



# water & sanitation

Department:  
Water and Sanitation  
REPUBLIC OF SOUTH AFRICA

Private Bag X313, PRETORIA, 0001, 185 Francis Baard Street, Sedibeng Building, Pretoria  
Tel: 012 336 7500 Fax: 021 323 4472/012 326 2715

**LICENCE NO: 08/D41A/ABCFGIJ/12971**  
**FILE NO: 27/2/2/D141/20/1**  
**WUA NO: WU23173**

**Licensee: Lafarge Mining South Africa Pty Ltd**

**Postal Address:** Lafarge Tygerberg Quarry  
Tygerbergvalley road  
ERF no 200/12  
Durbanville.  
7550

**Physical Address:** Lafarge Tygerberg Quarry  
Tygerbergvalley road  
ERF no 200/12  
Durbanville.  
7550

Provincial Head

**B14809**

## 1. Water Uses authorised by this licence

**Table 1: Summary of Authorised water use activities**

1.1	Section 21(a) of the Act	Taking water from a water resource, subject to the conditions set out in Appendices I and II.
1.5	Section 21(f) of the Act	Discharging waste or water containing waste into a water resource, subject to the conditions set out in Appendices I and III
1.6	Section 21(g) of the Act:	Disposing of waste in a manner which may detrimentally impact on a water resource, subject to the conditions as set out in Appendices I and IV
1.9	Section 21(j) of the Act:	Removing, discharging or disposing of water found underground, subject to the conditions set out in Appendices I and V

## 2. Properties in respect of which the water use licence is issued

**Table 2: Property details where the water use(s) will take place**

Activity	Farm Name	Owner's Name	Title Deed Number
<b>Section 21(a) Water Use</b>			
Abstraction of Groundwater from Tswana Quarry Borehole 1	Land Parcel 46 of the Major Region IO	Department of Rural Development & Land Reform	T1007/1887BP
<b>Section 21(f) Water Use</b>			
Discharging into water resource	Land Parcel 46 of the Major Region IO	Department of Rural Development & Land Reform	T1007/1887BP
<b>Section 21(g) Water Use</b>			
Dust Suppression Tswana Quarry – Sump 1.	Land Parcel 46 of the Major Region IO	Department of Rural Development & Land Reform	T1007/1887BP
Dust Suppression Tswana Quarry - Limestone stockpile. (Enclosed from external weather)			
Dust suppression			
<b>Section 21(j) Water Use</b>			
Tswana Quarry – Sump 1	Land Parcel 46 of the Major Region IO	Department of Rural Development & Land Reform	T1007/1887BP

### 3. Licence and Review Period

- 3.1 This licence is valid for a period of **Twenty** year(s) from the date of issuance and it may be reviewed at intervals of not more than five (5) years.
- 3.2 On review of the licence, a Responsible Authority may amend any condition of the licence, other than the period of validity thereof.

### 4. Definitions

Any terms, words and expressions as defined in the National Water Act, 1998 (Act 36 of 1998) shall bear the same meaning when used in this licence.

#### 4.1 The following definitions are of relevance, but not exclusive, to this licence

Act	National Water Act, 1998 (Act 36 of 1998)
Buffer Zone	A scientifically determined area where water use activities are excluded.
Delegated Authority	The person that has been delegated certain functions of the Act
Department	The Department of Water and Sanitation
CEO	The Chief Executive Officer of Catchment Management Agency Limpopo Catchment Management Agency
CMA	Catchment Management Agency
Commencement date	The date on which water use starts.
Days	Calendar days.
Minister	Minister of the Department of Water and Sanitation.
Provincial Head	Head of Provincial Operations North West
Responsible Authority	“Responsible authority” in relation to a specific power or duty in respect of water uses, means (a) if that power or duty has been assigned by the Minister to a catchment management agency, that catchment management agency; or (b) if that power or duty has not been so assigned, the Minister
Riparian habitat	“Riparian habitat” includes the physical structure and associated vegetation of the areas associated with a watercourse which are commonly characterised by alluvial soils, and which are inundated or flooded to an extent and with a frequency sufficient to support vegetation of species with a composition and physical structure distinct from those of adjacent land areas.
Watercourse	“Watercourse” means (a) a river or spring; (b) a natural channel in which water flows regularly or intermittently; (c) a wetland, lake or dam into which, or from which, water

