

Manual for using electronic water quality management system (eWQMS) and waste stabilisation ponds assessment tool

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MANUAL FOR USING ELECTRONIC WATER QUALITY MANAGEMENT SYSTEM (eWQMS) AND WASTE STABILISATION PONDS ASSESSMENT TOOL

Report to the
Water Research Commission

by

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on behalf of Emanti Management (Pty) Ltd

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EXECUTIVE SUMMARY

This document is the user manual for the waste stabilization ponds assessment tool which resides on the electronic Water Quality Management System (eWQMS) which has been developed for the purpose of assisting the water services departments to effectively manage the water quality. The eWQMS contains numerous tools useful for Water Service Authorities (WSAs) in terms of identifying key areas of risk in the water services so that they plan and implement remedial measures accordingly. The waste stabilisation ponds assessment tool is one of the tools within the eWQMS.

This manual has been developed in illustrated screenshots which have been captured from the eWQMS. This manual has been developed with the purpose of:

- a) Providing a simple step-by-step method of accessing the eWQMS and using the waste stabilisation ponds tool.
- b) Providing further guidance regarding other components of the eWQMS.

The waste stabilisation ponds tool itself provides assistance in terms of planning, design and maintenance of these systems and introduces practical methods and tools for ensuring good service delivery. The waste stabilisation ponds tool can be used by WSAs to:

- Self assess the status of their wastewater pond systems
- Assist in planning (short/medium or long term needs)
- Identify areas of risks and needs (short/medium or long term needs)
- Assist in identifying and tracking emergency issues
- Assist in understanding of required maintenance.

PURPOSE OF THIS MANUAL

The purpose of this manual is to:

Introduce the eWQMS to the reader
Highlight some of the key features/functions of the eWQMS
Provide step-by-step guidance as to how to use the waste stabilisation ponds assessment tool on the eWQMS.

WHO SHOULD USE THE MANUAL?

This manual is intended for use by:

- Manager of water and sanitation services within a Water Service Authority and/or Water Service Provider who is responsible for planning and management of water and wastewater services.
- DWAF staff who need to understand the WSAs water quality.

- SALGA, IMESA, DoH and LGH departments who are also role players in the water services to make sure that water provision of good quality is achieved.
- Water quality manager who should be following up on water quality issues and taking corrective measures.
- Environmental health practitioner conducting water quality monitoring to understand the water quality for his/her area of responsibility and take corrective measures.
- Water resources people to understand the resource water quality.
- Anyone responsible for water and wastewater services.

NOTE: If an electronic version of this report is available it is strongly advised that a colour copy be printed in order to clearly see and understand the colour coding used to highlight issues of concern (e.g. blue, green, yellow, red).

ACKNOWLEDGEMENTS

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1 Background

Water Services Authorities (WSAs) have responsibilities including protection and management of water resources, operation and maintenance of infrastructure, monitoring and management of water quality, reporting to DWAF with regards to the aforementioned, etc. In order to ensure an effective and sustainable water service, the above mentioned aspects must be addressed by WSAs. However, a number of recent surveys have indicated that many WSAs in the South Africa are not effectively monitoring and managing water quality. Accordingly, DWAF and other water sector partners (e.g. IMESA, SALGA, WRC) have undertaken various initiatives to assist WSAs with operation and management of water services. In particular, DWAF, together with IMESA have rolled out the eWQMS to all 169 WSAs in South Africa. The eWQMS allows WSAs to interpret water quality data and highlights issues of concern requiring intervention. Data loaded by WSAs onto the eWQMS are transferred to the National Information System (NIS). Recent developments to the eWQMS have further enhanced functionality including the ability of WSAs to conduct self assessments of DWQM, infrastructure, etc. The Wastewater Pond System Assessment Tool falls into this category allowing a WSA to conduct a self-assessment of their wastewater pond systems and identify key risks/issues which need to be addressed.

2 IMESA Lead Iterative Enhancement Process

IMESA's specific roll is as an impartial honest broker ensuring that the eWQMS solution is appropriate and supportive of Municipal Engineering requirements. This is achieved by IMESA participating in both initial municipal interaction forums, and subsequently by IMESA led iterative feedback sessions with municipal users. At these sessions, recent new developments are presented to WSAs, ideas are brainstormed with WSAs, and WSAs are given the opportunity to provide feedback regarding:

- Useful features/functions of the eWQMS
- Features/functions that could be improved/amended
- Future desirable features/functions

WSAs are also asked to rank new and/or desirable features/functions from High to Low.

The above process helps to determine the actual on-the-ground needs at WSAs. Feedback obtained from these sessions is collated and desirable features/functions categorised and ranked. Subsequently, incremental improvements and enhancements are introduced to the tool.

3 Brief Overview of the eWQMS

The eWQMS is a well proven comprehensive Water Quality Management tool, which has an established track record of being successfully used by WSAs, Regional and National DWAF offices, and the public. eWQMS has been set up to assist WSAs to meet the National Drinking Water Quality Management Framework requirements, and is a full management system. In addition, roll-out of the wastewater component of the eWQMS is currently being fast-tracked. In particular, the eWQMS able to guide:

- Regulatory compliance by WSAs
- The timeous supportive intervention in water quality failures (chronic and acute)
- Infrastructure improvement
- Capacity development of municipal staff.

The eWQMS is an internet accessible database system (accessible at www.wqms.co.za) utilising open source components (MySQL, XML, etc.), and has been found following detailed assessment by DWAF's IT support team to be fully compatible with and compliant to DWAF Water Services National Information System and DWAF Regulatory System requirements.

Importantly, the eWQMS has been developed in a "bottom up" approach with WSAs, IMESA, DWAF and the Water Research Commission. Data can be loaded by WSAs onto eWQMS via the internet, spreadsheet or specific import scripts. Furthermore, the eWQMS can provide useful automated regulatory compliance reporting to all WSAs and sector partners. The eWQMS also provides easy access to useful water quality tools and information. Presently, the eWQMS consists of the following main components:

- Login/Logout
- Water Quality
- Infrastructure
- Risk Toolbox
- Administration
- Information.

Considering the above, the following main features are described (**NOTE:** A full demonstration can be provided by the eWQMS team on request at the following e-mail address: info@emanti.co.za)

3.1 System Access

The system is usually accessible via the internet for full use (including via DBSA's LGNET), providing considerable costs and operational efficiency benefits over local application based systems. Nevertheless, the system can run as an independent local application if required. Information and reference material can be accessed without the need to login (this is especially useful to members of the public, e.g. teachers, students, etc. and saves municipal officials time).



Figure 1: eWQMS access via the internet

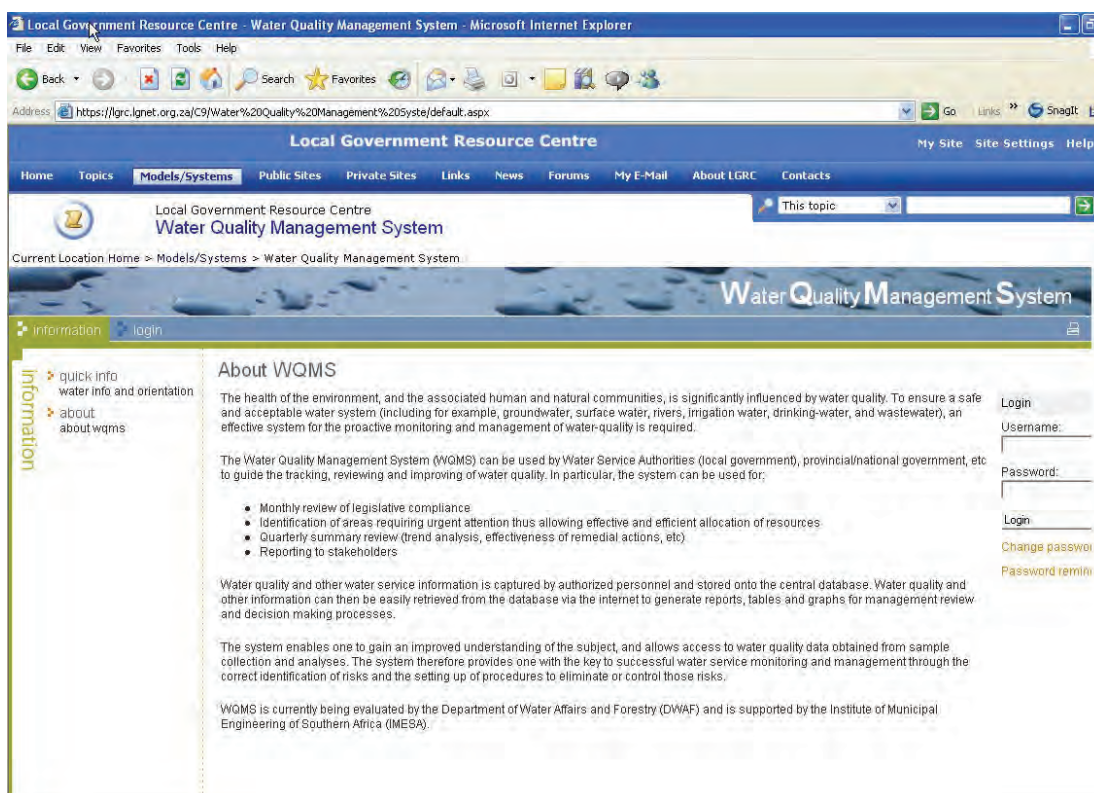


Figure 2: eWQMS access via DBSA's LGNET

3.2 System Compatibility

The system can be set up to run off existing water quality management systems, such as LIMS systems. A number of “import scripts/patches” already exist, and where necessary additional will be written for data import, e.g. of *import scripts/patches includes Johannesburg Water and eThekweni*.

3.3 Login/logout

A user is provided with username and password. A particular user will be provided with a WSA, District, Provincial or National view. Furthermore, limited detail “public” views of DWQ can be set up if required, e.g. of *Provincial view includes Free State; public view includes Stellenbosch*.

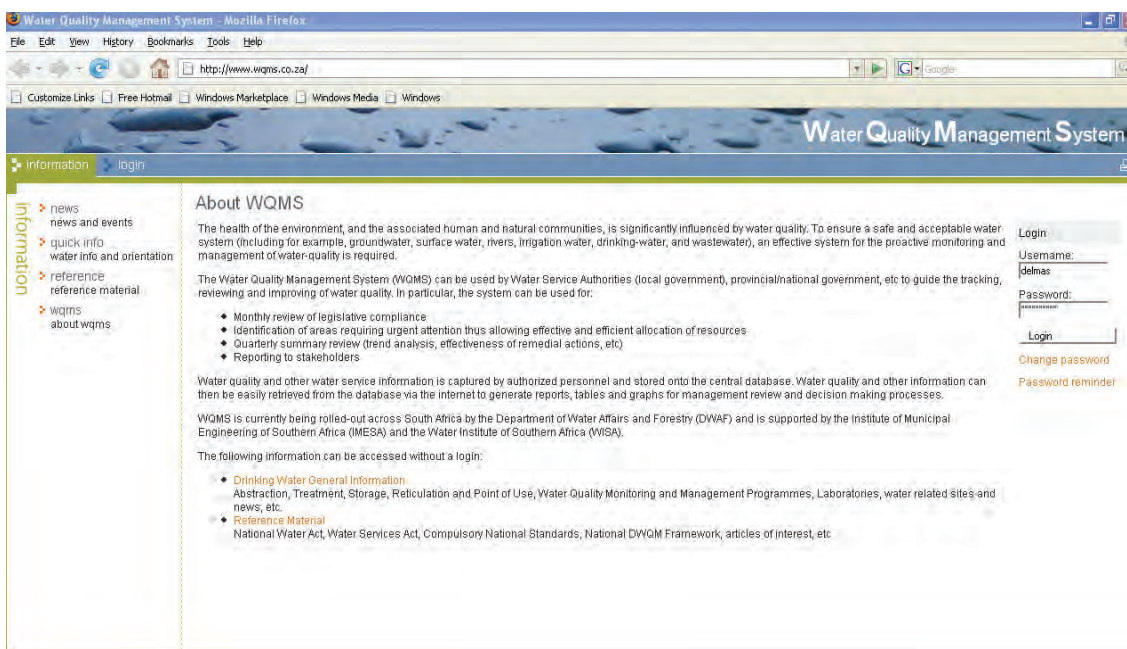


Figure 3: eWQMS login (Delmas Municipality, Mpumalanga)

