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: and acting under authority of the powers sub-delegated to me by the Acting Director- General of Water and Sanitation, hereby authorizes the following water uses in respect of this licence

SIGNED: .....

DATE: 31/10/2018

LICENCE NO: 08/C42K/AEFJG/8739
FILE NO: 27/2/2/B431/1/1

1.	**Licensee** **Postal Address**	**Sibanye Gold Limited: Beatrix Gold Mine** P.O. Box 2823 Welkom 9460

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(e) of the Act:	Engaging in a controlled activity, subject to the conditions set out in Appendices I and III.
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 set out in Appendices I and V.
2.5	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 set out in Appendices I and VI.

B08574

3. Properties in respect of which this licence is issued

3.1 **Table 1:** Water uses and Property names

Water use	***Portion Number, Farm Name, Farm Number and Administrative District***
Section 21(a) of the Act	Remaining Extent of Leeuwbult 52; Remaining Extent of Doorndeel 236; Portion 6 of Palmietkuil 328; and Remaining Extent of Harmonie 579, Theunissen Rd.
Section 21(e) of the Act	Remaining Extent of Leeuwbult 52 and Portion 6 of Palmietkuil 328, Theunissen Rd.
Section 21(f) of the Act	Remaining Extent of Harmonie 579, Portion 6 of Palmietkuil 328, Theunissen Rd.
Section 21(g) of the Act	Portion 1 (Remaining Extent) of Palmietkuil 328; Remaining Extent of Palmietkuil 328; Portion 6 of Palmietkuil 328; Portion 4 of Kalkroenkrans 225; Remaining Extent of Leeuwbult 52; Remaining Extent of Harmonie 579; Portion 1 of Wolwepan 85; Remainder of Walkersvlei 133; Portion 1 of Rietpan 123; Portion 1 of Katboschdraai, Theunissen Rd.
Section 21(j) of the Act	Remaining Extent of Leeuwbult 52; Remaining Extent of Doorndeel 236; Portion 6 of Palmietkuil 328, Theunissen Rd.

4. Registered owner of the Property

4.1 **Table 2:** Property owners; Property details and Title Deed numbers

Property Owner's Name	***Portion Number, Farm Name and Farm Number***	***Title Deed Number***
Sibanye Stillwater	Remaining Extent of Doorndeel 236	T21619/2004
Sibanye Stillwater	Remaining Extent of Harmonie 579	T21620/2004
Sibanye Stillwater	Portion 4 of Kalkroenkrans 225	T21619/2004
Sibanye Stillwater	Remaining Extent of Leeuwbult 52	T21621/2004
Sibanye Stillwater	Portion 6 of Palmietkuil 328	T21619/2004
Sibanye Stillwater	Portion 1 (Remaining Extent) of Palmietkuil 328	T21619/2004
Sibanye Stillwater	Remaining Extent of Palmietkuil 328	T21619/2004
Sibanye Stillwater	Remainder of Walkersvlei 133	T21619/2004
Sibanye Stillwater	Portion 1 of Wolwepan 85	T21619/2004
Sibanye Stillwater	Portion 1 of Rietpan 123	T21619/2004
Sibanye Stillwater	Portion 1 of Katboschdraai	T21619/2004

5. Licence and Review Period

5.1 This licence is valid for a period of twenty one (21) years from the date of issuance and it may be reviewed at 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 Operations: Free State, Department of Water and Sanitation, Private Bag X528, Bloemfontein, 900.

"Act" Means National Water Act, 1998 (Act 36 of 1998).

"The Minister" Means Minister of the Department of Water and Sanitation.

"Report" refers to the following documentation as well as communications (emails, letters, verbal, etc) related thereto:

a) Existing permits and exemptions.
b) Water balance.
c) "As built" designs of the Tailing Storage Facilities.
d) Tailing Storage Facilities: Operational Plan (BTX No.2 TSF).
e) Public Participation Report.
f) Integrated Water Use Licence Application documentation (Volumes 1-3).
g) Beatrix Gold Mine approved Environmental Management Programme Report (EMPR, 2004).
h) Beatrix Gold Mine Social and Labour Plan.
i) Beatrix Gold Mine Radioactive Waste Management Procedure.
j) Groundwater Management Report: Evaluation of Hydrogeological Data at Beatrix Gold Mine and the Development of Groundwater Management Model, Beatrix Complex.
k) Groundwater Management Report: Evaluation of Hydrogeological Data at Beatrix Gold Mine and the Development of Groundwater Management Model, Beatrix # 4 Shaft.
l) Groundwater Management Report Phase 2: Numerical Groundwater Model and Management Program, Beatrix Gold Mine no.1, 2, 3 and 4 Shaft.

7. Description of the activity

This licence authorises Beatrix Gold Mine for Section 21 (a), (e), (f), (g), and (j) water uses associated with the undertaking of gold mining related activities on properties mentioned in Table 1, located in quaternary catchments C42K, C42L and C43B in the Vaal Water Management Area.

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 property 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 of the Department 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 this association is compulsory.

6. The Licensee shall be responsible for any water use charges or levies imposed by the 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. When compulsory licensing is implemented for the water resource in respect of which this licence was issued, the water use authorised in this licence could be subject to appropriate reduction.

9. 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.

10. 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.

11. The Licensee shall conduct an internal audit on this license within three (3) months of the date this license is issued. Thereafter alternating internal and external audits must be conducted annually and a report on the audit shall be submitted to the Provincial Head within one (1) month of finalisation of the report.

12. Flow metering, recording and integrating devices shall 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 shall 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.

APPENDIX II

Section 21(a): Taking water from a water resource

1. This licence authorises the abstraction of a total maximum quantity of 14 052 500 m^3/a (fourteen million fifty two thousand five hundred cubic metres per annum) of water found underground from four shafts and 5 475 m^3/a (five thousand four hundred and seventy five cubic metres per annum) from one borehole. The water use will take place as shown in **Table 3**. The properties where water use will take place are situated in C42L quaternary catchment under Vaal Water Management Area.

Table 3: Volume of water to be abstracted on each property and coordinates of the abstraction points

Purpose	Volume of water	Property	Co-ordinates
Abstraction of groundwater from Beatrix 1 Shaft for use in mining processes	6 935 000 m^3/a	Remaining Extent of Leeuwbult 52	S 28° 15' 34.20" E 26° 47' 07.78"
Abstraction of groundwater from Beatrix 2 Shaft for use in mining processes	912 500 m^3/a	Remaining Extent of Leeuwbult 52	S 28° 16' 24.38" E 26° 47' 09.29"
Abstraction of groundwater from Beatrix 3 Shaft for use in mining purposes	1 460 000 m^3/a	Remaining Extent of Doorndeel 236	S 28° 14' 24.04" E 26° 47' 45.04"
Abstraction of groundwater from Beatrix 4 Shaft for use in mining processes	4 745 000 m^3/a	Portion 6 of Palmietkuil 328	S 28° 11' 10.35" E 26° 43' 17.63"
Abstraction of groundwater from a borehole B208 for domestic use	5 475 m^3/a	Remaining Extent of Harmonie 579	S 28° 17' 51.60" E 26° 47' 33.80"

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 or apply technique for the re-use of water containing waste, 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. 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 Water level measurements of B208 must be taken on a quarterly basis and the date, time, borehole number and geographical location should be recorded;

   6.3 The Licensee shall keep record of all water volumes 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 Provincial Head or his/her delegated nominee.

8. Notices prohibiting unauthorised persons from entering 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 Department accepts no liability for any damage, loss or inconvenience, of whatever nature, suffered as a result of:

   9.1. shortage of water;
   9.2. inundations or flood;
   9.3 siltation of the resource; and
   9.4 required reserve releases.

10. The Licensee shall establish a programme of formal Information Management System, which maintains a database on water supply, distribution and delivery infrastructure.

11. 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.

APPENDIX III

Section 21 (e) of the Act: Engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1)

1. QUANTITY OF WATER CONTAINING WASTE FOR IRRIGATION

1.1 This licence authorises irrigating with waste water of a maximum quantity as indicated on **Table 4.**

Table 4: Summary of Section 21 (e) water uses.

Irrigated Area	Discharge quantity and type of waste	Property	Coordinates
10 hectares of gardens and sports grounds	63 510 m^3/a of purified sewage water from Beatrix Sewage Plant	Remaining Extent of Leeuwbult 52	S 28° 15' 58.74" E 26° 47' 26.70"
10 hectares of gardens and sports grounds	63 510 m^3/a of purified sewage water from Beatrix 4# Sewage Plant	Portion 6 of Palmietkuil 328	S 28° 10' 42.3" E 26° 43' 07.7"

1.2 The quantity of purified sewage water authorised to be irrigated in terms of this licence may not be exceeded without prior authorisation by the Minister.

2. TYPE OF AREA IRRIGATED

2.1 This Licence authorises the irrigation of gardens and sports grounds.

3. QUALITY OF WATER CONTAINING WASTE

3.1 The quality of the water containing waste to irrigate gardens and sports grounds with may not exceed the values for range as indicated in **Table 5.**

3.2 The Licensee must submit a complete baseline water quality of the water containing waste that is used to irrigate gardens and sports grounds within 3 months of receiving this licence.

3.3 The quality of water containing waste must be measured for, but not limited to the variables shown in **Table 5.**

Table 5: Wastewater Effluent Standards

VARIABLE	UNIT	LIMIT
pH		5.5 - 9.5
Electrical Conductivity (EC)	mS/m	150
Total Dissolved Solids	mg/l	975
Nitrate (NO_2/NO_3 as N)	mg/l	10
Calcium (as $CaCO_3$)	mg/l	70
Chemical Oxygen Demand	mg/l	75
Ecoli	Count/100ml	1000
Free Chlorine	mg/l	0.50

4 MONITORING

4.1 The quantity of water containing waste irrigated must be metered and recorded daily.

4.2 Monitoring for the quantity of water containing waste for irrigation must be done at the point where the effluent is piped into the irrigation area.

4.3 The quality of the wastewater irrigated shall be monitored monthly? for the variables and frequencies) as indicated on **Table 5** and any other variable as may be required from time to time by the Head of Provincial Operations.

5. REPORTING

5.1 The information required in terms of Appendix IV condition 4 above shall be submitted quarterly to the Head of provincial Operations, under reference **27/2/2/B431/1/1**, within one (1) month of the close of the period concerned.

6. METHODS OF ANALYSIS

6.1 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, Act 30 of 1982.

6.2 The methods of analysis must not be changed without prior notification to and written approval by the Minister/Head of Provincial Operations.

7. GENERAL IRRIGATION PRACTICES

7.1 Irrigation shall be practised in accordance with the guidelines prescribed in the document titled "*Guide: Permissible Utilisation and Disposal of Treated Sewage Effluent*", issued by the former Department of Health under reference 11/2/5/3 dated 30 May 1978, or in accordance with any relevant regulations promulgated under section 26 of the Act.

7.2 Wastewater sludge must be classified, utilised and disposed of in accordance with the requirements of any relevant law or regulation , including:

7.2.1 "*Guidelines for the Utilisation and Disposal of Wastewater Sludge*" Volume 1 to 5, March 2006 as well as subsequent additions thereto. Water Research Commission Report No TT 261/06 as well as subsequent additions thereto or amended from time to time.

7.2.2 "Guideline: permissible utilisation and disposal of Treated Sewage Effluent", 1978. Department of National Health and Population Development Report No. 11/2/5/3, as amended from time to time.

7.3 Irrigation with waste shall be practiced in a systematic manner and precautions must be taken so as to prevent:

7.3.1 Water logging and pooling of waste in any location.
7.3.2 Pollution of underground water or surface water due to seepage or otherwise.
7.3.3 Fly breeding, public health hazard, odour or secondary pollution.

7.3.4 Runoff from the irrigated area because of wet weather or any other conditions whatsoever.

7.3.5 The site of the irrigation area must be adequately fenced to prevent the entry of animals and unauthorised persons.

7.4 Notices of manufactured durable weather proof material prohibiting unauthorised entry and warning against the use of water containing waste for drinking and washing purposes shall be displayed at prominent places along the fence and at entrance gates. Such notices shall be worded in the official languages applicable in the area.

8. PIPELINES

8.1 The pipelines used for the conveyance of waste shall be painted in a conspicuous colour or manufactured of a coloured material distinctly different from the colour of the pipelines in which drinking water is flowing to avoid the possibility of any cross-connections of the different pipelines.

8.2 Ensure all taps and stop-valves are secured to prevent unauthorised opening of the taps.

APPENDIX IV

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

1. QUANTITY OF WASTEWATER TO BE DISCHARGED

1.1 This licence authorises the discharge of a maximum quantity of treated waste water as described in **Table 6**:

Table 6: Treated wastewater discharge into a water resource

Activity	Volume (m^3/a)	Name of Watercourse	Coordinates
Discharging of purified sewage water from Beatrix Sewage Plant	1 200 000	Theron Spruit	S 28° 15' 32.84" E 26° 48' 37.04"
Discharging of purified sewage water from Beatrix 4# Sewage Plant	949 000	Boschluis Spruit	S 28° 11' 05.20" E 26° 43' 53.49"

1.2 The quantity of treated wastewater authorised to be discharged in terms of this licence may not be exceeded.

1.3 The mine water or effluent must meet the minimum legal discharge standards before it is discharged to water resources and ensure surface streams do not act as secondary sources of contamination.

