



NGAKA MODIRI MOLEMA DISTRICT MUNICIPALITY

WATER IS LIFE.

The Department of Water Affairs (DWA) as a water service regulator has introduced an innovative system that municipalities have to reach the requirements to improve water quality in the country.

Blue Drop

The system is known as the Blue Drop system (BDS). It is a system which is managed and facilitated by the Department of Water Affairs.

The Blue Drop Certification programme is a measurement tool where the water service authorities are scored for excellence. The Blue Drop Certification programme is also used as a management device where water quality data is loaded into the Blue Drop system (BDS) and monitored by DWA. It has controlled access with password/ codes where information loaded about water quality at water service authorities is published.

Members of the public can view their water quality status quo by using general information section. The site to visit is: www.dwa.gov.za/mywater. Therefore the user can search for any town in South Africa by name.

The water supply systems are evaluated according the stringent set of criteria to guarantee the highest level standards of drinking quality water throughout South Africa.

What are Municipalities Score Against?

Drinking water quality is tested and measured against the South African National Standard (SANS 241:2006). It is definitive reference on acceptable limits for water quality parameters (Microbiological, Physical Aesthetic and Chemical). Other Blue Drop requirements include:

- Water safety planning process
- Risk Assessment Management
- Risk Based Sampling monitoring programme
- Incident Management Protocol
- Classification registration of process controllers
- Training of process controllers
- Operation and maintenance
- Operation manuals
- Operational compliance, purification and treatment plants

- Compliance Monitoring
- Risk and Hazard identification and Risk- refined compliance
- Publication- Information to the public
- Contract management Service level agreements (performance and evaluations)
- Data Management to DWA
- Asset management
- Design, capacity, layout of purification and treatment plants

South African National Standard SANS 241- Ngaka Modiri Molema District Municipality

SANS 241- Risk Based Annual Report

Twenty Supply systems across Ngaka Modiri Molema were tested. These included the following areas:

Atemelang, Coligny, Delareyville, Dinokana, Disaneng, Groot Marico, Itsoseng, Lichtenburg, Mafikeng, Mmabatho, Motswedi, Ottosdal, Setlagole, Kraaipan, Madibogo, Madibogo- pan, Sannieshof, Zeerust, Lehurutshe and Makgobi- stad.

Results

Most of our supply systems were complied with the SANS 241, especially looking at an acute and chronic health risk for total coliform Bacteria, faecal coliforms, Heterotrophic plate count, cytopathogenic viruses, protozoan parasites. E.g cryptosporidium species, giardia species and Somatic coliphogen

Correction Action Plan

There were areas of concern lead (Pb) was detected, constant monitoring will be done.

Review of risk based monitoring for sampling programme and safety plans.

Expand Chlorine floaters system across Ngaka Modiri Molema District Municipality

The developmental programme on trainees where they will be trained on specialised skills related to water quality management.

Drinking Water Quality Report

Analyses in mg/ℓ (Unless specified otherwise)	Risk	Method Identification	Sample Identification:			SANS 241:2011 (Standard Limits for Potable Water)
			Dinokana Final	Disaneng Pot Final	Groot Marico Final	
Sample Number			10193	10194	10195	

