



the federation for a sustainable environment

(Reg. No. 2007/003002/08)  
NPO NUMBER 062986-NPO  
PBO No. (TAX EXEMPT) 930 039 506  
Postnet Suite #113, Private Bag X153, Bryanston, 2021

COMMENTS ON THE PROPOSED RECLAMATION AND REPROCESSING OF THE  
ROOIKRAAL DUMP IN JOHANNESBURG, GAUTENG PROVINCE  
DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

DMR REFERENCE: GP 187 MR

The following preliminary comments are submitted on behalf of the Federation for Sustainable Environment (FSE). The FSE is a federation of community based civil society organisations committed to the realisation of the constitutional right to an environment that is not harmful to health or well-being, and to having the environment sustainably managed and protected for future generations. Their mission is specifically focussed on addressing the adverse impacts of mining and industrial activities on the lives and livelihoods of vulnerable and disadvantaged communities who live and work near South Africa's mines and industries.

**Since the reading of the EIA Reports and the commenting on the EIA Reports incur significant opportunity costs for non-profit organisations such as the FSE, and require time to understand and comment intelligently on highly technical issues, we respectfully request that the Applicant and the Regulators do not pass our comments over but incorporate our comments in the mitigation and management programmes and the conditions of the Environmental Authorisation, or alternatively, if our comments are considered to be inappropriate or superfluous, to please supply us with meaningful reasons why our comments ought not to be considered.**

#### NEED AND DESIRABILITY

The EIA informs us of the following risks and hazards, which are associated with Tailings Storage Facilities (TSFs):

- TSFs are sources of Acid Mine Drainage (AMD).
- TSFs are sources of dust fallout. The dust usually contains fine particulate matter, which can be inhaled, causing damage to lung tissues. The dust also potentially contains

hazardous substances that can result in chemical toxicity. The dust poses a significant health risk and reduces the quality of life for many citizens.

- TSFs contain radioactive material, which can cause radiological pollution.
- There is the risk of direct external gamma radiation, radon exposure, inhalation and ingestion of radionuclides and chemotoxic metals.

The need and desirability of the proposed reclamation project is therefore grounded upon the fact that the approval of this project would eliminate the Rooikraal TSF as a source of air and water pollution upon rehabilitation.

While we concur, past experience of such activities raises a number of issues which need to be addressed in any application to reprocess dumps and taken into account by the Applicant and the Regulators, in particular DMR and the DWS.

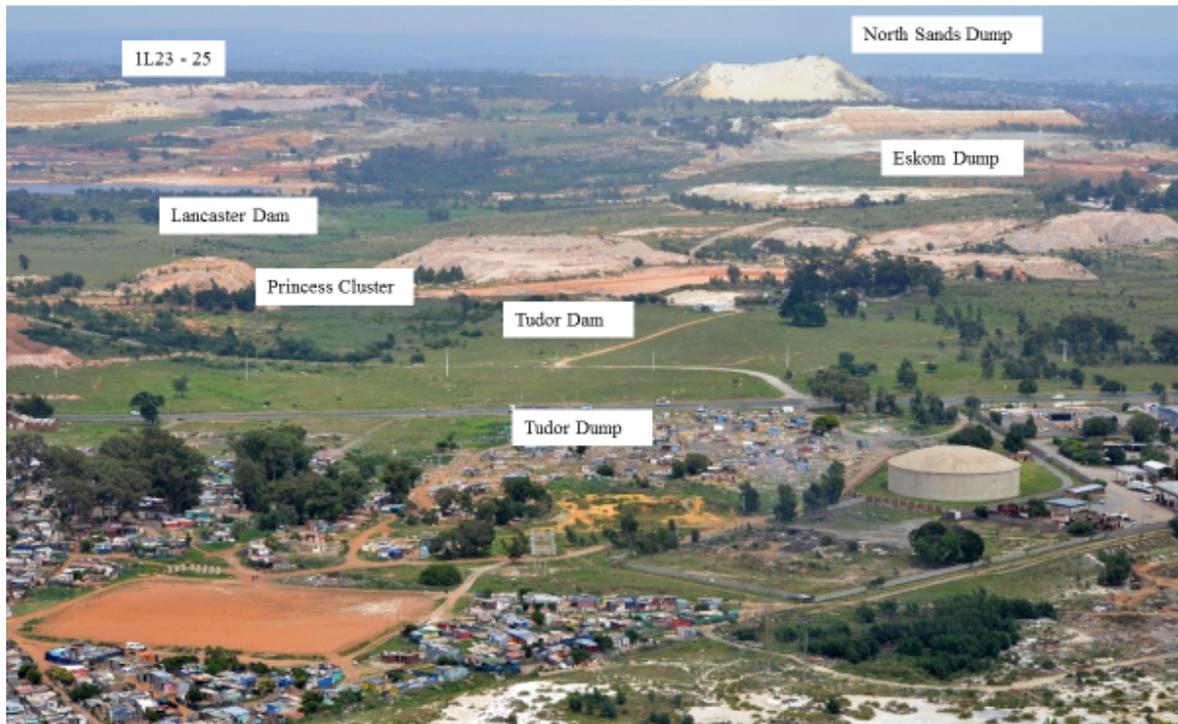
To exemplify:

