water & sanitation
Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

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LICENCE IN TERMS OF CHAPTER 4 OF THE NATIONAL WATER ACT, 1998 (ACT NO. 36 OF 1998) (THE ACT)

I, ***Trevor Balzer,*** in my capacity as Acting Director-General in the Department of Water and Sanitation and acting under authority of the powers delegated to me by the Minister of Human Settlements, Water and Sanitation, hereby authorise the following water uses in respect of this licence.

SIGNED: .....

DATE: 14/12/2020

LICENCE NO. 08/C23J/AJFG/10192
FILE NO. 27/2/2/C923/3/9

1.	**Water User:**	**Harmony Gold Mining Company Limited: Kusasalethu and Deelkraal operations (K&DO)**
	Postal Address:	P.O. Box 2 Randfontein 1760

2. Water Uses

2.1	Section 21(a) of the Act:	Taking of water from a water resource, subject to the conditions set out in Appendixes I and II.
2.3	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 IV.
2.4	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 V.
2.5	Section 21(j) of the Act:	Removing, discharging or disposing of water found underground, subject to the conditions set out in Appendices I and VI.

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3. Properties on which the use will be exercised

Table 1: List of properties on which the water uses take place

No.	Section 21 water uses Of The NWA	Provide Property Description	Title Deed No.
3.1	Section 21(a)	Buffelsdoom 143 IQ, portion 0	T51657/2003
3.2	Section 21(f)	Buffelsdoom 143 IQ, portions 0, 9 and 109	T51657/2003
3.3	Section 21(g)	Buffelsdoom 143 IQ, portions 0, Deelkraal 142 IQ Portion 3; and Kleinfontein 141 IQ Portion 2	T51657/2003
3.4	Section 21(j)	Buffelsdoom 143 IQ, portion 0	T51657/2003

4. Registered owners of the Properties

4.1 Randfontein Estate Limited

5. Licence and Review Period

This licence is valid for a period of twenty (20) year(s) from the date of issuance and as provided for under Section 49 of the Act, it will be reviewed every five (5) year(s).

6. 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.

"The Act" means the National Water Act, 1998 (Act 36 of 1998).
"The Department" means the Department of Water and Sanitation.
"The Provincial Head" means the Chief Director: Gauteng provincial Operation Department of Water and Sanitation, Private Bag X995, Pretoria, 0001.
"Report" refers to the report entitled:

- Waste Management Strategy for the Harmony Group, dated January 2008, compiled by Harmony Gold Mining Company Limited;
- Deelkraal Mine Surface Rehabilitation and Progressive Closure Plan, dated December 2008, compiled by Harmony Gold Mining Company Limited;
- Environmental Management Programme for Randfontein Estate- Elandsrand /Deelkraal Mine Volume 1&2, dated August 2009, compiled by Shangoni Management Service (Pty) Ltd;
- Harmony- Kusasalethu and Deelkraal Operation Evaluation on Water Use Licensing Requirements, dated February 2010, compiled by Shangoni Management Services (Pty) Ltd;
- Harmony – Kusasalethu and Deelkraal Operation GN 704 Compliance Audit, dated February 2010, compiled by Shangoni Management Services (Pty) Ltd;
- Integrated Water and Waste Management Plan, Volume 1&2, dated May 2010, compiled by Shangoni Management Services (Pty) Ltd;
- Water Balance and Water Permit, dated August 2010, complied by Shangoni Management Services (Pty) Ltd;
- Harmony Gold Mining Ltd Kusasalethu Gold Mine Hydrogeological Description and Field Report, dated September 2011, compiled by Auctus PM & Consulting;

- Harmony Gold Mine: Kusasalethu Mine Residue Facilities – Numerical Groundwater Flow and Contaminant Transport Modelling, dated October 2013, compiled by AGES Gauteng;
- Harmony Gold Mining Limited, Groundwater Monitoring Assessment for Kusasalethu and Deelkraal, Final Report, Report No: JW055/17/F978, dated April 2017, compiled by Jones & Wagener;
- Harmony Gold Mine Groundwater Quality Monitoring Results from September 2016 to June 2019, provided by Harmony Gold Mining Company Limited; and
- All other related documentation and communication (emails, letters, verbal, etc) thereto.

