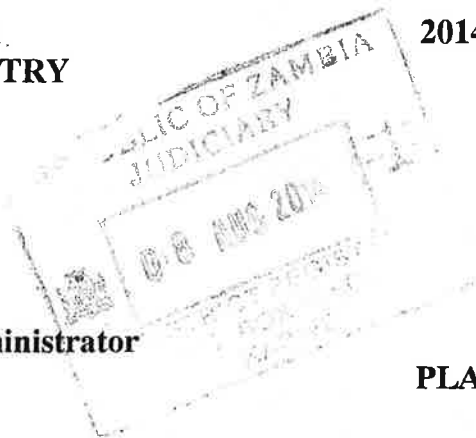


**IN THE HIGH COURT OF ZAMBIA
AT THE KABWE DISTRICT REGISTRY
HOLDEN ATKABWE
(Civil Jurisdiction)**

2014/HB/48



BETWEEN:

**GEOFREY ELLIAM MITI
(Suing in his own capacity and as Administrator
Of the Estate of Beatrice Sakala)**

PLAINTIFF

AND

MOPANI COPPER MINES PLC

DEFENDANT

PLAINTIFF'S BUNDLE OF DOCUMENTS

Drawn by:

Malambo & Company
Moomba House
Off Katima Mulilo Road
Olympia Park
P/Bag E342
LUSAKA

Advocates for the Plaintiff



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In reply please quote

No:

19

13th May, 2014

Messrs. Malambo & Co
Moomba House Plot 18959
Off Katima Mulilo Road Olympia Park
Private Bag E 342
LUSAKA

Dear Sir,

**RE: REQUEST FOR ANY INFORMATION RELATING TO MOPANI COPPER MINES PLC'S
EMISSION OF FUMES IN MUFULIRA**

We make reference to the above captioned matter and to your minute dated 30th April, 2014 whose contents we have duly noted.

Please find herewith enclosed as per your request the following documents:

1. Mopani Copper Mines PLC Report on Sulphur Dioxide Levels at Konkoyo Clinic;
2. ZEMA Analysis Report on Sulphur Dioxide;
3. ZEMA Returns Analysis Report for 2010 for Mopani Copper Mines Mufulira Site;
4. ZEMA Returns Analysis Report for 2012 for Mopani Copper Mines Mufulira Site;
5. ZEMA Returns Analysis Report for 2013 for Mopani Copper Mines Mufulira Site; and
6. Air Quality Monitoring Report at Mopani Copper Mines PLC in Mufulira , 2014.

Yours faithfully,

Humphrey Kasiya Mwale
Legal Services Department

ZAMBIA ENVIRONMENTAL MANAGEMENT AGENCY

1. BACKGROUND

Mopani Copper Mines Plc is a Zambian registered Copper and Cobalt mining company owned by Carlisa Investments Corporation (90%) and ZCCM-IH (10%). In April 2000, Mopani purchased assets of the Zambia Consolidated Copper Mines Limited (ZCCM) comprising of Underground Mine, Concentrator, Smelter, and Refinery at Mufulira and Underground Mine, Open Pits, Concentrator and Cobalt Plant at Nkana.

The operation of the Smelter at Mufulira Mine site results in the emissions of Sulphur Dioxide into the atmosphere. At the time of vesting of the asset to Mopani by the previous owner, there was 100% emission of the SO₂ into the atmosphere. However, since Mopani took over the asset in 2000, it has managed to reduce the SO₂ emissions by 50%.

Mopani has installed Sulphur Dioxide monitoring equipment at clinic 5. This is in addition to other Sulphur Dioxide monitoring stations around Mufulira town. The station measures the ambient Sulphur dioxide on a daily basis. The sulphur dioxide emissions data collected by Mopani is then submitted to ZEMA for analysis once every six months.

2. ANALYSIS OF SULPHUR DIOXIDE DATA (2013)

The tables below indicate levels of sulphur dioxide as emitted by Mopani Copper Mines. Table 1 shows the concentration of sulphur dioxide in the ambient air while tables 2 to 4 show the levels of sulphur dioxide from the stacks.

Table 1: **Concentration of SO₂ in Ambient Air**

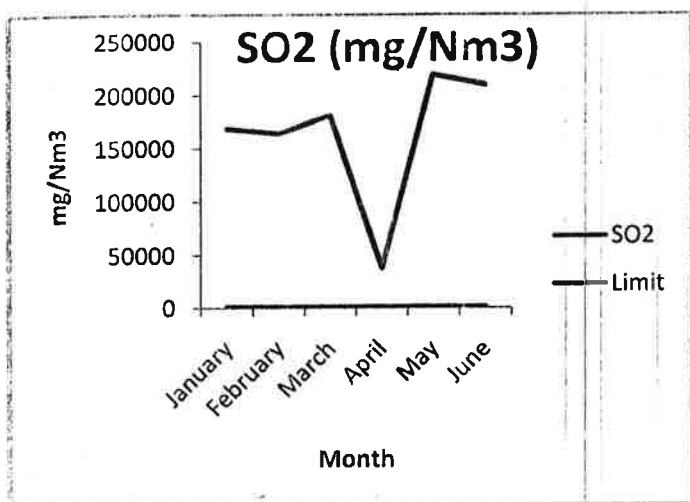
Concentration of SO ₂ in Ambient Air (µg/m ³ /24hrs)					
	Monitoring Location				
Month	Kankoyo Clinic 5	Butondo Clinic 7	Clinic 6	Clinic 3	Eastlea
Jan	248	201	202	128	839
Feb	156	633	163	479	Station Down
Mar	5640	834	Station Down	88	Station Down
Apr	3187	881	Station Down	446	34
May	1903	1903	Station Down	197	22
Jun	4457	3317	17	255	16