Sodium as Na	Aesthetic	WLAB015	2	86	4	≤ 200
Potassium as K	---	WLAB015	<1.0	13.0	<1.0	---
Calcium as Ca	---	WLAB015	54	20	29	---
Magnesium as Mg	---	WLAB015	35	57	22	---
Aluminium as Al (in µg/l)	Operational	WLAB015	<100	199	<100	≤ 300
Antimony as Sb (in µg/l) *	Chronic health	WLAB015	<10	<10	<10	≤ 20
Arsenic as As (in µg/l) *	Chronic health	WLAB015	<10	<10	<10	≤ 10
Cadmium as Cd (in µg/l) *	Chronic health	WLAB015	<3	<3	<3	≤ 3
Total Chromium as Cr (in µg/l)	Chronic health	WLAB015	<25	<25	<25	≤ 50
Cobalt as Co (in µg/l)	Chronic health	WLAB015	<25	<25	<25	≤ 500
Copper as Cu (in µg/l)	Chronic health	WLAB015	<25	<25	<25	≤ 2 000
Iron as Fe (in µg/l)	Chronic health Aesthetic	WLAB015	<25	<25	0.210	≤ 2 000 ≤ 300
Lead as Pb (in µg/l) *	Chronic health	WLAB015	<10	<10	<10	≤ 10
Manganese as Mn (in µg/l)	Chronic health Aesthetic	WLAB015	<25	<25	<25	≤ 500 ≤ 100
Mercury as Hg (in µg/l) *	Chronic health	WLAB047	<1	<1	<1	≤ 6
Nickel as Ni (in µg/l)	Chronic health	WLAB015	<25	<25	<25	≤ 70
Selenium as Se (in µg/l) *	Chronic health	WLAB015	<10	<10	<10	≤ 10
Uranium as U (in µg/l) *	Chronic health	WLAB015	<10	<10	<10	≤ 15
Vanadium as V (in µg/l) *	Chronic health	WLAB015	<25	29	27	≤ 200
Zinc as Zn	Aesthetic	WLAB015	<0.025	<0.025	<0.025	≤ 5
% Balancing	---	---	92.7	97.7	91.9	---

Analyses in mg/ℓ (Unless specified otherwise)	Risk	Method Identification	Sample Identification			SANS 241:2011 (Standard Limits for Potable Water)
			Itsoseng Res	Lichtenburg Res	Mafikeng Pot Final	
Sample Number			10196	10197	10198	
pH – Value at 25°C	Operational	WLAB001	8.0	7.8	8.2	≥ 5 to ≤ 9.7
Electrical Conductivity in mS/m at 25°C	Aesthetic	WLAB002	60.3	62.6	47.5	≤ 170
Total Dissolved Solids at 180°C *	Aesthetic	WLAB027	312	370	266	≤ 1 200
Colour in PtCo Units *	Aesthetic	WLAB006	1	<1	4	≤ 15
Odour in T.O.N *	Aesthetic	WLAB038	<5	<5	<5	Inoffensive
Turbidity in N.T.U	Operational	WLAB005	0.1	0.2	0.9	≤ 1
	Aesthetic					≤ 5
Free Residual Chlorine as Cl ₂ *	Chronic health	WLAB036	0.1	0.4	<0.1	≤ 5
Monochloramine*	Chronic health	WLAB036	0.1	0.4	<0.1	≤ 3
Chloride as Cl *	Aesthetic	WLAB046	12	7	15	≤ 300
Sulphate as SO ₄	Acute health-1	WLAB046	<5	<5	<5	≤ 500
	Aesthetic					≤ 250
Fluoride as F	Chronic health	WLAB014	<0.2	<0.2	<0.2	≤ 1.5
Nitrate as N *	Acute health-1	WLAB046	6.6	6.7	3.0	≤ 11
Nitrite as N *	Acute health-1	WLAB046	<0.1	<0.1	<0.1	≤ 0.9
Free Cyanide as CN (in µg/l) *	Acute health-1	WLAB056	<50	<50	<50	≤ 70
Total Organic Carbon as C [s]	Chronic health	---	1.8	2.0	1.1	≤ 10
Microcystin as LR (in µg/l) [s]	Chronic health	---	<0.05	<0.05	<0.05	≤ 1
Tri-Halomethanes [s]						
Chloroform as CHCl ₃	Chronic health	---	<0.001	<0.001	<0.001	≤ 0.3
Bromodichloromethane as CHBrCl ₂			<0.001	0.001	<0.001	≤ 0.06