	flows; and (d) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse, and a reference to a watercourse includes, where relevant, its bed and banks.
Extent of the watercourse	(a) the outer edge of the 1:100 year floodline or the delineated riparian habitat, whichever is the greatest, measured from the middle of the watercourse of a river, spring, natural channel, lake or dam; and (b) Wetlands and pans: the delineated boundary (outer temporary zone) of any wetland or pan.
Regulated area of a watercourse	(a) The outer edge of the 1 in 100 year flood line and /or delineated riparian habitat, whichever is the greatest distance, measured from the middle of the watercourse of a river, spring, natural channel, lake or dam; (b) In the absence of a determined 1 in 100 year flood line or riparian area the area within 100m from the edge of a watercourse where the edge of the watercourse is the first identifiable annual bank fill flood bench (subject to compliance to section 144 of the Act); or (c) A 500 m radius from the delineated boundary (extent) of any wetland or pan.

**5. Description of activity and affected water resource(s)**

This licence authorises Lefarge Mine: Tswana Limestone Quarry for Section 21(a), (f), (g) and (j) water uses in terms of Section 40 of the National Water Act, Act 1988 (Act 36 of 1998). The mining activities include abstraction of water from the borehole, dust suppression, discharging water into the water resources during flooding and dust suppression at limestone stockpile. Pit dewatering and using pit water for dust suppression.

## APPENDIX I

### GENERAL PROVISIONS AND CONDITIONS OF THE LICENCE

#### 1. GENERAL PROVISIONS

##### Legal Framework

- 1.1 This licence is subject to all applicable provisions of the National Water Act, 1998 (Act 36 of 1998) as amended from time to time.
- 1.2 The licence shall not be construed as exempting the Licensee from compliance with the provisions of any other applicable Act, Ordinance, Regulation or By-law.

##### Administrative duties/obligations/responsibilities of the Licensee

- 1.3 The responsibility for complying with the provisions of the licence is vested in the licensee and not any other person or body.
- 1.4 The licensee will be responsible for any water use charges or levies imposed by a Responsible Authority according to the pricing strategy. The levies/charges will be charged from the date of the issuance of this licence.
- 1.5 No water taken may be pumped, stored, diverted, or alienated for any other purpose other than as intended in this licence without the written approval of the Delegated Authority.
- 1.6 It is the responsibility of the licensee to request an amendment of this licence to reflect the registered volume should the requirements change. All requests must be made to the Provincial Head/CEO.
- 1.7 If the water use licence is not exercised or fully exercised within the 5 (five) year period and the extended 2 (two) year period, as referred to in condition 2.4 and condition 2.5 in appendix I, the licence may be amended to reflect the extent of the water use that is being exercised, or the licence may be withdrawn.

##### Change of property details

- 1.8 Amendment of the licence to reflect the name of the new owner will not be approved if there are any outstanding charges or levies imposed by the Responsible Authority to the previous owner.

##### Issue of licence no guarantee of supply

- 1.9 This licence does not imply any guarantee that the said quantities and qualities of water will be available at present or at any time in the future.

### **Monitoring**

- 1.10 The quantity of water authorised to be taken in this licence may not be exceeded.
- 1.11 The quality of water authorised to be disposed and discharged in this licence may not be exceeded.
- 1.12 Any changes to the monitoring programmes should be approved by the Provincial Head/CEO.

### **Reviewal of licences**

- 1.13 The volume authorised in this licence may be reduced when the licence is reviewed.
- 1.14 No water taken may be pumped, stored, diverted, or alienated for any other purpose other than as intended in this licence without the written approval of the Delegated Authority.

### **Effecting of the Reserve**

- 1.15 While effect must be given to the Reserve as determined in terms of the Act, where a desktop determination of the Reserve has been used in issuance of a licence, when a comprehensive determination of the Reserve has finally been made, it shall be given effect to.

