

1 INTRODUCTION

1.1 PROJECT BACKGROUND

South Deep Joint Venture (SDJV), an unincorporated joint venture between GFI Joint Venture Holdings (Pty) Ltd and Gold Fields Operations Ltd (hereafter referred to as South Deep Gold Mine), proposes to establish two solar photovoltaic (PV) power plants, in collaboration with Enel Green Power RSA (Pty) Ltd (EGP) to:

- Supplement power supply with “green/ clean” energy;
- Diversify the Mine’s energy mix to reduce the mines reliance on fossil fuels and include renewable energy; and
- Contribute to the Mine’s strategic objective to reduce energy costs and decrease the environmental footprint of the mine.

South Deep Gold Mine is Gold Fields’ sole remaining gold mine in South Africa, built to extract one of the largest known gold ore bodies in the world. The mine has been operational since 1951 and has a remaining Life of Mine (LoM) in excess of 70 years. The mine operates one gold plant and is accessed from the surface through two shaft systems – the Twin Shaft Complex and the South Shaft Complex.

In order to accommodate the needs of the South Deep Gold Mine, Gold Fields in collaboration with EGP has proposed the development of a 40 MW solar PV power plant solar PV power plant located on the Gold Field South Deep Gold Mine. EGP will build, own and operate the solar power plant. The solar PV panels will occupy up to a maximum of 120 ha (1.2 km²). The 40 MW solar PV power plant will be split into two parts where each 20 MW solar PV plant will connect to a different shaft on the Mine, i.e. one plant will connect to Twin Shaft and the other to South Shaft. The plants will be connected to the Mine’s electrical infrastructure via a 11kV power line.

The Mine is located in the municipal districts of West Rand District Municipality and the Rand West City Local Municipality, approximately 45 kilometres south-west of Johannesburg (26°25’01.41’’ S and 27°40’ 00.49’’ E). It is accessed via the N12 provincial road between Johannesburg and Potchefstroom.

1.2 PURPOSE OF THIS REPORT

Environmental Resources Management Southern Africa Pty Ltd (ERM) has been appointed by EGP to conduct the Environmental Impact Assessment (EIA) process in terms of the National Environmental Management Act (NEMA) (Act No. 107 of 1998, as amended). This Scoping Report has been compiled as part of the EIA process in accordance with the regulatory

requirements stipulated in the EIA Government Notice Regulations (GNR 982) promulgated in terms of Section 24(5) of NEMA (Act No. 107 of 1998), as amended.

- Brief project description pertinent to the determination of the Competent Authority (CA):
 - EGP is the preferred bidder to build and operate a 2x 20MW solar PV plant at Gold Fields South Deep.
 - The solar PV plant will be within the Gold Fields Mining Right Area, on Gold Fields owned land.
 - The solar PV will be connected directly to the Mines' 11kV emergency power supply line for the sole purposes of supplying electricity to the Twin Shaft and South Deep processing facilities.

With Reference to NEMA 2014, the identification of the competent authority states as follows:

'The competent authority in respect of the activities listed in this part of the schedule is the competent authority in the province in which the activity is to be undertaken, unless-

- a) it is an application for an activity contemplated in section 24C(2) of the Act, in which case the competent authority is the Minister or an organ of state with delegated powers in terms of section 42(1) of the Act;
- b) the listed or specified activity is or **is directly related to-**
 - i. prospecting or exploration of a mineral or petroleum resource; or
 - ii. **extraction and primary processing of a mineral or petroleum resource;**

In which case the competent authority is the Minister responsible for **mineral resources. Thus based on the proposed project and the regulations as stated and as confirmed with the Department of Mineral Resources (DMR) , the DMR is the competent authority for the application.**

A typical EIA is usually undertaken in three phases namely Scoping Phase, Specialist Study Phase and Impact Assessment. This Scoping Report documents the findings of the Scoping Phase.

The Scoping Report identifies the potentially significant environmental and social issues relating to the establishment/construction, operation and decommissioning of the proposed development that should be addressed in the EIA. This was done through desktop review of available project and baseline information, initial engagement with key stakeholders (and other public consultation initiatives) as well as a site reconnaissance.

The Scoping Report includes a description of the proposed project infrastructure and activities, alternatives considered, and the EIA

methodology. A description of the stakeholder engagement process and the key issues raised by stakeholders through the consultation activities are also presented. These issues have informed the development of the Plan of Study for EIA which defines the detailed studies to be undertaken as part of the specialist studies phase.