Dibromochloromethane as CHBr ₂ Cl	health		<0.001	0.003	<0.001	≤ 0.1
Bromoform as CHBr ₃	Chronic health		0.001	0.002	<0.001	≤ 0.1
	Chronic health					
Phenols (in µg/l)*	Aesthetic	WLAB041	<10	<10	<10	≤ 10
Total Coliform Bacteria / 100 ml *	Operational	WLAB021	0	0	27	≤ 10
E. Coli / 100 ml *	Acute health-1	WLAB021	0	0	0	Not detected
Heterotrophic Plate Count / 1 ml *	Operational	WLAB021	46	<10	15 000	≤ 1 000
Cytopathogenic Viruses / 10 l [s]	Acute health-2	---	Not Detected	Not Detected	Not Detected	Not detected
Protozoan Parasites [s]	Acute health-2	---	Not Detected	Not Detected	Not Detected	Not detected
<i>Cryptosporidium</i> species / 10 l	Acute health-2	---	Not Detected	Not Detected	Not Detected	Not detected
<i>Giardia</i> species / 10 l	Acute health-2	---	Not Detected	Not Detected	Not Detected	Not detected
Somatic Coliphages / 10 ml [s]	Operational	---	Not Detected	Not Detected	Not Detected	Not detected
Free & Saline Ammonia as N *	Aesthetic	WLAB046	<0.2	<0.2	<0.2	≤ 1.5
Analyses continued on next page						

Analyses in mg/l (Unless specified otherwise)	Risk	Method Identification	Sample Identification			SANS 241:2011 (Standard Limits for Potable Water)
			Itsoseng Res	Lichtenburg Res	Mafikeng Pot Final	
Sample Number			10196	10197	10198	
pH – Value at 25°C	Operational	WLAB001	8.0	7.8	8.2	≥ 5 to ≤ 9.7
Electrical Conductivity in mS/m at 25°C	Aesthetic	WLAB002	60.3	62.6	47.5	≤ 170
Total Dissolved Solids at 180°C *	Aesthetic	WLAB027	312	370	266	≤ 1 200
Colour in PtCo Units *	Aesthetic	WLAB006	1	<1	4	≤ 15
Odour in T.O.N *	Aesthetic	WLAB038	<5	<5	<5	Inoffensive
Turbidity in N.T.U	Operational	WLAB005	0.1	0.2	0.9	≤ 1
	Aesthetic					≤ 5

Free Residual Chlorine as Cl ₂ *	Chronic health	WLAB036	0.1	0.4	<0.1	≤ 5
Monochloramine*	Chronic health	WLAB036	0.1	0.4	<0.1	≤ 3
Chloride as Cl *	Aesthetic	WLAB046	12	7	15	≤ 300
Sulphate as SO ₄	Acute health-1	WLAB046	<5	<5	<5	≤ 500
	Aesthetic					≤ 250
Fluoride as F	Chronic health	WLAB014	<0.2	<0.2	<0.2	≤ 1.5
Nitrate as N *	Acute health-1	WLAB046	6.6	6.7	3.0	≤ 11
Nitrite as N *	Acute health-1	WLAB046	<0.1	<0.1	<0.1	≤ 0.9
Free Cyanide as CN (in µg/l) *	Acute health-1	WLAB056	<50	<50	<50	≤ 70
Total Organic Carbon as C [s]	Chronic health	---	1.8	2.0	1.1	≤ 10
Microcystin as LR (in µg/l) [s]	Chronic health	---	<0.05	<0.05	<0.05	≤ 1
Tri-Halomethanes [s]	Chronic health	---	<0.001	<0.001	<0.001	≤ 0.3
Chloroform as CHCl ₃						≤ 0.06
Bromodichloromethane as CHBrCl ₂						≤ 0.1
Dibromochloromethane as CHBr ₂ Cl						≤ 0.1
Bromoform as CHBr ₃	Chronic health		0.001	0.002	<0.001	
Phenols (in µg/l)*	Aesthetic	WLAB041	<10	<10	<10	≤ 10
Total Coliform Bacteria / 100 mℓ *	Operational	WLAB021	0	0	27	≤ 10
E. Coli / 100 mℓ *	Acute health-1	WLAB021	0	0	0	Not detected
Heterotrophic Plate Count / 1 mℓ *	Operational	WLAB021	46	<10	15 000	≤ 1 000
Cytopathogenic Viruses / 10 ℓ [s]	Acute health-2	---	Not Detected	Not Detected	Not Detected	Not detected
Protozoan Parasites [s] <i>Cryptosporidium</i> species / 10 ℓ	Acute health-2	---	Not Detected	Not Detected	Not Detected	Not detected

