# IMERYS REFRACTORY MINERALS SOUTH AFRICA (PTY) LTD – BLESBOKFONTEIN CLAY QUARRY

## Annual Rehabilitation Plan and Annual Financial Provision

**Based on Appendix 3 (Minimum Content of An Annual Rehabilitation Plan) of the Regulations Pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production Operations, 2015 9(GN 1147) (as amended) i.t.o. the National Environmental Management Act No 107 of 1998 (as amended).**

**DMR ref: MP30/5/1/1/2/450MR**

**Location: Portion 4 of the Farm Blesbokfontein 459 JR, Thembisile Hani Local Municipality, Mpumalanga**

**August 2018**

BECS Environmental (Pty) Ltd
In association with BECS Services (Pty) Ltd

IMERYS
Aluminates

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## MINIMUM CONTENT OF AN ANNUAL REHABILITATION PLAN

The annual rehabilitation plan will form a component of the environmental management programme to be submitted in terms of section 24N of the Act and the Environmental Impact Assessment Regulations, 2014 and will be subject to the same requirements of the environmental management programme with regards opportunities for stakeholder review and comment as well as auditing.

Objective of the annual rehabilitation plan

The objective of the annual rehabilitation plan is to:

a. review concurrent rehabilitation and remediation activities already implemented;
b. establish rehabilitation and remediation goals and outcomes for the forthcoming 12 months, which contribute to the gradual achievement of the post-mining land use, closure vision and objectives identified in the holder's final rehabilitation, decommissioning and mine closure plan;
c. establish a plan, schedule and budget for rehabilitation for the forthcoming 12 months;
d. identify and address shortcomings experienced in the preceding 12 months of rehabilitation; and
e. Evaluate and update the cost of rehabilitation for the 12-month period and for closure, for purposes of supplementing the financial provision guarantee or another financial provision instrument.

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## ABBREVIATIONS

| | |
|---|---|
| DWS | Department of Water and Sanitation |
| DRDLR | Department of Rural Development and Land Reform |
| DEAT | Department of Environmental Affairs and Tourism |
| DSSPD | Department of Social Services, Population and Development |
| EAP | Environmental assessment practitioner |
| EMP | Environmental Management Programme |
| EMP PA | Environmental Management Programme: Performance Assessment |
| GN 1147 | Regulations Pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production, GN 1147 of 2015 i.t.o. the National Environmental Management Act No 107 of 1998 (as amended) |
| MAR | Mean annual runoff |
| MHSA | Mine Health and Safety Act, 1996 (Act No. 29 of 1996) |
| MPRDA | Minerals and Petroleum Resources Development Act (Act 28 of 2002 as amended) |

| | |
|---|---|
| MPRDR | Minerals and Petroleum Resources Development Regulations, GN 527 of 2004 (as amended) i.t.o. the Minerals and Petroleum Resources Development Act No 28 of 2002 |
| MWP | Mine works programme |
| NEMA | National Environmental Management Act No 107 of 1998 (as amended) |

## DISCLAIMER

The views expressed in this annual rehabilitation report are based on the information supplied to BECS Environmental by Imerys Refractory Minerals. BECS has ensured all due care in reviewing the supplied information. BECS has compared key supplied data with predictable values, the accuracy of the results and conclusions from the review are entirely reliant on the accuracy and completeness of the supplied data. BECS does not accept responsibility for any errors or omissions in the supplied information and does not accept any consequential liability arising from commercial decisions or actions resulting from them. Opinions presented in this report apply to the site conditions and features as they existed at the time of BECS investigations, and those reasonably probable. These opinions do not necessarily apply to conditions and features that may arise after the date of this report, about which BECS had no prior knowledge nor had the opportunity to evaluate.

## EXECUTIVE SUMMARY

Imerys Refractory Minerals South Africa (Pty) Ltd has a mining right for the mining of Flint Clay on Portion 4 of the farm Blesbokfontein 459 JR, Thembisile Hani Local Municipality, Mpumalanga. The current life of mine is until 2023. Mining has already commenced with the removal of a portion of the topsoil and overburden. There is no beneficiation or support services associated with the mining right.

Information regarding the background to the mine was taken from various documents including the approved Environmental Management Programme (EMP) and the Environmental Management Programme: Performance Assessment (EMP PA).

**Requirements of the annual rehabilitation plan**

The annual rehabilitation plan will be relevant for a period of 1 year, after which the plan will be updated by the holder of the right to reflect progress relating to rehabilitation and remediation activities in the preceding 12 months and to establish a plan, schedule and budget for the forthcoming 12 months. The annual rehabilitation plan must contain information that defines concurrent rehabilitation and remediation activities for the forthcoming 12 months and how these relate to the operations' closure vision, as detailed in the final rehabilitation, decommissioning and mine closure plan, must indicate what closure objectives and criteria are being achieved through the implementation of the plan, must be measurable and auditable and must include the following contents as seen in Table 1.

Table 1: Contents of an annual rehabilitation plan in terms of Appendix 4 of the Regulations Pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production, (GN 1147) of 2015 i.t.o. the National Environmental Management Act No 107 of 1998 (as amended) (NEMA)

| **Appendix nr** | **Description** | **Section in this report** |
|---|---|---|
| 3(a)(i) | details of the person or persons that prepared the plan | 1.2 |
| 3(a)(ii) | details of the professional registrations and experience of the person or persons; | 1.2 |
| 3(a)(iii) | details of the timeframes of implementation of the current, and review of the previous rehabilitation activities; | 4.6 |
| 3(b) | the pertinent environmental and project context relating directly to the planned annual rehabilitation and remediation activity; | 3 |
| 3(c) | results of monitoring of risks identified in the final rehabilitation, decommissioning and mine closure plan with a view to informing rehabilitation and remediation activities; | 4.2 |
| 3(d) | an identification of shortcomings experienced in the preceding 12 months; | 4.3 |
| 3(e) | details of the planned annual rehabilitation and remediation activities or measures for the forthcoming 12 months, including those which will address the shortcomings contemplated in (d) above or which were identified from monitoring in the preceding 12 months, and including | 4.4 |
| 3(e)(i) | if no areas are available for annual rehabilitation and remediation concurrent with mining, an indication to that effect and motivation why no annual rehabilitation or remediation can be undertaken; | 4.4.1 |
| 3(e)(ii) | where areas are available for annual rehabilitation and remediation concurrent with mining, annual rehabilitation and remediation activities related to previous disturbance or expected planned impacts and disturbance, as per the mine works programme (MWP), in the period under consideration, which should be tabulated and must indicate, but not necessarily be limited to | 4.4.2 |
| 3(e)(ii)(aa) | nature or type of activity and associated infrastructure; | 4.4.2.1 |
| 3(e)(ii)(bb) | planned remaining life of the activity under consideration; | 4.4.2.1 |
| 3(e)(ii)(cc) | area already disturbed or planned to be disturbed in the period of review; | 4.4.2.1 |
| 3(e)(ii)(dd) | percentage of the already disturbed or planned to be disturbed area available for concurrent rehabilitation and remediation activities; | 4.4.2.1 |
| 3(e)(ii)(ee) | percentage of the already disturbed or planned to be disturbed area available as per (dd) and on which concurrent rehabilitation and remediation can be undertaken; | 4.4.2.1 |
| 3(e)(ii)(ff) | notes to indicate why total available or planned to be available area differs from area already disturbed or planned to be disturbed; | 4.4.2.1 |
| 3(e)(ii)(gg) | notes to indicate why concurrent rehabilitation will not be undertaken on the full available or planned to be available area; | 4.4.2.1 |
| 3(e)(ii)(hh) | details of rehabilitation activity planned on this area for the period of review; | 4.4.2.1 |
| 3(e)(ii)(ii) | the pertinent closure objectives and performance targets that will be addressed in the forthcoming year, which objectives and targets are aligned to the final rehabilitation, decommissioning and mine closure plan; | 4.4.2.1 |

