




water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

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

**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 Deputy Director-General: Special Projects in the Department of Water and Sanitation acting under authority of the powers delegated to me by the Minister of Water and Sanitation, hereby authorises the following water uses in respect of this licence.

SIGNED: 

DATE: 12/11/2020

LICENCE NO: 08/C24B/AGJ/9799

FILE NO: 16/2/7/C241/C9

1. Licensee:
Harmony Moab Khotsong Operations (Pty) Ltd
Harmony Gold Mining Company Ltd
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 Appendices I and II
- 2.2 Section 21(g) of the Act: Disposing of waste in a manner which may detrimentally impact on a water resource, subject to the conditions set out in appendices I and III
- 2.2 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, subject to the conditions as set out in Appendices I and IV.

B12268



3. Properties on which the use will be exercised

Table 1: Properties where water uses will be excised

Properties	Water uses
Remaining extent of the farm Chrystalkop 69, IP	21 (g)
Remaining extent of the farm Doornkom West 446, IP	21 (g)
Remaining extent of the farm Mispah 274, IP	21 (g)
Portion 3 of the farm Vaalkop 439, IP	21 (g)
Portion 1 of the farm Zuiping 394, IP	21 (a)
Portion 4 of the farm Zuiping 394, IP	21 (g), (j)
Remaining extent of Hoekplaats 598	21 (g), (j)

4. Registered owner of the Properties

Harmony Moab Khotsong Operations (Pty) Ltd

5. Licence and Review Period

5.1 This licence is valid for a period of twenty (20) years from the date of issuance and it may be reviewed on intervals of not more than five (5) years.

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 Provincial Head" means the Head of Provincial Head: Free State Operations, Department of Water and Sanitation, Private Bag 528, Bloemfontein, 9300.

"Report" refers to the report entitled Integrated Water and Waste Management Plan and Environmental Management Programme compiled by SRK Consulting as well as all other related documentations and communication (emails, letters, verbal, etc) related thereto.

7. Description of the activity

This licence authorises Harmony Gold Mining Company Ltd – Moab Khutsong Shaft for the following water uses in terms of section 21(a), (g) and (j) of the National Water Act, 1998 (Act 36 of 1998). The activities is for mining gold. The mine is located in the Vaal Water Management Area in the C24B quaternary catchment.



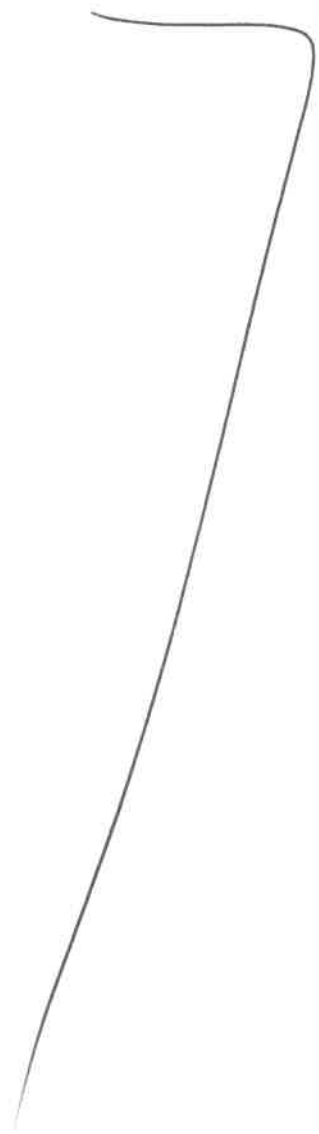
APPENDIX I

General conditions 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 properties in respect of which this licence is issued are subdivided or consolidated, the Licensee must provide full details of all changes in respect of the properties to the Provincial Head of the Department within sixty (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 this association is compulsory.
6. The Licensee will be responsible for any water use charges 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 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.
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 applicable provisions of the Act, as amended from time to time.
10. The Licensee must conduct an annual internal audit on compliance with the conditions of the licence. A report on the audit shall be submitted to the Provincial Head within one (1) month of finalisation.
11. The Licensee must 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 three (3) months of the date of licence issuance and a report on the audit must be submitted to the Provincial Head within one (1) month of finalisation of the report.
12. Flow metering, recording and integrating devices must be maintained in a sound state of repair and calibrated by a competent person at intervals of not more than two (2) years. Calibration certificates must be available for inspection by the Provincial Head or his/ her representative upon request.