2. WATER RESOURCE PROTECTION

2.1 The quality of the wastewater discharged into the abovementioned watercourses must not exceed the following limits as specified in **Table 7**:

Table 7: Quality of treated waste water to be discharged into a water resource

Parameter	Surface Water Quality Reserve	
	Present state	Reserve
Ca	115	32
Mg	57	5
Na	189	134
Cl	342	216
SO_4	281	42
NH_4	2	2
NO_2_ NO_3	10	15
PO_4	1.888	5
NH_3	2	2
TDS	975	1000
Ecoli	Count/100ml	1000
EC	-	150

3. MONITORING

3.1 Monitoring for Quantity

3.1.1 The amount of water discharged from each sewage plant into the watercourses mentioned in **Table 6** above has to be measured daily and recorded.

3.2 Monitoring for Quality

3.2.1 At the outlet point of the sewage plant where the water is discharged into watercourses mentioned above.

3.2.2 The upstream and downstream of the discharge point identified in consultation with Provincial Head and approved by the Provincial Head.

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

3.2.4 The monitoring points shall not be changed without prior notification to and written approval by the Provincial Head.

3.3 Flow

3.3.1 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 years. Calibration certificates must be available for inspection by the Provincial Head or his representatives upon request.

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

3.4 Bio-monitoring

3.4.1 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. The 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 the mining activities as well as downstream from these activities.

3.4.2 An Aquatic Scientist approved by the Head of Provincial Operations 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

3.4.3 After any incident, SASS surveys must be conducted 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.

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 monitor monthly and submit the results of analysis for the monitoring requirements to the Provincial Head on a monthly basis under reference number **27/2/2/B431/1/1**.

5. STORM WATER MANAGEMENT

5.1 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 or a combination thereof which is produced, used, stored, dumped or spilled on the premises.

5.2 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.

5.3 Storm-water shall be diverted from the sewage plants sites and roads and shall be managed in such a manner as to disperse runoff and concentrating the storm-water flow.

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

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

5.6 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.

5.7 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 evaporation water dams in accordance with the design specifications as contained in the IWWMP dated July 2013 as submitted to the Department.

6. PLANT AREAS AND CONVEYANCES

6.1 Pollution caused by spills from the conveyances must be prevented through proper maintenance and effective protective measures especially near all water courses.

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

6.3 Any access roads or temporary crossings must be:

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

6.3.2 be repaired immediately to prevent further damage.

7. ACCESS CONTROL

7.1 Strict access procedures must be followed in order to gain access to the property.

7.2 Notices prohibiting unauthorised persons from entering the controlled access 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.

8. CONTINGENCIES

8.1 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 Provincial Head upon request. Such malfunctions shall be tabulated under the following headings with a full explanation of all the contributory circumstances:

8.1.1 operating errors
8.1.2 mechanical failures (including design, installation or maintenance)
8.1.3 environmental factors (e.g. flood)
8.1.4 loss of supply services (e.g. power failure) and
8.1.5 other causes.

8.2 The Licensee must, within 24 hours, notify the Provincial Head 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.

8.3 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 Regional Director of measures taken to:

8.3.1 correct the impacts resulting from the incident
8.3.2 prevent the incident from causing any further impacts and
8.3.3 prevent a recurrence of a similar incident.

9. AUDITING

9.1 The Licensee shall conduct an internal audit on this license within three (3) months of the date this license is issued. Thereafter alternating internal and external audits must be conducted annually and a report on the audit shall be submitted to the Provincial Head within one (1) month of finalisation of the report.

APPENDIX V

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 activities, including the construction and operation of the facilities as indicated in **Table 8**, according to the reports and according to the final plans submitted with the Integrated Water Use Licence Application as approved by the Head of Provincial Operations:

Table 8: Summary of Section 21 (g) water uses

Water use(s)	Purpose	Capacity/ Volume/Dimensions (m^3,m, tonnes and/or m^3/annum)	Property Description	Co-ordinates
Section 21(g)				
Evaporation Dams				
	Disposal of excess process water into BTX 4# Evaporation dams	2 920 000 m^3/a	Portion 1 of Palmietkuil 328; Remainder of Palmietkuil 328; Portion 6 of Palmietkuil 328; Portion 4 of Kalkroenkrans 225	S 28° 10' 07.30" E 26° 42' 18.40"
				S 28° 10' 45.32" E 26° 43' 30.47"
				S 28° 11' 22.51" E 26° 43' 12.56"
				S 28° 12' 29.50" E 26° 41' 43.81"
	Disposal of excess process water into BTX 1# evaporation dams	2 920 000 m^3/a	Remaining Extent of Leeuwbult 52; Remaining Extent of Harmonie 579	S 28° 17' 15.60" E 26° 46' 31.75"
				S 28° 17' 09.67" E 26° 47' 01.06"
				S 28° 16' 52.44" E 26° 46' 31.11"
				S 28° 16' 52.30" E 26° 47' 39.79"
				S 28°16'26.64" E 26°46'51.17"
				S 28°14'52.87" E 26°48'03.09"
				S 28°16'36.77" E 26°47'05.24"
				S 28°15'34.12" E 26°47'29.49"
	Disposal of excess process water into Wolvepan / Rietpan evaporation dam	2 920 000 m^3/a	Portion 1 of Wolvepan 85; Remainder of Walkersvlei 133;	S 28°02'27.18" E 26°40'22.26"
				S 28°02'05.40" E 26°40'48.65"

Water use(s)	Purpose	Capacity/ Volume/Dimensions (m^3,m, tonnes and/or m^3/annum)	Property Description	Co-ordinates
	system		Portion 1 of Rietpan 123; Portion 1 of Katboschdraai	S 28°02'13.46" E 26°41'10.83"
				S 28°02'46.79" E 26°40'15.66"
Tailings Dams				
	BTX No 1 & 2: Disposal of tailings into Tailings Disposal Facility Complex: No 1 Slimes dam	0 m^3/a	Remaining extent of Leeubult 52	S 28°16'50.59" E 26°45'51.43"
				S 28°17'28.35" E 26°45'53.09"
				S 28°17'37.94" E 26°46'13.49"
				S 28°17'23.54" E 26°46'31.76"
	BTX No 1 & 2: Disposal of tailings into Tailings Disposal Facility Complex: No 2 Slimes dam	2 151 724 m^3/a	Remaining extent of Leeubult 52	S 28°16'08.23" E 26°46'10.13"
				S 28°16'50.59" E 26°45'51.43"
				S 28°16'51.74" E 26°46'30.11"
				S 28°16'24.42" E 26°46'49.76"
	BTX No 1 & 2: Disposal of tailings into Tailings Disposal Facility Complex: No 1 & 2 Return Water Dams	868 320 m^3/a	Remaining Extent of Leeubult 52	S 28°15'53.65" E 26°46'19.40"
				S 28°15'45.56" E 26°46'27.93"
				S 28°15'52.51" E 26°46'37.11"
				S 28°16'02.20" E 26°46'37.32"
	BTX 4#: Disposal of tailings into Tailings Disposal Facility Complex: BTX 4# No 1 Slimes Dams	1 305 000 m^3/a	Portion 1 of Palmietkuil 328; Remaining extent of Palmietkuil 328	S 28°10'44.22" E 26°42'10.08"
				S 28°10'56.17" E 26°42'32.92"
	BTX 4#: Disposal of tailings into Tailings Disposal Facility Complex: BTX 4# No 2 Slimes Dams	1 305 000 m^3/a	Portion 1 of Palmietkuil 328; Remaining extent of Palmietkuil 328	S 28°11'46.32" E 26°42'20.12"
				S 28°11'42.39" E 26°41'55.94"
Waste Rock Disposal				
	Disposal of waste rock into BTX No 1 Waste rock dump	0 tonnes/a	Remainder of Leeuwbult 52	S 28°16'04.36" E 26°47'12.54"
				S 28°16'07.38" E 26°47'27.59"

Water use(s)	Purpose	Capacity/ Volume/Dimensions (m^3,m, tonnes and/or m^3/annum)	Property Description	Co-ordinates
				S 28°16'23.66" E 26°47'15.88"
				S 28°16'21.73" E 26°47'12.07"
	Disposal of waste rock into BTX No. 2 Waste Rock Dump	80 000 tonnes/a	Remainder of Leeuwbult 52	S 28° 16' 01.31" E 26° 47' 35.47"
				S 28°16'04.63" E 26°47'41.52"
				S 28°16'08.71" E 26°47'41.30"
				S 28°16'16.46" E 26°47'34.52"
	Disposal of waste rock into BTX No. 3 Waste Rock Dump	420 000 tonnes/a	Remaining Extent of Doorndeel 236	S 28° 14' 29.40" E 26° 47' 53.63"
				S 28°14'33.08" E 26°47'59.46"
				S 28°14'36.12" E 26°48'00.84"
				S 28°14'41.99" E 26°47'56.68"
	Disposal of waste rock into BTX 4# No 1 Waste rock dump	0 tonnes/a	Portion 6 of Palmietkuil 328	S 28°10'58.97" E 26°43'26.31"
				S 28°10'56.37" E 26°43'37.77"
				S 28°11'06.81" E 26°43'34.89"
				S 28°11'02.46" E 26°43'25.85"
	Disposal of waste rock into BTX 4# No 2 Waste rock dump	150 000 tonnes/a	Portion 4 of Kalkroenkrans 225	S 28° 10' 34.50" E 26° 43' 36.16"
				S 28°10'37.24" E 26°43'44.23"
				S 28°10'48.42" E 26°43'41.54"
				S 28°10'46.29" E 26°43'33.04"
	Dust suppression using excess process water	146 000 m^3/a	Remainder of Leeuwbult 52; Remaining Extent of Harmonie 579	S 28°16'01.34" E 26°47'35.71"
				S 28°16'04.62" E 26°47'41.55"
				S 28°16'08.73" E 26°47'41.31"
				S 28°16'16.47" E 26°47'34.52"
				S 28°16'01.34" E 26°47'35.71"

1.2 No new mining infrastructure, especially tailings or waste rock facilities should be placed on major fault lines or dykes as well as any surface water resources including wetlands, streams and springs. Except existing infrastructure or where addiotnal Section 21 (c) and (i) applications and GN704 exemptions are applied for and granted.Exception granted to activities exempted through GN704

1.3 Any new pollution control dam must be lined to prevent further groundwater pollution should the mine decide to continue using the ponds. An early warning detection system must be installed and monitored to detect any leakage in time in order to prevent groundwater pollution. -

1.4 The Licensee is authorised to dispose of a maximum quantity in cubic metres (m^3) of waste water per year (annum) into the waste management facility on the properties as described in **Table 8**.

1.5 The quantity of water containing waste authorised to be disposed of in terms of this licence may only be exceeded with authorisation from the Head of Provincial Operations as stated in section 50 of the Act.

1.6 The Licensee must ensure that the disposal of the waste water and the operation and maintenance of the system are done according to the provisions in the Report.

1.7 The waste facilities listed in **Table 8** must be operated and maintained to have a minimum freeboard of 0.8 metres above full supply level at the last dam of evaporation dam series. All other water systems related thereto must 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.

1.8 The Licensee must use acknowledged methods for sampling and the date, time and sampler must be indicated for each sample.

1.9 All new pollution control dam needs to be inspected by the Department (Engineering Services) during construction which requires notification by the applicant one week in advance prior the start of construction of the facility.

2. STORAGE OF WATER CONTAINING WASTE

2.1 The Licensee is authorised to dispose of a maximum quantity in cubic meters (m^3) of waste water per month into the waste management facility on the properties described in **Table 8**.

3. WATER RESOURCE PROTECTION

3.1 The impact of activities of the mine on groundwater must not exceed the groundwater quality objectives detailed in the water quality for the area as set out in **Table 9**.

Table 9: Groundwater Quality (Reserve)

Variable	Quality of waste water
pH	5.0 – 9.5
Ammonia (NH_4)(mg/l)	2
Total dissolved solids (TDS) (mg/l	2 927.0

Variable	Quality of waste water
Calcium (Ca) (mg/l)	153.3
Magnesium (Mg) (mg/l)	433.8
Sodium (Na) (mg/l)	200
Silica (SiO_2) (mg/l)	4.8
Nickel (Ni) (mg/l)	7.8
Total Nitrogen	7.8
Sulphate (SO_4)	1 143.5
Total alkalinity (mg/l)	84.95

4. QUALITY OF WASTE WATER TO BE DISPOSED

4.1 The quality of waste water to be disposed of into the waste water facility must be of the range as indicated in **Table 10**.