### **Liabilities and Rights**

- 1.16 The Department accepts no liability for any damage, loss or inconvenience, of whatever nature, suffered as a result of, shortage of water; inundations or flood; siltation of the resource; and required Reserve releases.
- 1.17 The Minister reserves the right to construct water storage works at any time in any watercourse and to store all surplus water reaching the storage works, as well as to control the allocation of such water.

### **Restrictions**

- 1.18 The licensee must adhere to any restrictions that are gazetted and imposed on the respective water resource.

### **Water measurement and reporting**

- 1.19 The Provincial Head/CEO may at any time direct a licensee, at the licensee's expense, to have the accuracy of the licensee's water measuring device/s verified, in addition to the

requirements of their inspection and calibration schedule by a person or an institution accredited to verify the accuracy.

### **Stormwater Management**

- 1.20 Stormwater leaving the licensee's premises shall in no way be contaminated by any substance, whether such substance is a solid, liquid, vapour or gas or a combination thereof which is produced, used, stored, dumped, spilled on the premises.

### **Amendments**

- 1.21 The licensee may apply for amendment of this licence in terms of the Act at any time during the period of validity of this licence. Applications must be submitted to the Provincial Head/CEO.

### **Appeals**

- 1.22 If this licence is appealed, it is automatically suspended and the water use activities must cease upon receipt of a notification of the appeal from the Department, alternatively the licensee may request the Minister to lift the suspension pending conclusion of the appeal via the Chief Director Legal Services at the address below:

Private Bag X313,  
Pretoria,  
0001

## 2. GENERAL CONDITIONS

### **Administrative duties/obligations/responsibilities of the Licensee**

- 2.1 The licensee must avail an original copy of the water use licence and the supporting reports upon request by the Department.
- 2.2 The conditions of the authorisation must be brought to the attention of all persons (employees, sub-consultants, contractors etc.) associated with the undertaking of these activities and the licensee must take such measures that are necessary to bind such persons to the conditions of this licence.

### **Commencement of water use licence.**

- 2.3 The licensee must inform the Provincial Head/CEO in writing within seven (07) days after the licensee commences with water use licence and again within thirty (30) days upon completion of the activity/ies.
- 2.4 The water uses authorised in this licence must be fully exercised within five (5) years from the date of issuance of this licence.
- 2.5 If the licensee cannot exercise or not fully exercise the water use licence within 5 (five) years, the licensee may request from the Provincial Head/CEO, with reasons, an extension of time to fully utilise the said water use licence, at least three months, before the expiry of the 5 (five) years. Only one request for extension of time, with maximum of 2 (two) years for commencement or of fully exercising of water use licence will be considered.

### **Change of details of licensee or property**

- 2.6 The licensee must inform the Provincial Head/CEO of any change of ownership, name, address, premises and/or legal status within sixty (60) days of such change taking place.
- 2.7 If the properties in respect of this licence is/are subdivided or consolidated, the licensee must provide full details of any change(s) in respect of the properties to the Provincial Head/CEO within sixty (60) days after the registration of title deed(s).
- 2.8 If the licensee is not the end user/beneficiary of the water user related infrastructure and will not be responsible for long term maintenance and management of the infrastructure, the licensee must provide a hand over report to the successor in title including a brief management/maintenance plan and the agreement for infrastructure along with allocation of responsibilities, within sixty (60) days after the date of change of end user or beneficiary.

### **Early renewal for the Licence**

- 2.9 The licensee must, if needed, apply for early renewal of this licence in terms of the Act within one (1) year before the expiry date of a licence. The application must be submitted to the Provincial Head/CEO.