13. Any incident that causes or may cause water pollution must be reported to the Provincial Head or his/her designated representative within 24 hours.
14. Licensee must use water efficiently to minimise total water intake, void usage of water where possible, implement "good" housekeeping and operating practices, and maximise the re-use /recycle of contaminated water.
15. The Department accepts no liability for any damage, loss or inconvenience, of whatever nature, suffered as a result of / amongst other things.
 - 15.1 Shortage of water;
 - 15.2 Inundation of flood;
 - 15.3 Any *force majeure* event;
 - 15.4 Siltation of the river or dam basin; and
 - 15.5 Required Reserve releases.



APPENDIX II

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

1. This licence authorizes the taking of a maximum quantity of **nine hundred and seventy seven thousand six hundred and sixteen** cubic metres per annum (**977 616 m³/a**) of groundwater, for the purpose of inter caption of the pollution plume and for the use in the metallurgical processes. The table below shows the geographic coordinates of the abstraction points detailed in Table 2.

Table 2: Water use activities

Activity	Properties	Co ordinates	Volume (m ³ /a)
Mining	Portion 1 of the farm Zuiping 394	26° 56' 48.3"S 26° 46' 51.9"E 26° 56' 52.7"S 26° 46' 49.9"E 26° 57' 02.9"S 26° 46' 42.5"E 26° 57' 05.7"S 26° 46' 50.1"E	977 616

2. The quantity of water authorised to be taken in terms of this licence may not be exceeded.
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 above mentioned 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 in an endeavour to conserve water at all times.
6. The Licensee shall install appropriate water measuring devices to measure the amount of water abstracted within six months of the licence being issued. 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. All water taken from the resource shall be measured, recorded and reported as follows:
 - 6.1 The daily quantity of water taken must be metered or gauged and the total recorded at the last day of each month;
 - 6.2 The Licensee shall keep record of all water taken and a copy of the records shall be forwarded to the Provincial Head on or before 25 January and 25 July of each year.



7. No water taken may be used for purposes other than intended in this licence, without written approval by the Minister or his/her delegated nominee.
8. 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.
9. The Licensee shall establish a programme of formal Information Management System, which maintains a database on water supply, distribution and delivery infrastructure.
10. The Licensee shall establish and implement a continual process of raising awareness amongst itself, its workers and stakeholders with respect to Water Conservation and Water Demand Management initiatives.
11. The Licensee must submit a full pump tests report of all the boreholes they are abstracting within one year of licence being issued.
12. Groundwater model must be calibrated to quantify the pollution plume migration rate and direction annually. The model must determine the cone of depression radius, and the private groundwater users potentially impacted.
13. The Licensee must ensure that the drinking water quality supplied meets National Standard for drinking quality: SANS 0241.

APPENDIX II



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

1 QUANTITY OF WASTE TO BE DISPOSED

1.1 This Licensee is authorised to dispose treated wastewater in to oxidation dam, abattoir fresh water dam, manure dams, French drains and stockpiles in terms of water uses activities detailed in Table 3.

Table 3: Water use activities

Activity	Properties	Demission/ Capacity	Volume	Co-ordinates
Section 21 (g)				
	Chrystalkop 69/0	44 000	661 745	26° 57' 56.3"S 26° 46' 43.3"E
	Doornkom West 446/0		1 528 985	26° 59' 27.7"S 26° 46' 15.6"E
	Mispah 274/0		376 383	26° 59' 47.4"S 26° 46' 16.0"E
			390 887	26° 59' 48.5"S 26° 45' 47.7"E
			897 587	26° 57' 43.4"S 26° 46' 47.4"E
			170 090	26° 59' 25.1"S 26° 46' 45.3"E
			6 277 865	26° 59' 55.5"S 26° 45' 55.8"E
	Zuiping 394/4		1 080 000	26° 57' 36.9"S 26° 46' 14.7"E
	Vaalkop 439/3		405 600	26° 56' 35.7"S 26° 44' 16.5"E
	Hoekplaats 598/0		204 216	26° 59' 02.6"S 26° 48' 12.6"E
			700 000	26° 59' 07.0"S 26° 48' 11.4"E
			4 413 732	26° 58' 43.9"S 26° 47' 56.4"E

