copper (ICP-MS)	83	± 13.19	Sodium (AAS)	6A	± 5.72
Chemical Oxygen Demand	3	± 3.01	Strontium (ICP-MS)	83	± 8.10
Chloride	16	± 2.64	Sulphate	67	± 2.64
Electrical Conductivity at 25°C	2	± 2.98	Suspended Solids at 105°C	5	± 3.84
Fluoride (MultiDirect)	18A	± 5.54	Thallium (ICP-MS)	83	± 9.34
Hexavalent Chromium	68	± 6.67	Tin (ICP-MS)	83	± 10.67
Iron (AAS)	20A	± 7.20	Titanium (ICP-MS)	83	± 15.30
Iron (ICP-MS)	83	± 15.46	Total Alkalinity	10	± 2.40
Lead (AAS)	26A	± 3.80	Total Dissolved Solids at 180°C	41	± 1.41
Lead (ICP-MS)	83	± 10.06	Total Solids at 105°C	59	± 0.51
Lithium (ICP-MS)	83	± 12.39	Turbidity	4	± 1.90
Magnesium (AAS)	9A	± 6.04	Uranium (ICP-MS)	83	± 8.26
Manganese (AAS)	19A	± 6.00	Vanadium (ICP-MS)	83	± 11.16
Manganese (ICP-MS)	83	± 9.01	Zinc (AAS)	23A	± 5.20
Mercury (ICP-MS)	83	± 12.00	Zinc (ICP-MS)	83	± 13.63

Note: The Uncertainty of Measurement is calculated as a percentage and should be applied to the respective results.

For ICP elements, the UoM applies to total, dissolved and acid soluble metals.

Estimates of Uncertainty of Measurement for microbiological analyses can be provided on request.

Talbot& Talbot

20 Pentrich Road, P. O Box 3391, Pietermaritzburg, 3200, KwaZulu- Natal

Tel: +27 (0) 33 346 1444 • Fax: +27 (0) 33 346 1445 • Email: talbot@talbot.co.za • Web: www.talbot.co.za

27/02/2017

ANALYTICAL REPORT

OUR REF: SUNDAYS RIVER VALLEY MUNICIPALITY 2798/17
COMPANY NAME: SUNDAYS RIVER VALLEY MUNICIPALITY
CONTACT ADDRESS: P.O. BOX 147, KIRKWOOD, 6120
CONTACT PERSON: AMBASIWE BAVUMA
SAMPLE TYPE: POTABLE WATER
DATE SUBMITTED: 23/02/2017

Determinand	Units	Method No	SANS 241-1:2015 RECOMMENDED LIMITS	Results	
				2798/17	2799/17
				1.ENON POST OFFICE 22.02.17 08:15	2.BERSHEBA ALBERT STORES 22.02.17 08:22
Dissolved aluminium	µg Al/l	83	< 300	62	65
*E. coli**	colonies per 100ml	31	0	0	0
Electrical conductivity at 25°C	mS/m	2	< 170	51	51
Free chlorine*	mg Cl_2/l	-	< 5	0.80	0.69
pH at 25°C	pH units	1A	5.0 - 9.7	7.6	7.7
Standard plate count*	colonies per ml	31	<1000	2	0
Total coliforms*	colonies per 100ml	31	<10	0	0
Turbidity	NTU	4	Operational <1 Aesthetic <5	0.4	0.3

Determinand	Units	Method No	SANS 241-1:2015 RECOMMENDED LIMITS	Results	
				2800/17	2801/17
				3.BERSHEBA WTW 22.02.17 08:30	4.VALENCIA 22.02.17 09:15
Dissolved aluminium	µg Al/l	83	< 300	63	66
*E. coli**	colonies per 100ml	31	0	0	0
Electrical conductivity at 25°C	mS/m	2	< 170	51	51
Free chlorine*	mg Cl_2/l	-	< 5	0.65	0.59
pH at 25°C	pH units	1A	5.0 - 9.7	7.7	7.7
Standard plate count*	colonies per ml	31	<1000	0	2
Total coliforms*	colonies per 100ml	31	<10	0	0
Turbidity	NTU	4	Operational <1 Aesthetic <5	0.5	1.0

Directors: Dr MMJ- F Talbot, Mr FD Urbaniak- Hedley (British), Mrs VR Talbot, Mr CA Haycock, Mr GM Thompson, Mr CJ Allen
Talbot & Talbot (Pty) Ltd • Company Registration Number: 2000/ 021732/ 07

