

CENTRAL KAROO

DISTRICT MUNICIPALITY



**AIR QUALITY MONITORING
BASELINE STUDY -
AMBIENT MONITORING PROGRESS
REPORT**

INTRODUCTION

- Based on uranium & shale gas developments CKDM procured a service provider to conduct Air Quality Baseline Study.
- Argos Scientific successfully got the tender
- Limited to 6-months due to limited budget
- Determine dust fallout monitoring -gravimetric Sampling.
- Potassium, Thorium, Molybdenum & uranium analyses
- Determine PM10 & Meteorological data



LEGAL FRAMEWORK

- National Environmental Management Act
- National Environmental Management: Air Quality Act
- National Dust Control Regulations
- SANAS Supplementary Requirements for Continuous Ambient Air Quality Monitoring
- The CKDM AQMP
- Western Cape Provincial Government's 2nd Generation AQMP



SAMPLING AREA



EQUIPMENT USED

- Dust buckets mounted on galvanised poles
- MetOne E-Sampler - Data collected are stored on a central server and made available on a real-time basis via a private web site to the client



Dust bucket



MetOne E-Sampler



PERMISSIBLE LIMIT FOR DUST FALLOUT & PM10

Restriction Areas	Dust fall rate (D) mg/m ² /day (30-day average)	Comment
Residential	D < 600	Permissible for residential and light commercial
Non-Residential	600 < D < 1200	Permissible for heavy commercial and industrial

For heavy commercial and industrial regions, the new guidelines state that monthly average dust fallout concentrations below 1200mg/m²/day “are permissible”. For residential regions, monthly average dust fallout concentrations not exceeding 600mg/m²/day “are permissible”.

- The RSA National Standard for PM-10 is 75ug/m³ as a daily average which may be exceeded on four (4) occasions during a one year period.

RESULTS FOR FEB-MARCH 2018

Sampling Site	Sampling Start Date	Sampling End Date	Net Mass (g)	No. of Days	Dust Fall rate (mg/m ² /day)	Comments
Reclamation Plant South East	08-Feb-18	09-Mar-18	0.117	29	177	Meets Requirement
Hillside Clinic West	08-Feb-18	09-Mar-18	0.241	29	367	Meets Requirement
Hospital East	08-Feb-18	09-Mar-18	0.062	29	94	Meets Requirement
NieuveldClinic South West	08-Feb-18	09-Mar-18	0.210	29	318	Meets Requirement

Sampling Site	Net Mass (g)	No. of Days	Potassium (ppm)	Molybdenum (ppm)	Thorium (ppm)	Uranium (ppm)	Comments
Reclamation Plant South East	0.117	29	2917.6	*BDL	*BDL	*BDL	-
Hillside Clinic West	0.241	29	1905.8	*BDL	24.9	*BDL	-
Hospital East	0.062	29	2903.2	*BDL	*BDL	*BDL	-
NieuveldClinic South West	0.210	29	3769.1	*BDL	*BDL	*BDL	-

* BDL - Below the detectable limits

RESULTS FOR MARCH-APRIL 2018

Sampling Site	Sampling Start Date	Sampling End Date	Net Mass (g)	No. of Days	Dust Fall rate (mg/m ² /day)	Comments
Reclamation Plant South East	09-Mar-18	09-Apr-18	0.044	31	63	Meets Requirements
Hillside Clinic West	09-Mar-18	09-Apr-18	0.047	31	67	Meets Requirements
Hospital East	09-Mar-18	09-Apr-18	0.067	31	95	Meets Requirements
NieuveldClinic South West	09-Mar-18	09-Apr-18	0.094	31	134	Meets Requirements

Sampling Site	Net Mass (g)	No. of Days	Potassium (ppm)	Molybdenum (ppm)	Thorium (ppm)	Uranium (ppm)	Comments
Reclamation Plant South East	0.044	31	4504.5	*BDL	*BDL	*BDL	-
Hillside Clinic West	0.047	31	4651.2	*BDL	*BDL	*BDL	-
Hospital East	0.067	31	3142.1	*BDL	*BDL	*BDL	-
NieuveldClinic South West	0.094	31	3922.3	*BDL	*BDL	*BDL	-

* BDL - Below the detectable limits

RESULTS FOR FEB-APRIL 2018

FEB-MARCH 2018

Pollutant	Period	PM-10
Unit		($\mu\text{g}/\text{m}^3$)
Mean	Month	8
Max.	1 hr	55
Max	24 hr	8

