Attention: Provincial Head: Gauteng
Dear Sir / Madam

EZULWINI MINING COMPANY (PTY) LTD: COOKE 4 OPERATION
WATER USE LICENCE NUMBER 08/C23D/ABEFGJ/2836: APPLICATION FOR AMENDMENT

1. BACKGROUND

Sibanye Gold Ltd’s: Ezulwini Mining Company (Pty) Ltd (EMC) (also known as Cooke 4) is a gold and uranium mine, located to the south east of Westonaria in the Gauteng Province. The EMC operation is an underground mine with separate tabular ore bodies, approximately 400 m apart. The Upper Elsburg ore body, where most of the mining has taken place to date, is a gold only deposit. The Middle Elsburg ore body is a gold and uranium deposit and is relatively unexploited.

Mining activities commenced in the 1960’s under the control of the Western Areas Gold Mining Company Limited, referred to as North Shaft. The mine was subsequently acquired by the Randfontein Estates Gold Mining Company. Harmony Gold Mining Company Limited acquired Randfontein Estates Gold Mining Company in January 2000. In April 2001 Harmony gave notification in terms of the sale agreement between Randfontein Estates and Western Areas Gold Mining Company for the cessation of mining and pumping activities at Ezulwini. Normal operations were stopped in July 2001. The shaft was put on care and maintenance, allowing for pumping purposes only. Simmer and Jack Mines Limited acquired the operation from Harmony in 2005. First Uranium acquired the operation in 2006, changing the company name to Ezulwini Mining Company (Pty) Ltd (EMC). In 2013, Cooke 4 Shaft (Ezulwini) was acquired by Sibanye Gold Ltd.

Gold mining along the West Wits line has always been characterised by significant groundwater inflows into the mine workings. Although the mining industry developed innovative methods of sealing the fissure water, it still could not prevent large quantities of water entering the workings. EMC is no exception and has been plagued by the inflow of extraneous water into the underground workings for most of its operational life. The Ezulwini shaft and underground mining operations are overlain by the Chuniespoort dolomite formations. These formations are known for their large groundwater storage capabilities and the majority of water that flows into the mine is derived from the dolomite aquifer.

Initially water was pumped from the Ezulwini workings and recharged back into the dolomite aquifer that overlies the mine. In 1986 a permit was obtained to dewater the Gemsbokfontein West Dolomitic Compartment (Gemsbokfontein West Sub compartment). Water pumped from the mine was then discharged into the Leuspruit and Kleinwes
Rietspruit via the Peter Wright Dam, which flows to the Vaal River. It is estimated that the pre-mining dolomite water volume in the Gemsbokfontein West sub-compartment was 1.1 M Megalitres (Mℓ). Based on the historical pumping records an estimated 0.30M Mℓ was effectively abstracted from the aquifer since 1986 (this volume is the difference between the actual pumping volumes and the estimated natural recharge volume). The aquifer is therefore only 29% dewatered and to achieve complete dewatering will take approximately 65 – 70 years at the current pumping rate of approximately 68 Megalitres per day (Mℓ/day).

The current dewatering programme, or even an accelerated dewatering programme, is not economically nor environmentally beneficial. Continued pumping of underground water from the workings has contributed to financial losses to Sibanye Gold at an average monthly cost of approximately R 13 million per month and with losses amounting to R 350 million for the period of January 2015 to March 2016 alone, and in circumstances where mining is no longer profitable in any event.

EMC therefore intends to cease pumping and close the underground mining activities of Ezulwini. This has some implications for the Water Use Licence of the mine. The result of the terminations of the underground workings and the cessation of pumping water from underground (approximately 68 Mℓ/day) is that the water levels in the mine workings and above dolomitic compartment will recover over time. After approximately 7 years, it is expected that the Gemsbokfontein Eye, located to the north of Ezulwini on the banks of the Wonderfonteinspruit will start to flow again (Figure 2-1). The water discharging from the eye will be piped via the existing pipeline skirting the Wonderfonteinspruit.

A portion of the Wonderfontein catchment as well as releases from Donaldson Dam currently drain towards the Eye via an existing 750 mm diameter pipeline where after it discharges into an existing 1 m pipeline at the Eye. Due to the catchment of the Wonderfonteinspruit lying in a largely dolomitic area, the risk of sinkhole formation is high. Therefore, the purpose of the pipeline, which was constructed in the early nineteen seventies, is twofold. This includes:

- To try and minimise the risk of sinkhole formation in the area by piping the water across rather than letting it flow in the natural watercourse; and
- To reduce the ingress of water into the mine workings underlying the Venterspost and Bank compartments.

Runoff water from the catchment downstream of Donaldson Dam, as well as water that cannot be accommodated in the 1 m pipeline (when its flow capacity is exceeded) overflows into the dam at the Eye area where it is temporarily stored, before feeding into the 1 m pipeline as capacity becomes available. The design capacity of the 1 m pipeline is 120 Mℓ/day. However, it is estimated that the current capacity is not more than 100 Mℓ/day. However, once water is abstracted from Cooke 1 and Kloof 10 for the WRTRP operations it is expected that flow to Donaldson Dam will reduce by approximately 39 Mℓ/day, which will reduce the water volume flowing to the pipeline. This however is uncertain, due to the timeframes associated with water flowing at the Eye and the external influences on the flow in the Wonderfonteinspruit which are dynamic and will change with time.

2. LOCATION

The site is located in three quaternary catchments (C23D, C22H and C22J) in the Upper Vaal Water Management Area (WMA 8), on a natural surface divide referred to as the Gatsrand. The WMA is located upstream of the confluence of the Vaal and Mooli rivers, and extends to the headwaters of the Vaal, Klip, Wilge and Liebenbergsvlei rivers. The northern part of the Ezulwini (Cooke 4) Operation, which lies in catchment C23D, drains into the

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1 Sibanye Gold, email correspondence, November 2016.
Wonderfonteinspruit. The south-east and south-west regions of the site, which lie in catchments C22J and C22H, are drained by a tributary of the Leeuspruit and a tributary of the Rietspruit, respectively.

General drainage from the site flows in a south-eastern direction into the Kleinwes Rietspruit and Leeuspruit and ultimately into the Vaal River. Both these streams join the Rietspruit before discharging into the Vaal Barrage (Figure 2-3 and Figure 2-3).
Figure 2-1: Regional location of the Ezulwini Operations and the Wonderfonteinspruit.
Figure 2-2: Locality Plan.
Figure 2-3: Hydrological Setting.
3. **LEGISLATIVE CONTEXT**

Part 9 of the National Water Act (NWA, Act 36 of 1998) addresses the review and renewal of licences, as well as the amendment and substitution of licence conditions.

