



SASOL MINING IMPUMELELO CORRIERY ENVIRONMENTAL/ PERIMETER NOISE MONITORING ASSESSMENT

1. The Purpose

THE PURPOSE OF THIS REPORT IS TO REFLECT THE RESULTS AND FINDINGS OF AN OCCUPATIONAL HYGIENE SURVEY WHICH INCLUDED THE FOLLOWING:

a) Environmental/Perimeter Noise Monitoring Assessment:

- To establish day time and night time Perimeter/ Environmental noise levels along the boundary of Impumelelo Colliery, in order to determine possible annoyance by noise, according to the requirements of The Noise Control Regulation, 1999 of the environmental Conservation Act, 1989 (Act 73 of 1989).
- To measure ambient noise levels and determine whether Noise Levels generated with the Impumelelo Colliery impacts negatively on the environment, communities and/ or is a source of annoyance to neighbouring facilities and is performed in accordance with SANS 10103:2008, "The measurement and rating of Environmental Noise with respect to annoyance.

2. Guidelines:

- This Environmental Noise Assessment was evaluated against the guidelines provided in the SANS 10103:2008 (Table 2.1) - The recommended noise levels with respect to annoyance and to speech communication.

TABLE 2.1 ACCEPTABLE RATINGS OF NOISE LEVELS IN DISTRICTS (SANS 10103:2008)

Type of District	Equivalent continuous rating level ($L_{Req,T}$) for noise dBA		
	Day/Night $L_{Req,dn}$	Daytime* $L_{Req,d}$	Night-time** $L_{Req,n}$
a) Rural districts	45	45	35
b) Suburban districts with little road traffic	50	50	40
c) Urban districts	55	55	45
d) Urban districts with one or more of the following: workshop; business premises; and main roads	60	60	50
e) Central business districts	65	65	55
f) Industrial districts	70	70	60

Table 2.2 Reflects the estimated response that can be expected from neighbouring communities or groups of people who are affected by ambient noise levels that are in excess of the relevant acceptable noise rating levels.

TABLE 2.2.: CATEGORIES OF COMMUNITY OR GROUP RESPONSE PROVIDED IN SANS 10103:2008 FOR AMBIENT NOISE IN OUTDOOR AREAS.

EXCESS $\Delta L_{Req,T}$ (dB(A))	ESTIMATED COMMUNITY / GROUP RESPONSE	
	CATEGORY	DESCRIPTION
0 - 10	Little	Sporadic complaints
5 - 15	Medium	Widespread complaints
10 - 20	Strong	Threats of community / group action
> 15	Very strong	Vigorous community / group action

Legend:

Excess $\Delta L_{Req,T}$: Ambient noise under investigation minus the acceptable rating level for the applicable district as determined from Table 1.

Note: Overlapping ranges for the excess values are given because a spread in the community reaction might be anticipated.

3. Results:

- The results of the Environmental Noise survey performed for Impumelelo Colliery on the 29th November 2020 are reflected in Tables 2.3. For all noise measurement positions, please see Figure 2.3.1.

FIGURE 2.3.1: INDIVIDUAL ENVIRONMENTAL NOISE SAMPLING LOCATIONS AT IMPUMELELO COLLIERY ON THE 29th DECEMBER 2020.



TABLE 2.3.: ENVIRONMENTAL NOISE SURVEY CONDUCTED AT IMPUMELELO COLLIERY ON THE 29th DECEMBER 2020.

NO	NOISE SOURCE & PERIMETER POINTS	EQUIVALENT CONTINUOUS NOISE RATING LEVEL – DAY TIME (LReq,Td)	INDUSTRIAL DISTRICT*		TIME OF DAY
			ACCEPTABLE NOISE RATING LEVEL IN DB(A)	EXPECTED COMMUNITY RESPONSE	
IMPUMELELO COLLIERY - PERIMETER NOISE MEASUREMENTS DAY-TIME INTERVAL					
1	Point 1	61.4	<ul style="list-style-type: none"> 70dB (A) – industrial district during the Day-time as specified in the SANS 10103:2008. Industrial district. 	Sporadic Complaints	11:30 am (06h00 – 22h00)
2	Point 2	59.7			
3	Point 3	64.1			
4	Point 4	66.1			
5	Point 5	61.0			
6	Point 6	69.3			
7	Point 7	61.7			
8	Point 8	63.1			
9	Point 9	62.3			
IMPUMELELO COLLIERY - PERIMETER NOISE MEASUREMENTS NIGHT-TIME INTERVAL					
1	Point 1	59.1	<ul style="list-style-type: none"> 60dB (A) – Industrial districts during the Night-time as specified in the SANS 10103:2008. Industrial district. 	Sporadic Complaints	22:10 (22h 00 to 06h00)
2	Point 2	55.6			
3	Point 3	56.3			
4	Point 4	58.9			
5	Point 5	59.1			
6	Point 6	59.5			
7	Point 7	58.1			
8	Point 8	58.8			
9	Point 9	50.4			
ACOUSTIC SOURCES THAT CONTRIBUTED TO THE NOISE RATING LEVEL					
<ul style="list-style-type: none"> The noise experienced at the business premises can mainly be attributed to: <ul style="list-style-type: none"> – Operation of the Diesel machinery such as LHDs, Forklifts, etc. – The Shaft Cage warning alarm. – Ventilation Fans (Impumelelo and Raskop Fans). 					

4. DISCUSSION

4.1. Evaluation of Results




The Environmental Noise measurements were taken during the daytime and night time intervals at the perimeter/boundary of the Impumelelo Colliery. Noise levels measured at the perimeters of the site during the daytime ranged between 59.7– 69.3 dB (A) while the night time noise levels ranged between 50.4– 59.5 dB (A).

The Mobile Machinery/ Diesel Machines and Cage Alarm were noted to be the main sources generating noise levels within the Impumelelo Colliery.

5. Conclusion

An Environmental/Perimeter Noise survey was performed at Impumelelo Colliery. The following could be concluded:

- The day time continuous noise rating levels ($L_{Req,Td}$) measured at the perimeter of the Impumelelo Colliery did not exceed the acceptable noise rating levels as prescribed by SANS 10103:2008, for daytime levels.
- The night continuous noise rating levels ($L_{Req,T}$) measured at the Perimeter of Impumelelo Colliery also did not exceed the acceptable noise rating levels as contemplated in SANS 10103:2008, for night time levels.

DESCRIPTION	SIGN	DATE
VENT. OBSERVER		4/01/2021
VENT. OFFICER		4/01/2021
OCC. HYGIENIST		11/01/2021.