

DUST MANAGEMENT PLAN



Prepared for:

Universal Chrome Minerals

Portion 50 of the farm Boschfontein 458 JQ Madibeng
Bojanala Platinum District Municipality

Prepared by:

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1. INTRODUCTION

Universal Chrome Minerals (herein referred to as UCM) established a chrome crushing, screening and washing plant on portion 50 of the farm Boschfontein 458JQ, in Madibeng within the Bojanala Platinum District Municipality.

This is an operation phase dust management plan, in terms of the National Dust Control Regulations of 2013. This Dust Management Plan (DMP) is a detailed document that identifies fugitive dust sources and describes measures to be used to control dust emissions to the atmosphere. A common air emission associated with this Run of Mine (ROM) material (i.e. Chrome) sourced from mining operations is particulate matter (PM) released in the form of fugitive dust. Sources of dust can include traffic from external and on-site traffic routes, aggregate processing and handling, as well as natural releases occurring from exposed stockpiles.

1.1 Objectives

The objectives of this Dust Management Plan are as follows:

- Summarise the regulatory framework governing the management of dust associated with the project;
- Define roles and responsibilities for the implementation of this plan and management of dust;
- Describe measures and controls related to the management of dust during the operation phase of the plant;
- Provide a framework for monitoring and reporting on the management of dust during the operation phase of the plant; and
- Describe requirements related to responding to dust-related complaints.

2. LEGAL REQUIREMENTS

UCM is responsible for exceedances and the Bojanala Platinum District Municipality (BPDM) will hold the plant responsible for dust exceedances and non-conformances to their Dust Management Plan.

2.1 National Dust Control Regulations

The National Dust Control Regulations (GNR 517, dated 25 May 2018), published in terms of the NEM: AQA (as amended). GNR 517 states that dust fallout may not exceed 1 200 mg/m²/day for activities undertaken in non-residential areas, over an average of thirty (30) days and to ensure that the level of fallout dust is below 600mg/m²/day over a 30-day average for the areas defined as residential, (Table 1).

The regulations also specify that the method to be used for measuring dust fallout and the guideline for locating sampling points shall be ASTM D1739 (1970), or equivalent method approved by any internationally recognised body.

It is important to note that dust fallout is assessed for nuisance impact and not inhalation health impact.

Table 1: Acceptable dust fallout rates in terms of GNR 517, dated 25 May 2018.

Restriction Areas	Dustfall rate (D) (mg/m ² /day, 30-days average)	Permitted frequency of exceeding dustfall rate
Residential area	D < 600	Two within a year, not sequential months.
Non-residential area	D ≤ 1 200	Two within a year, not sequential months.

3. GENERAL SITE INFORMATION

Table 2: Enterprise information.

Enterprise Name	Universal Chrome Minerals
Company Registration Number	K2024042719
Registered Address	377 Rivonia Boulevard, Rivonia, Johannesburg, 2128
Postal Address	377 Rivonia Boulevard, Rivonia, Johannesburg, 2128
Industry Type / Nature of Trade	Metallurgical Industry
Land Use Zoning as per Town Planning Scheme	Agricultural

3.1. Situation and Extent of Universal Chrome Minerals

Table 3: Location and extent of the plant.

Coordinates of Approximate Centre of Operations	S 25°43'14.45", E 27°43'2.59"
Extent (km²)	0
Elevation Above Mean Sea Level (m)	1 226
Province	North-West Province
Metropolitan / District Municipality	Bojanala Platinum District Municipality
Designated Priority Area	Waterberg-Bojanala Priority Area (WBPA)

3.2 Description of the Surrounding Land Use

- Edrange Luxury Lodge is located 245.80m from the site in a south-westerly direction.
- Non-perennial stream is located 93m from the site in a north-westerly direction.