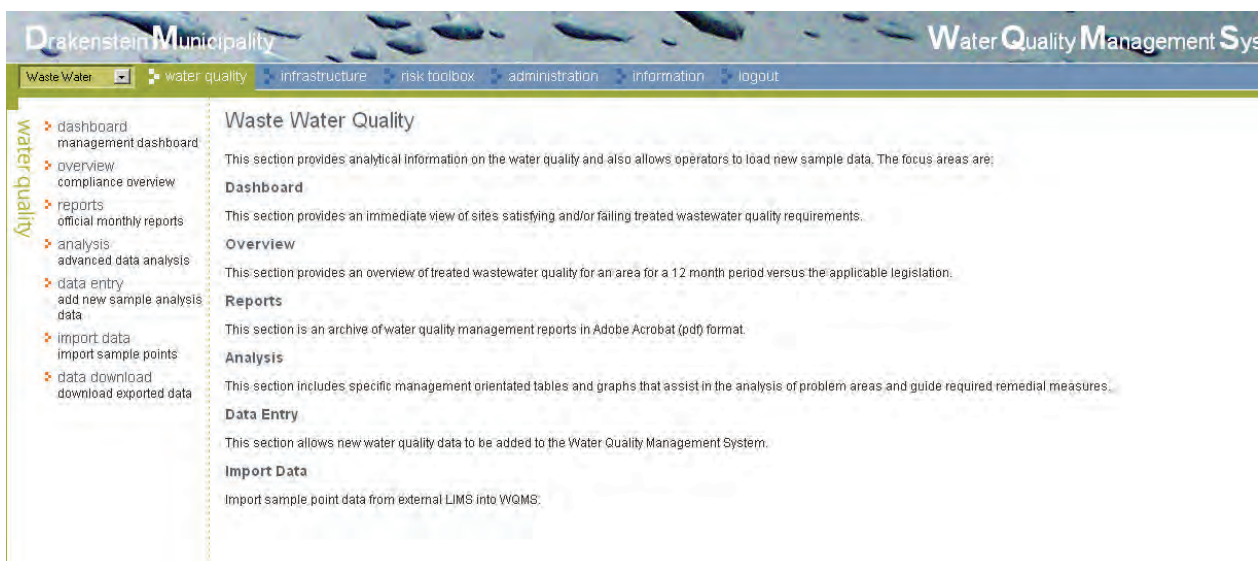


Figure 4: WSA homepage (Drakenstein Municipality, Western Cape)

3.4 Water Quality Management

A key functional requirement is easy water quality data loading and interpretation. The system can interpret data against a range of standards, but defaults to SANS 241. The system is capable of interpreting wastewater and river water quality data. Current functionality includes:

Management Dashboard [summarised monthly view of legislative compliance & identification of areas requiring urgent attention; easy colour coding to show compliance (green), failure of some physico-chemical parameters (excluding faecal coliforms and COD) DWAF General Authorisation General Limits (yellow), and failure of DWAF General Authorization General or Special Limits (where applicable) (red)].

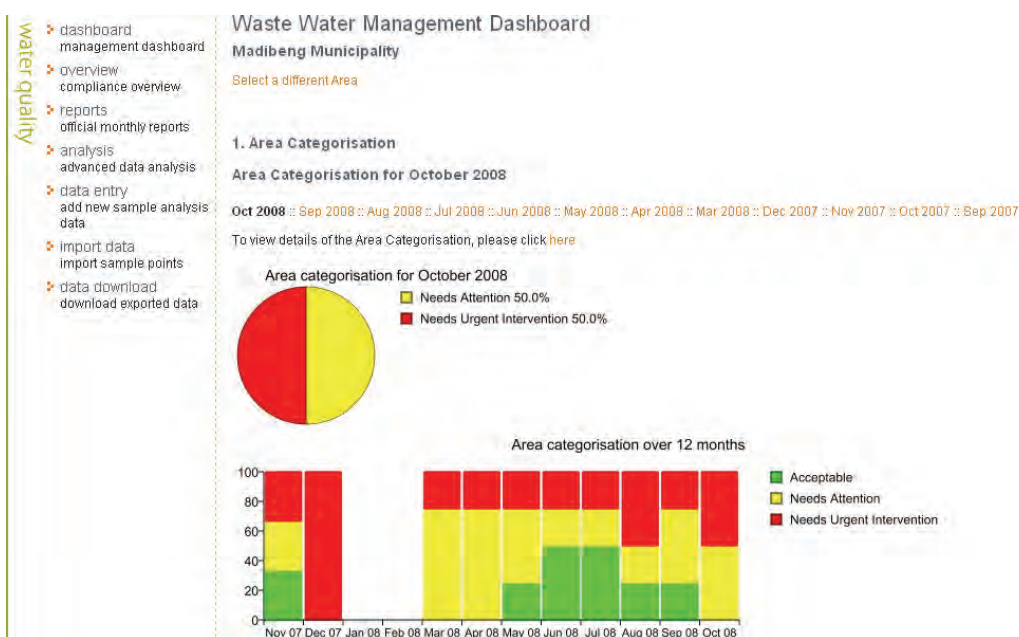


Figure 5: eWQMS Management Dashboard [Madibeng, North West (NW)]

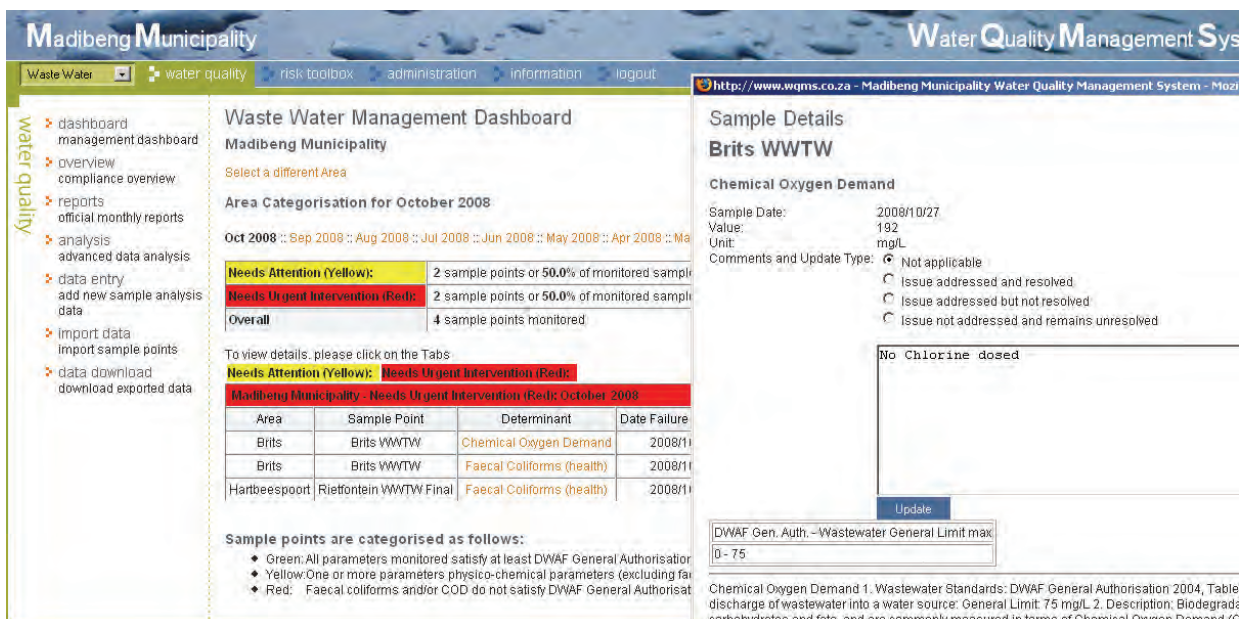


Figure 6: Detail of "Red" failure and actions taken to address issue of concern (Madibeng, NW)

Overview (map-based interface with “period based” compliance summary of bacteriological, physical and chemical DWQ).

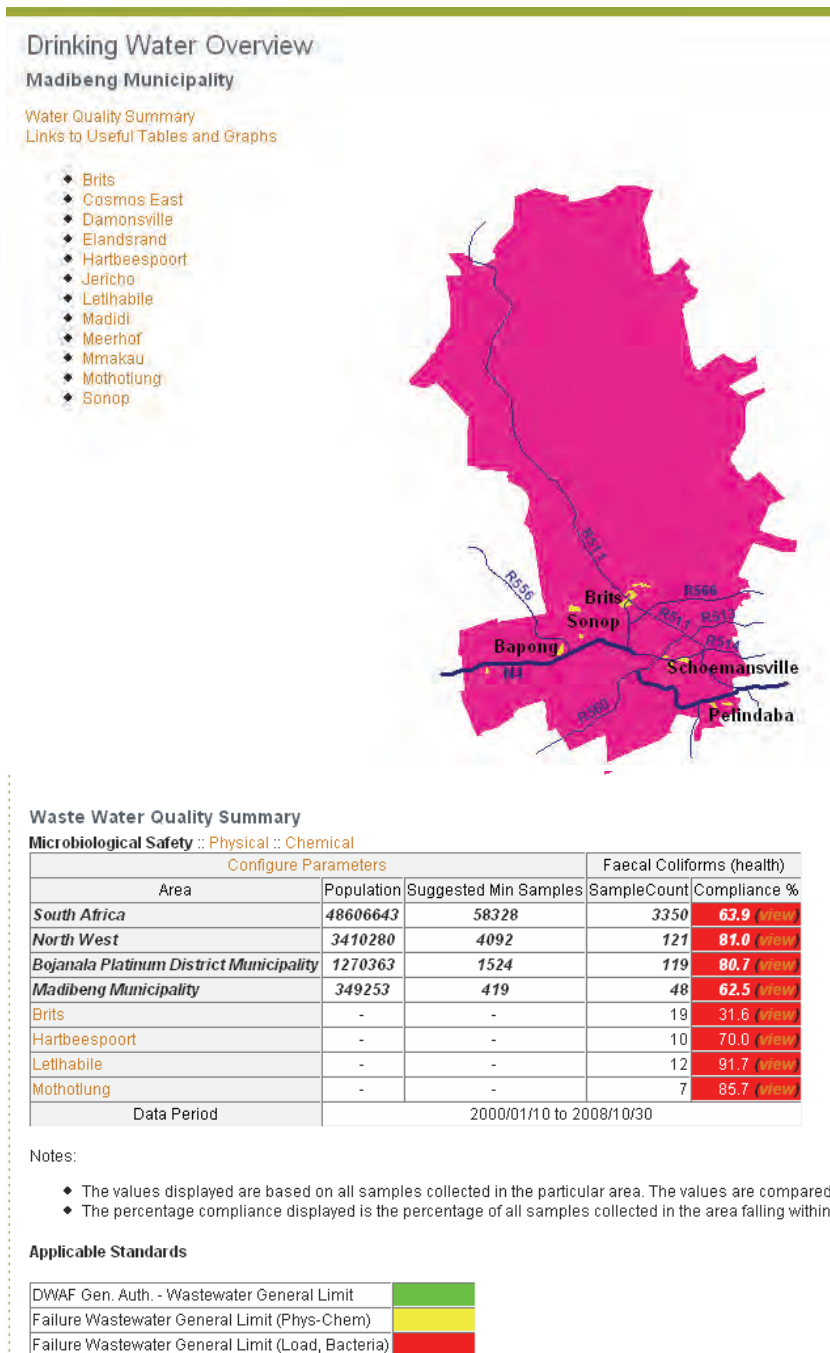


Figure 7: eWQMS Overview (microbiological safety) (Local Municipality of Madibeng, NW)

Waste Water Quality Summary

Microbiological Safety :: Physical :: Chemical

Configure Parameters		Chemical Oxygen Demand		Ortho-Phosphate		Ammonia (operational)	
Area	Population	SampleCount	Compliance %	SampleCount	Compliance %	SampleCount	Compliance %
South Africa	48606643	9380	62.1 view	6623	88.0 view	9449	56.9 view
North West	3410280	431	73.1 view	450	77.6 view	498	82.3 view
Bojanala Platinum District Municipality	1270363	190	66.8 view	204	73.5 view	204	56.9 view
Madibeng Municipality	349253	151	70.9 view	152	73.0 view	152	55.3 view
Brits	-	51	39.2 view	52	88.5 view	52	36.5 view
Hartbeespoort	-	33	63.6 view	33	84.8 view	33	39.4 view
Lethabille	-	45	97.8 view	45	66.7 view	45	84.4 view
Mothotlung	-	22	100.0 view	22	31.8 view	22	63.6 view
Data Period		2000/01/01 to 2008/10/31					

Notes:

- ♦ The values displayed are based on all samples collected in the particular area. The values are compared to SANS 241 and colour coded accordingly.
- ♦ The percentage compliance displayed is the percentage of all samples collected in the area falling within DWAF Gen. Auth. - Wastewater General Limit.

