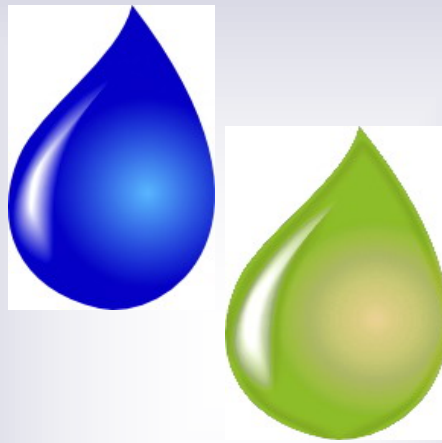


# Water Quality Regulation

A STRATEGY FOR INCENTIVE-BASED REGULATION  
BLUE & GREEN DROP CERTIFICATION



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September 2008

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## **1. BACKGROUND**

The Minister of the Department of Water Affairs and Forestry has stated on various occasions that she has a high level of confidence in the way drinking water quality is managed by various municipalities. However, the general public is not aware of the basis of this confidence. To facilitate a more transparent way of reporting, it is proposed that a method of awarding Water Services Authorities with Blue and/or Green Drop status if they are compliant with drinking water and wastewater legislative and other best practice requirements is implemented. In this way, the Department of Water Affairs and Forestry is promoting incentive-based regulation and acknowledging excellence in drinking and wastewater quality management.

Blue and Green Drop status will also provide the citizen's with credible information on the confidence that DWAF, the Regulator, has in drinking water and wastewater management within the various Water Services Authorities.

Water Services Authorities which have been awarded the prestigious Blue and/or Green Drop status can use this status to market their towns to both its citizens and tourists. A sign or flag indicating that the town has Blue or Green Drop status will allow consumers to drink water from the taps in the town with confidence, and be secure in the knowledge that wastewater is managed and discharged in a sustainable, environmentally-acceptable manner. In towns which have not yet been awarded Blue Drop, it should not be perceived that the water is unsafe for human consumption but rather that the manner in which drinking water quality is being managed still requires improvement. The Department will also ensure that health failures are communicated to the public at a regular frequency.

A Red Drop (drinking water) and a Purple Drop (wastewater) will also be introduced and issued to Water Services Authorities who fail to adhere to the regulatory requirements for rectification of failures as part of the Enforcement Protocol.

## **2. CRITERIA FOR AWARDING BLUE DROP (DRINKING WATER) STATUS:**

The DWAF Drinking Water Quality Regulation Unit will continuously assess Water Services Authority performance in its entire area of jurisdiction.

Water Services Authorities that are to be awarded Blue Drop status are required to comply with 95% the weighted criteria in the biannual assessment (see Table 1). Evaluation will be per drinking water services system (from catchment to consumer) and will be aggregated for each Water Services Authority. Increasingly comprehensive and stringent criteria (from year 1 to year 3 and ongoing) are applied to facilitate an incremental and continuous improvement approach to drinking water management practices.

The Water Services Authority responsible for the provision of water is required to ensure that the following criteria are met in each drinking water services system:

1. **Water Safety and Security Plans:** Comprehensive, preventative drinking water quality management must be practiced according to a Water Safety and Security Plan for the drinking water supply system. The Water Safety and Security Plan must be reviewed at least every 3 years.
2. **Process Controllers:** The water works and Process Controllers are required to be registered according to the relevant legislation (*Revised Regulation 17 of the Water Services Act (No. 108 of 1997) / Regulation 2834 under the Water Act of 1956; 1985 Requirements*) and the Process Controllers must be licensed according to the Class of water treatment works. The water treatment works must have a site-specific Operator's Manual to guide Process Controllers.
3. **Drinking Water Quality Monitoring:** A suitable monitoring programme, in accordance with the requirements of the latest version of SANS 241 Drinking Water, is required to be implemented to sample the quality of potable water supplied to citizens in their drinking water services system -
  - ❖ This monitoring programme, and any amendments, must be registered with, and approved by, the Department of Water Affairs and Forestry;
  - ❖ This monitoring programme must be representative of a minimum of 80% of the population served in the town and/or the volume of water supplied;
  - ❖ Samples must be taken and analysed according to the monitoring programme;
  - ❖ Both operational and compliance monitoring are required to be undertaken.
4. **Drinking Water Sample Analysis:** The samples are required to be analysed in laboratories which are either ISO/IEC 17025: 2005 accredited or are DWAF-approved per method of analysis as defined in the Department of Water Affairs and Forestry *Drinking Water Quality Laboratory Strategy*.
5. **Submission of Drinking Water Quality Results:** All results from the monitoring programme must be submitted to the Department of Water Affairs and Forestry at a monthly frequency, or on request from the Department of Water Affairs and Forestry.
6. **Drinking Water Quality Compliance:** The results of the water quality monitoring programme must comply with the requirements of the latest version of SANS 241: Drinking Water. The water supplied in the drinking water services system must be classified as EXCELLENT according to the latest version of SANS 241.
7. **Management of Drinking Water Quality Failures:**

