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2015/03/31

**ANALYTICAL REPORT**

**OUR REF:** uMGUNGUNDLOVU MUNICIPALITY 4712/15  
**COMPANY NAME:** uMGUNGUNDLOVU MUNICIPALITY  
**CONTACT ADDRESS:** P O BOX 3235, PIETERMARITZBURG, 3200  
**CONTACT PERSON:** ROYAL NZUZA  
**SAMPLE TYPE:** WASTEWATER  
**DATE SUBMITTED:** 2015/03/19

Determinand	Units	Method No	DWA General Effluent Standards	Results	
				4712/15	4713/15
				APPELSBOSCH/STW FINAL 18.03.15	APPELSBOSCH/STW RAW 18.03.15
Ammonia	mg N/l	64	6	3.31	17.0
Chemical oxygen demand (total)	mg O <sub>2</sub> /l	3	75	32	181
Chloride	mg Cl/l	16	Not specified	47	
<i>E. coli</i>	colonies per 100ml	31	1000	0	
Electrical conductivity at 25°C	mS/m	2	150	35	42
Free chlorine*	mg Cl <sub>2</sub> /l	-	0.25	<0.1	
Nitrate/Nitrite	mg N/l	65	15	1.10	
Orthophosphate	mg P/l	66	10	4.58	0.258
Oxygen absorbed	mg O <sub>2</sub> /l	39	10	5	20
pH at 25°C	pH units	1	5.5 – 9.5	6.8	7.2
Suspended solids at 105°C	mg/l	5	25	<10	114
Total alkalinity	mg CaCO <sub>3</sub> /l	10	Not specified	60	99

Determinand	Units	Method No	Results	
			4714/15	4715/15
			APPELSBOSCH/STW SECONDARY 18.03.15	APPELSBOSCH/STW ML 18.03.15
Ammonia	mg N/l	64	0.26	
Nitrate/Nitrite	mg N/l	65	6.30	
Oxygen absorbed	mg O <sub>2</sub> /l	39	14	
pH at 25°C	pH units	1	6.7	6.8
Suspended solids at 105°C	mg/l	5		1 245
Total alkalinity	mg CaCO <sub>3</sub> /l	10	27	

Directors: Dr MMJ-F Talbot, Mr FD Urbaniak-Hedley (British), Mrs VR Talbot  
 Talbot & Talbot (Pty) Ltd - Company Registration Number 2000/021732/07

Determinand	Units	Method No	Results	
			4716/15	4717/15
			APPELSBOSCH UPSTREAM 18.03.15	APPELSBOCH DOWNSTREAM 18.03.15
Ammonia	mg N/l	64	0.31	<0.08
Chemical oxygen demand (total)	mg O <sub>2</sub> /l	3	20	20
<i>E. coli</i>	colonies per 100ml	31	56	120
Nitrate/Nitrite	mg N/l	65	0.06	2.10
Orthophosphate	mg P/l	66	<0.002	0.583
pH at 25°C	pH units	1	6.4	7.2
Suspended solids at 105°C	mg/l	5	50	14

**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.
- Note: Results marked with a double asterisk (\*\*) 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	± 4.80	Mercury (ICP-MS)	83	± 12.00
Aluminium (ICP-MS)	83	± 13.23	Molybdenum (ICP-MS)	83	± 9.50
Antimony (ICP-MS)	83	± 11.16	Nickel (AAS)	55A	± 3.80
Arsenic (ICP-MS)	83	± 10.56	Nickel (ICP-MS)	83	± 10.63
Barium (ICP-MS)	83	± 9.81	Nitrate/Nitrite	65	± 4.79
Beryllium (ICP-MS)	83	± 9.07	Orthophosphate	66	± 4.80
Boron (ICP-MS)	83	± 12.93	Oxygen Absorbed	39	± 4.40
Cadmium (ICP-MS)	83	± 10.10	Potassium (AAS)	7A	± 5.60
Calcium (AAS)	8A	± 2.56	pH at 25°C (Radiometer)	1	± 1.36
Chromium (ICP-MS)	83	± 8.96	pH Value 25°C (Eutech)	1A	± 1.12
Cobalt (ICP-MS)	83	± 8.91	Selenium (ICP-MS)	83	± 14.60
Copper (AAS)	24A	± 4.20	Silver (ICP-MS)	83	± 18.59
Copper (ICP-MS)	83	± 12.79	Sodium (AAS)	6A	± 5.08
Chemical Oxygen Demand	3	± 3.71	Strontium (ICP-MS)	83	± 8.18
Chloride	16	± 2.80	Sulphate	67	± 3.87
Electrical Conductivity at 25°C	2	± 2.74	Suspended Solids at 105°C	5	± 4.08
Fluoride (Lovibond)	18	± 4.82	Thallium (ICP-MS)	83	± 9.33
Fluoride (MultiDirect)	18A	± 4.10	Tin (ICP-MS)	83	± 10.21
Hexavalent Chromium	68	± 6.67	Titanium (ICP-MS)	83	± 15.52
Iron (AAS)	20A	± 6.20	Total Alkalinity	10	± 2.36
Iron (ICP-MS)	83	± 15.42	Total Dissolved Solids at 180°C	41	± 1.25
Lead (AAS)	26A	± 3.80	Total Solids at 105°C	59	± 0.44
Lead (ICP-MS)	83	± 10.06	Turbidity	4	± 1.70
Lithium (ICP-MS)	83	± 11.86	Uranium (ICP-MS)	83	± 7.95
Magnesium (AAS)	9A	± 5.15	Vanadium (ICP-MS)	83	± 11.15
Manganese (AAS)	19A	± 5.20	Zinc (AAS)	23A	± 4.63
Manganese (ICP-MS)	83	± 9.38	Zinc (ICP-MS)	83	± 15.13

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

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