- 1.2 The quantity of waste/wastewater authorised to be disposed of in terms of this licence must not be exceeded.
- 1.3 The total capacity of the Central Spillage Dam is **60 268 m³** (sixty thousand two hundred and sixty eight cubic metres) and shall be operated at a minimum freeboard of 0.8 metres above supply level.
- 1.4 The Licensee is authorized to dispose the maximum quantity of **405 600 m³/a** (four hundred and five thousand six hundred cubic metres per annum), based on the average quantity of 33 800 m³/m (thirty three thousand eight hundred cubic metres per month) of water containing waste from the No. 3 shaft water care works to the Central Spillage Dam. The maximum quantity of waste water disposed from the No. 3 Shaft water care works to the Central Spillage Dam shall not exceed 1 126 m³ (one thousand one hundred and twenty six cubic metres) on any one day.
- 1.5 The Licensee is authorized to dispose the maximum quantity of **1 080 000 m³/a** (one million and eighty thousand cubic metres per annum), based on the average quantity of **90 000 m³/m** (ninety thousand cubic metres per month) of water containing waste from the Great Nologwa Gold Plant water care works to the Nologwa Gold Plant. The maximum quantity of waste water disposed from the Great Nologwa Gold Plant water care works to the Great Nologwa Gold Plant shall not exceed 2 903 m³ (two thousand nine hundred and three cubic metres) on any one day.
- 1.6 The Licensee is authorized to dispose the maximum quantity of **204 216 m³/a** (two hundred and four thousand two hundred and sixteen cubic metres per annum), based on the average quantity of **17 018 m³/m** (seventeen thousand and eighteen cubic metres per month) of water containing waste from the Moab Khotsong water care works to the Moab Khotsong Shaft for reuse. The maximum quantity of waste water disposed from the Moab Khotsong water care works to the Mispah Return Water Dams shall not exceed 560 m³ (five hundred and sixty cubic metres) on any one day.
- 1.7 The Licensee is authorised to deposit **6 277 865 m³ /a** (six million two hundred and seventy seven thousand eight hundred and sixty five cubic metres) of tailing per annum in the Mispah Complex Tailings storage facility based on an average quantity of five hundred and twenty five thousand cubic metres (525 000 m³) per month.
- 1.8 The Licensee is authorised to deposit four million four hundred and thirteen thousand seven hundred and thirty two (**4 413 732**) cubic metres per annum of waste rocks into Moab Khotsong Waste Rock Dump.
- 1.9 The Licensee is authorized to dispose the maximum quantity of **1 528 985 m³/a** (one million five hundred and twenty eight thousand nine hundred and eighty five cubic metres per annum of water containing waste from the Mispah return dams to Moab Khotsong Shaft for reuse
- 1.10 The Licensee is authorized to dispose the maximum quantity of **661 745 m³/a** (six hundred and sixty one thousand seven hundred and forth five cubic metres per annum of water containing waste from the #8 settling dams to the Moab Khotsong Shaft for reuse
- 1.11 The Licensee is authorized to dispose the maximum quantity of **376 383 m³/a** (three hundred and seventy six thousand three hundred and eighty three cubic metres per annum of water containing waste from the Mispah storm water dams to the Moab Khotsong Shaft for reuse
- 1.12 The Licensee is authorized to dispose the maximum quantity of **390 887 m³/a** (three hundred and nighty thousand eight hundred and eighty seven cubic metres per annum of water containing waste from the Mispah storm water dams to the Moab Khotsong Shaft for reuse