In terms of section 50(1)(a), a responsible authority may amend or substitute a licence condition, if the licensee or successor in title has consented to, or requested the amendment or substitution. Furthermore, section 50(3) states that a responsible authority may only amend or substitute a licence condition under this section if it is satisfied that:

(a) the amendment or substitution will not have a significant detrimental impact on the water resource; and
(b) the interests of any other person are not adversely affected, unless that person has consented thereto.

The process for applying for the amendment of licence conditions is set out in section 52 as follows:

(1) A licensee may, before the expiry date of a licence, apply to the responsible authority for the renewal or amendment of the licence.
(2) Unless an application for the renewal or amendment of a licence is made in terms of section 50, it must
   (a) be made in such form, contain such information and be accompanied by such processing fee as may be determined by the responsible authority; and
   (b) be dealt with according to the procedure as set out in section 41.
(3) In considering an application to amend or renew a licence, the responsible authority must have regard to the same matters which it was required to consider when deciding the initial application for that licence.
(4) A responsible authority may amend any condition of a licence by agreement with the licensee.

This application for amendment is made in terms of Section 50 and 52 of the NWA.

4. **SCOPE OF PROJECT**

Jones & Wagener (Pty) Ltd Engineering & Environmental Consultants (J&W) was appointed to undertake the following assessments related to the proposed cessation of pumping and partial closure of the underground workings at EMC:

- Surface water impact assessment to quantify the expected changes in surface water flow quantities in the Kleinwes Rietspruit, Leeuspruit and Wonderfonteinspruit due to the termination of pumping; assess the floodline of the Kleinwes Rietspruit between the Peter Wright Dam and the gravel road, 700 m downstream of the Peter Wright Dam and to quantify the expected change in surface water quality in the Kleinwes Rietspruit, Leeuspruit and Wonderfonteinspruit due to the termination of pumping.
- Geohydrological and geotechnical assessment to determine the water flow mechanisms and aquifer dynamics in the region, after pumping has stopped (including occurrence of groundwater in the study area and the interaction with the surface water; the extent of the underground mines and the geomorphology of the mine workings; and the interaction with the overlying aquifer/s and the groundwater ingress mechanisms into the mine workings);
• Assessment of the risk of ground instability (subsidence and sinkhole formation) during the re-watering of the partially dewatered dolomite aquifer;

• Socio-economic assessment and the identification of the potential major socio-economic impacts of the closure of the underground workings of EMC on the surrounding, affected local areas (including establishing the potential local socio-economic impacts and risks due to the mine closure as well as identification of potential mitigation measures to reduce the socio-economic risks related to the closure of the underground workings).

• Wetland impact assessment; and an ecological statement on the potential impact of the underground mine closure on the sensitive ecosystems downstream that will no longer be receiving the large volumes of water pumped from underground, and the sensitive ecosystems into which the decant will eventually flow.

• Basic Assessment process in terms of the Environmental Impact Assessment (EIA) regulations, GNR 982, promulgated in terms of the National Environmental Management Act (NEMA, 107 of 1998); and

• Notification to the DWS for the proposed Water Use Licence Application Amendment (WULAA) in terms of the National Water Act (NWA, 36 of 1998).

5. PURPOSE

5.1 Purpose of the document

This document serves as a formal application to the Department of Water and Sanitation (DWS) for the removal of certain water uses from the water use licence number 08/C23D/ABEFGJ/2836 due to the cessation of pumping of underground water to surface. A copy of the licence is attached in Appendix A for ease of reference.

5.2 Amendments requested

The amendments required are indicated in Table 5-1 overleaf. Proposed water uses to be removed are listed. A short motivation is provided for each amendment requested.

In the assessment, cognisance was taken of what was included in the Integrated Water Use Licence Application (IWULA) report, water use registration forms, design report, additional information submitted to the DWS, as well as the Basic Assessment process currently being undertaken by J&W for the cessation of pumping and the resultant closure of the underground workings.
### Table 5-1: Water uses to be removed from the WUL.

<table>
<thead>
<tr>
<th>No.</th>
<th>Appendix</th>
<th>Section</th>
<th>Description / Title</th>
<th>Amendment proposed</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>II</td>
<td>Use of water from underground shaft (dewatering) for underground mining</td>
<td>Removal from WUL</td>
<td>Underground mining at Ezulwini is no longer viable and therefore mining at the complex will cease. Since mining is no longer required there is no need to continue pumping.</td>
</tr>
<tr>
<td>2</td>
<td>II</td>
<td>Section 21 (a)</td>
<td>Use of water from underground shaft (dewatering) for use in the metallurgical plant for processing</td>
<td>Removal from WUL</td>
<td>Since pumping will cease, there will no longer be water available from underground. Water used in the metallurgical plant for processing will be sourced from Rand Water.</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>Use of water from underground shaft (dewatering) for use in workshops</td>
<td>Removal from WUL</td>
<td>Since pumping will cease, there will no longer be water available from underground. No water will be required for the workshops.</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td>Use of water from underground shaft (dewatering) for domestic use</td>
<td>Removal from WUL</td>
<td>Since pumping will cease, there will no longer be water available from underground. Water required for domestic use will be sourced from other approved water sources.</td>
</tr>
<tr>
<td>5</td>
<td>III</td>
<td>Section 21 (b)</td>
<td>Storage of fissure water from underground shaft (dewatering) and into Peter Wright Dam (Instream dam of Kleinwes Rietspuit River)</td>
<td>Removal from WUL</td>
<td>Since pumping will cease, no water will be sent to the Peter Wright Dam from underground.</td>
</tr>
<tr>
<td>6</td>
<td>IV</td>
<td>Section 21 (e)</td>
<td>Recharge of excess water into the Gemsbokfontein East dolomitic compartment pumped from Gemsbokfontein West dolomitic compartment</td>
<td>Removal from WUL</td>
<td>Since pumping will cease there will be no excess water to recharge the Gemsbokfontein East dolomitic compartment. The Gemsbokfontein West dolomitic compartment will naturally fill with water over time.</td>
</tr>
<tr>
<td>7</td>
<td>V</td>
<td>Section 21 (f)</td>
<td>Discharging of fissure water from Dewatering into the</td>
<td>Removal from WUL</td>
<td>Since pumping will cease no fissure water will be discharged to surface</td>
</tr>
<tr>
<td>No.</td>
<td>Appendix</td>
<td>Section</td>
<td>Description / Title</td>
<td>Amendment proposed</td>
<td>Comments</td>
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</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td>Kleinwes Rietspuit through a concrete canal</td>
<td></td>
<td>Since pumping will cease no fissure water will be discharged to surface</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Discharging of fissure water from dewatering into the Leeuspruit River through a pipe</td>
<td></td>
<td>Since pumping will cease no fissure water will be required to be stored in any facilities on surface</td>
</tr>
<tr>
<td>9</td>
<td>V</td>
<td>Section 21 (g)</td>
<td>Disposal of fissure water from dewatering into Concrete dam</td>
<td></td>
<td>Undergond mining at Ezulwini is no longer viable and therefore mining at the complex will cease. Since mining is no longer required there is no need to continue pumping and therefore the Gemsbokfontein West dolomitic aquifer will be allowed to re-water.</td>
</tr>
<tr>
<td>10</td>
<td>VII</td>
<td>Section 21 (j)</td>
<td>Dewatering underground fissure water from Gemsbokfontein West dolomitic aquifer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5-2: Remaining water uses that should not be removed from the existing WUL.