7. Brief Description of the application

Harmony Gold Mining Company - Kusasalethu and Deelkraal Operations, are authorised for Section 21 (a), (f), (g), and (j) water uses in terms of the National Water Act (NWA), 1998 (Act 36 of 1998) to undertake gold mining and associated activities in Randfontein, Gauteng Province on the farms Buffelsdoorn 143 IQ, Portion 0, 9 and 109; Deelkraal 142 IQ, Portion 3; and Kleinfontein 141 IQ, Portion 2.

Harmony Gold Mining Company – Kusasalethu is authorised for additional water uses in terms of Section 21 (f) of the National Water Act, 1998 (Act 36 of 1998)(NWA). This Licence will supersede the existing WUL (Licence No. 01/C23E/ABEFGJ/2802) in terms of the National Water Act (NWA), 1998 (Act 36 of 1998) dated 17/07/2015.

APPENDIX I

General conditional for the licence

1. This licence is subject to all applicable provisions of the National Water Act, 1998 (Act 36 of 1998).

2. The responsibility for complying with the provisions of the licence is vested in the Licensee and not any other person or body.

3. The Licensee must immediately inform the Provincial Head of any change of name, address, premises and/or legal status.

4. If the property/ies in respect of which this licence is issued is subdivided or consolidated, the Licensee must provide full details of all changes in respect of the properties to the Provincial Head within 60 days of the said change taking place.

5. If a Water User Association is established in the area to manage the resource, membership of the Licensee to the Association is compulsory. Rules, regulations and water management stipulation of such association must be adhered to.

6. The Licensee shall be responsible for any water use charges and/or levies imposed by a Responsible Authority.

7. While effect must be given to the Reserve as determined in terms of the Act, where a lower confidence determination of the Reserve has been used in issuance of this licence, the licence conditions may be amended should a higher confidence reserve be conducted.

8. 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.

9. The licence and amendment of this licence are also subject to all the applicable procedural requirements and other provisions of the Act, as amended from time to time.

10. The Licensee shall conduct an annual internal audit on compliance with the conditions of this licence. A report on the audit shall be submitted to the Provincial Head within one month of the finalization of the audit.

11. The Licensee shall appoint an independent external auditor to conduct an annual audit on compliance with the conditions of this licence. Both these audits may be subjected to external audit.

12. Any incident that causes or may cause water pollution must be reported to the Provincial Head or a designated representative within 24 hours.

13. Flow metering, recording and integrating devise shall be maintained in a sound state of repair and calibrated by a competent person at intervals of not more than two (02) years. Calibration certificates shall be available for inspection by the Provincial Head or his/her representative upon request.

14. An updated water balance should be submitted to the Department within six (06) months of licence issuance.

15. Licensee shall use water efficiently to minimise total water intake, void usage of water where possible, implement good housekeeping and operating practices, and maximise the reuse/recycle of contaminated water

APPENDIX II

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

1. This licence authorises the taking of a maximum quantity of water in cubic meters (m^3) per annum from water resources for use in mining processes as indicated on Table 2:

Table 2: Volumes of water abstracted from ground water and surface water

Name of water resource	Volume of water	Purpose of water use	Property	Coordinates
Surface stormwater run-off contained in a tailings dam	941 448 m^3/a	Mining Processes	Buffelsdoorn 143 IQ, Portion 0	26° 27' 55.3" S 27° 20' 52.8" E
Surface stormwater run-off contained in the return water dam	92 016 m^3/a	Mining Processes	Buffelsdoorn 143 IQ, Portion 0	26° 28' 00.1" S 27° 21' 54.7" E
Dewatering of underground water from the Kusasalethu operation	178 763 m^3/a	Mining Processes	Buffelsdoorn 143 IQ, Portion 0	26° 27' 13.4" S 27° 21' 32.4" E

2. The quantity of water authorised to be taken in terms of this licence may not be exceeded without prior authorisation by the Minister.

3. 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.

4. The abovementioned volume may be reduced when the licence is reviewed.

5. The Licensee shall continually investigate new and emerging technologies and put into practice water efficient devices or apply technique for the re-use of water containing waste, in an endeavour to conserve water at all times.