- 1.13 The Licensee is authorized to dispose the maximum quantity of **897 587** m³/a (eight hundred and ninety seven thousand five hundred and eight seven cubic metres per annum of water containing waste from the South Uranium plant barren dams to the Moab Khotsong Shaft for reuse
- 1.14 The Licensee is authorized to dispose the maximum quantity of **170 090** m³/a (one hundred and seventy thousand and ninety cubic metres per annum of water containing waste from the Kopanong pay dam return dams to the Moab Khotsong Shaft for reuse,
- 1.15 The Licensee is authorized to dispose the maximum quantity of **700 000** m³/a (seven hundred thousand cubic metres per annum of water containing waste from the Moab Khotsong pollution dams to the Moab Khotsong Shaft for reuse
- 1.16 Licensee must undertake impact prediction studies for all mine residue deposits within one (1) year of the issuance of this licence.
- 1.17 The quality of the treated sewage effluent must comply with the general standard, published in Government Notice 91 of 18 May 1984, except for the following relaxations: Relaxation is granted from the Special Standard for Phosphate of 1mg/l and from the General Standard for residual chlorine 0.1mg/l; and Relaxation is granted from the Faecal Coli Standard of zero units per 100 m/l to 1 000 units per 100 m/l.
- 1.18 The licensee shall meter, calculate and records the quantities of water used, separately in respect of the main sources, on a monthly basis.
- 1.19 Analysis shall be carried out in accordance with methods prescribed by and obtainable from the South African Bureau of Standard (SABS), in terms of the Standard Act, 1982 (Act 30 of 1982)
- 1.20 The methods of analysis shall not be changed without prior notification to and approval by the Minister.
- 1.21 The licensee shall use acknowledged methods for sampling and the date, time and sampler must be indicated for each sample.
- 1.22 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 of the water resource and must furthermore co-operate with other water users in the catchment to determine the mass balance of the water resource reserve compliance point (Vaal River at Pelgrims Estate/Regina).
- 1.23 The Licensee shall submit the results of the analysis for the monitoring requirements to the Regional Chief Director on an annual basis under reference number 16/2/7/C241/C9
- 1.24 The Licensee shall submit an annual Water management Report which shall contain, but not limited to, the following:
 - 1.24.1 Water consumption versus production
 - 1.24.2 Water management strategies;
 - 1.24.3 The total quantity of water used per month and the minimum and maximum quantity of water used during any month as well as the mean quantity of water used for that year (reflecting seasonal variations),
 - 1.24.4 A detailed breakdown of water consumption, which includes waste minimisation strategies;
 - 1.24.5 Current status of the water the water management philosophy and achievements; and
 - 1.24.6 Water usage in excess of the 95th percentile of water usage range per month from the various sources of water.



- 1.25 The Licensee shall 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 Chief Director for approval within one (1) year from the date of issuance of this license.
- 1.26 The IWWMP and RSIP shall thereafter be updated and submitted to the Regional Chief Director for approval, annually.
- 1.27 The Licensee must, at least 180 days prior to the intended closure of any facility, or any portion thereof, notify the Regional Chief Director of such intention and submit any final amendments to the IWWMP and RSIP as well as final Closure Plan for approval.
- 1.28 The Licensee shall make full financial provision for all investigation, designs, construction, operation and maintenance for a water treatment plant should it become a requirement as a long-term water management strategy.
- 1.29 The Licensee shall implement and maintain a water management system according to which the accuracy of the water meters can be monitored regularly and quarantined reasonably.
- 1.30 The Licensee shall investigate and implement water- saving strategies to optimise recycling and reuse in order to ensure that water is not wasted or illegally disposed of. Strategies shall be aimed at conserving water and at minimising the wasting and pollution of water.
- 1.31 For the protection of the infrastructure and pollution control measures, such as:
- 1.31.1 containment facilities and slime dams;
- 1.31.2 contour walls;
- 1.31.3 cut-off trenches; and
- 1.31.4 any other deviation or collection structure shall be designed and constructed as to ensure a freeboard of at least 0.8 metres above the maximum water level which could be reached as a result of the estimated maximum precipitation that may be expected a period of 24hrs with an average frequency of recurrence of once in fifty years.
- 1.32 Accurate and up-to-date records shall be kept of all systems malfunctions and any incidents which cause or may cause water being used in excess of the quantities specified in Appendix I and/or may result in a pollution of the water resources. Such malfunctions shall be recorded under the following headings together with a full explanation of all contributory circumstances and shall be included in the annual report,
- 1.33 The Licensee shall appoint subordinate managers who shall be responsible persons with regard to management skills in the water field to ensure that the conditions of this Licence are properly adhered to and executed. Details of the responsible persons shall be recorded and included in the annual report.

2.2. Groundwater Monitoring

- 2.2.1 The Licensee shall conduct ground water monitoring on a quarterly basis for the variables shown in Table 10 and the results must be submitted to the Provincial Head.