Notwithstanding the fact that DRDGOLD's EMPR (2007) stated that "*the site would be left ecologically and geophysically stable and would not pose an economic, social or environmental liability to the local community and the state now or in the future*", the reclamation operations by the Blyvooruitzicht Gold Mining Company resulted in unrehabilitated footprints of reclaimed tailings storage facilities, containing residual radioactive and toxic metals; radioactive infrastructure; tailings storage facilities without vegetation, retainer walls and functional toe paddocks and penstocks; no or inadequate erosion and stormwater control; significant dust fallout, and total environmental liabilities of R891 098 234. R36 947 540 was held in trust for rehabilitation.

The reclamation operations by the Mintails Group resulted in the liquidation of Mintails and an unfunded environmental liability of R460 367 811.07.

Please see subjoined photograph of Mintails' operations.

Mintails' Operations:Tudor Shaft Informal Settlement in the foreground, with the overburden material and open pits from Mintails' Princess Cluster operations, Lancaster Dam, 1L23 – 25, the partially reclaimed North Sands- and Eskom Dumps, and the unrehabilitated footprint of CAMS Dump in the background (Photograph: Mark Olalde. 2017)



The findings<sup>1</sup> by the Parliamentary Portfolio Committee (PPC) on Mineral Resources have relevance in this regard. The PPC found that:

*“The DMR has failed to implement effectively and carry out the intentions of Parliament to ensure that all mines rehabilitate the damage they cause.”*

In view of past experiences, the Council of Geoscience<sup>2</sup> concluded:

- *“Any new application to exploit mining residues should only be approved if it involves the removal of an entire residue deposit and the rehabilitation of the remaining footprint. If this is not the case, rather than consolidating contaminated sites, the reprocessing activities result in the creation of two contaminated sites, where one previously existed.*
- *“The past practice of granting rights and authorization for the reprocessing of individual residue deposits may need to be reviewed insofar as it allows the selective extraction of value from portions of a site without ploughing some of that value back*

<sup>1</sup>22 November 2018: ANNOUNCEMENTS, TABLINGS AND COMMITTEE REPORTS NO 174—2018. No 174—2018, FIFTH SESSION, PARLIAMENT. Pages 39 – 52.

<sup>2</sup> Van Tonder, DM; Coetzee, H, Esterhuysen, S, Msezane, N, Strachan, L, Wade, P, Mafanya, T, Mudau, S. 2008. South Africa’s Challenges Pertaining to Mine Closure – The Concept of Regional Mining and Closure Strategies. Fourie, A.B. , Tibbett, I.M. Weiersbye, P.J. Dye (eds). 2008 Australian Centre for Geomechanics, Perth, ISBN 978-0-9804185-6-9.

*into the rehabilitation of the entire mining area. It must be accepted that the reprocessing of some mining residues will never be economically viable and that these will need to be transported to superdumps, if this is not too costly or rehabilitated in situ.*

- *“Radiometric surveys over previously reprocessed mine residue deposit footprints have, in some cases, shown elevated levels of residual radioactivity in the soils. In these cases, it must be accepted that some areas will never be suitable for unrestricted development and that these areas will need to be demarcated as such, and appropriate land-uses proposed and implemented.”*

## REHABILITATION AND END LAND USE

The EIA Report informs us that the land after reclamation will be rehabilitated to red earth and then to grassland. (Page xii and page 11 of the EIA Report). **And on page 38 “...the land to be used for agricultural purposes.”**

The EIA Report furthermore informs us that the Rooikraal TSF falls within a ‘dirty footprint’ and is adjacent to the Brakpan/Withok Megadump (<1km) and that once reclamation is completed, the area will then be assessed for contamination (particularly in terms of radiation), contaminated soils will be removed, and the land levelled to a functioning topography and revegetated.