6. All water taken from the resource shall be measured as follows:

   7.1 The daily quantity of water taken must be metered or gauged and the total recorded at the last day of each month; and

   7.2 The Licensee shall keep record of all water taken and a copy of the records shall be forwarded to the Regional Director on or before 25 January and 25 July of each year.

7. No water taken may be pumped, stored, diverted, or alienated for purposes other than intended in this licence, without written approval by the Minister or his/her delegated nominee.

8. The Licensee shall install and monitor appropriate water measuring to measure the amount of water abstracted, received and/or consumed, as applicable to the infrastructure.

9. The Licensee shall be responsible for any water use charges or levies, which may be imposed from time to time by the Department or responsible authority in terms of the Department's Raw Water Pricing Strategy.

10. Notices prohibiting unauthorised persons from entering the certain 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.

11. The Department accepts no liability for any damage, loss or inconvenience, of whatever nature, suffered as a result of-
    11.1 shortage of water;
    11.2 inundation or flood;
    11.3 siltation of the resource; and
    11.4 required reserve releases.

12. The Licensee shall ensure that all measuring devices are properly maintained and in good working order and must be easily accessible. This shall include a programme of checking, calibration, and/or renewal of measuring devices.

13. The Licensee shall establish and implement a continual process of raising awareness amongst itself, its workers and stakeholders for the need to for Water Conservation and Water Demand Management.

APPENDIX III

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

1. DISCHARGE OF WATER CONTAINING WASTE

1.1 The Licensee is authorized to discharge water containing waste in cubic meters per annum from various activities water uses activities as indicated in table 3.

Table 3: Summary of Section 21 (f) water uses

Name of affected Water resource	Description	Discharge quantity and type of waste	Property	Coordinates
Wedela Stream (a tributary of Loopspruit)	Discharge of treated domestic wastewater into the Wedela stream a tributary to the Loopspruit	950 000 m^3/a	Buffelsdoorn 143 IQ, Portion 109	26° 27' 36.9" S 27° 21' 42.9" E
Varkenslaagte Spruit	Discharge of excess underground water dewatered from Kusasalethu operations into the Varkenslaagte spruit	1 608 870 m^3/a	Buffelsdoorn 143 IQ, Portion 9	26° 27' 18.9" S 27° 21' 36.5" E

2. MONITORING

2.1 The Licensee shall monitor the Loopspruit (Wedela Stream) and Varkenslaagte spruit water resources at the upstream and downstream of the discharge points to determine the impact of the facility and other activities on the water quality by taking samples at the monitoring points.

2.2 The date, time and monitoring point in respect of each sample taken shall be recorded together with the results of the analysis.

2.3 Monitoring points shall not be changed prior to notification to and written approval by the Provincial Head.

2.4 An Aquatic Scientist approved by the Regional Director must establish a monitoring programme for the following indices: Invertebrate Habitat Assessment System (IHAS) and the latest SASS (South African Scoring System). Sampling must be done once during the summer season and once during the winter season, annually, to reflect the status of the river upstream and downstream of the mining activities.

2.5 Water quality testing should be performed on the excess underground water and stormwater leaving the plant on a quarterly basis in order to determine the risks to the receiving environment. The data gathered in the investigation must be reported annually

during March of each year to the Regional Director. If any toxicity levels as specified is exceeded, the Licensee must institute an investigation to determine the cause of toxicity.

2.6 The Licensee shall participate in any initiative such as Direct Estimation of Ecological Effect Potential (DEEEP) to determine the toxicity of complex tailings waste discharges. Both acute and chronic toxicity must be addressed and at least three taxonomic groups must be present when toxicity tests are performed.

2.7 Analysis shall be carried out in accordance with methods prescribed by and obtainable from the South African National Standards (SANS), in terms of the Standards Act, 1982 (Act 30 of 1982).