### **Malfunctions, incidences, contingencies and pollution prevention**

- 2.10 The licensee must service all vehicles and other machinery outside the extent of the watercourse/s.
- 2.11 Oils and other potential pollutants must be disposed of at a licensed site, with the necessary agreement from the owner of such a site.
- 2.12 The licensee must handle, transport, store and use any hazardous substances according to the relevant legislation or South African National Standards (SANS).
- 2.13 Accurate and up-to-date records must be kept of all system malfunctions resulting in non-compliance with the requirements of this licence. The records must be available for inspection by the Provincial Head/CEO upon request. Such malfunctions must be tabulated under the following headings with a full explanation of all the contributory circumstances:
- 2.13.1 operating errors;
  - 2.13.2 mechanical failures (including design, installation or maintenance);
  - 2.13.3 environmental factors (e.g. flood);
  - 2.13.4 loss of supply services (e.g. power failure); and
  - 2.13.5 other causes.
- 2.14 Any incident that causes or may cause water pollution shall be reported to the Provincial Head/CEO or the designated representative within 24 hours. Should the incident occur during a weekend or public holiday, the licensee must report the incident on the next official working day.
- 2.15 The licensee must, within 14 days, or a shorter period of time, as specified by the Provincial Head/CEO, from the occurrence or detection of any incident referred above, submit an action plan which must include a detailed time schedule to the satisfaction of the Provincial Head/CEO of measures to be taken to:
- 2.15.1 correct the impacts resulting from the incident;
  - 2.15.2 prevent the incident from causing any further impacts; and
  - 2.15.3 prevent a recurrence of a similar incident
- 2.16 All incidents must be recorded in an incident register.

### **Water Conservation and Water Demand Management (WC/WDM)**

- 2.17 The licensee must establish and implement a continual process of raising awareness among itself, its workers and stakeholders with respect to water conservation and water Demand Management initiatives.

- 2.18 The licensee shall use water efficiently to minimise total water intake, avoid usage of water where possible, implement best management and operating practices, and maximise the reuse /recycle of contaminated water.
- 2.19 The licensee must continually investigate new and emerging technologies and put into practice water efficient devices and /or apply technique for the efficient use of water, in an endeavour to conserve water at all times.
- 2.20 The licensee must develop and submit water conservation and water demand management (WC/WDM) plan to the Provincial Head/CEO within one (1) year from the date of issuance of this licence: The WC/WDM Plan should:
- 2.20.1 quantify the water use efficiency of the activity;
  - 2.20.2 contain the mine/industry water management and water loss strategies and programmes;
  - 2.20.3 sets annual targets for improved water use efficiency for the mining/industrial activity, beneficiation and waste disposal practices and stipulates which measures will be implemented to achieve the targets on the mine;
- 2.21 The licensee must report annually on the implementation of WC/WDM plan including retrofitting with water efficient technologies and devices, reduction of total water demand, improvement in water use efficiency benchmarks and target.
- 2.22 The licensee must update the WC/WDM plan every five (5) years and submit to the Provincial Head/CEO for approval.
- 2.23 The licensee must, where water is stored off-channel in a dam or reservoir ensure that all distribution and reticulation systems or pipelines are properly constructed, operated and maintained in good working order to prevent water losses through physical leakages, burst and reservoir overflows.

### **Storm water management**

- 2.24 Storm water management facilities must be constructed, operated and maintained in a sustainable manner throughout the project as detailed in the Storm Water Management Plan.
- 2.25 Increased runoff due to vegetation clearance and/or soil compaction must be managed, and steps must be taken to ensure that storm water does not lead to bank instability and excessive levels of silt entering the stream.
- 2.26 All storm water that would naturally run across the dirty areas shall be diverted via lined channels and drains designed to contain the 1:50 year flood.
- 2.27 The dirty storm water system shall be designed and implemented to provide suitable routing and pumping capacity for contaminated storm water from the individual facilities to the respective storm water dams in accordance with the design specifications.
- 2.28 Clean storm water must be diverted from and must be managed in such a manner as to disperse runoff and to prevent the concentration of storm water flow.



### **Monitoring, Methods of analysis**

- 2.29 Sample analysis must be conducted by a recognized analytical laboratory, accredited by the South African National Accreditation System (SANAS), or that participates in a recognised Proficiency Testing Scheme to analyze the relevant constituents in the wastewater.
- 2.30 The date and time of monitoring in respect of each sample taken shall be recorded together with the results of the analysis.
- 2.31 The licensee must adhere to the monitoring programmes submitted with the application.

