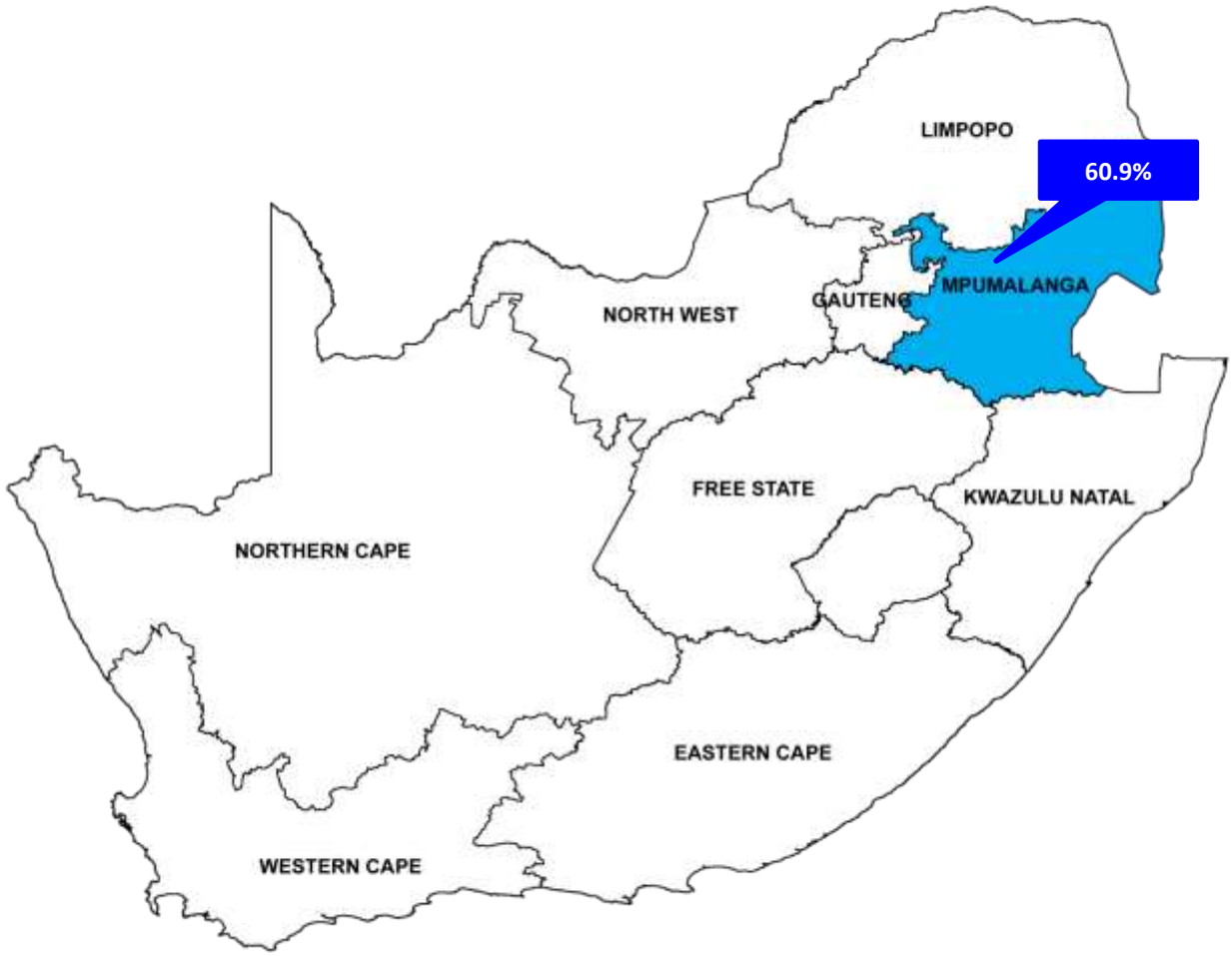


Provincial Best Performer

Steve Tshwete Local Municipality is the best performing municipality in Mpumalanga Province with support from Eskom as their Service Provider. The Municipal Blue Drop Score of **97.35%** was achieved. Congratulations!

Blue Drop Provincial Performance Log – Mpumalanga

Water Services Authority	Provincial Blue Drop Log Position	Blue Drop Score 2012	Blue Drop Score 2011	Blue Drop Score 2010
Steve Tshwete Local Municipality	1	97.35	96.51	92.2
Dr JS Moroka Local Municipality	2	92.46	84.42	95.7
Mbombela Local Municipality	3	87.68	74.99	80.9
Victor Khanya Local Municipality	4	80.07	18.26	0
Emakhazeni Local Municipality	5	79.83	83.72	71.2
Thembisile Local Municipality	6	78.3	27.77	37.8
Govan Mbeki Local Municipality	7	77.5	77.59	78.9
Umjindi Local Municipality	8	75.54	60.05	52.5
Pixley ka Seme Local Municipality	9	40.7	46.09	0
Emalahleni Local Municipality	10	37.5	46.9	29.7
Lekwa Local Municipality	11	34.74	10.48	19.5
Bushbuckridge Local Municipality	12	30.8	29.89	8.4
Dipaleseng Local Municipality	13	21.7	6.95	0
Msukaligwa Local Municipality	14	21.2	10.59	0
Thaba Chweu Local Municipality	15	19.03	59.4	45.1
Chief Albert Luthuli Local Municipality	16	18.4	9.78	8.2
Nkomazi Local Municipality	17	17.2	59.48	17.5
Mkhondo Local Municipality	18	11.3	5.05	28.6

Top 3

The Department wishes to acknowledge and congratulate Steve Tshwete Local Municipality and its water services provider, ESKOM, for once again an exceptional performance in obtaining 1st place in Mpumalanga Province. Dr J.S. Moroka Local Municipality would be another water services authority that consistently performs at the top part of the provincial log but did not quite manage to repeat the performance of year 1 when they took 10th place nationally. Yet a second place provincially is extremely good. Mbombela Local Municipality again performed very well in attaining 3rd position.

Most Improved

For years the town of Delmas Local Municipality was associated with poor drinking water quality. But an incomparable improvement effort saw Victor Khanya Local Municipality improving from 0% in 2010, to 18.26% in 2011 and a remarkable 4th place worth 80.07%. This is a true success story, given where this municipality has come from since the diarrhoea outbreaks.

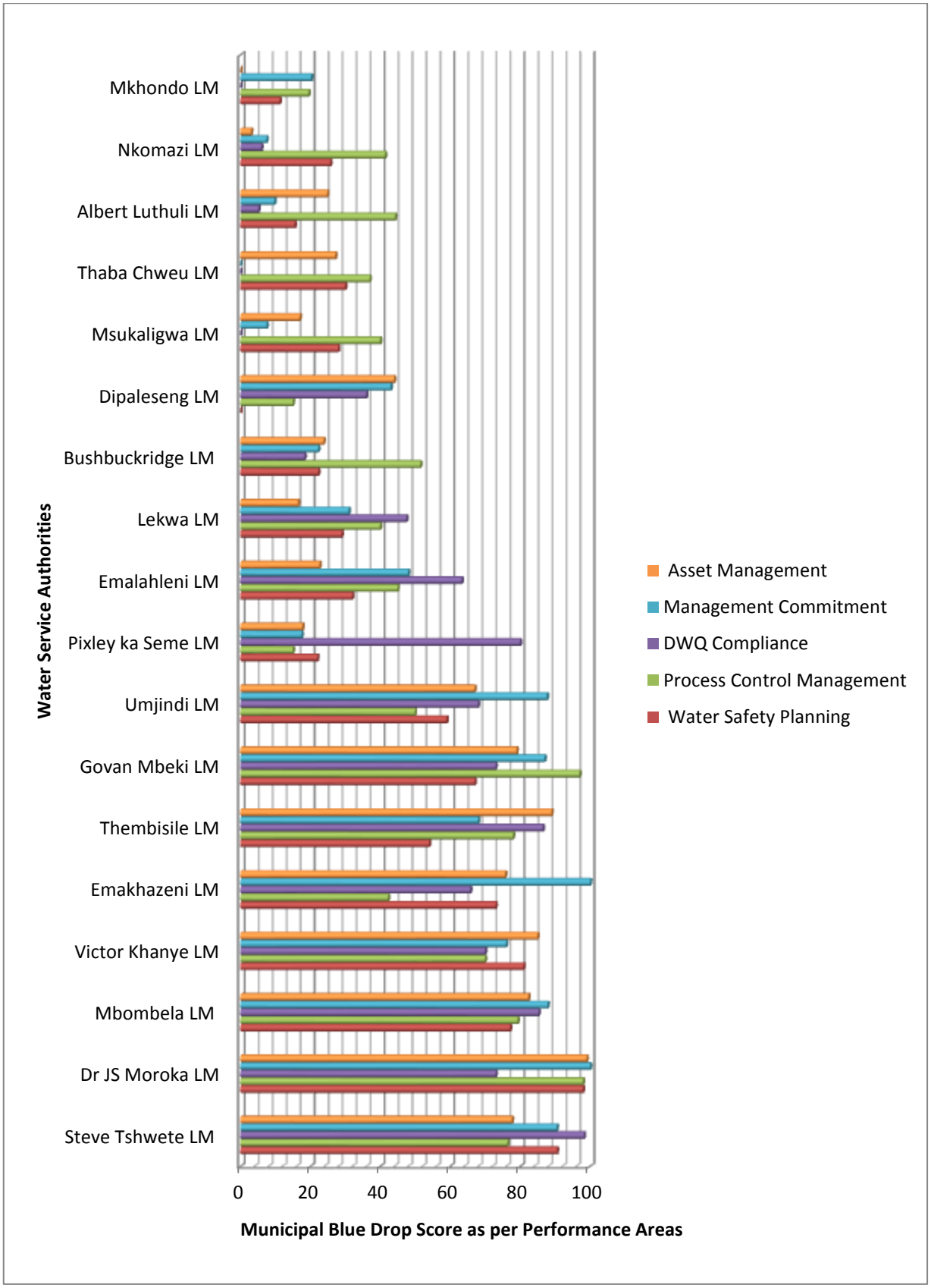
Lowest Performer(s)

There would be a number of municipalities that failed to operate and manage according the set regulatory requirements. The ability of the following municipalities are to supply safe water continuously is of great concern:

- Mkhondo Local Municipality
- Nkomazi Local Municipality
- Chief Albert Luthuli Local Municipality

- Thaba Chweu Local Municipality

2012 Blue Drop Performance Comparator – Mpumalanga



BLUE DROP ASSESSMENT ANALYSIS (Mpumalanga)					
Category	**2009**	**2010**	**2011**	**2012**	**Trend**
Number of Municipalities audited	8	14	19	18	(↓)
Number of water systems audited	35	78	80	91	(↑)
Number of Blue Drop Awards	3	6	8	10	(↓)
Provincial Blue Drop score	51%	65.42%	56.50%	60.9%	(↑)

Blue Drop Certified Systems

Log position	Blue Drop Certified System	Blue Drop Score	Water Services Authority	Water Services Provider
1	**Nelspruit**	**99.15%**	**Mbombela Local Municipality**	**Sembcorp Silulumanzi**
2	**Middelburg Mhluzi**	**98.25%**	**Steve Tshwete Local Municipality**	**Eskom**
3	**Hendrina**	**98.25%**	**Steve Tshwete Local Municipality**	**Eskom**
4	**Primkop/Tekwane**	**97.97%**	**Mbombela Local Municipality**	**Sembcorp Silulumanzi**
5	**Doornkop 1&2**	**97.66%**	**Steve Tshwete Local Municipality**	**Eskom**
6	**Komati Power Station**	**97.00%**	**Steve Tshwete Local Municipality**	**Eskom**
7	**Hendrina Power Station**	**96.26%**	**Steve Tshwete Local Municipality**	**Eskom**
8	**Matsulu**	**96.22%**	**Mbombela Local Municipality**	**Sembcorp Silulumanzi**
9	**Karino**	**96.05%**	**Mbombela Local Municipality**	**Sembcorp Silulumanzi**
10	**Arnot Power Station**	**95.92%**	**Steve Tshwete Local Municipality**	**Eskom**

Water Services Authority	**Bushbuckridge Local Municipality**
Water Services Provider(s)	**Bushbuckridge LM & Bushbuckridge Water Board**[a]
Municipal Blue Drop Score	**30.80%**