| Appendix nr | Description | Section in this report |
|---|---|---|
| 3(e)(ii)(jj) | description of the relevant closure design criteria adopted in the annual rehabilitation and remediation activities and the expected final land use once all rehabilitation and remediation activities are complete for the activity or aspect; and | 4.4.2.1 |
| 3e(iii) | a site plan indicating at least the total area disturbed, area available for rehabilitation and remediation and the area to be rehabilitated or remediated per aspect or activity; | 4.4.3 |
| 3(f) | a review of the previous year's annual rehabilitation and remediation activities, indicating a comparison between activities planned in the previous year's annual rehabilitation and remediation plan and actual rehabilitation and remediation implemented, which should be tabulated and as a minimum contain: | 4.5 |
| 3(f)(aa) | area planned to be rehabilitated and remediated during the plan under review; | 4.5 |
| 3(f)(bb) | actual area rehabilitation or remediated; and | 4.5 |
| 3(f)(cc) | if the variance between planned and actual exceeds 15%, motivation indicating reasons for the inability to rehabilitate or remediate the full area; and | 4.5 |
| 3(g) | costing, including; | 6 |
| 3(g)(i) | an explanation of the closure cost and methodology, | 6.1 |
| 3(g)(ii) | auditable calculations of costs per activity or infrastructure, | 6.2 |
| 3(g)(iii) | cost assumptions; and | 6.4 |
| 3(g)(iv) | monitoring and maintenance costs likely to be incurred both during the period of the annual rehabilitation plan and those that will extend past the period of the final rehabilitation, decommissioning and mine closure plan, on condition that the monitoring and maintenance costs included in previous annual rehabilitation plans must be accumulated into subsequent versions of the annual rehabilitation plan until such time as the monitoring and maintenance obligation is discharged | 6.3 |

Attached as **Addendum 1** is the Environmental Risk Assessment Report in line with the requirements of the Minerals and Petroleum Resources Development Act (Act 28 of 2002 as amended) (MPRDA) as stipulated in regulation 60 of the Minerals and Petroleum Resources Development Regulations, GN 527 of 2004 (as amended) i.t.o. the Minerals and Petroleum Resources Development Act No 28 of 2002 (MPRDR); regulations 6(c), 11(1)(c) & 12(3) & Appendix 5 of the Regulations Pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production, GN 1147 of 2015 i.t.o. NEMA.

Attached as **Addendum 2** to this report is the EMP Performance Assessment, 2017, as stipulated in regulation 55(9) of the MPRDR. See Section 6 for the Annual Updated Financial Provision report is as stipulated in regulation 6 of the Regulations Pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production, GN 1147 of 2015 i.t.o. NEMA.

No transfer of environmental liabilities and responsibilities will take place, Imerys will rehabilitate the mine.

The total financial provision costs for the year 2018 is **R82 550.02**

# SECTION 1: INTRODUCTION

## 1.1 Details of applicant

Refer to Table 2 below for a description of the applicant.

Table 2: Description of the applicant

| | |
|---|---|
| Project applicant | Imerys Refractory Minerals South Africa (Pty) Ltd – Blesbokfontein Mine |
| Contact person | Hendrik Jones |
| Designation | Operational Director |
| Telephone number | +27 12 643 5940 |
| E-mail address | Hendrik.Jones@imerys.com |

## 1.2 Details of Environmental assessment practitioner

This section includes (a) details of the person or persons that prepared the plan and (b) details of the professional registrations and experience of the person or persons.

Refer to Table 3 below for a description of the environmental assessment practitioner (EAP).

Table 3: Description of the environmental assessment practitioner

| | |
|---|---|
| Name of company | BECS Environmental |
| Postal address | PO Box 72960, Lynnwood Ridge, 0040 |
| Telephone number | 012 361 9970 |
| Cell phone number | 072 191 6074 |
| Facsimile number | 012 361 0645 |
| E-mail address | salome@becsenv.co.za |
| Name of responsible EAP | Salome Beeslaar |
| Expertise of EAP | B.Sc Environmental Science (UP), B.Sc Honours Geography (UP), M.Sc Geography (UP), Professional Scientist (Environmental Science) , member of the International Associated of Impact Assessments South Africa. |
| Name of second responsible EAP | Deshree Pillay |
| Expertise of EAP | B. Sc Environmental Science (UP), B. Sc Honours Geography & Environmental Science (UP) |

I, Salome Beeslaar (8310190032081), hereby declare that I have no conflict of interest related to the work of this report. Specially, I declare that I have no business, personal, or financial interests in the property and/or mining right being assessed in this report and that I have no personal or financial connections to the relevant property owners or mine. I declare that the opinions expressed in this report are my own and a true reflection of my professional expertise and that there are no circumstances that may compromise my objectivity in performing such work.

_____

Salome Beeslaar
MSc – Geography, SACNASP (400385/14), IAIAsa (5853)
August 2018

## 1.3 Background on locality

The site is located on Portion 4 of the Farm Blesbokfontein 459 JR which is located within the Thembisile Local Municipality, also commonly known as, KwaMhlanga, situated in the Nkangala District Municipality, Mpumalanga Province. The extent of the total area is 85.6ha.

KwaMhlanga is the spiritual home of the amaNdebele tribe that settled there in the early 1700s. This town developed into the administrative centre for the local government, and now houses the government administration for the North Western Region of the Mpumalanga Province. To the north of KwaMhlanga, on the R568 near the village of Klipfontein, is located the Manala Royal Kraal; the Ndzundza Mabhoko Royal Kraal is situated further north at Weltevreden. By special arrangement, both of these kraals can be visited by small parties. The Mine is situated in Ward 3 and is approximately 17km north of Bronkhorstspruit and 31km northeast of Cullinan. See Figure 1 for a locality map.

## 1.4 Description of the property

There is currently no public roads, railways or power-lines that transverse the property. The site is located in the Olifants Primary Catchment. The northern part of the site falls within the Middle Olifants Water Management Area in Quaternary Catchment area B31B, and the southern tip of the site falls within the Upper Olifants Water Management Area in Quaternary Catchment area B320H. All activities are within the Middle Olifants Water Management Area. The mine has very recently opened a very small portion of the site. No formal mining has yet taken place.

## 1.5 Land ownership of adjacent land and servitudes

Imerys Refractory Minerals SA is the owner of Portion 4 of the farm Blesbokfontein 459 JR. Refer to Figure 2 and Table 4 below for all landowners.