ZEMA limit is 125µg/m³/24hrs.

The information in the table above indicate that there are high levels of sulphur dioxide in the ambient air in Mufulira town due to copper smelting by Mopani Copper Mines Plc. The maximum level of sulphur dioxide of 5640µg/m³/24hrs was obtained in March which was about **42 times** higher than the statutory limit of 125µg/m³/24hrs.

Month	Dust t/h	Flow rate Nm ³ /h	% SO ₂	Pollutants concentrations mg/Nm ³								
				Dust	SO ₂	As	Bi	Cd	Cu	Co	Pb	Hg
Jan. 2013	0.16	73523.98	5.9	2167.54	168631.4	4.71	2.99	0.011	286.25	0.51	34.23	-
February 2013	0.181	87272.79	5.73	2127.49	163867.84	2.776	13.30	0.0395	707.24	2.016	32.63	-
March 2013	0.05	111049.26	6.33	470.69	181016.81	1.098	15.64	0.0401	8.856	0.06	40.129	-
April 2013	0.002	87876.22	1.33	22.08	38108.80	0.08	0.0044	0.0066	0.112	0.0022	0.08	-
May 2013	0.11	87318.76	7.67	952.42	219125.61	3.51	22.88	0.06	217.42	1.41	49.69	-
June 2013	0.076	144704.0	7.33	522.40	209598.40	1.96	12.75	0.034	121.14	0.78	27.69	-
Long term	-	-	-	50	1000	0.5	-	0.05	1.0	1.0	0.2	0.05

Table 3: Converter Stack emissions – Copper blow



At the copper blow, the minimum level of sulphur dioxide was 38108 mg/Nm³. This was far above the statutory limit of 1000 mg/Nm³.

3. EFFECTS OF SULPHUR DIOXIDE ON HEALTH

Sulphur dioxide is an invisible gas with a nasty sharp smell which under certain conditions forms sulphuric acid; acid rain often falls when the gas has been oxidized to sulphur trioxide which then dissolves in rain. In the case of Mufulira town, the main source of sulphur dioxide in the air is copper ore smelting.

Sulphur dioxide affects human health when it is breathed in. It irritates the nose, throat and the airways to cause coughing, shortness of breath, or a tight feeling around the chest.

The resulting symptoms may include pain when taking a deep breath, coughing, vasoconstriction, and breathing difficulties. High concentrations of SO₂ can affect lung function, worsen asthma attacks, and aggravate existing heart disease in sensitive groups. This gas can also react with other chemicals in the air and convert to a small particle that can lodge in the lungs and cause similar health effects.

People, particularly sensitive to sulfur dioxide include:

- **People with lung diseases**, such as asthma, chronic bronchitis, and emphysema will generally experience more serious health effects even at lower SO₂ levels.
- **Children** are at higher risk from SO₂ exposure because they are more likely to have asthma, which may be aggravated by exposure.
- **Active people** of all ages who exercise or work vigorously outdoors have higher exposure to sulfur dioxide than people who are less active.

4. THE CASE OF MOPANI SO₂ GAS EMISSIONS IN MUFULIRA

ZEMA has always engaged Mopani reduce the sulphur dioxide emissions.

Taking into account the historical trajectory where emissions in Mufulira were at one time not regulated, and the sudden onset of massive public complaints, ZEMA has persistently held dialogue with Mopani and this has resulted in the mine to recapitalize its plant. Mopani Copper Mine has responded by constructing another acid plant to capture the remaining 50% of sulphur dioxide and convert it into sulphuric acid. Mopani also has had to build a new smelter to ensure that the sulphur dioxide generated is captured by the acid plants.

Currently works on the new acid plant and the smelter are in progress and expected to be completed by **December 2014**. Once completed, it is expected that 95% of sulphurdioxide will be captured and only 5% will be emitted into the air.

5. CONCLUSION

For now, it is our considered view that the figures presented in the tables above, it is clear that sulphur dioxide is a serious air pollution problem in Mufulira which requires immediate attention.

6. RECOMMENDATION

- i. Government should instruct Mopani Copper Mines to expedite works on the new acid plant.
- ii. Mopani Copper Mines should offer free medical services to all residents of Mufulira town with respiratory ailments and provide other related goods and services in the town.