Applicable Standards

DWAF Gen. Auth. - Wastewater General Limit	
Failure Wastewater General Limit (Phys-Chem)	
Failure Wastewater General Limit (Load, Bacteria)	

Figure 8: eWQMS Overview (chemical) (Madibeng, North West)

Detailed Analysis (dynamic Tables and Graphs with full flexibility)

water quality

- dashboard management dashboard
- overview compliance overview
- reports official monthly reports
- analysis advanced data analysis
- data entry add new sample analysis data
- import data import sample points
- data download download exported data

Waste Water Analysis

Report Selection

Point Analysis Table

[single determinant](#) | [determinant set](#)

The point analysis table provides a detailed water quality analysis for a selected sampling point vs. the applicable water quality standards. A single determinant or a pre-defined determinant set can be selected and analysed for any single sample point.

Point Analysis Graph

[single determinant](#)

The point analysis graph provides a graphical water quality analysis for a selected sampling point and determinant vs. the applicable water quality standards.

Median Value Graph

[single determinant](#)

The median value graph shows the median value of a particular determinant in an area vs. the applicable water quality standards.

Mean Value Graph

[single determinant](#)

The mean value graph shows the mean value of a particular determinant in an area vs. the applicable water quality standards.

Compliance Table

[single determinant](#) | [multiple determinants](#)

The compliance table analyses the percentage compliance in an area vs. the applicable water quality standards. This can either be done for a single determinant or for multiple determinants (full SANS 241 list).

Failure Table

[single determinant](#)

The failure table highlights failures in an area vs. the applicable water quality standards.

Failure Graph

[single determinant](#)

The failure graph shows the percentage failure of a particular determinant in an area vs. the applicable water quality standards.

Statistics Table

[statistics table for multiple determinants](#)

The statistics table shows statistical values (Min, Max, Median, Mean, etc) for an Area and Determinant Group.

Figure 9: eWQMS Analysis (tables and graphs)

Dynamic Waste Water Reports

Water Quality Compliance Table

Chemical Oxygen Demand (mg/L) for Drakenstein Municipality

Area	June 2008		July 2008		August 2008		September 2008	
	Samples Complied	% Compliance	Samples Complied	% Compliance	Samples Complied	% Compliance	Samples Complied	% Compliance
Drakenstein Municipality	5 / 9	55.6%	5 / 10	50.0%	3 / 7	42.9%	5 / 6	83.3%
Gouda	0 / 2	0.0%	0 / 2	0.0%	0 / 2	0.0%	0 / 1	0.0%
Paarl	4 / 4	100.0%	3 / 5	60.0%	1 / 3	33.3%	4 / 4	100.0%
Saron	1 / 1	100.0%	0 / 0	-	0 / 0	-	0 / 0	-
Wellington	0 / 2	0.0%	2 / 3	66.7%	2 / 2	100.0%	1 / 1	100.0%



Notes

- ♦ Complying samples indicates the number of samples complying with DWAF Gen. Auth. - Wastewater General Limit vs. the total number of samples collected in an area.
- ♦ The percentage compliance displayed is the percentage of all samples collected in the area falling within DWAF Gen. Auth. - Wastewater General Limit limits.

Figure 10: Compliance table example (Drakenstein Municipality, Western Cape)

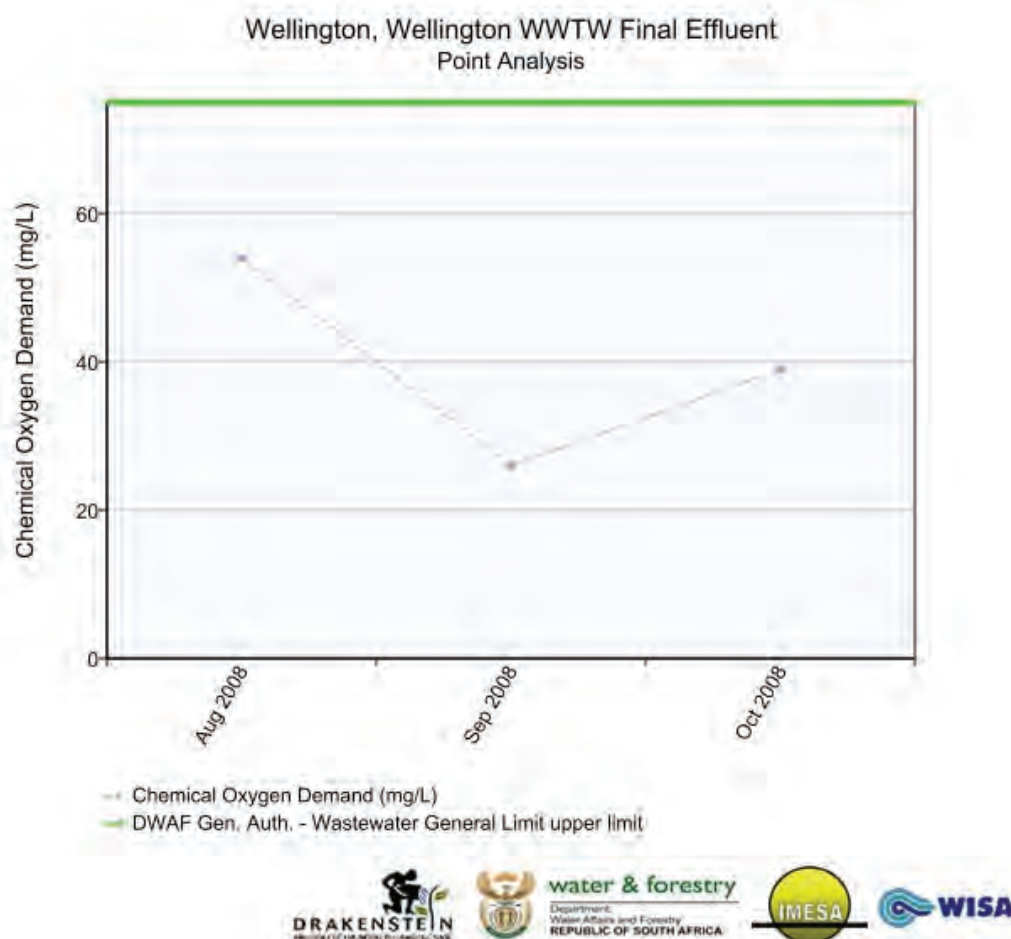


Figure 11: Point analysis graph example (Drakenstein Municipality, Western Cape)

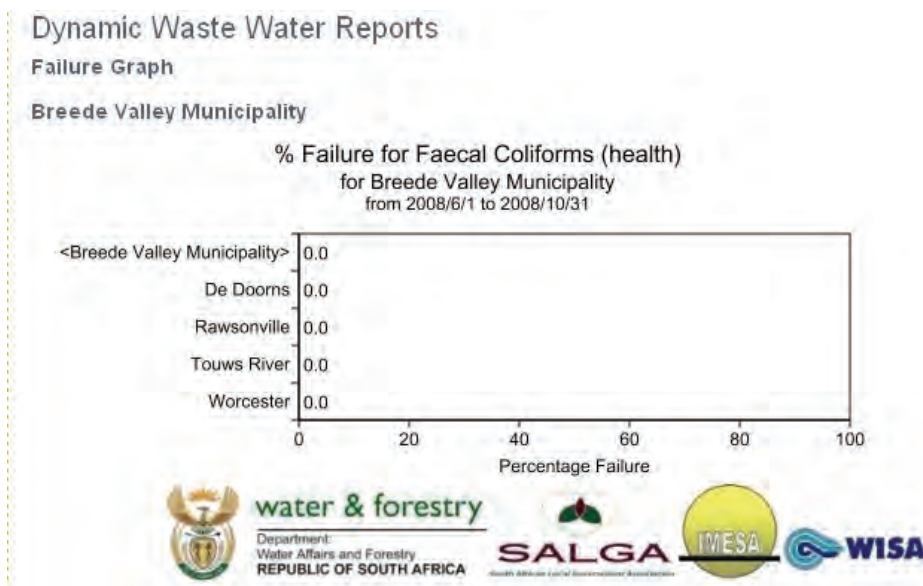


Figure 12: Percentage failure graph example (Breede Valley, Western Cape)

Reports (archive of water quality management reports in Adobe Acrobat format).

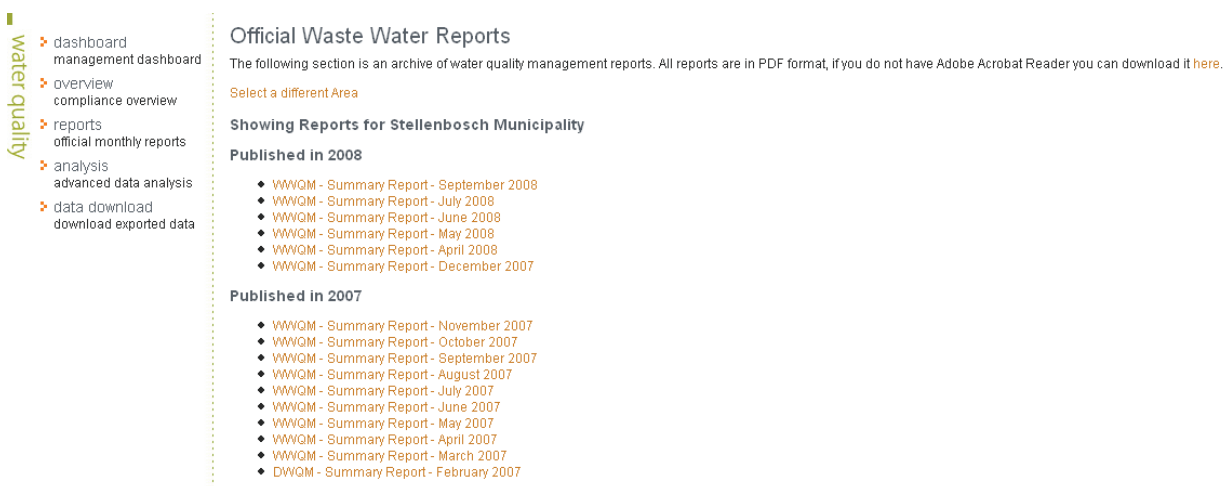


Figure 13: eWQMS reports (Stellenbosch, Western Cape)