We moreover read that:

- The current land use of the area is a predominantly agriculture with commercial pivots.
- The land use surrounding the Rooikraal/ Withok / Brakpan TSF comprise of agricultural activities, with production farms to the north and south of the Rooikraal TSF and impacts from the Rooikraal TSF can negatively influence the farming water resources (page 210).
- The TSF is surrounded by settlements, wetlands and water courses and the township of Tsakane and Duduza (page 3).
- The Rooikraal TSF is situated within the rural / agricultural zone of the Ekurhuleni Metro Municipality, while the pipeline extends across the agricultural and urban support zone of the municipality to the Ergo plant in Brakpan.
- The current land use around the Rooikraal TSF, according to page 60 of the EIA Report, is a mixture of bare ground, cultivated commercial orchards, residential settlements and water bodies traversing the site.
- According to Regional E Spatial Development Framework **moderate - high agricultural land potential land.**

The rehabilitation objectives should therefore include, from a generic perspective, the following:

- Groundwater must be fit for current and future agricultural use – groundwater with high salinity and heavy and trace metals is not compatible with agricultural usages;
- Surface water must be fit for current and future agricultural use;

- Soil must be fit for use consistent with current and future land use.

**For this reason, the rehabilitation must include the associated use of other resources connected with the future land use (agriculture), for example water use and soil. The removal of contaminated soils and the levelling of the land and revegetation of the land cannot be regarded as reasonable measures for remediation and the proposed land use and are at best measures for interim stabilisation.**

**For agricultural purposes:**

- **Contaminated soil should not only be removed but topsoil should be replaced.**
- **Deposited soils must be ripped to ensure compaction is reduced.**
- **The surface tillage should produce an acceptable seedbed for the vegetation to be established.**
- **Soil fertility should be restored.**
- **Immobile fertilisers should be incorporated into the plant rooting zone.**
- **Maintenance dressings of fertiliser should be applied annually until the soil fertility cycle is restored.**

The objective of the Applicant must be to return the reclaimed area to a condition where self-sustaining ecosystems can be re-established, sites where sustainable economic activity can be undertaken (agriculture as proposed in the EIA Report) in the short and long term and to ensure that these plans are adequately financed, implemented and monitored.

Of relevance too are the recent findings of the South African Human Rights Commission.<sup>3</sup> The Commission found that:

- **The DMR has not taken adequate steps to secure financial provision for rehabilitating damage to the environment and water resources and there is an immediate need for all EIAs and EMPs to clearly detail land quality and post closure land use. Licences should not be granted where long-term, sustainable land use cannot be guaranteed.**
- The DMR together with the DEA, are directed to amend the content guidelines for EIAs and EMPs to include comprehensive information on the quality of land and sustainable options for potential post closure land use.

The Applicant ought to consult with other landowners, namely Robin Lowe & Co Pty Ltd; Knights Gold Mining Co Ltd, Transnet, Mrs Susanne Weitze and the Ekurhuleni Municipality and other IAPs regarding the rehabilitation objectives and future land use.

The EIA informs us that the groundwater quality in the immediate vicinity of the Brakpan/Withok Tailings Complex is characterised by elevated sulphate (SO<sub>4</sub>) and Total Dissolved Solid (TDS) concentrations, and the pH is neutral to alkaline. In general, sulphate concentrations around the tailings complex vary between 2 and 2,500 mg/L. It is common

---

<sup>3</sup> National Hearing on the Underlying Socio Economic Challenges of Mining Affected Communities in South Africa. 13-14 September; 26 and 28 September; 3 November 2016

cause that the groundwater quality in the shallow and deeper aquifers have been impacted by the Brakpan/Withok Tailings Complex.

The EIA informs us that a high-level detailed hydrogeological assessment was undertaken as part of the project to determine the offset of groundwater contamination through the reprocessing and rehabilitation of TSF and deposition of reworked tailings on the Withok/Brakpan TSF and to identify the most suitable operational and long term groundwater management measures.

