



**GARDEN ROUTE DISTRICT MUNICIPALITY (GRDM)
REVIEW OF THE
AIR QUALITY MANAGEMENT PLAN**

**Progress Report No. GRDM-2019 PR.1
Compliance with 2012 Air Quality Management Plan
Final Report
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COMPILED BY

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ABBREVIATIONS AND DEFINITIONS

AQA	Air Quality Act, Act 39 of 2004
AQM	Air Quality Monitoring
AQMP	Air Quality Management Plan
AQO	Air Quality Officer
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
DEADP	Department of Environmental Affairs and Development Planning
DEA	Department of Environmental Affairs
EIA	Environmental Impact Assessment
GRDM	Garden Route District Municipality
H ₂ S	Hydrogen Sulphide
IDP	Integrated Development Plan
mg/ton	Milligrams per Ton
MSA	Municipal Systems Act
MSW	Municipal Solid Waste
NO	Nitrogen Monoxide
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
PM10	Particulate Matter with aerodynamic diameter smaller than 10 micron
SAAQIS	South African Air Quality Information System
SAWS	South African Weather Service
SO ₂	Sulphur Dioxide
SO ₃	Sulphur Trioxide
THC	Total Hydrocarbon Content
tpa	Tons per Annum
TPM	Total Particulate Matter
USEPA	United States of America Environmental Protection Agency



**GARDEN ROUTE DISTRICT MUNICIPALITY
AIR QUALITY MANAGEMENT PLAN REVIEW
EXECUTIVE SUMMARY**

An air quality management plan (AQMP) was compiled for the Garden Route District Municipality (GRDM) in 2007 and revised in 2012. Both versions were subsequently included in GRDM's Integrated Development Plan (IDP) shortly thereafter.

The AQMP defined a total of thirteen objectives that were aimed at pursuing the Vision and Mission of the AQMP. These were:

- Objective 1: Formalise air pollution control function in the GRDM
- Objective 2: Compile an Emissions Inventory for the region
- Objective 3: Carry Out Risk Assessments
- Objective 4: Assess and Select Control Measures
- Objective 5: Implement of Intervention and Monitoring Effectiveness
- Objective 6: Revise Air Quality Goals
- Objective 7: Integrate the AQMP into the IDP
- Objective 8: Compliance Monitoring, Enforcement and Control
- Objective 9: Review the Air Quality Management Plan

Of these objectives, GRDM met five in full, partially met three and were not required to execute one of the objectives.

Of the objectives / tasks not met, the lack of an emissions dispersion model in GDRM leaves the largest gap in the District Municipality's capabilities to manage air quality in the region.

1 INTRODUCTION

An air quality management plan (AQMP) was compiled for the Garden Route District Municipality (GRDM) in 2007 and included in GRDM's Integrated Development Plan (IDP) shortly thereafter.

As is required by law, the AQMP must be revised on a 5 to 6-yearly basis to ensure that it remains current. As a result it was revised in 2012/13 and the revised plan was also included in GRDM's IDP.

The process of revision of the 2012/13 version of the AQMP commenced early in 2019 after Lethabo Air Quality Specialists (Pty) Ltd was awarded the contract to do so.

That plan defined a total of nine objectives that were aimed at pursuing the Vision and Mission of the AQMP. These were:

Objective 1: Formalise air pollution control function in the GRDM

Objective 2: Compile an Emissions Inventory for the region

Objective 3: Carry Out Risk Assessments

Objective 4: Assess and Select Control Measures

Objective 5: Implement of Intervention and Monitoring Effectiveness

Objective 6: Revise Air Quality Goals

Objective 7: Integrate the AQMP into the IDP

Objective 8: Compliance Monitoring, Enforcement and Control

Objective 9: Review the Air Quality Management Plan

Where necessary each objective listed a number of activities with time scales. The time scales were referred to "short term", "medium term" and "long term". A short term time scale implied 1 to 2 years. A medium time scale implied 3 to 5 years and a long term time scale implied more than 5 years. As approximately 6 years have passed since the formulation of the AQMP it would be expected that most, if not all, of the objectives would have been met.

The final objective defined the need to review the AQMP periodically to ensure that it remains current with legislation and other legal developments as well as with industrial and social developments within the Garden Route municipal district.

The first step involved with a review of the existing AQMP is an assessment of the degree to which GRDM met the objectives defined in the AQMP and this report discusses the outcome of such an assessment.

In the section that follow each of the Objectives defined in the existing AQMP is discussed separately, together with the degree to which GRDM met the objectives and action plans.

