

ANNEXURE A: Blue Drop Requirements for 2014

2014 BLUE DROP REQUIREMENTS		
(1) WATER SAFETY PLANNING 35%	(1.1) WATER SAFETY PLANNING PROCESS (10%)	<p>a)The Water Safety Planning Process is steered by a group of people which includes the technical, financial and management staff of the municipality. Where a Water Services Provider arrangement exist the WSA and Water Services Provider should partake in this process</p> <p>b)There should be clear indication that the Water Services Institution conducted a water safety planning process and not only drafted a document</p> <p>c) There should be clear reference to the specific water supply system at hand and not only global risk management measurements put in place</p>
	(1.2) RISK ASSESSMENT (35%)	<p>a) The Risk Assessment must cover catchment, treatment and reticulation</p> <p>b)The Water Services Institution (WSI) must provide information on findings of the Risk Assessment (and detail Risk Prioritisation method followed) for the specific water supply system including water resource quality. Format not important but it should be proven not to be a desktop study</p> <p>c)The Water Safety Planning process must include (adequate) Control Measures for each significant hazard or hazardous event identified</p> <p>d)A Water Quality Analyses conducted for at least 95% of the SANS 241 list of determinands (min 80%) (SANS 241). This is to verify whether treatment technology is adequate to treat the raw water to comply with national standard limits</p> <p>e)The WSI to proof implementation of mitigation measures from previous Water Safety Plans</p>
	(1.3) MONITORING PROGRAMME (30%)	<p>a) Prove Operational Monitoring is:</p> <ul style="list-style-type: none"> i) Informed by the Risk Assessment ii) Required sites to monitor: Raw water, after filtration (per process unit) and final water iii) Determinands (minimum): pH, turbidity and disinfectant residual iv) Frequency of analyses: at least every 8 hours v) Equipment used + calibration records <p>b) Prove Compliance Monitoring is:</p> <ul style="list-style-type: none"> i) Informed by the Risk Assessment and SANS 241 compliant ii) Monitoring programme is registered on BDS iii) Actual monitoring occur according to registered BDS monitoring programme (>80%) iv) Required sites to monitor: Water works final & distribution network + Frequency of analyses: Water works final according SANS 241; distribution network according SANS 241 v) Coverage of population served must at least be 80%
	(1.4) CREDIBILITY of DWQ DATA (15%)	<p>a) Certificate of Accreditation for applicable methods OR Z-scores results (z-scores must be ≥ -2 & ≤ 2 are acceptable) in a recognised Proficiency Testing Scheme</p> <p>b)DWQ Data credibility on the BDS (Blue Drop Certified Data)</p>
	(1.5) INCIDENT MANAGEMENT (10%)	<p>a)Protocol to specify:</p> <ol style="list-style-type: none"> 1) Alert levels 2) Response times 3) Required actions 4) Roles & responsibilities 5) Communication vehicles/methods and 6) Must include response on possible risks identified in the Risk Assessment of the Water Safety Planning process <p>b)Incident Register to include:</p> <ol style="list-style-type: none"> 7) Date, location and description of incident 8) Action taken and date of resolution

