



water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

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

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

SIGNED:

DATE: 22/12/14

LICENCE NO. 04/B20E/ABCGIJ/2994
FILE NUMBER: 16/2/7/B200/C585

1. **Licensee:** **Tegeta Resources and Exploration (Pty) Ltd: Brakfontein Colliery**

Postal Address : Private Pag X9
BENMORE
2010
2. **Water Uses**
 - 2.1 Section 21(a) of the Act: Taking water from a water resource, subject to the conditions as set out in Appendices I and II.
 - 2.2 Section 21 (c) of the Act: Impeding or diverting the flow of water in a watercourse subject to conditions as set out in Appendices I and III.
 - 2.3 Section 21(g) of the Act: Disposing of waste in a manner which may detrimentally impact on a water resource, subject to the conditions as set out in Appendices I and IV.
 - 2.4 Section 21 (i) of the Act: Altering the bed, banks course or characteristics of a watercourse, subject to conditions as set out in Appendices I and III.

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- 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 as set out in Appendices I and V

3. Property on which the use will be exercised

Table 1: Property Details

Description	Area (ha)	Title deed no.	Property owner
Brakfontein 264 IR Ptn 17	58.2337	T228/2012	Confident Concept Pty Ltd
Brakfontein 264 IR Ptn 22	63.3834	T152242/2006	Hannes Potgieter Trustfonds
Brakfontein 264 IR Ptn 25	168.4375	T9659/2011	Confident Concept Pty Ltd
Brakfontein 264 IR Ptn 27	30.9546	T9659/2011	Confident Concept Pty Ltd
Brakfontein 264 IR Ptn 28	86.4684	T21084/1979	Combrink Petrus Johannes
Brakfontein 264 IR Ptn 16	150.8995	T690/2008	Koos Uys & Seun Boerdery CC

5. Licence and Review Period

- 5.1 This licence is valid for a period of fifteen years (15) years from the date of issuance and as provided for under Section 49 of the Act, it may be reviewed every 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 Operations Provincial: Mpumalanga, Department of Water and Sanitation, Private Bag X11259, Mbombela, 1200.

"Report" refers to the report: Tegeta Exploration and Resources (Pty) Ltd: Integrated Water And Waste Management Plan (IWWMP) FOR BRAKFONTAIN COLLIERY Portions 4, 16, 17, 22, 24, 25, 27, 28 And 29 Of The Farm Brakfontein 264 IR 16/2/7/B200/C585 Volume 1 July 2013 (Amended November 2014)

7. Brief description of the application

This licence authorises Tegeta Resources and Exploration (Pty) Ltd for Brakfontein colliery. The water uses associated with opencast coal mining and underground mining on portion 16, 17, 22, 25, 27 and 28 of the farm Brakfontein 264 IR. The water uses are for Section 21(a), (c), (g), (i) and (j) as per section 40 of the National Water Act (Act 36 of 1998). The study area falls within Water Management Area 4 (WMA4) of the Upper Olifants River. Specifically the area occurs within quaternary catchment B20E. The far western extremity of Portion 16 is within quaternary catchment B20A, but this area should remain unaffected by surface disturbance.

The proposed area which will be directly affected by the opencast mining is around 138ha of portions 17, 22, 25 and 27 (Plan 2 and Plan 3). Approximately 70 ha of mining area have been lost due to the implementation of the 200m buffer zones. Infrastructure areas have and will disturb a further 135 ha in total 

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(ies) in respect of which this licence is issued is subdivided or consolidated, the Licensee must provide full details of all changes in respect of the properties to the Provincial Head within sixty (60) days of the said change taking place.
5. If a water user association is established in the area to manage the resource, membership of the Licensee to this association is compulsory.
6. The Licensee shall be responsible for any water use charges or levies imposed by a responsible authority.
7. While effect must be given to the Reserve as determined in terms of the Act, where a desktop determination of the Reserve has been used in issuance of a licence, when a comprehensive determination of the Reserve has finally been made; it shall be given effect to.
8. The licence shall not be construed as exempting the Licensee from compliance with the provisions any other applicable Act, Ordinance, Regulation or By-law.
9. The licence and amendment of this licence are also subject to all the applicable procedural requirements and other applicable provisions of the Act, as amended from time to time.
10. The Licensee shall conduct an annual internal audit on compliance with the conditions of licence. A report on the audit shall be submitted to the Provincial Head within one (1) month of finalisation of the audit.
11. The Licensee shall appoint an independent external auditor to conduct an annual audit on compliance with the conditions of this licence. The first audit must be conducted within three (3) months of the date this licence is issued 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 representative upon request.
13. Any incident that causes or may cause water pollution shall be reported to the Provincial Head or his/her designated representative within 24 hours.

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14. If the water use described in this licence is not exercised within three (3) years of the date of the licence, the authorisation will be withdrawn. Upon commencement of the water use, the Licensee must inform the relevant authority in writing.