Determinand	Units	Method No	SANS 241-1:2015 RECOMMENDED LIMITS	Results	
				2802/17	2803/17
				5.ADDO WATER TREATMENT WORKS 22.02.17 09:37	6.NOMATHAMS -ANQA RENT OFFICE 22.02.17 09:42
Dissolved aluminium	µg Al/l	83	< 300	65	65
*E. coli**	colonies per 100ml	31	0	0	0
Electrical conductivity at 25°C	mS/m	2	< 170	51	51
Free chlorine*	mg Cl_2/l	-	< 5	0.59	0.51
pH at 25°C	pH units	1A	5.0 - 9.7	7.7	7.7
Standard plate count*	colonies per ml	31	<1000	3	1
Total coliforms*	colonies per 100ml	31	<10	0	0
Turbidity	NTU	4	Operational <1 Aesthetic <5	0.4	0.3

Determinand	Units	Method No	SANS 241-1:2015 RECOMMENDED LIMITS	Results
				2804/17
				7.NOMATHAMSANQA COMMUNAL TAP 22.02.17 09:50
Dissolved aluminium	µg Al/l	83	< 300	65
*E. coli**	colonies per 100ml	31	0	0
Electrical conductivity at 25°C	mS/m	2	< 170	51
Free chlorine*	mg Cl_2/l	-	< 5	0.56
pH at 25°C	pH units	1A	5.0 - 9.7	7.7
Standard plate count*	colonies per ml	31	<1000	0
Total coliforms*	colonies per 100ml	31	<10	0
Turbidity	NTU	4	Operational <1 Aesthetic <5	1.0

Comments:

The parameters tested on the sample submitted (lab number 2798/17 to 2804/17) conform to the SANS 241:2015 requirements for drinking water.

Note: Bacteriological samples were analysed at our satellite laboratory in Port Elizabeth.

Technical Signatory: Chemistry_____ Bacteriology_____

- This report relates only to the samples tested. This report shall not be reproduced, except in full, without the written approval of **TALBOT LABORATORIES.**
- Tests marked with an asterisk (*) in this report are not SANAS accredited and are not included in the Schedule of Accreditation for our laboratory.
- Opinions and interpretations expressed herein are outside the scope of SANAS accreditation.
- If the microbiological sample requirements are not met on receipt at the laboratory, the accuracy of the test results may be in question.
- Note: Results marked with a (#) have been sub-contracted to a peer laboratory.
- Note: Estimates of Uncertainty of Measurement may be obtained from the laboratory if required.

APPENDIX
UNCERTAINTY OF MEASUREMENT

Determinand	Method No	Uncertainty of Measurement (%)	Determinand	Method No	Uncertainty of Measurement (%)
Ammonia	64	± 5.60	Molybdenum (ICP-MS)	83	± 9.84
Aluminium (ICP-MS)	83	± 12.61	Nickel (AAS)	55A	± 4.00
Antimony (ICP-MS)	83	± 11.24	Nickel (ICP-MS)	83	± 10.50
Arsenic (ICP-MS)	83	± 10.81	Nitrate/Nitrite	65	± 3.60
Barium (ICP-MS)	83	± 9.73	Orthophosphate	66	± 6.80
Beryllium (ICP-MS)	83	± 9.44	Oxygen Absorbed	39	± 5.60
Boron (ICP-MS)	83	± 12.73	Potassium (AAS)	7A	± 5.70
Cadmium (ICP-MS)	83	± 10.05	pH at 25°C (Radiometer)	1	± 1.36
Calcium (AAS)	8A	± 2.20	pH Value 25°C (Eutech)	1A	± 1.36
Chromium (ICP-MS)	83	± 8.94	Reactive Silica	-	± 6.12
Cobalt (ICP-MS)	83	± 9.01	Selenium (ICP-MS)	83	± 14.51
Copper (AAS)	24A	± 4.60	Silver (ICP-MS)	83	± 17.90
Copper (ICP-MS)	83	± 13.19	Sodium (AAS)	6A	± 5.72
Chemical Oxygen Demand	3	± 3.01	Strontium (ICP-MS)	83	± 8.10
Chloride	16	± 2.64	Sulphate	67	± 2.64
Electrical Conductivity at 25°C	2	± 2.98	Suspended Solids at 105°C	5	± 3.84
Fluoride (MultiDirect)	18A	± 5.54	Thallium (ICP-MS)	83	± 9.34
Hexavalent Chromium	68	± 6.67	Tin (ICP-MS)	83	± 10.67
Iron (AAS)	20A	± 7.20	Titanium (ICP-MS)	83	± 15.30
Iron (ICP-MS)	83	± 15.46	Total Alkalinity	10	± 2.40
Lead (AAS)	26A	± 3.80	Total Dissolved Solids at 180°C	41	± 1.41
Lead (ICP-MS)	83	± 10.06	Total Solids at 105°C	59	± 0.51
Lithium (ICP-MS)	83	± 12.39	Turbidity	4	± 1.90
Magnesium (AAS)	9A	± 6.04	Uranium (ICP-MS)	83	± 8.26
Manganese (AAS)	19A	± 6.00	Vanadium (ICP-MS)	83	± 11.16
Manganese (ICP-MS)	83	± 9.01	Zinc (AAS)	23A	± 5.20
Mercury (ICP-MS)	83	± 12.00	Zinc (ICP-MS)	83	± 13.63