Data Entry – mostly via internet and/or Excel, but patches exist and can be developed for to link to existing systems such as LIMS/UNIX/etc. for specific clients)

Sol Plaatje Municipality Water Quality Management System - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://www.wqms.co.za/admin/

Customize Links Free Hotmail Windows Marketplace Windows Media Windows

Import data
Import sample points

Date Analysed (optional)

Lab Number (optional)

Type (optional) Not applicable

Comments (optional) Poor disinfection efficiency. Issue has been addressed. Re-sampling indicated that water is safe to drink. Issue has been resolved. Mr Manager (date)

Determinant	Value	Unit	Reason for no value
Aluminium (health)	0.15	mg/L as Al	None
E.coli (health)	10	count per 100 mL	None
Electrical Conductivity (aesthetic)		µS/cm	Analysis not carried out
Fluoride (health)		mg/L as F-	Analysis not carried out
Free Chlorine Residual (operational)	0	mg/L	None
Iron (aesthetic/operational)	0.15	mg/L as Fe	None
Nitrates and Nitrites (health)	0	mg/L as N	None
pH (aesthetic/operational)	7.6	pH units	None
Total Coliforms (operational)	25	count per 100 mL	None
Turbidity (aesthetic/operational/indirect health)	4.5	NTU	None

Submit

Figure 14: eWQMS data entry via the internet (Sol Plaatje, Northern Cape)

Microsoft Excel - Umzinyathi LM July 2007 (1).xls

File Edit View Insert Format Tools Data Window Help

Courier New 10 B I U

A17 Sample ID

A	B	C	D	E	F
1 Sampling Organisation	Umzinyathi District Municipality		Testing Laboratory		
2 Address			Address		
3					
4					
5 Telephone			Telephone		
6 Fax			Fax		
7 E-mail			E-mail		
8 Contact Person			Contact Person		
9 Organisation	Umzinyathi District Municipality				
10 Sampler	Umzinyathi District Municipality				
11 Report Date	2007/07/02				
12 Date Samples Received	2007/07/02				
13 Date Analysis Completed	2007/07/02				
14 Municipality	Endumeni Municipality				
15 Sample Point Description	Biggarsberg WTW Final	Biggarsberg Bulk Manifold	Vant's Drift WTW Final	Wasbank Reservoir	Sampofu WTW Final
16 Sample ID	KZUMEN-001	KZUMEN-002	KZUMEN-003	KZUMEN-004	KZUMMS-001
17 Sample Date	2007/07/02	2007/07/02	2007/07/02	2007/07/02	2007/07/02
18 Alkalinity (mg/L as CaCO3)	b	93	135	b	71
19 Calcium (aesthetic/operational) (mg/L)	b	53	54	b	16
20 Calcium Carbonate Dissolution Potent	b	c	c	b	c
21 Electrical Conductivity (aesthetic)	b	55	57	b	22
22 Faecal Coliforms (health) (count per	b	0	0	b	0
23 Free Chlorine Residual (operational)	b	0.86	1.5	b	2
24 Iron (aesthetic/operational) (mg/L as	b	0.02	0.03	b	0.02
25 Fluoride (health) (mg/L as F-)	b	0.42	0.32	b	0.12
26 Calcium Hardness (mg/L as CaCO3)	b	130	135	b	40
27 Magnesium Hardness (mg/L as CaCO3)	b	34	71	b	30
28 Total Hardness (mg/L as CaCO3)	b	165	205	b	70
29 Heterotrophic Plate Count (operation	b	1	0	b	0
30 Magnesium (aesthetic/health) (mg/L as	b	8.3	17	b	7.3
31 pH (aesthetic/operational/indirect health)	b	8.1	7.9	b	7.5

Figure 15: eWQMS data entry via spreadsheet (submitted via e-mail) (Umzinyathi Municipality, KwaZulu-Natal)

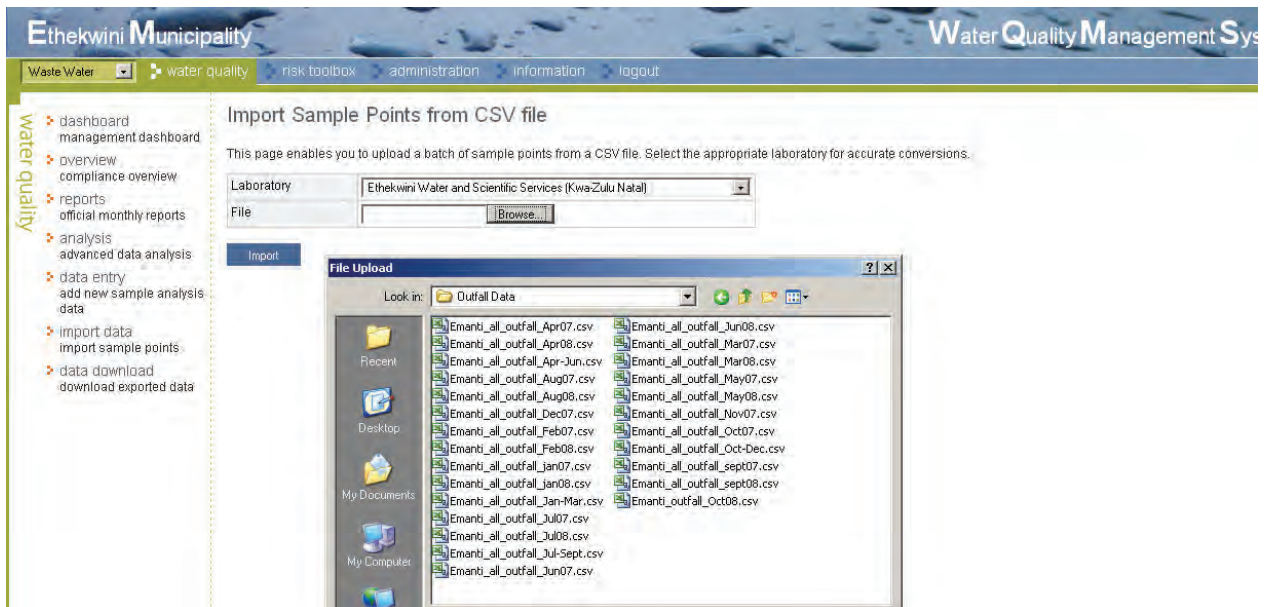


Figure 16: eWQMS data loading via import script/patch (Ethekewini Municipality, KwaZulu-Natal)

Automation (auto-notification by e-mail of failures, generation of auto-reports and summary reports for feedback to the full range of participating parties)

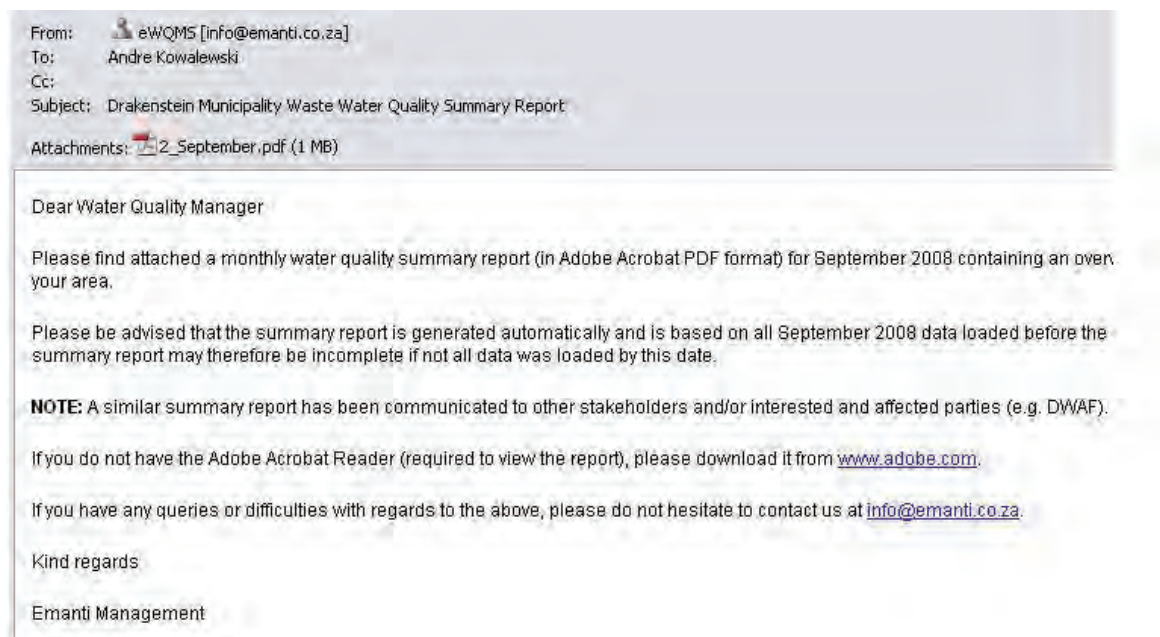


Figure 17: eWQMS e-mail with report as attachment (Drakenstein Municipality, Western Cape)

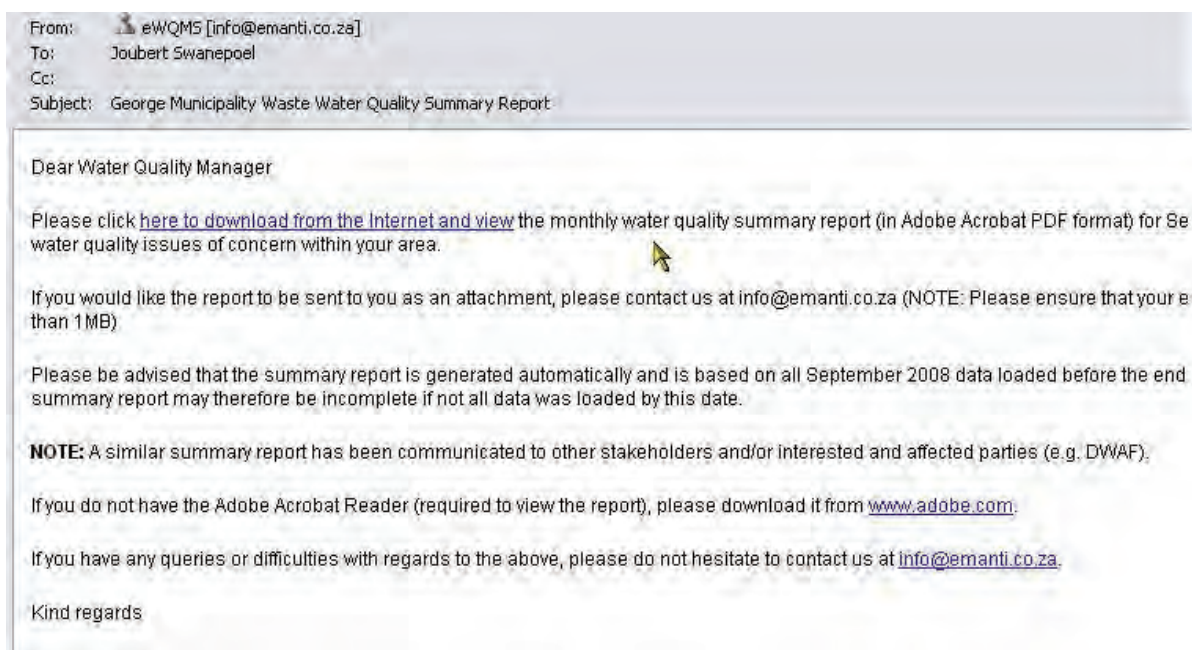


Figure 18: eWQMS e-mail with report accessible via internet link (George Municipality, Western Cape)

3. Waste Water Quality Overview

3.1. Management Dashboard

Sites are categorized as follows:

- Green (Acceptable): All parameters monitored satisfy at least DWAF General Authorisation General Limits
- Yellow: One or more parameters physico-chemical parameters (excluding faecal coliforms and COD) monitored do not satisfy DWAF General Authorisation General Limits
- Red: Faecal coliforms and/or COD do not satisfy DWAF General Authorisation General Limits

The following results are presented for August 2007:

Acceptable (Green):	1 sites or 3% of monitored sample points
Needs Attention (Yellow):	14 sites or 48% of monitored sample points
Needs Urgent Intervention (Red):	14 sites or 48% of monitored sample points

Detailed information related to the above table can be accessed via the Management Dashboard of your website. The following table presents details of those sites which were classified as being Red (i.e. failing DWAF General Authorisation General Limits).