Table 4: Groundwater quality monitoring

Site	Description	Co-ordinates		Monitoring frequency
		Latitude	Longitude	
Northern Wellfield Monitoring Boreholes				

VRE06	East Wellfield (South of Vaal River)	S 26° 57' 12.02"	E 26° 44' 31.56"	Quarterly
Vaal River Waste Disposal Facility's Monitoring Boreholes				
VR12	North western corner of VR Domestic Waste Site	S 26° 57' 00.86"	E 26° 44' 19.39"	Quarterly
VR13	Downgradient-Southern end of Domestic Waste Site	S 26° 57' 12.02"	E 26° 44' 31.56"	Quarterly
VR14	East of Domestic Waste Site	S 26° 57' 01.47"	E 26° 44' 30.02"	Quarterly
Great Noligwa (8#) Monitoring Boreholes				
GN02	Between No.8 Met plant return water dams & Vaal River	S 26° 57' 30.94"	E 26° 46' 14.83"	Quarterly
GN04	Upstream of 8# Waste Rock	S 26° 58' 11.67"	E 26° 47' 20.79"	Quarterly
GN06	Within 8 Sewage Plant	S 26° 57' 25.98"	E 26° 46' 31.64"	Quarterly
GN08	West of Waste Rock Dump, between dump and South U-Plant	S 26° 57' 55.02"	E 26° 46' 59.91"	Quarterly
Great Noligwa Gold & South Uranium Plants Monitoring Boreholes				
VRM32	North of Barren Dams South U-Plant	S 26° 57' 50.37"	E 26° 46' 46.90"	Quarterly
VRM33	Northwest of Barren Dams South U-Plant	S 26° 57' 56.44"	E 26° 46' 46.70"	Quarterly
VRM48	South West of Noligwa Gold Plant	S 26° 57' 44.88"	E 26° 46' 38.34"	Quarterly
VRM50	North West of South U-Plant	S 26° 57' 55.62"	E 26° 46' 29.12"	Quarterly
Mispah TSF Complex				
VRM06	Directly north of Mispah	S 26° 59' 33.90"	E 26° 46' 20.10"	Quarterly
VRM07	North of Mispah	S 26° 59' 20.15"	E 26° 46' 31.60"	Quarterly
VRM14	In Mispah Game Reserve, on eastern side of slimes dam.	S 26° 59' 34.91"	E 26° 47' 02.29"	Quarterly
VRM51D	North of Mispah TSF (Deep)	S 26° 59' 26.50"	E 26° 46' 35.34"	Quarterly
VRM58D	North of old Mispah RWD	S 26° 59' 22.74"	E 26° 46' 19.75"	Quarterly
VRM59D	South Western corner of Mispah TSF	S 27° 00' 09.21"	E 26° 46' 00.66"	Quarterly
VRM59S	South Western corner of Mispah TSF	S 27° 00' 09.38"	E 26° 46' 00.67"	Quarterly
VRM61D	East of old Mispah TSF	S 26° 59' 56.60"	E 26° 47' 10.73"	Quarterly
VRM61S	East of old Mispah TSF	S 26° 59' 56.59"	E 26° 47' 10.57"	Quarterly
VRM70	North East of Mispah TSF	S 26° 58' 52.70"	E 26° 46' 40.48"	Quarterly
MP16D	South of Old Mispah	S 27° 00' 39.55"	E 26° 46' 32.23"	Quarterly
MP16S	South of new Mispah TSF	S 27° 00' 39.48"	E 26° 46' 32.41"	Quarterly
VRM71	North West of Mispah TSF	S 26° 59' 04.42"	E 26° 46' 12.91"	Quarterly
Moab Khotsonq				
MK01	South of Moab WRD	S 26° 59' 02.65"	E 26° 48' 02.27"	Quarterly
MK04	East of the Moab WRD	S 26° 58' 54.00"	E 26° 48' 11.94"	Quarterly
MK06	North of Moab Waste Rock Dump	S 26° 58' 41.99"	E 26° 48' 12.01"	Quarterly

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MK12	North west of Moab Khotsong WRD	S 26° 58' 40.03"	E 26° 47' 59.54"	Quarterly
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2.2.2 Monitoring network must be set up as an early warning system to detect any polluted seepage that might occur from the wastewater system.

2.2.3 If ground water pollution have occurred or may possibly occur, the Licensee must conduct necessary investigations and implement additional monitoring and rehabilitation measures which must be to the satisfaction of the Provincial Head.