Note: The Uncertainty of Measurement is calculated as a percentage and should be applied to the respective results.

For ICP elements, the UoM applies to total, dissolved and acid soluble metals.

Estimates of Uncertainty of Measurement for microbiological analyses can be provided on request.

Talbot& Talbot

20 Pentrich Road, P. O Box 3391, Pietermaritzburg, 3200, KwaZulu- Natal

Tel: +27 (0) 33 346 1444 • Fax: +27 (0) 33 346 1445 • Email: talbot@talbot.co.za • Web: www.talbot.co.za

27/02/2017

ANALYTICAL REPORT

OUR REF: SUNDAYS RIVER VALLEY MUNICIPALITY 2759/17
COMPANY NAME: SUNDAYS RIVER VALLEY MUNICIPALITY
CONTACT ADDRESS: P.O. BOX 147, KIRKWOOD, 6120
CONTACT PERSON: AMBESIWE BAVUMA
SAMPLE TYPE: WATER SAMPLES
DATE SUBMITTED: 22/02/2017

Determinand	Units	Method No	SANS 241-1:2015 RECOMMENDED LIMITS	Results	
				2759/17	2760/17
				1.KIRKWOOD TOWN CLINIC 21.02.17 11:30	2.KIRKWOOD WATER TREATMENT WORKS 21.02.17 11:40
Dissolved aluminium	µg Al/l	83	< 300	5.63	8.69
*E. coli**	colonies per 100ml	31	0	0	0
Electrical conductivity at 25°C	mS/m	2	< 170	51	50
pH at 25°C	pH units	1A	5.0 - 9.7	7.8	7.9
Standard plate count*	colonies per ml	31	<1000	0	7
Total coliforms*	colonies per 100ml	31	<10	0	0
Turbidity	NTU	4	Operational <1 Aesthetic <5	0.2	0.8

Determinand	Units	Method No	SANS 241-1:2015 RECOMMENDED LIMITS	Results	
				2761/17	2762/17
				3.BERSIG CLINIC 21.02.17 11:55	4.MOSES MABIDA COMMUNITY 21.02.17 12:05
Dissolved aluminium	µg Al/l	83	< 300	8.67	7.29
*E. coli**	colonies per 100ml	31	0	0	0
Electrical conductivity at 25°C	mS/m	2	< 170	51	51
pH at 25°C	pH units	1A	5.0 - 9.7	7.9	7.9
Standard plate count*	colonies per ml	31	<1000	0	2
Total coliforms*	colonies per 100ml	31	<10	0	0
Turbidity	NTU	4	Operational <1 Aesthetic <5	0.5	**7.1**

Determinand	Units	Method No	DWS GENERAL EFFLUENT STANDARDS	Results
				2763/17
				1. KIRKWOOD WASTE WTW 21.02.17 12:20
Ammonia	mg N/l	64	<6	1.42
*E. coli**	colonies per 100ml	31	<1000	**250 000**
Nitrate*	mg N/l	Calc.	Not specified	10.4
Orthophosphate	mg P/l	66	<10	3.14
pH at 25°C	pH units	1A	5.5 - 9.5	7.5
Suspended solids at 105°C	mg/l	5	<25	7

Directors: Dr MMJ- F Talbot, Mr FD Urbaniak- Hedley (British), Mrs VR Talbot, Mr CA Haycock, Mr GM Thompson, Mr CJ Allen

Talbot & Talbot (Pty) Ltd • Company Registration Number: 2000/ 021732/ 07

Comments:

1. The parameters tested on the samples submitted (lab number 2759/17 to 2761/17) conform to the SANS 241:2015 requirements for drinking water.