APPENDIX II

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

1. This licence authorises the taking of a maximum quantity of groundwater in property as indicated in Table 2:

Table 2: Section 21 (a) water activities

Water use(s)	Purpose	Capacity/ Volume (m ³ , tonnes and/or m ³ /annum)	Property Description	Co-ordinates
Section 21(a)				
Abstraction of groundwater from a borehole	The water is for drinking, water, toilets and change houses.	657m ³ /a	Portion 25 of farm Brakfontein 264 IR	26°13'32.05"S 28°50'59.24"E
		657m ³ /a	Portion 27 of farm Brakfontein 264 IR	26°13'50.70"S 28°50'51.00"E
Abstraction of ground water from mining operations	Water will be used in the processing plants.	54 700 m ³ /a	Portion 16 of farm Brakfontein 264 IR	26°13'38.21"S 28°49'55.88"E
		36 500 m ³ /a	Portion 17 and 27 of farm Brakfontein 264 IR	26°13'22.12"S 28°51'0.94"E
		54 700 m ³ /a	Portion 22 and 25 of farm Brakfontein 264 IR	26°14'4.92"S 28°50'18.49"E

2. The quantity of water authorised to be taken in terms of this licence may not be exceeded without prior authorisation by the Minister.
3. This licence does not imply any guarantee that the said quantities and qualities of water will be available at present or at any time in the future.
4. The volumes 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 efficient use of water containing waste, in an endeavour to conserve water at all times.
6. The Licensee shall be responsible for any water use charges or levies, which may be imposed from time to time by the Department or Responsible Authority in terms of the Department's Raw Water Pricing Strategy.

7. 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.
8. All water taken from the resource shall be measured as follows:
 - 8.1 The daily quantity of water taken must be metered or gauged and the total recorded at the last day of each months; and
 - 8.2 The licence shall keep record of all water taken and a copy of the records shall be forwarded to the Provincial Head on or before 25 January and July of each year.
9. No water taken may be pumped, stored, diverted, or alienated for purposes other than intended in this licence, without written approval by the Minister or his/her delegated nominee.
10. The Licensee shall install and monitor appropriate water measuring devices to measure the amount of water abstracted, received and/or consumed, as applicable to the infrastructure.
11. Notices prohibiting unauthorised persons from entering the certain areas, as well as internationally acceptable signs indicating the risks involved in case of an unauthorised entry must be displayed along the boundary fence of these areas.
12. The Department accepts no liability for any damage, loss or inconvenience, of whatever nature, suffered as a result of:
 - 12.1 Shortage of water;
 - 12.2 Inundations or flood;
 - 12.3 Siltation of the resource; and
 - 12.4 Required reserve releases.
13. 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.
14. The Licensee shall establish a programme of formal Information Management System, which maintains a database on water supply, distribution and delivery infrastructure.

APPENDIX III

Section 21(c) of the Act: Impeding or diverting the flow of water in a watercourse;
and

Section 21(i) of the Act: Altering the bed, banks, course or characteristics of a
watercourse

Table 3: Details of water resource crossings

Section 21 c & i	Water Use Activity	Co-ordinates	Co-ordinates
Wetland areas, tributaries and boreholes have/will be affected by mining activities	Incline shaft and associated stockpiles will be established outside the 200m buffer but within 500m of a hillslope seep HGM 4 associated with tributary 1, channelled valley bottom wetland HGM3 and a pan.	Portion 16 of farm Brakfontein 264 IR	26°13'36.52"S 28°49'53.54"E
	Underground mining will take place outside the 200m buffer but within the 500m regulated area of the pan	Portion 16 farm Brakfontein 264 IR	26°13'22.94"S 28°49'43.54"E
	Underground mining will take place outside the 200m buffer but within the 500m upper reaches and the origin of tributary 1 (±500 long) and associated wetlands (HGM 3 and 4)	Portion 16 farm Brakfontein 264 IR	26°13'29.28"S 28°49'54.55"E 26°13'30.79"S 28°50'12.05"E
	Isolated Hillslope seep wetland (HGM3 B - Seriously modified - PES: E) area have been affected by existing mining activities on this	Brakfontein 264 IR Portion 17 and 27:	26°13'20.46"S 28°50'41.27"E
	Isolated Hillslope seep wetland (HGM2 B - Seriously modified - PES: E) area have been affected by existing	Brakfontein 264 IR Portion 17:	26°13'13.33"S 28°51'4.18"E

Section 21 c & i	Water Use Activity	Co-ordinates	Co-ordinates
	mining activities on this property.		
	Mining within 500m of unchanneled valley bottom wetland (HGM1 B).	Brakfontein 264 IR Portion 17:	26°13'7.68"S 28°51'11.56"E
	Existing mining within 500m of unchanneled valley bottom wetland (HGM4 B).	Brakfontein 264 IR Portion 17:	26°13'7.75"S 28°51'14.51"E 26°13'7.75"S 28°51'14.51"E
	Existing mining and haul road within 100m of tributary 3 and associated channeled valley bottom wetland(HGM4 B).	Brakfontein 264 IR Portion 27:	26°13'37.20"S 28°50'48.37"E 26°13'42.24"S 28°51'7.20"E
	Existing mining outside the 200m buffer but within 500m of unchanneled valley bottom wetland (HGM4 B).	Brakfontein 264 IR Portion 27:	26°13'28.16"S 28°51'9.97"E 26°13'42.24"S 28°51'7.20"E
	Existing PCD within 100m of wetland area encroaching into wetland edge associated with tributary 1 (HGM4 B). PCD is planned on being relocated outside the 100m buffer.	Brakfontein 264 IR Portion 27:	26°13'42.24"S 28°51'7.20"E
	Mining within 500m of a spring (CBFS1).	Brakfontein 264 IR Portion 27:	26°13'47.86"S 28°51'17.93"E
	ROM Stockpiling within 500m of tributary 2 and associated wetlands.	Brakfontein 264 IR Portions 25:	26°13'48.36"S 28°50'39.59"E