- (a) An Incident Management Protocol must exist to guide the Water Services Authority's response to resolution and communication of drinking water quality failures (failures as defined according to the latest version of SANS 241: Drinking Water).
- (b) This protocol must ensure that the Water Services Authority:
- ❖ Informs the Director-General of the Department of Water Affairs and Forestry and the head of the relevant Provincial Department of Health within 24 hours of result confirmation.
  - ❖ Informs its consumers -
    - (a) that the quality of the water that it supplies poses a health risk;
    - (b) of the reasons for the health risk;
    - (c) of any precautions to be taken by the consumers; and
    - (d) of the time frame within which it may be expected that water of a safe quality will be provided.
8. **Publication of Drinking Water Quality Performance:** Drinking water quality performance must be reported against the latest version of SANS 241 Drinking Water and published at an annual frequency in suitable media accessible to relevant stakeholders.
9. **Drinking Water Asset Management:** Water treatment processes and infrastructure are required to be managed to ensure the production of safe drinking water for the protection of public health, including -
- ❖ a process audit of the water works every year;
  - ❖ an Asset Management inspection of the drinking water supply system by an Approved Professional Person every 5 years;
  - ❖ an assessment of the water treatment works design and operating capacity;
  - ❖ use of drinking water treatment chemicals registered with the Department of Health/Department of Water Affairs and Forestry.

**Table 1: Weighting of required Drinking Water criteria**

	Criterion	Allocated Weight (%)*		
		YEAR 1	YEAR 2	YEAR 3+
1	Water Safety and Security Plan	0	5	10
2	Process Controllers	10	10	10
3	Drinking Water Quality Monitoring Programme	20	15	10
4	Drinking Water Quality Sample Analysis	10	5	5
5	Submission of Drinking Water Quality Results	10	5	5
6	Drinking Water Quality Compliance	30	30	30
7	Management of Drinking Water Quality Failures	20	15	15
8	Publication of Drinking Water Quality Performance	0	5	5
9	Drinking Water Asset Management	0	10	10
		100	100	100

\* Weights per criterion are subject to change

The scoring of the weighted criteria will be as follows:

- ❖ 0 if the criterion has not been met;
- ❖ 1 for partial fulfillment of the criterion, and
- ❖ 2 for full compliance with the requirements of the criterion.

### 3. CRITERIA FOR AWARDING RED DROP (DRINKING WATER) STATUS:

A Red Drop will be awarded to Water Services Authorities which have entered into Phase B of the *DWAF Enforcement Protocol for Organs of State*, indicating continued, serious non-compliance despite intervention efforts made by DWAF.

Red Drop status will be awarded in situations where the Water Services Authority has shown no or very limited intention to improve drinking water quality management practices, with resultant significant impacts on public health, and would include continued gross negligence and incompetence relating to the treatment and distribution of drinking water.

### 4. CRITERIA FOR AWARDING GREEN DROP (WASTEWATER) STATUS:

Water Services Authorities that are to be awarded GREEN DROP status are required to comply with 90% the weighted criteria in a biannual assessment (see Table 2). Evaluation will be per wastewater services system (including collection, treatment and discharge) and aggregated for each Water Services Authority. Increasingly comprehensive and stringent criteria (from year 1 to year 3 and ongoing) are applied to facilitate an incremental and continuous improvement approach to wastewater management practices.

The Water Services Authority responsible for the collection, treatment and discharge of wastewater is required to ensure that the following criteria are met in each wastewater services system:

1. **Process Controllers:** The wastewater treatment works (WWTW) and Process Controllers are required to be registered according to the relevant legislation *Revised Regulation 17 of the Water Services Act (No. 108 of 1997) / Regulation 2834 under the Water Act of 1956; 1985 Requirements*) and the Process Controllers must be licensed according to the Class of wastewater treatment works. The wastewater treatment works must have a site-specific Operator's Manual to guide Process Controllers.
2. **Wastewater Quality Monitoring:** A suitable wastewater monitoring programme, in accordance with the requirements of the General Authorisation or the site-specific permit/license, must be implemented. This monitoring programme should take account of the entire wastewater treatment process and should include trade effluent, influent, wastewater treatment process, discharged effluent, sludge/biosolids, groundwater, soils, and rivers up- and downstream of the discharge. This monitoring programme, and any

amendments, must be registered with, and approved by, the Department of Water Affairs and Forestry. Samples must be taken and analysed according to the monitoring programme, and this information must inform and result in the required process changes.