<table>
<thead>
<tr>
<th>Property</th>
<th>Co-ordinates</th>
<th>Description of water use</th>
<th>Volume</th>
<th>Crop type and area</th>
<th>Licence number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portion 14 of Waterpan 292 IQ</td>
<td>26° 20' 59.5&quot; S 26° 21' 00.1&quot; S 26° 21' 23.2&quot; S 26° 21' 16.7&quot; S</td>
<td>Irrigation of vegetation on the slime dam for rehabilitation</td>
<td>365,000 m³/a</td>
<td>Rehabilitated indigenous grass 110 ha</td>
<td>08/C23D/ABEFGJ/28 36</td>
</tr>
<tr>
<td>Property</td>
<td>Co-ordinates</td>
<td>Description of water use</td>
<td>Capacity of facility</td>
<td>Area of facility</td>
<td>Licence number</td>
</tr>
<tr>
<td>----------</td>
<td>--------------</td>
<td>--------------------------</td>
<td>----------------------</td>
<td>-----------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Portion 27 of Waterpan 292 IQ</td>
<td>26° 21’ 24.6” S 26° 21’ 26.2” S 26° 21’ 33.4” S 26° 22’ 35.0” S</td>
<td>Disposal of dirty water piped from the tailings storage facility into the Attenuation Dam</td>
<td>1,680,825 m³/a 184,750 m³</td>
<td>3 ha</td>
<td>08/C23D/ABEFGJ/2836</td>
</tr>
<tr>
<td>Portion 14 of Waterpan 292 IQ</td>
<td>26° 21’ 13.7” S</td>
<td>Disposal of tailings materials into tailings storage dam</td>
<td>2,407,872 m³/a</td>
<td>176.9 ha</td>
<td>08/C23D/ABEFGJ/2836</td>
</tr>
<tr>
<td>Portion 14, 26 and 27 of Waterpan 292 IQ</td>
<td></td>
<td>Haul roads</td>
<td>Dust suppression on haul roads with water from Pollution Control Dam</td>
<td>216,000 m³/a</td>
<td>2 ha</td>
</tr>
<tr>
<td>Portion 14 of Waterpan 292 IQ</td>
<td>26° 21’ 96.0” S 26° 20’ 96.6” S 26° 21’ 05.3” S 26° 21’ 06.5” S</td>
<td></td>
<td>Disposal of dirty water from the tailings storage facility into Return Water Dam</td>
<td>1,680,825 m³/a 47,533 m³</td>
<td>2 ha</td>
</tr>
<tr>
<td>Portions 3, 4, 9, 13, 14, 24, 25, 26 and 27 of Waterpan 292 IQ</td>
<td>26° 21’ 43.6” S</td>
<td>Backfilling of underground mined area with tailings materials</td>
<td>192,000 m³/a</td>
<td></td>
<td>08/C23D/ABEFGJ/2836</td>
</tr>
</tbody>
</table>
### S21(g) Disposing of waste in a manner which may detrimentally impact on a water resource

<table>
<thead>
<tr>
<th>Property</th>
<th>Co-ordinates</th>
<th>Description of water use</th>
<th>Capacity of facility</th>
<th>Area of facility</th>
<th>Licence number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jachtfontein 344 IQ Remaining extent 41 and 42 Portion 24 Modderfontein 345 IQ</td>
<td>26° 21’ 47.7” S 26° 21’ 47.7” S 26° 21’ 48.1” S 26° 21’ 51.8” S 27° 42’ 13.0” E 27° 42’ 41.9” E 27° 42’ 49.6” E 27° 42’ 48.3” E</td>
<td>Disposal of waste rock dumps</td>
<td>140,324 m³/a</td>
<td>5 ha</td>
<td>08/C23D/ABEFGJ/2836</td>
</tr>
</tbody>
</table>
6. **PRESENT ENVIRONMENTAL SITUATION**

For a description of the present environmental situation please refer to the Basic Assessment Report, attached as Appendix B.

7. **WATER BALANCE**

Figure 7-1 provides a schematic representation of the water movements on and around the site once pumping has ceased. The assumptions pertaining to the water balance are captured in the figure. Water for the above ground operations of the mine will be sourced from Rand Water via an existing pipeline.

![Water Balance Diagram](image)

Figure 7-1: Ezulwini Water Balance (Sibanye Gold, 2016).

8. **SPECIALIST FINDINGS**

The following conclusions are drawn from the various specialist reports compiled. A copy of the specialist reports is attached together with the Basic Assessment Report (Appendix B):
8.1 Surface Water

Based on the assessment of the impacts on surface water from the cessation of pumping from Ezulwini the following conclusions can be made:

- The cessation of pumping will have a very high impact on the surface water quantity in the Kleinwes Rietspruit in terms of the availability of water in the catchment. Due to pumping having taken place for the past 40 years, it is the surface water specialist’s opinion that the system has re-baselined and thus the cessation of pumping will have a negative impact. However, the cessation of pumping can be seen as returning the river system to be more in line with the naturalised streamflow (i.e. prior to the permitted discharge of mine water into these watercourses).