Performance Area	Systems	Inyaka[a]	Zoeknog	Hoxani[a]	Acornhoek[a]
Water Safety Planning (35%)		**66**	**45**	**19**	**25**
Treatment Process Management (10%)		**90**	**50**	**80**	**50**
DWQ Compliance (30%)		**6**	**8**	**14**	**67**
Management, Accountability (10%)		**50**	**0**	**42**	**36**
Asset Management (15%)		**36**	**15**	**51**	**48**
Bonus Scores		4.50	0.00	4.50	4.50
Penalties		-1.50	-1.50	-1.50	-1.50
Blue Drop Score (2012)		**46.85%** (→)	**23.81%** (↓)	**33.59%** (→)	**47.36%** (→)
2011 Blue Drop Score		Not assessed	32.42%	Not assessed	Not assessed
2010 Blue Drop Score		Not assessed	11.55%	Not assessed	Not assessed
System Design Capacity (Ml/d)		50	2.5	26	6
Operational Capacity (% ito Design)		23.00%	72.00%	25.38%	16.67%
Population Served		230 445	36 863	133 226	No Information
Average daily Consumption (l/p/d)		49.90	48.83	49.54	No Information
Microbiological Compliance (%)		**99% (1 month)**	**No Information**	**No Information**	**99.9% (10 months)**
Chemical Compliance (%)		**No Information**	**99.9% (3 months)**	**99.9% (9 months)**	**99.9%**

Performance Area	Systems	Thulamahashe[a]	Shatale[a]	Sand River[a]	Edenburg A[a]
Water Safety Planning (35%)		**20**	**28**	**24**	**24**
Treatment Process Management (10%)		**75**	**35**	**50**	**50**
DWQ Compliance (30%)		**67**	**50**	**0**	**0**
Management, Accountability (10%)		**36**	**39**	**36**	**36**
Asset Management (15%)		**45**	**33**	**27**	**44**
Bonus Scores		0.00	4.50	0.00	4.50
Penalties		-1.50	-1.50	-1.50	0.00
Blue Drop Score		**43.34%** (→)	**40.01%** (→)	**19.41%** (→)	**27.89%** (→)
2011 Score		Not assessed	Not assessed	Not assessed	Not assessed
2010 Score		Not assessed	Not assessed	Not assessed	Not assessed
System Design Capacity (Ml/d)		9	1.8	1	1
Operational Capacity (% ito Design)		11.11%	188.89%	90.00%	70.00%
Population Served		0	67 384	17 455	13 760
Average daily Consumption (l/p/d)		NI	50.46	51.56	50.87
Microbiological Compliance (%)		**99.9% (10 months)**	**99.9%**	**No Information**	**No Information**
Chemical Compliance (%)		**99.9%**	**99.9%**	**No Information**	**No Information**

Performance Area	Systems	Edenburg B[a]	Dingledale	Sigagule	Cork
Water Safety Planning (35%)		**0**	**13**	**13**	**13**
Treatment Process Management (10%)		**36**	**35**	**50**	**35**
DWQ Compliance (30%)		**0**	**9**	**9**	**9**
Management, Accountability (10%)		**36**	**0**	**0**	**0**
Asset Management (15%)		**0**	**0**	**0**	**0**
Bonus Scores		4.50	0.00	0.00	0.00
Penalties		-1.50	-1.50	-1.50	-1.50
Blue Drop Score (2012)		**26.39%** (→)	**11.41%** (↓)	**13.81%** (↓)	**11.41%** (↓)
2011 Score		NA	27.48%	31.32%	26.08%
2010 Score		NA	8.5%	NA	NA
System Design Capacity (Ml/d)		1.2	NI	NI	NI
Operational Capacity (% ito Design)		91.67%	NI	NI	NI
Population Served		22 440	3 198	3 976	18 795
Average daily Consumption (l/p/d)		49.02	62.54	50.30	47.89
Microbiological Compliance (%)		**No Information**	**No Information**	**No Information**	**No Information**
Chemical Compliance (%)		**No Information**	**99.9%**	**99.9%**	**99.9%**

Performance Area	Systems	Marite	Thorndale
Water Safety Planning (35%)		**9**	**13**
Treatment Process Management (10%)		**35**	**50**
DWQ Compliance (30%)		**9**	**9**
Management, Accountability (10%)		**0**	**0**
Asset Management (15%)		**18**	**15**
Bonus Scores		0.00	0.00
Penalties		-1.50	-1.50
Blue Drop Score (2012)		**13.36%** (↓)	**12.91%** (↓)
2011 Score		32.15%	25.00%
2010 Score		NA	NA
System Design Capacity (Ml/d)		NI	NI
Operational Capacity (% ito Design)		NI	NI
Population Served		5 174	230 000
Average daily Consumption (l/p/d)		57.98	50.00
Microbiological Compliance (%)		**No Information**	**No Information**
Chemical Compliance (%)		**99.9%**	**99.9%**

Regulatory Impression

The performance of the drinking water quality (DWQ) management in Bushbuckridge Local Municipality together with the Bushbuckridge Water Board remain much the same as that for last year's assessment. The scores acquired by both institutions indicate that they are still some way off achieving Blue Drop status, but the increase in registered supply systems assessed during this assessment cycle has allowed for a more focussed, system specific assessment. Furthermore this focussed approach to DWQ management per supply system will allow the municipality to improve the identification of area-specific problems which require their immediate attention.

The commitment of the Water Board management toward DWQ is highly commendable; however, the DWA Inspectors expressed great concern regarding commitment from the municipal management, since they did not attend the confirmation session. The relationship between the WSA, the local municipalities and the Water Board should be consolidated and the roles and responsibilities of the relevant role players should be made clear.

The WSA and WSP are required to give urgent attention to the following factors:

- Development of a water safety plan, since the lack of a water safety plan compromises the institution's ability to effectively implement a proactive management approach.
- Review of the incident management protocol and water quality incident register is needed from both institutions. The incident management procedure should include roles and responsibilities as well as the relevant communication vehicles. The municipality would not be well positioned to handle a disaster or emergency situation at present, as the necessary protocols and procedures are not in place.
- The Municipality is urged to report the DWQ results regularly on a monthly basis to the Department of Water Affairs on the Blue Drop System (BDS) to ensure continuous management of information.
- It is crucial that the Municipality conducts a risk assessment of the catchment, treatment works and reticulation. The Risk Assessment must indicate that the treatment facility has the ability to adequately treat the water from raw water quality to DWQ complying with SANS 241.

The Department has no confidence in the municipality's ability to render a safe and sustainable potable water supply from any of their systems since the DWQ compliance is poor in all 14 systems.

The Department hereby issues a warning to all residents and visitors to the Bushbuckridge Local Municipal area not to consume the tap water without taking appropriate measures to improve the drinking water quality. This warning is applicable to the towns of Zoeknog, Hoxani, Sand River, Edenburg A & B, Dingleydale, Sigagule, Cork, Marite and Thorndale.

The Municipality must note that despite the fact that the Blue Drop certification process is part of incentive-based regulation, it should not be assumed that the Blue Drop process is based on voluntary participation. Water service authorities and water service providers are obliged in terms of the law to provide the necessary information required to do a proper analysis on the quality of the water supplied. The attention of the municipality is drawn to the following Sections of the Water Services Act (Act 109 or 1997) for clarity on the following issues:

- Section 19: Institutional arrangements;
- Section 23: responsibility to reveal information;

- Section 62: Right to regulate; and
- Section 82: Offence to withhold information.

Technical Inspection Report

Inyaka WTW: 82%

Image taken at Inyaka WTW

The Inyaka WTW was visited to verify the findings of the Blue Drop assessment of Bushbuckridge Local Municipality. The overall impression of the Inyaka WTW was fair and the plant had neat surroundings, satisfactory access control and the process controllers had clean eating and washing facilities. The maintenance logbook verified that on-going maintenance was taking place at the plant. However, power shortages are compromising the current operational monitoring program and must be addressed by management to ensure the delivery of good quality water.

Areas that require improvement at Inyaka WTW include:

- The plant registration certificate was not on display at the plant;
- The current operations and maintenance manual was not being used by the process controllers as it lacked operational aspects and procedures;
- There were insufficient standby pumps for chemical dosing (flocculant and lime). Management needs to ensure that 100% standby is available on site for all pumps and critical equipment.
- There was a lack of adequate flock formation and accumulation of sludge in the flocculation channels. This indicated insufficient flocculant or an inadequate retention time and needs to be investigated in order to ensure good quality final water.
- There were signs of floc carryover at the sedimentation unit weirs, indicating poor settling.
- The sludge dam needs to be cleaned to remove reeds and sludge.

Safety Clothes

Process Controller eating area

Water Services Authority	Chief Albert Luthuli Local Municipality
Water Services Provider(s)	Chief Albert Luthuli Local Municipality
Municipal Blue Drop Score	18.40%

Performance Area	Systems	Carolina	Badplaas	Mpuluzi	Ekulindeni
Water Safety Planning (35%)		25	21	21	21
Treatment Process Management (10%)		65	50	65	65
DWQ Compliance (30%)		0	36	0	0
Management, Accountability (10%)		16	19	11	11
Asset Management (15%)		29	29	29	29
Bonus Scores		6.00	6.00	1.50	4.00
Penalties		-1.50	-1.50	-1.50	-1.50
Blue Drop Score (2012)		**25.44% (↑)**	**33.73% (↑)**	**19.13% (↑)**	**23.63% (↑)**
2011 Blue Drop Score		9.78%	9.78%	9.78%	9.78%
2010 Blue Drop Score		5.13%	8.96%	8.63%	8.63%
System Design Capacity (Ml/d)		6.5	4	13.5	4
Operational Capacity (% ito Design)		33.85%	45.00%	59.26%	1.8
Population Served		13 682	10 600	44 983	10 885
Average daily Consumption (l/p/d)		160.80	169.81	177.84	165.37
Microbiological Compliance (%)		**81.8%**	**80.0%**	**No information**	**No information**
Chemical Compliance (%)		**93.9%**	**97.8%**	**No information**	**No information**

Performance Area	Systems	Elukwatini	Metula Fernie	Lushushwane/Bettysgoed
Water Safety Planning (35%)		21	0	0
Treatment Process Management (10%)		65	0	0
DWQ Compliance (30%)		0	0	0
Management, Accountability (10%)		11	0	0
Asset Management (15%)		29	0	0
Bonus Scores		1.50	0.00	0.00
Penalties		-1.50	-1.50	0.00
Blue Drop Score (2012)		**19.13% (↑)**	**0.00% (↓)**	**0.00% (↓)**
2011 Score		9.78%	9.78%	9.78%
2010 Score		8.63%	8.63%	8.63%
System Design Capacity (Ml/d)		13.5	No Information	No Information
Operational Capacity (% ito Design)		62.96%	0.70	No Information
Population Served		65 654	13 682	13 682
Average daily Consumption (l/p/d)		129.47	51.16	51.16
Microbiological Compliance (%)		**No information**	**No information**	**No information**
Chemical Compliance (%)		**No information**	**No information**	**No information**

Regulatory Impression

There is great potential for improvement of Drinking Water Quality Management in Chief Albert Luthuli. The improved 2012 Blue Drop performance confirms that this is a step in the right direction. Efforts such as the development of a water safety plan before the assessment are noted and serve as promise of the municipality's commitment to improve. The plan however still requires considerable attention. Following completion of a full SANS 241 analyses, all risks should be confirmed identified per supply system.

Unfortunately, the Blue Drop score indicate that drinking water quality (DWQ) services in Chief Albert Luthuli is still not on par with the requirements of the regulatory programme. It is evident that the municipality consolidated its drinking water quality (DWQ) management approach in their systems except for Lushushwane/Bettysgoed and Ekulindeni).

The Department hereby issues a warning to all residents and visitors to the Albert Luthuli area not to consume the tap water without taking appropriate measures to improve the drinking water quality. This warning is applicable to the towns of Mpuluzi, Lushushwane/Bettygoed, Elukwatini, Metula Fernie and Ekulindeni

In general, the key challenges faced by the assessment team were the unacceptable attitude by the Water and Sanitation Manager and lack of documented proof to verify assertions made by the WSA to improve compliance. The lack of adequate DWQ data and other performance information on the Blue Drop System (BDS) consequently hampered DWA's ability to verify performance and scoring of Chief Albert Luthuli. DWA is aware that the WSA experienced a flood- and DWQ crisis specifically in Carolina. With all representatives from Department of Minerals and Resources, Mining Houses, CMA, DWA Regional Office, National Office, municipal Mayor and representatives from the Gert Sibande District Municipality, the Department is convinced that through the joint effort and commitment of all role players the current situation will improve.

The Catchment Management Agency is commended for assisting Chief Albert Luthuli in this crisis by adding sampling points to ensure that the potential pollution are identified and mitigated. The Operations and Monitoring manuals need to be improved since it is standardised and not site specific, risk for all the system are the same, control measures are the same, there is a need for proper Water Safety Planning Process to be conducted.