### **Water measurement and Reporting**

- 2.32 The licensee shall install appropriate water measuring devices to measure the amount of water abstracted prior use of water.
- 2.33 The licensee must install the flow metering devices to all water uses and readings must be taken on each flow meter on a monthly basis.
- 2.34 Flow measuring, recording and monitoring devices shall be maintained in a sound state of repair and calibrated/ verified by a suitable competent person as per device specification. This must include a programme of checking, calibration, and/ or replacement of measuring devices.
- 2.35 Calibration /verification certificates of the flow measuring, recording and integrating devices must be available for inspection by the Provincial Head/CEO or the representative upon request.

### **Membership to a Water Users Association**

- 2.36 If a water user association exists or is established in the area to manage the resource, it is compulsory for the licensee to be a member of the water user association. The licensee must adhere to the rules, regulations and water management stipulations of the water user association.

### **Restrictions on access to certain areas**

- 2.37 Strict access procedures must be developed and followed in order to control access to the property. Access to the facility/ies must be limited to authorised persons and animals.
- 2.38 Notices prohibiting unauthorised persons from entering the areas as well as internationally acceptable signs indicating the risks involved in case of an unauthorised entry must be displayed along the boundary fence of these areas.



### **Auditing and Reporting**

- 2.39 The licensee must conduct annual internal audits on compliance with the conditions of this licence. The first audit must be conducted within ninety (90) calendar days from the date of commencement of water use entitlement. A report on internal audits must be submitted to the Provincial Head/CEO within sixty (60) calendar days of the finalisation of the audits.
- 2.40 The licensee must appoint an independent external auditor to conduct biennial (every two (2) years) external audits on compliance with the conditions this licence. The first audit must be conducted and finalised within one (1) year after commencement of a water use. A report on the audit must be submitted to the Provincial Head/CEO within sixty (60) calendar days of the finalisation of each audit.

### **Security by applicant**

- 2.41 The Licensee must ensure sufficient financial provision according to applicable legislation.

### **Compensative measures**

- 2.42 The licensee must prevent adverse effects on other water users. All complaints must be recorded in complaints register and be investigated by a suitable qualified person, accredited by an institution/ registration body, appointed by the licensee, and if investigations prove that the licensee has impaired the rights of other water users, the licensee must implement appropriate compensative measures as determined by the Minister.

### **Closure and Post Closure Mine Water Management**

- 2.43 The licensee must submit the final Rehabilitation plan aimed at water resource management as part of the final closure water management plan to the Provincial Head/CEO within one (1) year of remaining life of the mine as part of IWWMP.
- 2.44 The licensee must apply for a post closure water use related activities five (5) years before commencing with closure to the Provincial Head/CEO for written approval.
- 2.45 The licensee must participate in the development of a regional post-closure water management strategy, in accordance with a methodology and format to be approved by the Provincial Head/CEO, in collaboration with all hydro-geological interconnected mines.

## APPENDIX II

### Section 21(a) of the Act – Taking water from a water resource

#### 1. Taking water from a resource

- 1.1. This licence authorises the taking of a maximum quantity of Twenty five thousands seven hundred and sixty nine cubic metres (m<sup>3</sup>) per annum from groundwater at the locations given in Table 3

Table 3: Summary of water uses authorised

Water use Description	Purpose	Property	Volume of water taken (m <sup>3</sup> /annum)	Pumping rate (l/s for 12hs/day)	Coordinates
<i>Section 21(a): Taking of water from a resource</i>					
Abstraction of Groundwater from Tswana Quarry Borehole 1.	Domestic, Operation, Dust suppression sprayers. at crusher area	Portion of Driefontein 46 IQ and Rietschraal 58 IQ and a Portion of Springbokpan 61 IQ.	25 769 m	1.63	26° 04' 32.84"S 25°46' 48.56"E

#### 2. Water measurement

- 2.1 All water taken from the resource shall be measured, recorded and reported as follows:
- 2.1.1 The daily quantity of water taken must be metered or gauged and the total recorded at the last day of each month; and
- 2.1.2 The water level measurements must be taken on a monthly basis and the date, time, and geographical location should be recorded;
- 2.1.3 The Licensee shall keep record of all water taken and a copy of the records shall be forwarded to the Provincial Head/CEO on or before 25 January and 25 July of each.