- No impact as a result of the project has been ascribed to the Leeuspruit due to the fact that no water has been discharged into the Leeuspruit by Ezulwini since Sibanye acquired the mine in 2013. The exception to this is discharges to Bambanani Fruits and to South Deep.

- The recovery of the groundwater levels in the Gemsbokfontein dolomite aquifer and the subsequent flow at the Gemsbokfontein Eye will have an impact on the flow regime in the Wonderfonteinspruit. However, the impact is deemed to be of a moderate positive rating with regard to the increase in streamflow. The modelled flow from the will be eye will increase in the order of 13 Mℓ per day.

- In terms of the adequacy of the existing 1 m pipeline to handle additional flows at the Gemsbokfontein Eye, based on the current pipe capacity of 100 Mℓ/day, the pipeline will not be sufficient to handle the additional flows expected at the Gemsbokfontein Eye. Based on this, the impact of the flowing water at the Gemsbokfontein Eye due to the re-watering of the underground workings, has been deemed to have a low negative rating but with a high degree of uncertainty (i.e. Can’t know). The negative rating is due to the potential re-watering of other underground workings, as a result of water flowing in the natural stream rather than in the pipeline. The uncertainty associated with the impact is due to the timeframes associated with water flowing at the Eye and the external influences on the flow in the Wonderfonteinspruit which are dynamic and will change with time.

- The current uranium levels in the Kleinwes Rietspruit and Leeuspruit are an area of concern with regard to surface water quality (Figure 8-1). At the monitoring point Peter Wright Dam (i.e. the discharge location) the average uranium concentration exceeds that of the WUL limit by between 40 and 50 μg/l. In the Wonderfonteinspruit the uranium levels are, in some instances, higher than the acceptable limit, however, the average concentrations are within the WUL limit. Figure 8-2 illustrates the average uranium concentration at all the relevant monitoring points in relation to the specified limits.

- There is clear improvement in the water quality at the monitoring point Peter Wright Dam in the last two years. This is due to the installation of Cold Lime Softening Plant to remove uranium from the water pumped from underground. This plant became operational during the second half of 2015.

- With respect to surface water quality on the Kleinwes Rietspruit, the current water quality in the Kleinwes Rietspruit is generally acceptable, with respect to the constituents that were assessed (excluding the uranium concentration). It is expected that there will be a degradation in the water quality immediately downstream of the Peter Wright Dam, particularly with respect to uranium concentrations. This is due to the artificial wetland downstream of the plant and possible seepage from the adjacent dormant slimes dams, which may impact negatively on the water quality in overflow.
water from the Peter Wright Dam into the Kleinwes Rietspruit, combined with the decreased dilution effect from the underground discharge water.

- In addition, further downstream where water from urban areas is being discharged into the stream, water qualities with respect to *e. coli* may deteriorate due to the significantly reduced dilution from the water currently being discharged from the mine. However, although the impact on surface water quality further downstream on the Kleinwes Rietspruit has a high negative rating, Sibanye cannot be held accountable for the detrimental influences by third parties on water quality downstream of the operations. Therefore the project has been deemed to have a high negative impact with respect to the surface water quality, in terms of concentrations and dilution, in the Kleinwes Rietspruit.

- However, due to the reduction in the salt/metal load discharged into the Kleinwes Rietspruit by Ezulwini the impact of the cessation of pumping by Ezulwini into the Kleinwes Rietspruit has also been assigned a high positive rating with respect to surface water quality.

- Due to the cessation of the discharging of water, by Ezulwini, into the Leeuspruit in 2013, with some exceptions as mentioned above, there will be no impact by the project on the Leeuspruit, with respect to surface water quality.

- With respect to the impact on surface water quality on the Wonderfonteinspruit, due to the reinstatement of the flow from the Gemsbokfontein Eye, it is expected that the fountain water quality will be of a good standard and therefore it is expected to have a positive impact on the water quality of the Wonderfonteinspruit. However, the impact is only deemed to be moderate due to the small volume (approximately 13 Mℓ) of water that will report to the stream, in relation to the current flows in the stream.

- It is the surface water specialist’s opinion that the project should be authorised due to the fact that it will be returning the watercourses system closer to its pre-mining state. In addition, it is not feasible to continue pumping water when no mining or mining related activities are occurring. It is both unsustainable and uneconomical.
Figure 8-1: Location of Surface Water Quality Monitoring Points.
Figure 8-2: Comparison of average uranium concentrations at monitoring points.

8.2 Wetlands

An assessment of the impacts on wetlands from the cessation of pumping from Ezulwini drew conclusions discussed in terms of wetlands and aquatics, water quality and sedimentation monitoring:

8.2.1 Resource Quality Objectives (RQO)

The Resource Quality Objectives (RQO) for the Upper Vaal River catchment were published in the Government Gazette in April 2016. The Ezulwini Mine Closure would impact on two resource units: the Rietspruit catchment, Leeuspruit and Kleinwes Rietspruit are part of this catchment; and the Wonderfonteinspruit (or Mooirivierloop catchment).

- **River Quantity RQOs**: No river quantity RQOs were set for the Kleinwes Rietspruit, Leeuspruit or Wonderfonteinspruit. Therefore the increased water that would be decanted into the spruits will not impact on RQOs for water quantity.

- **Water Quality RQOs**: There are numerous water quality RQOs that have been set. These include three main categories – nutrients, system variables and metal concentrations. The water quality RQOs for the following constituents are as follows:
  - electrical conductivity < 111mS/m.
  - phosphate < 0.125 mg/L (only applicable to Wonderfonteinspruit)
  - nitrates/nitrites < 4 mg/L. (only applicable to Wonderfonteinspruit)
  - fluoride < 3.0 mg/L;
  - aluminium < 150 μg/l;
- arsenic < 130 μg/L;
- cadmium (hard) < 5 μg/L;
- chromium (VI) < 200 μg/L;
- copper (hard) < 8.0 μg/L;
- mercury < 1.7 μg/L;
- manganese < 1300 μg/L;
- lead (hard) < 13.00 μg/L;
- selenium < 30 μg/L;
- zinc < 36 μg/L;
- chlorine < 5.0 μg/L;
- Endosulfan < 0.2 μg/L;
- Atrazine < 100 μg/L;
- E. coli counts < 130 / 100 ml; and (only applicable to Kleinwes Rietspruit and Leeuspruit)
- Uranium (U) is set at < 15 μg/L. (only applicable to Wonderfonteinspruit).