Figure 1: Locality Map of Blesbokfontein Mine *(Shangoni Management Services, 2010)*

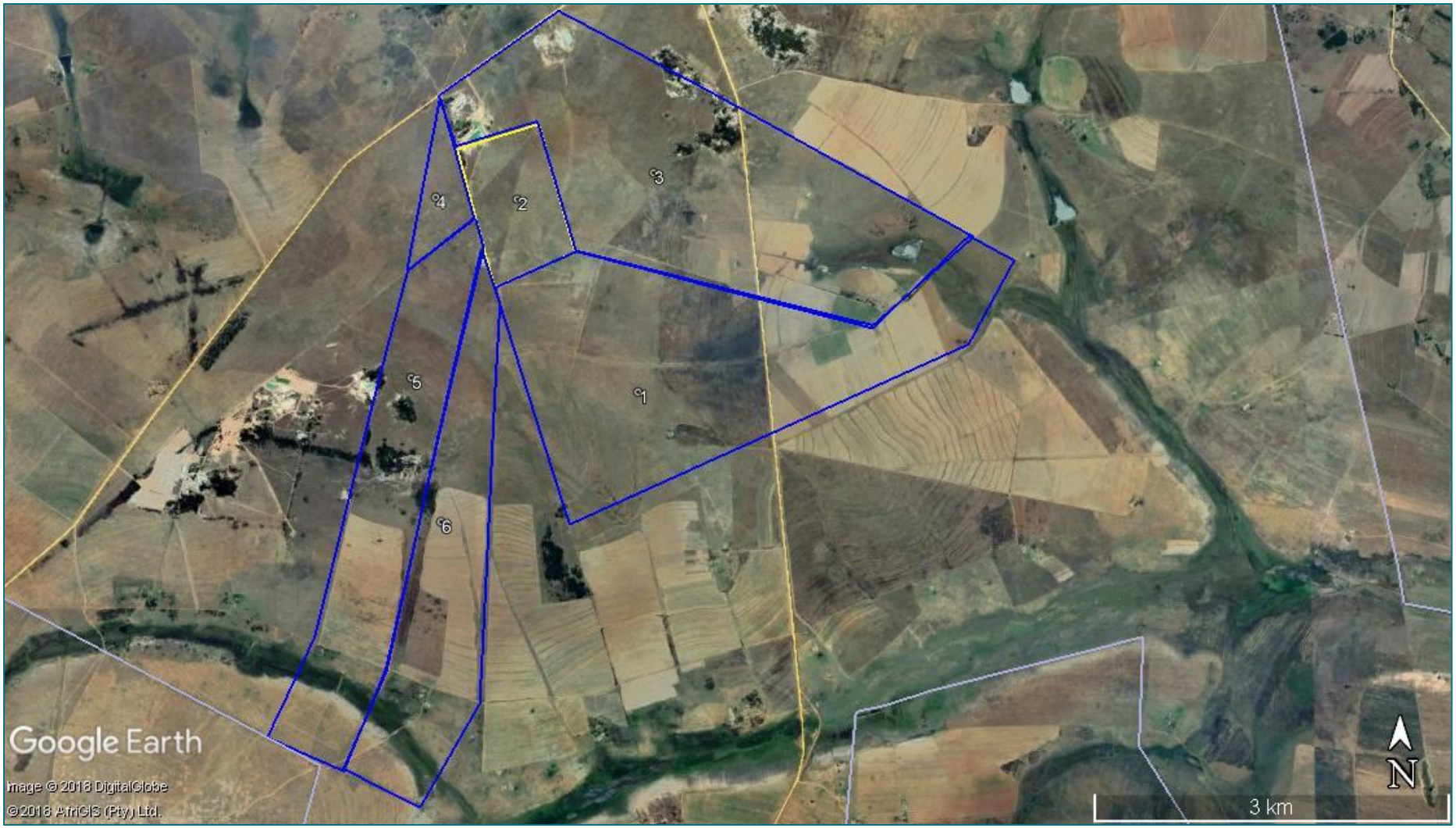


Figure 2: Google earth image of all landowners

Table 4: Landowners

| Number | Physical address | Adjacent Landowner | Contact |
|---|---|---|---|
| 1 | Ptn 1 Blesbokfontein 459 JR | Government of Kwandebele - Tetema Communal Property Association | DRDLR |
| 2 | Ptn 4 Blesbokfontein 459 JR | Imerys Refractory Minerals SA | H Jones |
| 3 | Ptn 5 Blesbokfontein 459 JR | Unknown | Unknown |
| 4 | Bultplaats 460 JR | National Government of the Republic of South Africa – State owned | DRDLR |
| 5 | 3 Taaifontein 461 JR | National Government of the Republic of South Africa – State owned | DRDLR |
| 6 | 4 Taaifontein 461 JR | Government of Kwandebele – State owned | DRDLR |

There are no servitudes in the area.

## SECTION 2: LEGISLATION AND GUIDELINES APPLICABLE

Table 5: Legislation and interpretation of these requirements for the closure design principles

| Legislation | Requirements | Interpretation of these requirements for the closure design principles |
|---|---|---|
| Regulation 56 of MPRDR | In accordance with applicable legislative requirements for mine closure, the holder of a mining right must ensure that -<br>a) the closure of a mining operation incorporates a process which must start at the commencement of the operation and continue throughout the life of the operation;<br>b) risks pertaining to environmental impacts must be quantified and managed proactively, which includes the gathering of relevant information throughout the life of a mining operation;<br>c) the safety and health requirements in terms of the Mine Health and Safety Act, 1996 (Act No. 29 of 1996) (MHSA) are complied with; | The EMP of 2010 describes the environment on site and the potential impacts during each phase of the project and the impacts associated with infrastructure. Section 4.10 of the EMP details rehabilitation from the mining industry perspective. This primarily involves placing the land back that was impacted by mining to a sustainable and usable condition. The environmental scoping report includes all information pertaining to risks, residual and possible latent risks. Closure of the mine will incorporate any necessary safety and health requirements in terms of the MHSA. The residual and possible latent environmental impacts are identified and quantified in this Closure Plan. The end land use is discussed in Section 4.1 of this Annual Rehabilitation Plan. |

| Legislation | Requirements | Interpretation of these requirements for the closure design principles |
|---|---|---|
| | d) residual and possible latent environmental impacts are identified and quantified;<br>e) the land is rehabilitated, as far as is practicable, to its natural state, or to a predetermined and agreed standard or land use which conforms with the concept of sustainable development; and<br>f) mining operations are closed efficiently and cost effectively. | |
| Regulation 61 of MPRDR | Closure objectives form part of the draft environmental management programme and must -<br>a) identify the key objectives for mine closure to guide the project design, development and management of environmental impacts;<br>b) provide broad future land use objective(s) for the site; and<br>c) provide proposed closure costs. | The pertinent closure objectives and performance targets that will be addressed in the forthcoming year, which objectives and targets are aligned to the final rehabilitation, decommissioning and mine closure plan can be found in section 4.4.2.1 in this report. This includes closure costs which in total is **R82 550.02** |
| Regulations 6(a) of GN 1147 | An applicant must determine the financial provision through a detailed itemisation of all activities and costs, calculated based on the actual costs of implementation of the measures required for annual rehabilitation, as reflected in an annual rehabilitation plan | The financial provision is included in Section 6 of this Annual Rehabilitation Plan which includes the financial provision methodology, auditable calculations of financial provision per activity or infrastructure financial provision estimation and assumption on the financial provision. |
| Regulations 11(1)(a) of GN 1147 | The holder of a right or permit must ensure that a review is undertaken of the requirements for annual rehabilitation, as reflected in an annual rehabilitation plan | Rehabilitation commitments will be assessed and reviewed upon approval of the annual rehabilitation plan. |
| Regulations 11(2) of GN 1147 | The holder of a right or permit must, on completion of the actions contemplated in subregulation (1), ensure that the adequacy of the financial provision is assessed and any adjustments that need to be made to the financial provision are identified. | The adjustments to the financial provision are included in section 6 of this Annual Rehabilitation Plan. Note the transitional period for these Regulations. |

| Legislation | Requirements | Interpretation of these requirements for the closure design principles |
|---|---|---|
| Regulations 12(1) of GN 1147 | The annual rehabilitation plan must contain all information set out in Appendix 3 to these Regulations | This Annual Rehabilitation Plan is based on the requirements of the MPRDA, as well as Appendix 3 of GN 1147 pertaining to the minimum content of a rehabilitation plan. |