#### 3. Drinking Water Quality

- 3.1 The licensee must ensure that the drinking water quality supplied meets South African National Standards for Drinking Water: SANS 0241.

#### 4. Site specific condition

- A maximum volume of 25 769 m<sup>3</sup> /a must be abstracted from borehole LQBH4 at 1.63 l/s for 12 hours a day, in order to allow for a 12-hour recovery process per 24-hour period (day).



**APPENDIX III**

**Section 21(f) of the Act: Discharging waste or water containing waste into a water resource**

**1. QUANTITY OF WATER CONTAINING WASTE**

This licence authorises the discharge a maximum volume of 700 000 m<sup>3</sup>/a of effluent / water containing waste at the following geographical location 26° 03' 11.94"S, 25°48' 13.09"E as indicate in Table 4

**Table 4 Summary of water use authorised**

Water use Description	Purpose	Property (ies)	Volume (m <sup>3</sup> /a)	Co-ordinates
S21(f): discharging of wastewater				
Discharging water into the Polfonteinspruit. River	Access water removal	Land Parcel 46 of the Major Region IO	700 000	26° 03' 11.94"S, 25°48' 13.09"E

1.2 The quantity of treated effluent / water containing waste authorised to be discharged in terms of this licence must not be exceeded.

**2. QUALITY OF WATER CONTAINING WASTE**

2.1 The quality of the treated effluent /water containing waste discharged into the Polfonteinspruit River must not exceed the following limits in Table 5

Table 5: Discharge water quality limits

Parameter/ variable	Limit/standard	Monitoring frequency
pH	5.5 – 9.5	monthly
Electrical conductivity (EC) @ 25°C mS/m	150	monthly
Chloride (Cl) mg/l	300	monthly
Sulphate (SO <sub>4</sub> ) mg/l	500	monthly
Nitrate (NO <sub>3</sub> ) as N mg/l	1.5	monthly
Ammonium (NH <sub>4</sub> ) as N mg/l	10	monthly
Fluoride (F) mg/l	1	monthly
Calcium (Ca) mg/l	100	monthly
Magnesium (Mg) mg/l	100	monthly
Sodium (Na) mg/l	100	monthly

Potassium (K) mg/l	50	monthly
Aluminium (Al) mg/l	5	monthly
Iron (Fe) mg/l	10	monthly
Manganese (Mn) mg/l	10	monthly
Chromium (Cr) mg/l - -	0.5	monthly
Copper (Cu) mg/l	0.5	monthly
Nickel (Ni) mg/l	1	monthly
Zinc (Zn) mg/l	5	monthly
Cobalt (Co) mg/l	1	monthly
Cadmium (Cd) mg/l	0.005	monthly
Lead (Pb) mg/l	0.1	monthly
Total Suspended Solids (TSS) mg/l	25	monthly

### 3. SURFACE WATER MONITORING

#### 3.1 Quantity

- 3.1.1 The quantity of the effluent / water containing waste discharged into the Polfonteinspruit. River shall be metered and recorded daily.
- 3.1.2 Monitoring for the quantity of effluent/ water containing waste must be done at the inlet and the outlet of the Polfonteinspruit. River

#### 3.2 Quality of the water containing waste

- 3.2.1 Monitoring for quality must be done at the outlet of the facility. where the water containing waste is discharged into the Polfonteinspruit. River and upstream and downstream of the discharge point. These must be identified in consultation with the Provincial Head/CEO and approved by the Provincial Head/CEO.
- 3.2.2 The quality of the water containing waste shall be monitored by taking grab samples at the monitoring points described in condition 5. Each sample shall be analysed according to condition table 5 for the variables and frequency, shown in Table 5 and/or any other variable as may be required from time by the Provincial Head/CEO.