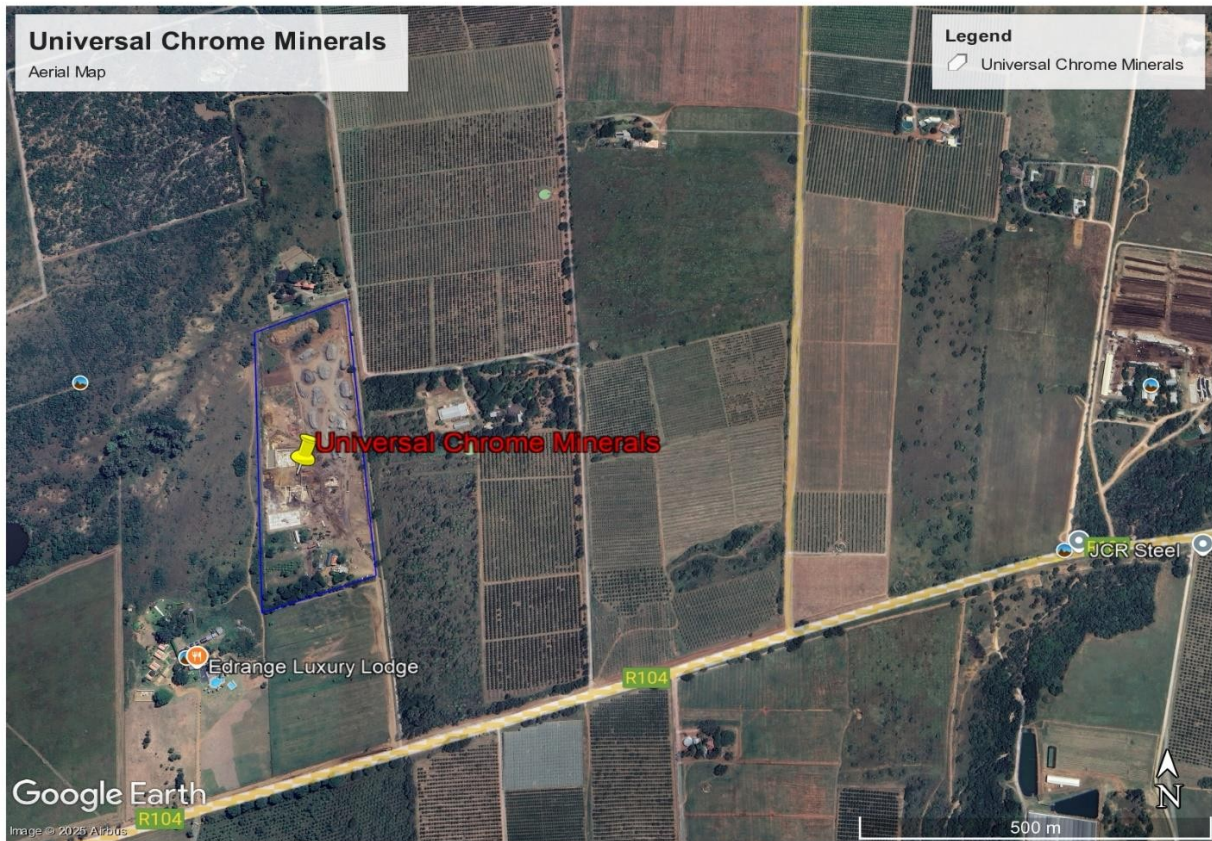


Figure 1: Location of site in relation to the surrounding land use.

4. SOURCES OF DUST

It is important for each source to be identified so that customised dust control measures can be applied to each specific source. Chapter 11 of the USEPA AP-42 Document characterises fugitive dust from aggregate handling and storage as three (3) forms of particulate matter (PM). These are, namely, PM, PM₁₀ and PM_{2.5}. PM is representative of total particulate matter, whereas PM₁₀ and PM_{2.5} represent the respirable fraction of particulates and can potentially have an impact on human health. Most of the dust, which may be generated at the plant, consists of inert mineral aggregate. Dust created in the production process can be categorised as the open fugitive type.

Open fugitive dust may be generated from the delivery, storage and handling of aggregates or from general plant and yard activities. Potential points of origin include stockpiles, crusher, traffic areas, conveyor belts, screens and material transfer points. Ducted dust, on the other hand, is typically generated during the aggregate drying process.



Figure 2: Site Layout Plan (Source: Segope Consulting, 2025).



Figure 3: Images showing current operations and structures in place including storage, cleared areas and some plant equipment.

The potential sources of fugitive dust emissions, emanating from Universal Chrome Minerals, are discussed in Table 4 below:

Table 4: Fugitive dust emission sources at Universal Chrome Minerals.