Aquatic Ecology RQOs: The aquatic ecology RQO for the ecosystem components have been set at an Ecological Category of D (> 42) for instream habitat, the macroinvertebrate community and the fish community. The overall ecological categories for the WFS have also been set at a D category.

8.2.2 Kleinwes Rietspruit

8.2.2.1 Impact on Hydrology and Geomorphology
The main impact, when pumping ceases, will be on the hydrology driver of the downstream systems. The flow will be reduced in the dry season by as much as 99% immediately downstream of the dam and up to a 32% reduction 38 km downstream in the dry season for the Kleinwes Rietspruit. The decrease in flow will in all likelihood result in a change in the system from one that has been perennial in nature, with fast flowing water all year around, to a non-perennial system with more wetland characteristics.

The artificial wetland upstream of the Peter Wright Dam is a large contributor of the uranium concentrations and uranium load in the Kleinwes Rietspruit. Once pumping ceases the dilution effect from the water will be removed and the impact will be negative in terms of concentration, but not load. However, Sibanye has made an application to the relevant authorities in 2016 to rehabilitate the aforementioned wetland area and therefore, with mitigation, the impact will not be as severe. In addition the Peter Wright Dam will not be allowed to spill more than 1:50 years, as an additional mitigatory measure.

In terms of wetland loss, this change in hydrology will impact on the extent and wetness regime of the Channelled and Unchannelled valley bottoms, particularly in stretches along the river where the banks are not steep. The presence of permanent wetlands, will likely change to be more seasonal or temporary in nature. The change in hydrology will impact on all of the other wetland drivers: Geomorphology, Ecology and Water Quality. Specifically, any tailings or contaminants present in the watercourses which are currently being held in situ by the Phragmites reed beds may be released further downstream if the wetland vegetation reduces in extent due to a lower water flow. This may lead to increased turbidity, deposition of sediments and release of heavy metals and other particles. The Kleinwes Rietspruit system changing to a non-perennial system as it was initially, can also potentially
impact on aquatic ecology species by favouring those organisms that thrive in slow moving to stagnant water and negatively affecting the invasive species in the watercourses.

8.2.2.2  Impact on Ecology

At the Kleinwes Rietspruit, although the cessation of pumping will potentially affect the ecological category it should not reduce it to below an Ecological Category of D which would be in breach of the Resource Quality Objectives for the catchment. Even though this is potentially unachievable due to the multitude of impacts on the system, it is recommended that reasonable management measures should be employed to minimise any additional impacts.

8.2.2.3  Impact on Water Quality

The artificially enhanced wetland downstream of the plant and upstream of the Peter Wright Dam is a current contributor to the uranium concentrations and uranium load in the Kleinwes Rietspruit. Therefore, once pumping from underground ceases the concentration of uranium in the Peter Wright Dam is expected to increase due to the dilution effect of the underground discharge water being removed. Therefore the impact of the water discharged will change from having a positive impact (dilution effect) to having a negative impact in terms of concentration, but not load. However, as discussed previously Sibanye has made an application to the relevant authorities in 2016 to rehabilitate the aforementioned wetland area and therefore, with mitigation, the impact will not be as severe.

It is expected that the water quality will improve with respect to the sulphate concentrations and therefore TDS. However, downstream anthropogenic impacts, such as discharges from the Ennerdale Waste Water Treatment Works (WWTW), the Sebokeng WWTW and runoff from urban areas, may result in a decrease in water quality as the water will no longer be diluted by the discharge water from EMC.

8.2.3  Leeuspruit

Any impacts on the downstream Leeuspruit, after pumping ceased in 2013, have already likely occurred. The wetlands identified to be the most sensitive within the area of influence are those downstream of the South Deep mine. The sensitivity is due to the wetland dependant Conservation Important faunal species identified utilising this wetland habitat. As with the Kleinwes Rietspruit one of the most significant impacts is the deposition of tailings sediment within the wetlands within the EMC and downstream of the tailings facilities at South Deep. Based on EMC not pumping into the Leeuspruit in recent years this project (i.e. the closure of the underground workings and the cessation of pumping from EMC underground) will have no additional impacts than what has already occurred, on the Leeuspruit. EMC may still impact on the surface water quality due to the contaminated sediment, however this will not be assessed as part of the impact of this project.

8.2.4  Wonderfonteinspruit

8.2.4.1  Predicted Water Quality at the Gemsbokfontein Eye

The Gemsbokfontein Eye is where the water from the underground void will flow after approximately 7 years, with steady state reached in 15 years. This flow will then be piped 32 km westward in the existing pipeline (1 m pipeline) and discharged into a canal system which will then enter a series of dams in the Abe Bailey Nature Reserve. Any water that does not flow into the piped system, due to capacity, has the potential to enter into the Venterpost Compartment through existing sinkholes:

- pH = 6
- EC = 15 mS/m
- TDS = 120 mg/l
• \( \text{SO}_4 = 40 \text{ mg/l} \)
• \( \text{Na} = 20 \text{ mg/l} \)
• \( \text{Ca} = 10 \text{ mg/l} \)
• \( \text{Cl} = 8 \text{ mg/l} \)
• \( \text{Mg} = 7 \text{ mg/l} \)
• \( \text{U} = 0.01 \text{ mg/l} \)

No pre-urbanisation water quality data is available for this area and as such it makes it almost impossible to predict the actual water quality that will be discharged from the eye, i.e., the water quality in the dolomites may be impacted by sewage water, etc.

8.2.4.2 Impact on the Aquatic Ecology

The potential impact of the increased flows within the Wonderfonteinspruit will not have a negative effect on the aquatic communities. As it is already within a largely modified state (EC of D/E), the 14 % increase in water will not reduce the ecological category. However, that will only be the case if the predicted water quality was found to be correct. If the predicted water quality was to be worse than expected, this could then potentially affect the aquatic ecology. The exact impact of this will depend on what the decanted water quality will be. Any negative impacts associated with the increased water quantity will be mitigated by the numerous impoundments within the WFS and the Mooi River further downstream.

