Water and Waste Water Quality Analysis Results for the Months of July, August and September 2016

Sampling and analysis was done for the months of July, August and September 2016 by Amatola Water Scientific Lab for the entire Makana i.e. Grahamstown, Alicedale and Riebeeck East in Bulk and Reticulation, supply both Water and Waste Water.

Water quality results are subdivided into Physical, Chemical and Microbiological requirements.

Table 1: Summary of water quality compliance

Section	Final - WTW			Reticulation Network			SANS 241 Limits
	No of Tests	Failures(No)	Com-pliance (%)	No of Tests	Failures	Com-pliance (%)	
July 2016							
Physical	16	3	81.25	48	10	79.17	≥93 Excellent ≥90 Good <90 Unacceptable
Chemical	28	0	100	84	0	100	≥ 95 Excellent ≥ 93 Good <93 Unacceptable
Microbiological / Bacteriological	20	0	100	60	0	100	≥ 97 Excellent ≥ 95 Good <95 Unacceptable
Total Monthly Compliance	**64**	**3**	**95.31**	**192**	**10**	**94.79**	
August 2016							
Physical	27	6	77.78	36	10	72.22	≥93 Excellent ≥90 Good <90 Unacceptable
Chemical	60	0	100	82	0	100	≥93 Excellent ≥90 Good <90 Unacceptable
Microbiological / Bacteriological	39	0	100	54	0	100	≥93 Excellent ≥90 Good <90 Unacceptable
Total Monthly Compliance	**126**	**6**	**95.24**	**172**	**10**	**94.19**	
September 2016							
Physical	16	2	87.50	36	5	86.11	≥93 Excellent ≥90 Good <90 Unacceptable
Chemical	21	0	100	61	0	100	≥93 Excellent ≥90 Good <90 Unacceptable
Microbiological / Bacteriological	13	0	100	24	0	100	≥93 Excellent ≥90 Good <90 Unacceptable
Total Monthly Compliance	**50**	**2**	**96**	**121**	**5**	**95.87**	

Monthly Quality Statistics – July, August and September 2016

The results for July 2016 indicate non-compliance on physical analysis. Concentration of *Turbidity* in final water at Alicedale community tap, James Kleynhans WTW and the 7 sampling points on the reticulation network in Nonzwakazi, J-street, Extension 7 clinic, Riebeeck East and Environmental Health Office.
Turbidity is the cloudiness or haziness of water caused by large numbers of individual particles that are generally invisible to the naked eye.
On the Eastern side of Grahamstown, this is due to high solids from the raw water from Glenmeville dam and on the Western side is due to high solids from town filters as water was pumped straight to the head of works during the relining of the internal dam.

In Alicedale, there has been a lot of maintenance including refurbishment of filters and the work is continuous as the plant is old.

In Riebeeck East, turbidity is due to low yield of boreholes.

Regulations of Drinking Water.

As per the drinking water regulations, when hazardous concentrations are detected, community have to be notified with remedy action e.g. Boiling the water to be advised until disinfection and retesting can confirm that contamination has been eliminated.

The municipality has an existing protocol on communicating such incident and is implemented when the need arises.

Waste Water Determinants

DETERMINANTS	SANS 241/ DWAE STANDARDS		SITE		
July 2016					
Section	Class I Water	Class II Water	Belmont Valley	Alicedale WWTW	Mayfield WTW
Chemical Oxygen Demand	75	75	-	-	171
Nitrate as N	5 – 9.5	4.0 – 10	-	-	0
Ammonia as N	6	6	-	-	46.08
August 2016					
Chemical Oxygen Demand	75	75	-	-	26.98
Nitrate as N	5 – 9.5	4.0 – 10	-	-	0.22
Solids - total suspended	50-100	50-100	-	-	20

September 2016					
Chemical Oxygen Demand\	75	75	19	-	34
Nitrate as N	5 – 9.5	4.0 – 10	5.48	-	2.64
Ammonia as N	6	6	13.65	-	34.63

No sampling was done in Alicedale WWTW; the plant is currently not discharging to the river due to capacity issues. The effluent is treated through oxidation process and discharged to the ponds for polishing.

No sampling was done in Belmont Valley WWTW for July and August and the lab has not provided a reason for not sampling at the plant.