Fugitive Dust Source	Description
Roads	Unpaved roadways and traffic areas.
Movement of Vehicles	Truck traffic, truck loading and on-site intermediate truck transportation.
Bulk Material (Exposed Aggregate Stockpiles)	Storage and handling of aggregate that will be fed into the hopper via conveyor belts.
Front-End Loader	Feeding of the stockpile aggregate into the crusher.
Incline Conveyor Belt	Transporting of cumulative aggregate onto a jigger.
Crusher	Stockpile aggregate is fed into selected bins, per aggregate size, by a front-end loader. Controlled quantities are fed onto a collector belt which collects the cumulative aggregate and feeds it onto an incline conveyor, transporting the cumulative aggregate onto a jigger.
Jigger (Ore Washbox)	A pulsating water column is used to create a jiggling action. Heavier ore particles settle to the bottom, while lighter waste material floats to the surface and is removed.

5. DAILY DUST MANAGEMENT

The dust fallout monitoring programme must be used to determine if additional actions are required to control the fallout dust levels from the site. If the results at one of the units exceed the applicable non-residential action level over a 30-day period, then additional dust control measures will be implemented, and the dust management plan upgraded to prevent future exceedances. If the dust levels are below the applicable action level, then it is in an indication that the current dust control measures are adequate for the site and that the dust management plan is being implemented successfully.

5.1 Site Dust

Roadways must be planned and demarcated for the site so that trucks and light vehicles only travel on these roads. Road surfaces must be maintained, and adequate drainage must be provided from the road. Sprinklers should be used to wet down open areas, roads and stockpiles that are identified as a source of dust. The use of a watering truck is optional, as the sprinklers, if working reliably will be sufficient.

5.2 Stockpiles

The height of the stockpiles must be no higher than 8m, provided they are not determined to be a source of dust, either visually or by the fallout dust monitoring programme.

If other materials are stored in the future that do have a high fine dust component, then additional dust control measures will be required, and the plan updated to manage them.

5.3 Off-site sources of dust

The gravel road to the south-west of the site is a potential source of dust and many vehicles from different companies use this road. UCM must apply dust control measures to the roadway for the section of the road directly to the south-west of their site to assist with the control measures on this road and to minimise dust levels on the site. Dust control measures include slowing down vehicles and maintaining the road surface adequately. The use of sprinklers is also an option for this road.

6. MONITORING

A continuous dust fallout monitoring programme must be instituted at Universal Chrome Minerals. Monthly dust fallout should be sampled from eight (8) sampling points, located along the fence-line of the premises. The collection and processing of the monthly samples should be done according to the American Standard for Testing and Materials Method D1739, which is the standard test method for the collection and measurement of dustfall (ASTM D1739: 1970). The dust fallout monitoring programme will also assist in ensuring compliance with the legal requirements, as stipulated in terms of the NEM: AQA (as amended).

6.1 Appointment of a Consultant to perform dust fallout

In terms of the Quality Act, 2004 (Act No.39 of 2004) the Consultant is required to implement a fallout dust monitoring programme. Gomelelo Environmental Consulting (Pty) Ltd should be contracted to perform these services.

6.2 Dust Management Plan Implementation

UCM is required to perform daily inspections and if necessary, cease operations if conditions are such that it warrants such action. UCM must appoint a dedicated staff member, or an employee of the environmental consulting company for this, but responsibility will be vested with UCM Operations Manager or Site Manager.

All control measures are to be in place prior to any production activities. Control measures shall also remain in place so long as Universal Chrome Minerals remains in operation. The following outlines how the DMP shall be implemented (Table 5).

Table 5: Implementation Plan for the control of dust from the UCM site.