2 OBJECTIVES IN EXISTING AQMP

2.1 Objective 1: Set Air Quality Goals

In the absence of reliable data concerning the quality of the ambient air in the GRDM region, the National Ambient Air Quality Standards published in Government Notice 1210 of 24 December 2009 were adopted as air quality goals. Air quality standards are set for the following pollutants:

- Sulphur dioxide (SO₂)
- Nitrogen dioxide (NO₂)
- Particulate matter (PM10)
- Ozone (O₃)
- Benzene (C₆H₆)
- Lead (Pb) and
- Carbon monoxide (CO)

Industries can loosely be classified under one of two classes, i.e. “listed activities” and “non-listed activities”.

Emission limits for “listed activities” were defined in DEA’s Government Notice 893, of 22 November 2013, “Listed Activities and Minimum Emission Standards”, as amended. These limits were adopted as emission limits in GRDM for industries contained in the List of Activities.

LAQS regards this objective as having been met fully by GRDM.

2.2 Objective 2: Set Up Air Quality Management System

The following four tasks were listed as key components for an effective air quality management system:

- Compile an emissions database
- Develop an AQM network
- Conduct dispersion modelling
- Report AQ information

2.2.1 Compile emissions database

A comprehensive emissions database was compiled as part of the development of the 2012 version of the AQMP. The database included emissions from the following sources:

- All industries which were issued with atmospheric emissions licenses (AELs)

- All fuel burning appliances registered with municipalities
- All panel beaters, spray painters and dry cleaners
- Petrol stations
- All national and major provincial roads in the GRDM region.

LAQS regards this part of the objective as having been met fully by GRDM.

2.2.2 Develop and AQM network

DEADP provided three AQM stations on loan to GRDM. One is located in Oudtshoorn, the second is located on the same property as the GRDM offices on Mossel Bay and the third is located at the Conville municipal swimming pool in George.

GRDM procured a Scintinel mobile multi-gas air quality monitoring system and locates the device where potential problems occur. In recent times the reliability of the monitor became questionable due to operating problems and long delays in repairing the device by the agents.

Eskom operated an ambient air quality monitoring station in Dana Bay where SO₂, NO_x and a variety of weather parameters are measured. On proposal by GRDM this station was combined with DEADP's station in Mossel Bay, thus allowing the monitoring of more parameters at that location.

The following parameters can be being monitored:

Parameter	Monitoring Station Location			
	Scintinel	Mossel Bay & DEADP / ESKOM	Oudtshoorn	George
SO ₂	X	X		X
NO _x	X	X		X
O ₃	X			X
CO	X		X	X
H ₂ S		X	X	
BTEX		X		
TPM/PM10	X			X
Weather parameters				
Wind speed	X	X	X	X
Wind direction	X	X	X	X
Temperature	X	X	X	X

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RH	X	X	X	X
Solar radiation		X	X	X
Pressure			X	
Rainfall		X	X	X

GRDM procured a Testo portable multi-gas analyser which is capable of measuring combustion gases in industrial installations. The analyser is used by GRDM for spot checks in industry.

A Minivol PM 10 analyser was also procured by GRDM and is used to measure particulate matter concentrations.

A diesel exhaust gas analyser is available and is used from time-to-time. Depending on the sampling head fitted, this sampler is capable of measuring total particulate matter (TPM) PM10 particulates or PM2.5 particulates. Analysis of results is done manually.

LAQS is of the opinion that these systems are adequate for GRDM's needs and that this objective as having been met fully by GRDM.

2.2.3 Conduct dispersion modelling

GRDM has no capabilities in this area. This part of the objective has, therefore, not been met.

2.2.4 Report AQ information

Air quality information is reported both internally in GRDM as well as externally.

Internal reporting occurs as follows:

- Monthly reports to GRDM Council
- Monthly reports to the relevant Department management
- Quarterly reports to GRDM's system that monitors compliance with key performance indications of personnel
- Annually in the form of an annual report and IDP progress reports

External reporting occurs as follows:

- Quarterly reports to DEADP
- Annual reports to DEADP for inclusion in the Provincial state of the environment report
- Annually to DEA via the SAAQIS network.
- Annually to DEA indicating the progress with the AQMP in GRDM

GRDM holds quarterly air quality meetings with all industries and consultants and this platform is used to disseminate information to these stakeholders. Furthermore, GRDM reports to the community in general on air quality issues through:

- GRDM website
- Social media
- Local press
- Radio

GRDM submits air quality news and articles at least once per quarter to these platforms. Furthermore GRDM engage with schools and embarked on the Clean Fires campaign.

A service provider, Mingcele Africa, was appointed to conduct quarterly training sessions to all grade 3 teachers in the Garden Route, teaching them about air quality in general and this course is written in the grade 3 curriculum. GRDM developed all the necessary books, games, flip charts used as part of this ongoing training of children.