Table 10: Quality of waste water to be disposed into the waste facilities

Variable	Average Quality of waste water
pH	8.12
Ammonia (NH_4)(mg/l)	25.19
Total dissolved solids (TDS) (mg/l	3 960.13
Aluminium (mg/l)	0.005
Magnesium (Mg) (mg/l)	58.16
Sodium (Na) (mg/l)	541.56
Boron (mg/l)	0.05
Nickel (Ni) (mg/l)	1.1
Nitrate (NO_3) (mg/l)	2.86
Sulphate (SO_4) (mg/l)	2 547.63
Total Alkalinity (mg/l)	141
Suspended solids (mg/l)	40.19
Chloride (Cl) (mg/l)	275.81
Iron (Fe) (mg/l)	0.06
Potassium (K) (mg/l)	47.63
Cadmium (mg/l)	0.0025
Phosphate (PO_4) (mg/l)	0.04
Cyanide (mg/l)	5.27
Fluoride (mg/l)	1.27
Arsenic (mg/l)	0.01
Manganese (mg/l)	0.18
Copper (mg/l)	0.88
Zinc (mg/l)	0.07
Mercury (Hg) (mg/l)	0.0005
Uranium (mg/l)	0.53
Lead	0.01
Electrical Conductivity (mS/m)	481.94

4.2 The Licensee must ensure that the quality of water used for dust suppression complies with the standards to ensure that it does not pollute water resources.

5. MONITORING

5.1 The Licensee must monitor on monthly basis the water resources at surface water monitoring points to determine the impact of the facility and other activities on the water quality by taking samples at the monitoring points described in **Table 11, 12 and 13.**

5.2 The Licensee must monitor the water resources at groundwater monitoring points to determine the impact of the facility and other activities on the water quality by taking samples at the monitoring points and rates as described in **Tables, 14, 15** and **16.**

Table 11: Surface water monitoring points in the Theron Spruit (GPT, 2009a)

Monitoring Point	Proposed frequency	Description	Coordinates	
			Latitude	Longitude
Star Diamond	-	Spruit	28° 18' 37.7	026° 48' 06.9
Klip bruggie	-	Spruit	28°' 18' 18.9	026° 47' 58.7
Wilger	-	Spruit	28° 17' 43.0	026° 48' 01.8
S.Fontein	-	Spruit	28° 17' 35.9	026° 48' 03.5
S1	Monthly	Spruit	28° 17' 05.3	026° 48' 07.2
S2	Monthly	Spruit	28° 16' 44.2	026° 48' 16.2
S3	Monthly	Spruit	28° 16' 43.5	026° 48' 16.7
S4	Monthly	Spruit	28° 16' 37.2	026° 48' 19.0
S5	Monthly	Spruit	28° 16' 30.9	026° 48' 23.3
S5A	-	Spruit	28° 16' 09.3	026° 48' 26.9
S6	Monthly	Spruit	28° 15' 54.9	026° 48' 30.6
S7	Monthly	Spruit	28° 14' 06.0	026° 49' 19.9
S8	Monthly	Spruit	28° 14' 04.9	026° 49' 20.5
S9	Monthly	Spruit	28° 13' 58.3	026° 49' 17.9
S10	-	Cut off drain	28° 16' 39.48	026° 48' 11.1
Sewage	-	Sump	28° 15' 32.7	026° 48' 06.2

Table 12: Surface water monitoring points in the Boschluis Spruit (GPT, 2009b)

Monitoring Point	Proposed frequency	Description	Coordinates	
			Latitude	Longitude
S1	Monthly	Spruit	28°13' 47.0	026° 43' 01.5
S2	Monthly	Spruit	28° 13' 07.2	026° 43' 10.8
S3	Monthly	Spruit	28° 11' 36.0	026° 43' 47.8
S4	Monthly	Spruit	28° 11' 09.7	026° 43' 55.1
S5	Monthly	Spruit	28° 10' 53.0	026° 44' 00.7
S5A	-	Spruit	28° 10' 39.5	026° 44' 07.0
S6	Monthly	Spruit	28° 09' 20.5	026° 44' 39.7
S7	Monthly	Spruit	28° 08' 30.8	026° 44' 31.5
S8	Monthly	Spruit	28° 08' 30.3	026° 44' 31.1
S9	Monthly	Spruit	28° 08' 27.6	026° 44' 28.4
S10	-	Spruit	28° 07' 04.4	026° 43' 09.9

Monitoring Point	Proposed frequency	Description	Coordinates	
			Latitude	Longitude
Sewage	-	Sump	28° 11' 02.4	026° 43' 45.8
Palmietkuil Dam	Quarterly	Dam	28° 10 ' 43.6	026° 40 ' 14.4

Table 13: Surface water monitoring points at Wolvepan/Rietpan

Monitoring Point	Description	X-Coordinate (Latitude)	Y-Coordinate (Longitude)
Pan E	Pan	28° 02' 05.2	026° 41' 12.0
Riet pan	Pan	28° 02' 28.8	026° 39' 41.5
Wolve pan	Pan	28° 02' 05.2	026° 41' 12.0

Table 14: Groundwater monitoring points at Beatrix

Monitoring Point	Description	Monitoring status / type	Proposed frequency	Coordinates	
				Latitude	Longitude
B4	Pump	Background	Annually	28° 18' 30.2	026° 45' 52.3
B5	Pump	Background	Annually	28° 18 '17.0	026° 45' 49.8
B7	Windmill	Receptor	Quarterly	28° 17' 08.7	026° 45' 18.2
B10	Windmill	Receptor	Quarterly	28° 17' 47.2	026° 45' 24.8
B11	Pump	Receptor	Quarterly	28° 16' 12.9	026° 45' 28.6
B13F	Pump	Receptor	Quarterly	28° 18' 19.6	026° 47' 07.3
B18	Windmill	Receptor	Quarterly	28° 17' 27.7	026° 47' 42.1
B20A	Tap	Receptor	Quarterly	28° 15' 18.1	026° 45' 34.4
B31	Monitoring Borehole	Plume	Bi-annual	28° 15' 46.2	026° 47' 22.0
B104	Windmill	Receptor	Quarterly	28° 14' 27.2	026° 47' 14.0
B107	Pump	Receptor	Quarterly	28° 13' 51.0	026° 48' 19.3
B109	Pump	Receptor	Quarterly	28° 13' 47.8	026° 48' 02.5
B111	Pump	Receptor	Quarterly	28° 13' 58.6	026° 48' 30.0
B201	Monitoring Borehole	Plume	Bi-annual	28° 14' 47.8	026° 48' 24.3
B202	Monitoring Borehole	Plume	Bi-annual	28° 14' 55.2	026° 48' 26.2
B203	Monitoring Borehole	Plume	Bi-annual	28° 15' 09.9	026° 48' 16.9
B205	Monitoring Borehole	Plume	Bi-annual	28° 17' 07.4	026° 47' 54.0
B206	Monitoring Borehole	Plume	Bi-annual	28° 17' 02.7	026° 47' 57.4
B208	Pump	Receptor	Quarterly	28° 17' 51.6	026° 47' 33.8
B214	Monitoring borehole	Plume	Bi-annual	28° 17' 55.3	026° 46' 48.8
B216	Monitoring borehole	Source	Annually	28° 15' 32.2	026° 48' 08.6

Monitoring Point	Description	Monitoring status / type	Proposed frequency	Coordinates	
				Latitude	Longitude
B217	Monitoring borehole	Source	Annually	28° 15' 59.0	026° 48' 00.1
B223	Monitoring borehole	Source	Annually	28° 17' 13.8	026° 46' 42.4
B225D	Monitoring borehole	Source	Annually	28° 16' 30.4	026° 47' 19.4
B227	Monitoring borehole	Plume	Bi-annual	28° 16' 49.7	026° 48' 05.4
B228	Monitoring borehole	Source	Annually	28° 16' 48.9	026° 47' 05.0
B230	Monitoring borehole	Source	Annually	28° 16' 35.4	026° 45' 46.6
B231	Monitoring borehole	Plume	Bi-annual	28° 16' 00.3	026° 45' 54.0
B232	Monitoring borehole	Plume	Bi-annual	28° 16' 14.7	026° 45' 43.6
B236	Monitoring borehole	Source	Annual	28° 15' 48.3	026° 46' 58.8
B238	Monitoring borehole	Source	Annual	28° 15' 50.9	026° 47' 08.7
B239	Monitoring borehole	Source	Annual	28° 15' 48.7	026° 46' 33.7
M56	Monitoring borehole	Plume	Bi-annual	28° 16' 30.2	026° 48' 18.5

Table 15: Groundwater monitoring points at Beatrix 4 Shaft

Monitoring Point	Description	Monitoring status / type	Proposed frequency	Coordinates	
				Latitude	Longitude
B1	Windmill	Plume	Bi-annual	28° 11' 41.4	026° 43' 43.0
B3	Monitoring borehole	Plume	Bi-annual	28° 12' 05.4	026° 43' 31.2
B4	Monitoring borehole	Plume	Bi-annual	28° 12' 40.3	026° 43' 12.6
B6	Pump	Receptor	Quarterly	28° 13' 38.4	026° 43' 18.0
B9	Monitoring borehole	Source	Annually	28° 13' 11.9	026° 42' 21.6
B10	Monitoring borehole	Source	Annually	28° 13' 11.6	026° 42' 21.3
B11	Monitoring borehole	Source	Annually	28° 12' 58.5	026° 42' 09.3
B13	Monitoring borehole	Source	Annually	28° 12' 46.3	026° 41' 58.4
B14	Monitoring borehole	Source	Annually	28° 12' 45.6	026° 41' 57.6
B21	Monitoring borehole	Plume	Bi-annual	28° 11' 18.2	026° 41' 04.9

Monitoring Point	Description	Monitoring status / type	Proposed frequency	Coordinates	
				Latitude	Longitude
B22	Monitoring borehole	Plume	Bi-annual	28° 10' 18.3	026° 41' 45.27
B26	Windmill	Plume	Bi-annual	28° 09' 36.1	026° 42' 34.9
B27	Pump	Receptor	Quarterly	28° 09' 04.3	026° 42' 23.93
B29	Pump	Receptor	Quarterly	28° 09' 01.7	026° 43' 28.0
B30	Pump	Receptor	Quarterly	28° 08' 58.7	026° 43' 25.6
B32	Pump	Receptor	Quarterly	28° 09' 08.9	026° 43' 40.6
B33	Pump	Receptor	Quarterly	28° 09' 12.7	026° 43' 56.9
B34	Monitoring borehole	Receptor	Quarterly	28° 09' 06.6	026° 44' 12.9
B37	Tap	Receptor	Quarterly	28° 10' 41.8	026° 44' 43.4
B39	Monitoring borehole	Receptor	Quarterly	28° 11' 01.3	026° 44' 48.8
B42	Monitoring borehole	Source	Annually	28° 10' 54.2	026° 43' 43.7
B57	Monitoring borehole	Plume	Bi-annual	28° 11' 18.6	026° 43' 51.1
B60	Monitoring borehole	Plume	Bi-annual	28° 12' 33.5	026° 43' 17.1
B61	Monitoring borehole	Plume	Bi-annual	28° 12' 52.5	026° 43' 05.3
B65	Monitoring borehole	Plume	Bi-annual	28° 11' 56.8	026° 41' 31.7
B68	Pump	Receptor	Quarterly	28° 09' 52.7	026° 41' 16.8
B71	Monitoring borehole	Receptor	Quarterly	28° 11' 18.6	026° 43' 51.1
B75	Monitoring borehole	Source	Annually	28° 10' 43.0	026° 42' 08.5
B80	Monitoring borehole	Source	Annually	28° 11' 17.1	026° 43' 21.0
B81	Monitoring borehole	Source	Annually	28° 11' 13.9	026° 43' 35.0

Table 16: Groundwater monitoring points at Wolvepan/Rietpan

Monitoring Point	Description	Monitoring Status/ type	Proposed Frequency	Coordinates	
				Latitude	Longitude
B2A	Windmill	Receptor	Quarterly	28° 03' 19.3	026° 39' 11.0
B7	Pump	Receptor	Quarterly	28° 04' 08.4	026° 39' 58.7
B10	Windmill	Receptor	Quarterly	28° 04' 18.6	026° 40' 03.7
B15	Monitoring borehole	Plume	Bi-annual	28° 04' 10.9	026° 39' 38.12
B15A	Monitoring borehole	Plume	Bi-annual	28° 04' 07.1	026° 39' 44.35
B26	Windmill	Receptor	Quarterly	28° 00' 41.9	026° 38' 55.3

B27	Pump	Receptor	Quarterly	28° 00' 56.1	026° 37.30.1
B32	Pump	Receptor	Quarterly	28° 03' 01.6	026° 41' 34.8
B39	Windmill	Receptor	Quarterly	28° 01' 43.8	026° 40' 47.0
B121	Pump	Receptor	Quarterly	28° 05' 45.7	026° 41' 40.0
B132	Pump	Receptor	Quarterly	28° 05' 26.0	026° 39' 25.7
B135	Pump	Receptor	Quarterly	28° 00' 56.9	026° 36' 14.2
B137	Windmill	Receptor	Quarterly	28° 00' 55.8	026° 35' 52.8
B139	Pump	Receptor	Quarterly	28° 00' 37.4	026° 35' 56.2
B140	Hand pump	Receptor	Quarterly	28° 00' 28.1	026°35' 27.9
B144	Pump	Receptor	Quarterly	28° 00' 31.9	026° 35' 27.9
B146	Pump	Receptor	Quarterly	28° 02' 19.0	026° 36' 41.6
B160	Windmill	Receptor	Quarterly	28° 04'24.3	026° 38' 38.0
B179	Monitoring borehole	Plume	Bi-annual	28° 06' 49.7	026° 42' 35.56

5.3 An Aquatic Scientist approved by the Head of Provincial Operations 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.