Technical Inspection Report

Carolina WTW: 58%

The Carolina WTW was visited to verify the Blue Drop findings for the Chief Albert Luthuli Local Municipality. The overall impression of the Carolina WTW was below average as the plant is untidy and the grass has not been cut. Process controllers have no place to eat and there is only one shower for both male and female staff members. The lack of operational log sheets and coagulant control must be attended to urgently as the final water quality cannot be guaranteed.

Scum accumulation in flocculation channels is evident

The following areas that require urgent attention at the Carolina WTW including:

- No plant certificate and O&M manual available on site;
- There is no record of maintenance undertaken;
- There is no incident Management Protocol or list of emergency contact numbers on site;
- There are no records of operational monitoring on site. The pH meter is not working and there is no proof of calibration for other monitoring equipment;
- General housekeeping is lacking; the offices are dirty, the grass is not cut and the glass doors are broken;
- Lack of coagulant dosing control since no Jar Tests are conducted and no measurement of turbidity. This means there is no control over the treatment process at present;
- Lack of emergency shower, eye wash, PPE and bunded area around chemicals storage unit.
- Lime dosing unit is not working at present time;
- A scale is available to measure chlorine gas but this is not connected since the chlorine room is too small. There is also less than 30 days storage of chlorine gas on site;
- Scum accumulation in flocculation channels is evident; and
- Sludge lagoon is covered with reeds and must be cleaned.

Water Services Authority	Dipaleseng Local Municipality
Water Services Provider(s)	Dipaleseng Local Municipality
Municipal Blue Drop Score:	**40.70%**

Performance Area	Systems	Greater Dipaleseng
Water Safety Planning (35%)		**50**
Treatment Process Management (10%)		**15**
DWQ Compliance (30%)		**36**
Management, Accountability (10%)		**43**
Asset Management (15%)		**44**
Bonus Scores		0.00
Penalties		0.00
Blue Drop Score (2012)		**40.70%** (↑)
2011 Blue Drop Score		6.95%
2010 Blue Drop Score		Not assessed
System Design Capacity (Ml/d)		6.5
Operational Capacity (% ito Design)		107.54%
Population Served		41 666
Average daily Consumption (l/p/d)		167.76
Microbiological Compliance (%)		**85.0%**
Chemical Compliance (%)		**99.8% (7 months)**

Regulatory Impression

There was a significant increase in the score of the on-site audit (November 2011) and that of the confirmation assessment (February 2012), giving evidence to the municipality's drive to improve drinking water quality (DWQ) management. The Department is greatly encouraged by the impressive improvement in the Blue Drop score of this municipality since the previous reporting cycle. An overall score improvement from 6.95% to 40.70% confirms the municipal officials' commitment to improved DWQ management and is a most commendable performance under challenging circumstances. However, while the improvement in Blue Drop scores is noteworthy, there are still many areas that require further, urgent attention. The water safety plan needs to be improved and the monitoring programme requires amendment in order to take into account the findings of the risk assessment.

According to the DWA Inspectors, the process controllers require training in order to fully comprehend the importance of operational monitoring, as daily readings are currently recorded incorrectly. The municipality is requested to give special attention to the issues mentioned above, since without the necessary information, effective DWQ management is not possible. Microbiological compliance at the Fortuna WTW is not according to the expected standard and the matter requires immediate investigation and remedial action in order to resolve the problem. The municipality is urged to report the DWQ results on a monthly basis to the Department of Water Affairs on the Blue Drop System (BDS) to ensure continuous management of information.

Technical Inspection Report

Fortuna WTW: 71%

The Fortuna WTW was visited to verify the findings of the Dipaleseng Local Municipality Blue drop findings. Overall, the impression of the plant was fair; the site was adequately secured and maintained. The situation with the documentation varied, with the plant certificate, manuals and operational monitoring log sheets all being available, while the maintenance logbook and incident management protocol were absent. Jar tests were not being conducted on site, but the chemical supplier visits the plant regularly to check the dosage and provides a dosage chart for reference purposes. The municipality needs to provide training to the process controllers so that they are able to determine and adjust the coagulant dosage on a regular basis.

Areas that require attention include the following:

- There was no incident management protocol in place;
- Monitoring equipment was not being calibrated and this could lead to incorrect results;
- A number of OH&S issues need attention: there were no eye wash facilities, goggles or emergency shower on site;
- The inflow meter was not working and therefore the flow could not be determined;
- There were insufficient standby pumps for inflow and lime dosing: the municipality must ensure that all critical equipment has sufficient standby;
- There was less than 30 days storage of chlorine on site: this could pose a serious risk to the health of the community if supplies were not delivered timeously;
- The plant was operating over capacity resulting in an increased up flow rate in the clarifier. This in turn resulted in carry-over of flocks to the filters and could lead to a decrease in the quality of the final water; and
- The sand filters require attention: During backwash there was uneven bubble distribution during backwash which was possibly due to broken/blocked nozzles or clogged filter sand. There was also a lack of housekeeping around the filters as evidenced by algae and scum on filter walls.

Water Services Authority	**Dr JS Moroka Local Municipality**
Water Services Provider(s)	**Dr JS Moroka Local Municipality**
Municipal Blue Drop Score	**92.64%**

Performance Area	Systems	Dr JS Moroka
Water Safety Planning (35%)		**98**
Treatment Process Management (10%)		**98**
DWQ Compliance (30%)		**73**
Management, Accountability (10%)		**100**
Asset Management (15%)		**99**
Bonus Scores		1.96
Penalties		0.00
Blue Drop Score (2012)		**92.64%** (↑)
2011 Blue Drop Score		84.42%
2010 Blue Drop Score		95.73%
System Design Capacity (Ml/d)		65
Operational Capacity (% ito Design)		3.08
Population Served		218 290
Average daily Consumption (l/p/d)		9.16
Microbiological Compliance (%)		**97.1%**
Chemical Compliance (%)		**99.9%**

Regulatory Impression

The level of commitment shown by the Dr JS Moroka Local Municipality in improving their performance in drinking water quality (DWQ) management, has convinced the Department that this water services authority is capable of regaining the Blue Drop certification that was obtained in 2010.

The municipality is performing well in most of the Blue Drop requirements and is encouraged to maintain the current level of enthusiasm. Special attention needs to be given to the recurring failures in microbiological compliance since this is where most points were dropped during this assessment cycle.

Technical Inspection Report

Weltevreden WTW: 82%

The Weltevreden WTW was assessed to verify the Blue Drop findings of Dr JS Moroka Local Municipality. Overall, the impression gained from the site visit was good as the plant was clean, well maintained, had adequate safety equipment and signage and was well secured. All relevant documents were present, including log sheets and maintenance records. Operational monitoring was taking place on a regular basis and all monitoring equipment was calibrated and in working condition. Chemical storage and handling was adequate although at the time no lime was being dosed.

There are a number of areas that require attention and these include:

- The classification certificate was not displayed at plant;
- Jar tests to determine the coagulant dosage are conducted by the chemical suppliers. The municipality is encouraged to obtain Jar test equipment and train process controllers to determine

and adjust the coagulant dosage on a daily basis instead of depending on service providers to perform this vital function;

- There was inadequate flocculation leading to carry-over of flocks from the sedimentation unit to the filters. As a result, the final water does not comply with SANS 241. This highlights the need to conduct routine Jar tests and adjust the coagulant dosage on a daily basis;
- The standby chlorine booster pump was not working: the municipality must ensure backup for all critical equipment at all times;
- There was a lack of housekeeping in the sand filters and the walls were dirty. The lack of adequate housekeeping could lead to a decrease in the final water quality; and
- The sludge dams must be cleaned and the supernatant should be recycled to the head of the works instead of being dumped in the river. This will reduce water losses and also reduce the pollution risk to the receiving river.

Water Services Authority	**eMakhazeni Local Municipality**
Water Services Provider(s)	**Lekwa Local Municipality**
Municipal Blue Drop Score	**79.83%**

Performance Area	Systems	Belfast	Dullstroom	Emgwenya	Entokozweni
Water Safety Planning (35%)		**83**	**81**	**68**	**60**
Treatment Process Management (10%)		**50**	**50**	**33**	**36**
DWQ Compliance (30%)		**100**	**73**	**45**	**45**
Management, Accountability (10%)		**100**	**100**	**100**	**100**
Asset Management (15%)		**77**	**80**	**63**	**83**
Bonus Scores		3.43	4.46	9.59	5.92
Penalties		0.00	0.00	-1.20	-1.97
Blue Drop Score (2012)		**89.15%** (↑)	**81.58%** (↓)	**68.44%** (↓)	**64.51%** (↓)
2011 Blue Drop Score		84.95%	83.41%	80.42%	84.95%
2010 Blue Drop Score		71.19%	71.19%	65.19%	71.19%
System Design Capacity (Ml/d)		4	2	3	2.7
Operational Capacity (% ito Design)		50.00%	110.00%	63.33%	74.07%
Population Served		19 253	6 834	11 071	11 667
Average daily Consumption (l/p/d)		103.88	321.92	27.10	23.14
Microbiological Compliance (%)		**98.3%**	**95.0%**	**83.5%**	**89.5%**
Chemical Compliance (%)		**99.9%**	**99.9%**	**99.9%**	**99.9%**

Regulatory Impression

The eMakhazeni Local Municipality together with the Lekwa Local Municipality's performance remains more or less the same compared to the previous cycle of assessment. Although there is a slight decline in the three systems regarding the DWQ management, of which one of the contributing factor could be a non-compliance of the Microbiological in terms of the set National standards (SANS 241).

The performance of Belfast WTW is very close to the excellence target; indicating that Blue Drop certification is imminent if the issues identified by the Inspectors are adequately addressed. Ample room exists for improvement on other aspects of DWQ management; attention should be given to review the operation and maintenance manual and technical process audit. The Department strongly recommends that an urgent investigation be carried out, regarding the recurring failures of the Microbiological compliance (especially in the Dullstroom, Emgwenya and Machadodorp (Entokozweni) WTWs). Failure to do so could result in serious health effects and even loss of human life. Another area of concern is the lack of skilled process control staff who not complies with the requirements of Regulation 2834. However, DWA is encouraged by the appointment of a resident engineer who assists in general monitoring of operations system as well as a project that is currently on-going in the Mpumalanga Region for NQF2 Water treatment operations training.

Management is yet to sign their commitment towards the water safety planning process. This is essential to ensure the implementation of identified control measures as part of a proactive approach to drinking water quality management. Based upon the key performance area that scores favourably, it is clear that there is no lack of commitment and support from the Municipal Manager. The Department is therefore convinced that this would be merely a matter to get the Municipal Manager's signature on the

improved/revised WSP to ensure a more positive score in this regard. The Department commends the Local Municipality for maintaining monthly submission of information on the Blue Drop System (BDS) and encourage the municipality to continue doing so.

In conclusion, DWA encourages the municipality to maintain the performance and strive for excellence. With some effort eMakhazeni Local Municipality can achieve Blue Drop status in all their supply systems.

Technical Inspection Report

Belfast WTW (Belfast Town): 62.8%

The Belfast WTW was visited to verify the findings of the Blue Drop assessment of eMakhazeni Local Municipality. Overall the impression of the WTW was average: the plant was clean and secured but required housekeeping especially with regards to the lime dosing facility. The plant certificate and operational monitoring log sheets was presented together with adequate monitoring equipment. However the WSA is encouraged to conduct and record regular calibration of the monitoring equipment which will ensure effective monitoring of the treatment process.

Untidy lime room that requires housekeeping

There are a number of areas at Belfast WTW that require attention and these include the following:

- No O&M manual available on site.
- Lack of Incident Management Protocol and emergency numbers on site which presents a serious risk as process controllers do not have guidance as to how to react in case of an emergency.
- There is also no logbook for maintenance conducted on site.
- There is a no coagulant dosage control due to lack of Jar Tests. The Coagulant dosage is changed based on flow rate and not water quality. The process controller must conduct regular operational monitoring and adjust the coagulant dosage based on incoming water quality on a daily basis instead of reacting only to consumer complaints.
- Lack of adequate backup for raw water pumps, dosing pumps and chlorinator: Adequate backup is required for all critical equipment to ensure effective treatment.
- Inflow meter is not working
- Chemical dosing area requires attention: the coagulants dosing pumps in leaking and there are loose wires which presents a hazard.
- The lime storage facility needs urgent housekeeping. The room is dirty with bags thrown all over the room, broken bags and no stock control.
- There is no method of monitoring chlorine gas in cylinders since the scale is not working. This presents a real risk since continuous chlorination cannot be guaranteed.
- Scum accumulation in the flocculation channels which must be cleaned to improve final water quality.