8.2.4.3 Impact on Terrestrial Ecology

As discussed above, decant will occur at Gemsbokfontein Eye, which will then be piped 32 km westward and discharges into a canal system, which will then enter a series of dams in the Abe Bailey Nature Reserve. The increase in water volumes into these series of dams is not seen as a major impact on the terrestrial biodiversity. The below imagery (Figure 8-3 and Figure 8-4) shows the change in water levels downstream of the discharge point of over a 10-year period. Water levels have risen but have displaced agricultural or past agricultural areas. The more natural habitat to the north is more elevated and has stayed intact. As the discharge point enters the Abe Bailey Nature reserve it is important that the natural and artificial habitats remain. Even though these large waterbodies are artificially fed by all the upstream inputs, they are important for both resident and migrant avifauna.
Figure 8-3: Water distribution with changes in water inputs.

Figure 8-4: Water distribution with changes within downstream dams.
8.3 Groundwater

The assessment of possible groundwater impacts due to the cessation of pumping from Ezulwini were assessed as follows:

The simulation of the re-watering rates of the mine and aquifer was undertaken through the development of a mine void and groundwater flow model. Model simulations were done from the cessation of pumping until flow of the Gemsbokfontein Eye is restored. The total mined out volume amounts to 29 403 800 m³ or 29 404 Megalitres.

Various activity alternatives with regards to the cessation of pumping were modelled. These included full cessation of pumping; continued partial dolomitic water abstraction by third parties; gradual cessation of pumping from consecutive levels as re-watering occurs; and a combination of continued partial abstraction and gradual cessation of pumping. From an environmental perspective, full cessation of pumping is considered most advantageous since:

- The groundwater level will recover completely and the aquifer of the above-lying dolomitic compartment will recover to pre-mining conditions. This may benefit the groundwater users in the area. This is thought to have the additional benefit of lower potential long-term dolomitic instability than the continuation of pumping or gradual cessation of pumping, due to the earlier recovery of the water table.
- The Wonderfonteinspruit will receive additional dolomitic water, partially recovering to its pre-mining condition.

Re-watering will be controlled by the mine geometry and groundwater inflow volume. With regards to any of the alternatives which include the continued abstraction from the mine void, the aquifer will not recover fully and a small dewatering cone will remain. The Gemsbokfontein Eye will also not flow as much as if pumping were ceased completely, resulting in continued hindrance to the Wonderfonteinspruit flow.

The full cessation of pumping alternative modelling results show that dolomitic water levels in the aquifer will take an estimated 7 years to recover post cessation of pumping, before the Gemsbokfontein Eye starts flowing again. Using the MODFLOW results the long-term average flow at the Gemsbokfontein Eye will be approximately 13 Mℓ/day. The flow will gradually increase over a period of approximately 15 years before steady-state conditions are achieved. The groundwater quality emanating at the Gemsbokfontein Eye after the recovery of the dolomite aquifer has been raised as a concern. There are two potential mining-related sources that can impact on the water quality at the eye. These are:

- Contaminated mine water in the defunct mine workings; and
- Contaminated seepage water from the Ezulwini Tailings Storage Facility (TSF).

In terms of the contaminated mine water it is important to highlight the following points:

- Current water ingress into the mine is derived from the overlying dolomite aquifer, which in turn is recharged mainly by rainfall. The entire driving force or hydraulic gradient is therefore from the surface down towards the mine;
- The dolomite aquifer consists of two layers, an upper weathered zone with high transmissivity and storage capacity and a less permeable lower zone consisting of some fracturing that act as conduits to the mine workings. The weathered zone in reality has a very rugged geomorphology with deep weathered paleo-valleys (gyrkes) and pinnacles. Modelling each gryke is unpractical, but because the groundwater flow and aquifer characteristics within the various gyrkes are similar it is combined into a single layer; and
When the mine void is re-watered, it is our opinion that the contamination will remain in the mine void. The reasons for this argument are twofold.

- In the first place the geographical setting of the mine. After recovery of the dolomite aquifer to the level it was prior to mining, the Gemsbokfontein Eye will start to flow again. The flow rate at the eye will gradually increase from an estimated 4 Mℓ/day to 13 Mℓ/day. This eye is situated at an elevation of 1558 metres above mean sea level (mamsl). Ezulwini shaft collar is at an elevation of 1689 mamsl. That is an elevation difference of 131m. The groundwater level will reach equilibrium at the Gemsbokfontein Eye elevation and decant from the shaft is therefore not possible.

- Due to the head difference and the fact that the Ezulwini shafts (Main and Ventilation shafts) are concrete lined, any contamination that may be present in the shaft barrel will not seep into the natural aquifers.

- The second point to this argument that the mine contamination will remain in the void has to do with the hydraulic gradient. As mentioned before the entire driving force for the water currently entering the mine is downward from surface. This driving force or hydraulic gradient will remain intact even after full recovery of the groundwater table in the dolomite. This force will contain any contamination in the mine void. In addition to this it must be noted that the flow into the mine is controlled by fractures that are less permeable than the weathered dolomite aquifer. It is impossible for water from the void to flow up-gradient along these fractures.

The constant recharge of clean water (rainfall) to the system and the easier flowpath through the weathered dolomite will ensure that the water emanating at the Gemsbokfontein Eye will be unaffected by the contaminated mine water.

The second potential mine-related source is the Ezulwini TSF. The modelling has shown that the impact from the Ezulwini TSF will not reach the Gemsbokfontein Eye.

The groundwater quality at the eye is unlikely to be influenced by any mining source and the groundwater quality is expected to be within recommended limits as the Acid Mine Drainage associated with the re-watered mine will be contained within the workings.

An assessment of the potential water inflow into neighbouring mines, concluded that South Deep may experience an increased flow through the boundary pillar to an estimated 7 Mℓ/day when full hydraulic head is reached. If this flow realises, the re-watering time will increase to 13 years as opposed to the approximately 7 years if no seepage occurs. As per email correspondence with Mr Andre Marais of Gold Fields, South Deep can safely pump 16 Mℓ/day in the current situation, and with the installation of an additional column in the shaft, will be able to pump 38 Mℓ/day.

Cooke 3 mine currently experiences an average daily inflow of 8.50 Mℓ/day. The groundwater level overlying the Cooke 3 workings has dropped approximately 80m. Applying Darcy’s law the groundwater inflow into Cooke 3 can potentially increase to 9.4 Mℓ/day when the dolomite aquifer is fully re-watered.