Section 21 c & i	Water Use Activity	Co-ordinates	Co-ordinates
	Overburden stockpiles outside the 200m buffer but within 500m of tributary 2 and associated wetlands.	Brakfontein 264 IR Portions 22 and 25:	26°14'15.00"S 28°49'51.89"E
	Mining outside the 200m buffer but within 500m of Wilge River and associated wetlands.	Brakfontein 264 IR Portions 22 and 25:	Eastern extent: 26°14'13.74"S 28°50'59.32"E
	Discard dump within 500m of Wilge River and tributary 3 and associated wetlands.	Brakfontein 264 IR Portions 25:	26°14'1.54"S 28°51'7.88"E 26°13'57.58"S 28°51'2.84"E
	PCD within 500m of Wilge River, tributary 3 and associated wetlands.	Brakfontein 264 IR Portions 25:	26°13'55.99"S 28°51'9.04"E 26°13'54.73"S 28°51'3.89"E
	Septic tank within 500m of tributary 3 and associated wetlands.	Brakfontein 264 IR Portions 25:	26°13'46.38"S 28°50'52.76"E
	Wash plant within 500m of tributary 2 and tributary 3 and their associated wetlands.	Brakfontein 264 IR Portions 25:	26°13'55.96"S 28°50'44.56"E

1. Construction, Operation and Maintenance

1.1 The Licensee shall carry out and complete all the activities according to the following:

- 1.1.1 Report(s) submitted to the Department or the Responsible Authority
 - 1.1.1.1 Surface water assessment for Brakfontein colliery prepared by Letsolo dated 2013
 - 1.1.1.2 Surface water assessment for Brakfontein extension prepared by Letsolo dated 2013
 - 1.1.1.3 Aquatic assessment for Brakfontein colliery prepared by SEF dated 2013
 - 1.1.1.4 Aquatic assessment for Brakfontein extension prepared by SEF dated 2013

- 1.1.1.5 Wetland assessment Brakfontein colliery prepared by SEF dated 2013
- 1.1.1.6 Wetland assessment Brakfontein extension prepared by SEF dated 2013
- 1.1.1.7 Section 21 (c) & (i) supplementary form.
- 1.1.2 Conditions of this licence; and
- 1.1.3 Any other written direction issued by the Storm Water Head in relation to this licence.
- 1.2 The conditions of this licence shall be brought to the attention of all persons (employees, sub-consultants, contractors etc.) associated with the undertaking of this activity and the Licensee shall take such measures that are necessary to bind such persons to the conditions of this licence.
- 1.3 Construction activities must not take place within the 1:100 year flood-line or within a horizontal distance of 100 metres from any watercourse, estuary, borehole or well, whichever is the greatest, unless authorised by this licence.
- 1.4 Compensation measures for damage to and or mitigation measures must be recommended if avoidance or minimisation of the impacts of the proposed development is not possible or if mitigation measures fail to adequately protect the in-stream and riparian habitat.
- 1.5 No material with pollution generating potential will be used in any construction activities.
- 1.6 Necessary erosion prevention mechanisms shall be employed to ensure the sustainability of all structures.
- 1.7 The Licensee must ensure that structures such as the river, road crossings, weirs and the culverts are not damaged excessively by floods exceeding the magnitude of floods occurring on average once in every 100 years.
- 1.8 The structure of temporary crossings must be non-erosive, structurally stable and must not induce any flooding or safety hazard. Temporary crossings must be inspected regularly for accumulation of debris, blockage, erosion of abutments and overflow areas. Debris must be removed and damages must be repaired and reinforced immediately.
- 1.9 Construction activities shall start up-stream and proceed into a down-stream direction, so that the recovery processes can start immediately, without further disturbance from upstream construction works.
- 1.10 Construction activities must be scheduled to take place during dry seasons when flows are lowest.
- 1.11 The natural migration of aquatic biota and upstream movement of fish must not be disturbed.
- 1.12 The development may not impede natural drainage lines.
- 1.13 The construction camp shall not be located within the 1:100 year flood line or within 100 metres of any watercourse whatever the greatest.
- 1.14 Vehicles and other machinery must be serviced well above the 1:100 year flood line or within a horizontal distance of 100 metres from any watercourse or estuary. Oils and other potential pollutants must be disposed off at an appropriate licensed site, with the necessary agreement from the owner of such a site.
- 1.15 All reagent storage tanks and reaction units must be supplied with a bunded area built to the capacity of the facility and provided with sumps and pumps to return the spilled material back into the system.
- 1.16 The system shall be maintained in a state of good repair and standby pumps must be provided.

- 1.17 Any hazardous substances must be handled according to the relevant legislation relating to transport, storage and use of the substance.
- 1.18 Pollutions caused by spills from the conveyances of any pollution generating potential must be prevented through proper maintenance and effective protective measures especially near all stream crossings.
- 1.19 Any access roads or temporary crossings must be:
 - 1.19.1 non-erosive, structurally stable and should not induce any flooding or safety hazard;
 - 1.19.2 Repaired immediately should damage occur to prevent further damage.

