

WATER AND WASTEWATER QUALITY

Water and Wastewater Quality Performance at uMgungundlovu District Municipality in 2020

The 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 operated, maintained, and managed 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.

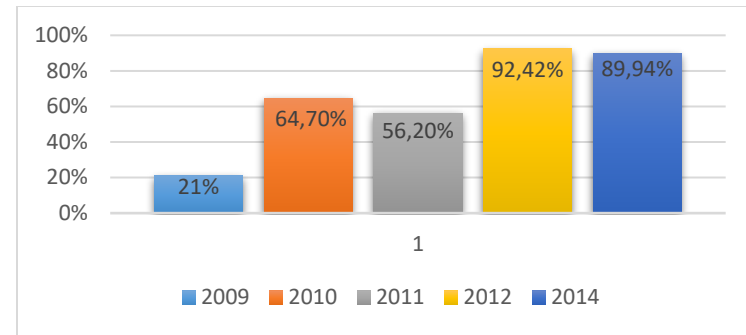


Figure1: Municipal Blue Drop scores

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.

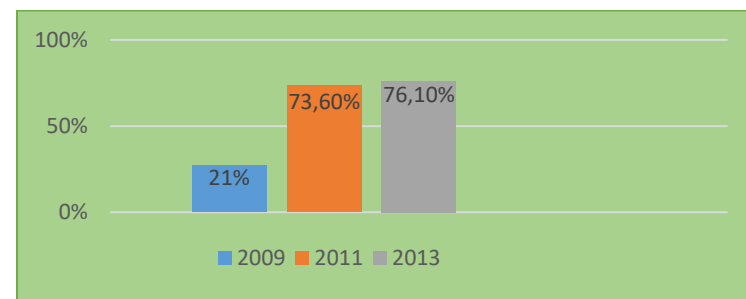


Figure 2: Municipal Green Drop scores

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 ($< 90\%$).

Table1: Potable water quality compliance for water supply systems (%).

Water Supply System	Acute Health Microbiological	Acute Health Chemical	Chronic Health Chemical	Aesthetic	Operational
Boreholes	97.8	100	98.9	97.6	94.5
Gomane	91.2	100	95.4	99.3	96
Impendle	76.7	100	100	100	82.6
Lidgetton	97.5	100	100	97.9	97
Mpofana	99.2	100	100	99.3	91.5
Nzinga	96.1	100	100	94.7	79.7
Rosetta	100	100	100	100	99.6
Umgeni	99.1	100	100	99.5	96.5

Acute health microbiological: - All the water supply systems achieved 95% and above except Gomane and Impendle supply systems. 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:- Impendle and Nzinga were not able to meet the acceptable standards for operational compliance. Non-compliance in these plants were mainly due to elevated turbidity. In response to this, process was closely optimised and where water quality was found not to be suitable for human consumption, it is not distributed to the community till water quality until water quality met acceptable standards.

Acute health chemical: - There were no non compliances under this category. All water supply systems achieved 100%.

Aesthetic :- There were no non compliances under this category. All water supply systems achieved above 93%.

Chronic health chemical: - There were no non compliances under this category. All water supply systems above 93%.

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	100	94.4	100
Camperdown	60	100	100
Cool Air	100	100	100
Howick	84.6	91	86.4
Mooi River	90.9	84.1	100
Richmond	77.8	90.5	100

Camperdown:-The wastewater treatment plant was unable to meet the acceptable standard for microbiological quality. This was due to chlorine dosing pump failure. This results to inadequate disinfection for final effluent.

Howick:- The plant has a problem of high scum in the process and settling in the clarifiers is poor resulting in the carry over. High rainfalls affects the performance of the plant since there is no balance tank on site. Due to high solids in the system, disinfection is sometimes ineffective. Upgrade of sludge dewatering system is underway to improve the performance of the plant. Upgrade of Mpophomeni wastewater treatment works is underway will anticipate within two years. This will reduce the flows going to Howick wastewater treatment works.

Mooi River :- High volume of the reactor cause aerators to trip results in Ammonia failure. Sludge wasting is problematic which results in re-solubilisation of phosphates. There are plans to upgrade this plant.

Richmond :- Poor disinfection results in microbiological failure. Equipment breakdown of an aerator results in chemical failure. However, this problem was resolved and the plant is now meeting the microbiological compliance.