mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

Environmental Impact Assessment
And
Environmental Management Plan
Addendum Report

for Amendments to Licenced Activities Associated with the Platreef Underground Mine, near Mokopane, Limpopo Province

SUBMITTED FOR ENVIRONMENTAL AUTHORISATIONS IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 2008) (NEMA) AND THE NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (ACT NO. 59 OF 2008) (NEM:WA) IN RESPECT OF LISTED ACTIVITIES THAT HAVE BEEN TRIGGERED BY APPLICATIONS IN TERMS OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (ACT NO. 28 of 2008) AS AMENDED (MPRDA).

Name of Applicant:	Ivanplats (Pty) Ltd
Tel no:	+27 11 088 4300
Fax no:	+27 86 675 1836
Postal Address:	P.O.Box 782078, Sandton, 2146
Physical Address:	2nd Floor, 82 on Maude, Sandton, 2146
File Reference Number SAMRAD:	Hand Delivered

Digby Wells and Associates (South Africa) (Pty) Ltd. Co. Reg. No. 2010/008577/07. Turnberry Office Park, 48 Grosvenor Road, Bryanston, 2191. Private Bag X10046, Randburg, 2125, South Africa
Tel: +27 11 789 9495, Fax: +27 11 789 9498, info@digbywells.com, www.digbywells.com

Directors: AJ Reynolds (Chairman) (British)*, GE Trusler (C.E.O), GB Beringer, LF Koeslag, J Leaver*, NA Mehlomakulu, DJ Otto

*Non-Executive

This document has been prepared by Digby Wells Environmental.

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Project Name:	**Environmental Impact Assessment and Environmental Management Programme Addendum Report for the Platreef Underground Mine, Mokopane**
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Name	Responsibility	Signature	Date
Anita Gutu	Report Compiler		January 2016
Kasantha Moodley	Report Reviewer Report Revision		January 2016 May 2016
Lucy Koeslag	Report Sign-off		January 2016

IMPORTANT NOTICE

In terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002 as amended), the Minister must grant a prospecting or mining right if among others the mining "will not result in unacceptable pollution, ecological degradation or damage to the environment".

Unless an Environmental Authorisation can be granted following the evaluation of an Environmental Impact Assessment and an Environmental Management Programme report in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA), it cannot be concluded that the said activities will not result in unacceptable pollution, ecological degradation or damage to the environment.

In terms of section 16(3)(b) of the EIA Regulations, 2014, any report submitted as part of an application must be prepared in a format that may be determined by the Competent Authority and in terms of section 17 (1) (c) the competent Authority must check whether the application has taken into account any minimum requirements applicable or instructions or guidance provided by the competent authority to the submission of applications.

It is therefore an instruction that the prescribed reports required in respect of applications for an environmental authorisation for listed activities triggered by an application for a right or a permit are submitted in the exact format of, and provide all the information required in terms of, this template. Furthermore please be advised that failure to submit the information required in the format provided in this template will be regarded as a failure to meet the requirements of the Regulation and will lead to the Environmental Authorisation being refused.

It is furthermore an instruction that the Environmental Assessment Practitioner must process and interpret his/her research and analysis and use the findings thereof to compile the information required herein. (Unprocessed supporting information may be attached as appendices). The EAP must ensure that the information required is placed correctly in the relevant sections of the Report, in the order, and under the provided headings as set out below, and ensure that the report is not cluttered with un-interpreted information and that it unambiguously represents the interpretation of the applicant.

OBJECTIVE OF THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

The objective of the environmental impact assessment process is to, through a consultative process: -

- determine the policy and legislative context within which the activity is located and document how the proposed activity complies with and responds to the policy and legislative context;
- describe the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;
- identify the location of the development footprint within the preferred site based on an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects of the environment;
- determine the: -
  - nature, significance, consequence, extent, duration and probability of the impacts occurring to inform identified preferred alternatives; and
  - degree to which these impacts: -
    - can be reversed;
    - may cause irreplaceable loss of resources, and
    - can be avoided, managed or mitigated.
- identify the most ideal location for the activity within the preferred site based on the lowest level of environmental sensitivity identified during the assessment;
- identify, assess, and rank the impacts the activity will impose on the preferred location through the life of the activity;
- identify suitable measures to manage, avoid or mitigate identified impacts; and
- identify residual risks that need to be managed and monitored.

EXECUTIVE SUMMARY

Introduction

Digby Wells Environmental (hereafter Digby Wells) has been appointed by Ivanplats (Pty) Ltd (hereafter Ivanplats), as the independent Environmental Assessment Practitioner (EAP) to conduct an Addendum Environmental Impact Assessment (EIA) and update their Environmental Management Programme Report (EMP) and associated specialist studies for the proposed Platreef Underground Mining Project (hereafter the Project) near Mokopane, Limpopo.