1.3 *PROJECT PROPONENT*

Gold Fields Limited is an unhedged, globally diversified producer of gold with eight operating mines in Australia, Ghana, Peru and South Africa with attributable annual gold production of approximately 2.0 million ounces. It has attributable Mineral Reserves of around 46 million ounces and Mineral Resources of around 102 million ounces. Attributable copper Mineral Reserves total 532 million pounds and Mineral Resources 5,912 million pounds. Gold Fields has a primary listing on the JSE Limited, with secondary listings on the New York Stock Exchange (NYSE) and the Swiss Exchange (SWX).

Gold Fields' South Deep Gold Mine is situated in the magisterial districts of Westonaria and Vanderbijlpark (Gauteng province), some 45 kilometres south-west of Johannesburg at latitude 26° 25' south and longitude 27° 40' east. It is accessed via the N12 provincial road between Johannesburg and Potchefstroom

Commercial production of the Western Areas Gold Mine commenced in September 1951. In 1990, Western Areas Gold Mining Company Limited (WAL) shareholders approved the transfer, cession and assignment of certain land and mineral rights to South Deep Exploration Company Limited in exchange for its shares. WAL and South Deep Exploration Company Limited merged on 1 January 1995. Development of 95 Level across to the planned collar position of Twins commenced.

On 1 April 1999, the Placer Dome/Western Areas (PDWA) joint venture (JV) was formed and in February 2000, the name of the mine was changed to South Deep Gold Mine. Sinking of the ventilation shaft was completed to 95 level in 2001 and the main shaft to 110 level in 2002, concurrently a 7,200tpd capacity mill was commissioned. The Twin Shaft Complex was officially opened on 4 February 2005.

Barrick Gold Corporation acquired a majority interest in Placer Dome Inc. on 20 January 2006 and Gold Fields acquired Barrick's 50% JV interest in the PDWA JV on 1 December 2006. In April 2007, Gold Fields acquired all remaining WAL shares and consequently owned 100% of South Deep Gold Mine at that time.

Post a pre-feasibility study, the ventilation shaft was deepened to 110 level and was commissioned in 2012.

A new-order mining right was granted to South Deep in 2010, including the area known as Uncle Harry's. During 2011, Newshelf 899 (Proprietary) Limited (Newshelf) was established, which holds a 100% interest in South Deep Gold Mine. Newshelf is a 90% subsidiary of GFI and the remaining 10% is held by outside shareholders as part of the Broad Based Black Economic Empowerment (BBBEE) transaction.

Proponent Details:



GOLD FIELDS

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1.4

THE EIA TEAM

ERM is a global environmental consulting organisation employing over 5,000 specialists in over 150 offices in more than 40 countries. In South Africa, ERM Southern Africa employs over 150 environmental consultants out of offices in Johannesburg, Durban and Cape Town.

The requirement for environmental consultants to act independently and objectively is a well-established principle in South African law and elsewhere. The EIA regulations (GN R.543), specifically state:

“that an EAP (environmental assessment practitioner) (must have) no business, financial, personal or other interest in the activity, application or appeal in respect of which that EAP is appointed in terms of these Regulations other than fair remuneration for work performed in connection with that activity; or that there are no circumstances that may compromise the objectivity of that EAP in performing such work.”

ERM is a privately owned company registered in South Africa. ERM has no financial ties to, nor is ERM a subsidiary, legally or financially, of EGP. Remuneration for the services by the Proponent in relation to this EIA is not linked to an approval by the decision-making authority. Furthermore, ERM has no secondary interest in the development.

The role of the environmental consultants is to provide credible, objective and accessible information to government and other stakeholders, so that an informed decision can be made about whether the project should proceed or not.

The ERM team selected for this Project possess the relevant expertise and experience to undertake this EIA. As such, ERM has signed the legally required declaration of independence to function as an objective Environmental Assessment Practitioner (EAP). The CVs and details of the Independent Environmental Practitioner are presented in *Annex A*.

The contact details of the EAP for the application are presented in *Box 1.2*.

Box 1.1 **Contact Details of the EAP**

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The core EIA team members involved in this EIA are listed in *Table 1.1*.

Table 1.1 **The EIA Team**

Name	Role	Qualifications, Experience
Stuart Heather-Clark	Partner in Charge & EAP	BSc., Mphil. Registered EAP >20 years
Alan Cochran	Project Manager	BA Hons 11 years
Claire Alborough	Environmental Specialist	BSc (Hons), MPhil, > 9 years
Lindsey Bungartz	Social Specialist	BSocSc (Hons), > 9 years

1.5 **UNDERTAKING BY EAP**

Based on the preliminary project description and outcomes of the Scoping phase, no fatal flaws have been identified so far. ERM’s opinion is the proposed project should proceed to the EIA phase where the impacts identified in the Scoping Report will be assessed in sufficient detail and their significances determined.