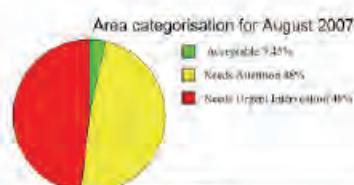


Figure 19: Extract from an automatic monthly summary report

3.5 Infrastructure

Captures WSA infrastructure details related to pump stations, treatment systems, reticulation (e.g. pipelines), Final effluent Quality Programmes (frequency of monitoring, parameters, etc.) and laboratories utilised. The treatment section under infrastructure has to be filled before filling in the waste stabilisation ponds questionnaire.

The screenshot shows the 'Infrastructure' section of the eWQMS interface. The left sidebar lists categories: pump station, sewage pump stations, treatment, waste water treatment facility, monitoring, water quality monitoring programmes, and laboratories. The main content area is titled 'Waste Water Infrastructure' and contains three sub-sections: 'Sewage Pump Stations', 'Treatment', and 'Water Quality Monitoring Programmes'. Each sub-section has a brief description of the information required for that section.

Figure 20: eWQMS Infrastructure component

The screenshot shows the 'Waste Water WWTF Edit Form' in the eWQMS interface. The form is titled 'Waste Water WWTF Edit Form' and includes a breadcrumb trail: 'Back to Listing | Waste Water Treatment Facility | Sewage Pump Stations | System | Controllers'. The form fields include: 'Description' (Stellenbosch Wastewater), 'Domestic' (checked), 'Industrial' (checked), 'Commercial' (checked), 'Agricultural' (unchecked), 'Where possible, please provide details of the specific type of on-domestic wastewaters below (e.g. abattoir, food processing, textile, winery, etc)' (winery), 'Samplepoint ID' (Stellenbosch Sewage Treatment Plant), 'Design Capacity (kL/day)' (14000), 'Operating Flow (kL/day)' (14000), and 'Classification' (Class D).

Figure 21: Example of wastewater treatment works details on the eWQMS (Stellenbosch Municipality, Western Cape)

3.6 Risk Toolbox

Assessment tools have been introduced which allow WSAs to perform a self-assessment of the status of their WSA. Examples include a strategic level WQM Sustainability Analysis (Gap Analysis) and a Water Research Commission “Drinking-Water Treatment Plant and Distribution Network Assessment and Risk Profile” system. **The waste stabilisation ponds tool has been included within this section.**

City of Johannesburg Water Quality Management System - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.wqms.co.za/questionnaires/gap?st=1&mi=3

Customize Links Free Hotmail Windows Marketplace Windows Media Windows

CityOfJohannesburg Water

Drinking Water water quality infrastructure risk profile administration information logout

risk profile

- reports
- risk assessment reports
- gap analysis
- gap analysis questionnaire
- gap analysis report spider chart and detailed breakdown
- drinking water supply drinking water supply questionnaire
- drinking water supply report spider chart and detailed breakdown
- waste stabilization ponds waste stabilization ponds questionnaire
- waste stabilization ponds report spider chart and detailed breakdown

Answer Gap Questionnaire

Click **Save** at any time to save the current set of answers. Once you are satisfied with your answers click **Complete**. Only answer sets with items in **red** require your attention.

Part A: Water Legislation, Policies and Regulations

1. Do you have a copy of the National Water Act?
☒ Yes ☐ No
2. Do you have a copy of the Water Services Act?
☒ Yes ☐ No
3. Do you have a copy of Compulsory National Standards for Potable Water ?
☒ Yes ☐ No
4. Do you have a copy of National DWQM Framework?
☒ Yes ☐ No
5. Do you have a copy of SANS 241-2005 Drinking Water Specification?
☒ Yes ☐ No
6. Have you read, understood and implemented the National Water Act?
☒ Yes ☐ No
7. Have you read, understood and implemented the Water Services Act?
☒ Yes ☐ No
8. Have you read, understood and implemented the Compulsory National Standards for Potable Water?
☒ Yes ☐ No
9. Have you read, understood and implemented the National DWQM Framework?
☒ Yes ☐ No



Figure 22: Gap analysis questionnaire and spider diagram output (City of Johannesburg, Gauteng)

Kannaland Municipality Water Quality Management System - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.wqms.co.za/questionnaires/dws?st=1&mi=3

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Kannaland Municipality

Drinking Water water quality infrastructure risk profile administration information logout

Answer Drinking Water Supply Questionnaire

Click Save at any time to save the current set of answers. Once you are satisfied with your answers click Complete. Only answer sets which are in red require your attention.

Calitzdorp Water Treatment Plant

Section 1: Design

1. Is the design capacity of the plant known?

☒ Yes
☐ No
☐ Don't know

2. What is the design capacity?

14 1/s

3. Is the plant operating within its design capacity? (i.e. spare capacity available?)

☒ Yes/Most of the time
☐ No
☐ Don't know

4. What treatment processes are utilised?

☒ Pre-treatment (aeration, pH adjustment, etc)
☒ Flocculation/Coagulation (alum, ferric, polyelectrolyte, etc)
☒ Sedimentation/Clarification (settling tank, DAF, etc)
☒ Filtration (sand, multi-media, membranes, etc)
☒ Disinfection (chlorine, ozone, UV, etc)
☐ Stabilisation /lime, bioactive, etc

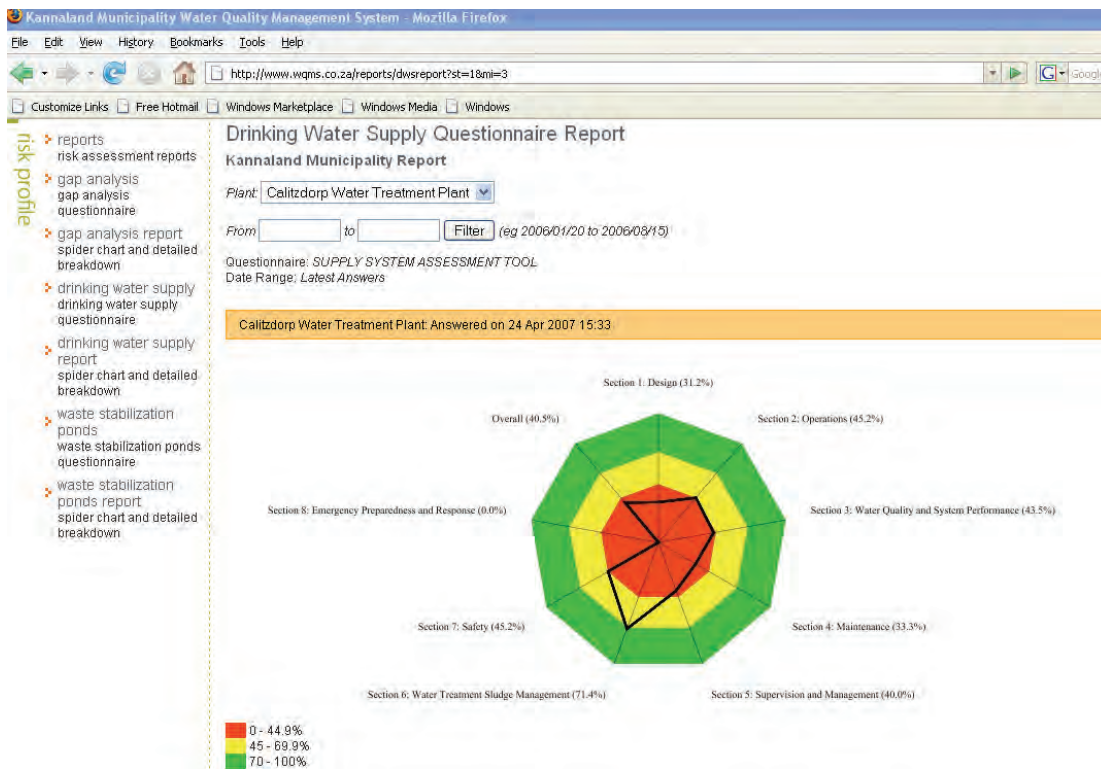


Figure 23: Water supply system questionnaire and spider diagram output (Kannaland Municipality, Western Cape)

3.7 Administration

Current WSA functionality includes the ability to manage sample points (add new/edit existing), manage recipients/distribution lists for automated communications, manage required automatic notifications (e-mail, summary report), data entry (water quality, infrastructure, etc.) and ability to add comments related to drinking-water failures and actions taken to address issues of concern (i.e. comments serve as an action record taken to address issues of concern).

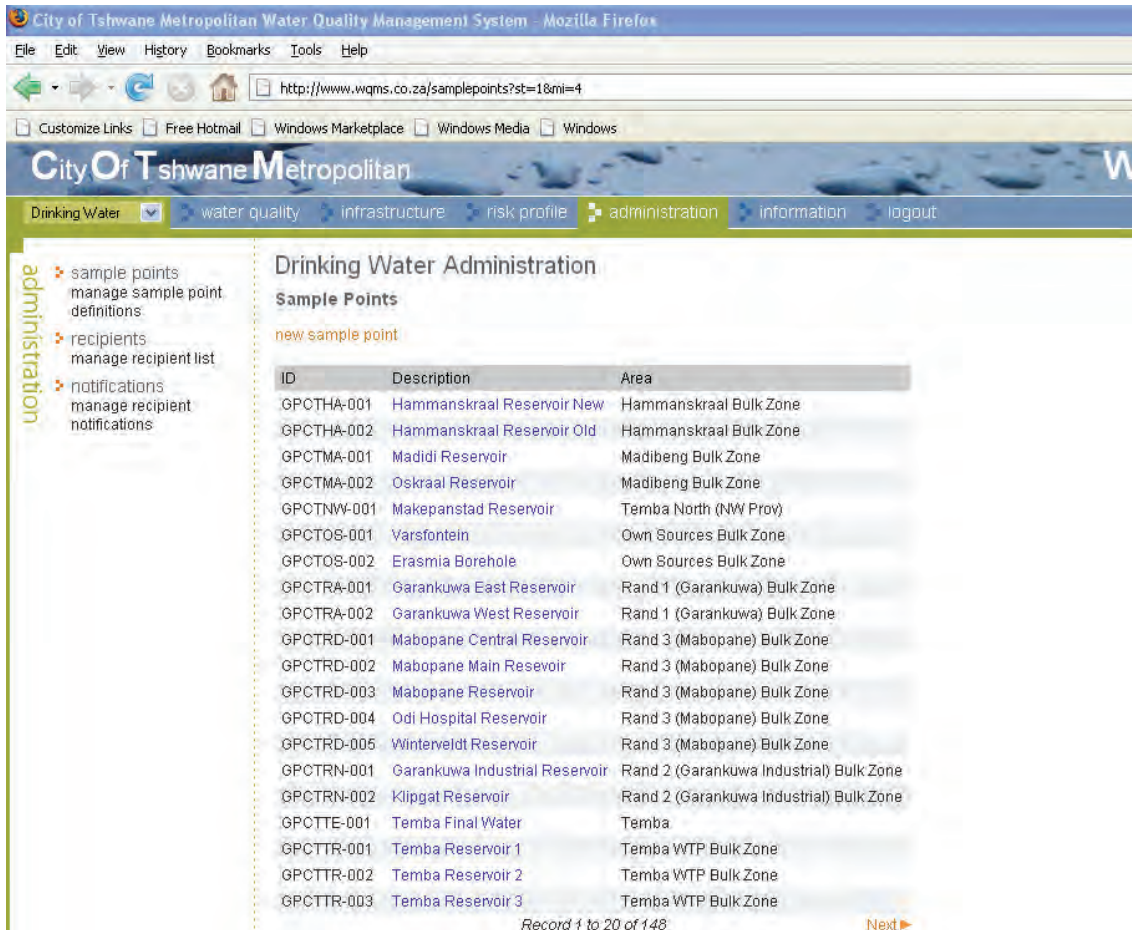


Figure 24: Sample point administration (City of Tshwane, Gauteng)

3.8 Guiding Information

Current functionality includes a convenient repository of drinking-water related information including: abstraction, treatment, storage, reticulation and point of use, Water Quality Monitoring and Management Programmes, water quality parameters, their effects and how to rectify issues, laboratories, water related sites and news and References including National Water Act, Water Services Act, Compulsory National Standards for DWQ, National DWQM Framework, etc.