3. **Wastewater Sample Analysis:** The samples are required to be analysed in laboratories which are either ISO/IEC 17025: 2005 accredited or are DWAF-approved per method of analysis as defined in the Department of Water Affairs and Forestry *Drinking Water Quality Laboratory Strategy*.
4. **Submission of Wastewater Quality Results:** All results from the monitoring programme must be submitted to the Department of Water Affairs and Forestry at a monthly frequency, or on request from the Department of Water Affairs and Forestry.
5. **Wastewater Quality Compliance:** A minimum of 95% of the results of the wastewater quality monitoring programme must comply with the requirements of the General Authorisation or the site-specific permit/license (including exemptions, General or Special Standard as specified).
6. **Management of Wastewater Quality Failures:**
  - (a) An Incident Management Protocol is required to guide the Water Services Authority's response to wastewater quality failures. A wastewater quality failure is defined as any exceedance of or deviation from the General Authorisation requirements (General or Special Limits) or of the site-specific permit/license requirements (Exemptions, General or Special Standard limits as specified).
  - (b) This protocol must ensure that the Water Services Authority informs the Regional Office of the Department of Water Affairs and Forestry within 3 days of confirmed wastewater failures.
7. **Stormwater Management:** The Water Services Authority must ensure that a Stormwater Management Plan is in place and implemented to limit stormwater infiltration to wastewater reticulation systems.
8. **Bylaws:** Municipal Water Services Bylaws are required to be updated every 5 years and enforced. The bylaws must include information on pertinent wastewater issues such as trade effluent standards, tariffs, package plants, approval of decentralized systems, vacuum tank discharges and spillages to the environment, amongst others.
9. **Wastewater Treatment Works Capacity:** The Water Services Authority must, at any time, be able to produce a planning account that represents the design (flow and organic) capacity and actual receiving flows at the wastewater treatment works. The planning account must reflect medium-long term planning and financial requirements to ensure sufficient capacity at the wastewater treatment works. The Water Services Authority must, at all times,

be able to produce necessary documentation to verify that all residential and industrial developments have been approved subject to available wastewater treatment works capacity.

10. **Publication of Wastewater Quality Performance:** Wastewater quality performance must be reported, in accordance with the requirements of the General Authorisation or the site-specific permit/license, and published at an annual frequency in suitable media accessible to relevant stakeholders.
11. **Wastewater Asset Management:** The management of wastewater treatment processes and infrastructure is required to ensure the discharge of compliant effluent for the protection of water resources and the environment, including -
  - ❖ a process audit of the wastewater treatment works every year;
  - ❖ a detailed inventory of assets related to wastewater reticulation and treatment;
  - ❖ an Asset Management inspection of the wastewater works by an Approved Professional Person every 5 years, as part of the Comprehensive Infrastructure Plan (CIP).

Table 2: Weighting of required wastewater criteria

	Criterion	Allocated Weight (%)*		
		YEAR 1	YEAR 2	YEAR 3+
1	Process Controllers	10	10	10
2	Wastewater Quality Monitoring Programme	10	10	10
3	Wastewater Quality Sample Analysis	10	5	5
4	Submission of Wastewater Quality Results	10	10	10
5	Wastewater Quality Compliance	35	30	25
6	Management of Wastewater Quality Failures	20	10	10
7	Stormwater Management	0	0	5
8	Bylaws	0	5	5
9	Wastewater Treatment Works Capacity	5	5	5
10	Publication of Wastewater Quality Performance	0	5	5
11	Wastewater Asset Management	0	10	10
		100	100	100

\* Weights per criterion are subject to change

The scoring of the weighted criteria will be as follows:

- ❖ 0 if the criterion has not been met;
- ❖ 1 for partial fulfillment of the criterion, and
- ❖ 2 for full compliance with the requirements of the criterion.

## 5. CRITERIA FOR AWARDING PURPLE DROP (WASTEWATER) STATUS:

A Purple Drop will be awarded to Water Services Authorities which have not rectified a wastewater failure after 21 days of entering Phase B of the *DWAF Enforcement*

*Protocol for Organs of State*, indicating continued, serious non-compliance despite intervention efforts made by DWAF.

Purple Drop status will be awarded in situations where the Water Services Authority has shown no or very limited intention to improve wastewater quality management practices, with resultant significant impacts on the receiving environment, and would include continued gross negligence and incompetence relating to the treatment and discharge of wastewater.

## **6. IMPLEMENTATION**

### **6.1 CERTIFICATION PROCESS**

Blue and/or Green Drop status will be awarded per Water Services Authority, with information provided and evaluated per drinking water and wastewater services system. There will be biannual reporting of all Water Services Authorities Drinking Water Quality Management Status. This reporting will be aligned to World Water Monitoring Day (18 October) and the WISA/ DWAF Drinking Water Quality conference in May each year.