5.4 The Licensee must 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.

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

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

5.7 The following variables (constituents) in **Table 17** must be included in the surface monitoring programme:

Table 17: Variables to be measured during surface water monitoring programme

Variable	Unit
pH	
Electrical Conductivity (EC)	mS/m
Total Dissolved Solids (TDS)	mg/l
Suspended Solids (SS)	mg/l
Total Alkalinity	mg/l
Total Hardness	mg/l
Nitrates (NO3)	mg/l
Chloride (Cl)	mg/l
Fluoride (F)	mg/l

Variable	Unit
Iron (Fe)	mg/l
Zinc (Zn)	mg/l
Manganese (Mn)	mg/l
Aluminium (Al)	mg/l
Sodium (Na)	mg/l
Magnesium (Mg)	mg/l
Calcium (Ca)	mg/l
Potassium (K)	mg/l
Sulphate (SO4)	mg/l

5.8 The location of additional monitoring points, which may from time to time be specified by the Head of Provincial Operations, must be communicated in writing to the Licensee and this communication must be regarded as part of the licence.

5.9 Monitoring boreholes must be clearly marked and 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.

5.10 The Licensee must maintain groundwater quality monitoring network to the satisfaction of the Head of Provincial Operations, so that unobstructed sampling, as required in terms of this licence, can be undertaken.

5.11 The Licensee must monitor the direct impacts associated with the disposal of waste.

5.12 The Licensee must monitor the impact of the activities on downstream groundwater users at the monitoring points.

5.13 The Licensee must use acknowledged methods for borehole sampling and the date, time, sampler and borehole number must be indicated for each sample.

5.14 No groundwater abstraction may take place within 100 m of river, spring or wetland. This distance may be increased by Regional Office if deemed necessary.

5.15 If, in the opinion of the Head of Provincial Operations, water pollution may be or is occurring, or a water quality variable at any monitoring point shows an increasing trend, the Licensee must initiate an investigation into the cause of the problem or suspected problem.

6 REPORTING (REVIEW)

6.1 The Licensee shall update the water and salt 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 Head of Provincial Operations on a quarterly basis under Reference number **27/2/2/C431/1/1**.

7. STORMWATER MANAGEMENT

7.1 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 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 License Application report.

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

7.10 Runoff may not be discharged to a watercourse and/or the environment unless it complies with the quality requirements as may from time to time be determined by the Head of Provincial Operations, but must be diverted to and contained in works constructed by the Licensee.

7.11 Runoff water which comply to the quality requirements as may from time to time be determined by the Head of Provincial Operations, will be regarded as uncontaminated runoff water and must be diverted away from the waste disposal sites to the environment and discharged into a watercourse at a point downstream of the waste disposal sites after verification of compliance by the Head of Provincial Operations.

7.12 Runoff water which does not comply with the quality requirements as may from time to time be determined by the Head of Provincial Operations, may not be discharged to a watercourse or the environment, but must be regarded as contaminated runoff and must be collected and contained in facilities constructed from where it must be dealt with

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accordingly.

8. ACCESS CONTROL

8.1 The Licensee must ensure effective access control on the mine residue facility to reasonably prevent entry of domestic animals, game and unauthorised persons while the solid waste disposal sites are operative and during the period of construction for closure.

8.2 Notices prohibiting unauthorised persons from entering the mine residue facility, as well as an internationally accepted sign indicating the risks involved in unauthorised entry must be displayed at suitable intervals along the boundary fence of the solid waste disposal site.

8.3 The Licensee must take all reasonable steps to maintain service roads in a condition which ensures unimpeded access to the mine residue facility for vehicles involved in closure construction and/or transporting waste and must keep these roads free of waste.

8.4 The Licensee must ensure that all entrance gates are manned during the hours of operation/closure construction and locked outside the hours of operational/closure construction.

9. CONTINGENCIES

9.1 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 Head of Provincial Operations upon request. Such malfunctions must be tabulated under the following headings with a full explanation of all the contributory circumstances:

9.1.1 Operating errors
9.1.2 Mechanical failures (including design, installation or maintenance)
9.1.3 Environmental factors (e.g. flood)
9.1.4 Loss of supply services (e.g. power failure) and
9.1.5 Other causes.

9.2 The Licensee must, within 24 hours, notify the Head of Provincial Operations 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.

9.3 The Licensee must, within 14 days, or a shorter period of time, as specified by the Head of Provincial Operations, 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 Head of Provincial Operations of measures taken to:

9.3.1 Correct the impacts resulting from the incident
9.3.2 Prevent the incident from causing any further impacts and
9.3.3 Prevent a recurrence of a similar incident.

10 AUDITING

10.1 This Licence is issued subject to Licensee obtaining a lawful access to the property in respect of this licence. Proof of such must be submitted to the Provincial Head within six months of issuance of this licence. -

10.2 The Licensee shall conduct an internal audit on this license within three (3) months of the date this license is issued. Thereafter alternating internal and external audits must be conducted annually and a report on the audit shall be submitted to the Provincial Head within one (1) month of finalisation of the report.

11. INTEGRATED WATER AND WASTE MANAGEMENT

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

11.2 The IWWMP and RSIP shall thereafter be updated and submitted to the Head of Provincial Operations for approval, every five years.

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

11.4 The Licensee must 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.

APPENDIX VI

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

1. REMOVING WATER FOUND UNDERGROUND

1.1 The Licensee is authorised to remove water found underground in order to allow safety of people and use this water at Beatrix Gold Mine's mining operations as shown in **Table 18**.

Table 18: Summary of Section 21 (j) water uses

Water use(s)	Purpose	Capacity/ Volume/Dimensions (m^3,m, tonnes and/or m^3/annum)	Property Description	Co-ordinates
Section 21(j)				
	Removal of fissure water from Beatrix 1 shaft	6 935 000 m^3/a	Remainder of Leeuwbult 52	S 28° 15' 34.20" E 26° 47' 07.78"
	Removal of fissure water from Beatrix 2 shaft	912 500 m^3/a	Remainder of Leeuwbult 52	S 28°16' 24.38" E 26° 47' 09.29"
	Removal of fissure water from Beatrix 3 shaft	1 460 000 m^3/a	Remainder of Doorndeel 236	S 28° 14' 24.04" E 26° 47' 45.04"
	Removal of fissure water from Beatrix 4 shaft	4 745 000 m^3/a	Portion 6 of Palmietkuil 328	S 28° 11' 10.35" E 26° 43' 17.63"

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 Self-registering flow metres must be installed in the delivery lines at easily accessible positions near the points of abstraction.

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

1.6 Calibration certificates (verify) in respect of the pumps must be submitted to the Head of Provincial Operations after installation thereof and pump efficiency thereafter at intervals of two years.

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

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

1.9 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).

1.10 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.

1.11 The Head of Provincial Operations must be informed of any incident that may lead to under-groundwater being disposed of contrary to the provisions of this licence, by submitting a report containing the following information:

1.11.1 Nature of the incident (e.g. operating malfunctions, mechanical failures, environmental factors, loss of supply services, etc);
1.11.2 Actions taken to rectify the situation and to prevent pollution or any other damage to the environment; and
1.11.3 Measures to be taken to prevent re-occurrence of any similar incident.

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

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

SPECIAL CONDITIONS

i. The applicant conducts that pumping test with an intention to determine the sustainable yield at which the production borehole will be pumped. The specific geohydrological report for groundwater abstraction for the production borehole must be compiled and submitted to the Department (DWS). The report must entail management recommendation of the borehole and the sample from the borehole must be obtained and analysed for chemical and bacteriological analysis.

ii. The applicant irrigating with treated water from the plant within the size applied for and monitors the impact of irrigating with waste water to the soil and to the groundwater. The applicant must also ensure that runoff from the irrigated area is channeled to the appropriate point where it will not interact with the environment and that the runoff from the surrounding area is channeled such that it does not enter the area irrigated with waste.

iii. The applicant takes the water sample a) from the outlet of the both waste water treatment plant, b) upstream or before the point of discharge from the waste water treatment works and, c) downstream or after the point of discharge from the waste water treatment works.

iv. The applicant applies the lining to all four pollution control dams (PCD) and stores waste water from the four PCDs without exceeding the capacity. The applicant must also establish necessary monitoring measures around the PCDs. The applicant must also create berms or trenches around the PCDs to catch waste water if there are incidences of overflow.

v. The applicant applies the lining to all four slimes dams and stores waste water from the four slimes dams without exceeding the capacity. The applicant must also establish necessary monitoring measures around the slime dams. The applicant must also create berms or trenches around the slime dams to catch waste water if there are incidences of overflow.

[END OF LICENCE]

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

Private Bag 528, Bloemfontein, 9300, Bloem Plaza Building, c/o Charlotte Maxeke & East Burger Streets, Bloemfontein, Tel: (051) 405-9000, Fax: (051) 447-1901

AMENDMENT LICENCE IN TERMS OF SECTION 50 AND 158 OF THE NATIONAL WATER ACT, 1998 (ACT NO 36 OF 1998)

I, ***Tseliso Ntili,*** in my capacity as Provincial Head: Free State in the Department of Water and Sanitation, and acting under authority of the powers delegated to me by the Minister of Human Settlement, Water and Sanitation, hereby authorises the following amendment of licence, licence no: **08/C42K/AEFJG/8739** dated 31 October 2018, licence is issued to Sibanye Gold Limited: Beatrix Gold Mine.

SIGNED: .....

DATE: 21/04/2021

The above mentioned licence is amended as follows:

Amendment of Registered owner of the Property

1. Registered owner of the Property on the licence is hereby amended-

Property Owner's Name	*Portion Number, Farm Name and Farm Number*	*Title Deed Number*
Sibanye Stillwater	Remaining Extent of Doorndeel 236	T21619/2004
Sibanye Stillwater	Remaining Extent of Harmonie 579	T21620/2004
Sibanye Stillwater	Portion 4 of Kalkroenkrans 225	T21619/2004
Sibanye Stillwater	Remaining Extent of Leeuwbult 52	T21621/2004
Sibanye Stillwater	Portion 6 of Palmietkuil 328	T21619/2004
Sibanye Stillwater	Portion 1 (Remaining Extent) of Palmietkuil 328	T21619/2004
Sibanye Stillwater	Remaining Extent of Palmietkuil 328	T21619/2004
Sibanye Stillwater	Remainder of Walkersvlei 133	T21619/2004
Sibanye Stillwater	Portion 1 of Wolwepan 85	T21619/2004
Sibanye Stillwater	Portion 1 of Rietpan 123	T21619/2004
Sibanye Stillwater	Portion 1 of Katboschdraai	T21619/2004

B09612

Property Owner's Name	*Portion Number, Farm Name and Farm Number*	*Title Deed Number*
Sibanye Gold Limited: Beatrix Mining Ventures Limited	Remaining Extent of Doorndeel 236	T21619/2004
Sibanye Gold Limited: Beatrix Mining Ventures Limited	Remaining Extent of Harmonie 579	T21620/2004
Sibanye Gold Limited: Beatrix Mining Ventures Limited	Portion 4 of Kalkroenkrans 225	T21619/2004
Sibanye Gold Limited: Beatrix Mining Ventures Limited	Remaining Extent of Leeuwbult 52	T21621/2004
Sibanye Gold Limited: Beatrix Mining Ventures Limited	Portion 6 of Palmietkuil 328	T21619/2004
Sibanye Gold Limited: Beatrix Mining Ventures Limited	Portion 1 (Remaining Extent) of Palmietkuil 328	T21619/2004
Sibanye Gold Limited: Beatrix Mining Ventures Limited	Remaining Extent of Palmietkuil 328	T21619/2004
Sibanye Gold Limited: Beatrix Mining Ventures Limited	Remainder of Walkersvlei 133	T21619/2004
Sibanye Gold Limited: Beatrix Mining Ventures Limited	Portion 1 of Wolwepan 85	T21619/2004
Sibanye Gold Limited: Beatrix Mining Ventures Limited	Portion 1 of Rietpan 123	T21619/2004
Sibanye Gold Limited: Beatrix Mining Ventures Limited	Portion 1 of Katboschdraai	T21619/2004

Amendment of Section 21(e) Appendix III (Condition 4.3, page 8)

2. Section 21(e) Appendix III (Condition 4.3, page 8) for the licence is hereby amended-

The quality of the wastewater irrigated shall be monitored monthly? for the variables and frequencies) as indicated on **Table 5** and any other variable as may be required from time to time by the Head of Provincial Operations. **[The quality of the wastewater irrigated shall be monitored monthly for the variables and frequencies as indicated on Table 5 and any other variable as may be required from time to time by the Head of Provincial Operations]**.