Digby Wells Environmental undertook the necessary Environmental Impact Assessment (EIA) for the Project in 2012. To date, Ivanplats was granted the following licences/authorisations:

- Environmental Authorisation (EA) dated 27 June 2014 with reference 12/1/9/2-W32 issued by the Limpopo Department of Economic Development, Environment and Tourism (LEDET). Subsequent to this, Ivanplats had applied for and was also issued with the following EA Amendments:
  - EA Amendment (19 August 2014) relating to minor amendments of the conditions of approval; and
  - EA Amendment (30 July 2015) relating to the change of location of the Tailings Storage Facility (TSF) from the Turfspruit Farm to the Rietfontein Farm.
- Mining Right (MR) dated 04 November 2014 with reference LP30/5/2/2/1/10067MR granted by the Department of Mineral Resources (DMR); and
- Waste Management Licence (WML) dated 13 March 2015 with reference 12/9/11/L1224/5 issued by the National Department of Environmental Affairs (DEA).

Ivanplats has submitted a Bulk Sample Water Use Licence Application (WULA) to the Department of Water and Sanitation (DWS) and is still to submit the WULA for the overall Platreef Project to the DWS. The submission of the Project WULA to DWS is dependent on the granting of the Bulk Sample WULA.

Ivanplats is now proposing an amendment to its approved mine infrastructure area to accommodate surrounding communities that have moved closer to the infrastructure area boundary. Furthermore, Ivanplats has also proposed a restructure of the mine layout to optimise mining operations on the reduced infrastructure footprint.

The purpose of this Report is to describe and assess the environmental impacts of the proposed reduced infrastructure footprint and resultant layout amendments only and does not deal with the existing, authorised mining activities. However, for the purposes of holistic understanding of the mine elements of the existing approved EIA/EMP, where relevant, are included.

Project Applicant

The Applicant details are set out in the table below.

Company name:	Ivanplats (Pty) Ltd
Contact person:	Mr. Gerick Mouton
Physical address:	2nd Floor, 82 on Maude Street, Sandton, 2146
Telephone:	+27 11 088 4300
Cell phone:	+27 83 708 0999
Email:	gerickm@ivanplats.com

Project Overview

The proposed Project site is located approximately 8 km northwest of the town of Mokopane which is situated in the magisterial district of the Mogalakwena Local Municipality and within the Waterberg District Municipality. Ivanplats plans to mine Platinum and other Platinum Group Metals (PGMs) such as Palladium (Pd); Rhodium (Rh); Iridium (Ir); Ruthenium (Ru); and Osmium (Os) with the Life of Mine (LoM) expected to be 30 years with the potential to extend this period by another 30 years.

An underground mine is planned and the Project aims to make use of the sublevel blast hole stoping method for mining the target Platinum Group Metals (PGMs). Ivanplats has commenced with the sinking of Shaft No. 1. In addition, certain mine infrastructure has been established to support the sinking of Shaft No. 1, including the mine's access road, a mine boundary fence and temporary facilities such as workshops and offices.

The Project is accessible all year-round by the N11 national highway, and a developed rail network goes through Mokopane, the closest railhead to the Project. A large, unskilled labour force lives in urban areas and farms around the proposed study area.

Scope of Amendment

During the site establishment phase of the Project, the communities surrounding the approved mine infrastructure area had commenced with the establishment of residential plots within and in close proximity to this approved infrastructure area. The Ga-Kgobudi and Ga-Kgobudi 2 (Mzombane) communities established plots along the western and southern boundaries of this mine infrastructure area whilst the Ga-Magongoa, Baloi and Macheke communities have established plots along the eastern boundary.

The approved mine infrastructure layout had an approved footprint of 420 hectares (ha), the close proximity of the communities has however resulted in the reduction of area available for the development of mine infrastructure. It is estimated that the footprint of the mine infrastructure area has been reduced by 74 ha, thus only leaving 346 ha available for the development of the mine. As a result of this footprint reduction, Ivanplats has reviewed the approved mine layout to ensure an optimum use of the reduced footprint. In particular, the footprint and/or position of certain activities/infrastructure required amendment.

Any change to the approved mine layout necessitates the requirement for an amendment to the relevant licences, in this case the Environmental Authorisation (12/1/9/2-W32), in terms of Regulation 31 of the Environmental Impact Assessment (EIA) Regulations, 2014 and the Mining Right (LP30/5/2/2/1/10067MR) in terms of Section 102 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).