		9) Outcome of cause investigation
	BONUS (1):Sampler's Training	To be eligible for this bonus, WSI's must provide proof of training of samplers or Sampling Quality Control measures (Name the Sampling Training Course, Duration, Service Provider, and detail of Attendees) 1) Evidence of relevant sampling training that will ensure credibility of the sampling process; or 2)Evidence of control measures to ensure sampling credibility
	BONUS (2):Incident Management Protocol Communication	Communication on the Incident Management Protocol process with all relevant staff within the Municipality
(2) DWQ PROCESS MANAGE- MENT & CONTROL 8%	(2.1) WORKS CLASSIFICATION COMPLIANCE (15%)	Treatment works classified according the requirements of Regulation 2834- <u>ONLY</u> the classification as it appears on BDS will be used. Supporting evidence to allow the correct classification to be loaded on BDS, Water Services Institutions remains accountable for correctness of information / classification Certificate to be displayed at treatment works (<i>confirmed during on-site assessments</i>)
	(2.2) PROCESS CONTROL REGISTRATION COMPLIANCE (50%)	a)Process Control Staff must be Registered according to Regulation 2834 with the Department of Water Affairs. Water Services Institutions to prove per treatment works that Process Control Staff complies with the legislative requirements of: i) Number of Process Controllers' ii) Complying with the required Classification levels b) The Supervisor must comply with legislative requirements Information as it appears on BDS will be used <u>ONLY</u> , WSI's to ensure correct classification of all staff per treatment plant
	(2.3) WATER TREATMENT WORKS' LOGBOOK (35%)	a) A logbook is in place to record all incidents and observations at the water treatment works b) Evidence is presented that the logbook process is (i.e. communication medium between process controllers and shifts) being implemented (It is NOT required to be implemented for the entire assessment period)
	BONUS (1):Process Control Training	Proof of Process Control staff being subjected to relevant training the past 12 months to allow Process Controllers to meet the education requirements towards higher level draft Regulation 813 Registration (Year 2013)
	BONUS (2):Process Control Excellence	a) Process Control Staff classified according the requirements of draft Regulation 813 on the Blue Drop System b) Process Control Staff and Supervisor compliance confirmed against draft Regulation 813 (must comply at least 75% in each of the shifts)- WSI must indicate shift patterns and Supervisor on BDS. WSI to explain measures in place when a shift does not comply with regulatory process control requirements c) WSI must indicate process controllers and/or supervisors that are 'shared' across different plants/sites
Water Quality Data Period – 1 January 2013 – 31 December 2013		
(3) DRINKING WATER QUALITY VERIFICATION	(3.1.1) MICROBIOLOGICAL DWQ COMPLIANCE(50%)	The Microbiological Quality of the water supply must comply with the South African National Standard (specifically, the 2014 Blue Drop Limits which have been derived from SANS241: 2006 and 2011) as per the Excellent Requirements set by the Blue Drop Programme (<i>E coli</i>) - Excellent Compliance (97% for <100 000 population) & (99% for >100 000 population)
	(3.1.2) CHEMICAL DWQ COMPLIANCE (45%)	The Chemical Quality of the water supply must comply with the Excellent Requirements set by the Blue Drop Programme for all chemical-health determinands listed in the South African National Standard (the 2014 Blue Drop Limits, derived from SANS241: 2006 and 2011)

30%		Chemical – Health (Acute and Chronic): - Excellent Compliance (95% for <100 000 population) & (97% for >100 000 population) - Good Compliance (93% for <100 000 population) & (95% for >100 000 population)
	(3.1.3) OPERATIONAL COMPLIANCE (5%)	The compliance of operational determinands must comply with the 2014 Blue Drop Excellent Limits set by the Blue Drop Programme - Excellent Compliance (93% for <100 000 population & 95% for >100 000 population) - Good Compliance (90% for <100 000 population & 93% for >100 000 population)
	BONUS (1):Aesthetic DWQ Compliance	The Aesthetic Quality of the water supply must comply with the Excellent Requirements set by the Blue Drop Programme for all aesthetic determinands listed in the 2014 Blue Drop Limits - Excellent Compliance (93% for <100 000 population & 95% for >100 000 population) - Good Compliance (90% for <100 000 population & 93% for >100 000 population)
	PENALTY (1):Data Difference	Should there be a difference between data available on BDS and that which is presented in hardcopy for verification the penalty will apply
	PENALTY (2):<11 Months' Data	Less than 11 months data available to assess Microbiological and Chemical compliance
	PENALTY (3):Notification of Failure	If there is any significant (sustained) failure with no evidence of a Water Quality Alert Notice (Boil Water Notice) being issued, this penalty will apply. NB! This may have an implication on qualification for certification
(4) MANAGE- MENT, ACCOUNTA- BILITY, & LOCAL REGULATION 10%	(4.1) MANAGEMENT COMMITMENT (30%)	Management's commitment to effective Drinking Water Quality Operations & Management should be portrayed by Proof of signature approval of the: a) Water Safety Plan b) DWQ Monitoring Programme c) Water Treatment Plant Logbook d) Operations and Maintenance Budget e) Water Services Development Plan
	(4.2) PUBLICATION OF PERFORMANCE (25%)	Evidence should be provided on the various means of drinking water quality information made public to the constituencies supplied with drinking water from this specific water supply system Forms of Publication: >Newspaper publication >Municipal Billing >Community Radio >Annual Report >Posters & Pamphlets >Population and Promotion of "My Water" >Electronic Webpage Water Services Institutions must provide evidence of adequate marketing of Existing Blue Drop Certified water supply systems
	(4.3) SERVICE LEVEL AGREEMENT/ PERFORMANCE AGREEMENT (15%)	Should there be an institutional arrangement between the Water Services Authority and the Water Services Provider, then it is essential that the legislatively required contract (Section 19 of the Water Services Act) stipulate the Service Level Agreements between the two entities. A copy of this document is required, OR Should the Water Services Authority fulfil the function of Water Services Provider as per Section 78 arrangements, then it is required that the responsible manager (official) have a Performance Agreement (Workplan) in place which stipulates Drinking Water Quality Management Responsibilities
	(4.4) SUBMISSION OF	a) 12 months of data had been submitted on the Blue Drop System (BDS)(DWA will only consider data available on the BDS)