# SECTION 3: THE PERTINENT ENVIRONMENTAL AND PROJECT CONTEXT RELATING DIRECTLY TO THE PLANNED ANNUAL REHABILITATION AND REMEDIATION ACTIVITY

## 3.1 Environmental context

Information for this section was extracted from the Blesbokfontein Mine EMP (Shangoni Management Services (Pty) Ltd, 2010):

This section aims to provide a summary of the environmental and social status of the region in which the mine is situated, to establish an overall idea of the current situation of the mining area, leading to reasoning behind the proposed end land use for the mine.

### 3.1.1 Geology

According to the Department of Environmental Affairs and Tourism (DEAT), the area lies on tillite, which in turns lies on ultramafic rock. The carbonaceous flint clay deposit is located in the lower part of the Ecca Group of the Karoo Sequence in the fairly extensive Nooitgedacht outlier. Overburden comprises a sequence of sandy soils and clays, as well as sandstone and grit with a total thickness of 5-9m. Overlying the ore is sandy carbonaceous flint clay. The ore body is more than 3m thick on average and occurs at a depth of between 9m and 12m below surface. In some places the ore zone contains thin intercalated sandy lenses. Sandy carbonaceous flint clay is found below the ore body and grade downward into very sandy carbonaceous flint clay and sandstone, whereas the bottom of the sequence is formed by Dwyka tillite.

### 3.1.2 Climate

Mpumalanga climate is mild to subtropical with hot, wet summers (October to February) and cold, dry winters (May-August). Mean annual precipitation varies from less than 500mm in the eastern Lowveld and 700mm in the western Highveld to more than 1100mm in the escarpment (DACE, 1999). Mpumalanga experiences distinct weather patterns in summer and winter. In the summer months, unstable conditions are prevalent with summer rainfall. In contrast, the winter months are characterised by atmospheric stability caused by a persistent high-pressure system. This high-pressure system results in subsidence, causing clear skies and pronounced temperature inversions at night. The climate in this area is sub-arid, with a rainy season from approximately October to March. Some frost occurs from time to time. The average daily minimum and maximum temperatures is depicted below.

### 3.1.3 Topography

The site falls within moderately undulating plains and plans according to DEAT. The site itself is open veld. Slope class is flat, 0 to 5% with some slope south-east from the site.

### 3.1.4 Soil

The soils are described as PT1, meaning red, yellow and / or greyish soils with low to medium base status. Soil is further described as freely drained, structure-less Hutton or Clovelly soils. Soils have

restricted soil depth to the east (less than 450mm) and medium (450mm to 750mm) soil depth to the west. Clay content in topsoil is moderate (15% to 35%) with no swelling clay potential. Just south of the site are soils with somewhat swelling clay potential. Soils are mesotrophic to Eutrophic meaning soils have suffered anything from no leaching to moderate leaching. Eutrophic soils usually have a high base status and are non-calcareous, whereas mesotrophic soils have a medium base status. Water holding capacity is medium to high of 61 to 80mm. Water-holding capacity towards the north is low (21-40mm) and medium high towards the south (61-80mm). Water erosion potential is low to moderate. Due to the loamy sand dominated texture of the soil, the soils are only moderately susceptible to wind erosion. In terms of nutrients, the soils are low in fertility. Organic carbon content is high of 1.1 to 2mm. Soils have a neutral pH of 5.5-6.4. Soils susceptible or highly susceptible to acidification are dominant and sub-dominant. Soils are furthermore, structurally favourable for arable land use; and a beneficiary water retaining layer for root development, however low fertility.

### 3.1.5 Pre-mining land capability, land use and existing infrastructure

Excluding prospecting on the site, no land activities are taking place in the site. Historical agricultural production is a possibility. The site has a moderately potential for arable land due to the soil characteristics. Potential grazing capacity is moderately high with 15 ha per large stock unit in some areas and up to 5 ha per large stock unit in other areas on the site. Mpumalanga is a province still dominated by vast open areas of natural vegetation (71% of the total area, comprising grasslands, thickets, woodlands and forests). According to the land cover map, approximately 1.7% of these natural areas are classified as degraded, with an additional 0.03% of the total area being classified as eroded (“dongas and sheet erosion scars”). The new land cover map currently being developed by the CSIR will provide a useful successor in terms of these data, by which to evaluate any changes and trends in this regard. Urbanisation of the province is still relatively low (1.25%) although the new land cover map may well reflect an increase in this respect since 1999. Most of the land which has been converted to another land use is under some form of cultivation (26%), including commercial plantations which comprise 8% of the total area of Mpumalanga. This is significant, when considering the high potential in Mpumalanga for desertification, as farmlands are most at risk of desertification. The site itself has a land use described as vacant, unspecified or cultivated. There are mining activities towards the north of the site and further away, north-east. The site is mostly surrounded by cultivation. According to AGIS, the area is covered by cultivation as well as unimproved grassland. There is no degraded land on the site.

### 3.1.6 Vegetation

The site falls within the savannah biome. This biome – the largest biome in South Africa, covering over one third of the land surface area of the country – is characterised by a grassy ground layer as a distinct upper layer of woody plants (trees and shrubs). According to Mucina and Rutherford (2006), the area falls within the Central Sandy Bushveld vegetation unit (SVcb 12). This vegetation unit is similar to the Mixed Bushveld described by Low & Rebelo (1996) and Sourish Mixed Bushveld described by Acocks.

### 3.1.7 Animal life

The mammals (amongst many more) are found in the general area are Common Duiker (*Sylvicapra grimmia*) & Porcupine (*Hystrix africaeaustralis*).

The following birds are found in the area:

- Black crow;
- Familiar chat;
- Tawny flanked prinia;
- Orange-throated longclaw;
- Southern ant-eating chat;
- Hadeda ibis;
- Red faced mousebird;
- Laughing dove; and
- Cape white eye.

### 3.1.8 Surface water

The site is located in the Olifants Primary Catchment. The northern part of the site falls within the Middle Olifants Water Management Area in Quaternary Catchment area B31B, and the southern tip of the site falls within the Upper Olifants Water Management Area in Quaternary Catchment area B320H. It is unclear whether there are any drainage lines or wetlands in the area.

### 3.1.9 Groundwater

Groundwater depth is 20 to 30m deep. There is no other information available.