#### 3.3 Bio-Monitoring (for streams that are flowing regularly)



- 3.3.1 A qualified, accredited Aquatic Scientist or as approved by the Provincial Head/CEO must establish biomonitoring programme within six (6) months of issuance of the licence. The biomonitoring programme must include scope, water quality assessment and invertebrate habitat assessment of the following: reference condition (upstream of discharge point), discharge point and downstream of discharge point.
- 3.3.2 The biomonitoring must be undertaken using latest Invertebrate Habitat Assessment System (IHAS) and the South African Scoring System (SASS). Sampling must be conducted seasonally (once in summer and once in winter) and the results must be compared against the selected reference condition or reference condition within the same ecoregion in a case where upstream of selected discharge point is not accessible or representative of discharge point.
- 3.3.3 The biomonitoring report highlighting the impacts, changes, deterioration or improvement of the aquatic ecosystem (trends) as the result of this water containing waste/ effluent discharged must be submitted to the Provincial Head/CEO.
- 3.3.4 The licensee shall monitor quarterly, (biomonitoring depends on activity) the toxicity of the water containing waste/effluent in accordance with Direct Estimation of Ecological Effect Potential (DEEEP) initiative to determine the effect of water containing waste
- 3.3.5 The acute biological assay tests must be conducted by a SANAS accredited laboratory using a minimum of at least three (3) or four (4) trophic levels (bacteria, algae, invertebrate and vertebrate) to determine the toxicity impact of the whole effluent on each trophic level.
- 3.3.6 Should toxicity equal to or greater than 50% be expressed in the undiluted samples (>1TUa), a definitive exposure should be conducted for the relevant bioassay, based on best professional judgement. A Hazard class should always be maintained at less than Hazard Class III at the downstream sampling site.
- 3.2.7 The toxicity report highlighting hazard class of effluent and its impact on deterioration or improvement of the aquatic invertebrates or ecosystem must be submitted with or as part of biomonitoring report to the (Provincial Head/CEO) within a month after each assessment.



## APPENDIX IV

### Section 21(g) of the Act: Disposing of waste in a manner which may detrimentally impact on a water resource

#### 1. DISPOSAL OF WASTE /WATER CONTAINING WASTE

- 1.1 The licensee is authorised to dispose of a maximum volume of 50 737 in cubic meters (m<sup>3</sup>/a) per annum of water containing waste for dust suppression

**Table 5: Water Uses Authorised**

Water Use Description	Purpose	Property	Volume (m <sup>3</sup> /a), Capacity (m <sup>3</sup> )	Dimensions Coordinates
S21(g): Disposal of water				
Dust suppression	Dust suppression along crushing plant - sprayers	Land Parcel 46 of the Major Region IO	26 209 m <sup>3</sup> /a	26° 07' 99.20" S 25°80' 02.90" E
Dust suppression	water from the Quarry Pits used for dust suppression -	Land Parcel 46 of the Major Region IO	24 528 m <sup>3</sup> /a	26° 04' 28.64"S 25°48' 08.43"E
Dust suppression	Dust suppression along Limestone Loading Dust Tunnel	Land Parcel 46 of the Major Region IO	24 528 m <sup>3</sup> /a	26° 07' 99.20" S 25°80' 02.90" E

#### 2. GROUNDWATER MONITORING

- 4.1 The licensee shall monitor groundwater resources to determine the impact of the activity on the water resource by taking samples at the monitoring points indicated in 6

**Table 6: Groundwater monitoring points**

Sampling point name Locality	Co-ordinate
Groundwater monitoring points	
LQBH7	-26.07585, 25.78095
LQBH8	-26.07663, 25.78403
LQBH9	-26.07436, 25.79851

- 4.2 Monitoring boreholes in the 6 must be clearly marked, numbered, and must be equipped with lockable caps. The Department reserves the right to sample monitoring boreholes at any time and to analyse these samples, or to have samples taken and analysed.
- 4.3 The licensee shall monitor groundwater resources to determine the impact of the facility and other activities on the water quality by taking samples at the monitoring points indicated in Table 6