	DWQ DATA (30%)	<p>b)All compliance monitoring test results are required to be submitted</p> <p>c)As per a requirement of the Water Services Act, compliance data submission occurred monthly (Section 62 of the Water Services Act, Section 9 Regulations) (measured as BDS submission compliance)</p>
	BONUS (1): Publication of Performance	Availing information on Drinking Water to relevant public in 3 or more forms listed
	BONUS (2): Performance Agreement	Workplans of Process Controllers aligned to Operations and Maintenance Manual
	BONUS (3): Procurement processes	Proof that systems are in place to not run short of Chemicals & Consumables required for treatment
	PENALTY:Submission of DWQ Data	Penalty will apply should the Department find proof during / post assessment that the WSI are guilty of an offence as per Section 82 of the Water Services Act, by only submitting partial information in order to present a false impression of DWQ Performance and/or compliance
(5) ASSET MANAGEMENT 14%	(5.1) ANNUAL PROCESS AUDIT(20%)	<p>Process Audit Report on technical inspection/assessment of treatment facility and evidence of implementation of findings</p> <p>This process assessment should've been done within the 12-month assessment period</p>
	(5.2) ASSET REGISTER (15%)	<p>The Institution must present a complete Asset Register. The asset register must:</p> <p>a) Detail relevant equipment and infrastructure</p> <p>b) Indicate asset description</p> <p>c) Location</p> <p>d)Condition (remaining life)</p> <p>e) Replacement value</p>
	(5.3) AVAILABILITY & COMPETENCE of MAINTENANCE TEAM (15%)	<p>a)The Institution must present evidence of a competent Maintenance Team (in form of Organogram; Contract or Invoice). Logbook with maintenance entries will serve as adequate evidence (for Mechanical, Electrical, Instrumentation and Civil work)</p> <p>b)Additional prove required on team competency (e.g. Qualification & Experience & Trade-test)</p>
	(5.4) OPERATIONS & MAINTENANCE MANUAL(15%)	<p>O&M manual to contain:</p> <p>a)Civil, mechanical, electrical detail / drawings of plant</p> <p>b) Design capacity of plant</p> <p>c) Operational schedules, maintenance schedules</p> <p>d)Process detail and control</p> <p>e)Mechanical and electrical equipment specification</p> <p>f)Fault finding</p> <p>g)Monitoring</p>
	(5.5) OPERATIONS & MAINTENANCE BUDGET and EXPENDITURE (20%)	<p>The Institution must present credible evidence of:</p> <p>a) Maintenance Budget (as part of Operations Budget)</p> <p>b) Maintenance Expenditure (as part of the Operations Expenditure)</p> <p>c)Maintenance Expenditure should be more than 5% of the Operations Expenditure in Total for the preceding Financial Year</p> <p><u>Financial expenditure to apply as per Municipal Budget Year: Jul 2012 to Jun 2013</u></p>
	(5.6) DESIGN CAPACITY vs. OPERATIONAL CAPACITY(15%)	<p>Proof to be submitted of the documented design capacity and documented daily operating capacity over the past 12 months</p> <p>Groundwater dependant systems must have an acceptable plan which stipulates abstraction patterns that will prevent aquifer damage</p> <p>Flow meters must be calibrated at least annually</p>
Blue Drop Requirements= TOTAL 97%		