Table 5 Surface water quality monitoring

Site	Description	Co-ordinates		Monitoring frequency
		Latitude	Longitude	
Vaal River Southern Area				
VRS20	Mispah return water dams	S 26° 59' 26.43"	E 26° 46' 16.46"	Monthly
VRS37	No. 8 gold and uranium plants return water dams	S 26° 57' 35.53"	E 26° 46' 17.98"	Monthly
VRS55	Kopanang Pay Dam return water dam	S 26° 59' 23.57"	E 26° 46' 52.41"	Quarterly
VRS58	Seepage into Vaal River below visiting wives	S 26° 56' 45.73"	E 26° 46' 47.67"	Quarterly
MS08	Mispah underdrains	S 26° 59' 41.65"	E 26° 46' 59.02"	Quarterly

2.3 Bio-Monitoring

2.3.1 The Licensee must develop and submit to the Provincial Head within six (6) months of issuance of the Licence a bio-monitoring programme that will include the compilation of an initial database from which the scope and frequency of future bio-monitoring can be developed. This initial assessment must lead to the establishment of a reliable site-specific long-term bio-monitoring programme. This programme must be able to qualify and quantify the impact on biological systems in the water environment in the area directly affected by activities as well as downstream from these activities.

2.3.2 A competent and capable aquatic scientist must be appointed by the Licensee to submit a monitoring programme for aquatic macro-invertebrates and habitat integrity. Aquatic macro-invertebrates must be sampled using the latest SASS (South African Scoring System) method. Habitat Integrity must be assessed using the Rapid Bio-assessment Analysis (C.J. Kleynhans 1999) method described by the Department (SASS 2002).

2.3.3 After any incident, SASS surveys must be conducted annually in autumn, spring and summer at a site upstream and downstream of the disturbance until the impacts of the incident are not noticeable anymore. An annual report on the SASS surveys must be submitted to the Provincial Head.

2.3.4 The following variables shall be analysed for at the above mentioned (Table 4 and 5) monitoring points:

- pH
- EC (mS/m)
- TDS (mg/l)
- SS (mg/l)
- SO₄ (mg/l)
- Mn (mg/l)
- Mg (mg/l)

Ca (mg/l)
Na (mg/l)
K (mg/l)
T.Hard
Cl (mg/l)
NO3-N (mg/l)
PO4 (mg/l)
NH3 (mg/l)
T.Alkalinity
Fe (mg/l)
Zn (mg/l)
Cu (mg/l)
Ni (mg/l)
Pb (mg/l)
Cd (mg/l)
F (mg/l)
B (mg/l)
Al (mg/l)
Free CN

4. **STORMWATER**

- 4.1 Storm water leaving the Licensee's premises shall in no way be contaminated by any substance, whether such substance is a solid, liquid, vapour or gas of a combination thereof which is produced, used, stored dumped or spilled on the premises.
- 4.2 Increased runoff due to vegetation clearance and 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.
- 4.3 The Licensee shall ensure that no stormwater will ingress into the wastewater system and that no wastewater ingress into the stormwater system.
- 4.4 Wastewater impoundments must be designed, constructed and managed to ensure that there is sufficient capacity to contain the 1:50 year flood event, with a minimum of 0.8 m freeboard. Freeboard will be defined as the difference between the water level and the crest of the overflow.
- 4.5 The Licensee is authorised to operate the following dirty water impoundments, which shall be operated for a 24-hour duration storm event with a 50 year recurrence interval and the freeboard of 0.8 metres above full supply level has been established.
- 4.6 Any contaminated storm water shall be contained at the point of origin and the excess diverted to an emergency storage dam which shall have a minimum freeboard of 0.8 meters above the expected maximum water level which is based on the average monthly



rainfall figures for the catchment area concerned, plus maximum precipitation to be expected over a period of hours with the frequency of one in every fifty (50) years.

- 4.7 Continuous monitoring shall be conducted at the main storm water discharge points during a rain-storm according to condition 5.1.1 to determine when the storm water is uncontaminated and the flow can then be diverted away from the emergency storage dam into the affected water resource.
- 4.8 No effluent occasioned by the use of water for industrial purposes shall be discharged into the storm water drain.
- 4.9 The storm water dams shall be operated under appropriate supervision and maintained in such a manner that a maximum storage capacity is available to minimise the discharge during a storm event.
- 4.10 Actions shall be taken to determine and intercept any effluent and contaminated storm water from entering the Vaal river and Schoonspruit. This may include pollution control facilities, such as contour walls or cut-off trenches with containment facilities.

