

WATER AND WASTEWATER QUALITY

Water and Wastewater Quality Performance at uMgungundlovu District Municipality in 2018

uMgungundlovu District Municipality is responsible to supply potable water to six local municipalities (LMs) in its designated operational area. Potable water supplied to these LMs is monitored as per monitoring programme which is reviewed annually and in line with water safety plan. The municipality has also six wastewater treatment works which are maintained by Umgeni Water on behalf of the District Municipality. Final effluent from these wastewater treatment works is also monitored as per the monitoring programme. Together with Umgeni Water, the municipality developed wastewater risk abatement plan so as to minimise the risk associated with poor performance of the wastewater treatment works. Both water and wastewater quality results are uploaded on monthly basis on Department of Water and Sanitation websites, which is <http://ws.dwa.gov.za/IRIS> for community, regulatory authorities and stakeholders to access.

Blue Drop certification

Since the inception of the Blue Drop certification programme, the municipality has been showing an improvement in the management of drinking water quality (Figure 1). In 2012, the municipality was successful to achieve Blue Drop status. Again in 2014, the municipality was able to retain its Blue Drop status through bulk water supply systems and this is an indication of commitment shown by the municipality towards better service delivery.

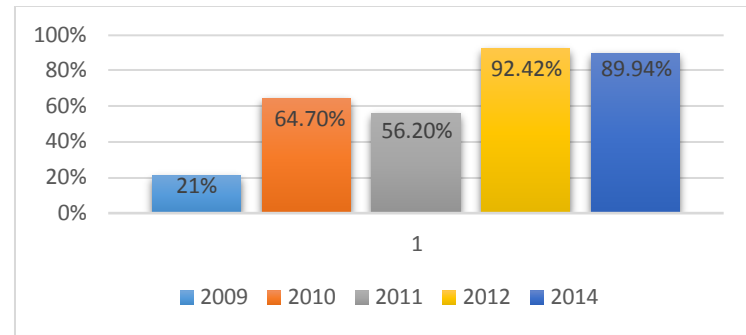


Figure 1: Municipal Blue Drop scores

Note: The last Blue Drop assessments were conducted in 2014.

Green Drop certification

There have been only three Green Drop assessments since it was introduced in 2008. Figure 2 below shows that after receiving the unfavourable score of 21% in 2009, best practices for wastewater quality management were put in place which resulted to an improved scores in the subsequent assessments. The municipality is working towards achieving Green Drop status in future.

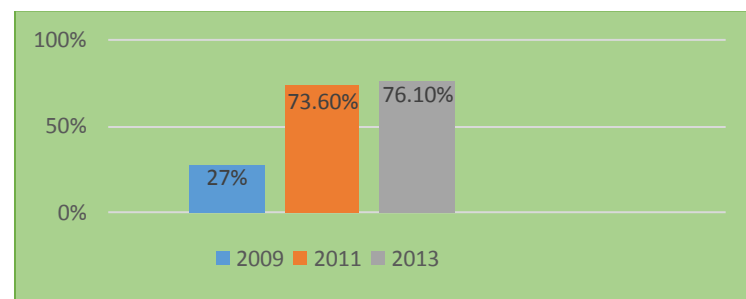


Figure 2: Municipal Green Drop scores

Note: The last Green Drop assessments was conducted in 2013

Water Quality Performance

Potable water quality is required to comply with SANS 241:2015 that requires quality to be evaluated and reported against five categories which are Acute health microbiological, Acute health chemical, Chronic health chemical, Aesthetic and Operational. SANS 241:2015 classify drinking water quality supplied to the population of up to 100 000 as follows:

- Acute health microbiological -: Excellent ($\geq 97\%$), Good ($\geq 95\%$), Unacceptable ($< 95\%$).
- Acute health chemical -: Excellent ($\geq 97\%$), Good ($\geq 95\%$), Unacceptable ($< 95\%$).
- Chronic health chemical -: Excellent ($\geq 95\%$), Good ($\geq 93\%$), Unacceptable ($< 93\%$).
- Aesthetic -: Excellent ($\geq 93\%$), Good ($\geq 90\%$), Unacceptable ($< 90\%$).
- Operational -: Excellent ($\geq 93\%$), Good ($\geq 90\%$), Unacceptable ($< 90\%$).

Table 1: Portable water quality compliance for water supply systems (%).

Water Supply System	Acute Health Microbiological	Acute Health Chemical	Chronic Health Chemical	Aesthetic	Operational
Appelsbosch	100	100	100	98.21	90.16
Boreholes	100	100	100	100	98.79
Gomane	100	-	94.03	100	100
Impendle	91.89	-	100	100	95
Lidgetton	100	100	100	99.38	97.36
Makeni	97.5	-	100	93.55	75.76
Mpofana	99.22	100	100	100	97.77
Mtulwa	100	-	98.81	95.59	84.38
Ntanzu	100	100	100	100	100
Nzinga	96.81	100	100	96.04	84.89
Rosetta	100	100	100	99.45	99.07
Umgani	99.34	100	100	100	98.91

Acute health microbiological: - Out of nine water supply systems, eight of them achieved more than 95% except Impendle spring. During heavy rains, the reservoir receives high volumes of water and this results to inadequate chlorine contact time as chlorination process takes place in the reservoir. In line with incident management protocol, when failures were detected, corrective majors were put in place to ensure that the problem is resolved. There are also plans for constructing Impendle bulk water supply scheme to improve water supply for Impendle area.

Operational: - Appelsbosch, Makeni, Mtulwa and Nzinga were not able to meet the acceptable standards for operational compliance. Non-compliance in these plants were mainly due to elevated turbidity and aluminium. In response to this, process is closely optimised and if water quality is found not to be suitable for human consumption, water is not distributed to the community till water quality improves to an acceptable standards. It should also be noted that sometimes elevated turbidity is due to burst pipes which contaminates water.

Acute health chemical: - There were no non compliances under this category. All water supply systems achieved 100%. Acute health chemical for Boreholes, Gomane, Impendle, Makeni and Mtulwa will be monitored in 2019.

Wastewater Quality Performance

According to Green Drop requirements, effluent quality with a score of 90% and above is seen as compliance.

Table2: Wastewater quality compliance against applicable discharge limits (%).

Wastewater Treatment Systems	Microbiological	Chemical	Physical
Appelsbosch	67	71	95
Camperdown	75	100	96
Cool Air	100	100	99
Howick	84	94	92
Mooi River	19	62	39
Richmond	60	97	92

Appelsbosch:-The wastewater treatment plant was unable to meet the acceptable standards for microbiological, chemical and physical quality. This was due to mechanical breakdown, aerators are old and needed to be refurbished. Failure of aerators resulted to high COD, ammonia, E.coli and suspended solids. In addition, the feed pump needed to be repaired as it would trip and fail. The service provider is attending to these problems so as to optimise the performance of the plant. Floating aerator has been installed to replace old aeration unit.

Howick:- The plant has a problem of high scum in the process and settling in the clarifiers is poor resulting in the carry over. Also, due to high solids in the system, disinfection is sometimes ineffective. There are plans to upgrade sludge dewatering system to improve the performance of the plant. Mpophomeni wastewater treatment works will also be upgraded and this will reduce the flows going to Howick wastewater treatment works.

Mooi River :- The plant is currently operating above its design capacity. There are plans to upgrade this plant.

Richmond :- The plant has performed well under chemical and operational limit, however, microbiological quality was not acceptable. This was due to poor performance of the chlorine contact tank. Baffles have been installed and according to the recent test results, the plant has shown improvement in all categories of wastewater quality.