Further to these amendments, Ivanplats is also currently undertaking a Definitive Feasibility Study which has resulted in the addition of required and key structures on the approved mine layout plan. It should be noted that these additional structures do not constitute new listed activities in terms of the EIA Regulations 2014 as all Project related activities have either been approved in terms of the EIA Regulations, 2010 or do not trigger the relevant thresholds in the EIA Regulations, 2014. Ivanplats intends to apply for an environmental authorisation in terms of Section 24 of NEMA for the list of activity amendments set out below. The list of activity amendments Ivanplats intends to apply for an environmental authorising for in terms of Section 24 of NEMA are listed below:

- Headgear of Shaft No. 2 increased in height from 45 m to 96 m high;
- One additional production shaft (i.e. Shaft No. 2) and three vent raises (positions of these vent raises have been amended);
- Road alignments of access and internal mine roads have been amended and new maintenance roads included;
- Inclusion of distribution power lines and substations (< 33 kV);
- Inclusion of diesel generators (<10 MW);
- Inclusion of above-ground Waste Rock Crusher/s;
- Waste Rock Stockpile increased in height from 17 m to 25 m high;
- Separation of the Ore Stockpile into High Grade and Low Grade Ore and an increase in height from 8 m to 25 m high;
- Amendment to water management infrastructure:
    - Two attenuation ponds to collect clean water runoff
    - One stormwater pond to collect dirty water runoff
    - Two raw water dams
    - Inclusion of mine dirty water storage dam

- Inclusion of clear water storage dam
- Inclusion of a stormwater drain from the Project site to the downstream water resources

- Realignment of a section of the Tailings Storage Facility (TSF) pipeline; and
- Re-positioning of waste management infrastructure: Sewage Treatment Plant, Leachate Pond, Composting Facility, Material Recovery Facility (MRF), Tyre Storage Area, Salvage Yard and Landfill.

It should however be noted that the following proposed developments which Ivanplats are currently still investigating may be subject to a separate EIA/amendment process and has not been dealt with as part of this EIA Addendum Report:

- Once the mining of each stope is completed, Ivanplats are proposing to backfill these stopes with a combination of cemented rock fill and paste fill. It should be noted that this activity of backfilling was not comprehensively addressed as part of the previous EIA process undertaken in 2013. This EIA Addendum Report also does not deal with the proposed backfilling activity as it triggers the requirement for a new WML, hence a new EIA process will need to be conducted. This will be applied for by Ivanplats at a later stage;
- Ivanplats is also currently investigating the potential of renewable energy (i.e. solar photovoltaic (PV)) to reduce the reliance on the national grid. Ivanplats are investigating options for siting, capacity and design of such a facility. This development may trigger a separate EIA process;
- Agreements with Eskom were made to provide a temporary supply of a 5 MVA overhead power lines to support the power requirements during any future construction activities for the Project. Associated with these power lines, a temporary substation (5 MVA) and a permanent substation (70 MVA) will be established. These facilities are assumed to have been authorised through a separate EIA process undertaken by Eskom;
- The change in position of the waste management infrastructure is being addressed through a separate WML Variation Application undertaken by Golder Associates Africa (Pty) Ltd (GAA) and was submitted to the DMR separately; and
- Ivanplats has submitted a Water Use Licence Application (WULA) to the Department of Water and Sanitation (DWS) relating to their Bulk Sample Shaft (BSS) operations, and is still to submit the IWULA for the entire Platreef Project to the DWS. The date for submission of the Platreef Project IWULA is dependent on the granting of the BSS WULA and will be confirmed with the DMR at a later stage.

An Amendment Application Process will be undertaken to address the Project modifications. This EIA Addendum Report serves to:

- Provide an updated mine layout and description of the amended Project components;
- Identify and assess the potential impacts and risks associated with the Project amendments; and
- Provide further recommendations on the mitigation measures and action plans proposed based on the Project amendments.

The following specialist studies have been conducted as part of this addendum EIA/EMP report:

- Air Quality Assessment;
- Visual Assessment;
- Noise Assessment;
- Heritage Impact Assessment;
- Rehabilitation Plan; and
- Closure Cost Assessment.

Digby Wells Environmental has been appointed as the independent Environmental Assessment Practitioner (EAP) to undertake the amendment application.

As part of the amendment application, a public participation process (PPP) was undertaken. In particular, project stakeholders were informed of the proposed amendments via SMS, email, site notices, advertisements, meetings and dissemination of information in the public domain.

Conclusion

As a result of communities proximity to the mine's infrastructure area, Ivanplats has proposed a reduction to the footprint area and subsequently restructure the mine layout to ensure optimum use of the reduced space. These amendments not only benefit the mine's productivity but were also investigated considering the health and safety of surrounding communities.