### 3.1.10 Air quality

Ambient air quality can be greatly affected by climatic conditions. Mpumalanga experiences distinct weather patterns in summer and winter that affect the dispersal of pollutants in the atmosphere. In the summer months, unstable conditions result in mixing of air and rapid dispersion of pollutants in the atmosphere. Summer rainfall also removes pollutants through wet deposition. In contrast, the winter months are characterised by atmospheric stability caused by a persistent high-pressure system. This high-pressure system results in subsidence, causing clear skies and pronounced temperature inversions at night. The temperature inversion layer keeps the air pollutants trapped in the lower atmosphere, causing increasingly poor air quality. Conditions in the winter months are highly un-favourable for the dispersion of atmospheric pollutants (Preston-Whyte and Tyson, 1988).

Plumes emitted from tall stacks during stable conditions at night can be transported up to thousands of kilometres downwind of the source before reaching ground level in a well diluted state. During day-time however, strong convection currents transport plumes upward and downward whilst drifting downwind. Pollutants reach ground level close to the point of emission and are well diluted due to convective mixing (Turner, 2001).

Emissions at low levels (such as from coal dumps, households or vehicles) will not disperse much at night because of the atmospheric stability, causing high concentrations of pollutants at ground level despite the relatively low emissions quantities. Day time low level emissions are readily mixed into the convective layer close to the earth's surface (Turner, 2001).

#### 3.1.11 Environmental noise

No information on environmental noise.

#### 3.1.12 Visual aspects

The area is not near any roads, and there are no communities nearby.

#### 3.1.13 Cultural and heritage resources

At present, no sites have been identified; however. A study was done by a specialist.

### 3.2 Project context

Imerys Refractory Minerals South Africa (Pty) Ltd has a mining right for the mining of Flint Clay on Portion 4 of the farm Blesbokfontein 459 JR, Thembisile Hani Local Municipality, Mpumalanga. The minerals of interest are refractory and ceramic clays. Refractory minerals produce chamotte and flint clay. The site is only exploited for white flint clay. This clay is mixed with the calcinised black flint clay from other operations at Refractory Minerals. The calcinised black clay with the white flint is sold as chamotte and the white flint can be sold as flint. The production from the site is approximately 900t per annum. The mining method is shallow opencast mining. Topsoil, where available, is removed by bowl scraper and stored separately – used as the berm as indicated on the site layout plan. Blasted overburden is removed by bulldozer employing the rollover system in order to backfill the open quarry left behind immediately. Due to the slow mining activities, no backfilling has yet taken place. After blasting of the clay, it is removed by loader and transported by truck to the sorting area. Cobbing and sorting are done manually where after the mine product is transported to the downdraft kiln stockpile area some 6km away. Where it is necessary two benches of 2-3m deep are mined in the clay horizon.

### 3.3 Zone of influence

The mining right dies not specify only certain areas to eb mined; therefore, this right covers the mining of the entire portion 4.

#### 3.3.1 Geology

The progressive development of the open pit will lead to the destruction of the geological. The current zone of influence is restricted to the current pit. The zone of influence will expand as the pit expand.

#### 3.3.2 Climate

There is no zone of influence for the climate of the region.

### 3.3.3 Topography

The current zone of influence on topography is the pit itself as well as the areas where overburden and topsoil berm are placed. The zone of influence will expand as the pit and placement of overburden and topsoil expand.

### 3.3.4 Soil

The potential impacts on soil relate to the removal of topsoil, soil erosion, and the potential contamination of the soil with hydrocarbons and other chemicals spilled. The current zone of influence of topsoil removal is the pit itself as well as the areas where overburden and topsoil which has been removed, are placed. The zone of influence will expand as the pit and placement of overburden and topsoil expand. Soil erosion may occur if adequate soil management structures to control stormwater run-off are not implemented and maintained. The slope over the pit and overburden area dips slightly from the south-western corner towards north-easterly direction. There are trees planted south-west of the pit. The current zone of influence for potential soil erosion will be restricted to the area around the pit, overburden and topsoil stockpiles. The zone of influence will expand as the pit and placement of overburden and topsoil expand. Soil contamination is limited to the vehicles driving on the dirt roads. Clay is taken from Portion 4 of the farm Blesbokfontein to the plant on portion 22 of the farm Nooitgedacht. It is approximately 9km from the pit to the plant. The zone of influence will remain the same.

### 3.3.5 Pre-mining capability, land use and existing infrastructure

The mine has only removed overburden and topsoil from one section of the property, there are currently no other noteworthy activities taking place to impact the zone of influence. The current zone of influence on land capability and land use is the pit itself as well as the areas where overburden and topsoil are placed. The zone of influence will expand as the pit and placement of overburden and topsoil expand.

### 3.3.6 Vegetation

The potential impacts on vegetation relate to the removal of vegetation, and the propagation of alien/invader vegetation. The current zone of influence for the removal of vegetation is the pit itself as well as the areas where overburden and topsoil are placed. The zone of influence will expand as the pit and placement of overburden and topsoil expand. The zone of influence on vegetation can extend outside the current mining right area if alien/invader plants migrate from the mine to the surrounding farms.

### 3.3.7 Animal life

The zone of influence with regards to fauna will be limited to the mining area and will not extend outside the mining area during the life of mine. The end land-use has been identified as farm land or any other of use at the time.

### 3.3.8 Surface water

Siltation of surrounding areas can occur when soil is washed across the boundaries of the mine. The zone of influence on surface water due to siltation can extend outside the current mining right area if dirty water can run-off the mine. Surface water retention will also take place in the open pit areas. It is unclear whether there are any drainage lines or wetlands that could be influenced by the pit and overburden.

### 3.3.9 Groundwater

There is no information on whether the pit will have an influence on the groundwater quality or quantity (except the risk of hydrocarbons, which is negligible) as well as the zone of influence. Blasting could lead to the contamination from nitrates. The zone of influence will depend on groundwater modelling.

### 3.3.10 Air quality

The mining activities as well as driving on dirt roads will impact on air quality. The zone of influence will include these areas. The extent due to wind and other air quality modelling is unknown.

### 3.3.11 Environmental noise

The generation of noise from the mining and mining related activities may disturb surrounding landowners, communities and frighten animal life which extends the zone of influences beyond the boundaries of the mine.

### 3.3.12 Visual aspects

The pit, overburden and topsoil stockpiles will be visible around the site.

### 3.3.13 Cultural and heritage resources

According to the heritage study, there are no heritage resources on site. The zone of influence on any potential resources are restricted to the pit itself as well as the areas where overburden and topsoil are placed. The zone of influence will expand as the pit and placement of overburden and topsoil expand.

### 3.3.14 Sensitive features

No such features were identified in the EMP. It is unknown whether there are any sensitive features.

### 3.3.15 Regional socio-economic aspects

The zone of influence from a social economic point of view can extend further than the boundaries of the mine.

# SECTION 4: ANNUAL REHABILITATION PLAN

## 4.1 Proposed final post-mining land use

The land will be returned to farm land or utilized for other purposes that may become viable in the time of operation. The entire portion 4 will be rehabilitated to this end land use; therefore, no additional map is included.

## 4.2 Results of monitoring of risks identified in the annual rehabilitation, decommissioning and mine closure plan with a view to informing rehabilitation and remediation activities

Refer to the Environmental Risk Assessment Report, attached as **Addendum 1** for a complete description of all the risks identified in the final rehabilitation, decommissioning and mine closure plan with a view to informing rehabilitation and remediation activities. This is the first rehabilitation plan; therefore, no monitoring of rehabilitation has yet been done.

## 4.3 An identification of shortcomings experienced in the preceding 12 months

This is the first annual rehabilitation plan to be submitted. There are therefore no shortcomings yet to be documented.