Chemical dosing room with 2 dosing pumps not working and loose electrical wires.

Water Services Authority	**eMalahleni Local Municipality**
Water Services Provider(s)	**eMalahleni Local Municipality**
Municipal Blue Drop Score	**37.5%**

Performance Area	Systems	Witbank	Rietspruit	Kriel
Water Safety Planning (35%)		**36**	**26**	**34**
Treatment Process Management (10%)		**80**	**15**	**40**
DWQ Compliance (30%)		**45**	**45**	**100**
Management, Accountability (10%)		**48**	**48**	**48**
Asset Management (15%)		**41**	**8**	**19**
Bonus Scores		3.00	3.00	4.88
Penalties		-1.50	-1.50	-1.39
Blue Drop Score (2012)		**46.64%** (→)	**31.53%** (↓)	**57.00%** (↓)
2011 Blue Drop Score		46.05%	41.78%	61.22%
2010 Blue Drop Score		31%	29%	29%
System Design Capacity (Ml/d)		110	3	15
Operational Capacity (% ito Design)		95.45%	100.00%	50.00%
Population Served		271 000	10 000	30 000
Average daily Consumption (l/p/d)		387.45	300.00	250.00
Microbiological Compliance (%)		**87.9% (8 months)**	**90.9% (9 months)**	**99.9% (9 months)**
Chemical Compliance (%)		**99.9% (11 months)**	**99.9% (9 months)**	**99.9% (9 months)**

Regulatory Impression

The eMalahleni Municipality is not performing very well as yet; the overall score reveals that not much has been since the release of the Blue Drop report in 2011 even after the support from the Department by deploying the Rapid Response Unit to assist the Municipality to optimise treatment since various complaints were received on the visual compliance of the water at the time in the area of jurisdiction. A comprehensive report that clearly indicated the plan of action that the Municipality needed to follow to optimise treatment was drawn.

The municipality is required to prioritise disinfection as a control measure for bacteriological risk to water supply within its entire area of jurisdiction. The water safety plan needs to improve since acceptable operations are still not in place. The most disappointing factor is that, according to the municipal official present at the confirmation assessment, a proposal presented to the council soon after the initial assessment, in an attempt to initiate a WSP process was not approved.

The Municipality has to prioritise development and implementation of the water safety plan, it is imperative to conduct risk assessment for the entire area that covers the catchment, system and distribution. Roles and responsibilities must be clearly defined for the various role players within the Water Services Authority. A service level agreement must also be drawn and endorsed by both WSA and WSP where necessary. The lack of Drinking Water Incident Management Protocol & Water Quality Incident Register from the Municipality is a significant concern to the Department. In the event that any of the plants faces a disaster or emergency situation, the municipality would not be in a position to deal with such, as the protocol and procedures are not in place.

It is evident that management is yet to respond favourably towards the requirements of the national regulation programme on various aspects, especially the need to keep its constituency informed on drinking water quality performance.

The lack of commitment and accountability from the Management towards the national programme intent to inform the public of local municipal services performance is deplorable. This Department is extremely concerned about the current status of the DWQ. This is the second year, the municipality did not adhere to the regulator's requirement to be assessed against the Blue Drop criteria and as result, no evidence was presented in support of the drinking water quality (DWQ) management services and performance within the municipal area. The Department will pay more attention to this Municipality to ensure that safe drinking water quality is provided to the public.

There is room for vast improvement if the Municipality can pay immediate attention to the following aspects (with the full support of the Municipal Management):

- Development and implementation of the Water Safety Plan;
- Development of the Water Incident Management Protocol & Water Quality Incident Register;
- The Municipality is advised to publish the drinking water quality management performance against the requirements of SANS 241. This will allow the public to have more confidence in the Municipality in terms of the quality of drinking water supplied to them;
- Implement the plan of action as recommended by the RRU specialist;
- Submission of drinking water quality compliance on a monthly basis to the Department (on the BDS)

Technical Inspection Report

Witbank WTW: 60%

The Witbank WTW was visited to verify the Blue Drop findings of the eMalahleni Local Municipality. The overall impression of the WTW was poor as the grass was not cut and there was no access control. There is a kitchen and a shower for process controllers but the lights were not working on the day of the site inspection. Acknowledgement is given for the visible safety signs and MSD sheets on site. However the lack of adequate housekeeping and routine operational monitoring must be addressed as a matter of urgency as these issues have also been highlighted in the previous Blue Drop report.

There are a number of areas which require attention and these are discussed below:

- There is a lack of adequate documentation. The plant certificate is displayed but there is no Incident Management Protocol, O&M manual or maintenance logbook. The WSA is encouraged to implement these documents which will ensure effective management of the treatment plant and assist process controller to effectively operate the plant and react to normal and emergency conditions.
- Monitoring log sheets were presented but lack of daily results for determinants such as turbidity, pH and chlorine residual, which are required to monitor the efficiency of the treatment process. The WSA must ensure that operational monitoring takes place at each unit process as per guidelines.
- The lack of data for daily chlorine residual presents a

Chemical dosing facility at Witbank WTW requires housekeeping.

serious health risk as the safety of the final water cannot be guaranteed.

- There is no calibration of monitoring equipment and inflow meter.
- Jar tests are conducted but results are not recorded. The process controller must record all Jar Test results and use the information to adjust the treatment process accordingly.
- Lack of housekeeping around chemical dosing unit: the area is dirty, walls are corroded and there are water leaks resulting in pools of water around the dosing pumps.
- Lack of OH&S equipment such as bunded areas around chemicals, eye-wash, emergency showers.
- Only 15 days of storage for chlorine gas: the WSA must ensure that there is 30 days of storage for chlorine gas and other chemicals to ensure effective treatment of the water.
- Chlorine scales are not present: There is an automatic switch-over indicator for chlorine gas but this is not working. This presents a risk as continuous disinfection cannot be guaranteed.
- Lack of housekeeping around flocculation channels with algal growth and scum accumulation which will lead to decreased final water quality.

Chemical storage area lacking bunded

Water Services Authority	**Goven Mbeki Local Municipality**
Water Services Provider(s)	**Rand Water**
Municipal Blue Drop Score	**77.55%**

Performance Area	Systems	Greater Govan Mbeki
Water Safety Planning (35%)		**67**
Treatment Process Management (10%)		**97**
DWQ Compliance (30%)		**73**
Management, Accountability (10%)		**87**
Asset Management (15%)		**79**
Bonus Scores		2.22
Penalties		0.00
Blue Drop Score (2012)		**77.55%** (→)
2011 Blue Drop Score		77.59%
2010 Blue Drop Score		78.88%
System Design Capacity (Ml/d)		Not applicable
Operational Capacity (% ito Design)		Not applicable
Population Served		534 823
Average daily Consumption (l/p/d)		49.92
Microbiological Compliance (%)		**97.8%**
Chemical Compliance (%)		**99.9%**

Regulatory Impression:

The performance of Govan Mbeki Local Municipality is more or less the same as that in the previous cycle, the overall score showing an increase of 0.04%.The information provided by Rand Water on drinking water quality (DWQ) along with information on other aspects, such as process control management and asset management constitutes the bulk of the score awarded to the Greater Govan Mbeki system.

The water safety plan was found to have some shortcomings, mainly in terms of the lack of integration of the risk assessment process conducted by the municipality with that conducted by Rand water. A co-operative relationship between the WSA and WSP is encouraged to ensure continuous improvement and sustainable DWQ management.

Technical Inspection Report

The Govan Mbeki Local Municipality does not have any water treatment plants and receives water from Rand Water who is the bulk supplier. To verify the findings of the Blue Drop assessment of Govan Mbeki Local Municipality, the audit team conducted a site inspection of the bulk water line from Rand Water, including a typical reservoir and a pressure tower.

Leak in the main raw water bulk line of Govan Mbeki Local Municipality leading to water losses

The point at which the Rand Water bulk water line enters the municipality is monitored by an operational

bulk meter. However at the time of the visit there was a major leak in the raw water bulk line which, according to the municipality, is the responsibility of Rand Water and Rand Water is aware of the situation. Both Rand Water and the municipality must work together to ensure all leaks are repaired immediately so as to reduce water losses in the system.

Floating top reservoir covered with reeds and algae which may compromise the quality of the water

The reservoir that was visited was a floating top reservoir. The site inspection revealed large amounts of algae and reeds growing on the surface. The municipality must ensure that the top of the reservoir is cleaned on a regular basis to ensure it remains intact and does not present a risk to the potable water supply.

The pressure tower at Charl Cilliers was visited. The audit team was greeted by a concerned resident who noted that the tower routinely overflows due to a faulty valve. The resident informed the team that he manually adjusts the valve to ensure adequate pressure to the surrounding houses. The resident has apparently informed the municipality of the problems (including rusting and leaking seals) but has not yet received any feedback from the municipality. The Technical Manager of Govan Mbeki LM was present during the site visit but refused to comment on these allegations. The municipality must ensure that all problems are investigated and adequately addressed to ensure the delivery of safe drinking water to the community. Furthermore, the municipality is urged to review the incident management protocol and be proactive in providing feedback to residents with regards to water quality so that service delivery can improve.

Water Services Authority	**Lekwa Local Municipality**
Water Services Provider(s)	**Lekwa Local Municipality**
Municipal Blue Drop Score	**34.74%**

Performance Area	Systems	Morgenzon	Standerton
Water Safety Planning (35%)		**29**	**29**
Treatment Process Management (10%)		**40**	**40**
DWQ Compliance (30%)		**40**	**55**
Management, Accountability (10%)		**28**	**34**
Asset Management (15%)		**13**	**20**
Bonus Scores		0.00	0.00
Penalties		-1.50	-1.50
Blue Drop Score (2012)		**29.26%** (↓)	**35.45%** (↑)
2011 Blue Drop Score		18.85%	9.92%
2010 Blue Drop Score		21%	18%
System Design Capacity (Ml/d)		1.8	27
Operational Capacity (% ito Design)		38.89%	100.00%
Population Served		10 000	104 824
Average daily Consumption (l/p/d)		70.00	257.57
Microbiological Compliance (%)		**91.3% (8 months)**	**96.2% (8 months)**
Chemical Compliance (%)		**>99.99% (8 months)**	**>99.99% (8 months)**

Regulatory Impression

The Municipality's performance is not satisfactory yet even though the Lekwa Local Municipality shows increased Blue Drop scores from 10.48% in 2011 to 34.74% in 2012.

The Lekwa Local Municipality should sustain effort to review the water safety plan and roles and responsibilities should be clearly defined, while management ensures availability of budget to meet deadlines for implementing control measures. The Municipality is encouraged to complete a full SANS 241 analyses as part of their risk assessment, findings should be used to inform future chemical compliance monitoring. DWA however applied a partial penalty for the minimum information presented to the Inspectors by the municipality that confirmed inadequate chemical Microbiological Compliance in the distribution network. Process Control requirements needs to be addressed to ensure compliance at all the treatment systems with Regulation 2834. DWA notes some attempts to improve asset management, little information was however presented on O & M.

It is unfortunate that key role players at the Municipality did not attend both on-site and confirmation session and no one from the Municipality attended the confirmation session. The absence of the Officials was as a result of the Municipal Manager's instruction that the plant will be left unattended due to shortage of staff should the officials attend the confirmation session. Therefore, the score achieved at the on-site assessment remains unchanged since no additional information was submitted to improve the scores.

Site Inspection

Standerton WTW (Standerton Town): 63%

The Standerton WTW was visited to verify the Blue Drop findings of the Lekwa Local Municipality. Overall, the impression of the plant was average. Although the plant is old, the gardens and surroundings are neat and the facility is secured. However the process controller's facilities require urgent attention as their toilets and showers are not working and they are forced to use facilities at nearby houses. Acknowledgement is given for the Jar tests which are conducted regularly and used to adjust the coagulant dosage at the plant.

Areas which require attention at Standerton WTW include:

- Lack of documentation i.e. plant certificate, maintenance logbook, incident management protocol, emergency contact details and O&M manual.
- Lack of calibration of operational monitoring equipment which can lead to faulty readings and decrease in final water quality.
- Emergency showers and safety equipment lacks routine service and are not in working order.
- As mentioned earlier, shower and toilet not working. Furniture is old and lights are not working at office and around the plant.
- Lack of access control at plant
- Inflow meter not working: this presents a real risk as disinfection and coagulant dosage cannot be optimized.
- Scum accumulation in flocculation channels which will decrease the quality of the final water.
- Filters are routinely blocked in summer due to high algal concentrations in the incoming water. The municipality must monitor the incoming raw water on a daily basis so that corrective actions can be taken timeously when raw water quality deteriorates. These actions must be outlined in the Incident Protocol and O&M manuals so that process controllers can effectively treat the raw water to potable standards. Alternative methods of treatment such as Dissolved Air Flotation should be considered if the algal problem compromises the quality of the final water.