Amendment of Section 21(e) Appendix III (Condition 5.1, page 8)

3. Section 21(e) & Appendix III (Condition 5.1, page 8) for the licence is hereby amended-

The information required in terms of Appendix IV condition 4 above shall be submitted quarterly to the Head of provincial Operations, under reference **27/2/2/B431/1/1**, within one (1) month of the close of the period concerned. **[The information required in terms of Appendix III condition 4 above shall be submitted quarterly to the Head of provincial Operations, under reference 16/2/7/C404/C4, within one (1) month of the close of the period concerned].**

Amendment of Section 21(e) Appendix III (Condition 7.4, page 9)

4. Amendment of Section 21(e) Appendix III (Condition 5.1, page 8) of the licence is hereby amended-

Notices of manufactured durable weather proof material prohibiting unauthorised entry and warning against the use of water containing waste for drinking and washing purposes shall be displayed at prominent places along the fence and at entrance gates. Such notices shall be worded in the official languages applicable in the area. **[Notices of manufactured durable weather proof material prohibiting unauthorised entry and warning against the use of water containing waste for drinking and washing purposes shall be**

displayed at prominent places along the fence and at entrance gates. Such notices shall be worded in the official languages applicable in the area].

Amendment to the condition in Appendix IV (Condition 3.2.2, page 11)

5. Amendment to the condition in Appendix IV (Condition 3.2.2, page 11) of the licence is hereby amended-

The upstream and downstream of the discharge point identified in consultation with Provincial Head and approved by the Provincial Head. **[The upstream and downstream monitoring points of the discharge point should be identified as per the Water Use Licence (Provincial Head) requirements and should be approved by the Provincial Head. The approval will be provided in 3 months from the date of the submission of the updated monitoring points to the Department].**

Amendment to the condition in Appendix IV (Condition 4.2, page 12)

6. Amendment to the condition in Appendix IV (Condition 4.2, page 12) of the licence is hereby amended-

The Licensee shall monitor monthly and submit the results of analysis for the monitoring requirements to the Provincial Head on a monthly basis under reference number 27/2/2/B431/1/1. **[The Licensee shall monitor monthly and submit the results of analysis for the monitoring requirements to the Provincial Head on a quarterly basis under reference number 16/2/7/C404/C4**].

Amendment to the condition in Appendix V (Condition 1.1 Table 8, page 14)

7. Amendment to the condition in Appendix V (Condition 1.1 Table 8, page 14) of the licence is hereby amended-

Disposal of excess process water into BTX 4# Evaporation Dams **Capacity/Volume/ Dimensions (m^3,m, tonnes and/or m^3/annum):** "2 920 000 m^3/annum". **[Disposal of excess water into BTX 4# Evaporation Dams Capacity/Volume/Dimensions (m^3,m, tonnes and/or m^3/annum): "2 920 000 m^3/annum"**].

Amendment to the condition in Appendix V (Condition 1.1 Table 8, page 15)

8. Amendment to the condition in Appendix V (Condition 1.1 Table 8, page 15) of the licence is hereby amended-

Purpose: "Btx No 1 & 2 Disposal of tailings into Tailings Disposal Facility Complex: No. 1 Slimes Dam" **Property:** "Remaining extent of Leeubult 52". **[Purpose: "Btx No 1 & 2 Disposal of tailings into Tailings Disposal Facility Complex: No. 1 Slimes Dam" Property: "Remaining extent of Leeuwbult 52"].**

Amendment to the condition in Appendix V (Condition 1.1 Table 8, page 15)

9. Amendment to the condition in Appendix V (Condition 1.1 Table 8, page 15) of the licence is hereby amended-

Purpose: "Btx No 1 & 2 Disposal of tailings into Tailings Disposal Facility Complex: No. 2 Slimes Dam" **Property:** "Remaining extent of Leeubult 52". **[Purpose: "Btx No 1 & 2 Disposal of tailings into Tailings Disposal Facility Complex: No. 2 Slimes Dam" Property: "Remaining extent of Leeuwbult 52"].**

Amendment to the condition in Appendix V (Condition 1.1 Table 8, page 15)

10. Amendment to the condition in Appendix V (Condition 1.1 Table 8, page 15) of the licence is hereby amended-

Purpose: "BTX No 1 & 2: Disposal of tailings into Tailings Disposal Facility Complex: No. 1 & 2 Return Water Dams" **Capacity/Volume/Dimensions (m^3,m, tonnes and/or m^3/annum):** "868 320 m^3/annum" **Property:** "Remaining extent of Leeubult 52". **[Purpose: "BTX No 1 & 2: Disposal of tailings into Tailings Disposal Facility Complex: No. 1 & 2 Return Water Dams" Capacity/Volume/Dimensions (m^3,m, tonnes and/or m^3/annum): "868 320 m^3/annum" Property: "Remaining extent of Leeuwbult 52"].**

Amendment to the condition in Appendix V (Condition 2.1, page 17)

11. Amendment to the condition in Appendix V (Condition 2.1, page 17) of the licence is hereby amended-

The Licensee is authorised to dispose of a maximum quantity in cubic meters (m^3) of waste water per month into the waste management facility on the properties described in Table 8. **[The Licensee is authorised to dispose of a maximum quantity in cubic meters (m^3) of waste water per annum into the waste management facility on the properties described in Table 8]**.

Amendment to the condition in Appendix V (Condition 4.1 Table 10, page 18)

12. Amendment to the condition in Appendix V (Condition 4.1 Table 10, page 18) of the licence is hereby amended-

The quality of waste water to be disposed of into the waste water facility must be of the range indicated in Table 10. **[Removal/deletion of condition]**.

Amendment to the condition in Appendix V (Condition 5.1, page 19)

13. Amendment to the condition in Appendix V (Condition 5.1, page 19) of the licence is hereby amended-

The Licensee must monitor on monthly basis the water resources at surface monitoring point to determine the impact of the facility and other activities on the water quality by taking samples at the monitoring points described in Table 11, 12 and 13. **[The Licensee must monitor on the water resources at surface monitoring point to determine the impact of the facility and other activities on the water quality by taking samples at the monitoring points and frequencies described in Table 11, 12 and 13].**

Amendment to the condition in Appendix V (Condition 6.2, page 24)

14. Amendment to the condition in Appendix V (Condition 6.2, page 24) of the licence is hereby amended-

The Licensee shall submit the results of analysis for the monitoring requirements to the Head of Provincial Operations on a quarterly basis under Reference number 27/2/2/C431/1/1. **[The Licensee shall submit the results of analysis for the monitoring requirements to the Head of Provincial Operations on a quarterly basis under Reference number 16/2/7/C404/C4].**

Amendment to the condition in Special Conditions (Condition i, page 29)

15. Amendment to the condition in Special Conditions (Condition i, page 29) of the licence is hereby amended-

The applicant conducts pumping tests with an intention to determine the sustainable yield at which the production borehole will be pumped. The specific Geohydrological report for groundwater abstraction for the production borehole must be compiled and submitted to the Department (DWS). The report must entail management recommendation of the borehole and the sample from the borehole must be obtained and analysed for chemical and bacteriological analysis. **[The applicant conducts pumping tests with an intention to determine the sustainable yield at which the borehole B208 with coordinates S 28° 17' 51.60", E 26° 47' 33.80" will be pumped. The specific Geohydrological report for groundwater abstraction for the borehole B208 must be compiled and submitted to the Department (DWS). The report must entail management recommendation of the borehole and the sample from the borehole must be obtained and analysed for chemical and bacteriological analysis].**

[END OF LICENCE]

TABLE 1: SCHEDULE OF THE PROPOSED AMENDMENT TO SIBANYE GOLD LIMITED: BEATRIX GOLD MINE LICENCE NUMBER: 08/C42K/AEFJG/8739

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
1	N/A	Section 50	Remove the reference to Theunissen Rd.	N/A	Remaining Extent of Leeuwbult 52, Theunissen Rd.		Not relevant to the description required and not the correct street for the various activities.	No mistake	Proposal is not recommended
2	N/A	Section 50 & 158	Change name of property owner.	N/A	Property Owner's Name: "Sibanye Stillwater"	Property Owner's Name: "Sibanye Gold Ltd: Beatrix Mining Ventures Limited"	Sibanye Stillwater is the company trading name, however the legal entity is Beatrix Mining Ventures Limited which is a subsidiary of Sibanye Gold Ltd.	Clerical mistake	Proposal is recommended
3	Appendix I (6)	Section 50 & 158	Amendment to the condition	General Condition of a licence	The Licensee shall be responsible for any water use charges or levies imposed by the Responsible Authority.	The Licensee shall be responsible for any water use charges or levies imposed by the Responsible Authority after the issuance of a valid and correct WARMS registration certificate by the Department.	The current issue is that the applicant often cannot comply to this condition at many of the Sibanye Stillwater operations due to the following two issues: 1. WARMS registration is delayed after the issuance of the WUL 2. The WARMS billing	Clerical mistake	Proposal is not recommended

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
							information is wrong Therefore the requested change will allow for these matters to be resolved without negatively impacting on the compliance rating of the WUL		
4	Appendix III 3.3. Table 5	Section 50 & 158	Changing the specification of the chemical variable	Quality of water containing waste	Please refer to Table 5: Waste Water Effluent Standards in the WUL.	Amend as per Table 2	Limits for the discharge and irrigation of wastewater should align as this is the same source of water.	Clerical mistake	Proposal is not recommended
5	Appendix III 4.3	Section 50 & 158	Removal of grammatical errors.	Monitoring	"The quality of wastewater irrigated shall be monitored **monthly?** for the variables and **frequencies)** as indicated **on** Table 5 and any other variables as may be required from time to time by the Head of Provincial Operations."	The quality of wastewater irrigated shall be monitored monthly for the variables and frequencies as indicated in Table 5 and any other variables as may be required from time to time by the Head of Provincial Operations."	Words in bold indicate where grammatical errors were noted for correction.	Clerical mistake	Proposal is recommended
6	Appendix III 5.1	Section 50 & 158	Change Appendix numbering.	Reporting	"The information required in terms of Appendix **IV** condition 4 above	The information required in terms of Appendix **III** condition 4 above shall be submitted quarterly to the	The condition should refer to Appendix III not Appendix IV.	Clerical mistake	Proposal is recommended

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
					shall be submitted quarterly to the Head of provincial Operations, under reference 27/2/B431/1/1, within one (1) month of the close of the period concerned."	Head of provincial Operations, under reference 27/2/B431/1/1, within one (1) month of the close of the period concerned.			
7	Appendix III 7.4	Section 50 & 158	Removal/deletion of condition.	General Irrigation Practices	"Notices of manufactured durable weather proof material prohibiting unauthorised entry and warning against the use of water containing waste for drinking and washing **purposes** shall be displayed at prominent places along the fence and at entrance gates. Such notices shall be worded in the official languages applicable in the area."	Notices of manufactured durable weather proof material prohibiting unauthorised entry and warning against the use of water containing waste for drinking and washing **purposes** shall be displayed at prominent places along the fence and at entrance gates. Such notices shall be worded in the official languages applicable in the area.	Words in bold indicate where grammatical errors were noted for correction.	Clerical mistake	Proposal is recommended
8	Appendix IV 2.1 Table 7	Section 50 & 158	Amendment to the condition.	Further studies and information requirements	Please refer to Table 3: Discharge Water Quality Limits Requested Amendment for Table 7: Quality of treated waste water to be discharged into a	Please refer to Table 3	Table 3 provides the current state and Reserve limits for the catchment, these concentrations and limits are a function of the	no mistake	Proposal is not recommended

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
					water resource		catchment-wide inputs into the relevant river system and not the limits of individual activities, which is what the discharge limit should refer to. Compliance and monitoring of the Reserve is the ultimate responsibility of the Department of Water and Sanitation and no single water user. Further to this Beatrix has the potential to influence between four different catchments, or three related to the treated sewage discharge therefore it is unclear to which of these catchments the reserve is applicable. Therefore the		

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
							amendments proposed in Table 3 below aim to align with the limits of Table 5, Appendix III of the WUL while suggesting improvements in the limits set.		
9	Appendix IV 3.2.2	Section 50 & 158	Addition of some clarifying words in the condition.	Monitoring for Quality	"The upstream and **downstream** of the discharge **point** identified in consultation **with** Provincial Head and **approved** by the Provincial Head.	The upstream and downstream **monitoring points** of the discharge point **should be** identified as per the Water Use Licence (Provincial Head) requirements **and should be** approved by the Provincial Head. The approval will be provided in 3 months from the date of the submission of the updated monitoring points to the Department.	Corrections to grammatical errors have been indicated in bold. It is assumed that the upstream and downstream points have already been approved by the Provincial Head as per the WUL points stipulated in Appendix V, Tables 11 to 13 and therefore do not require further approval. Further to this response from the Department to submissions of updated monitoring programmes has not been received	Clerical mistake	Proposal is recommended