2. Storm water Management

- 2.1 Storm water shall be diverted from the construction works and roads must be managed in such a manner as to disperse runoff and to prevent the concentration of storm water flow.
- 2.1 Where necessary, works must be constructed to attenuate the velocity of the storm water discharge and to protect the banks of the watercourse.
- 2.2 Storm water control works must be constructed, operated and maintained in a sustainable manner throughout the project.
- 2.4 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 watercourse.
- 2.5 Storm water leaving the Licensee's premises must 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.

3. Water Quality and Quantity

- 3.1 The in-stream water quality must be analysed on a weekly basis during the construction period for activities occurring closer than 100m to a watercourse, at the monitoring points on both upstream and downstream of the activities for the following variables: pH, Electrical conductivity (mS/M), suspended solids (mg/l), and total dissolved solids (mg/l). Monitoring shall continue on monthly basis after the cessation of the activities.
- 3.2 Activities (such as maintenance) that lead to elevated levels of turbidity of any watercourse must be minimised.
- 3.3 The Licensee shall ensure that the quantity of water to downstream water users does not decrease because of the existence of the river diversions, river crossings, and culverts and associated maintenance of road crossings.

4. General Specifications

- 4.1 A suitably qualified person, appointed by the Licensee, and approved, in writing, by the Storm Water Provincial Head, must be responsible for ensuring that the structures are maintained in line with the design specifications.

- 4.2 The Licensee shall have a full time Civil Engineer Supervisor on the site during construction of river diversions, river crossings, culverts and pollution control dams. The contractor shall have an approved Site Agent on the site during construction.
- 4.3 Necessary erosion prevention mechanisms shall be employed to ensure the sustainability of all the structures.

5. Protective Measures

- 5.1 The river crossings structures may not restrict river flows by reducing the overall river width or obstructing river flow.
- 5.2 Operation and storage of equipment within the riparian zone must be limited as far as possible.
- 5.3 All activities within the riparian zone should be restricted as far as possible.
- 5.4 Any material removed from the in stream or riparian habitat, may not be stored within the riparian zone, and may not be stored in such a way that will cause damming of water or wash-away.
- 5.5 Alien vegetation must not be allowed to further colonise the area, and all new alien vegetation recruitment must be eradicated or controlled, using standard methods approved by the Department.
- 5.6 Soils that have become compacted through the activities of the development must be loosened to an appropriate depth to allow seed germination.
- 5.7 The proposed development must not impede the upstream movement of fish.
- 5.8 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.
- 5.9 Riparian vegetation, including dead trees, may not be removed from the area; in particular, snags (fallen trees and branches) in the river must be protected (i.e. not collected for firewood or any other purpose).
- 5.10 All reasonable steps should be made to minimise noise and mechanical vibrations in the vicinity of the river.

6. Rehabilitation

- 6.1 All disturbed areas must be re-vegetated with an indigenous seed mix in consultation with an indigenous plant expert, ensuring that during rehabilitation only indigenous shrubs, trees and grasses are used in restoring the biodiversity.
- 6.2 The vegetation of affected environment should also be managed to prevent erosion and siltation of the water course.
- 6.3 The Licensee shall take steps necessary to allow movement of aquatic species, including migratory species during the rehabilitation programme.
- 6.4 The Licensee shall embark on a systematic long-term rehabilitation programme to restore natural watercourses to environmentally acceptable and sustainable conditions after construction, which shall include, but not be limited to:
 - 6.4.1 The rehabilitation of disturbed and degraded riparian areas to restore and upgrade the riparian habitat integrity to sustain a bio-diverse riparian ecosystem; and

- 6.4.2 Annually assess the habitat to monitor the sustainability of the diversions and compliance with these conditions. Action must be taken to rectify any negative impacts.
- 6.5 The Licensee shall ensure that the volume of flow is not reduced except for natural evaporative losses and the authorised attenuation volumes.

7. General Surface Water Design Requirements and Criteria

- 7.1 The Licensee shall determine flood lines (1:50 and 1:100 year) prior to construction to ensure risks are adequately managed. Flood lines shall be clearly indicated on the layout plans.
- 7.2 The Licensee shall schedule construction activities at or close to river crossings, streams or wetlands to take place during low flow periods.
- 7.3 The Licensee shall clearly indicate all wetlands boundaries within the project area on layout plans.
- 7.4 Design and planning of all proposed construction activities adjacent to or in the vicinity of rivers, streams and wetlands shall consider the following measures:
 - 7.4.1 Impact of alignment on springs and wetlands shall be investigated and monitored and ensure their continued functioning.
 - 7.4.2 Where appropriate, large individual indigenous riparian trees shall be avoided during construction and shall be clearly marked on site.
 - 7.4.3 All construction roads in or adjacent to the riparian zone shall be minimised and if required, shall be aligned and managed so as to minimise disturbance of the riparian zone and in-stream habitats.
- 7.5 The Licensee shall do Bio-monitoring to determine the impact, change, deterioration and improvement of the aquatic system associated with the activities that of impeding, altering or diverting the water resource.

8 SITE SPECIFIC CONDITIONS

- 8.1 Flood lines are to be determined for both rivers surrounding the project area and be submitted to the Provincial Head within six (6) months of the issuance of this licence.
- 8.2 Mining must exclude the 2 main wetlands on the western and eastern side of the mine.
- 8.3 All measures and technologies available must be utilized to ensure that decant points are at least 200m away from all rivers.
- 8.4 Drainage systems, trenches, channels and dams ensuring the separation of clean and dirty water must be constructed and operated in an environmentally friendly.
- 8.5 An inspectional and maintenance system to clean and access drainage systems, trenches, channels and dams must be established and implemented.
- 8.6 All diversion trenches and berms as well as soil stockpiles must be seeded with an appropriate seed mixture during the first rainy season after establishment.