9. IMPACT ASSESSMENT

For the full impact assessment undertaken as part of the cessation of pumping, please refer to the Basic Assessment Report, attached as Appendix B.
10. MITIGATION AND MONITORING

10.1 Specialist Recommendations

10.1.1 Surface Water

After pumping at Ezulwini ceases the mine should continue to monitor the water quality at the existing monitoring points along the Leeuspruit and Kleinwes Rietspruit to assess the impact of the remaining mine related infrastructure on the surface water regimes associated with the mine. The current water quality monitoring programme has been evaluated and it is recommended that this be continued after pumping stops. This is currently being conducted on a monthly basis and it is recommended that a full chemical suite of variables be analysed at the current frequency. This monitoring should continue for a period of three years after the cessation of pumping, subject to reassessment at the time.

The abstraction of water from the Peter Wright Dam will need to continue, such that the dam does not overtop more than once in 50 years, until such time as the wetland upstream of the dam is rehabilitated and it can be shown that the water quality in the dam is in line with the in-stream water quality objectives. If water is abstracted from the dam at a rate of 2 000 m$^3$/day then the dam would not be expected to spill more than once in fifty years and therefore would comply with the regulations, as stipulated in GNR 704. The effluent from the sewage treatment plant could be diverted around the Peter Wright Dam and subsequently be made to report directly into the Kleinwes Rietspruit, then the required abstraction rate could be reduced to 1 000 m$^3$/day. This is provided the sewage plant effluent is of an adequate quality, in line with in-stream water quality objectives.

At the Gemsbokfontein Eye it is recommended that the location of the surface flow point be monitored and the water quality of the decant water be sampled, together with groundwater monitoring, which includes a number of newly drilled boreholes. These water qualities should be assessed to ensure compliance with the Resource Water Quality Objectives for the catchment and to assess the impact of the decant water on the ground and surface water qualities in the Wonderfonteinspruit catchment. This monitoring should continue for three years after the Eye begins to flow, subject to reassessment at the time. In addition, the flow in the 1 m pipeline should be continuously monitored in relation to its capacity within the context of the associated catchment in which it falls.

10.1.2 Wetlands and Aquatics

- The PES, EIS and ecosystem services of the systems should continue to be monitored annually for a period of three years at select sampling points on the Kleinwes Rietspruit. The monitoring of the Wonderfonteinspruit will need to continue for 3 years after flow at the Gemsbokfontein Eye commences. Sampling points need to be established and assessed prior to pumping ceasing.

- Biomonitoring is currently undertaken along the Leeuspruit East by South Deep, it is recommended that bio-monitoring on this system continues. Biomonitoring has been undertaken by the EMC since 2016 along the Kleinwes Rietspruit (Sibanye Gold, 2016; Sibanye Gold, 2017). NSS recommends that the bi-annual monitoring continues. In addition to the current monitoring measures, NSS recommends that a taxa list of the macroinvertebrates sampled be included in the monitoring reports. The taxa list could provide valuable information on changes after the pumping ceases; and is therefore vital to include in the baseline information for future monitoring reports.

- The current surface water quality monitoring regime should continue, after pumping stops, to evaluate the contribution the discharge water has made to contamination levels and dilution effect as well as to continue monitoring the remaining infrastructure impacts on water quality. At the Gemsbokfontein Eye it is recommended that the location of the decant point be monitored and the water quality of the decant water be
sampled, together with groundwater monitoring. These water qualities should be compared to assess the impact of the decant water on the ground and surface water qualities in the Wonderfonteinspruit catchment.

- Sediment samples are to be taken and assessed. Sediment in the Kleinwes Rietspruit, downstream of the Peter Wright Dam is to be assessed to determine contamination levels. If contaminated, it is important that the existing vegetation is monitored as this vegetation is stabilising the sediment. If the vegetation dies back, alternative mitigation measures may need to be investigated to prevent the sediment from being transported further downstream. Tailings are to be removed and placed on existing tailings facilities. The Uranium level is likely to remain the same or increase due to lack of dilution effect if tailings are not removed. Settling ponds downstream of all contaminated areas are to be installed to prevent contaminated sludge entering the wetland systems. These settling ponds are to be cleaned on a regular basis in order to maintain capacity, with the contaminated material disposed of in an appropriate manner. An application to rehabilitate these wetlands was submitted by Sibanye to the DWS in 2016, however no response has been received to date. An application to rehabilitate these wetlands was submitted by Sibanye to the DWS in 2016, however no response has been received to date.

- The same vegetation monitoring must take place in the Leeuspruit East where it is known that the sediment samples taken by NSS (NSS, 2014) were contaminated and are currently being held in situ by the Phragmites reed beds. Upstream of the Peter Wright Dam, on the Kleinwes Rietspruit, large deposits of tailings are situated within the wetlands.

- Implementation of the rehabilitation plan submitted by Sibanye (2016) for the wetland areas upstream of the Peter Wright Dam. Without the removal of the tailings from these wetlands it is likely that the uranium level will remain the same or increase as the pumped water will no longer create a dilution effect.

- Erosion was present along both the Leeuspruit East and Kleinwes Rietspruit. As the hydrology of the system changes, the vegetation structure and composition is expected to alter. This change in vegetation structure may result in times where vegetation cover is scarce and the system is more prone to erosion. Select photographic sampling points, along both systems should be identified, prior to pumping stopping. Photographs should be taken quarterly, for a period of 3 years. Should evidence of erosion increase the cause should be investigated and mitigation measures implemented if required. Mitigation measures could include seeding or planting of vegetation sods to speed up the vegetation succession, or if more severe the use of gabion structures could be investigated.

10.1.3 Groundwater

To our knowledge, re-watering of a dolomitic groundwater compartment has not happened anywhere in South Africa before and due to the many uncertainties, it is recommended that a dynamic groundwater monitoring programme is implemented. Several boreholes were drilled to monitor both the groundwater level recovery and the groundwater quality in the Gemsbokfontein West sub-compartment (Figure 10-1). The Gemsbokfontein Eye is included as a monitoring point, although at this stage the water at the eye is spill over water from Donaldson Dam.

The aim of the monitoring is to verify the model predictions and to make adjustments were necessary. The monitoring network will provide an early warning system that will alert the mine to the following:

- Unexpected changes in the groundwater levels, specifically in areas with a risk of sinkhole formation;
• Unexpected changes in groundwater quality; and
• Changes in the level of the ground surface.

The groundwater levels in the revised borehole network should be monitored as follows:
• Monthly during the lead-up to the cessation of pumping;
• Twice a month during the re-watering process; and
• Monthly after the Gemsbokfontein Eye starts flowing for a period of three years.