2.8 The methods of analysis shall not be changed without prior notification to and written approval by the Minister.

3. DISCHARGE QUALITIES

3.1 The impact of the activities of the mine on the Loopspruit and Varkenslaagte spruit shall not exceed the following in-stream water quality and reserve for the area as indicated in table 4 and 5:

Table 4: Discharge limits from the WWTW (discharge into the Wedela Stream)

Parameters	Limits
pH (pH units)	5.5-8.5
Dissolved Oxygen (as DO)	≤75 % saturation
Electrical conductivity (as EC) (mS/m)	75mS/m at 25°C above that of the intake water to a maximum of 150 mS/m
Chemical Oxygen Demand as (mg/l)	Not to exceed 75mg/l after applying chloride correction
Suspended solids (as SS) mg/l	≤25
Sodium	90 above that of the intake water
Ammonia (mg/l)	1
Ortho-phosphates (mg/l)	≤1
E.coli (CFU/100ml)	≤130
Residual Chlorine (as Cl) mg/l	0.1
Nitrate (mg/l)	≤6

Table 5: Discharge limits for the de-watering into the Varkenslaagte spruit (V-Notch)

Parameters	Limits
pH	5.5-9.5
Conductivity (as EC) (mS/s)	183
TDS (mg/l)	459
Suspended Solids (mg/l)	19
Chemical Oxygen Demand (mg/l)	20
Temperature	Ambient
Ammonia (mg/l)	<0.5
Sulphate (mg/l)	692
Fluoride (mg/l)	0.6
Arsenic (mg/l)	0.001
Chromium (mg/l)	<0.001
Boron (mg/l)	0.1

Parameters	Limits
Copper (mg/l)	0.01
Lead (mg/l)	<0.001
Iron (mg/l)	0.01
Manganese (mg/l)	0.01
Zinc (mg/l)	0.1
Cadmium (mg/l)	0.001
Mercury (mg/l)	0.001
Uranium (µg/l)	16
Free Cyanide (mg/l)	<0.5
E coli (cfu/100ml)	72

4. REPORTING

4.1 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.

4.2 The Licensee shall submit the results of analysis for the monitoring requirements to the Regional Director on a quarterly basis under Reference number 27/2/2/C923/3/9.

5. PLANT AREAS AND CONVEYANCES

5.1 Pollution caused by spills from the conveyances must be prevented through proper maintenance and effective protective measures especially near all stream crossings.

5.2 All reagent storage tanks and reaction units must be supplied with a bunded area built to the capacity of the facility and provided with sumps and pumps to return the spilled material back into the system. The system shall be maintained in a state of good repair and standby pumps must be provided.

5.3 Any hazardous substances must be handled according to the relevant legislation relating to the transport, storage and use of the substance.

5.4 Any access roads or temporary crossings must be:

5.4.1 Non-erosive, structurally stable and shall not induce any flooding or safety hazard; and

5.4.2 Be repaired immediately to prevent further damage.

APPENDIX IV

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

1. CONSTRUCTION AND OPERATION

1.1 The Licensee shall carry out and complete all the activities, including the construction and operation of the facilities indicated on Table 6, according to the final reports and plans (as listed in under Definitions) submitted for the issued WUL with the licence number 01/C23E/ABEFGJ/2802 as approved by the Provincial Head.

Table 6: Summary of Section 21(g) Water Uses

Water Resource/ Disposal Facility	Water use description	Volumes	Property Description	Co-ordinates
Rock Dump Stock Pile	Disposal of coarse material from mining processes	30 000 m^3/a	Buffelsdoorn 143 IQ, Portion 0	26° 27' 38.4" S 27° 21' 55.4" E
Tailings Storage Facility (TSF)	Slimes affected water from mining processes	1 400 000 m^3/a on a 31 875 00 m^3 capacity	Buffelsdoorn 143 IQ, Portion 0	26° 27' 55.3" S 27° 20' 35.9" E
Return Water Dam (RWD)	Returned affected water from the TSF dam for re-use within the plant	227 820 m^3/a on a 149 223 m^3 capacity	Buffelsdoorn 143 IQ, Portion 0	26° 28' 00.1" S 27° 21' 54.7" E
Spillage Pond No.1	Storage of dirty water from spillages of the process plant area. This dirty water will be re-used within the Plant	25 302 m^3/a on a 13 540 m^3 capacity	Buffelsdoorn 143 IQ, Portion 0	26° 27' 38.1" S 27° 21' 54.7" E
Spillage Pond No.2	Storage of affected water so as to prevent the pollution of the environment and this affected water is stored for evaporation	25 302 m^3/a on a 11 041 m^3 capacity	Buffelsdoorn 143 IQ, Portion 0	26° 27' 39.1" S 27° 21' 19.3" E
Drying Beds	Sewage sludge from the sewage treatment plan	75 m^3/a on a 372 m^3 capacity	Buffelsdoorn 143 IQ, Portion 0	26° 27' 38.9" S 27° 21' 39.4" E
Dust Suppression	Mine affected water is used for dust suppression at the TSF	257 904 m^3/a	Buffelsdoorn 143 IQ, Portion 0	26° 27' 55.3" S 27° 20' 52.8" E
Surface: Hot Water Dam	Storage of affected waste water used for drilling and cooling which form part of the	2 240 m^3/a on a 2 240 m^3 capacity	Buffelsdoorn 143 IQ, Portion 0	26° 27' 12.68" S 27° 21' 33.70" E