## 4.4 Details of the planned annual rehabilitation and remediation activities or measures for the forthcoming 12 months, including those which will address the shortcomings contemplated in Section 4.2 above or which were identified from monitoring in the preceding 12 months


Figure 3: GoogleEarth image indicating area of disturbance

Table 6: Pit development with berm, placement of overburden and topsoil stockpile

| Description | Comment |
|---|---|
| Nature or type of activity and associated infrastructure. | Pit development with berm, placement of overburden and topsoil stockpile |
| Planned remaining life of activity under consideration. | Until June 2023 |
| Surface area of already disturbed area. | Only a small portion has been stripped to remove flint clay. This area falls within the mining plan and within the previously impacted area as described in the EMP. The boundaries have been surveyed and are not pegged out as this is not deemed necessary. The pit area is 1,690m², overburden area is 424m² and the topsoil berm around the pit is 229m², therefore a total area of 2,343m² has been disturbed.<br><br>Refer to Figure 3 above for a GoogleEarth image of this area. |
| Planned-to-be-disturbed area. | The entire area is 91.5ha. |
| Area already disturbed in percentage of planned-to-be-disturbed area, available for concurrent rehabilitation and remediation activities. | 0.26% disturbed or area. 0% currently available for rehabilitation. |
| Notes to indicate why total available or planned to be available area differs from area already disturbed or planned to be disturbed. | Backfilling as part of rehabilitation can only commence once the next block is removed for mining. This will only be next year. |
| Notes to indicate why concurrent rehabilitation will not be undertaken on the full available or planned to be available area. | As above. |
| Details of rehabilitation activity planned on this area for the period of review. | Once the next block of mining is removed, the first block will be backfilled using roll-over method. This area will then be sloped to a safe angle and levelled. The topsoil from the berm will be replaced onto the backfilled area. Natural revegetation must be done. All alien vegetation must be removed. Adequate stormwater control to be in place. |
| The pertinent closure objectives and performance targets that will be addressed in the forthcoming year, which objectives and targets are aligned to the final rehabilitation, decommissioning and mine closure plan. | Key closure objectives are necessary for mine closure, to guide the project design, development and management of environmental impacts. The closure objectives of the EMP were combined to into the following key closure objectives:<br>• To ensure sloping reflects the natural topography which will ensure natural surface run-off and free drainage of the area. |

| Description | Comment |
|---|---|
| | • To re-introduce fertile topsoil onto the disturbed areas and prevent or remedy any signs of erosion.<br>• To introduce natural, indigenous vegetation; which will support the return of animal life and remove any alien/invader plant.<br>• To ultimately return the land to the preferred, sustainable, end land use. |
| Description of the relevant closure design criteria adopted in the annual rehabilitation and remediation activities | Areas where progressive rehabilitation and vegetation has not been totally successful must be identified. |
| Expected final land use once all rehabilitation and remediation activities are complete for the activity or aspect | The land will be returned to farm land or utilized for other purposes that may become viable in the time of operation. |

### 4.5 A review of the previous year's annual rehabilitation and remediation activities, indicating a comparison between activities planned in the previous year's annual rehabilitation and remediation plan and actual rehabilitation and remediation implemented

This is the first annual rehabilitation report; therefore, no review is available of the previous year's annual rehabilitation and remediation activities.

### 4.6 Details of the timeframes of implementation of the current, and review of the previous rehabilitation activities

There are no previous rehabilitation activities. All backfilling and subsequent rehabilitation to only commence in 2019.

# SECTION 5: POST REHABILITATION ACTIVITIES

## 5.1 Monitoring plan

Monitoring of any rehabilitation is necessary to ensure that the integrity and performance of the rehabilitation method are still in line with the original objectives and purposes of the method. It is very important that monitoring takes place continuously throughout and after rehabilitation. The main goals behind a monitoring program are (van Deventer, 2009):

1. To meet legal requirements. In the EMP, a description of methods to be followed to monitor compliance of the approved rehabilitation plan is included. Closure application should also be substantiated with adequate monitoring data. Closure objectives must be specified upfront and accepted by all parties. Objectives must be prescribed for at least the following:
    - Topographical reshaping;
    - Erosion (surface stability);
    - Vegetation cover (species diversity, abundance); and
    - Alien control.

2. Evaluating mine residue and vegetation quality. Dynamic assessment requires a monitoring system to provide a regular surveillance of mine residue and vegetation quality attributes or indicators.
3. Land management. The annual results of the monitoring program will determine the actions to be taken for the following year to ensure the site is improving in the direction of the stipulated end result.
4. Improving our understanding of new ecosystems. For the new ecosystem, the biological productivity, stocks and exchange of nutrients, and the regulation of other ecological processes need to be characterized, quantified, and modelled.

Refer below for the parameters of monitoring. This includes an explanation of the approach that will be taken to analyse monitoring results and how these results will be used to inform adaptive or corrective management and/or risk reduction activities.

Table 7: Monitoring plans

| | |
|---|---|
| **Topographical reshaping** | |
| Parameters to be monitored | After reshaping the resultant topography must be surveyed to determine the degree to which the final topography meets planned objectives, particularly in terms of surface drainage and in terms of slope required to meet land capability objectives. |
| Frequency of monitoring | Once-off. |
| Period of monitoring | After reshaping. |
| Responsible person | Mine surveyor |
| Explanation of the approach that will be taken to address and close out audit results and schedule | Deviations from plan must be documented, and the final reshaped surface should be signed off by the responsible person prior to the replacement of topsoil. |
| **Erosion (surface stability)** | |
| Parameters to be monitored | The primary objective of closure of any sloped area is to create a rehabilitated surface and topography that has the capacity to be stabilised under all environmental conditions e.g. severe rain events, veld fires, droughts etc. Erosion status of the rehabilitated land should be monitored and zones with excessive erosion should be identified for remedial action. Erosion can be quantified by insertion of marked stakes into the rehabilitated profile and recording the rate at which the stakes are uncovered. However, the norm is simply the recording of the existence of erosion in a particular location. Key objectives to improve surface stability are;<br>• Minimisation of surface erosion (wind and water)<br>• Establishment of a plant community that is self-sustaining or any other cover material which comply to surface stability<br><br>Achievement of these objectives should be demonstrated by monitoring of the rehabilitated areas. The key objective of surface stability monitoring lies in being able to demonstrate in a quantified manner the stability of surface rehabilitation works. The monitoring programme should be developed such that loss of soil can be quantified and the stability of the vegetated areas be assessed. |
| Frequency of monitoring | Monthly |
| Period of monitoring | From start until five years after rehabilitation |
| Responsible person | Mine manager |
| Explanation of the approach that will be taken to address | It is much simpler, and cheaper, to treat this type of erosion in the early stages of formation than to try repair the damage once a deep gulley has formed. Small ruts that are just starting to open up can be easily controlled by filling them with brush, straw, manure or even stones. |