Emergency shower and eyewash in need of routine service

Filters at Standerton WTW blocked due to algal cells

Water Services Authority	**Mbombela Local Municipality**
Water Services Provider(s)	**Mbombela Local Municipality; Sembcorp Silulumanzi[a]; Bushbuckridge Water[b]**
Municipal Blue Drop Score	**87.68%**

Performance Area	Systems	Matsulu[a]	Tekwane[a]	Karino[a]	Nelspruit[a]
Water Safety Planning (35%)		**97**	**97**	**100**	**99**
Treatment Process Management (10%)		**70**	**95**	**75**	**95**
DWQ Compliance (30%)		**100**	**100**	**100**	**100**
Management, Accountability (10%)		**100**	**100**	**100**	**100**
Asset Management (15%)		**91**	**91**	**100**	**97**
Bonus Scores		1.62	0.87	0.00	0.36
Penalties		0.00	0.00	0.00	0.00
Blue Drop Score (2012)		**96.22%** (↑)	**97.97%** (↑)	**98.25%** (→)	**99.15%** (↑)
2011 Blue Drop Score		95.56%	91.13%	NA	96.11%
2010 Blue Drop Score		90.00%	NA	NA	96.80%
System Design Capacity (Ml/d)		12	1	2	62
Operational Capacity (% ito Design)		133%	177%	0%	63%
Population Served		65000	2500	280	65000
Average daily Consumption (l/p/d)		246	708	714	597
Microbiological Compliance (%)		**>99.9%**	**>99.9%**	**92.3% (9 months)**	**>99.9%**
Chemical Compliance (%)		**>99.9%**	**>99.9%**	**>99.9% (3 months)**	**>99.9%**

Performance Area	Systems	Nzikazi South[b]	Hazyview	Elandshoek	Phola[b]
Water Safety Planning (35%)		**66**	**87**	**83**	**51**
Treatment Process Management (10%)		**75**	**75**	**75**	**75**
DWQ Compliance (30%)		**100**	**100**	**100**	**45**
Management, Accountability (10%)		**85**	**80**	**80**	**77**
Asset Management (15%)		**93**	**66**	**96**	**76**
Bonus Scores		1.52	2.12	1.17	0.00
Penalties		0.00	0.00	0.00	0.00
Blue Drop Score (2012)		**84.61%** (↑)	**87.97%** (↑)	**90.04%** (↑)	**57.91%** (↑)
2011 Score		71.75%	60.96%	74.61%	8.96%
2010 Score		88.00%	64.13%	Not assessed	Not assessed
System Design Capacity (Ml/d)		54	4	1	2
Operational Capacity (% ito Design)		82%	109%	21%	47%
Population Served		493000	12800	1000	3500
Average daily Consumption (l/p/d)		90	297	210	200
Microbiological Compliance (%)		**>99.9%**	**>99.9%**	**91.3%**	**93.3%**
Chemical Compliance (%)		**>99.9% (1 month)**	**No Information**	**>99.9% (2 months)**	**99.9%**

Performance Area	Systems	White River	Dwaleni[b]	Legogote[b]	Nzikazi North[b]
Water Safety Planning (35%)		**83**	**57**	**57**	**57**
Treatment Process Management (10%)		**100**	**75**	**75**	**75**
DWQ Compliance (30%)		**100**	**45**	**73**	**45**
Management, Accountability (10%)		**88**	**85**	**85**	**85**
Asset Management (15%)		**78**	**68**	**60**	**66**
Bonus Scores		1.57	0.00	0.00	0.00
Penalties		-0.52	0.00	0.00	0.00
Blue Drop Score (2012)		**90.60% (↑)**	**59.58% (→)**	**66.70% (↑)**	**59.28% (↑)**
2011 Score		61.82%	Not assessed	11.14%	12.56%
2010 Score		Not assessed	Not assessed	Not assessed	Not assessed
System Design Capacity (Ml/d)		6	2	2	14
Operational Capacity (% ito Design)		72%	90%	90%	93%
Population Served		30000	3000	3500	60000
Average daily Consumption (l/p/d)		143	600	514	217
Microbiological Compliance (%)		**99.9%**	**97.2%**	**91.0%**	**84.0%**
Chemical Compliance (%)		**99.9%**	**95.0%**	**83.0%**	**99.9%**

Key Performance Area	Systems	Mjejani	White River Country Estate
Water Safety Planning (35%)		**60**	**86**
Treatment Process Management (10%)		**75**	**75**
DWQ Compliance (30%)		**86**	**100**
Management, Accountability (10%)		**77**	**88**
Asset Management (15%)		**80**	**91**
Bonus Scores		0.00	1.49
Penalties		0.00	0.00
Blue Drop Score (2012)		**74.00% (↓)**	**91.54% (↑)**
2011 Score		75%	81.76%
2010 Score		Not assessed	72.13%
System Design Capacity (Ml/d)		1	1
Operational Capacity (% ito Design)		34%	68%
Population Served		1500	1000
Average daily Consumption (l/p/d)		181	510
Microbiological Compliance (%)		**96.3%**	**>99.9%**
Chemical Compliance (%)		**99.9%**	**>99.9%**

Regulatory Impression

It is with great pleasure that we applaud the Mbombela Local Municipality together with Sembcorp Silulumanzi and Bushbuckridge Water for an outstanding performance, justifying the allocation of the Blue Drop certification for the 4 systems.

The Department wishes to congratulate the WSA and WSPs for achieving Blue Drop certification for the third year in a row in some of the systems. This is a remarkable achievement.

Blue Water Services Inspectors were concerned about the inadequate number of data that is being submitted to the Department. This requires significant improvement. The municipality must also ensure that the data submission to the Department complies with BDC requirements; failure to do so might lead to deterioration of this inspirational experience. Another concerning factor as stated by the Inspector is that nitrate/nitrites not monitored despite potential wastewater contamination at source water.

Technical Inspection Report

Kanyamazane (New) WTW (Kanyamazane Area): 90%

White River WTW (White River Estate): 78%

The Kanyamazane and White River WTW's were visited to verify the Blue Drop findings of the Mbombela Local Municipality. The Kanyamazane WTW is operated and owned by Silulumanzi who is the bulk supplier to Mbombela Local Municipality. The overall impression of both WTW's was good with well-maintained gardens and buildings. Acknowledgement is given for the record-keeping and document control which includes maintenance logbook, O & M manual and Incident Management Protocol. Operational monitoring is taking place on a daily basis. However calibration records were absent at the White River WTW

There are some areas that require attention at Kanyamazane WTW which include the following:

- Process controller's certificates are not displayed at the plant.
- Facilities for process controllers require attention: there is no place for process controllers to eat.
- Lack of standby for raw water pump and chlorine dosing. It is required that all critical equipment on site should have adequate backup to ensure the continuous treatment of the incoming raw water.
- Lack of housekeeping at inlet works is evident by the presence of scum and algal growth. The management must ensure that all unit processes are kept clean and neat to ensure their effective operation.

Areas that require attention at White River WTW include the following:

- Lack of calibration record of monitoring equipment. There is also no Jar Test apparatus on site. It is recommended that routine Jar Tests are conducted so that the coagulant dosage applied is optimized in relations to raw water quality.
- Lack of emergency showers, eye wash, goggles and other safety equipment at chemical dosing facility. The municipality must ensure that all safety equipment is available at all WTW in compliance with OH&S legislation.

- There is no standby for chemical dosing pump. Management must ensure that there is sufficient backup for all critical equipment on site.
- Lack of adequate storage of chlorine gas on site. Management must ensure that there is at least 30 days storage for all chlorine gas so that continuous disinfection is guaranteed.
- Uneven bubble distribution observed during backwash of filters indicating possible broken or blocked nozzles which can lead to decrease in final water quality.

Water Services Authority	**Mkhondo Local Municipality**
Water Services Provider(s)	**Mkhondo Local Municipality**
Municipal Blue Drop Score	**11.30%**

Performance Area	Systems	Piet Retief	Amsterdam	Driefontein/ Dirkiesdorp	Mkhondo Rural scheme
Water Safety Planning (35%)		**15**	**15**	**15**	**0**
Treatment Process Management (10%)		**26**	**26**	**26**	**0**
DWQ Compliance (30%)		**0**	**0**	**0**	**0**
Management, Accountability (10%)		**27**	**27**	**27**	**0**
Asset Management (15%)		**0**	**0**	**0**	**0**
Bonus Scores		4.50	4.50	4.50	0
Penalties		-1.50	-1.50	-1.50	0
Blue Drop Score (2012)		**13.61% (↑)**	**13.61% (↑)**	**13.61% (↑)**	**0.00% (↓)**
2011 Blue Drop Score		05.46%	04.56%	04.56%	03.55%
2010 Blue Drop Score		28.55%	28.55%	28.55%	28.55%
System Design Capacity (Ml/d)		7.5	6.3	7	No Information
Operational Capacity (% ito Design)		30.67%	11.11%	27.14%	No Information
Population Served		45 000	14 310	37 185	No Information
Average daily Consumption (l/p/d)		51.11	48.92	51.10	No Information
Microbiological Compliance (%)		**No Information**	**No Information**	**No Information**	**No Information**
Chemical Compliance (%)		**No Information**	**No Information**	**No Information**	**No Information**

Regulatory Impression

It is disheartening to see that no significant improvement was made since the previous assessment cycle. Very little information was provided for three of the systems and none at all for the Mkhondo Rural scheme for the following performance areas: water safety planning process; incident response management; process control, maintenance and management skills; performance publication; and asset management. The Blue Drop scores for the past three years indicate that greater effort and commitment is required from Mkhondo Local Municipality in order to raise drinking water quality (DWQ) management practices to the required standards.

These communities and visitors are hereby warned not to consume the tap water supplied in these towns without some form of acceptable disinfection home treatment. This warning will remain in place until official communication will be forthcoming from municipal management in this regard.

The municipality is strongly advised to begin their DWQ turn around by initiating a water safety planning process aimed at identifying and addressing all risks within the water supply system, from source right through to the consumer. This process, once implemented will assist in addressing the shortcomings in terms of the Blue Drop criteria such as improved operational and compliance monitoring, improved management of DWQ incidents and consequently improved drinking water quality compliance.

The Department acknowledges that the municipality recently appointed a Municipal Manager, a Technical Manager (who impressed the DWA Panel with his enthusiasm) and a service provider to guide them through the water safety planning process. Credit is also given for the implementation of reporting

mechanisms intended to improve record keeping and the management of DWQ. According to the DWA Inspectors *"The LM is committed to train process controllers' competencies in an attempt to improve the current unacceptable situation".* Partial scores were awarded for this effort.

There is also a need for DWQ results to be reported to the Department of Water Affairs on a monthly basis via the Blue Drop System (BDS) to ensure continuous management of information.

Technical Inspection Report:

Piet Retief (New) WTW: 23%

The Piet Retief (New) WTW was visited to verify the findings of the Blue Drop assessment of Mkhondo Local Municipality. The gardens are well maintained, the plant is fenced and the buildings are new as the plant was only commissioned in 2006. However, the overall impression of the New Piet Retief WTW is poor due to a complete lack of adequate operations and maintenance. The process controllers are currently undergoing training but have no place to eat, no tables and chairs and no equipment (rakes, spades, brooms). The total lack of operational monitoring at the time of the visit is of grave concern and it is hoped that this will be addressed later in 2012 once operators have completed their training. The Department has no confidence in the current operation and maintenance of the New Piet Retief WTW.

The plant still looks new from the outside and very tidy.

Areas that require attention include the following:

- Much of the required documentation was lacking i.e. plant certificate, incident management protocol, maintenance logbook, emergency contact details and operational monitoring log sheets.
- There was no operational monitoring equipment on site. There was jar test equipment on site but the process controllers did not know how to operate the equipment. The municipality must urgently address the lack of daily operational monitoring and provide on-site training to process controllers that will allow them to adequately manage the treatment process.
- There was a lack of safety signs and safety equipment on site including gas masks for chlorine handling and first aid kits.
- The process controllers' knowledge of water treatment processes was poor. The process controllers are currently undergoing training but the municipality must ensure that on-site training is given to familiarize them with basic procedures such as backwashing and chlorine dosage
- There was a lack of adequate and operational standby equipment. The municipality must ensure that all critical equipment has adequate backup which is in working condition to ensure the

The sludge dams not well maintained (grass growing)

continuous delivery of safe drinking water.