2014 NO DROP REQUIREMENTS (Water use efficiency)

<p style="font-size: 24px; color: #0056b3; margin: 0;">(6)</p> <p style="font-weight: bold; margin: 0;">WATER USE EFFICIENCY & WATER LOSS MANAGEMENT</p> <p style="font-size: 24px; color: #0056b3; margin: 0;">3%</p>	<p style="color: #c00000; font-weight: bold; margin: 0;">(6.1)</p> <p style="font-weight: bold; margin: 0;">WATER BALANCE(30%)</p>	<p>Provide MONTHLY and ANNUAL composite IWA water balance diagrams and supporting documents for the complete system as part of the water audit (as a component in the WSDP) as per Regulation 509 of 2001 Clause 10 of the Water Supply Regulations. Balance diagram to specify as a minimum the main components of the IWA balance including Water Losses broken down into:</p> <ul style="list-style-type: none"> a) System input volumes b) Billed metered and unmetered usage c) Unbilled Authorised Consumption d) Water losses broken down into Real and Apparent Losses e) Free Basic Water, and f) Non Revenue Water <p>and to be supported by a schematic showing bulk meters, zones and main infrastructure components</p> <p><i>Note: WSI's to ensure that units are clearly indicated against numeric values in water balance (e.g. 100 kl/annum, 50 m³/day, etc)</i></p>																																			
	<p style="color: #c00000; font-weight: bold; margin: 0;">(6.2)</p> <p style="font-weight: bold; margin: 0;">WDM STRATEGY and BUSINESS PLAN and IMPLEMENTATION (30%)</p>	<ul style="list-style-type: none"> a) Evidence must be provided of a Council approved WDM strategy and business plan consisting of at least the following: <ul style="list-style-type: none"> - Background and Context - Situation Assessment including a Needs Statement - Key Issues and Challenges - Focus Areas of Intervention - List of Proposed Interventions - Set targets for demand, NRW, commercial and real losses - Budget and Multi-year Implementation Timeline b) Provide evidence of implementation against the above Plan in terms of: <ul style="list-style-type: none"> - List of Interventions (Projects) - Movement against targets for demand, NRW, commercial and real losses - Budget and Multi-year Implementation Timeline <p><i>(Reg 509 of 2001 Clause 10)</i></p>																																			
	<p style="color: #c00000; font-weight: bold; margin: 0;">(6.3)</p> <p style="font-weight: bold; margin: 0;">COMPLIANCE and PERFORMANCE (40%)</p>	<ul style="list-style-type: none"> a) Provide historic data in order to calculate the following: <ul style="list-style-type: none"> - Physical (real) water loss trend - Commercial water loss trend - Water use efficiency trend b) Provide the following data (grey cells only) with supporting documentation, in order to calculate the WSI baseline profile for: <ul style="list-style-type: none"> - Physical (real) water loss status - Commercial water loss status - Water use efficiency status <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="background-color: #f4a460;">Population number served:</th> <th style="background-color: #d3d3d3;"></th> <th style="background-color: #f4a460;">SIV (System Input Volume) (kl/annum):</th> <th style="background-color: #d3d3d3;"></th> <th style="background-color: #f4a460;">Average system pressure (m):</th> <th style="background-color: #d3d3d3;"></th> </tr> </thead> <tbody> <tr> <td style="background-color: #f4a460;">Households served:</td> <td style="background-color: #d3d3d3;"></td> <td style="background-color: #f4a460;">Authorised, Billed and Metered (kl/annum):</td> <td style="background-color: #d3d3d3;"></td> <td style="background-color: #f4a460;">Usage (l/cap/day):</td> <td style="background-color: #d3d3d3;"></td> </tr> <tr> <td style="background-color: #f4a460;">Total connections:</td> <td style="background-color: #d3d3d3;"></td> <td style="background-color: #f4a460;">Authorised, Billed and Unmetered (kl/annum):</td> <td style="background-color: #d3d3d3;"></td> <td style="background-color: #f4a460;">Non-revenue (l/cap/day):</td> <td style="background-color: #d3d3d3;"></td> </tr> <tr> <td style="background-color: #f4a460;">Metered connections:</td> <td style="background-color: #d3d3d3;"></td> <td style="background-color: #f4a460;">Authorised and Unbilled (kl/annum):</td> <td style="background-color: #d3d3d3;"></td> <td style="background-color: #f4a460;">Real losses (l/cap/day):</td> <td style="background-color: #d3d3d3;"></td> </tr> <tr> <td style="background-color: #f4a460;">Unmetered connections:</td> <td style="background-color: #d3d3d3;"></td> <td style="background-color: #f4a460;">Authorised Consumption (kl/annum):</td> <td style="background-color: #d3d3d3;"></td> <td style="background-color: #f4a460;">% Metering</td> <td style="background-color: #d3d3d3;"></td> </tr> <tr> <td style="background-color: #f4a460;">Households with</td> <td style="background-color: #d3d3d3;"></td> <td style="background-color: #f4a460;">Revenue water</td> <td style="background-color: #d3d3d3;"></td> <td style="background-color: #f4a460;">Efficiency =</td> <td style="background-color: #d3d3d3;"></td> </tr> </tbody> </table>	Population number served:		SIV (System Input Volume) (kl/annum):		Average system pressure (m):		Households served:		Authorised, Billed and Metered (kl/annum):		Usage (l/cap/day):		Total connections:		Authorised, Billed and Unmetered (kl/annum):		Non-revenue (l/cap/day):		Metered connections:		Authorised and Unbilled (kl/annum):		Real losses (l/cap/day):		Unmetered connections:		Authorised Consumption (kl/annum):		% Metering		Households with		Revenue water		Efficiency =
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Households with		Revenue water		Efficiency =																																	