Water Resource/ Disposal Facility	Water use description	Volumes	Property Description	Co-ordinates
	underground affected water management system			
Surface: Hot Water Dam No 1 and 2	Storage od affected waste water used for drilling and cooling which form part of the underground affected water management system	8 320 m^3/a on a 8 320 m^3	Buffelsdoorn 143 IQ, Portion 0	26° 27' 12.68" S 27° 21' 33.70" E
Surface Dam: Condenser/Pre Cooled Dam	Storage od affected waste water used for drilling and cooling which form part of the underground affected water management system	2 500 m^3/a on a 2 500 m^3 capacity	Buffelsdoorn 143 IQ, Portion 0	26° 27' 12.68" S 27° 21' 33.70" E

1.2 The Licensee must ensure that the disposal of the wastewater and maintenance of the system are done according to the provisions in the Reports.

1.3 The waste facility listed in Table 8 shall be operated and maintained to have a minimum freeboard of 0.8 metres above full supply level and all other water systems related thereto shall be operated in such a manner that it is at all times capable of handling the 1:50 year flood-event on top of its mean operating level.

1.4 All the waste facilities must be designed in such a manner that any spillage can be contained and reclaimed at an early stage without any impact on the surrounding environment.

1.5 All activities at the Deelkraal operations Sewage Treatment Plant that require water use authorisation from the Department should be applied for by the new owner of the Sewage Treatment Plant.

2. STORAGE OF WATER CONTAINING WASTE

2.1 The Licensee is authorised to dispose volumes of wastewater as stipulated in Table 8 emanating from the gold mining and associated activities.

3. QUALITY OF WASTE WATER TO BE DISPOSED

3.1 The Licensee shall submit the nature and the waste or water containing waste disposed of into wastewater management facilities listed in Table 6.

4 MONITORING

4.1 The additional groundwater monitoring boreholes, listed in Table 7 below, must be sited, drilled and included into the monitoring programme within 1 year of licence issuance. These locations are estimated and should be confirmed by a geohydrologist. It is recommended that a geophysical survey be undertaken prior to drilling in order to ensure boreholes are sited correctly.

Table 7: Proposed new boreholes at Deelkraal and Kusasalethu mining operations

Borehole ID	Latitude	Longitude	Purpose
MBH14	26°27'54.50"S	27°21'56.33"E	Re-drilling of MBH14 due to blockage.
BH04(S)	26°27'19.09"S	27°16'19.81"E	Shallow and deep borehole pair down-gradient of the Deelkraal TSF and RWD to monitor seepage towards the dolomite compartment.
BH04(D)			
BH05	26°27'56.58"S	27°18'3.69"E	Shallow borehole to monitor seepage from the Deelkraal WRD.
BH06	26°27'34.01"S	27°21'35.11"E	Shallow borehole down-gradient of the Kusasalethu plant area.
BH07	26°27'39.68"S	27°21'44.88"E	Shallow borehole down-gradient of the Kusasalethu WWTW.
BH08(S)	26°28'34.35"S	27°21'49.56"E	Shallow and deep borehole pair down-gradient of the Kusasalethu TSF and RWD to monitor seepage towards Wedela agricultural project (receptor).
BH09(D)			

4.2 All new groundwater monitoring boreholes (Table 7), as well as all existing groundwater monitoring boreholes namely; BH01, BH02(S), BH02(D), BH03(S), BH03(D), DKTSF(S), DKTSF(D), DKRWD(S), DKRWD(D), DKWRD(S), DKWRD(D), Anglo BH, MBH14, MBH15, MBH16, MBH17, RV SHAFT KBH4, KLBH and HYD6, must be monitored quarterly for quality and groundwater level. Biannual groundwater monitoring reports should be submitted to the Department.