**Table 7: Groundwater monitoring variables and frequency**

Variables (mg/l)	Frequency
------------------	-----------

Variables (mg/l)	Frequency
pH	bi-annually
Electrical Conductivity (mS/m)	bi-annually
Sodium	bi-annually
Magnesium	bi-annually
Calcium	bi-annually
Chloride	bi-annually
Sulphate	bi-annually
Nitrate	bi-annually
Fluoride	bi-annually
Total Alkalinity	bi-annually
Iron	bi-annually
Alluminium	bi-annually
SO4	bi-annually
PO4	bi-annually
NO3(N),	bi-annually
NH4(N),	bi-annually
Ba	Annually
As	Annually
Co	Annually
Ni	Annually
Pb	Annually
Se	Annually
V	Annually
Mn	Annually
Zn	Annually
Ga	Annually
Cu	Annually
Ge	Annually
Rb	Annually
Y	Annually
Zr	Annually
Sn	Annually
W	Annually
Bi	Annually
Th	Annually
U	Annually

- 4.4 The quality of the groundwater resource must be monitored by taking samples at groundwater monitoring points as described in Table 6. Each sample shall be analysed for the variables and at frequencies, as shown in Table 7: in Appendix IV and/ or any other variable as may be required from time to time by the Provincial Head/CEO.
- 4.5 Should pollution occur or possible pollution occur, the licensee must conduct the necessary investigations to determine the impact on groundwater and any mitigating actions that could be required. This must be done in consultation with the Provincial Head/CEO and at time frames set by the Provincial Head/CEO.

### **3. REPORTING**

- 5.1 The licensee shall update the water balance annually and calculate the loads of waste emanating from the activities. The licensee shall determine the contribution of their activities to the mass balance for the water resource and must furthermore co-operate with other water users in the catchment to determine the mass balance for the water resource reserve compliance point.
- 5.2 The licensee shall submit the results of analysis for the monitoring requirements to the Provincial Head/CEO on a frequency in table 8 Appendix IV quoting reference number

### **4. INTEGRATED WATER AND WASTE MANAGEMENT**

- 6.1 The Integrated Water and Waste Management Plan (IWWMP) and Rehabilitation Strategy and Implementation Plan (RSIP) must be updated annually and submitted to the Provincial Head/CEO for approval.
- 6.2 The licensee must, at least 180 days prior to the intended closure of any facility, or any portion thereof, notify the Provincial Head/CEO of such intention and submit any final amendments to the IWWMP and RSIP for approval.

### **5. Site specific condition**

The existing groundwater monitoring programme must continue, where groundwater levels monitored on a bi-annual basis and the results submitted on a six (6) month basis..



## APPENDIX IX

### Section 21(j) of the Act: Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people

#### 1. Removing of water found underground

- 1.1 The licensee is authorized to remove maximum volume of **1681.66** water found underground as indicated in Table 9

**Table 8: Quantity of water to be removed**

Water Use Description	Purpose	Property	volume (m <sup>3</sup> /a)	Co-ordinate
Tswana Quarry – Sump T1	Access water removal	Land Parcel 46 of the Major Region IO	1681.66	26° 04' 20.53"S 25°48' 17.14"E
Total volume : 1681.66				

- 1.2 The quantity of water removed from underground must be metered and recorded on a daily basis.
- 1.3 The groundwater levels shall be monitored every six months (once in the beginning of the dry season and once in the beginning of the wet season).
- 1.4 Self-registering flow meters must be installed in the delivery lines at easily accessible positions near the dewatering points.
- 1.5 The licensee shall follow acceptable construction, maintenance and operational practices to ensure the consistent, effective and safe performance of the underground water removal system.
- 1.6 Reasonable measures must be taken to provide for mechanical, electrical or operational failures and malfunctions of the underground water removal system.
- 1.7 A total volume of 1 618 m<sup>3</sup> /a must be dewatered from Sump 1.

**END OF LICENCE**