APPENDIX IV

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

1. CONSTRUCTION , OPERATION AND MAINTAINANCE

- 1.1 The Licensee shall carry out and complete all the activities, including the construction and operation of the facilities indicated in Table 4, according to the Report and according to the final plans submitted with the Integrated Water Use Licence Application as approved by the Provincial Head:

Table 4: Geographical positions of all the waste water management facilities

Water use(s)	Purpose	Capacity/ Volume (m ³ , tonnes and/or m ³ /annum)	Property Description	Co-ordinates
Section 21(g)				
21(g): Storage of dirty water in the PCDs	Mine infrastructure PCD	7 000m ³	Brakfontein 264 IR Portion 27:	26°13'29.78"S 28°50'36.89"E 26°13'32.70"S 28°50'38.44"E 26°13'29.71"S 28°50'40.63"E 26°13'28.78"S 28°50'39.62"E
	Additional infrastructure PCD with 7 000m ³ capacity.	7 000m ³		26°13'29.43"S 28°50'40.75"E 26°13'32.56"S 28°50'38.66"E 26°13'34.29"S 28°50'41.76"E

Water use(s)	Purpose	Capacity/ Volume (m ³ , tonnes and/or m ³ /annum)	Property Description	Co-ordinates	
				26°13'30.56"S 28°50'43.66"E	
	PCD at wash plant and co-disposal. PCD with 17 658m ³ capacity. Capacity to increase by 8 147m ³ if mine water is pumped from sumps to PCD.	17 658m ³	Brakfontein 264 IR Portion 25:	26°13'54.23"S 28°50'59.35"E 26°13'54.16"S 28°51'8.89"E 26°13'56.93"S 28°51'8.42"E 26°13'56.78"S 28°50'59.17"E	
	21(g): Coal Stockpiling and overburden stockpiling	Temporary overburden and ROM coal stockpiles at incline shaft.	1 200 000 tons/year.	Brakfontein 264 IR Portions 16:	26°13'38.21"S 28°49'55.88"E
		Temporary overburden and coal stockpiles at mining area.	600 000 tons/year.	Brakfontein 264 IR Portions 27:	26°13'27.94"S 28°50'44.26"E
		ROM stockpiles at mining area.	1 200 000 tons/year.	Brakfontein 264 IR Portions 17:	26°13'20.24"S 28°50'46.43"E
		Temporary overburden stockpiles at mining area.	450 000 m ³ .	Brakfontein 264 IR Portions 17:	26°13'4.26"S 28°51'6.37"E
		Temporary overburden stockpiles at mining area.	450 000 m ³ .	Brakfontein 264 IR Portion 22:	26°14'14.93"S 28°49'52.61"E
		Temporary overburden stockpiles at mining area.	500 000 m ³ .	Brakfontein 264 IR Portion 25:	26°13'42.28"S 28°50'37.75"E

Water use(s)	Purpose	Capacity/ Volume (m ³ , tonnes and/or m ³ /annum)	Property Description	Co-ordinates
	Temporary coal stockpiles at wash plant area.	300 000 m ³	Brakfontein 264 IR Portion 25:	26°13'57.47"S 28°50'40.63"E
21(g) Co-disposal facility for discard and slurry disposal	Containment of waste emanating from the processing and washing plant.	264 000 tons/a	Brakfontein 264 IR Portion 25	26°13'57.67"S 28°50'58.31"E 26°14'3.59"S 28°50'55.28"E 26°14'9.64"S 28°50'59.06"E 26°14'5.93"S 28°51'7.13"E 26°13'57.29"S 28°51'8.32"E
21(g): Dust suppression		32 850m ³ /a	Brakfontein 264 IR All portions within the mineral rights boundary	All areas
21(g): Ablutions and septic tanks		22265m ³ /a	Brakfontein 264 IR Portions 27 and 25	26°13'34.32"S 28°50'58.56"E 26°13'48.07"S 28°50'53.12"E

- 1.2 The construction of the waste containment facilities listed in Table 4 must be carried out under the supervision of a professional Civil Engineer, registered under the Engineering Profession of South Africa Act, 1990 (Act 114 of 1990), as approved by the designer.
- 1.3 Within thirty (30) days after the completion of the activities referred here in accordance with the relevant provisions of this licence, the Licensee shall in writing, under

reference 27/2/2/B120/5/4, inform the Provincial Head thereof. This shall be accompanied by a signature of approval from the designer referred to above that the construction was done according to the design plans referred to in the Report.