4.3 Groundwater samples should be monitored for the full chemical analysis including all major constituents and any constituents of concern, as identified by a groundwater specialist.

4.4 The proposed new borehole down-gradient from the Kusasalethu WWTW must also be monitored for microbiological constituents including E.coli and Faecal Coliforms.

4.5 All boreholes must be capped, locked and sign-posted in order to ensure sampling can be undertaken. All monitoring boreholes must be accessible; if access restrictions limit

monitoring of certain boreholes then those boreholes should be closed and re-drilled in nearby accessible locations.

4.6 The date, time and monitoring point in respect of each sample taken shall be recorded together with the results of the analysis.

4.7 Monitoring points must not be changed prior to notification to and written approval by the Department.

4.8 Analysis must be carried out in accordance with methods prescribed by and obtainable from the South African National Standards (SANS), in terms of the Standards Act, 2008 (Act 8 of 2008).

4.9 The methods of analysis must not be changed without prior notification to and written approval by the Department.

5. WATER RESOURCE PROTECTION

5.1 The impact of mining activities and associated waste and wastewater containment facilities on the groundwater shall not exceed the groundwater quality limits as indicated in Table 8 below:

Table 8: Groundwater quality limits

Parameters	Limit
pH	5.0-9.7
Electrical Conductivity (mS/m)	<200
Total Dissolved Solids (mg/l)	<1200
Calcium (mg/l)	<200
Magnesium (mg/l)	<100
Sodium (mg/l)	<200
Chloride (mg/l)	<300
Sulphate (mg/l)	<600
Nitrate (mg/l)	<10
Fluoride (mg/l)	<1
Aluminium (mg/l)	<0.5
Iron (mg/l)	<3
Total manganese (mg/l)	<0.5
Uranium (mg/l)	<0.03

5.2 The Licensee must ensure that mining activities do not impact on the water quality and quantity of the area, as surrounding communities located south and downstream from the Kusasalethu TSF and WRD rely on groundwater for domestic use, livestock watering and irrigation purposes. Should the monitoring results indicate a negative impact on these groundwater users, the Licensee must ensure in advance that alternative clean water supply is provided to affected users.

5.3 The Licensee must ensure that full rehabilitation of the Deelkraal TSF and RWD must be undertaken within 3 years of licence issuance. The Deelkraal TSF paddocks must be cleaned out (removal of sediment and vegetation) and maintained to ensure complete

capture of dirty water runoff from the TSF. The Deelkraal TSF must be re-vegetated to prevent dust emissions overtime and to limit dirty runoff. The Deelkraal RWD must been engineered and lined with HDPE in accordance with relevant Norms and Standards in order to ensure that dirty water runoff is captured and directed to a lined holding facility for evaporation.

5.4 The Licensee must ensure that full rehabilitation of the Deelkraal WRD must be undertaken within 1 year of licence issuance. The Deelkraal WRD footprint must be re-vegetated to be free-draining in order to prevent ponding and further contamination of runoff.

5.5 The Licensee must ensure that a revised hydrocensus within a 2 km radius of the Deelkraal and Kusasalethu waste facilities must be conducted within 1 year of licence issuance. The hydrodensus must focus on possible groundwater pollution receptors, and where receptor boreholes are identified, groundwater sampling of those boreholes must be undertaken as part of the hydrocensus. The results of the hydrocensus and sampling can be incorporated into the biannual groundwater monitoring report or submitted as part of a revised geohydrology report to the provincial Head: Gauteng Provincial Operations.

5.6 The Licensee must ensure that the numerical groundwater model is updated and calibrated in order to improve confidence in the model predictions. Additional pump testing in the vicinity of the Kusasalethu mining operations should be undertaken so that the results of the pump testing can be used to calibrate the numerical model, as the model is largely based on pump testing undertaken in the vicinity of the Deelkraal operations. The results of the updated groundwater modelling should be provided to the Department within 1 year of licence issuance.