All Water Services Authorities are required to participate in this certification process. The onus will be on the relevant Water Services Authority to ensure that DWAF is furnished with relevant documentation to prove compliance with each criterion, 90 days prior to the reporting date. DWAF may use additional information from the electronic Water Quality Management System (eWQMS) as well as the DWAF Water Quality Regulatory System to verify findings. DWAF may also request additional information from Water Services Authorities.

DWAF will present a draft report to each Water Services Authority on their Blue and/or Green Drop Barometer score 30 days prior to the reporting date, in which period the Water Services Authority may object to the score, should valid grounds exist for objection.

Criteria are subjected to change (additions or weighting amendments) according to pre-communicated recommendations by the Department of Water Affairs and Forestry.

All Water Services Authorities drinking water and wastewater services system scoring 80% and above will be assessed by an independent Advisory Committee to validate the score. The Advisory Committee will be appointed with a set terms of reference, and will include representatives from DWAF Water Services Regulation, DWAF Regional Offices and subject matter experts.

A Water Services Authority with drinking water or wastewater services systems qualifying for Blue or Green Drop Certification status will formally receive acknowledgement from the Minister of Water Affairs and Forestry and permission will be granted to display a flag/plaque (according to official design) on the Blue or Green Drop Certification status. This will also allow using the Blue or Green Drop

Certification status in the marketing of a town or city for tourism and economic purposes. DWAF will also encourage Water Services Authorities to acknowledge key personnel who were instrumental in achieving Blue and/or Green Drop status.

Even when a Blue or Green Drop Certification has been granted to a services system, DWAF will continue to monitor drinking water and wastewater quality management performance in these systems. This will ensure that:

- ❖ On an annual basis, a Blue and/or Green Drop services system will receive a certificate of reconfirmation of status;
- ❖ Should there be a decline in Drinking Water Quality performance, the Minister will withdraw the Blue and/or Green Drop Certification status of the services system. This will be reported in the Blue Drop and Green Certification reports.

A single major failure in drinking water or wastewater quality will not necessarily result in the cancellation of Blue or Green Drop status. This will depend on:

- ❖ The Water Services Authority's compliance with the Incident Management Protocol during the failure (which includes the effective communication of the failure to the authorities and affected communities;
- ❖ The annual compliance of drinking water services system against the latest version of SANS 241: Drinking Water and the classification of the water, or
- ❖ The annual compliance if the wastewater services system against the requirements of the General Authorisation or the site-specific permit/license.

### **Water Services Authorities versus Providers**

While it is acknowledged that the treatment and provision of safe drinking water from catchment to consumer, and the collection, treatment and discharge of acceptable wastewater is a multi-stakeholder process, DWAF will award the Blue and/or Green Drop status to the Water Services Authority responsible for these services as specified in the Water Services Act.

Water Services Authorities will be required to work with their Water Services Providers to ensure compliance to the required criteria and may choose to include these criteria in their contract with the Water Services Provider. DWAF will encourage Water Services Authorities to acknowledge the role of their Water Services Providers in achieving Blue and/or Green Drop status.

## **6.2 REPORTING OF BLUE AND GREEN DROP CERTIFICATION**

The reporting of Blue and Green Drop Certification will be as follows:

- ❖ In barometer format detailing compliance status as measured against all applicable criteria set at the time of evaluation. Information will be provided per services system and aggregated to show a single barometer score per Water Services Authority. This will ensure that the public are informed on performance per criterion per services system, and how far from blue or green drop status the uncertified municipalities are.
- ❖ Services systems achieving full compliance (a score of 2) on the drinking water quality compliance criterion (Criterion 6) or wastewater quality compliance criterion (Criterion 5) will receive acknowledgement of this in an addendum to the barometer report, regardless of the compliance with other required criteria. This acknowledgement will inform the public that despite the Water Services Authority experiencing challenges with some of the requirements of the certification programme, the drinking water supplied is of excellent quality and the wastewater is treated to acceptable standards.
- ❖ An addendum to the barometer report will indicate specific areas (per registered monitoring point) where continued/recurring health-related drinking water failures are recorded. Affected communities will thus be informed of poor quality water reticulated in the area they residing, as well as where boil water advisories have been issued.
- ❖ Water Services Authorities will be given the opportunity to inform the Department on the Water Quality Regulation System of interventions planned or underway to resolve failures and rectify the situation. These interventions will be reported in the Blue and Green Drop Certification Addendum Report.

The Blue and Green Drop Certification Barometer score will be published on:

- ❖ A dedicated Drinking Water Quality webpage on the DWAF website;
- ❖ National media, and
- ❖ Tourism publications.

The publication on the DWAF webpage will list Water Services Authorities with services systems qualifying for Blue and/or Green Drop Certification status, as well as those which have received a Red or Purple Drop.