Source of Dust	Mitigation / Management / Control Options	Responsible Person	Time Frame
1. Roads / Movement of Vehicles			
(a) <i>When conditions dictate (very dry, windy, etc.), all roadways and working areas must be adequately watered to minimise the impact of airborne dust being created as the result of vehicle traffic. The site must be assessed regularly to determine the need for dust control.</i>	The hiring of a gang truck and spraying system.	Site Manager and Contractors	Continuous
(b) <i>The speed of vehicular traffic must be controlled by setting speed limits on internal roads (30 km/hr). Reduced speed limits reduce the amount of airborne dust created because of vehicle traffic.</i>	Procure and install speed limit signs at strategic areas around the site. On-site policy to reduce speed and the implementation of a fining system.	Site Manager and Contractors	Continuous
(c) <i>All vehicles delivering aggregate to the site must be tarped.</i>	Request tarpaulin covers for delivery vehicles.	Site Manager	Continuous
2. Bulk Material (Exposed Aggregate Stockpiles) / Crushing Area			
(a) <i>All stockpile areas and crushing area must be kept neat and orderly.</i>	All aggregate stockpile areas to be clearly demarcated in order to streamline the effective management of each area. Daily sweeping of excess material around each aggregate stockpile area and crushing area to reduce any fugitive dust emissions.	Site Manager	Continuous
(b) <i>Stockpile heights must be kept to a reasonable minimum to reduce wind erosion. Avoid storage and handling of bulk material any more than is necessary.</i> <i>Stockpiles must be located as close as possible to the crusher to minimise front-end loader travel distance between stockpiles and crusher.</i>	Strategic repositioning of aggregate stockpile areas within close proximity to the crusher.	Site Manager	Continuous

Source of Dust	Mitigation / Management / Control Options	Responsible Person	Time Frame
<p>(c) <i>Stockpile heights must be kept to a reasonable minimum to reduce wind erosion. Avoid storage and handling of bulk material any more than is necessary.</i></p> <p>(d) <i>Stockpiles must be located as close as possible to the crusher to minimise front-end loader travel distance between stockpiles and crusher.</i></p>	<p>Strategic repositioning of aggregate stockpile areas within close proximity to the crusher.</p>	<p>Site Manager</p>	<p>Continuous</p>
<p>3. Incline Conveyor Belt</p> <p>(a) Regular maintenance must take place to ensure the efficient conveying of materials.</p>	<p>Incline Maintenance.</p>	<p>Site Manager</p>	<p>Continuous</p>

7. REPORTING

Reporting of the fallout dust levels monthly to UCM will be required. UCM will then be responsible for reporting to the Bojanala Platinum District Municipality (BPDM).

7.1 Dust Fallout Reporting

The dust fallout monitoring reports will be received monthly in arrears after completion of the month (21-day turnaround time from bucket changing to reporting). A copy of the report will be filed in UCM's Dust File and copies will be distributed to BPDM.

These reports must be made available for both internal and external audit purposes. Compliance with the Dust Control Regulations of 2013 is achieved if regular reporting is done, and if the dust management plan is maintained and implemented adequately.

8. CONTROL MEASURES

The table below provides a detailed description of the best practical dust control measures:

Table 6: Summary of fugitive dust emission sources and associated mitigation measures.

Fugitive Dust Source	Management / Mitigation Options
Roads / Movement of Vehicles	<p>When conditions dictate (very dry, windy, etc.), all roadways and working areas must be adequately watered to minimise the impact of airborne dust being created as a result of vehicle traffic. The site must be assessed regularly to determine the need for dust control.</p> <p>The speed of vehicular traffic must be controlled by setting speed limits on internal roads (30 km/hr). Reduced speed limits reduce the amount of airborne dust created because of vehicle traffic. All vehicles delivering aggregates to the site must be tarped.</p>
Bulk Material (Exposed Aggregate Stockpiles) / Crusher	<p>All stockpile areas and crushing area must be kept neat and orderly.</p> <p>Stockpile heights must be kept to a reasonable minimum to reduce wind erosion. Avoid storage and handling of bulk material any more than is necessary.</p> <p>Stockpiles must be located as close as possible to the crusher to minimise front-end loader travel distance between stockpiles and bins.</p>

Fugitive Dust Source	Management / Mitigation Options
	Stockpiles must be positioned to take advantage of existing windscreens e.g. on-site buildings, tree screens and berms.
Incline Conveyor Belt	Conveyed materials must be effectively protected from wind and regular maintenance must take place.
Jigger (Ore Washbox)	Washbox must be intact and in proper working order.

8.1 Monthly Watering Sheet

The weekly watering sheet must be placed in the Dust File after completion of the calendar month. The sheet will indicate when area watering has taken place on specific days and at what time. This record will include stockpile watering.