ERM believes that the information provided in this Scoping Report is the most recent detail provided by the proponent and specialists thus far.

Table 1.2 illustrates the legislated content of the Scoping Report.

Table 1.2 *Legislated Content of Scoping Report (GNR 982) and Corresponding Sections in this Report*

Legislated Content- Appendix 2 Section 2	Section in this Report
(a) details of-	
(i) the EAP who prepared the report	Chapter 1
(ii) the expertise of the EAP, including a curriculum vitae	Chapter 1 and Annex A
(b) the location of the activity	Section 3.1
(i) the 21 digit Surveyor General code of each cadastral land parcel;	
(ii) where available, the physical address and farm name;	
(iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	
(c) a plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is	Chapter 3
(i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or	
(ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken;	
(d) a description of the scope of the proposed activity, including-	
(i) all listed and specified activities triggered;	Section 4.2
(ii) a description of the activities to be undertaken, including associated structures and infrastructure	Chapter 3 and Section 4.2
(e) a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process	Chapter 4
(f) a motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location;	Chapter 2
(g) a full description of the process followed to reach the proposed preferred activity, site and location within the site, including	
(i) details of all the alternatives considered;	Section 3.7
(ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;	Section 6.6
(iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;	N/A at this stage
(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Chapter 3
(v) the impacts and risks which have informed the identification of each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts-	Chapter 3
(aa) can be reversed;	
(bb) may cause irreplaceable loss of resources; and	
(cc) can be avoided, managed or mitigated.	

Legislated Content- Appendix 2 Section 2	Section in this Report
(vi) the methodology used in identifying and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives	<i>Chapter 3</i>
(vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects	<i>Chapter 3</i>
(viii) the possible mitigation measures that could be applied and level of residual risk	<i>Chapter 3</i>
(ix) the outcome of the site selection matrix	<i>Chapter 3</i>
(x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such	<i>NA</i>
(xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity	<i>Chapter 3</i>
(h) a plan of study for undertaking the environmental impact assessment process to be undertaken, including-	
(i) a description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity	<i>Chapter 8</i>
(ii) a description of the aspects to be assessed as part of the environmental impact assessment process;	<i>Chapter 8</i>
(iii) aspects to be assessed by specialists;	<i>Chapter 8</i>
(iv) a description of the proposed method of assessing the environmental aspects, including a description of the proposed method of assessing the environmental aspects including aspects to be assessed by specialists	<i>Chapter 8</i>
(v) a description of the proposed method of assessing duration and significance	<i>Chapter 8</i>
(vi) an indication of the stages at which the competent authority will be consulted;	<i>Chapter 8</i>
(vii) particulars of the public participation process that will be conducted during the environmental impact assessment process;	<i>Chapter 8</i>
(viii) a description of the tasks that will be undertaken as part of the environmental impact assessment process;	<i>Chapter 8</i>
(ix) identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.	<i>Chapter 8</i>
(i) an undertaking under oath or affirmation by the EAP in relation to	
(i) the correctness of the information provided in the report	<i>Chapter 1</i>
(ii) the inclusion of comments and inputs from stakeholders and interested and affected parties	<i>To be included in the FSR</i>
(iii) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties	<i>To be included in the FSR</i>
(j) an undertaking under oath or affirmation by the EAP in relation to the level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the environmental impact assessment;	<i>To be included in the FSR</i>
(k) where applicable, any specific information required by the competent authority	
(l) any other matter required in terms of section 24(4) (a) and (b) of the Act.	

The remainder of this Report is structured as follows:

- Chapter 2: Project Motivation
- Chapter 3: Project Description
- Chapter 4: Administrative Framework
- Chapter 5: Environmental and Social Baseline
- Chapter 6: EIA Process
- Chapter 7: Identification of Impacts
- Chapter 8: Plan of Study for EIA
- Chapter 9: Conclusion

The Report is supported by the following annexes:

- Annex A: Details of Environmental Assessment Practitioner
- Annex B: Stakeholder Engagement
 - B1 – I&AP Database
 - B2.1 – Notification
 - B2.2 – Adverts
 - B2.3 – Background Information Document
 - B4 – Site Notices
 - B5 – I&AP Attendance Registers
 - B6 – Comments and Responses Report (CRR)