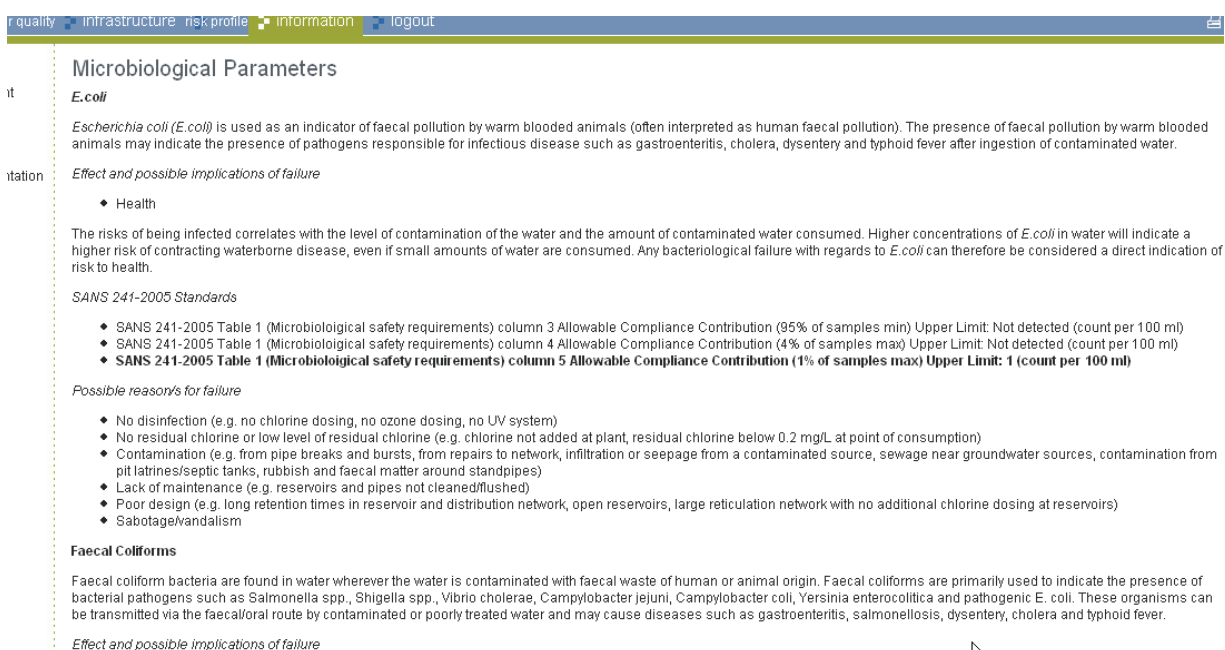
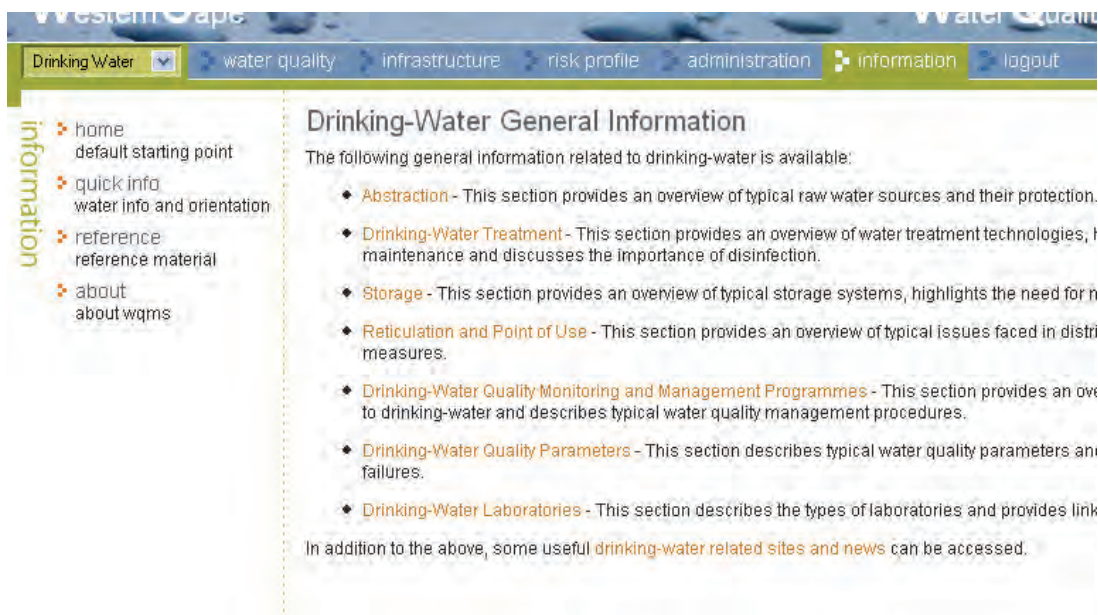


Figure 25: Information examples

4. Step-by-Step Guide of How to Use the Wastewater Pond System Assessment Tool

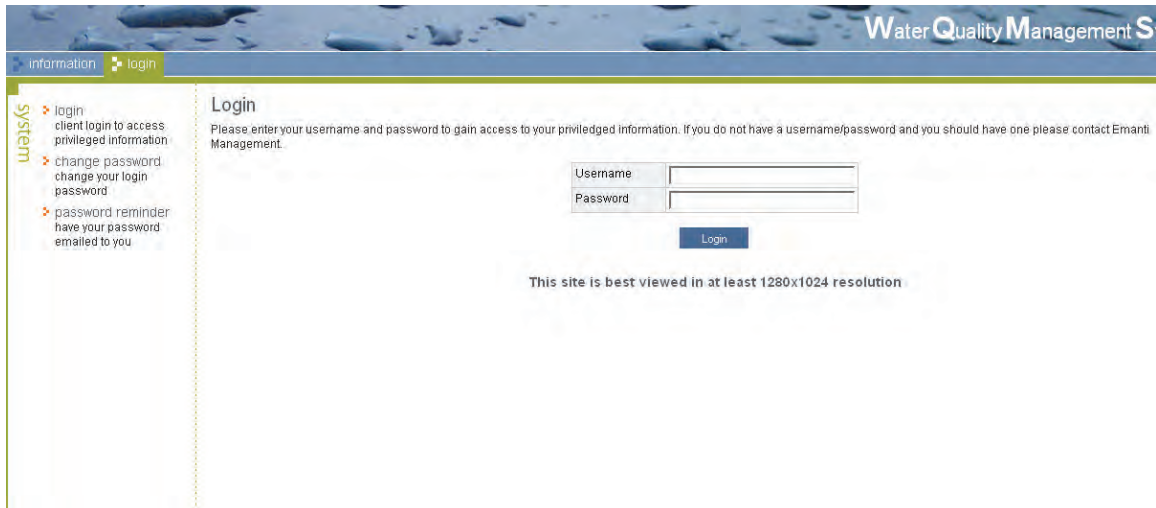
A waste stabilisation ponds system description may be filled in under infrastructure as explained in section 3.5. This information would assist in understanding issues including:

- The location of the waste stabilisation ponds system
- The layout of the system in terms of number of ponds, the shape and flow regime
- Class of the system and staff qualifications

Detailed information could then be provided by filling in questions the system assessment. (Please see arrows for guidance)

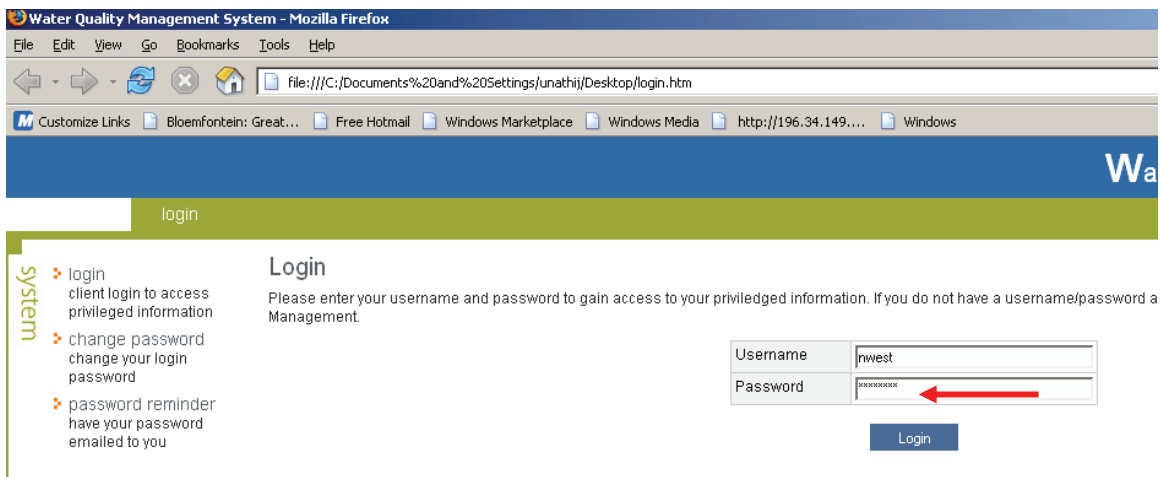
Step 1: Accessing the eWQMS

Make sure you are connected to the internet. Go to www.wqms.co.za. The following screen prompting a username and password should appear.



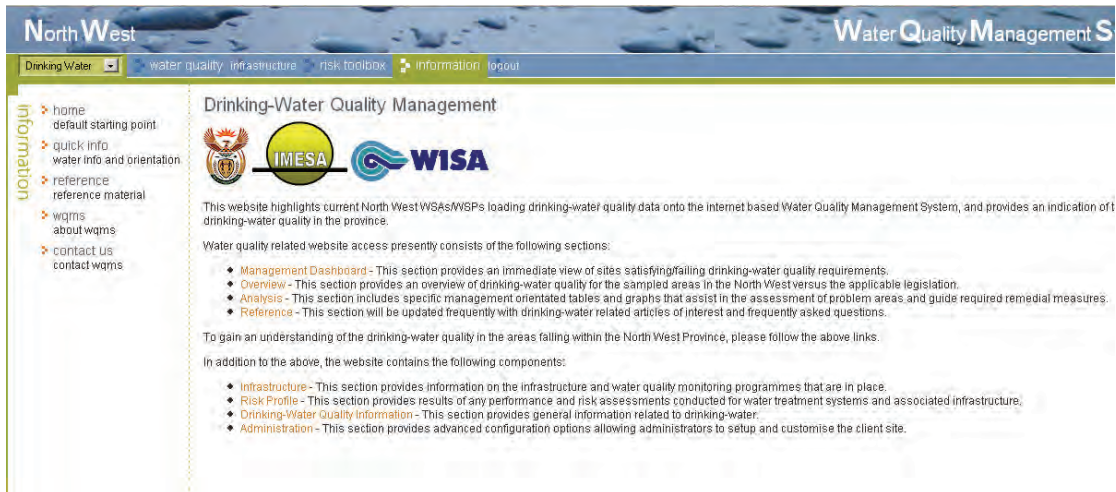
The screenshot shows the login page of the Water Quality Management System. The header includes the title "Water Quality Management System" and navigation links for "information" and "login". A sidebar on the left lists system functions: login, change password, and password reminder. The main content area is titled "Login" and contains a form with fields for "Username" and "Password", and a "Login" button. A message below the form states: "This site is best viewed in at least 1280x1024 resolution".