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
							historically for all of the other Sibanye Gold Ltd Operations and therefore this makes the active management and improvement of monitoring programmes challenging, therefore it is requested that a timeline for approval of these updates be included in the condition, this will also aid in guiding Beatrix for project planning purposes.		
10	Appendix IV 3.2.4	Section 50 & 158	Addition of some clarifying words in the condition.	Monitoring for Quality	"The monitoring points shall not be changed without prior notification and written approval by the Provincial Head."	The monitoring points shall not be changed without prior notification and written approval by the Provincial Head. The approval will be provided in 3 months from the date of the submission of the updated monitoring points to the Department.	Response from the Department to submissions of updated monitoring programmes has not been received historically for all of the other Sibanye Gold Ltd Operations and therefore this makes the active	Clerical mistake	Proposal is not recommended

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
							management and improvement of monitoring programmes challenging, therefore it is requested that a timeline for approval of these updates be included in the condition, this will also aid in guiding Beatrix for project planning purposes.		
11	Appendix IV 3.4.2	Section 50 & 158	Addition of some clarifying words in the condition.	Bio-monitoring	"An Aquatic Scientist approved by the Head of Provincial Operations 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	An Aquatic Scientist approved by the Head of Provincial Operations through the receipt of a competency certificate as per the Department of Water and Sanitation National Aquatic Ecosystem Health Monitoring Programme – River Health Programme SASS5 Competency Accreditation System, must establish a monitoring programme for the following indices: Invertebrate Habitat Assessment System (IHAS) or an improved updated	Three changes are requested: 1. A SASS practitioner must be qualified as per the national accreditation programme, this assesses their competency to perform the monitoring and should be the requirement for approval of an Aquatic Scientist. However, similar to the lack of response	Clerical mistake	Proposal is not recommended

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
					the status of the river upstream and downstream of the mining activities."	method, and the latest SASS (South African Scoring System). Sampling must be done once during the summer (high flow) season and once during the winter (low flow) season, annually, to reflect the status of the river upstream and downstream of the mining activities.	regarding updated monitoring programmes, the same has been experienced with regards to the Provincial Head approval of the bio-monitoring specialists, and some flexibility is required for specialists to be able to be rapidly replaced based on a number of factors such as emergencies, financial considerations etc. Therefore it is requested that the condition automatically allows any accredited practitioner to be considered as approved by the Provincial Head, thereby reducing the time taken for approval as well as the burden on the Provincial		

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
							Head, especially in cases where the Provincial Head may not have the necessary qualifications him/herself to approve the specialist. 2. It is recommended that the IHAS method be replaced with more scientifically relevant methods such as biotope weighting and the Intermediate Habitat Integrity Assessment (IHIA). As methods develop these may in future be replaced by improved methods and thus require updating, therefore allowing some flexibility in the WUL will ultimately result in improved		

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
							catchment management and a reduction in irrelevant, outdated and incorrect data. 3. It is noted that 2 seasons are identified, however it should be clarified that this refers to high- and low-flow periods. Often the best time to perform bio-monitoring is during the autumn and spring times when there is less likely to be drought or excessively high flows resulting in a misrepresentation of the state of the system. Once again this is to provide for flexibility such that the best possible data can be gathered.		
12	Appendix	Section 50 &	Addition of	Bio-	"After any incident,	After any incident that has	The purpose of	Clerical mistake	Proposal is not

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
	IV 3.4.3	158	some clarifying words in the condition.	monitoring	SASS surveys must be conducted in autumn, spring and summer at a site upstream and downstream if 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."	reached the watercourse, SASS surveys must be conducted as soon as practicably possible at a site upstream and downstream if the disturbance to assess the impact on the receiving watercourse. Water quality samples of the source, upstream and downstream points should be taken until the impacts of the incident are not noticeable anymore. Thereafter bio-monitoring should continue as per condition 3.4.2 above. An annual report on the SASS surveys must be submitted to the Provincial Head.	this condition is somewhat unclear if the current wording in the WUL is evaluated, therefore changes to the condition have been recommended in order to clarify the requirements to ensure the best possible monitoring and mitigation measures are implemented after an incident impacting upon the receiving watercourse. The unclear statements included: 1. "Any incident": bio-monitoring would not be useful after "any" incident only those that may impact a river. 2. No timeline is provided for implementation		recommended

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
							which created the impression that bio-monitoring should occur immediately, however it is impractical to expect a specialist to be available 24/7 in case of an incident and therefore monitoring should occur as soon as is practically possible. 3. Continued monitoring through water quality analyses should continue until the incident has ceased, this will provide a better level of detail regarding the parameters of concern to be addressed and provide better control over addressing these parameters, as		

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
							bio-monitoring will assess all potential drivers in the watercourse, not just those related to the incident. 4. The requirement for monitoring in autumn, spring and summer is not useful in terms of monitoring the impact and required mitigation for an incident. Rather bio-monitoring as soon as possible after the incident can provide an indication of the impact and required mitigation which can then be monitored using water quality and other basic monitoring techniques to ensure the issues is rapidly addressed.		

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
							Further to this the recovery of the watercourse in terms of SASS may occur rapidly (i.e. before the next quarter) or very slowly (sometimes years afterwards) depending on the nature of the incident and corrective measures to be taken. It should also be noted that the condition excluded winter.		
13	Appendix IV 4.2	Section 50 & 158	Amendment to the condition	Reporting	"The Licensee shall monitor monthly and submit the results of analysis for the monitoring requirements to the Provincial Head on a monthly basis under reference number 27/2/2/B431/1/1."	The Licensee shall monitor monthly and submit the results of analysis for the monitoring requirements to the Provincial Head on a quarterly basis under reference number 27/2/2/B431/1/1	It is requested that monitoring reporting frequencies throughout the WUL align with the first condition stipulating this in Appendix III, Condition 5.1. Therefore quarterly reporting is requested.	Clerical mistake	Proposal is recommended
14	Appendix IV 5.6	Section 50 & 158	Amendment to the	Storm Water	"All storm-water that would naturally run	All storm-water that would naturally run across	The condition is noted and every	Clerical mistake	Proposal is not recommended

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
			condition	Managem ent	across the pollution areas shall be diverted via channels and trapezoidal drains designed to contain the 1:50 year flood."	the pollution areas shall be diverted via channels and trapezoidal drains as per the design specifications for the stormwater systems.	effort will be made in order to ensure stormwater is effectively managed, however it should also be noted that the facilities were constructed prior to GN704 promulgation and therefore may not all conform to the 1:50 year requirement.		
15	Appendix IV & V 8.1 & 9.1	Section 50 & 158	Addition of some clarifying words in the condition.	Contingen cies & Auditing	"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 Provincial Head upon request. Such malfunctions shall be tabulated under the following headings with a full explanation of all the contributory circumstances:"	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 Provincial Head upon request. Such malfunctions shall be recorded and full explanations need to be provided regarding the contributory circumstances including but not limited to the assessment of the following causes:	When non-conformances and incidents are noted the causative factors are investigated and noted for correction, this includes all issues reflected in 8.1. However there is a significant amount of information that is required over-and-above that stipulated in the condition, and other requirements	Clerical mistake	Proposal is not recommended

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
							with regards to the EMP, environmental management systems, other WUL conditions and other regulatory requirements that also need to be fulfilled. Therefore although the necessary information is provided it is not done in the format required by the condition and it is requested that the condition be changed.		
16	Appendix V 1.1 Table 8	Section 50	Removal/deletion of some words in the condition and amendment of capacity in the condition	Construction and Operation	**Purpose:** "Disposal of excess process water into BTX 4# Evaporation Dams" **Capacity/Volume/Dimensions (m^3,m,tonnes and/or m^3/annum):** "2 920 000 m^3/annum"	**Purpose:** Disposal of excess water into BTX 4# Evaporation Dams **Capacity/Volume/Dimensions (m^3, m, tonnes and/or m^3/annum):** 4 380 000 m^3/annum	Purpose: it is requested that the word "process" be removed as the water received by this dam includes: process, storm- and fissure water. Capacity/Volume/ Dimensions (m3, m, tonnes and/or m^3/annum): It is	No mistake	Proposal is recommended

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
							requested that the volume be increased to 4 380 000 m3/annum, as the records show that more water is disposed than the WUL limit. The water cannot be discharged and overflow of the evaporation dams into the environment has not been noted therefore the increase requested is an essential component of the dirty water management at Beatrix and is unlikely to result in any unassessed environmental concerns, as the increased discharge for evaporation has already been occurring. The increase in the volume has occurred due to		

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
							the cessation of the water used at the Plant, therefore until this water use resumes it can be expected that the volume will remain above the current WUL Limit.		
17	Appendix V 1.1 Table 8	Section 50 & 158	Amendment to the condition	Construction and Operation	**Purpose:** Btx No 1 & 2 Disposal of tailings into Tailings Disposal Facility Complex: No. 1 Slimes Dam **Property:** Remaining extent of Leeubult 52	**Purpose:** No change required **Property:** Remaining extent of Leeuwbult 52	Misspelling	Clerical mistake	Proposal is recommended
18	Appendix V 1.1 Table 8	Section 50 & 158	Amendment to the condition	Construction and Operation	**Purpose:** Btx No 1 & 2 Disposal of tailings into Tailings Disposal Facility Complex: No. 2 Slimes Dam **Property:** Remaining extent of Leeubult 52	**Purpose:** No change required **Property:** Remaining extent of Leeuwbult 52	Misspelling	Clerical mistake	Proposal is recommended
19	Appendix V 1.1 Table 8	Section 50 & 158	Amendment to the condition	Construction and Operation	**Purpose:** "BTX No 1 & 2: Disposal of tailings into Tailings Disposal Facility Complex: No. 1 & 2 Return Water Dams" **Capacity/Volume/Dimensions (m^3,m,tonnes and/or m^3/annum):** "868 320 m^3/annum"	**Purpose:** No change **Capacity/Volume/Dimensions (m^3, m, tonnes and/or m^3/annum):** 2 051 556 m^3/annum **Property:** Remaining extent of Leeuwbult 52	**Capacity/Volume/Dimensions (m^3, m, tonnes and/or m^3/annum):** It is requested that the volume be increased to 2 051 556 m^3/annum, as the records show that more water is	No mistake & Clerical mistake	Proposal is recommended

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
					Property: Remaining extent of Leeubult 52		disposed than the WUL limit. The water cannot be discharged and overflow of the return water dams into the environment has not been noted therefore (except during extreme rainfall events) the increase requested is an essential component of the dirty water management at Beatrix and is unlikely to result in any unassessed environmental concerns, as the increased discharge for evaporation has already been occurring. Misspelling		
20	Appendix V 1.1 Table 8	Section 50	Addition of water use	Construction and Operation		**Purpose:** Disposal and storage of sewage sludge from the Beatrix WWTWs **Volume:** 27 600 m^3/annum **Property Description:** Harmonie 579, Portion Re,	This water use has not been included in the WUL, the reason for this is unclear but the activity should be	Water use was not applied for	Proposal is not recommended

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
						Title Deed No. 021620/2004 **Coordinates:** 28°15'26.22"S 26°48'2.54"E	licenced and was mentioned in the IWWMP page 73.		
21	Appendix V 1.1 Table 8	Section 50	Addition of water use	Constructi on and Operation		**Purpose:** Disposal and storage of sewage sludge from the Beatrix 4# WWTWs **Volume:** 6 000 m^3/annum **Property Description:** Palmietkuil 328, Portion 6, Title Deed No. T21619/2004 **Coordinates:** 28°11'5.12"S 26°43'46.11"E	This water use has not been included in the WUL, the reason for this is unclear but the activity should be licenced and was mentioned in the IWWMP page 73.	Water use was not applied for	Proposal is not recommended
22	Appendix V 1.1 Table 8	Section 50	Addition of water use	Constructi on and Operation		**Purpose:** Disposal of water into the Beatrix No. 4# Emergency Dam in case of an emergency overflow situation to prevent discharge into the environment. **Capacity:** 40 000 m^3 **Property Description:** Palmietkuil 328, Portion 6, Title Deed No. T21619/2004 **Coordinates:** 28°11'16.50"S 26°43'41.83"E	This water use has not been included in the WUL, the reason for this is unclear but the activity should be licenced.	Water use was not applied for	Proposal is not recommended
23	Appendix V 1.2	Section 50	Removal/del etion of some words in the condition	Constructi on and Operation	"No new mining infrastructure, especially tailings or waste rock facilities should be placed on	No new mining infrastructure, especially tailings or waste rock facilities should be placed on major fault lines or	Correction of grammatical errors as highlighted in bold.	No mistake	Proposal is not recommended