<i>Giardia</i> species / 10 ℓ	Acute health-2					Not detected
Somatic Coliphages / 10 ml [s]	Operational	---	Not Detected	Not Detected	Not Detected	Not detected
Free & Saline Ammonia as N *	Aesthetic	WLAB046	<0.2	<0.2	<0.2	≤ 1.5
Analyses continued on next page						

Analyses in mg/ℓ (Unless specified otherwise)	Risk	Method Identification	Sample Identification			SANS 241:2011 (Standard Limits for Potable Water)
			Mmabatho Pot Final	Motswedi Final	Ottosdal Dwars Res	
Sample Number			10199	10200	10201	
pH – Value at 25°C	Operational	WLAB001	9.2	8.1	7.9	≥ 5 to ≤ 9.7
Electrical Conductivity in mS/m at 25°C	Aesthetic	WLAB002	79.2	15.0	35.6	≤ 170
Total Dissolved Solids at 180°C *	Aesthetic	WLAB027	422	72	190	≤ 1 200
Colour in PtCo Units *	Aesthetic	WLAB006	4	10	1	≤ 15
Odour in T.O.N *	Aesthetic	WLAB038	<5	<5	<5	Inoffensive
Turbidity in N.T.U	Operational Aesthetic	WLAB005	0.3	1.1	0.2	≤ 1 ≤ 5
Free Residual Chlorine as Cl ₂ *	Chronic health	WLAB036	<0.1	<0.1	<0.1	≤ 5
Monochloramine*	Chronic health	WLAB036	0.1	<0.1	<0.1	≤ 3
Chloride as Cl *	Aesthetic	WLAB046	106	<5	11	≤ 300
Sulphate as SO ₄	Acute health-1 Aesthetic	WLAB046	26	6	8	≤ 500 ≤ 250
Fluoride as F	Chronic health	WLAB014	0.3	0.3	0.2	≤ 1.5
Nitrate as N *	Acute health-1	WLAB046	<0.2	0.5	6.8	≤ 11
Nitrite as N *	Acute health-1	WLAB046	<0.1	<0.1	<0.1	≤ 0.9
Free Cyanide as CN (in µg/l) *	Acute	WLAB056	<50	<50	<50	≤ 70

	health-1					
Total Organic Carbon as C [s]	Chronic health	---	9.4	1.6	1.5	≤ 10
Microcystin as LR (in µg/l) [s]	Chronic health	---	<0.05	<0.05	<0.05	≤ 1
Tri-Halomethanes [s]	Chronic health		0.010	<0.001	<0.001	
Chloroform as CHCl ₃	Chronic health		0.006	<0.001	<0.001	≤ 0.3
Bromodichloromethane as CHBrCl ₂	Chronic health		0.003	<0.001	<0.001	≤ 0.06
Dibromochloromethane as CHBr ₂ Cl	Chronic health	---	<0.001	<0.001	<0.001	≤ 0.1
Bromoform as CHBr ₃	Chronic health					≤ 0.1
Phenols (in µg/l)*	Aesthetic	WLAB041	<10	<10	<10	≤ 10
Total Coliform Bacteria / 100 ml *	Operational	WLAB021	0	0	4	≤ 10
E. Coli / 100 ml *	Acute health-1	WLAB021	0	0	0	Not detected
Heterotrophic Plate Count / 1 ml *	Operational	WLAB021	<10	14 000	2 700	≤ 1 000
Cytopathogenic Viruses / 10 l [s]	Acute health-2	---	Not Detected	Not Detected	Not Detected	Not detected
Protozoan Parasites [s]	Acute health-2					
<i>Cryptosporidium</i> species / 10 l	Acute health-2	---	Not Detected	Not Detected	Not Detected	Not detected
<i>Giardia</i> species / 10 l	Acute health-2					Not detected
Somatic Coliphages / 10 ml [s]	Operational	---	Not Detected	Not Detected	Not Detected	Not detected
Free & Saline Ammonia as N *	Aesthetic	WLAB046	<0.2	<0.2	<0.2	≤ 1.5