Fill in your username and password as required. If you don't know the username and password please contact your Municipal Technical Director or Manager for those details. Alternatively contact info@emanti.co.za and request login details.

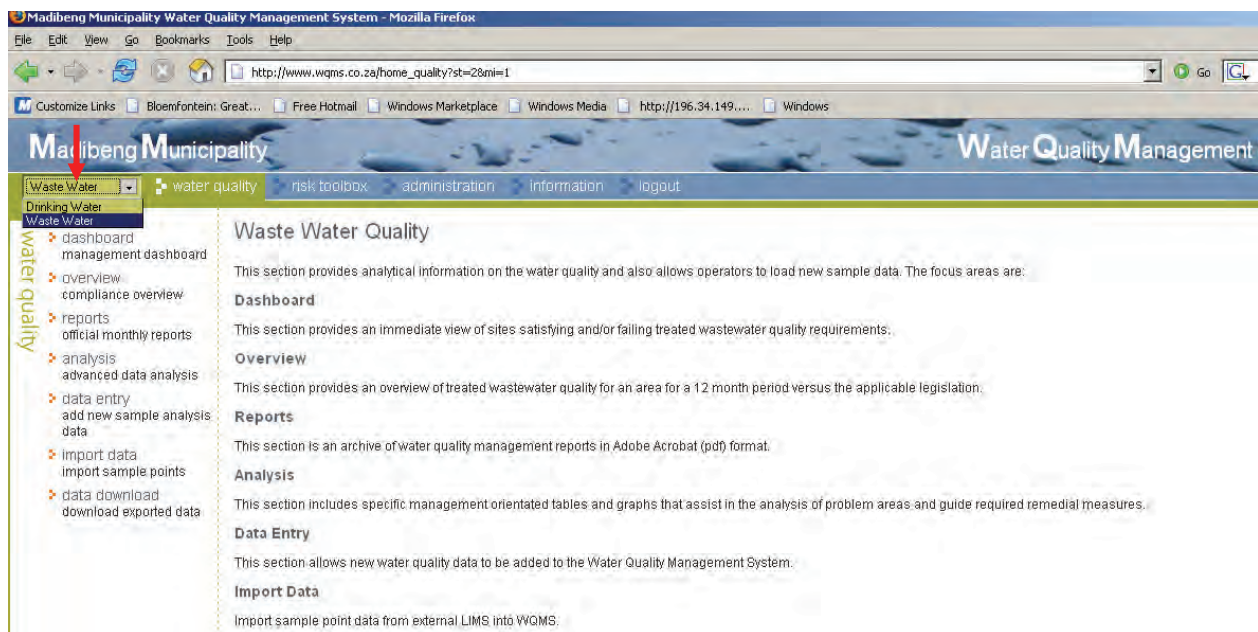


This screenshot shows the same login page as the previous one, but with the "Username" field filled with "lnwest" and the "Password" field filled with masked characters. A red arrow points to the "Password" field. The "Login" button is visible below the fields. The browser window title is "Water Quality Management System - Mozilla Firefox" and the address bar shows the file path "file:///C:/Documents%20and%20Settings/unathij/Desktop/login.htm".

Once logged in; the name of your municipality or logged client appears on top with all the features of the eWQMS.

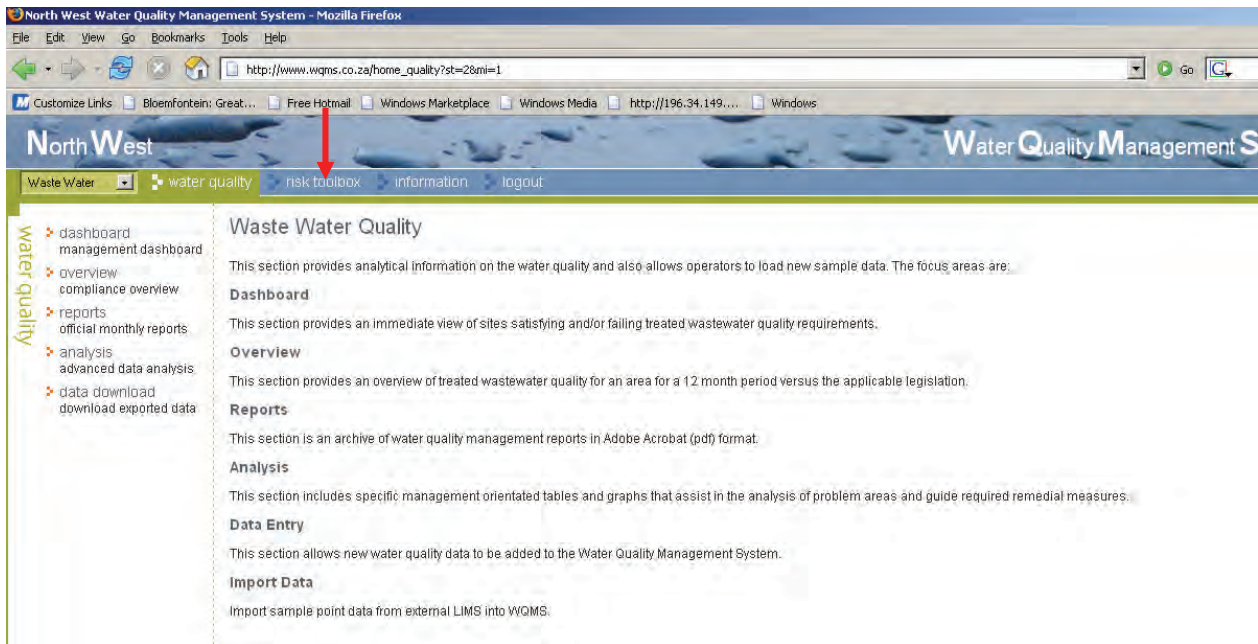


Access wastewater component by using the drop down menu on the left hand side of the screen as shown in the figure below.

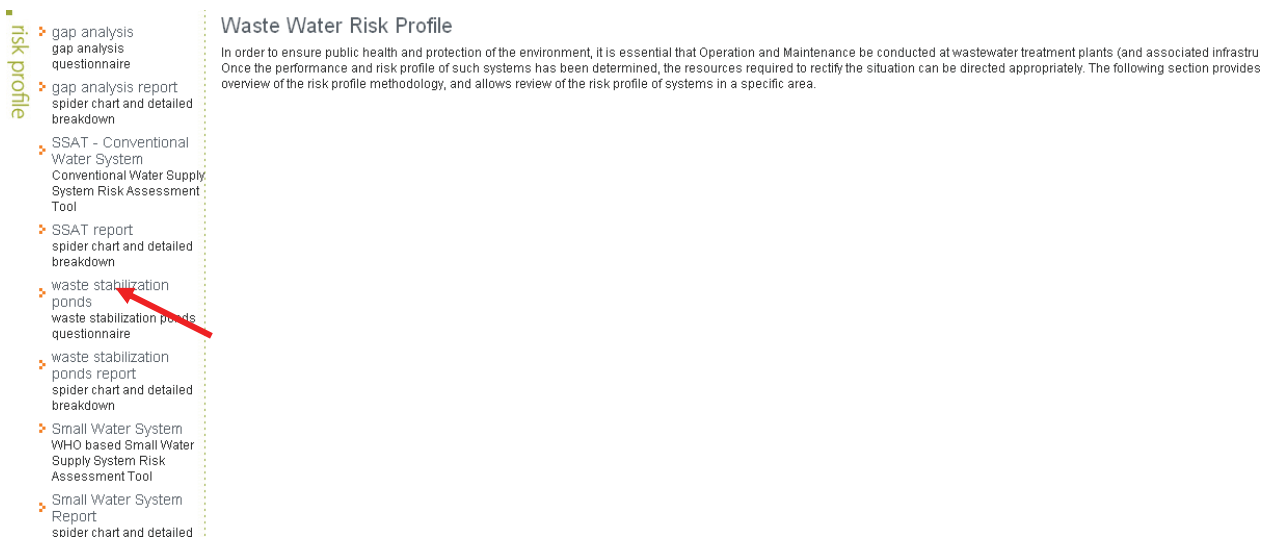


Step 2: Accessing the Wastewater Pond System Questionnaire

On the top menu, click risk toolbox as indicated below.



The screen shown below should appear. On the left hand side of the screen click wastewater stabilisation ponds questionnaire.



A screen showing the questions should appear as shown below.

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risk profile

- gap analysis questionnaire
- gap analysis report spider chart and detailed breakdown
- drinking water supply questionnaire
- drinking water supply report spider chart and detailed breakdown
- waste stabilization ponds questionnaire
- waste stabilization ponds report spider chart and detailed breakdown

Answer Waste Stabilization Ponds Questionnaire

Click **Save** at any time to save the current set of answers. Once you are satisfied with your answers click **Complete**. Only answer sets which items in **red** require your attention.

Design

- Are the ponds lined/ fully covered?
☐ Yes ☐ No
- What kind of lining is used?
☐ Cement slabs
☐ Synthetic plastic
☐ None
- Is the anaerobic pond depth within recommended depth of 3m?
☐ Yes
☐ No/ Don't know
☐ n/a
- Is the oxidation ponds depth within the recommended depth of 1 m - 1,5m?
☐ Yes
☐ No/ Don't know
- Do you know the size of the ponds (volume)?
☐ Don't know
☐ Yes
- What is the size or volume of the ponds (please specify units)?

Step 3: Loading information for the Wastewater Pond System Assessment Tool

NOTE: Before the questionnaire can be completed, a site visit of the wastewater pond facility is required. It is advisable that a copy of the questionnaire be printed out prior to the site visit. This can then be pre-completed during the site visit for population once back at the office.

Once you have all the information, fill in the questionnaire by clicking on the possible provided answers as shown in the example below. Answer all questions. (**NOTE:** If an answer is not known, please indicate “don’t know”. To receive an output, all questions MUST be filled in.)

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windows media
windows

Waste Water
water quality
risk toolbox
administration
information
logout

risk profile

gap analysis
gap analysis
questionnaire

gap analysis report
spider chart and detailed
breakdown

drinking water supply
drinking water supply
questionnaire

drinking water supply
report
spider chart and detailed
breakdown

waste stabilization
ponds
waste stabilization ponds
questionnaire

waste stabilization
ponds report
spider chart and detailed
breakdown

Answer Waste Stabilization Ponds Questionnaire

Click **Save** at any time to save the current set of answers. Once you are satisfied with your answers click **Complete**. Or items in **red** require your attention.

Design

- Are the ponds lined/ fully covered?
☒ Yes ☐ No
- What kind of lining is used?
☒ Cement slabs
☐ Synthetic plastic
☐ None
- Is the anaerobic pond depth within recommended depth of 3m?
☐ Yes
☐ No/ Don't know
☒ n/a
- Is the oxidation ponds depth within the recommended depth of 1m - 1,5m?
☒ Yes
☐ No/ Don't know
- Do you know the size of the ponds (volume)?
☐ Don't know
☒ Yes
- What is the size or volume of the ponds (please specify units)?