- There was no mechanism to measure chlorine gas in the cylinder. At the time of the site visit, there was no monitoring of the chlorine dosage or the chlorine residual in the final water. **On the day of the site inspection, no chlorine gas was being dosed! This presents a health risk to the community as the safety of the final water cannot be guaranteed**.
- The flocculation channels were filled with scum. It is recommended that the municipality liaise with the contractor to evaluate the current flocculation process to determine its efficiency and address any shortcomings in the process.

Floc formation is retarded

- There was a general lack of adequate housekeeping at all unit processes. The municipality must supply the process controllers with equipment such as wheel barrows and brushes and implement routine maintenance schedules which will improve the final water quality.
- De-sludging was not taking place regularly due to faulty valves and this was negatively affecting sedimentation and one filter unit was not working. The municipality must urgently identify all outstanding maintenance issues and implement a plan for routine and preventative maintenance.

Water Services Authority	**Msukaligwa Local Municipality**
Water Services Provider(s)	**Msukaligwa Local Municipality**
Municipal Blue Drop Score	**21.20%**

Performance Area	Systems	South Works	Douglas	Davel	Breyton
Water Safety Planning (35%)		**28**	**28**	**28**	**28**
Treatment Process Management (10%)		**40**	**40**	**40**	**40**
DWQ Compliance (30%)		**0**	**0**	**0**	**0**
Management, Accountability (10%)		**15**	**15**	**0**	**0**
Asset Management (15%)		**17**	**17**	**17**	**17**
Bonus Scores		3.60	3.60	3.60	3.60
Penalties		0.00	0.00	0.00	0.00
Blue Drop Score (2012)		**21.40%** (→)	**21.40%** (→)	**19.90%** (→)	**19.90%** (→)
2011 Blue Drop Score		Not assessed	Not assessed	Not assessed	Not assessed
2010 Blue Drop Score		Not assessed	Not assessed	Not assessed	Not assessed
System Design Capacity (Ml/d)		22.5	15	2	5
Operational Capacity (% ito Design)		10.22%	15.00%	20.00%	36.00%
Population Served		45 000	45 000	5 000	18 000
Average daily Consumption (l/p/d)		51.11	50.00	80.00	100.00
Microbiological Compliance (%)		**50.0%**	**50.0%**	**50.0%**	**50.0%**
Chemical Compliance (%)		**50.0%**	**50.0% (4 months)**	**50.0%**	**50.0%**

Performance Area	Systems	Lothair
Water Safety Planning (35%)		**28**
Treatment Process Management (10%)		**40**
DWQ Compliance (30%)		**0**
Management, Accountability (10%)		**0**
Asset Management (15%)		**17**
Bonus Scores		3.60
Penalties		0.00
Blue Drop Score (2012)		**19.90%** (→)
2011 Score		Not assessed
2010 Score		Not assessed
System Design Capacity (Ml/d)		0.49
Operational Capacity (% ito Design)		81.63%
Population Served		8 125
Average daily Consumption (l/p/d)		49.23
Microbiological Compliance (%)		**50.0%**
Chemical Compliance (%)		**50.0%**

Regulatory Impression:

The overall performance by Msukaligwa Local Municipality reveals a slight increase in their drinking water quality (DWQ) management since the last Blue Drop assessment. Although ample room still exists for improvement, the Department of Water Affairs is encouraged to note that Msukaligwa LM heeded the advice given during the previous assessment cycle to prioritise proper demarcation of water supply systems and to develop water safety plans for each system. Municipal management are encouraged to support the efforts made in DWQ management by making funds available to ensure that existing monitoring programs can be maintained. It is also important to ensure that there is adequate monitoring coverage, especially in all the newly identified systems.

DWQ in all the systems was found to be unacceptable both in terms of microbiological and chemical compliance with the South African Standard for Drinking Water (SANS 241), therefore exposing consumers to the risk of infection. Other areas requiring improvement include publication of DWQ performance against SANS 241 and effective asset management.

The communities and visitors of these areas are hereby warned not to consume the tap water supplied in these towns without some form of acceptable disinfection home treatment. This warning will remain in place until official communication will be forthcoming from municipal management in this regard.

Technical Inspection Report

Ermelo South WTW (Ermelo South): 60%

Douglas WTW (Ermelo North): 62 %

The Ermelo South and Douglas WTW's were visited to verify the Msukaligwa Local Municipality Blue Drop findings. The overall impression of both WTW's was poor. Although both WTW's were neat, there were serious concerns with regards to the lack of documentation, OH&S issues and inadequate chlorination. The current operation and maintenance of both these WTW's must be urgently addressed by the Msukaligwa Local Municipality as the safety of the final water produced cannot be guaranteed and poses a health risk to the community.

Areas that require attention at the Ermelo South and Douglas WTW's include the following items:

- Documentation at both WTWs was poor; the plant registration certificates were not displayed, there were no operation and maintenance manuals or incident management protocols available at either WTW.
- The facilities for process controllers need attention.
- Process controllers indicated that operational monitoring equipment is shared between the two plants, but no monitoring equipment was seen at either of the plants. The lack of daily operational monitoring must be addressed urgently as the efficiency of the treatment process cannot otherwise be evaluated.
- There was no coagulant dosage control taking place and no jar test equipment available at either site. This means that the treatment process is not adjusted to accommodate the incoming raw water and final water quality cannot be guaranteed.
- There was a lack of safety equipment and there were a number of other OH&S issues such as open man-hole covers, lack of bunding around the chemical storage areas and there were no

emergency showers on site.

- The WTWs were secured but at Ermelo South WTW, the process controller was using a hole in the fence to reach the inflow meter to take readings.
- At the time of the site visit, chlorine gas was not being dosed at either plant. At Ermelo South WTW there was no supply of chlorine gas and although HTH tablets were being added, the chlorine residual was not being measured. At the Douglas WTW, chlorination had been suspended due to leaks in the chlorine supply line which had not been repaired. This situation must be urgently addressed as the lack of adequate disinfection poses a significant risk to the health of the community.

Water Services Authority	**Nkomazi Local Municipality**
Water Services Provider(s)	**Nkomazi Local Municipality**
Municipal Blue Drop Score	**17.2%**

Performance Area	Systems	Driekoppies	Fig tree	Hectorspruit	Komatipoort
Water Safety Planning (35%)		**29**	**20**	**29**	**29**
Treatment Process Management (10%)		**63**	**50**	**50**	**50**
DWQ Compliance (30%)		**10**	**0**	**5**	**10**
Management, Accountability (10%)		**8**	**8**	**8**	**8**
Asset Management (15%)		**20**	**0**	**0**	**0**
Bonus Scores		0.00	0.00	0.00	0.00
Penalties		-1.50	-1.50	-1.50	-1.50
Blue Drop Score (2012)		**21.61%** (↓)	**11.21%** (↓)	**15.71%** (↓)	**17.36%** (↓)
2011 Blue Drop Score		70.48%	32.44%	60.73%	61.42%
2010 Blue Drop Score		17.15%	17.15%	17.15%	17.15%
System Design Capacity (Ml/d)		37	4	2	6
Operational Capacity (% ito Design)		31.08%	22.50%	2.50%	3.33%
Population Served		230 000	18 000	1 000	4 000
Average daily Consumption (l/p/d)		50.00	50.00	50.00	50.00
Microbiological Compliance (%)		**99.9% (1 month)**	**No Information**	**No Information**	**99.9% (1 month)**
Chemical Compliance (%)		**99.9% (1 month)**	**No Information**	**99.9% (1 month)**	**99.9% (1 month)**

Performance Area	Systems	Langeloop	Louieville	Madadeni	Magudu
Water Safety Planning (35%)		**23**	**26**	**26**	**26**
Treatment Process Management (10%)		**50**	**35**	**15**	**15**
DWQ Compliance (30%)		**10**	**0**	**0**	**0**
Management, Accountability (10%)		**8**	**8**	**8**	**8**
Asset Management (15%)		**14**	**0**	**0**	**0**
Bonus Scores		0.00	0.00	0.00	0.00
Penalties		-1.50	-1.50	-1.50	-1.50
Blue Drop Score (2012)		**17.29%** (↓)	**11.81%** (↓)	**9.81%** (↓)	**9.81%** (↓)
2011 Score		65.98%	40.24%	53.34%	59.59
2010 Score		17.15%	17.15%	17.15%	17.15%
System Design Capacity (Ml/d)		2.9	1	1	1
Operational Capacity (% ito Design)		8.62%	30.00%	35.00%	35.00%
Population Served		5 000	5 500	7 000	7 000
Average daily Consumption (l/p/d)		50.00	54.55	50.00	50.00
Microbiological Compliance (%)		**99.9% (1 month)**	**No Information**	**No Information**	**No Information**
Chemical Compliance (%)		**99.9% (1 month)**	**No Information**	**No Information**	**No Information**

Performance Area / Systems	Malelane	Marloth Park	Mbuzini	Nyathi
Water Safety Planning (35%)	**0**	**29**	**26**	**29**
Treatment Process Management (10%)	**8**	**50**	**50**	**50**
DWQ Compliance (30%)	**0**	**10**	**0**	**0**
Management, Accountability (10%)	**8**	**8**	**8**	**8**
Asset Management (15%)	**0**	**0**	**0**	**0**
Bonus Scores	0.00	0.00	0.00	0.00
Penalties	-1.50	-1.50	-1.50	0.00
Blue Drop Score (2012)	**14.36%** (↓)	**17.36%** (↓)	**15.11%** (↓)	**17.66%** (↓)
2011 Score	56.70%	56.70%	46.68%	56.67%
2010 Score	17.15%	17.15%	17.15%	17.15%
System Design Capacity (Ml/d)	6	3.4	3	23.4
Operational Capacity (% ito Design)	2.50%	1.47%	383.33%	2.56%
Population Served	3 000	1 000	230 000	12 000
Average daily Consumption (l/p/d)	50.00	50.00	50.00	50.00
Microbiological Compliance (%)	**No Information**	**99.9% 1 (month)**	**91% (1 month)**	**No Information**
Chemical Compliance (%)	**No Information**	**99.9% 1 (month)**	**83% (1 month)**	**No Information**

Regulatory Impression

The performance of the Nkomazi Local Municipality shows a significance decline in Blue Drop scores for all the water supply systems since the last assessment cycle. From a regulatory point of view, it is disheartening to observe such a decline given the fact that the municipality received an award after the previous cycle for the most improved WSA, which included a portable monitoring kit.

The municipality failed to comply with the drinking water quality (DWQ) required in terms of the South African national standard for drinking water (SANS 241) since little, or no monitoring took place during the assessment period. The significance of the potential risks cannot be determined without data. The municipality is required to give urgent attention to implementation of an adequate monitoring programme and to adjust process control according to the findings of continuous compliance and operational monitoring. It is furthermore required that municipal management provides leadership in the turnaround of water supply and DWQ management. Other aspects in which the municipality has made little effort to date and which require improvement, include maintenance and asset management, the water safety planning process and incident response management.

The Department of Water Affairs has no confidence in the municipality's ability to render safe and sustainable drinking water. The situation demands the urgent attention of municipal management and the Regulator trusts that the poor performance against the Blue Drop evaluations will motivate the municipality to rectify the non-compliances without further delay.

These communities are hereby warned not to consume the tap water supplied in these towns without some form of acceptable disinfection home treatment. This warning will remain in place until official communication will be forthcoming from municipal management in this regard.

Technical Inspection Report

Driekoppies WTW: 64%

The Driekoppies WTW was visited to verify the findings of the Blue Drop assessment of Nkomazi Local Municipality. The overall impression gained of the plant was fair as it had clean surroundings, effective access control and good facilities for process controllers. The plant certificate was displayed and the daily log book contained records of operations and maintenance. However the lack of coagulant dosing due to faulty dosing pumps presented a serious risk as effective phase separation could take place without flocculation and coagulation. The resultant decrease in the quality of the final water presented a health risk to the receiving community. The municipality must urgently attend to this problem and ensure that effective coagulant dosing occurs on a daily basis.

Images taken at the Driekoppies WTW

Areas that require attention at the Driekoppies WTW include the following:

- The lack of an operation and maintenance manual and incident management protocol. The municipality must ensure that process controllers have adequate guidelines on basic operations and maintenance of the treatment plant as well as on how to react to unforeseen and emergency situations.
- There were no calibration records for operational monitoring equipment. The pH meter was not working as it had no batteries. The municipality must ensure that all standards required for calibration are available and have not expired.
- The fire extinguisher required servicing and first aid box needed to be replenished as the “dates of use” for both had expired. The municipality must ensure that all safety equipment and signs are in place and that maintenance and servicing is conducted as per required timeframes to ensure compliance with OH&S legislations.
- None of the dosing pumps for coagulant and lime, including the standby pumps, were working and therefore no chemical dosing was taking place. The municipality must address all outstanding maintenance issues prioritizing the urgent need for repairs to the dosing pumps. The municipality must ensure that there is adequate back up for all critical equipment on site at all times.
- Due to the lack of coagulant dosing, there was no flocculation and sedimentation was poor.
- One of the sludge dams was filled with reeds. There was also no standby for the sludge pumps, so when breakdowns occur, the sludge is sent directly to the river, presenting a serious pollution risk.