- 1.4 The Licensee must ensure that the disposal of the waste or water containing waste and the operation and maintenance of the system are done according to the provisions in the Report.
- 1.5 The Licensee shall as well submit a set of as-built drawings to the Provincial Head after the completion of the waste facilities listed in Table 4.
- 1.6 The waste facilities listed in Table 4 shall be operated and maintained to have a minimum freeboard of 0.8 metres above full supply level and all other water systems related thereto shall be operated in such a manner that it is at all times capable of handling the 1:50 year flood-event on top of its mean operating level.
- 1.7 The Licensee shall use acknowledged methods for sampling and the date, time and sampler must be indicated for each sample.
- 1.8 The Compacted Clay Layer compaction specification must be amended to a minimum of 95% Standard Proctor density.
- 1.9 The Geo-membrane shall comply with SANS 1526 and GRI GM13.
- 1.10 The Pollution Control Dam protection layer of sand on the floor and geo-textile on the wall area shall be removed out as to reinstate the composite effect of the Barrier system.
- 1.11 The ash layer beneath the Run of Mine pad shall be installed.

2. DISPOSAL OF WASTE OR WATER CONTAINING WASTE

- 2.1 The Licensee is authorised to dispose of waste or water containing waste into the waste management facilities on the properties described in Table 5:

Table 5: Volumes of waste or water to be disposed at the waste disposal facilities

Description of activity Facilities	Volume in Cubic meters per annum (m ³ /a)	Capacity Cubic meters (m ³)	Waste Description	Property Name
Disposal of contaminated run-off and contaminated dewatered water Pollution Control Dam	500 000 m ³ /a	47 000	Mine dirty water emanating from the dewatering of opencast pit and dirty water run-off.	Vlakovarkfontein 213 IR portion 4

- 2.2. The Licensee is authorised to dispose of a maximum volume of two hundred and ninety one thousand three hundred and eight cubic meters per annum (291 308 m³/a)

of waste water by means of dust suppression onto haul roads and mining area on portion 4 Vlakvarkfontein.

3. MONITORING

- 3.1 Surface draining via the two streams cross the proposed mining rights area, flowing from south to north towards Delmas, occurs within the study area, therefore reasonable and sound groundwater protection measures are required to ensure that no cumulative pollution affects these water resources.
- 3.2 There must be an undertaking by the mine to provide and compensate the surrounding groundwater users should their boreholes be affected in terms of quantity and quality in a long term.
- 3.3 The Licensee must submit the final groundwater monitoring program with the inclusion of the boreholes in Table 6 of the Licence within six (6) months of issuance of this licence.
- 3.4 The groundwater model must be updated as more information on the current and additional monitoring boreholes becomes available.

Table 6: Groundwater monitoring boreholes

Monitoring point	Description	Co-ordinates
CBF1	Proposed Underground & Opencast	-26.2247 'S 28.8322 'E
CBF2	Proposed Underground & Opencast	-26.2277 'S 28.8348 'E
CBF3	Proposed Underground & Opencast	-26.2255 'S 28.8376 'E
CBF5	not applicable	-26.2150 'S 28.8620 'E
CBF6	not applicable	-26.2281 'S 28.8609 'E
CBF7	not applicable	-26.23536 'S 28.874 'E
BHA1	Current Opencast	-26.2170 'S 28.8539 'E
BHA3	Current Opencast	-26.2274 'S 28.8544 'E
BHB	Current Surface Infrastructure	-26.22348 'S 28.8443 'E
BHC	Proposed Underground & Opencast	-26.2219 'S 28.8420 'E

Table 7: Groundwater monitoring plan frequency

Phase	Groundwater levels	Groundwater quality	Parameters
During mining	Monthly	Quarterly	Total Dissolved Solids / Electrical Conductivity; pH level; Alkalinity; Carbonates; Magnesium; Calcium; Sodium; Potassium; Sulphate; Chloride; Fluoride; Iron; Manganese; and Aluminum.
Post-Mining	Monthly	Quarterly	

3.5 The Licensee shall monitor on monthly basis the water resources at surface water monitoring points in Tables 8 & 9 and groundwater monitoring points in Tables 6 & 7 on a quarterly basis to determine the impact of the facility and other activities on the water quality by taking samples at the monitoring points.

Table 8: Surface water sampling points.

Monitoring point	Description	Co-ordinates
MP-A	Tributary of the Wilge River, up stream of Ptn 27	-26.2311 'S 28.8403 'E
MP-B	Tributary of the Wilge River, eastern boundary of Ptn 27	-26.2253 'S 28.8416 'E
MP-C	Tributary of the Wilge River, downstream of Ptn 27	-26.2298 'S 28.8553 'E
MP-D	Up stream of Ptn 29 (northern boundary)	-26.2037 'S 28.8417 'E
MP-E	Up stream of Ptn 29 (northern boundary)	-26.1939 'S 28.8439 'E
MP-F	Downstream of Ptn 29	-26.1978 'S 28.8654 'E
MP-G1	Wilge river, upstream of MP-C	-26.2320 'S 28.8558 'E
MP-G2	Upstream of confluence with Wilge River	-26.2347 'S 28.8849 'E
MP-G3	Downstream of Ptn 17 and 27 but up stream if Ptn 4	-26.2093 'S 28.8774 'E
MP-G4	Most downstream point of the entire study area	-26.1748 'S 28.8819 'E
In-pit sump	Location may vary within the general location of the pit	-26.2237 'S 28.8504 'E
PCD	South-western extent of existing mining area. Dirty water containment dam.	-26.2252 'S 28.8440 'E
PCD	Eastern area of portion 25	-26.2322 'S 28.8509 'E

Table 9: Groundwater monitoring plan frequency

Phase	Groundwater levels	Groundwater quality	Parameters
During mining	Monthly	Monthly	Total Dissolved Solids / Electrical Conductivity; pH level; Alkalinity; Carbonates; Magnesium; Calcium; Sodium; Potassium; Sulphate; Chloride; Fluoride; Iron; Manganese; and Aluminum.
Post-Mining	Quarterly	Quarterly	