Table 6: Dirty water impoundments

Description	Volume (m ³ /a)	Capacity (m ³)
Central Spillage Dam	405 600	60 268
Noligwa Gold Plant	1 080 000	N/A
Moab Khotsong Shaft	204 216	N/A
8# Settling Dams	661 745	44 000
Mispah Return Dams	1 528 985	44 000
Mispah Storm Water Dam	376 383	105 000
Mispah (II) Storm Water Dam	390 887	90 000
South Uranium Plant-Barren Dams	897 587	34 613
Moab Khotsong-Pollution Control Dams	700 000	12 100
Kopanang Pay Dam-Return Water Dam	170 090	60 000
Mispah Complex TSF	6 277 865	N/S
Moab Khotsong Waste Rock Dump	4 413 732	N/A

- 4.5 Wastewater systems must be properly maintained on a continuous basis.
- 4.6 Storm water shall be diverted from the impoundments and roads and shall be managed in such a manner as to disperse runoff and to prevent the concentration of the stormwater flow.
- 4.7 Cut-off drains shall be provided around the properties to prevent storm-water ingress into the surrounding of the works. These drains shall be designed to contain the maximum runoff, which could be expected over a period of 24 hours with a frequency of once in every 20 years.
- 4.8 The Licensee shall conduct regular inspections upstream to ensure that stormwater does not ingress into the wastewater system.

5. MALFUNCTIONS/ABNORMAL CONDITIONS

- 5.1 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 upon request.

- 5.2 The records shall be tabulated under the following headings with a full explanation of all the contributory circumstances:
- 5.2.1 Operating errors
 - 5.2.2 Mechanical failures (including design, installation or maintenance)
 - 5.2.3 Environmental factors (e.g. floods)
 - 5.2.4 Loss of supply services (e.g. power failure)
 - 5.2.5 Other causes
- 5.3 The Licensee must, within 14 days, or a shorter period of time, as specified by the Provincial Head, 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 of measures taken to:
- 13.3.1 Correct the impacts resulting from the incident;
 - 13.3.2 Prevent the incident from causing any further impacts; and
 - 13.3.3 Prevent a recurrence of a similar incident.
- 5.4 The Licensee must notify by the Provincial Head within 24 hours of the occurrence or potential occurrence of any incident which has the potential to cause, or has caused water and environmental pollution, health risks or which is a contravention of the licence conditions
- 6. CONTINGENCY PLANS AND INCIDENT REPORTING**
- 6.1 The Licensee must develop and implement an Emergency and Contingency Plan.
- 6.2 The Licensee must implement and promote an environmental call and reporting centre where the following can be reported:
- 6.2.1 Illegal disposals of waste and/or littering;
 - 6.2.2 Broken, ruptured or leaking pipelines wasting potable water;
 - 6.2.3 Open or leaking taps on the property of the Licensee;
 - 6.2.4 Open manholes;
 - 6.2.5 Leaking or broken sewerage lines and pipes;
 - 6.2.6 Overflowing manholes and pump stations;
 - 6.2.7 Possible offenders of any environmental regulations, by-laws and/or ordinances; and
 - 6.2.8 Any other aspect that might hamper the effective management of the water resources.
- 6.3 The Licensee must compile an environmental call and reporting centre protocol, that must be included in the Plan, and which will investigate every complaint within 24 hours of it being reported.
- 6.4 The Licensee must rectify all valid issues reported within 7 days of the issue being reported to the Licensee. All incidents shall be recorded in an incident register which will include reasons for non-rectification of issues raised.
- 6.5 Statistical summary of malfunctions and incidents shall be included in the [Annual Report](#).
- 6.6 Nature of the incident;



- 6.6.1 actions taken to rectify the situation and to prevent water pollution/storm water contamination; and
- 6.6.2 actions taken to prevent similar incidents/pollution in the future.
- 6.7 The occurrence of any incident which causes or may cause pollution, including incidents with hazardous material or fluids, shall immediately be reported to the Regional Chief Director by telephone followed up by a fax within 24 hrs of occurrence and the details mentioned in condition 13.4 shall be included.
- 6.8 The water systems, as well as any other pipeline, trench, channel, or dam, shall be maintained and operated in such a way that leakages or spillages are promptly detected and reasonably be repaired at all times or rectified timeously. A record in this regard shall be kept and be available for inspection by the Regional Chief Director.

7. ACCESS CONTROL, FENCING AND NOTICES

- 7.1 The sites must be adequately fenced to prevent entry of animals and unauthorised persons.
- 7.2 Strict access procedures must be followed in order to gain access to property. Access must be limited to authorised employees of the Licensee and their Contractors only.
- 7.3 Notices manufactured of durable weatherproof material prohibiting unauthorised entry and warning against the use of water containing waste for drinking and washing purposes must be displayed at prominent places along all fences and at entrance gates. Such notices must be worded in the official languages applicable in the area.