Analyses continued on next page

Analyses in mg/l (Unless specified otherwise)	Risk	Method Identification	Sample Identification:			SANS 241:20 (Standard Limits for Potable Water)
			Mmabatho Pot Final	Motswedi Final	Ottosdal Dwars Res	
Sample Number			10199	10200	10201	
Sodium as Na	Aesthetic	WLAB015	77	5	26	≤ 200
Potassium as K	---	WLAB015	10.9	3.2	<1.0	---

Calcium as Ca	---	WLAB015	14	12	31	---
Magnesium as Mg	---	WLAB015	68	10	16	---
Aluminium as Al (in µg/l)	Operational	WLAB015	105	<100	<100	≤ 300
Antimony as Sb (in µg/l) *	Chronic health	WLAB015	<10	<10	<10	≤ 20
Arsenic as As (in µg/l) *	Chronic health	WLAB015	<10	<10	<10	≤ 10
Cadmium as Cd (in µg/l) *	Chronic health	WLAB015	<3	<3	<3	≤ 3
Total Chromium as Cr (in µg/l)	Chronic health	WLAB015	<25	<25	<25	≤ 50
Cobalt as Co (in µg/l)	Chronic health	WLAB015	<25	<25	<25	≤ 500
Copper as Cu (in µg/l)	Chronic health	WLAB015	<25	<25	<25	≤ 2 000
Iron as Fe (in µg/l)	Chronic health	WLAB015	<25	31	<25	≤ 2 000
	Aesthetic					≤ 300
Lead as Pb (in µg/l) *	Chronic health	WLAB015	<10	<10	<10	≤ 10
Manganese as Mn (in µg/l)	Chronic health	WLAB015	<25	<25	<25	≤ 500
	Aesthetic					≤ 100
Mercury as Hg (in µg/l) *	Chronic health	WLAB047	<1	<1	<1	≤ 6
Nickel as Ni (in µg/l)	Chronic health	WLAB015	<25	<25	<25	≤ 70
Selenium as Se (in µg/l) *	Chronic health	WLAB015	<10	<10	<10	≤ 10
Uranium as U (in µg/l) *	Chronic health	WLAB015	<10	<10	<10	≤ 15
Vanadium as V (in µg/l) *	Chronic health	WLAB015	28	<25	29	≤ 200
Zinc as Zn	Aesthetic	WLAB015	<0.025	<0.025	0.067	≤ 5
% Balancing	---	---	95.9	97.5	95.6	---

Green Drop

The Green Drop certification applies to the management of the municipality wastewater systems, it encourages proper discharge of wastewater and ensures the release in the manner that is sustainable and environmentally acceptable.

South Africa is immeasurable when it comes to wastewater. The majority of wastewater final effluent is being disposed to the rivers, lakes and dams for re- use after the course of action and treatment. The Green Drop Certification programme was implemented to oversee the concerns and issues raised for non compliance of the treatment requirements which helps control poor quality effluents. The Green Drop Certificate assists with regards to the test process, it verifies and acknowledges

the best practices and provides a benchmark for municipal wastewater management and practitioners setting a framework.

The criteria must meet the following requirements:

1. Process controllers
2. wastewater quality monitoring and compliance
3. wastewater sample analysis
4. submission of wastewater quality results
5. management of wastewater quality failures/ incident management protocol
6. storm-water management
7. by-laws
8. wastewater treatment plant design and capacity
9. publication of wastewater quality performance
10. wastewater asset management

The Green Drop certificate is awarded to municipalities that meet the requirements with 90% on average for wastewater management.

The certification implies first-rate wastewater management and an admiration for the environment and the health of the community

The Green Drop/ Wastewater process

Basic Model of a Wastewater treatment plant

Activated Microbial Sludge Treatment Process

Your House
Sink/Toilet/Bath



Raw
Wastewater



Grid/Screen

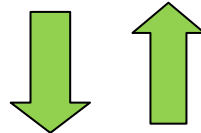


Primary Settling
Tanks (PST)