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
					major fault lines or dykes as well as any surface water resources including wetlands, streams and springs. Except existing infrastructure or where additional Section 21 (c) and (i) applications and GN704 exemptions are applied for and granted. **Exception granted to activities exempted through GN704"**	dykes as well as any surface water resources including wetlands, streams and springs. Except existing infrastructure or where additional Section 21 (c) and (i) applications and GN704 exemptions are applied for and granted.			
24	Appendix V 1.3	Section 50	Amendment to the condition	Construction and Operation	"Any new pollution control dam must be lined to prevent further groundwater pollution should the mine decide to continue using the ponds. An early warning detection system must be installed and monitored to detect leakage in time in order to prevent groundwater pollution. –"	An application must be submitted to the Department for approval for any new storage facility for contaminated water.	The following changes are requested: 1. There are no existing PCDs; therefore this reference should be removed, unless the "ponds" refer to the facilities listed in Table 8 of the WUL in which case this should be stipulated in the condition. 2. Any new waste storage facility above the general	No mistake	Proposal is not recommended

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
							authorisation limit will require an authorisation by the DWS, therefore even before construction and lining is considered an application will need to be made to the Department.		
25	Appendix V 2.1	Section 50 & 158	Amendment to the condition	Construction and Operation	"The Licensee is authorised to dispose of a maximum quantity in cubic meters (m^3) of waste water per month into the waste management facility on the properties described in Table 8."	The Licensee is authorised to dispose of a maximum quantity in cubic meters (m^3) of waste water per annum into the waste management facility on the properties described in Table 8.	Table 8 specifies volumes per annum not per month.	Clerical mistake	Proposal is recommended
26	Appendix V 3.1 Table 9	Section 50 & 158	Amendment to the condition	Water Resource Protection	Refer to Table 4: Groundwater Quality Limits Requested Amendment for Table 9: Groundwater Quality (Reserve). "Quality of waste water"	Refer to Table 4: Groundwater Quality Limits Requested Amendment for Table 9: Groundwater Quality (Reserve). Quality of groundwater	The following amendments are requested: 1. The limits provided are an indication of the Groundwater Reserve qualities and not limits. Similar to the Surface Water Reserve the compliance to the	Clerical mistake	Proposal is not recommended

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
							Reserve is a function of the greater catchment and not only the Beatrix activities. 2. The Table 9 heading should refer to the quality of the groundwater not waste water. 3. Limits should be assigned to receptor boreholes, with a requirement for plume migration monitoring for source and plume boreholes. 4. For the proposed changes to the variables, unit of measurements and limits please refer to Table 4: Groundwater Quality Limits Requested Amendment for Table 9: Groundwater Quality (Reserve).		
27	Appendix	Section 50 &	Amendment	Quality of	"The quality of waste	Remove the table and	For the following	Clerical mistake	Proposal is

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
	V 4.1 Table 10	158	to the condition	waste water to be disposed	water to be disposed of into the waste water facility must be of the range indicated in Table 10."	condition.	reasons it is motivated that this condition be removed, if it is not removed than the range needs to be stipulated and reasons for this requirements are requested to be provided by the Department such that Beatrix can understand the need for monitoring: 1. The condition specifies a range yet only a single average was provided. 2. The wastewater disposal facilities will vary considerably in terms of qualities and it should be discharges and receptors (ground- and surface water) that should be monitored, limits have already been assigned to		recommended

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
							these. 3. The quality of wastewater within a dirty water system cannot be controlled, as the closed-loop management of it is the purpose and no treatment is done. If treatment was done then it would not be an application for a waste storage but rather for discharge.		
28	Appendix V 5.1	Section 50 & 158	Removal/deletion of some words in the condition	Monitoring	The Licensee must monitor on monthly basis the water resources at surface monitoring point to determine the impact of the facility and other activities on the water quality by taking samples at the monitoring points described in Table 11, 12 and 13.	The Licensee must monitor on the water resources at surface monitoring point to determine the impact of the facility and other activities on the water quality by taking samples at the monitoring points and frequencies described in Table 11, 12 and 13.	The tables provide different requirements for the frequency of sampling; therefore it is recommended that the frequencies in the tables only be referred to. These can be updated according to the monitoring programmes that are regularly updated to	Clerical mistake	Proposal is recommended

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
							ensure continued improvement in terms of environmental monitoring and management.		
29	Appendix V 5.7 Table 17	Section 50	Amendment to the condition	Monitoring	See Table 17 in the WUL		Align variables to be monitored with all other surface water quality monitoring tables in the WUL. Several parameters are missing or differ. For example no nutrient monitoring has been included; no Free chlorine or COD; all of which are related to the only discharges at the mine and therefore should be monitored.	No mistake	Proposal is not recommended
30	Appendix V 5.11	Section 50	Addition of some words in the condition	Monitoring	"The Licensee must monitor the direct impacts associated with the disposal of waste."	The Licensee must monitor the direct and indirect impacts associated with the disposal of waste.	Clarity regarding what the direct impacts refer to is requested, as this could refer to a range of impacts to air, soil, water, visual aspects, landscape	No mistake	Proposal is not recommended

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
							changes etc. Further to this it is essential that both direct and indirect impacts be evaluated and monitored.		
31	Appendix V 5.14	Section 50	Addition of some words in the condition	Monitoring	"No groundwater abstraction may take place within 100 m of river, spring, or wetland. This distance may be increased by the Regional Office if deemed necessary."	No groundwater abstraction, except for monitoring purposes, may take place within 100 m of river, spring, or wetland. This distance may be increased by the Regional Office if deemed necessary	Purging of boreholes will be required for the monitoring of the boreholes.	No mistake	Proposal is not recommended
32	Appendix V 6.2	Section 50 & 158	Changing reference number	Reporting (Review)	"The Licensee shall submit the results of analysis for the monitoring requirements to the Head of Provincial Operations on a quarterly basis under Reference number 27/2/2/**C431**/1/1."	The Licensee shall submit the results of analysis for the monitoring requirements to the Head of Provincial Operations on a quarterly basis under Reference number 27/2/2/**B431**/1/1.	The incorrect reference number has been specified as per the section highlighted in bold.	Clerical mistake	Proposal is recommended
33	Appendix V 7.9	Section 50	Amendment to the condition	Stormwater Management	"The polluted storm water captured in the storm water control dams shall be pumped to the process water treatment plant for re-use and recycling."	The polluted storm water captured in the storm water control dams shall be pumped to the Gold Plant or mining activities for re-use and recycling.	There are no "process water treatment plants" rather this should just indicate that the water should be returned to the Return Water Dams and returned to the	No mistake	Proposal is not recommended

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
							Gold Plant or mining activities for re-use and recycling.		
34	Appendix V 7.11	Section 50	Amendment to the condition	Stormwater Management	"Runoff water which comply to the quality requirements as may from time to time be determined by the Head of Provincial Operation, will be regarded as uncontaminated runoff and must be diverted away from the waste disposal sites to the environment and discharged into a watercourse at a point downstream of the waste disposal site after verification of compliance by the Head of Provincial Operations."	The principles of clean and dirty water separation as per Government Notice No. 704 should be implemented.	Compliance to this requirement is impractical, as in order to await the approval of the Head of Provincial Operations then the stormwater will need to be stored in a dam before discharge, this would require further licence applications and would prevent the natural flow of water during storm periods. In-stream monitoring would be more practical and provide for longer term evaluation of post-storm events as may only be seen after seepage, instead of representing single	No mistake	Proposal is not recommended

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
							instantaneous water quality results. No limits for the stormwater have been provided in the WUL.		
35	Appendix V 7.12	Section 50	Amendment to the condition	Stormwater Management	"Runoff water which does not comply with the quality requirements as may from time to time be determined by the Head of Provincial Operations, may not be discharged to a watercourse or the environment, but must be regarded as contaminated runoff and must be collected and contained in facilities constructed from where it must be dealt with accordingly."	The principles of clean and dirty water separation as well as dirty water storage as per Government Notice No. 704 should be implemented.	While it is agreed that dirty water should not be discharged of, as indicated above this would not be practical.	No mistake	Proposal is not recommended
36	Appendix V 8.1	Section 50	Addition of some words in the condition	Access control	"The Licensee must ensure effective access control on the mine residue facility while the solid waste disposal sites are operative and during the period of construction for	The Licensee must ensure effective access control on the mine residue facility while the solid waste disposal sites are operative, during closure and post closure should the facilities still present a risk.	Condition should include mention of requirements still being in place post closure as the risk does not necessarily end upon closure.	No mistake	Proposal is not recommended

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
					closure."				
37	Appendix V 10.1	Section 50	Removing the condition	Auditing	"This Licence is issued subject to Licensee obtaining a lawful access to the property in respect of the licence. Proof of such must be submitted to the Provincial Head within six months of issuance of this licence. – "	Remove condition as this has been submitted before the licence was issued.	Beatrix has submitted the necessary property forms with the IWULA; it is therefore unclear what properties are referred to in this condition.	No mistake	Proposal is not recommended
38	Appendix VI 1.8 – 1.10	Section 50	Removing the conditions	Removing water found undergro und	"1.8 The date and time of monitoring in respect of each sample taken shall be recorded together with the results of the analysis. 1.9 Analysis shall be carried out in accordance with methods prescribed by and obtainable from the South African Bureau of Standards Act, 1982 (Act 30 of 1982) 1.10. The methods of analysis shall not be changed without prior notification to the Licensee and written approval by the Minister or	Remove conditions.	Not relevant to this section as no water quality monitoring has been requested, these conditions have been stipulated in other relevant appendices in the WUL.	Clerical mistake	Proposal is not recommended

No	Appendix	Amendment type	Condition	Title	Original Clause	Amendment Proposed	Comments/ Justification	DWS comments	Recommendation on Applicant proposal
					his/her delegated nominee."				
39	i	Section 50	Seeking clarity	Special conditions	"The applicant conducts pumping tests with an intention to determine the sustainable yield at which the production borehole will be pumped. The specific Geohydrological report for groundwater abstraction for the production borehole must be compiled and submitted to the Department (DWS). The report must entail management recommendation of the borehole and the sample from the borehole must be obtained and analysed for chemical and bacteriological analysis.	Clarify the requirements of the condition	Please specify the reference for the "production borehole" including the name and coordinates such that further investigation may be conducted.	No mistake	Proposal is recommended

Table 2: Irrigation Water Quality Limits Requested Amendment for Table 5: Waste Water Effluent Standards in the WUL

Variable	Unit	Current WUL Limit	Proposed Change	Reason
pH		5.5-9.5	None	
Electrical Conductivity (EC)	mS/m	150	None	
Total Dissolved Solids	mg/L	975	None	
Nitrate (NO_2/NO_3 as N)	mg/L	10	Variable: NO3 as N Limit: 15 mg/L	It is requested that the variable be specified as NO3 as N as this is the analyses that is used as per SANS and aligns with the indication of "Nitrate" as contained in the WUL. It is noted that technically the analyses includes both nitrite and nitrate species. The wastewater treatment works for Beatrix were designed to treat water to the General Standard as per Government Notice No. 991 of 18 May 1984. Therein no limits were assigned for nitrates, however the updated General Limits as per Government Notice No. 665 of 6 September 2013 the irrigation and discharge General Limit is 15 mg/L. This also aligns with the Reserve limit provided for the discharge of wastewater as per Appendix IV, Condition 2.1. Table 7 of the WUL.
Calcium (as $CaCO_3$)	mg/L	70	Variable: as Ca Limit: 115 mg/L	The abbreviation stipulated in the WUL refers to calcium

Variable	Unit	Current WUL Limit	Proposed Change	Reason
				carbonate which is a measurement of water hardness, while the wording before this refers only to Calcium. Based on the limit it is therefore assumed that the condition refers to Calcium and not the hardness of the water, therefore it is requested that this be corrected in the WUL. The limit for calcium is largely achievable, however this is entirely a function of the water quality received into the wastewater treatment works as no removal of calcium is actively done by the treatment works, and this was also not a treatment requirement as per the General Standard in the previous water permits. Further to this as per as per Appendix IV, Condition 2.1. Table 7 of the WUL the upper limit (Present State) is 115 mg/L. Finally, the discharges have been 100% compliant in the past year to the EC limit, showing that even when the Calcium concentration was above 70 mg/L the salt content was still in overall compliance to the required

Variable	Unit	Current WUL Limit	Proposed Change	Reason
				limit and therefore should not negatively impact on the overall salt load of the water source.
Chemical Oxygen Demand	mg/L	75	None	
Ecoli	Count/100ml	1000	Unit: colony forming units (CFU)/100 mL	The unit of measurement is usually stipulated as CFU/100 ml.
Free Chlorine	mg/L	0.50	None	

Table 3: Discharge Water Quality Limits Requested Amendment for Table 7: Quality of treated waste water to be discharged into a water resource.