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 areas must be supplied with a bunded area to the capacity of 110% of that of the largest container. 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 crossing must be: non-erosive, structurally stable and shall not induce any flooding or safety hazard; and be repaired immediately to prevent further damage

8. AUDITING

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

8 SITE SPECIFIC CONDITIONS

- 8.1 The licensee shall not irrigate with blood water or put it on the pit/well.

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APPENDIX III

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. The Licensee is authorised to remove a maximum volume of water found underground in the properties as indicated in Table 4:

Table 4: Groundwater Removal.



Description/ Activity	Area	Volume	Co-ordinate
Removing, Discharging or disposing of water found underground	Great Nologwa Gold Mine (H-J1)	5 110 000	26° 57' 40.7"S 26° 47' 05.2"E
	Moab Khotsong (H_J2)	805 704	26° 59' 10.8"S 26° 48' 07.4"E

2. The Licensee is authorised to remove a total volume a total of **5 110 000 m³** (five million one hundred and ten thousand cubic metres) per annum of underground water from the Great Nologwa Gold Mine, based on a maximum quantity of 425 833 m³/d (four hundred and twenty five thousand eight hundred and thirty three cubic metres per day), and re-use this water in the operations. The geographic coordinates of the abstraction point are S 26° 57' 40.69" and E 26° 47' 05.24".
3. The Licensee is authorised to remove a total volume a total of 805 704 m³ (eight hundred and five thousand seven hundred and four cubic metres) per annum of underground water from the Moab Khotsong, based on a maximum quantity of 2 207 m³/d (two thousand two hundred and seven cubic metres per day), and re-use this water in the operations. The geographic coordinates of the abstraction point are S 26° 59' 10.75" and E 26° 48' 07.42".
4. The Regional Chief Director must be informed of any incident that may lead to groundwater being disposed of contrary to the provisions of this license, by submitting a report containing the following information: -
 - 4.1 nature of the incident (e.g. operating malfunctions, mechanical failures, environmental factors, loss of supply services, etc)
 - 4.2 actions taken to rectify the situation and to prevent pollution or any other damage to the environment and
 - 4.3 measures to be taken to prevent re-occurrence of any similar incident;
5. The Licensee shall follow acceptable construction, maintenance and operational practices to ensure the consistence, effective and safe performance of the underground water removal system.
6. Reasonable measures must be taken to provide for mechanical, electrical or operational failures and malfunctions of the underground water removal system.
7. The Licensee must provide any water user whose water supply is impacted by the water use with required water.
8. The quantity of water removed from underground must be metered and recorded on a daily basis.
9. The groundwater levels must be monitored every six (6) months (once in the beginning of the dry season and once in the beginning of the wet season).
10. Self registering flow metres must be installed in the delivery lines at easily accessible positions near the dewatering points.
11. The flow metering devices must be maintained in a sound state of repair and calibrated by a competent person at intervals of not more than once in two (2) years. Calibration

certificates must be available for inspection by the Provincial Head or his/her representative upon request.

12. Calibration certificates in respect of the pumps must be submitted to the Provincial Head after installation thereof and thereafter at intervals of two (2) years.
13. The date and time of monitoring in respect of each sample taken must be recorded together with the results of the analysis.
14. Analysis must be carried out in accordance with methods prescribed by and obtainable from the South African National of Standards, in terms of the Standards Act, 1982 (Act 30 of 1982).
15. The methods of analysis must not be changed without prior notification to the Licensee and written approval by the Minister or his/her delegated nominee.
16. The Licensee must follow acceptable construction, maintenance and operational practices to ensure the consistent, effective and safe performance of the groundwater removal system.
17. Reasonable measures must be taken to provide for mechanical, electrical or operational failures and malfunctions of the underground water removal system.
18. Special conditions because of the potential negative impacts arising from the water uses applied for, the following conditions are recommended:
 - 18.1 Provide water levels every six (6) months.
 - 18.2 Provide water levels from boreholes in the surrounding every six (6) months.
 - 18.3 Establishment if the surrounding borehole water levels will be affected because of groundwater abstraction from the shaft (deep aquifer).
 - 18.4 Provide chemical analysis for groundwater from the shaft every three (3) months.
 - 18.5 Conduct surface water samples for chemical analysis up and down stream versus the point where the discharge will be taking place every three (3) months.

[END OF LICENCE]

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