		deemed of flat rate billing:		(kl/annum):		Water loss =
		Number of metered connections billed:		Non-revenue water (kl/annum):		
		Proven Industrial use (kl/annum):		Water losses (kl/annum):		
		Length of mains installed :		Apparent or Commercial losses (kl/annum):		
		Assumed commercial losses :		Real or Physical water losses (kl/annum):		
	PENALTY: Inclusion in the IDP	Components listed under Criteria 1.2 were not included in the IDP				
	BONUS (1): Training in WDM	<p>a) The Institution must present evidence of a competent Water Loss Management Team (in form of an Organogram) with <20% vacancy ratio in accordance with Clause 66 (Staff matters) of the Municipal Systems Act 32 of 2000</p> <p>b) Proof required on team manager competency (Qualification & Experience) with the following additional requirement: Manager to have suitable tertiary qualification with suitable experience</p> <p>c) The Institution must present evidence of a competent structured Maintenance Team (in form of Organogram with well-defined positions and job descriptions; Contract or Invoice). Logbook with maintenance entries will serve as adequate evidence</p> <p>d) Additional proof required on team competency for the team presented under (c) above (e.g. Qualification & Experience & Trade-test)</p> <p>e) Indicate number of suitably qualified plumbers per 1000 connections</p>				
No Drop Requirements= TOTAL 3%						

2014 BLUE DROP Score (%) = 97% Blue Drop score (DWQ Management) + 3%

**BLUE DROP REQUIREMENTS WILL ACCOUNT FOR 97% OF THE 100% BLUE DROP SCORE
NO DROP REQUIREMENTS WILL ACCOUNT FOR 3% OF THE 100% BLUE DROP SCORE**

ANNEXURE B: Site Inspection Template

TECHNICAL SITE INSPECTION

<u>Name of Water Treatment Facility</u>			
<u>Water Services Authority</u>		<u>Water Services Provider</u>	
<u>Date of Inspection</u>		<u>Name of Inspector</u>	
<u>Total Criteria Measured</u>	<u>Total Score</u>	<u>Design Capacity</u>	<u>Flow at Inspection</u>

1. GENERAL

No.	Audit Element	Comment	Score (0 – 1) <i>(fractions of 0.25)</i>	Photo
1	Display of Classification / Registration Certificate			
2	Entries in the Maintenance Logbook. (Does it reflect regular maintenance)			
3	Operations & Maintenance manual availability			
4	Incident management procedures/contact list available on-site?			
5	Operational Monitoring Logbook available.			
6	On-site Operational Monitoring Equipment (working condition and calibrated) – e.g. Turbidity, EC, free Cl			
7	Floc formation tests done on a regular frequency? Working jar test equipment?			

2. ADJUDICATING THE PHYSICAL APPEARANCE OF THE PLANT

No.	Audit Element	Comment	Score (0 – 1) (fractions of 0.25)	Photo
2.1 AESTHETIC & SAFETY				
1	The overall appearance of the works; what is the state of the garden/surroundings?			
2	Health and Hygiene of workers taken care of; Place to eat and wash.			
3	More than 2 Serious OHS contraventions? (incidents per year and lack of safety equipment and warning signs)			
4	General Workplace satisfaction.			
5	Is the facility secured from unauthorised public and animal (live-stock) access?			

3. RAW WATER INTAKE

3.1 RAW WATER PUMPSTATION / GRAVITY FEED				
1	All raw water pumps in working condition. More than 50% standby capacity?			
2	Inflow measuring device in-place and in working condition.(readings recorded)			
3.2 INLET WORKS				
1	Is effective flash mixing taking place and is dosing at the highest point of turbulence?			
2	Can the chemical feed and dosing conditions at the inlet works be monitored? (e.g. visual dripping of flocculant, lime)			

No.	Audit Element	Comment	Score (0 – 1) (fractions of 0.25)	Photo
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4. CHEMICAL DOSING

4.1 FLOCCULANT				
1	Condition of dosing pumps?			
2	Are there 100% standby?			
3	Storage area : More than 30 days storage			
4	OHS issues: emergency shower, eye wash, bunded area?			
4.2 LIME				
1	Condition of dosing equipment (pumps or dry feeder)			
2	Are there 100% standby?			
3	Storage area: More than 30 days storage?			
4	General housekeeping, bags dry and off the floor, used on first in first out, masks?			
4.3 CHLORINE				
1	Are the chlorinators operational – gas free flowing			
2	Are there 100% standby?			
3	Storage capacity – more than 30 days storage?			
4	Do they monitor the gas left in the container? (scale, indicator, switch over device)			

No.	Audit Element	Comment	Score (0 – 1) (fractions of 0.25)	Photo
5	Safety equipment available and working (alarm, detector, extractor fan, masks)			
4.4 OTHER				
1	Condition of dosing equipment (pumps or dry feeder)			
2	Are there 100% standby?			
3	Storage area: More than 30 days storage?			