- 3.6 The date, time and monitoring point in respect of each sample taken shall be recorded together with the results of the analysis.
- 3.7 Monitoring points shall not be changed without prior notification to and written approval by the Provincial Head.
- 3.8 The waste management facilities must be designed in such manner that any leakages can be contained and reclaimed without any impact on the surrounding environment, an early warning detection system must be installed and monitored to detect any leakages or malfunction in the waste management facilities in time in order to take corrective action to protect water resources.
- 3.9 Post mine closure, there is a great chance of decant and acid mine drainage, the Licensee is required to commit to treat decanting water up to an environmentally acceptable standard before that decant reports to surface water bodies in the study area.
- 3.10 The groundwater model must be updated as more information in the current and the additional monitoring boreholes becomes available.
- 3.11 Geochemical studies must be carried out and the numerical groundwater flow and contaminant transport models for the proposed mine must be updated and submitted to the Provincial Head within (12) twelve months of the issuance this licence.
- 3.12 An acceptable groundwater monitoring network must be established within six (6) months of the date of issuance of this licence.

4. WATER RESOURCE PROTECTION

- 4.1 The impact of the activities of the mine on the groundwater shall not exceed the limits as indicated in Table 10.

Table 10: Ground Reserve Quality

Parameters	Quality Limit
Electrical Conductivity (mS/m)	37.51
pH	5.5-9.5
Sodium (mg/l)	10.45
Magnesium (mg/l)	5.61
Calcium (mg/l)	20.68
Chloride (mg/l)	8.80
Sulphate (mg/l)	14.85
Nitrate (mg/l)	0.48

5. REPORTING

- 5.1 The Licensee shall update the water balance annually and calculate the loads of waste emanating from the activities. The Licensee shall determine the contribution of their activities to the mass balance for the water resource and must furthermore co-operate with other water users in the catchment to determine the mass balance for the water resource reserve compliance point.
- 5.2 The Licensee shall submit the results of analysis for the monitoring requirements to the Provincial Head on a quarterly basis under Reference number **16/2/7/B200/C585**.

6. STORMWATER MANAGEMENT

- 6.1 The stormwater management drawings must be submitted to the Department for approval prior to the commencement of the proposed water use activities and that no mining activity or infrastructure is positioned within the 1: 100 year floodline of the Klipspruit and any other water resources within the vicinity of the mine without the requisite authorisation.
- 6.2 The Licensee must also ensure that the runoff water storage facilities can accommodate at least 1:50 year stormwater with a minimum 0.8 metre freeboard.
- 6.3 Stormwater leaving the Licensee's premises shall in no way be contaminated by any substance, whether such substance is a solid, liquid, vapour or gas or a combination thereof which is produced, used, stored, dumped or spilled on the premises.

- 6.4 Increase runoff due to vegetation clearance and/or soil compaction must be managed, and steps must be taken to ensure that stormwater does not lead to bank instability and excessive levels of silt entering the stream.
- 6.5 Stormwater 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 stormwater low.
- 6.6 Where necessary works must be constructed to attenuate the velocity of any stormwater discharge and to protect the banks of the affected watercourses.
- 6.7 Stormwater control works must be constructed, operated and maintained in a sustainable manner throughout the impacted area.
- 6.8 Increased runoff due to vegetation clearance and/or soil compaction must be managed, and steps must be taken to ensure that stormwater does not lead to bank instability and excessive levels of silt entering the streams.
- 6.9 All stormwater 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. PLANT AREAS AND CONVEYANCES

- 7.1 Pollution caused by spills from the conveyances must be prevented through proper maintenance and effective protective measures especially near all stream crossings.
- 7.2 All reagent storage tanks and reaction units must be supplied with a bunded area built to the capacity of the facility and provided with sumps and pumps to return the spilled material back into the system. The system shall be maintained in a state of good repair and standby pumps must be provided.
- 7.3 Any hazardous substances must be handled according to the relevant legislation relating to the transport, storage and use of the substance.
- 7.4 Any access roads or temporary crossings must be:
 - 7.4.1 Non-erosive, structurally stable and shall not induce any flooding or safety hazard and
 - 7.4.2 Be repaired immediately to prevent further damage.

8. ACCESS CONTROL

- 8.1 Strict access procedures must be followed in order to gain access to the property.
- 8.2 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.

9. CONTINGENCIES

- 9.1 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:
- 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 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.
- 9.3 The Licensee must, within 14 days, or a shorter period of time, as specified by the Provincial Head, from the occurrence or detection of any incident referred above, submit an action plan, which must include a detailed time schedule, to the satisfaction of the Provincial Head of measures taken to:
- 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 The Licensee shall conduct an annual internal audit on compliance with the conditions of this licence. A report on the audit shall be submitted to the Provincial Head within one month of finalisation of the report, and shall be made available to an external auditor should the need arise.

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 Provincial Head for approval within one (1) years from the date of issuance of this licence.
- 11.2 The IWWMP and RSIP shall thereafter be updated and submitted to the Provincial Head for approval, annually.
- 11.3 The Licensee must, at least 180 days prior to the intended closure of any facility, or any portion thereof, notify the Provincial Head 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 shall make full financial provision for all investigations, designs, construction, operation and maintenance for a water treatment plant should it become a requirement as a long-term water management strategy.