Measurements given by the municipality: April 2007
Total volume = 1221,295m3
Total Area = 2220,37m2

Complete each section and then click the “save” button at the end of each section. **NOTE:** The “save” button can be clicked at any stage, for example, after completing only 2 or 3 questions. It is recommended that the save button is clicked at least every 10 minutes, and more frequently if you are in an area with variable internet connection speed/poor connectivity.

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☒ Mostly Middle
☐ Mostly Upper

10. Is there a flow meter at the inlet?
☐ Yes ☒ No

11. Is the flow meter at the inlet functional?
☐ Yes ☒ No

12. Is there space available for future upgrades/expansion?
☒ Yes ☐ No

13. Are there any fluctuations in input load (e.g. seasonal variations)?
☒ Yes ☐ No

14. Are the fluctuations frequent?
☒ Daily
☐ Seasonal
☐ None
☐ N/A

15. Any further comments?

None

Save

Maintenance

4. Do the ponds look well maintained (grass cut, weeds removed, ponds not blocked/overflowing)?

Step 4: Completing the Wastewater Pond System Assessment Questionnaire

Once you have completed all sections click the complete button at the end of the questionnaire.

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Save

Water Quality Monitoring

1. Is the quality of influent to the ponds monitored?
☐ Yes ☒ No

2. Is the quality of the final effluent leaving the ponds monitored?
☐ Yes ☒ No

3. What happens to the final effluent from the pond system?
☐ Recycled/ Evaporates/ No final effluent
☒ Flows to the veld
☐ Flows to a nearby stream
☐ Used for irrigation

4. Are there any boreholes in use near the ponds?
☐ Yes ☒ No

5. If there are boreholes near the ponds, are the boreholes regularly monitored?
☐ Yes/ Monthly
☐ No
☒ N/A

6. Any further comments?
 None

Save Complete

If there are questions that are not filled in or incorrectly filled in, an error message will appear.

Answer Waste Stabilization Ponds Questionnaire

Click **Save** at any time to save the current set of answers. Once you are satisfied with your answers click **Complete**. Only answer sets which are items in **red** require your attention.

- ◆ Please select Yes / No for Is the quality of influent to the ponds monitored?
- ◆ Please select an option for Is the pond system appropriately sized for this population?
- ◆ Please select an option for Are the fluctuations frequent?
- ◆ Please select Yes / No for Have there been any cases of vandalism (e.g. fence stealing)?
- ◆ Please select Yes / No for Is the quality of the final effluent leaving the ponds monitored?
- ◆ Please select an option for What happens to the final effluent from the pond system?
- ◆ Please select Yes / No for Is a checklist/logbook regularly completed or updated?
- ◆ Please select an option for Is dilution water available for nightsoil dumping?
- ◆ Please select an option for Are screenings regularly removed?
- ◆ Please select an option for Are the screenings discarded appropriately?
- ◆ Please select an option for Is there population growth in the area?
- ◆ Please select an option for How far are the ponds located from community dwellings?
- ◆ Please select Yes / No for Do the ponds look well maintained (grass cut, screenings removed, ponds not blocked/overflowing)?
- ◆ Please select Yes / No for Is there a responsible person assigned to cut grass/weeds around the ponds?
- ◆ Please select Yes / No for Are there any fluctuations in input load (e.g. seasonal variations)?
- ◆ Please select an option for Is the population served low/middle or upper class?
- ◆ Please select Yes / No for Is there a document at the site?

If you have successfully completed the questionnaire, then you are able to view the Wastewater Pond System Assessment Tool report.

Step 5: Accessing the Wastewater Pond System Assessment Tool report

Once you have successfully completed the questionnaire, access the report by clicking on the available link.

The report should automatically generate with a “spider-diagram” and associated supporting text (questionnaire answers).

The screenshot displays the 'Answer Waste Stabilization Ponds Questionnaire' interface. The top navigation bar includes 'Waste Water', 'water quality', 'risk toolbox', 'information', and 'logout'. The left sidebar, labeled 'risk profile', lists various assessment categories, with 'waste stabilization ponds report spider chart and detailed breakdown' highlighted by a red arrow. The main content area shows the 'Design' section of the questionnaire, which includes five questions with radio button answers:

- 1. Are the ponds lined/ fully covered?
☒ Yes ☐ No
- 2. What kind of lining is used?
☒ Cement slabs
☐ Synthetic plastic
☐ None
- 3. Is the anaerobic pond depth within recommended depth of 3m?
☒ Yes
☐ No/ Don't know
☐ n/a
- 4. Is the oxidation ponds depth within the recommended depth of 1m - 1,5m?
☒ Yes
☐ No/ Don't know
- 5. Do you know the size of the ponds (volume)?
☒ Don't know
☐ Yes

- ❖ gap analysis
gap analysis
questionnaire
- ❖ gap analysis report
spider chart and detailed
breakdown
- ❖ drinking water supply
drinking water supply
questionnaire
- ❖ drinking water supply
report
spider chart and detailed
breakdown
- ❖ waste stabilization
ponds
waste stabilization ponds
questionnaire
- ❖ waste stabilization ponds
report
spider chart and detailed
breakdown

Waste Stabilization Ponds Questionnaire Report

Mohokare Municipality Report

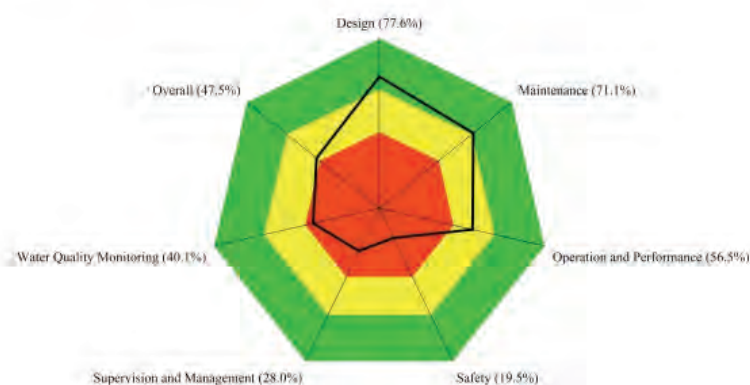
Plant:

From to (eg 2006/01/20 to 2006/08/15)

Questionnaire: WASTE STABILIZATION PONDS ASSESSMENT TOOL

Date Range: Latest Answers

Answered on 23 May 2007 11:02



- 0 - 44.9%
- 45 - 69.9%
- 70 - 100%

Click on a section to jump to a detailed view of the answers.

- ◆ [Design](#)
- ◆ [Maintenance](#)
- ◆ [Operation and Performance](#)
- ◆ [Safety](#)
- ◆ [Supervision and Management](#)
- ◆ [Water Quality Monitoring](#)

Design

1. Are the ponds lined/ fully covered?

Yes

2. What kind of lining is used?

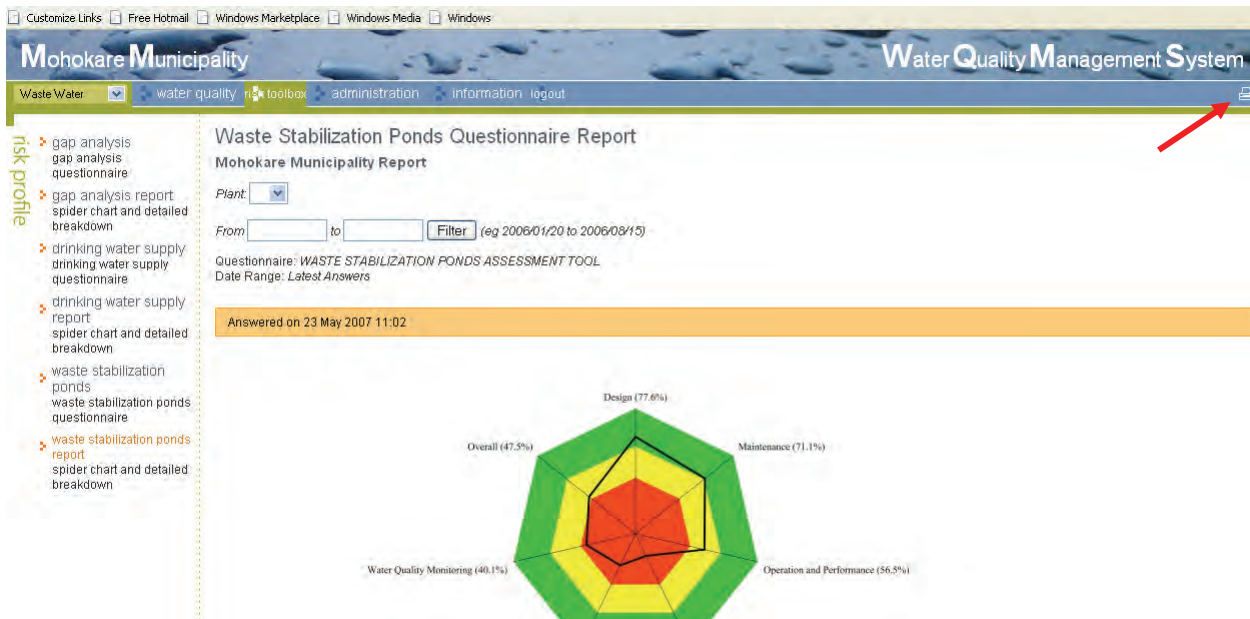
Cement slabs

3. Is the anaerobic pond depth within recommended depth of 3m?

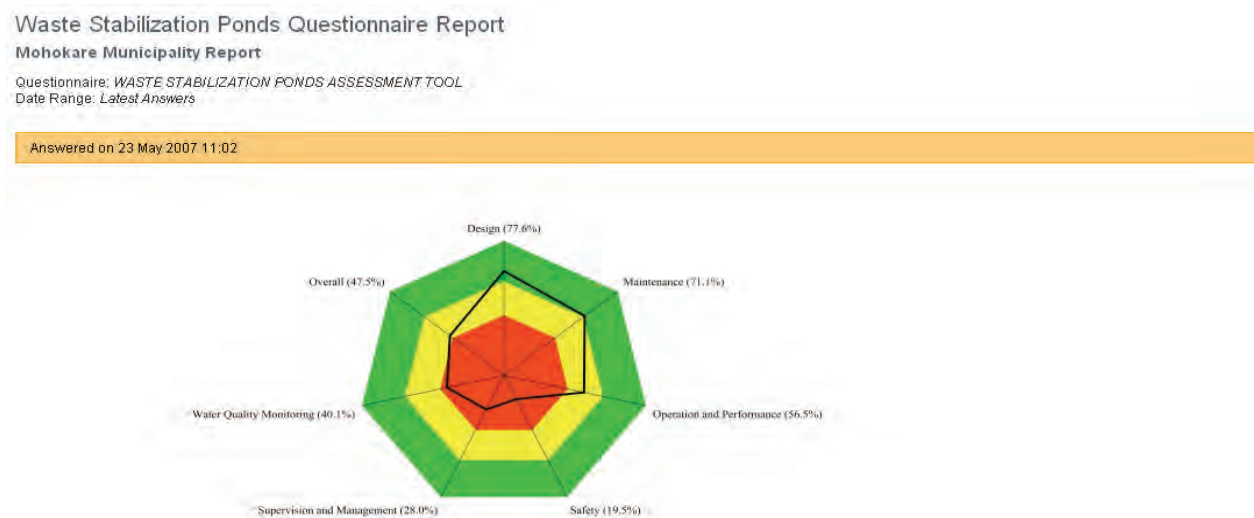
n/a

4. Is the oxidation ponds depth within the recommended depth of 1m - 1,5m?

To generate a print friendly version of the report, click on the printer icon in the top right hand corner.



A print friendly reports looks is shown below.



If you have any difficulty with the above please contact the eWQMS team at info@emanti.co.za

Future updates

It is advised that the infrastructure be updated prior to completion of the questionnaire. The infrastructure component is being upgraded at the moment therefore the date of publication of this document need to be noted. Structural change on the eWQMS should be expected.

Reference

www.wqms.co.za