Water Services Authority	**Pixley Ka Seme Local Municipality**
Water Services Provider(s)	**Pixley Ka Seme Local Municipality**
Municipal Blue Drop Score	**40.7%**

Performance Area / Systems	Volksrust	Vukuzakhe	Wakkerstroom	Amersfoort
Water Safety Planning (35%)	**22**	**22**	**22**	**22**
Treatment Process Management (10%)	**15**	**15**	**15**	**15**
DWQ Compliance (30%)	**80**	**80**	**80**	**80**
Management, Accountability (10%)	**19**	**19**	**16**	**16**
Asset Management (15%)	**14**	**14**	**14**	**29**
Bonus Scores	4.50	4.50	2.25	4.50
Penalties	-1.50	-1.50	-1.50	-1.50
Blue Drop Score (2012)	**40.16% (↑)**	**40.16% (↑)**	**37.61% (↓)**	**42.11% (↓)**
2011 Blue Drop Score	32.48%	33.56%	51.50%	65.61%
2010 Blue Drop Score	Not assessed	Not assessed	Not assessed	Not assessed
System Design Capacity (Ml/d)	3	1.5	2	4
Operational Capacity (% ito Design)	100.00%	41.33%	20.00%	60.00%
Population Served	9 655	12 362	8 078	48 042
Average daily Consumption (l/p/d)	310.72	50.15	49.52	49.96
Microbiological Compliance (%)	**99.9% (10 months)**	**99.9% (9 months)**	**99.9% (9 months)**	**99.9% (9 months)**
Chemical Compliance (%)	**99.9% (10 months)**	**99.9% (9 months)**	**99.9% 9 (months)**	**99.9% (9 months)**

Regulatory Impression:

The overall performance of Pixley ka Seme Local Municipality shows a decline while the Volksrust system reveals a significance improvement more especial with the DWQ compliance. The Department however acknowledges the commitment of this municipality as noted by the DWA Inspectors *"The WSA is commended in the effort of compiling the Water Safety Plan (WSP) even though it has not been implemented"*. The water safety plan tabled at the assessment was found to be promising, aiming in the right direction. There is a room for improvement on the following aspects: asset management (from an asset management perspective, the asset register requires improvement to ensure that the municipality is informed on all the crucial elements of infrastructure), submission of data on a monthly basis, compliance monitoring, and process controller training. The operations and maintenance manuals also requires improvement to ensure that process controllers have access to site specific manuals.

Hopefully, with the recent appointment of the technical manager more WQM issues will be prioritised. The officials are encouraged to keep up the momentum in pursuing the National common goal (which is providing safe drinking water quality). This will only be possible if a concerted effort of officials, management and decision-makers generate momentum towards the target of excellence.

Technical Inspection Reports

Volksrust WTW (Volkrust Town): 63%

Amersfoort WTW: 29%

The Volksrust and Amersfoort WTW's were visited to verify the Blue Drop Assessment of Pixley Ka Seme Local Municipality. The overall impression of the Volksrust WTW was satisfactory as the plant was neat but required some basic maintenance including painting. However the overall impression of the Amersfoort WTW was poor as the grass was high and the infrastructure was failing (broken fence). Both sites displayed a plant certificate but lacked a maintenance logbook and incident management protocol. For both WTW's an out dated O&M manual was presented at the assessment but was not available on site. The current operational monitoring program at both WTW's is inadequate and there is no daily monitoring per unit process for required determinants as well as no record of calibration of equipment. There is also a general lack of safety equipment and signage at both plants and the municipality is urged to address all OH&S aspects as a matter of urgency. **The lack of adequate chlorination at Amersfoort must be addressed immediately as this presents a high risk to the health of the community**.

Areas that require attention at the Volksrust WTW include:

- Facilities (office, change rooms and showers) for process controllers require maintenance.
- OH&S issues to be addressed including lack of hand rails, warning signs, emergency showers and eye wash, gas masks.
- Lack of coagulant dosage control as no Jar Test is conducted leading to reduces efficiency of the treatment process.
- Lime feeder to be upgraded as present configuration requires manual stirring by process controller as mixing is not effective.
- Lack of spare chlorinator. The municipality must ensure that there is adequate backup for all critical equipment including chlorinators.
- Ineffective filtration due to lack of housekeeping of filter unit: walls are not hosed down during backwash leading to scum accumulation.

Areas that require urgent attention at the Amersfoort WTW include the following:

- Lack of maintenance, ageing infrastructure and lack of housekeeping.
- Process controller is demotivated: lives in nearby informal settlement and did not want to participate in the on-site assessment. Facilities for process controller must be upgraded.
- OH&S issues to be addressed including lack of hand rails, warning signs, emergency showers and eye wash, gas masks.
- Lack of coagulant dosage control as no Jar Test is conducted on site leading to reduces efficiency of the treatment process.
- Process controller has no knowledge of the amount of chemicals that are dosed, does not know how to adjust the treatment process or operate any of the unit processes. The municipality must ensure that all staff is adequately trained to operate the treatment plants and thereby ensure the delivery of safe drinking water to the community.
- Ineffective phase separation: lack of desludging, missing weir plates, backwashing exceeds recommended frequency, etc. The municipality must conduct a detailed risk assessment to identify all outstanding maintenance issues and implement a plan of action to address these risks.
- There is a lack of adequate chlorination. The Process controller has no knowledge of chlorine dosage and storage areas indicate that no chlorine has been dosed in the past year!

Water Services Authority	**Steve Tshwete Local Municipality**
Water Services Provider(s)	**Steve Tshwete Local Municipality; Eskom[a]; Middleburg Mine[b]; Kraanspoort Owners Committee[c]**
Municipal Blue Drop Score	**97.35%**

Performance Area	Systems	Middelburg Mhluzi	Hendrina STLM	Middelburg Mine[b]	Kranspoort Vakansie Dorp[c]
Water Safety Planning (35%)		**100**	**100**	**89**	**32**
Treatment Process Management (10%)		**75**	**75**	**63**	**15**
DWQ Compliance (30%)		**100**	**100**	**88**	**100**
Management, Accountability (10%)		**100**	**100**	**96**	**63**
Asset Management (15%)		**100**	**100**	**79**	**63**
Bonus Scores		0.75	0.75	2.23	2.49
Penalties		0.00	0.00	0.00	0.00
Blue Drop Score (2012)		**98.25%** (↑)	**98.25%** (↑)	**87.36%** (↑)	**60.94%** (↓)
2011 Blue Drop Score		97.53%	97.96%	82.26%	90.26%
2010 Blue Drop Score		95.84%	95.84%	87.85%	62.38%
System Design Capacity (Ml/d)		44	15	2.4	1
Operational Capacity (% ito Design)		81.82%	3.33%	33.33%	No Information
Population Served		102 000	10 000	1 500	1 000
Average daily Consumption (l/p/d)		352.94	50.00	533.33	50.00
Microbiological Compliance (%)		**99.9%**	**99.9%**	**98%**	**99.9%**
Chemical Compliance (%)		**99.9%**	**99.9%**	**99.6%**	**99.9%**

Performance Area	Systems	Hendrina Power Station[a]	Arnot Power Station[a]	Komati Power Station[a]	Doornkop 1&2
Water Safety Planning (35%)		**98**	**100**	**100**	**98**
Treatment Process Management (10%)		**85**	**85**	**100**	**90**
DWQ Compliance (30%)		**100**	**100**	**100**	**98**
Management, Accountability (10%)		**93**	**85**	**77**	**100**
Asset Management (15%)		**84**	**88**	**90**	**95**
Bonus Scores		1.60	0.72	0.87	0.80
Penalties		0.00	0.00	0.00	0.00
Blue Drop Score (2012)		**96.26%** (↓)	**95.92%** (↓)	**97.00%** (↑)	**97.66%** (→)
2011 Score		97.75%	97.36%	92.37%	97.98%
2010 Score		95.84%	95.84%	95.43%	92.84%
System Design Capacity (Ml/d)		15	12	2.88	0.75
Operational Capacity (% ito Design)		56.40%	75.00%	91.67%	100.00%
Population Served		6 000	8 000	8 000	3 000
Average daily Consumption (l/p/d)		250.00	No Information	36.00	25.00
Microbiological Compliance (%)		**99.9%**	**99.9%**	**99.9%**	**99.9%**
Chemical Compliance (%)		**99.9%**	**99.9%**	**99.9%**	**99.9%**

Regulatory Impression:

The Steve Tshwete Local Municipality, together with Eskom continues to impress with its diligent pursuit towards excellent performance. Both Institutions was found to manage drinking water quality in an excellent manner. This ensured the allocation of Blue Drop certification in 6 of the 8 water supply systems. The Department wishes to congratulate these Institutions on this prestigious achievement the third year in succession. This is substantiated by the awards from the Minister of Department of Water Affairs that the Municipality received the previous cycle: The Best Working Team, the best Municipality in Mpumalanga and got the 3rd position nationally. Well done team and keep up the momentum. The Department wish to applaud this approach.

There however remains room for improvement since there is a slight decline in the score for Kranspoort Vakansie Dorp water supply system (2011, 90.26% to 2012, 60.94%). It is required that attention is given to the review of the water safety plan to ensure that the monitoring programme is according to the risk based water safety planning process. The registration of the Process Controllers to comply in terms of Regulation 2834 as well as the service level agreements or institutional arrangements must be put in place.

Technical Inspection Report

Vaalbank WTW: 83%

Krugerdam WTW: 80%

The Vaalbank and Krugerdam WTW were visited to verify the Blue Drop assessment of Steve Tshwete Local Municipality. Overall the impression for both WTW's was good as the plants were clean, well maintained and has adequate safety signage. Acknowledgement is given for good record keeping and documents which included an Incident Management protocol and register, O&M manuals, calibration records and operational monitoring log sheets. The municipality must ensure that both WTW are fenced and secured to prevent theft and vandalism. The site inspection noted that although the current facilities for process controllers are adequate, these can be upgraded.

Areas that require attention at Vaalbank WTW include the following:

- OH&S issues which must be addressed include a lack of emergency shower and eyewash at chlorine room and lack of bunded area around chemical stores.
- Lack of standby for lime feeder. The municipality must ensure that there is adequate backup for all critical equipment on site so that continuous treatment can occur at all times.
- Filter media shows signs of cracks and must be evaluated to ensure continued delivery of good quality water.
- Sludge management requires attention as current sludge dams are inadequate and require cleaning.

At Krugerdam WTW a number of areas require attention including the following:

- Lime dosing facility requires attention. There is no standby lime feeder at present and the lime dosing facility and storage area requires regular housekeeping to keep it clean and free of dust.
- Lack of method to monitor chlorine gas in cylinder. This must be addressed immediately as the

lack of disinfection poses a risk to the receiving community.

- Filter sand shows signs of cracks and mud balls and the filter unit requires housekeeping to keep it clean.
- Sludge management requires attention as the current sludge dams are full of reeds and overflows into the river. This presents a pollution risk to the receiving environment and must be addressed immediately.