2. The parameters tested on the sample submitted (lab number 2762/17) conform to the SANS 241:2015 requirements for drinking water, with the exception of turbidity.

- The turbidity of the water exceeds the SANS limit of <1 NTU but is lower than 10 NTU where one would expect to start seeing aesthetic effects like a cloudy appearance to the water. Turbidity is also one of the indirect indicators of microbiological water quality and of inefficient water treatment. The presence of turbidity in water results in a cloudy or muddy appearance, and may also affect taste and colour of the water.

3. The parameters tested on the samples submitted (lab number 2763/17) conform to DWS general effluent standards, with the exception of *E.coli.*

Note: Bacteriological samples were analysed at our satellite laboratory in Port Elizabeth.

Technical Signatory: Chemistry_____ Bacteriology_____

- This report relates only to the samples tested. This report shall not be reproduced, except in full, without the written approval of **TALBOT LABORATORIES.**
- Tests marked with an asterisk (*) in this report are not SANAS accredited and are not included in the Schedule of Accreditation for our laboratory.
- Opinions and interpretations expressed herein are outside the scope of SANAS accreditation.
- If the microbiological sample requirements are not met on receipt at the laboratory, the accuracy of the test results may be in question.
- Note: Results marked with a (#) have been sub-contracted to a peer laboratory.
- Note: Estimates of Uncertainty of Measurement may be obtained from the laboratory if required.

APPENDIX
UNCERTAINTY OF MEASUREMENT

Determinand	Method No	Uncertainty of Measurement (%)	Determinand	Method No	Uncertainty of Measurement (%)
Ammonia	64	± 5.60	Molybdenum (ICP-MS)	83	± 9.84
Aluminium (ICP-MS)	83	± 12.61	Nickel (AAS)	55A	± 4.00
Antimony (ICP-MS)	83	± 11.24	Nickel (ICP-MS)	83	± 10.50
Arsenic (ICP-MS)	83	± 10.81	Nitrate/Nitrite	65	± 3.60
Barium (ICP-MS)	83	± 9.73	Orthophosphate	66	± 6.80
Beryllium (ICP-MS)	83	± 9.44	Oxygen Absorbed	39	± 5.60
Boron (ICP-MS)	83	± 12.73	Potassium (AAS)	7A	± 5.70
Cadmium (ICP-MS)	83	± 10.05	pH at 25°C (Radiometer)	1	± 1.36
Calcium (AAS)	8A	± 2.20	pH Value 25°C (Eutech)	1A	± 1.36
Chromium (ICP-MS)	83	± 8.94	Reactive Silica	-	± 6.12
Cobalt (ICP-MS)	83	± 9.01	Selenium (ICP-MS)	83	± 14.51
Copper (AAS)	24A	± 4.60	Silver (ICP-MS)	83	± 17.90
Copper (ICP-MS)	83	± 13.19	Sodium (AAS)	6A	± 5.72
Chemical Oxygen Demand	3	± 3.01	Strontium (ICP-MS)	83	± 8.10
Chloride	16	± 2.64	Sulphate	67	± 2.64
Electrical Conductivity at 25°C	2	± 2.98	Suspended Solids at 105°C	5	± 3.84
Fluoride (MultiDirect)	18A	± 5.54	Thallium (ICP-MS)	83	± 9.34
Hexavalent Chromium	68	± 6.67	Tin (ICP-MS)	83	± 10.67
Iron (AAS)	20A	± 7.20	Titanium (ICP-MS)	83	± 15.30
Iron (ICP-MS)	83	± 15.46	Total Alkalinity	10	± 2.40
Lead (AAS)	26A	± 3.80	Total Dissolved Solids at 180°C	41	± 1.41
Lead (ICP-MS)	83	± 10.06	Total Solids at 105°C	59	± 0.51
Lithium (ICP-MS)	83	± 12.39	Turbidity	4	± 1.90
Magnesium (AAS)	9A	± 6.04	Uranium (ICP-MS)	83	± 8.26
Manganese (AAS)	19A	± 6.00	Vanadium (ICP-MS)	83	± 11.16
Manganese (ICP-MS)	83	± 9.01	Zinc (AAS)	23A	± 5.20
Mercury (ICP-MS)	83	± 12.00	Zinc (ICP-MS)	83	± 13.63

Note: The Uncertainty of Measurement is calculated as a percentage and should be applied to the respective results.

For ICP elements, the UoM applies to total, dissolved and acid soluble metals.

Estimates of Uncertainty of Measurement for microbiological analyses can be provided on request.