5. FLOCCULATION

1	Are flocs visible at the end of the unit?			
2	General condition of the flocculation unit, e.g. scum accumulation, walls covered with algae, sludge accumulation?			

6. PHASE SEPARATION

6.1 SEDIMENTATION (CLARIFICATION)				
1	Signs of floc carry over at the clarifier?			
2	Regular de-sludging taking place?			
3	Effluent Weirs / Baffles in good condition allowing for even overflow?			
6.2 FLOTATION				
1	100% backup for recycle pumps and air compressor?			
2	Fine bubble size, any signs of large bubbles?			

No.	Audit Element	Comment	Score (0 – 1) (fractions of 0.25)	Photo
3	Regular de-sludging of the sludge layer?			
6.3 SAND FILTRATION				
1	100% backup for backwash pumps and air blowers?			
2	Even flow splitting to all filters – check outlet boxes			
3	Even bubble distribution during backwash?			
4	Frequency of backwashing (< 48 hours)			
5	Filter media surface; sign of cracks, mudballs?			
6	General housekeeping – hosing down of walls, handrails around filters?			

7. DISINFECTION

7.1 CHLORINE GAS				
1	Contact time in reactor more than 30 minutes?			
2	Is free chlorine measured done at the correct place – where and how?			
7.2 UV				
1	Average flux more than 40 mJ/cm ²			
7.3 OZONE				
1	Check production figures vs rating of ozonator	Rating of ozonator Flow from ozonator Ozone concentration in flow..... Flow from ozonator.....		

No.	Audit Element	Comment	Score (0 – 1) <i>(fractions of 0.25)</i>	Photo
2	Safety equipment in place – alarms, detector, masks?			

8. SLUDGE TREATMENT

1	Are the sludge dams well maintained? (full of reeds ?)			
2	Supernatant pumps condition: Is there at least 50% standby?			

ANNEXURE C: The Blue Drop Risk-rating (PAT) assessment criteria

The 2014 risk-assessments were completed on water quality compliance data, information and actions during the period:

1 January 2014 – 31 December 2014
2014 PAT Progress Assessment Period.

The following aspects were included in the 2012 - 2014 Blue Drop Progress Assessment Tool:

#Nr	Blue Drop Criteria	Description of Criterion	Additional comments
	Population	Number of People Served	As on BDS, per supply system
1	Classification & Capacity	Class of Works	Approved Classification on BDS, as per Regulation 2834
		Design Capacity (Ml/day)	As indicated on the 2013 Municipal Information Sheet (MIS), verified against 2012 BD Report / scorecard information
		Operational Capacity in %	As indicated on the 2013 MIS, verified against 2012 BD Report / scorecard information
2	Process Control Skills Compliance with R17	Supervisor Complying with Regulation 813 (Yes/Partial/No)	Approved Classifications on BDS, as per draft Regulation 813 (staff availability per shift, per supply system)
		Number of Shifts at WTW per day	As indicated on the 2013 MIS, assumed 1 in cases of no information (<1Ml/day operation)
		Number of Process Controllers complying with Legislation	Approved Classifications on BDS, as per draft Regulation 813 (staff availability per shift, per supply system)
		Process Controller Compliance rate (%)	Calculated %- staff available/nr shifts+1
		Maintenance Team Availability	Evaluated from information on MIS and proof of work

#Nr	Blue Drop Criteria	Description of Criterion	Additional comments
		(Yes/Partial/No)	done BDS
3	Microbiological Monitoring Programme Compliance	Total Microbiological Monitoring Programme Compliance (%)	% on BDS (WSA registered programme (weighted calculation applied if both the municipality or WSP submitted data)
4	Drinking Water Quality Verification (compliance)	Microbiological Quality Compliance (%)	Actual compliance calculated from data available on BDS (weighted formula's applied where WSA / WSP relationship's apply)
		Chemical Quality Compliance (%)	
		Risk-defined Compliance (%)	
5	Risk Management	Is Water Safety Planning process in place (Yes/Partial/No)	Evaluated from supporting information on BDS
		Was full SANS 241 conducted within the Assessment Period? / Is the Monitoring Programme Risk Informed? (Yes/No/Partial)	Evaluated from data loaded on BDS for the assessment period, 1 Jan-31 Dec 2012, against SANS 241: 2006 determinant list (<i>E. coli</i> and Chemical-health in particular)

The “formula” used to calculate the Blue Drop Risk-ratings were:

$$\text{BDR} = 0.25\text{A} + 0.25\text{B} + 0.5\text{C}$$

Where:

- A** = Treatment Capacity Risk Rating
- B** = Process Control Risk Rating
- C** = Water Quality Compliance Risk Rating

The full mathematical formula were as follows-

$$\text{BDRR} = 0.25(\text{Population.R} \times \text{Ops Capacity.R}) + 0.25(\text{Works.R} \times (\text{PC} + \text{Supervisor} + \text{Maintenance.R}) + 0.5\{\text{Population.R} \times [(0.8*(0.5\text{Micro} + 0.2\text{Chem} + 0.3\text{Risk})) + (0.2*(0.6\text{WSP} + 0.2\text{Monitoring} + 0.2\text{Full SANS}))]\})$$

The 2013 Blue Drop Progress Assessment Tool was developed making provision, amongst other, for the following types of information, data / conditions related to the assessment criteria (each factor presenting a different risk-value):

Class of Works	Rating	Operational Capacity	Rating	Supervisor / Maintenance Team-Comply with Reg 17	Rating
Class E	1	<90%	1	Yes	1
Class D	3	90% < 95%	2	Partial	3
Class C	5	95% < 98%	3	No	7
Class B	7	98% <100%	5	Monitoring Programme Risk & full SANS	Rating
Class A	9	100% <105%	7	Yes	1
Multiple (M)	9	105% and More	9	Partial	3
Not Registered (NR)	9	No Information	9	No	7
		Multiple (M)	9		
Population	Rating	Process Control Compliance	Rating	Monitoring Compliance	Rating
<1000	1	0%	9	<30%	9
1000 < 50000	2	>0% < 30%	7	30% < 50%	7
50000 < 100000	3	30% < 50%	6	50% < 70%	4
100000 < 500000	5	50% < 60%	4	70% < 80%	3
500000 < 1000000	7	60% < 70%	3	80% < 90%	2
1000000 and	9	70% < 80%	2	90% and	1

More					more	
No Information	9		80% and More	1		
			No Information	9		
Microbiological Compliance	Rating		Chemical-health Compliance	Rating	Risk-defined Compliance	Rating
Population <100 000			Population <100 000		Population <100 000	
98% and more	1		95% and more	1	95% and more	1
97% < 98%	2		94% < 95%	3	94% < 95%	2
96% < 97%	3		93% < 94%	5	93% < 94%	3
95% < 96%	5		92% < 93%	7	92% < 93%	5
94 < 95%	7		< 92%	9	90% <92%	7
<94%	9		No Information	9	<90%	9
No Information	9				No Information	9
Population >100 000			Population >100 000		Population >100 000	
99% and more	1		97% and more	1	97% and more	1
98% < 99%	3		96% < 97%	3	96% < 97%	2
97% < 98%	5		95% < 96%	5	95% < 96%	3
96% < 97%	7		94% < 95%	7	94% < 95%	5
<96%	9		< 94%	9	93% < 94%	7
No Information	9		No Information	9	<93%	9
					No Information	9

ANNEXURE D: BWSA AT PRIVATE INSTITUTIONS

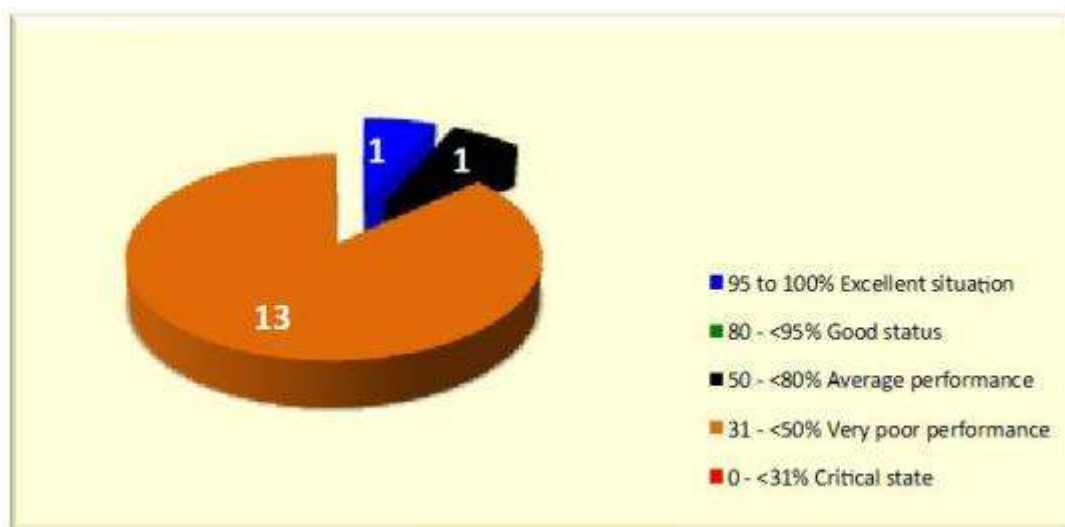
The Blue Drop programme expanded during the 2014 year of assessment, with the inclusion of the drinking water systems of three private institutions, i.e Rand Water, Sun City and Kruger National Park. Data collected during the assessment indicated a high average consumption per capita per day, with 82% of the design capacity of plants already used (Table 25).