5.7 The Licensee must ensure that the volume of groundwater currently flowing from the decommissioned Deelkraal operations into Kusasalethu operations is quantified by a geo-hydrologist. In addition to this, the predicted volume of water that will need to be dewatered from Kusasalethu annually for the remaining life of the mine should be modelled, in order to ensure that Kusasalethu Mine can manage the predicted volumes of water required for dewatering over the remaining life of the mine.

6 REPORTING

6.1 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.

6.2 The Licensee shall submit the results of analysis for the monitoring requirements to the Regional Head on a quarterly basis under Reference number 27/2/2/C421/310 and 27/1/1/C923/3/9

7 STORM WATER MANAGEMENT

7.1 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 or spilled on the premises.

7.2 Increase 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.

7.3 Storm-water shall be diverted from the mine complex site and roads and shall be managed in such a manner as to disperse runoff and concentrating the storm-water flow.

7.4 Where necessary works must be constructed to attenuate the velocity of any storm-water discharge and to protect the banks of the affected watercourses.

7.5 Storm-water control works must be constructed, operated and maintained in a sustainable manner throughout the impacted area.

7.6 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 streams.

7.7 All storm-water that would naturally run across the pollution areas shall be diverted via channels and trapezoidal drains designed to contain the 1:50 year flood.

7.8 The polluted 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 as contained in the integrated Water Use Licence Application reports submitted for the issued licence No. 01/C23E/ABEFGJ/2802 and for this licence.

7.9 The polluted storm water captured in the storm water control dams shall be pumped to the process water treatment plant for reuse and recycling.

8 PLANT AREAS AND CONVEYANCES

8.1 Pollution caused by spills from the conveyances must be prevented through proper maintenance and effective protective measures especially near all stream crossings.

8.2 All reagent storage tanks and reaction units must be supplied with a bunded area built to the capacity of the facility and provided with sumps and pumps to return the spilled material back into the system. The system shall be maintained in a state of good repair and standby pumps must be provided.

8.3 Any hazardous substances must be handled according to the relevant legislation relating to the transport, storage and use of the substance.

8.4 Any access roads or temporary crossings must be:

8.4.1 non-erosive, structurally stable and shall not induce any flooding or safety hazard; and

8.4.2 be repaired immediately to prevent further damage.

9 ACCESS CONTROL

9.1 Strict access procedures must be followed in order to gain access to the properties.

9.2 Access to the wastewater facilities must be limited to authorised employees of the Licensee and their Contractors only.

9.3 Notices prohibiting unauthorised persons from entering the areas referred to in condition 9.1, 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.

10 CONTINGENCIES

10.1 Accurate and up-to-date records shall be kept of all system malfunctions resulting in non-compliance with the requirements of this licence. The records shall be available for inspection by the Regional Director upon request. Such malfunctions shall be tabulated under the following headings with a full explanation of all the contributory circumstances:

10.1.1 operating errors;
10.1.2 mechanical failures (including design, installation or maintenance);
10.1.3 environmental factors (e.g. flood);
10.1.4 loss of supply services (e.g. power failure); and
10.1.5 other causes.

10.2 The Licensee must, within 24 hours, notify the Regional Director of the occurrence or potential occurrence of any incident which has the potential to cause, or has caused water pollution, pollution of the environment, health risks or which is a contravention of the licence conditions.

10.3 The Licensee must, within 14 days, or a shorter period of time, as specified by the Regional Director, 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 Regional Director of measures taken to:

10.3.1 correct the impacts resulting from the incident;
10.3.2 prevent the incident from causing any further impacts; and
10.3.3 prevent a recurrence of a similar incident.

11 AUDITING

11.1 The Licensee shall conduct an annual internal audit on compliance with the conditions of this licence. A report on the audit shall be submitted to the Regional Director within one month of finalisation of the report, and shall be made available to an external auditor should the need arise.

11.2 The Licensee shall appoint an independent external auditor to conduct an annual audit on compliance with the conditions of this licence. The first audit must be conducted within 3 (three) months of the date this license was issued and a report on the audit shall be submitted to the Regional Director within one month of finalisation of the report.