LAQS therefore regards this objective as having been met fully by GRDM.

2.3 Objective 3: Carry Out Risk Assessments

To date this activity has not been carried out by GRDM directly, although it formed part of the team, led by the Provincial Air Quality Officer, which carried out a risk assessment of the effect of H₂S in Oudtshoorn.

LAQS therefore regards this objective as having been met partially by GRDM.

2.4 Objective 4: Assess and Select Control Measures

This objective was defined as applicable after a risk assessment identified the need for intervention. As no risk assessments were required to date, no intervention steps were needed.

Where necessary, GRDM commented on proposed air pollution mitigation measures to ensure that the correct equipment was installed. Throughout GRDM's approach was to insist on "best available technology" to ensure that maximum effectiveness could be achieved.

LAQS regards this objective as having been met partially by GRDM.

2.5 Objective 5: Implement of Intervention and Monitoring Effectiveness

Other than its contributions to industrial problems, no large-scale interventions were required and subsequent monitoring of effectiveness was not required.

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The industrial applications to which GRDM contributed are either newly installed or in the process of being implemented with the result that the effectiveness of these installations could not yet be assessed.

Nevertheless, LAQS regards this objective as having been met fully by GRDM.

2.6 Objective 6: Revise Air Quality Goals

No air quality problems requiring revision of its air quality goals occurred with the result that no opportunity to execute this objective arose.

As is the case with risk assessments, LAQS does not regard inactivity in this area as negative.

2.7 Objective 7: Integrate the AQMP into the IDP

GRDM's AQMP is included in the District's IDP.

LAQS regards this objective as having been met fully by GRDM

2.8 Objective 8: Compliance Monitoring, Enforcement and Control

This objective included the following tasks:

- Licensing of activities
- Pollution prevention plans
- Administrative enforcement
- Inspection and complaints
- Audits

2.8.1 Licensing of Activities

As licensing authority in terms of the Air Quality Act, GRDM issued AELs, revised AELs and renewed AELs as and when required and to those industries included in the List of Activities that Result in Atmospheric Emissions as published in Government Notice 893 of 22 November 2013, as amended.

LAQS regards this part of the objective as having been met fully by GRDM.

2.8.2 Pollution prevention plans

To date no incidents occurred which required the development and implementation of pollution prevention plans.

As is the case with risk assessments and revision of air quality goals, LAQS does not regard inactivity in this area as negative.



2.8.3 Administrative enforcement

As and where necessary GRDM took the necessary administrative steps to force and industry to comply with the requirements of its AEL. One such case resulted in legal action and the case was in process at the compilation of this report.

LAQS regards this part of the objective as having been met fully by GRDM.

2.8.4 Inspection and complaints

Due to the limited availability of manpower GRDM could not inspect license holders randomly, but have responded to complaints in all cases where their attention was required.

LAQS regards this part of the objective as having been met partially by GRDM.

2.8.5 Audits

A key function of the auditing of emission license compliance lies in the reviewing of AELS on a regular basis.

Rather than instigating a formal AEL review program, GRDM implemented a self-auditing system whereby each industry receives a purpose-made report with all its conditions stipulated. The industries then do self-assessments of their AEL conditions and submit it to GRDM before each quarterly meeting. GRDM checks the response and flags non-compliances for correction. GRDM is also in the process of updating its information system with this auditing tool.

LAQS regards these steps as adequate as GRDM is continuously involved with AEL compliance verification and is of the opinion that this part of the objective has been met fully.

2.9 Objective 9: Review the Air Quality Management Plan

The AQMP is currently under revision with the result that LAQS regards this objective as having been met fully by GRDM.

3 CONCLUSIONS

From the discussion of the various objectives given above it can be seen that GRDM has met most of the objectives defined in the existing AQMP.

One of the objectives was not addressed at all while some were only addressed in part for various reasons, e.g., activities not required, budgetary constraints, etc.

Of the objectives / tasks that were not met, the lack of a dispersion modelling capability leaves a huge gap in GRDM's effectiveness in combatting air pollution problems within the District. A proper dispersion model should be seen as the first step in the

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identification of potential problems, from where activities such as air quality monitoring can be defined.

Regardless of the limitations imposed by these constraints, GRDM has made remarkable strides to setting up and applying an effective air quality management system in the district. This is largely due to the dedication and diligence of the officials appointed to carry out the work, not only within the Garden Route District Municipality, but also within the individual municipalities in the district.

The steps taken by GRDM in this regard laid a sound foundation in which to proceed with effective air quality management in the District.