Water Services Authority	**Thaba Chweu Local Municipality**
Water Services Provider(s)	**Thaba Chweu Local Municipality**
Municipal Blue Drop Score	**19.03%**

Performance Area	Systems	Coromandel	Graskop	Lydenburg	Rural
Water Safety Planning (35%)		**30**	**30**	**30**	**30**
Treatment Process Management (10%)		**40**	**40**	**40**	**25**
DWQ Compliance (30%)		**0**	**0**	**0**	**0**
Management, Accountability (10%)		**0**	**0**	**0**	**0**
Asset Management (15%)		**27**	**27**	**43**	**12**
Bonus Scores		2.25	2.25	2.25	2.25
Penalties		-1.50	-1.50	-1.50	-1.50
Blue Drop Score (2012)		**19.26%** (↓)	**19.26%** (↓)	**21.74%** (↓)	**15.51%** (→)
2011 Blue Drop Score		57.85%	57.10%	59.15%	NA
2010 Blue Drop Score		45.20%	47.45%	47.45%	NA
System Design Capacity (Ml/d)		4.5	No Information	18	No Information
Operational Capacity (% ito Design)		6.44%	4.69%	75.00%	11.5%
Population Served		18 000	93 879	54 000	230 000
Average daily Consumption (l/p/d)		16.11	49.96	250.00	50.00
Microbiological Compliance (%)		**No Information**	**No Information**	**No Information**	**No Information**
Chemical Compliance (%)		**No Information**	**No Information**	**No Information**	**No Information**

Performance Area	Systems	Sabie
Water Safety Planning (35%)		**30**
Treatment Process Management (10%)		**40**
DWQ Compliance (30%)		**0**
Management, Accountability (10%)		**0**
Asset Management (15%)		**27**
Bonus Scores		2.25
Penalties		-1.50
Blue Drop Score (2012)		**19.26%** (↓)
2011 Score		59.80%
2010 Score		45.20%
System Design Capacity (Ml/d)		20
Operational Capacity (% ito Design)		60.00%
Population Served		18 000
Average daily Consumption (l/p/d)		111.11
Microbiological Compliance (%)		**No Information**
Chemical Compliance (%)		**No Information**

Regulatory Impression:

The BWSA Inspectors expressed concern about the management of drinking water quality within the water supply systems of Thaba Chweu Local Municipality. There is a significant decline in all key areas of the blue drop requirements more especially on the DWQ compliance. This decline could be accounted to the status of the water safety planning that remained unchanged since this previous assessment in 2011, deterioration of DWQ compliance and, in spite of high commitment levels portrayed by officials, it is with regret that the Department notes that recommendations made during the late 2010 assessment with regards to the Water Safety Plan process was not acted upon and lack of information on the management, accountability, & local regulation area. This detrimentally affected the scores that could have been even more impressive than what it currently is. The municipality should note that it is in the best interest of public health that serious attention is given to drinking water quality management. It is hereby repeated that the water safety planning process is to inform the monitoring programme to include the risk assessment findings. An overall improvement is required. There is no submission of data to the Department even legally required to do so and this compromised the actual performance of systems. The WSA is encouraged to ensure submission of analyses on a monthly basis to the Department (on the BDS).

Site Inspection Report

Thaba Chweu WTW: 78%

The Thaba Chweu WTW was visited to verify the finding of the Blue Drop assessment of Thaba Chweu Local Municipality. The overall impression of the Thaba Chweu WTW was average. An O&M manual and operational monitoring log sheets was present at the plant together with emergency contact numbers. The municipality is encouraged to implement an Incident Management protocol on site so that process controllers are knowledgeable on how to react to emergency conditions.

Areas that require attention at Thaba Chweu WTW include the following:

- Lack of plant classification certificate on site.
- No Jar test conducted on site. The municipality must ensure that adequate operational monitoring including Jar test takes place regularly so that coagulant dosage can be adjusted when the incoming raw water changes which will result in good quality final water.
- There is no inflow meter in place to record flow into the plant, operational capacity cannot therefore be verified.
- There is no standby dosing pump. The municipality must ensure that there is backup for all critical pumps and equipment so as to ensure continuous treatment.
- The lime dosing facility requires housekeeping to keep it neat and clean. There should be dust masks and all other required PPE on site at all times.
- Uneven bubbling was observed during backwashing of the filters. This indicates possible broken or blocked nozzles and must be investigated to ensure the delivery of good quality final water.
- Sludge management requires attention as at the present time the sludge is sent directly to the river and represents a source of pollution to the river.

Water Services Authority	**Thembisile Local Municipality**
Water Services Provider(s)	**Rand Water; Lekwa Local Municipality; Dr JS Moroka, City of Tshwane**
Municipal Blue Drop Score	**78.3%**

Performance Area	Systems	Thembisile	Machipe
Water Safety Planning (35%)		**54**	**54**
Treatment Process Management (10%)		**58**	**98**
DWQ Compliance (30%)		**73**	**100**
Management, Accountability (10%)		**74**	**62**
Asset Management (15%)		**93**	**85**
Bonus Scores		3.41	1.35
Penalties		0.00	0.00
Blue Drop Score (2012)		**70.91%** (↑)	**78.78%** (→)
2011 Blue Drop Score		27.77%	Not assessed
2010 Blue Drop Score		39.88%	Not assessed
System Design Capacity (Ml/d)		50	0.5
Operational Capacity (% ito Design)		100.00%	80.00%
Population Served		257 000	7 400
Average daily Consumption (l/p/d)		194.55	54.05
Microbiological Compliance (%)		**97.80%**	**97.3%**
Chemical Compliance (%)		**99.9%**	**99.9%**

Regulatory Impression

Thembisile Local Municipality together with Rand Water and Lekwa Local Municipality performed very well. Although the Department notes a significance increase in the overall drinking water quality (DWQ) management performance of the Thembisile Local Municipality as indicated by the 2012 Blue Drop score, the increase in registered supply system imply that the DWA could perform a more focussed, system specific assessment. This allowed for improved identification of problem areas. However, DWA Inspectors noted other systems that are not registered on the BDS while reviewing the water safety plan and this caused confusion to the Inspectors. This qualifies an investigation that needs to be carried out by the Municipality to properly demarcate the water supply systems.

Information provided by Rand Water as bulk supplier equates most of the score awarded to the municipality per criterion. Amongst other, the Municipality is urged to improve on the following: water safety plan, adequate information to asset management, treatment process management, operational and maintenance practices at the treatment plants, as well as proof of performance publication. Attention must be given to the skills and qualification of those responsible for process controlling.

Technical Inspection Report:

- No Technical Inspection took place for Thembisile Local Municipality.

Water Services Authority	**Umjindi Local Municipality**
Water Services Provider(s)	**Umjindi Local Municipality**
Municipal Blue Drop Score	**75.54%**

Performance Area	Systems	Rimers	Sheba	Emjindini Trust
Water Safety Planning (35%)		**63**	**57**	**57**
Treatment Process Management (10%)		**50**	**50**	**50**
DWQ Compliance (30%)		**73**	**91**	**40**
Management, Accountability (10%)		**93**	**85**	**85**
Asset Management (15%)		**71**	**65**	**65**
Bonus Scores		7.554	2.67075	4.04775
Penalties		0	-0.89025	-0.674625
Blue Drop Score (2012)		**76.08%** (↑)	**72.11%** (↑)	**58.40%** (↑)
2011 Blue Drop Score		60.43%	56.33%	42.83%
2010 Blue Drop Score		55.25%	58.25%	54.75%
System Design Capacity (Ml/d)		6.84	0.12	0.19
Operational Capacity (% ito Design)		152.92%	100.00%	131.58%
Population Served		51 239	4 937	5 079
Average daily Consumption (l/p/d)		204.14	24.31	49.22
Microbiological Compliance (%)		**95%**	**99.9% (10 months)**	**91.7% (11 months)**
Chemical Compliance (%)		**99.9%(11 months)**	**96.7% (9 months)**	**99.9 (10 months)%**

Regulatory Impression:

The overall the Blue Drop performance of Umjindi Local Municipality improved significantly. The Department therefore wishes to salute this commendable dedication which makes

The water safety plan tabled at the assessment was found to be promising, aiming in the right direction enhancement of this kind possible. In the words of the Lead Inspector: *"The Municipality has shown a lot of interest in the programme and determination to improve on their performance, there is an urgent need for the DWA Regional office Water Sector Support section to provide support to this Municipality especially with the reviewing of the water safety plan. The acting Technical Director has shown a lot of dedication together with her staff and willingness to comply".*

Further gaps in the current performance comprise non-compliance with Regulation 2834 (all process control staff systems should be classified should be shown adequate / competent to maintain processes), insufficient information to access competency of maintenance personnel and poor DWQ performance publication.

Technical Site Inspection:

Rimers Creek WTW: 66%

The Rimers Creek WTW was visited to verify the findings of the Blue Drop assessment of Umjindi Local Municipality. The overall impression of the Rimers Creek WTW was that the plant is neat with maintained garden. Emergency showers and bunded area for chemical storage was observed. Acknowledgement is given for the operational monitoring which is conducted three times per day.

However the municipality must ensure that Jar Tests are also routinely conducted when raw water quality decreases so that coagulant dosage can be optimized to produce good quality final water.

Areas that require attention at Rimers Creek WTW include:

Images taken at Rimers Creek WTW

- Lack of documentation i.e. no maintenance logbook, O&M manual and Incident Management Protocol on site.
- Lack of calibration record for operational monitoring equipment.
- OH&S issues such as lack of fire extinguishers and extractor fan for chlorine room. The municipality must ensure that there are safety signs and safety equipment on site to comply with OH&S requirements.
- Lack of knowledge on treatment process by process controller on site who did not know how much coagulant is being dosed. Appropriate site-specific training must be given to all staff to ensure effective operation of the treatment facility.
- There is no method to monitor the amount of chlorine gas in the cylinder. This must be addressed as the current situation may result in a lack of disinfection if the cylinder is not replaced timeously. There is a risk to the community if ongoing chlorination is not guaranteed.
- Insufficient backup for backwash pumps and blowers. The municipality must ensure that all critical pumps and equipment has sufficient backup at all times.
- Sludge management requires attention as at the present time the sludge is sent directly to the river and represents a source of pollution to the river.

Water Services Authority	**Victor Khanya Local Municipality**
Water Services Provider(s)	**Victor Khanya Local Municipality**
Municipal Blue Drop Score	**80.07%**

Performance Area	Systems	Delmas
Water Safety Planning (35%)		**81**
Treatment Process Management (10%)		**70**
DWQ Compliance (30%)		**70**
Management, Accountability (10%)		**76**
Asset Management (15%)		**85**
Bonus Scores		3.51
Penalties		0.00
Blue Drop Score (2012)		**80.07%** (↑)
2011 Blue Drop Score		18.26%
2010 Blue Drop Score		Not assessed
System Design Capacity (Ml/d)		15
Operational Capacity (% ito Design)		86.67%
Population Served		55 000
Average daily Consumption (l/p/d)		236.36
Microbiological Compliance (%)		**98.5%**
Chemical Compliance (%)		**93.3%**

Regulatory Impression

The team of Victor Khanya Local Municipality impressed the Department with a very good effort under challenging circumstances. The Department wish to congratulate the Municipality for a significant turnaround. This is a remarkable effort compared to the 2011 performance.

It is also noted that the municipality made a significant amendment to its drinking water quality management approach where a new system was commissioned in an attempt to address the DWQ management. Few gaps comprised the score which is a non-compliance with Regulation 2834 (the system and all process control staff systems should be classified should be shown adequate / competent to maintain processes),

According to the Inspectors *"The WSA's water services team is competent and very enthusiastic about their new water treatment works. The new water treatment works which is state of the art and designed to remove manganese and iron from the ground water is currently being used. This is the first time that a Blue Water Services Team has visited this works. The team was very well received"*. Well done Victor Khanya.

Technical Inspection Report

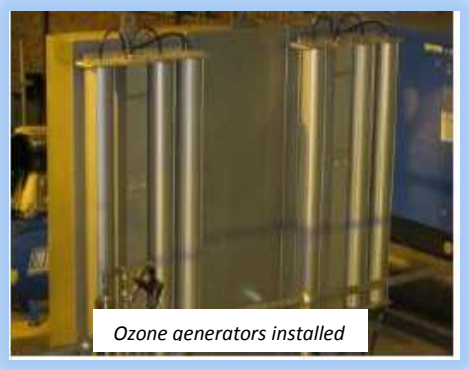
Delmas WTW: 80%

The Delmas WTW was visited to verify the findings of the Blue Drop Assessment of Victor Khanya Local Municipality. The overall impression of the Delmas WTW was good. This is a new plant which has only been commissioned three months ago and some pieces of equipment have not yet been installed. The

municipality must ensure that all unit processes are fully functioning and the required safety equipment and signs are installed immediately. It was observed that operational monitoring equipment has been ordered and the municipality is encouraged to implement a comprehensive operational monitoring program that complies with SANS 241 regulation as well ensure effective record keeping for daily monitoring and calibration of equipment.

Areas that require attention at Delmas WTW include the following:

- Lack of plant registration certificate. The municipality must ensure that the Delmas WTW is registered according to Regulation 2834. The municipality must also ensure that it complies with the required skilled process controllers which are required under Regulation 2834.
- As mentioned earlier, operational monitoring equipment has been ordered. The municipality must ensure that jar Test equipment is available on site so that regular Jar test can be conducted to ensure optimization of the coagulant dosage applied.
- Emergency shower and eye wash is not in place at the chemical dosing room and at the chlorine facility. The municipality must ensure that all safety equipment is on site. This includes an ozone leak detector which must be installed at the ozone facility.
- The storage area available for chemicals and chlorine could not be determined at the present time. The municipality must ensure that there is 30 days of storage for all chemicals and chlorine gas to ensure ongoing treatment occurs at all times.



Ozone generators installed

Bunded walls around chemical storage tanks