**We respectfully request a copy of this assessment in order to ripen our judgement regarding the proposed operational and long term groundwater management measures.**

While we take cognisance of the fact that the assessment was undertaken and a monitoring plan was prepared, it is necessary for the Applicant to develop a water management strategy and not merely an assessment and monitoring plan **prior** to the reclamation and deposition activities. If the water management strategy was included in the EIA Report and we have overlooked it, we apologise.

#### PRECAUTIONARY PRINCIPLE AND DUTY OF CARE

Since the Rooikraal TSF is surrounded by settlements and the township of Tsakane and Duduza, and since the communities will be impacted upon by the reclamation operations (page 168 of the EIA Report informs us that *“the construction of the proposed project might cause intrusion into the surrounding physical environment, which could impact on surrounding communities in various ways”*) the following findings by the SAHRC have relevance:

- *“Overall the mining sector is riddled with challenges related to land, housing, water, the environment and the absence of sufficient participation mechanisms and access to information;*
- *“Non-compliance, the failure to monitor compliance, poor enforcement, and a severe lack of coordination amongst especially government stakeholders exacerbate the socio-economic challenges faced by mining-affected communities;*
- *“It is crucial that government ensures that communities are able to participate meaningfully in mining-related activities and influence decisions that detrimentally impact their enjoyment of constitutionally guaranteed rights and general well-being;*
- *“The State must do more to include communities in reporting and monitoring mechanisms.”*

In view of the above-mentioned findings, we therefore call upon the Applicant to engage on a regular basis with IAPs and in particular with mining affected communities regarding its proposed reclamation activities; to supply IAPs with copies of its WUL, its SLP, its EA (if authorised) and its EMPR.

The EIA informs us that:

- *“About 70% of the Proposed Project area overlaps with a CBA: Important Area. The other 30% consists of ecological support areas and areas not classified...”* (page 63).

- The majority of the project area falls within a Critically Endangered ecosystem.
- The existing infrastructure and pipeline, which are located on the north-eastern side of the TSF, fall within the 1:50 and 1:100 year floodlines as well as the 100 m stream buffer.
- The Rooikraal TSF is underlain by dolomite (page 96).
- The groundwater in the area is usually dominated by sulphate. This is an indication of groundwater impacted by mining activities. The main contributor to salinity (indicated by the TDS concentration) is sulphate, chloride, calcium, magnesium, manganese and aluminium. Acidic conditions also favour the presence of heavy and trace metals in water (page 98).
- The dolomite underlying the Rooikraal TSF is classified as a major aquifer system, which is viewed as a high yielding aquifer with generally good quality water. The aquifer is highly susceptible to contamination (page 108).

If the reclamation of the Rooikraal TSF by means of the proposed hydraulic mining is poorly managed and leachate or polluted water is allowed to seep or migrate laterally into the underlying aquifer, it may not only impact upon a major aquifer but since the area is underlain by dolomite it may also result in the development of sinkholes.

The mitigation measures which are proposed include:

- The maintenance of sound surface runoff management to ensure that all dirty runoff is contained and diverted to the paddocks.
- Ensuring that no pooling of water on reclaimed surfaces occurs.
- Monitoring of groundwater quality in all boreholes identified. with an equal water resource.
- Ensuring that paddocks can contain all dirty water generated during the reclamation process to prevent overflows and spillages.

**These mitigation measures exist in vain, however, if not implemented and monitored, and in the case of non-compliance, the non-compliances are not enforced.**

**The SAHRC in its above-mentioned Report found that the existing sanctions for non-compliance with environmental laws and regulations are inadequate and do not address, nor disincentivise the systemic non-compliance in the mining sector. The FSE therefore endorses the finding of the Commission namely that “*there is an immediate need for the development and implementation of effective complaints mechanisms by the mining companies and the DMR”.***

And finally, it calls for sufficient rehabilitation funds to address not merely the current impacts but also the latent and residual impacts, and the treatment of extraneous or polluted mine water. We refer in this regard to section 5 (c) of the National Environmental Management Act (107/1998): Regulations pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production Operations.

SUBMITTED BY:

*M. Liefferink*

Mariette Liefferink.

CEO: FEDERATION FOR A SUSTAINABLE ENVIRONMENT

6 April 2019.