- 11.5 During the operational phase the Licensee must ensure local aquifers are not artificially recharged by the seepage emanating from the opencast mining workings, dirty water dams, leaking pipes or any hazardous waste storage facilities.
- 11.6 Emergency action plans in cases of groundwater polluted emanating from the opencast mine workings; dirty water dams; any hazardous waste storage facilities (e.g. oil and diesel spills), or leakage occurred along the pipeline must be adhered too to protect groundwater quality from degradation and a plan for remediation must be developed and ensure that the corrective measures implemented are adequate. This action plan should inter alia identify the sources of potential groundwater contamination, the potential impacts should be quantified and their contribution factored into the remedial strategy of groundwater.
- 11.7 The monitoring data must be analyzed by a hydro-geologist to establish quality trends for the boreholes. This can be used to re-evaluate the aquifer quantity and quality status on an ongoing basis and recommendation adjustment to abstraction rate or daily pump cycle if required.
- 11.8 Pollution control dams and the groundwater recharge into the mine workings should be managed properly to avoid decant of groundwater poor quality mine water into the surface resources and ensure surface streams do not act as secondary sources of contamination during operational, decommission and closure phases

13 GENERAL CONDITIONS

- 13.1 Water samples must be taken from all the monitoring boreholes by using approved sampling techniques and adhering to recognized sampling procedures. Samples should be analyzed for both organic as well as inorganic pollutants, as mining activity often lead to hydrocarbon spills in the form of diesel and oil. At least the following water quality parameters should be analyzed for:
- 13.1.2 Major ions (Ca, K, Mg, Na, SO₄, NO₃, Cl, F)
 - 13.1.3 Electrical Conductivity (EC)
 - 13.1.4 Total Petroleum hydrocarbon (TPH)
 - 13.1.5 Total Alkalinity
- These should be recorded on a data sheet. It is proposed that the data should be entered into an appropriate computer database and reported to the Department of Water And Sanitation.
- 13.2 The final backfilled opencast topography should be engineered such that runoff is directed away from the opencast areas.
- 13.3 The final layer should be as clayey as possible and compacted if feasible, to reduce recharge to the opencasts.
- 13.4 Quarterly groundwater sampling must be done to establish a database of plume movement trends, to aid eventual mine closure.
- 13.5 The Licensee must ensure in advance that alternative water supply for external water users is provided to these users should groundwater resources be impacted

- 13.6 A proper groundwater and surface water monitoring network should be established to monitor the quality and quantity of groundwater as per the report recommendation and ensuring that water used by other water users are safeguarded in accordance to Chapter 14 of the National Water Act, 1998.
- 13.7 The waste containment facilities must be designed in such a manner that any spillage can be contained and reclaimed without any impact on the surrounding environment, a plan must be in place to stop overflowing in a dam in case of rainy seasons.
- 13.8 The Licensee shall at all times together with the conditions of this licence adhere to the Regulations on use of water for mining and related activities aimed at the protection of water resources (GN 704, 4 June 1999).

APPENDIX V

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

1. This licence authorises the removal of a maximum volume of water found underground in the property as indicated in Table 11:

Table 11: Section 21 (j) water use activities.

Water use(s)	Purpose	Capacity/ Volume (m3, tonnes and/or m3/annum)	Property Description	Co-ordinates
21(j): Dewatering of mine pits for safe mining	150m ³ /day for dust suppression and mine requirements	54 750m ³ /a	Brakfontein 264 IR Portions 16:	26°13'38.21"S 28°49'55.88"E
	100m ³ /day for dust suppression and mine requirements	36 750m ³ /a	Brakfontein 264 IR Portions 17 and 27:	26°13'22.12"S 28°51'0.94"E
	150m ³ /day for dust suppression and mine requirements	54 750m ³ /a	Brakfontein 264 IR Portions 22 and 25:	26°14'4.92"S 28°50'18.49"E

2. The quantity of the water authorised to be removed in terms of this licence may not be exceeded without prior authorisation by the Minister.
3. The Licensee shall provide any water user whose water supply is impacted by the water use with potable water.
4. The quantity of water removed from underground must be metered and recorded on a daily basis.
5. The groundwater levels shall be monitored monthly.
6. Self registering flow meters must be installed in the delivery lines at easily accessible positions near the dewatering points.
7. Calibration certificates in respect of the pumps must be submitted to the Provincial Head after installation thereof and thereafter at intervals of two (2) years.
8. The date and time of monitoring in respect of each sample taken shall be recorded together with the results of the analysis.

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).
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.
11. The Provincial Head must be informed of any incident that may lead to groundwater being disposed of contrary to the provisions of this licence, by submitting a report containing the following information:
 - 11.1 Nature of the incident (e.g. operating malfunctions, mechanical failures, environmental factors, loss of supply services, etc)\
 - 11.2 Actions taken to rectify the situation and to prevent pollution or any other damage to the environment and
 - 11.3 Measures to be taken to prevent re-occurrence of any similar incident.
12. The Licensee shall follow acceptable construction, maintenance and operational practices to ensure the consistent, effective and safe performance of the groundwater removal system.
13. Reasonable measures must be taken to provide for mechanical, electrical or operational failures and malfunctions of the underground water removal system.

END OF LICENCE