The findings of the impact assessment have shown that the proposed Project may result in certain negative impacts to the environment; however, adequate mitigations measures have been included into the EMP Report to reduce the significance of all the identified negative impacts. Most negative impacts (minor and moderate) can be reduced through the implementation of mitigation measures. By reducing the mine's footprint area and subsequent infrastructure layout, Ivanplats can ensure the optimum operation of the Project as well as manage the impacts to the surrounding communities. It is recommended that the amendment be granted for Ivanplats to continue with the mining operations at Platreef Mine.

Table 1-1: Summary of Project Amendment Impacts

Potential Impact	Aspects Affected	Phase	Significance	Significance (Post Mitigation)
Dust generation	Air Quality	Construction	Negligible (negative) – 35	Negligible (negative) – 21
Reduction in air quality	Air Quality	Construction	Minor (negative) – 42	Negligible (negative) – 12
Reduction in air quality due to gaseous emissions	Air Quality	Construction	Moderate (negative) – 77	Negligible (negative) – 24
Airborne dust leads to reduced air quality	Air Quality	Operational	Moderate (negative) – 84	Negligible (negative) – 27
Reduction in the quality of air	Air Quality	Operational	Moderate (negative) – 105	Negligible (negative) – 30
Reduction in the quality of air	Air Quality	Operational	Moderate (negative) – 78	Negligible (negative) – 30
Reduction in the quality of air	Air Quality	Operational	Minor (negative) – 45	Negligible (negative) – 27
Reduction in air quality due to gaseous emissions	Air Quality	Operational	Moderate (negative) – 91	Negligible (negative) – 30
Reduce air quality due to dust emission	Air Quality	Decommissioning	Negligible (negative) – 24	Negligible (negative) – 18
Reduction in air quality	Air Quality	Decommissioning	Minor (negative) – 45	Negligible negative) – 18
Physical changes to burial grounds and graves	Cultural Heritage	Construction	Major - negative (-140)	Moderate - negative (-78)
Intangible Impacts to Burial Grounds and Graves	Cultural Heritage	Construction, Operational and Decommissioning	Moderate - negative (-80)	Significance: Moderate - positive (75)
Noise will emanate from the machinery and vehicles	Ambient Noise	Construction	Minor (negative) – 66	Minor (negative) – 36
Noise from the machinery and vehicles operating crushing circuit, hauling of ore on surface, continuous stockpiling and shaping of waste rock dump and over burden stockpiles as well the use of generators	Ambient Noise	Operation	Moderate (negative) – 78	Minor (negative) – 44

Potential Impact	Aspects Affected	Phase	Significance	Significance (Post Mitigation)
Noise from the machinery and vehicles	Ambient Noise	Decommissioning	Negligible (negative) – 21	Negligible (negative) – 14
The change of land use from agriculture to mining will have a negative visual impact	Visual	Construction	Moderate negative (-105)	Moderate negative (-98)
Infrastructure area will become noticeable to nearby receptors as it will contrast the surrounding areas	Visual	Construction	Minor negative (-70)	Minor negative (-63)
Drilling and blasting for shafts and vent raises will have a negative visual impact. Dust from blasting will also have a negative visual impact.	Visual	Construction	Minor negative (-63)	Minor negative (-48)
The construction of the headgear and associated shaft infrastructure will have a negative visual impact on the receiving environment	Visual	Construction	Moderate negative (-91)	Moderate negative (-84)
The construction of surface infrastructure will have a negative visual impact on the receiving environment	Visual	Construction	Moderate negative (-77)	Minor negative (-63)
Dust from the waste rock crusher and mine crushers will also have a negative visual impact.	Visual	Operational	Minor negative (-45)	Negligible negative (-32)
Dust from vehicular activity will also have a negative visual impact	Visual	Operational	Minor negative (-45)	Minor negative (-36)
Stockpiling of material on the waste rock berm, waste rock stockpile, high grade ore stockpile and low grade	Visual	Operational	Major negative (-112)	Moderate negative (-105)

Potential Impact	Aspects Affected	Phase	Significance	Significance (Post Mitigation)
ore stockpile will have a negative visual impact. Dust from the stockpiles will also have a negative visual impact				
Operation of the production shafts will have a negative visual impact. Infrastructure and mine area lighting will be visible at night resulting in a negative visual impact.	Visual	Operational	Minor negative (-66)	Minor negative (-50)
Demolition and removal of infrastructure will have a minor negative visual impact	Visual	Decommissioning	Minor negative (-56)	Minor negative (-42)
Rehabilitation of disturbed areas will have a minor negative visual impact	Visual	Decommissioning	Minor negative (-63)	Minor negative (-48)
Sealing of shafts will have a negative visual impact on the receiving environment.	Visual	Decommissioning	Minor negative (-42)	Negligible negative (-30)

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

LIST OF PLANS