The watering sheet must include the following information for each day:

- the volume of water used by any sprinkler system.
- volume of water used, (if a watering truck is being used).
- the number of vehicle watering trips per day (if a watering truck is being used).

9. NON-COMPLIANCE

Non-compliance to the legislated fallout levels will typically be indicated on the monthly fallout dust reports. Where a month exceeds the fallout levels this will be investigated, and a record must be kept of the corrective measures taken to alleviate the problem. These measures must be filed in the Dust File and the Dust Management Plan updated so that the measures can be actioned as part of the future daily procedures.

10. RESPONSE TO THE COMPLAINTS

If a complaint is received, UCM shall notify Bojanala Platinum District Municipality, in writing, of each environmental complaint within two (2) business days of the complaint. The notification shall include:

- A description of the nature of the complaint;
- The date, time and location of the incident;
- The wind direction and weather conditions at the time of the incident; and
- The names of site personnel responsible for handling the incident.

Complainants are requested to identify the location of the incident, as well as the time of day that it was detected and any other relevant information. All dust complaints shall be forwarded to the Site Manager and recorded in a logbook.

The Site Manager shall then ensure the following steps:

- Conduct a site survey to identify sources of visible dust contributing to the complaint;
- Create a record of this survey; and
- Determine weather conditions (both current and at the time that the complaint was made) and report on all on-site activities at the time the complaint was made.

If the information collected from the survey procedures indicates that UCM is not the source of the dust complaint, the complainant shall be notified of this finding. Documentation supporting this response mechanism (site survey record and wind directions at the time of the complaint) shall be provided to the complainant upon request. The Site Manager shall respond to all complaints within 24 hours with a phone call to the complainant. If it is determined that the complaint is related to the site's activities, the following response procedures shall be followed, in the order provided below:

Level 1 – Inspection and correction of operations: The Site Manager shall ensure that all elements of the DMP are being followed. Control measures such as spraying shall be increased, or operations may be curtailed, as required.

Level 2 – Review of the DMP: If the Level 1 response does not adequately resolve the source of the dust complaint, the DMP shall be reviewed for additional control measures.

Level 3 – Operational modifications: If the Level 2 response does not adequately resolve the source of the dust complaint, UCM shall commit to making physical changes to the facility to address the source of the dust emissions. Such changes may include but are not limited to additional enclosures, relocation of equipment or additional paving.

10.1 Complaints Register

In terms of the Dust Control Regulations, a complaints register must be kept for any complaints received from any person whatsoever. The complaint procedure also needs to be communicated to the surrounding interested parties so that the procedure can be followed when required by those wanting to make a complaint.

The proposed complaints register has been included in Annexure 1.

11. CONCLUSION

Universal Chrome Minerals will implement and fully abide by these measures to successfully control on-site dust emissions. Record keeping, inspections and oversight will ensure an effective dust mitigation programme throughout the lifespan of operations at the site. This DMP will serve to minimise all dust emissions from the UCM site so that the risk to human health and the potential for offsite nuisance is also minimised.

Training – New and existing operating procedures shall be provided to the relevant staff by the site supervisors bi-annually (or) on as and when required basis for new employees.

Communication – The contents of this DMP must be continuously communicated to the responsible supervisors, who shall ensure staff are following the operating procedures contained in the DMP.

Inspections – Visual inspections must be undertaken a minimum of twice daily during dry weather and once per day, otherwise.

Revision – This DMP must be reviewed on an annual basis.

12. DUST MANAGEMENT PLAN REVIEW – DOCUMENT CONTROL

REVISION NUMBER	DATE	PERSON	REASON FOR AMENDMENT		NEXT REVIEW DATE
00	MAY 2025	Gomelelo Environmental Consulting (Pty) Ltd	Annual Review	<ul style="list-style-type: none"> Document Control Procedure has been incorporated. 	MAY 2026

ANNEXURE 1: PROPOSED COMPLAINTS REGISTER TEMPLATE

DATE AND TIME	NAME AND CONTACT DETAILS OF THE COMPLAINANT	LOCATION OF THE INCIDENT	NATURE OF THE COMPLAINT	WIND DIRECTION AT THE TIME OF THE INCIDENT	WEATHER CONDITIONS AT THE TIME OF THE INCIDENT	RESPONSIBLE SITE PERSONNEL	OTHER RELEVANT INFORMATION