Anaerobic Stage
Tanks

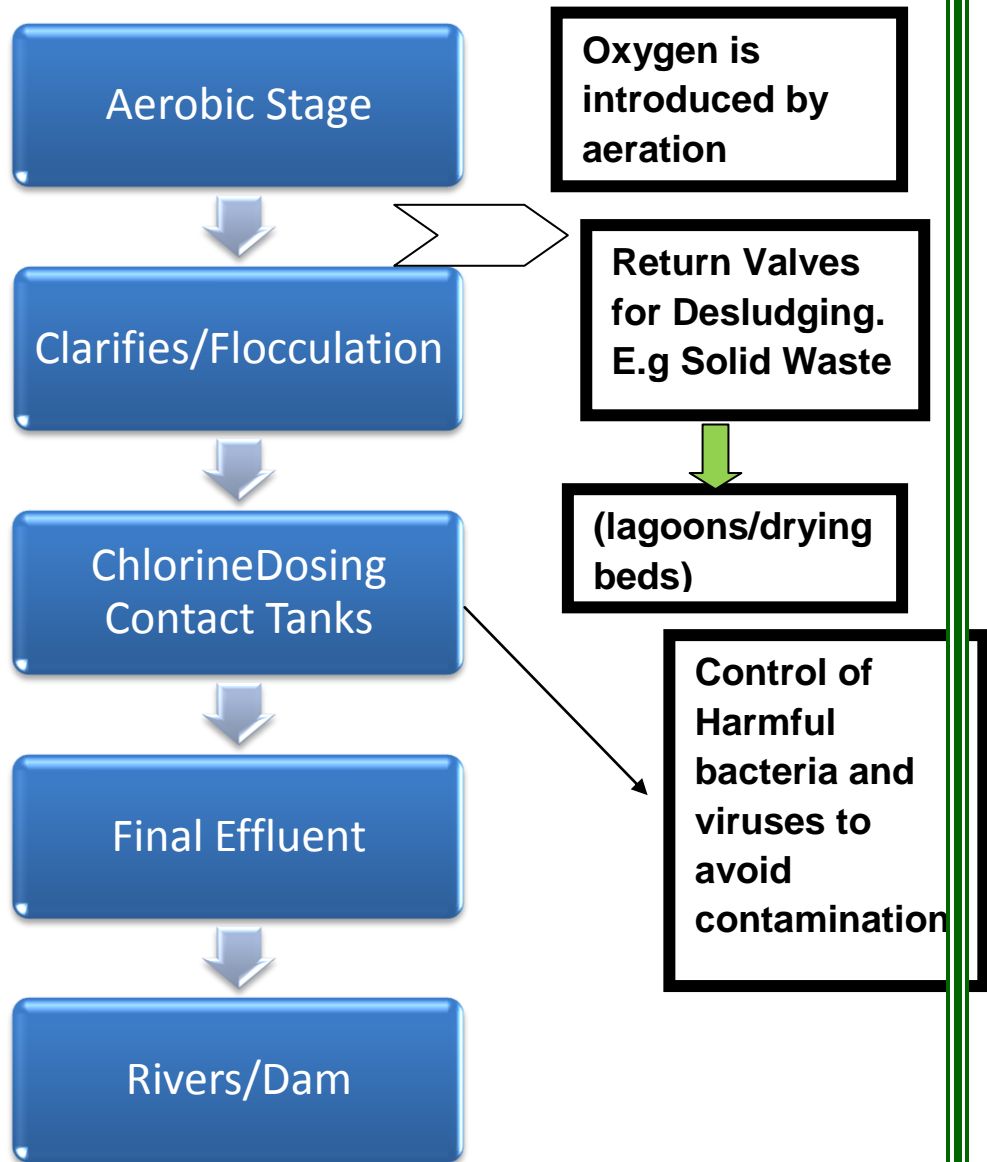
**There is
no activity
of oxygen.**



**Denitrification process
where Ammonia is
converted to Nitrites-
Nitrates**

MICROORGANISM ACT AS THE HOST AND CATALYST.





For any enquiries on the above information please Contact:

Technical Department: Water Services

Contact: Phemelo Mosweusweu

Tell: 018 392 1816/ 1720

Email: mosweusweup@nmmdm.gov.za

For any other enquiries relating to Customer care:

Water and Sanitation

These include pipe burst, water supply interruption, payments for yard connections and water and sanitation related complains- Please contact:

Ms. Kegomoditswe Makgwa or Mr. Victor Tawana at 018 381 9400