Parameter	Surface Water Quality Reserve		Unit	Proposed Change	Reason
	Present	Reserve	None provided in Table 7	Refer to Table 17 of Appendix V in the WUL or provide Units in Table 7 as provided below.	
Ca	115	32		**Parameter:** Calcium as Ca **Unit:** mg/L **Limit:**115 mg/L	Refer to the motivation provided in Table 2: Irrigation Water Quality Limits Requested Amendment for Table 5: Waste Water Effluent Standards in the WUL.
Mg	57	5		**Parameter**: Magnesium as Mg **Unit: mg/L** **Limit**: 57 mg/L	No discharge qualities in the past year have complied with the reserve limit, the wastewater treatment works are not designed to remove magnesium as part of the treatment process and this was not a requirement as per the previous water permits. . Finally, the

Parameter	Surface Water Quality Reserve		Unit	Proposed Change	Reason
	Present	**Reserve**	None provided in Table 7	Refer to Table 17 of Appendix V in the WUL or provide Units in Table 7 as provided below.	
					discharges have been 100% compliant in the past year to the EC limit, showing that even when the Magnesium concentration was above 70 mg/L the salt content was still in overall compliance to the required limit and therefore should not negatively impact on the overall salt load of the water source.
Na	189	134		**Parameter**: Sodium as Na **Unit: mg/L** **Limit**: 134 mg/L	The discharge has shown full compliance to the Reserve Limit as per the last year of results.
Cl	342	216		**Parameter**: Chloride as Cl **Unit: mg/L** **Limit**: 270 mg/L	The last year of results indicate that a mid-range limit between the Present and Reserve Limits would be achievable. Further to this the results for the last year show that even at a higher concentration the EC is not exceeded and therefore the proposed limit will not result in an

Parameter	Surface Water Quality Reserve		Unit	Proposed Change	Reason
	Present	**Reserve**	None provided in Table 7	Refer to Table 17 of Appendix V in the WUL or provide Units in Table 7 as provided below.	
					overall unacceptable salt content in the water source. Once again the treatment facilities were not designed to remove chlorides.
SO_4	281	42		**Parameter:** Sulphate as SO_4 **Unit: mg/L** **Limit**: 74 mg/L	The last year of results show that compliance can be achieved to the proposed limit, which is well below the average between the Present and Reserve Limit. Once again the treatment plants were not designed to remove any salts and this was not a requirement as per the previous permits.
NH_4	2	2		**Parameter**: Ammonium (NH_4 as N) **Unit: mg/L** **Limit**: 2 mg/L	The limit as specified for both the Present and Reserve is achievable as evidenced by the past year of results, however it should be noted that it is less than the previous permit limits of 6 mg/L (2013 General Limits) and 10 mg/L (1984 General Limits). Nevertheless

Parameter	Surface Water Quality Reserve		Unit	Proposed Change	Reason
	Present	**Reserve**	None provided in Table 7	Refer to Table 17 of Appendix V in the WUL or provide Units in Table 7 as provided below.	
					the lower limit is supported as it is achievable and is more environmentally responsible for the catchment.
NO_2_NO_3	10	15		**Parameter**: Nitrate (NO_3 as N) **Unit: mg/L** **Limit**: 15 mg/L	Refer to the motivation provided in Table 2: Irrigation Water Quality Limits Requested Amendment for Table 5: Waste Water Effluent Standards in the WUL.
PO_4	1.888	5		**Parameter**: Phosphate (PO_4 as P) **Unit: mg/L** **Limit:** 1.89 mg/L	The limit as specified for both the Present and Reserve is achievable as evidenced by the past year of results; however it should be noted that it is less than the previous permit limits of 10 mg/L (2013 General Limits). Nevertheless the lower limit is supported as it is achievable and is more environmentally responsible for the catchment.
NH_3	2	2		**Parameter**: Remove parameter	The chemical analyses of ammonium includes

Parameter	Surface Water Quality Reserve		Unit	Proposed Change	Reason
	Present	Reserve	None provided in Table 7	Refer to Table 17 of Appendix V in the WUL or provide Units in Table 7 as provided below.	
					both ammonium and ammonia in the final NH_4 as N measurement, the ammonia content can then be calculated from this measurement based on the temperature, pH and conductivity. Therefore assigning a single limit to ammonium will also cater for the ammonia content. If a limit is assigned to ammonia, then the limit must be assigned in the context of the temperature, pH and conductivity as well as in the context of the dissolved oxygen in the receiving environment. Further to this it should be noted that the limit currently assigned would result in acute toxicity in the receiving environment and it would be irresponsible for Beatrix to manage discharges to this limit, as the acute effect value

Parameter	Surface Water Quality Reserve		Unit	Proposed Change	Reason
	Present	Reserve	None provided in Table 7	Refer to Table 17 of Appendix V in the WUL or provide Units in Table 7 as provided below.	
					as per the South African Target Water Quality Guidelines for Aquatic Ecosystems (1998) is 0.1 mg/L. Therefore it is proposed that this parameter be removed from the list due to the complicated interpretations required in order to understand the true impact of this variable on the receiving environment, as well as the fact that ammonium already provides a more clear and easily analysed variable for compliance to be measured against.
TDS	975	1000		**Parameter**: Total Dissolved Solids (TDS) **Unit: mg/L** **Limit**: 975 mg/L	Aligns with the EC conversion rate of 6.5 at 25 °C and full compliance for the past year has been shown, therefore the limit is achievable.
Ecoli	Count/100ml	1000		**Parameter:** E. Coli **Unit:** cfu/100mL **Limit:** 1000 cfu/100mL **Other:** Remove unit	Refer to discussion in Table 2: Irrigation Water Quality Limits Requested Amendment

Parameter	Surface Water Quality Reserve		Unit	Proposed Change	Reason
	Present	**Reserve**	None provided in Table 7	Refer to Table 17 of Appendix V in the WUL or provide Units in Table 7 as provided below.	
				from "Present" limit	for Table 5: Waste Water Effluent Standards in the WUL.
EC	-	150		**Parameter**: Electrical Conductivity (EC) **Unit: mS/m** **Limit**: 150 mS/m **Other**: No "Present" limit has been specified	Limit aligns with TDS and full compliance has been shown in the last year, therefore the limit is achievable.
pH	Not included			**Parameter**: pH **Unit:** **Limit**: 5.5 to 9.5	Not included in the discharge limits, but aligns with irrigation limits. Essential parameter to be included for any discharge.
COD	Not included			**Parameter**: Chemical Oxygen Demand (COD) **Unit: mg/L** **Limit**: 75 mg/L	Not included in the discharge limits, but aligns with irrigation limits. Essential parameter to be included for any sewage discharge.
Free Cl	Not included			**Parameter**: Free chlorine **Unit: mg/L** **Limit**: 0.5 mg/L	Not included in the discharge limits, but aligns with irrigation limits. Essential parameter to be included for any sewage discharge.
F	Not included			**Parameter**: Fluoride (F)	Not included in the

Parameter	Surface Water Quality Reserve		Unit	Proposed Change	Reason
	Present	**Reserve**	None provided in Table 7	Refer to Table 17 of Appendix V in the WUL or provide Units in Table 7 as provided below.	
				Unit: mg/L **Limit**: 1 mg/L	discharge limits, the proposed limit aligns with the General Limit (2013) and is below the South African target Water Quality Guidelines for Aquatic Ecosystems (1998) chronic effect value. Useful parameter to be included as occasional significant fluctuations may occur, therefore monitoring compliance to this parameter will aid in ensuring issues observed are rapidly addressed.
Fe	Not included			**Parameter**: Iron (Fe) **Unit: mg/L** **Limit**: 0.3 mg/L	Not included in the discharge limits, the proposed limit aligns with the General Limit (2013). Useful parameter to be included in case of potential mine related contamination in the sewage system.
Mn	Not included			**Parameter**: Free chlorine **Unit:** mg/L	Not included in the discharge limits, the proposed limit aligns

Parameter	Surface Water Quality Reserve		Unit	Proposed Change	Reason
	Present	Reserve	None provided in Table 7	Refer to Table 17 of Appendix V in the WUL or provide Units in Table 7 as provided below.	
				Limit: 0.1 mg/L	with the General Limit (2013) and is below the South African target Water Quality Guidelines for Aquatic Ecosystems (1998) chronic effect value. Useful parameter to be included in case of potential mine related contamination in the sewage system.

Table 4: Groundwater Quality Limits Requested Amendment for Table 9: Groundwater Quality (Reserve).

Variable (and unit)	Quality of waste water	Proposed Change	Reason
PLEASE NOTE: All proposed limits are for receptor boreholes only as these may be utilised for other beneficial uses. Source and plume boreholes should be monitored and plume migration studies at a frequency recommended by a Geohydrologist depending on the plume migration dynamics. Finally, background boreholes are not influenced by the Beatrix activities and therefore the qualities of the water in these boreholes cannot be controlled by Beatrix. Finally, it is requested that prior to the limits being set that an opportunity be given to discuss the aquifer characteristics with the Department's appointed Geohydrological specialist as there are specific considerations regarding the natural aquifer characteristics that will assist in informing realistic and scientifically defendable limits.			
pH	5.0 – 9.5	None	
Ammonia (NH_4) (mg/L)	2	**Variable:** Ammonium (NH_4 as N)	The chemical formula for ammonia is NH_3 and for ammonium is NH_4. The lab analyses measure ammonium, therefore it is requested that the variable name be changed.
Total dissolved solids (TDS) (mg/L)	2 927.0	None	
Calcium (Ca) (mg/L)	153.3	Remove variables and limits	The need for compliance to a calcium. Magnesium and sodium limits is not understood as the total dissolved
Magnesium (Mg) (mg/L)	433.8		
Sodium (Na) (mg/L)	200		

Variable (and unit)	Quality of waste water	Proposed Change	Reason
			solids is already regulated and there is no expected toxicity or adverse impacts to be expected from any single salt that is not already evaluated using the total dissolved solids. Written reasons for this requirement based on scientific evidence is requested such that it can better understood what impacts the Department are trying to mitigate as a result of this variable.
Silica (SiO_2) (mg/L)	4.8	Remove variable and limit	Silica is a dust related human and environmental risk. Beatrix is also not aware of the water quality SANS approved method of analysis that should be followed for this parameter. Therefore it is requested that the Department provide written reasons for the requirement to monitor this parameter as well as an indication of the relevant methods to be used.
Nickel (Ni) (mg/L)	7.8	**Limit**: 0.07 mg/L	The reserve limit indicated would result in significant environmental and human harm as it is well above all recommended and other regulatory limits and would cause acute toxicity to the receiving environment and humans that make use of the water for domestic use, as well as their cattle and crops. Further to this it would result in the excessive enrichment of any irrigated soils. It is therefore strongly recommended that the limit be changed to the proposed limit which is in line with the Drinking

Variable (and unit)	Quality of waste water	Proposed Change	Reason
			Water Quality requirements as per SANS 241:2015.
Total Nitrogen	7.8	**Parameter**: Nitrate (NO_3 as N) **Limit**: 11 mg/L	The current monitoring only includes ammonium and nitrate. A limit has been assigned for ammonium, therefore it is recommended that a limit for nitrate rather be assigned than total N, thus allowing for better evaluation of potential sources of eutrophication and prevent the duplication of the presentation of results, as ammonium would then be represented twice. The limit proposed aligns with the Drinking Water Quality requirements as per SANS 241:2015.
Sulphate (SO4)	1 143.5	**Unit: mg/L** **Limit**: 250 mg/L	The limit proposed aligns with the Drinking Water Quality requirements as per SANS 241:2015.
Total alkalinity (mg/L)	84.95	Remove variable and limit or specify range	Alkalinity should be controlled within a range as it provides buffering against acidification, but also can negatively impact soil, therefore an upper and lower range should be provided. Preferably however it should be removed as pH is already controlled.
Uranium (mg/L)	None	**Limit**: 30 mg/L	The limit proposed aligns with the Drinking Water Quality requirements as per SANS 241:2015.
Aluminium (mg/L)	None	**Limit**: 0.3 mg/L	The limit proposed aligns with the Drinking Water Quality requirements as per SANS 241:2015.
Iron (mg/L)	None	**Limit**: 0.3 mg/L	The limit proposed aligns with the Drinking Water Quality requirements as per SANS 241:2015, specifically the aesthetic limit.

Variable (and unit)	Quality of waste water	Proposed Change	Reason
Copper (mg/L)	None	**Limit**: 2 mg/L	The limit proposed aligns with the Drinking Water Quality requirements as per SANS 241:2015.
Fluoride(mg/L)	None	**Limit**: 1.5 mg/L	The limit proposed aligns with the Drinking Water Quality requirements as per SANS 241:2015.
Manganese (mg/L)	None	**Limit**: 0.4 mg/L	The limit proposed aligns with the Drinking Water Quality requirements as per SANS 241:2015, specifically the chronic health limit.
Zinc (mg/L)	None	**Limit**: 5 mg/L	The limit proposed aligns with the Drinking Water Quality requirements as per SANS 241:2015.