| | |
|---|---|
| and close out audit results and schedule | Treatments should be concentrated in areas of clearly active soil erosion, rather than relatively stable (vegetated) gulleys).<br><br>An extremely important principle with any soil erosion control method is that when natural materials are gathered for use in control structures, care must be taken to ensure that the removal (for example, of stones) does not become the cause of a new erosion problem at the source of the material. Stones, for example, should only be collected along roads, where they are displaced during road-making, or from piles of stones cleared off irrigation lands. Similarly, natural vegetation should not be destroyed by vehicles collecting or delivering materials for gulley control.<br>(http://www.ostrichsa.co.za/downloads/bio_diversity/rehabilitation.pdf) |
| **Natural revegetation** | |
| Parameters to be monitored | Vegetation establishment on new ecosystems or on disturbed systems should yield a self-sustaining community that is dynamic and able to change as the rehabilitated site ages and matures. The success of re-established plant community must be demonstrated through appropriate monitoring. The monitoring program must quantify the established plant community in terms of:<br><br>1. Species abundance (diversity)<br>a. Improvement on contact cover<br>b. Canopy cover<br>c. Rooting depth<br>d. Reproductive performance - Sexual reproduction<br><br>2. Asexual reproduction<br>a. Microbial activity and biomass<br>b. Frequency – once a year<br>c. Remarks<br><br>The vegetation-monitoring programme must be developed for each case of implementation, without compromising the integrity of data gathered. |

| | |
|---|---|
| | The rehabilitation of grass species will potentially take place over 5 years depending on the progress of the rehabilitation plan. After this initial monitoring, a less comprehensive monitoring will be done. |
| Frequency of monitoring | Quarterly |
| Period of monitoring | From start until five years after rehabilitation |
| Responsible person | Mine manager |
| Explanation of the approach that will be taken to address and close out audit results and schedule | If natural revegetation is not adequate, the mine must obtain advise on revegetation . |
| **Alien vegetation** | |
| Parameters to be monitored | It is important to note that throughout all the monitoring phases, alien vegetation should be noted.<br><br>It is the objective to eradicate all alien plants during the control programme; however, it is very likely that alien vegetation will re-occur after such initial control. To combat this, an Alien Invasive Vegetation Control Programme is set out. There are five steps to this control programme. They are as follows: Please note, this alien vegetation monitoring must also be done after concurrent rehabilitation and the re-vegetation and removal of plants during concurrent rehabilitation has taken place.<br><br>**Step 1: Information gathering**<br>This first step is done to create a map, indicating the different infestation areas on the site. The following should be done to create such a map:<br>1. Alien plant infestations should be divided into control areas. To do this, natural or man-made barriers can be used. These barriers include roads, rivers and fences. These barrier areas should be numbered for record purposes.<br>2. A detailed alien plant survey should be done in each area. The following should be recorded –<br>• All alien plant species present and their growth habit (shrubs, trees, coppice, saplings, seedlings),<br>• Percent density of each alien plant species (75-100% is very dense, 50-75% is dense, 25-50% is medium dense, 5-25% is sparse and 0-5% is scattered),<br>• The terrain.<br>3. Rank the areas into high, medium and low priority areas. This depends on the biodiversity, water yield and carrying capacity. |

| | |
|---|---|
| | 4. Identify suitable grass species for establishment and availability, per land use aims.<br>5. Place all above information on a 1:1 000 maps.<br><br>**Step 2: Planning**<br>This step is to establish integrated control strategies in each control (barrier) area as identified in Step 1. The following should be done:<br>1. List the required resources for each high priority control area (e.g. labour, herbicides, and equipment) and the current management practices on the property.<br>2. Evaluated and select appropriate control methods, using registered herbicides.<br>3. Calculate the costs for the high priority control areas.<br>4. Secure a long-term commitment to rehabilitation.<br><br>**Step 3: Management**<br>1. Draw up an Annual Plan of Operations (APO) for high priority control areas. This plan must be updated each year. It includes a budget for the required resources for control strategies during the first year. This determines the scale of work.<br>a. 75% for follow-up work and rehabilitation of previously cleared areas'<br>b. 20% for initial control of new area' and<br>c. 5% for an emergency.<br>2. Establish an emergency fund to cope with catastrophes such as mass seeding generation, fire, flood, etc.<br>3. Allocate resources to high priority control areas.<br>4. Draw up timetables for control operations, including a "catch-up" for in case operations fall behind.<br>5. The plan must be flexible and adjusted as progress is made.<br><br>**Step 4: Implementation**<br>Train the labourers in correct control and grass planting methods.<br><br>**Step 5: Record keeping**<br>1. Keep simple records of daily operations, e.g. record of labour days, herbicide used and volumes and equipment used.<br>2. Monitor progress with the control work (after the first year) by recording information on maps.<br>3. The information from these records must be fed back into the budget to update and amend the APO for the following year. |

| | |
|---|---|
| Frequency of monitoring | Quarterly |
| Period of monitoring | From start until five years after rehabilitation |
| Responsible person | Mine manager |
| Explanation of the approach that will be taken to address and close out audit results and schedule | Any alien vegetation that occurs must be removed. |
| **Topographical reshaping** | |
| Parameters to be monitored | The area should be surveyed for soil pollution. |
| Frequency of monitoring | Quarterly |
| Period of monitoring | From start until after rehabilitation. |
| Responsible person | Mine manager |
| Explanation of the approach that will be taken to address and close out audit results and schedule | Any signs of pollution must be removed as hazardous waste or bioremediated. |

## 5.2 Internal, external and legislated audits of the monitoring plan

The monitoring plan will be audited to ensure effective implementation.

### 5.2.1 Person responsible for undertaking the audit

Mine Manager for internal audits and consultant for external audits. The external audit will form part of the annual rehabilitation.

### 5.2.2 Planned date of audit and frequency of audit

Annually.

### 5.2.3 An explanation of the approach that will be taken to address and close out audit results and schedule

Refer to the monitoring plan in section 5.1 for approach that will be taken to address and close out audit results and schedule.

### 5.2.4 Disclosure of updates of the plan to stakeholders

The audit report will be sent to DMR and Department of Water and Sanitation (DWS) once finalised, therefore on an annual basis.

# SECTION 6: ANNUAL UPDATED FINANCIAL PROVISION

This section is the annual updated financial provision for Blesbokfontein Mine. This section includes

i. an explanation of the closure cost and methodology,
ii. auditable calculations of costs per activity or infrastructure,
iii. cost assumptions;
iv. and monitoring and maintenance costs likely to be incurred both during the period of the annual rehabilitation plan and those that will extend past the period of the final rehabilitation, decommissioning and mine closure plan, on condition that the monitoring and maintenance costs included in previous annual rehabilitation plans must be accumulated into subsequent versions of the annual rehabilitation plan until such time as the monitoring and maintenance obligation is discharged

## 6.1 Financial provision methodology

The following is extracted from the Annesley Andalusite Mine Closure Liability Update (Shangoni Management Services, 2016):

The CES Group was contracted by Shangoni to acquire rates for demolition and rehabilitation of mining activities. Procurement of budget pricing approached by identifying reputable demolition companies, various sites of varying sizes at various locations and identifying local companies in the study area with the ability to work on similar scale project. A bill of quantities (BoQ) was distributed to the various

companies. The table below indicates the number of contractors to which the BoQ was distributed and the number of tenders received afterwards.

Table 8: Results of rate acquisition process

| Area | Number of contractors identified | Tenders received |
|---|---|---|
| National | 6 | 1 |
| North West | 6 | 3 |
| Free State | 5 | 1 |
| Northern Cape | 7 | 2 |
| Limpopo | 5 | 3 (One joint venture with national based company) |
| Total | 29 | 10 |

The prices received from contractors were reviewed by the CES Group, after which average and meridian rates were drawn rates to correctly establish a baseline rate. The following methods to establish the baseline rates were followed:

- Price A - Average if priced – across the board average of rates received per category;
- Price B - Median pricing – “middle” rate of all rates in series per category;
- Price C - Average between Price A & B;
- Price D - Average rate excluding top and bottom rates per category.
- Price D - rate category that was used in the closure cost calculation, unless otherwise indicated in the closure cost spreadsheet “Rate” sheet.