12 INTEGRATED WATER AND WASTE MANAGEMENT

12.1 The Licensee must prepare an Integrated Water and Waste Management Plan (IWWMP), which must together with the *Rehabilitation Strategy* and Implementation Programme (RSIP), be submitted to the Regional Director for approval within one (1) year from the date of issuance of this licence.

12.2 The IWWMP and RSIP shall thereafter be updated and submitted to the Regional Director for approval, annually.

12.3 The Licensee must, at least 180 days prior to the intended closure of any facility, or any portion thereof, notify the Regional Director of such intention and submit any final amendments to the IWWMP and RSIP as well as a final *Closure Plan,* for approval.

12.4 The Licensee shall make full financial provision for all investigations, designs, construction, operation and maintenance for a water treatment plant should it become a requirement as a long-term water management strategy.

13 WATER CONSERVATION AND WATER DEMAND MANAGEMENT (WC/WDM)

13.1 Licensee shall use water efficiently to minimise total water intake, void usage of water where possible, implement "good" housekeeping and operating practices, and maximise the reuse /recycle of contaminated water.

13.2 Licensee shall develop and submit a water conservation and demand management (WC/WDM) plan to the Provincial Head, which:

13.2.1 quantify the water use efficiency of the activity;
13.2.2 contains the mine water management and water loss strategies and programmes;
13.2.3 sets annual targets for improved water use efficiency for the mining activity, beneficiation and waste disposal practices and stipulates which measures will be implemented to achieve the targets on the mine;

13.3 Licensee shall update the WC/WDM plan on an annually basis and submit to the Provincial Head for approval.

13.4 Licensee shall report on annually basis the implementation of water conservation and water demand management measures including retrofitting with water efficient technologies and devices, reduction of total water demand, improvement in water use efficiency benchmarks and targets.

APPENDIX V

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 authorised to remove a total volume of one million seven hundred and eighty seven thousand six hundred and thirty four cubic meters per annum (1 787 634 m3/a) of water found underground from Kusasalethu mining activities in order for the continuation of mining and the safety of people and as indicated in Table 10 below.

Table 10: Summary of Water Use

Resource	Use of dewatered volumes	Quantity dewatered	Property	Coordinates
Kusasalethu underground water	Removing of underground water from Kusasalethu Mine in order to keep the mine dry	1 787 634 m^3/a	Buffelsdoorn 143 IQ, Portion 0	26° 27' 13.4" S 27° 21' 32.4" E

1.2. No more water shall be removed for dewatering than the minimum required for effective dewatering.

1.3. The quantity of water removed underground must be metered and recorded on a daily basis.

1.4. Groundwater levels shall be monitored every month.

1.5. Self-registering flow meters must be installed in the delivery lines at easily accessible positions near the dewatering points.

1.6. The flow metering devices shall be maintained in a sound state of repair and calibrated by a competent person at intervals of not more than once in two years. Calibration certificates shall be available for inspection by the Regional Director or his/her representative upon request.

1.7. Calibration certificates in respect of the pumps must be submitted to the Regional Director after installation thereof and thereafter at intervals of two years.

1.8. The Licensee must routinely check if the pumps are in a working order. A contingency plan should be in place in case of failure of pumps.

1.9. The date and time of monitoring in respect of each sample taken shall be recorded together with the results of the analysis.

1.10. Analysis shall be carried out in accordance with methods prescribed by and obtainable from the South African Bureau of Standards, in terms of the Standards Act, 1982 (Act 30 of 1982).

1.11. The methods of analysis shall not be changed without prior notification to the Licensee and written approval by the Minister or his/her delegated nominee.

1.12. The Regional Director must be informed of any incident that may lead to underground water being disposed of contrary to the provisions of this license, by submitting a report containing the following information:

1.12.1. nature of the incident (e.g. operating malfunctions, mechanical failures, environmental factors, loss of supply services, etc.);
1.12.2. actions taken to rectify the situation and to prevent pollution or any other damage to the environment; and
1.12.3. measures to be taken to prevent re-occurrence of any similar incident.

1.13. The Licensee shall follow acceptable construction, maintenance and operational practices to ensure the consistent, effective and safe performance of the underground water removal system.

1.14. Reasonable measures must be taken to provide for mechanical, electrical or operational failures and malfunctions of the underground water removal system.

[END OF LICENCE]