It is also important that the flow meter in the pipe will be repaired and a surface water flow measuring system is in place prior to the eye starting to flow. Flow from the Gemsbokfontein Eye is likely to be diffuse and measuring the difference between water exiting Donaldson Dam and entering the 1m pipeline, may be a way of accounting for the flow volume at the eye.

Groundwater quality in the revised monitoring network (only new boreholes BH1-6) should be monitored as follows:
• Twice a year during the lead-up to the cessation of pumping;
• Twice a year during the re-watering of the mine;
• Quarterly during the recovery of the dolomite aquifer and for the first three years after the eye starts flowing.
Figure 10-1: Location of Groundwater Monitoring Points.

Sibanye Gold - Ezulwini
WUL - Amendment
Groundwater Monitoring Network

Figure 10-1
### Table 10-1: Summary of monitoring plan.

<table>
<thead>
<tr>
<th>ENVIRONMENTAL ASPECT TO BE MONITORED</th>
<th>DURATION</th>
<th>FREQUENCY</th>
<th>LOCATION</th>
<th>VARIABLES</th>
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<tr>
<td><strong>Groundwater levels</strong></td>
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<tr>
<td>Lead up to cessation of pumping</td>
<td>Monthly</td>
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<td>During re-watering</td>
<td>Bi-annual</td>
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<td>After decant at Gemsbokfontein Eye</td>
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<td><strong>Groundwater quality</strong></td>
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<td>Lead up to cessation of pumping</td>
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<td>During re-watering</td>
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<td>After flow at Gemsbokfontein Eye</td>
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<td><strong>Surface Water quality</strong></td>
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<tr>
<td>Lead up to cessation of pumping</td>
<td>Ongoing as per existing schedule (i.e. monthly)</td>
<td>Current sampling points on the Kleinwes Rietspruit, Leeuspruit and Wonderfonteinspruit</td>
<td>Full chemical suite</td>
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<td>During re-watering</td>
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<td><strong>Wetlands &amp; Aquatics</strong></td>
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<tr>
<td>For a period of 3 years on Kleinwes Rietspruit and Leeuspruit, and ten years on Wonderfonteinspruit</td>
<td>Annually</td>
<td>Sampling points on the Leeuspruit East, Kleinwes Rietspruit and Wonderfonteinspruit</td>
<td>PES, EIS and ecosystem services of the systems</td>
<td></td>
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</tbody>
</table>
| For a period of 3 years             | Bi-annually (Low and High Flow) | Downstream sites along the Kleinwes Rietspruit and Leeuspruit East (immediately downstream of EMC) | Biomonitring, including: *Habitat Integrity*: using the Index of Habitat Integrity (IHI) derived by Kleynhans (2008) and the methods
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<th>ENVIRONMENTAL ASPECT TO BE MONITORED</th>
<th>DURATION</th>
<th>FREQUENCY</th>
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</table>

- employed within the REMP (River EcoStatus Monitoring Programme) programme;
- **Water quality data**: Site assessments must be performed when the required weekly water sampling takes place;
- **Aquatic macro-invertebrate assemblage assessment**: using the South African Scoring System version 5 (SASS5) methodologies, according to Dickens and Graham (2002), as well as the Macro-Invertebrate Response Assessment Index (MIRAI) methodology (Thirion, 2007);
- **Fish assemblage assessment**: using standardised methodologies to determining the PES for the fish assemblages as per the Fish Response Assessment Index (FRAI), (Kleynhans, 2007);
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<th>ENVIRONMENTAL ASPECT TO BE MONITORED</th>
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<td></td>
<td>For a period of 3 years</td>
<td>Quarterly</td>
<td>Kleinwes Rietspruit, downstream of the Peter Wright Dam Leeuspruit East</td>
<td>• Diatom Analysis: To be assessed with the water quality results. Sedimentation levels (A qualified pedologist must investigate the sediments and wetlands of the Kleinwes Rietspruit and based on his findings must develop a sediment and wetlands soil quality monitoring protocol. The soils and sediments must then be sampled as per the monitoring protocol. If it is found that the sediments and soils poses a significant threat to the aquatic environment, such as continuous release of heavy metals, including radioactive metals, such as uranium, a sediment and soil remediation methodology and plan must be developed and implemented.)</td>
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<td></td>
<td>For a period of 3 years</td>
<td>Quarterly</td>
<td>Select sampling points along the Leeuspruit East and Kleinwes Rietspruit</td>
<td>Erosion (photographic comparison)</td>
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<td>Radiation</td>
<td>For a period of 10 years total</td>
<td>Quarterly during the recovery of the dolomite aquifer and for a period of 3 years</td>
<td>Dolomitic water within Gemsbokfontein compartment</td>
<td>The ongoing surface operations at Ezulwini will continue to monitor radioactivity levels in line with current operational</td>
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<tr>
<td>ENVIRONMENTAL ASPECT TO BE MONITORED</td>
<td>DURATION</td>
<td>FREQUENCY</td>
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<td>after the Eye starts flowing</td>
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<td>requirements. It is also recommended that Alpha and Beta radioactivity levels to be monitored in the dolomites.</td>
</tr>
</tbody>
</table>
10.2 Mitigation and monitoring plan

For the full mitigation and monitoring plan, please refer to the Basic Assessment Report, Partial Closure Plan and EMPr, attached as Appendix B.

11. PUBLIC CONSULTATION

For the full public participation process followed for the project, please refer to the Basic Assessment Report, attached as Appendix B.

12. CONCLUSION AND RECOMMENDATIONS

Taking the EMC motivation for the cessation of pumping and the specialist findings into consideration, it is recommended that pumping of underground water cease as soon as possible.

It is further recommended that the DWS amend the existing water use licence [08/C23D/ABEFGJ/2836] by removing the water uses that are no longer required (Table 5-1) and include the additional monitoring recommendations made by the specialists.

Please do not hesitate to contact us if you require any further information.

Yours faithfully

Jacqui Hex
Marius van Zyl

for Jones & Wagener
Appendix A

EXISTING WATER USE LICENCE (JUNE 2015)
Appendix B

BASIC ASSESSMENT REPORT, ENVIRONMENTAL MANAGEMENT PROGRAMME AND CLOSURE REPORT

APPENDIX B - Table of Contents

B.1 Basic Assessment Report and Environmental Management Programme addendum (including Appendices)

B.2 Closure Plan