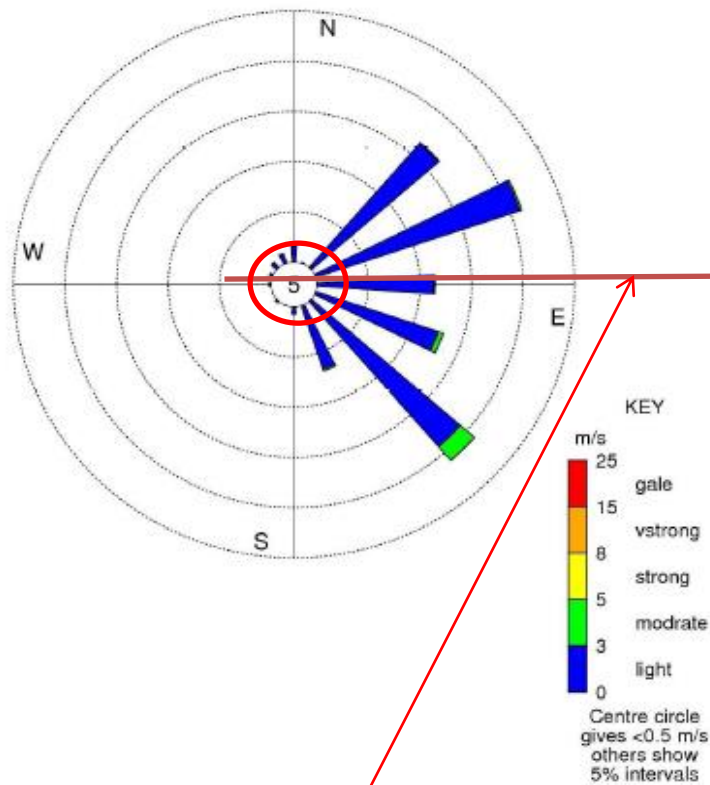
MARCH-APRIL 2018

Pollutant	Period	PM-10
Unit		($\mu\text{g}/\text{m}^3$)
Mean	Month	7**
Max.	1 hr	39
Max	24 hr	10

** Based on 65% data capture

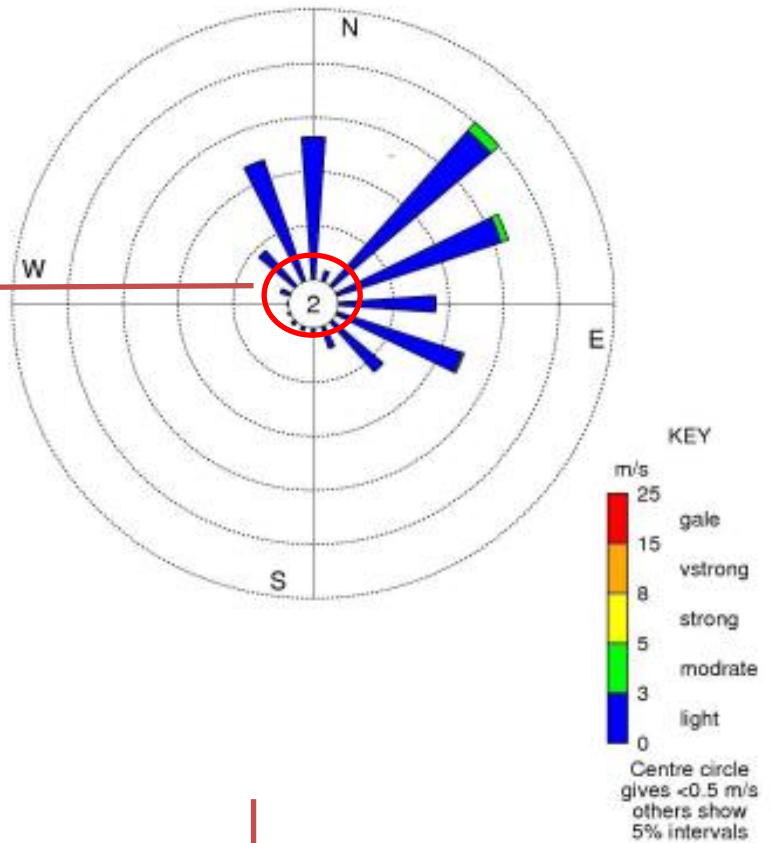
METEOROLOGICAL DATA (wind)

WIND ROSE – BEAUFORT WEST MARCH 2018



Percentage occurrence
of calm conditions

WIND ROSE – BEAUFORT WEST APRIL 2018



CONCLUSION

- Potassium detected in both sample period on all the areas.
- Molybdenum, Thorium and Uranium levels, typically below the detection limit
- Thorium was detected during first sample however not in the second sample at Hillside Clinic
- PM-10 levels were well below the RSA National Standard of $75\mu\text{g}/\text{m}^3$ as a daily average.



The End

- Where to from now? & What's next?
- Withdrawal of Mining and Prospecting rights on the Karoo Uranium Mining.

**SUCCESS
IS THE SUM OF
SMALL EFFORTS,
REPEATED
DAY IN &
DAY OUT.**

Thank You

The Success Of Teamwork

Coming together is a beginning.

Keeping together is progress.

Working together is success.

~ Henry Ford ~