The closure budget consists of the following areas:

- Physical - Demolition of infrastructure where infrastructure does not form part of end land use. Potential to transfer to third party was identified.
- Biophysical - Actions to safeguard (making safe and stable) and re-establish the biophysical to ensure a sustainable landform and mitigate identified risks. This includes levelling of the dumps, seeding of the trees and grass.

## 6.2 Auditable calculations of financial provision per activity or infrastructure

The monitoring and maintenance costs likely to be incurred both during the period of the annual rehabilitation plan and those that will extend past the period of the final rehabilitation, decommissioning and mine closure plan, on condition that the monitoring and maintenance costs included in previous annual rehabilitation plans must be accumulated into subsequent versions of the annual rehabilitation plan until such time as the monitoring and maintenance obligation is discharged are included in the table below.

Table 9: Tariffs used for quantum determination

| Rehabilitation and Demolition | Unit | Rates |
|---|---|---|
| Earthworks, break-up and level* | $m^3$ | R 40.01 |

| Rehabilitation and Demolition | Unit | Rates |
|---|---|---|
| Traditional seeding | m² | R 3.36 |
| Backfilling of open pit | m³ | R 8.09 |
| Sloping | m³ | R8.89 |

## 6.3 Financial provision estimation

The following table contains a summary of the calculations made for the closure cost.

Table 10: Summary of the closure cost calculation of actual disturbance

| Item | Size (m / m² / m³) | Rate | Final cost | Comment |
|---|---|---|---|---|
| **Physical** | | | | |
| Backfilling open pit with overburden | 1 183.50 | R8.09 | R9 574.52 | Surveyor calculations |
| Backfilling open pit with soil (berm) | 540.30 | R8.09 | R4 371.03 | Surveyor calculations |
| Sloping | 1 690.00 | R8.89 | R15 024.10 | Assume to 1m depth on pit |
| **Vegetation** | | | | |
| Seeding | 2 343.00 | R3.36 | R7 872.48 | |
| Removal of alien vegetation | | | R30 000.00 | Estimate |
| **Monitoring** | | | | |
| All monitoring | | R0.00 | R0.00 | Monitoring costs form part of operational environmental costs. |
| Sub-total | | | R66 842.12 | |
| P&G (13.5%) | | | R9 023.69 | |
| Contingency (10%) | | | R6 684.21 | |
| **Total** | | | **R82 550.02** | |

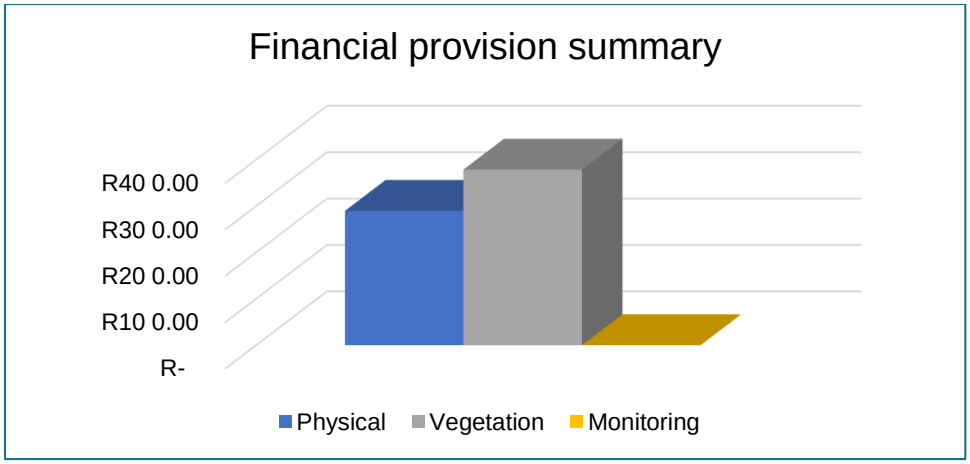


Figure 4: Financial provision summary

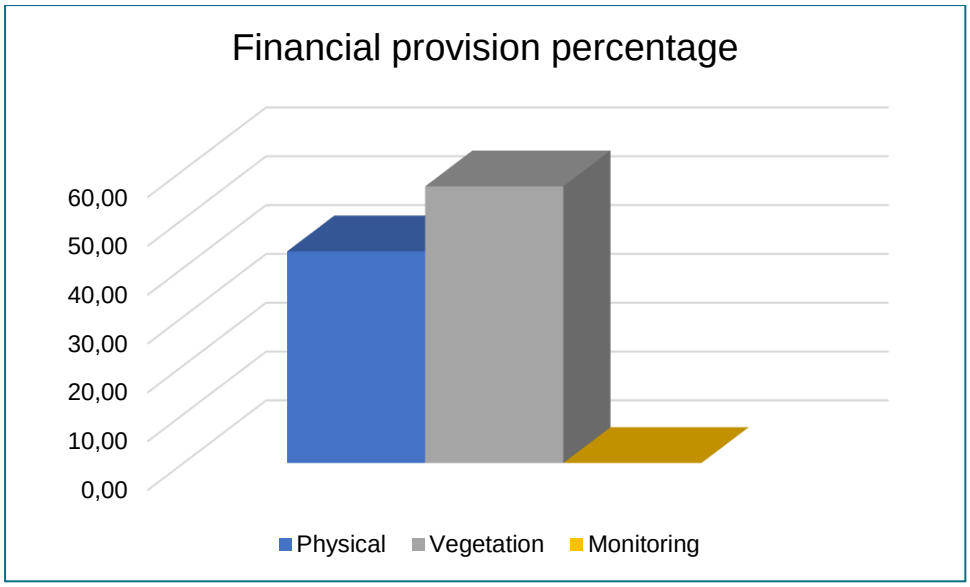


Figure 5: Percentage of financial provision

### 6.4 Financial provision assumptions

- Roll-over mining is part of operational costs.
- Surveyor calculations of overburden and topsoil.
- Sloping is assumed to a depth of 1m.
- Monitoring is part of operational environmental costs.

## SECTION 7: CONCLUSION AND GAP ANALYSIS

The objective of the annual rehabilitation plan will be ensuring the post-closure land capability goals are achieved, in accordance with the overall closure objectives. The monitoring programme was designed to collect information to demonstrate the criteria that was used. This report is the first annual rehabilitation plan compiled and an explanation of motivations for any amendments made to the final rehabilitation, decommissioning and mine closure plan, given the monitoring results in the previous auditing period and the identification of gaps will only become applicable in subsequent updates.

## REFERENCES

Shangoni Management Services, 2010: Environmental Management Programme

BECS Environmental, 2017: Environmental Management Programme: Performance Assessment

Regulations Pertaining to the Financial Provision for Prospecting, Exploration, Mining or Production, GN 1147 of 2015

Minerals and Petroleum Resources Development Act (Act 28 of 2002 as amended)

Minerals and Petroleum Resources Development Regulations, GN 527 of 2004 (as amended)

National Environmental Management Act No 107 of 1998 (as amended)