Table 25: General Blue Drop statistics 2014 for Private Institutions

Blue Drop Comparative Analysis	
Performance Category	2014
Number of Institutions assessed	3
Number of Systems assessed	15
Number of Blue Drops (scores $\geq 95\%$)	1
Number of Blue Drop Scores $\geq 50\%$ - $< 95\%$	1
Number of Blue Drop Scores $< 50\%$	13
Average Consumption (l/c/d)	747
Operational capacity as a percentage of Design Capacity	82%

The Rand Water Barrage Potable Water system achieved a Blue Drop status, with the remaining systems recording an Average to Poor performance (Figure 21).

Figure 21: The Blue Drop performance of Private systems



The detail of the 15 systems owned by Private Institutions is shown below (Table 26).

Table 26: Private Institution water supply systems

Province	WSA	System	WSP
Private	Rand Water	Barrage Potable Water	Rand Water
Private	Kruger National Park	Balule	SANParks
Private	Kruger National Park	Crocodile Bridge	SANParks
Private	Kruger National Park	Game Processing Plant	SANParks
Private	Kruger National Park	Kruger Gate	SANParks
Private	Kruger National Park	Olifants	SANParks
Private	Kruger National Park	Phabene	SANParks
Private	Kruger National Park	Shingwedzi	SANParks
Private	Kruger National Park	Skukuza RC	SANParks
Private	Kruger National Park	Skukuza SV	SANParks
Private	Kruger National Park	Letaba	SANParks
Private	Kruger National Park	Lower Sabie	SANParks
Private	Kruger National Park	Malelane	SANParks
Private	Kruger National Park	Nkuhlu	SANParks
Private	Sun International	Sun City Resort	Magalies Water

Most of the 15 systems recorded an ‘average to critical’ performance status for the six assessment criteria (Figure 22). A specific concern is the critical low poor performance in terms of water quality. The critical state for water quality is mainly due to insufficient chemical monitoring.

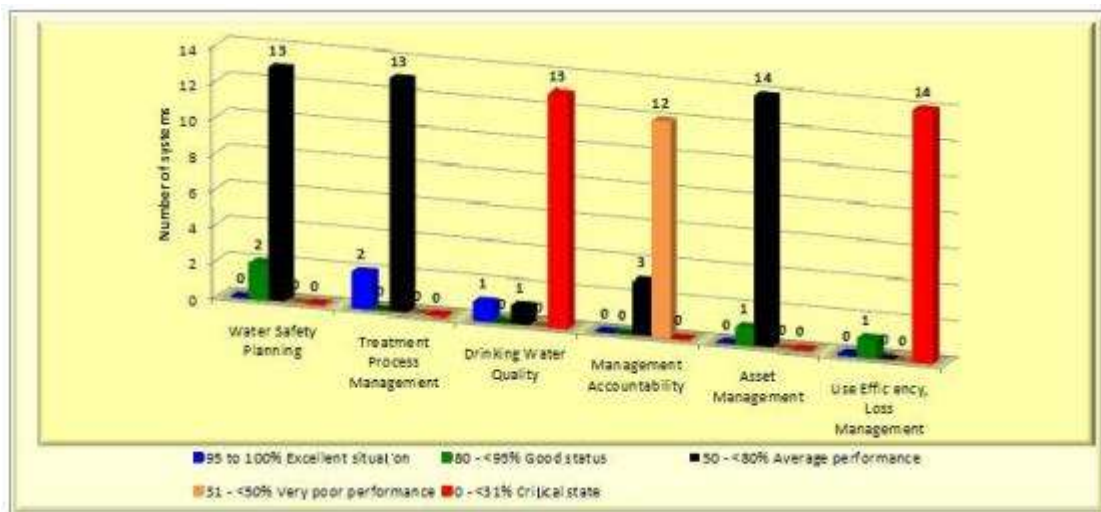


Figure 22: Performance of the different private drinking water systems against the six Blue Water Services assessment criteria.

In terms of the Blue Drop Risk Rating, four of the 4 systems fall within the low risk category, while the remaining 14 systems fall in the medium risk category. The Institutional risk rating is as per Figure 23.

Figure 23: Blue Drop Risk Rating per Institution

