



## water affairs

Department:  
Water Affairs  
**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, **Maxwell Sirenya**, in my capacity as Director-General in the Department of Water Affairs and acting under authority of the powers delegated to me by the Minister of Water and Environmental Affairs, hereby authorise the following water uses in respect of this licence.

SIGNED: Maxwell Sirenya

DATE: 27/11/2012

LICENCE NO: 05/X11C/ABCEGIJ/1870

FILE NO: 16/2/7/B100/C372

1. Licensee : **Umsimbithi Coal Mine (Pty) Ltd-Wonderfontein mine**  
Postal Address : P.O. Box 14212  
LERAATSFONTEIN  
1038
  
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(c) of the Act: Impeding or diverting the flow of water in a watercourse, subject to the conditions set out in Appendices I and III.
  - 2.3 Section 21(e) of the Act: Engaging in a controlled activity, subject to the conditions set out in Appendices I and IV.
  - 2.4 Section 21(g) of the Act: Disposing of waste in a manner which may detrimentally impact on a water resource, subject to the conditions as set out in Appendices I and V.
  - 2.5 Section 21(i) of the Act: Altering the bed, banks course or characteristics of a watercourse, subject to the conditions set out in Appendices I and III.

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- 2.5 Section 21(i) of the Act: Altering the bed, banks course or characteristics of a watercourse, subject to the conditions set out in Appendices I and III.
- 2.6 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 the safety of people, subject to the conditions set out in Appendices I and VI

### 3. Properties on which the use will be exercised

3.1	Section 21(a) of the Act:	<b>RE Portion 2 of the Farm Wonderfontein 428 JS</b>
3.2	Section 21(b) of the Act:	<b>RE Portion 2 of the Farm Wonderfontein 428 JS</b>
3.3	Section 21(c) of the Act:	<b>RE Portion 6 of Farm Wonderfontein 428 JS</b>
3.4	Section 21(e) of the Act:	<b>Re Portion 2 of the Farm Wonderfontein 428 JS</b>
3.5	Section 21(g) of the Act:	<b>RE Portion 2 of the Farm Wonderfontein 428 JS</b>
3.6	Section 21(i) of the Act:	<b>RE Portion 2 of the Farm Wonderfontein 428 JS</b>
3.7	Section 21(j) of the Act:	<b>Portions 2, 3, 6, 12, 13, 15, 19, 21, 22, 23 and 25 of the farm Wonderfontein 428 JS and portion 14 of the farm Klippan 425 JS.</b>

### 4. Registered owners of the Properties

4.1	Umsimbithi Coal Mine (Pty) Ltd	Farm Wonderfontein 428 JS and Klippan 425 JS
4.2	Mr J.M.S. Steel -	

### 5. Licence and Review Period

- 5.1 This licence is valid for a period of twenty (20) years from the date of issuance and it may be reviewed every three (3) 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 Regional Head" means the Regional Chief Director: Mpumalanga, Department of Water Affairs, Private Bag X11259, NELSPRUIT, 1200.

"Report" refers to the report entitled IWWMP for Wonderfontein mine dated August 2010 for Umsimbithi Coal Mine (Pty) Ltd as compiled by JKC Consulting (Pty) Ltd for section 21(a), (b), (c), (e), (g), (i) and (j) water use licence, Water Use Licence Application Mining on Portion 2 and 6 of the farm Wonderfontein 428 JS as well as all other related documentations and communication (emails, letters, verbal, etc) related thereto.

- (a) Integrated Water Use License Application submitted by Umsimbithi mining (Pty) Ltd dated August 2010;

- (b) Watercourse crossings work method statement dated March 2012;
- (c) Environmental Monitoring plan compiled by JKC Consultant dated August 2010;
- (d) Ecological assessment and wetland delineation for the proposed development prior to the proposed Wonderfontein Colliery development compiled by Scientific Aquatic Services dated August 2008;
- (e) Objection of IWULA for Umsimbithi mine by Escarpment Environment Protection Group (EEPOG) dated 2010/09/27; and
- (f) Environmental authorization dated August 2007.

**7. Brief description of the application**

The Licensee, Umsimbithi Coal Mine (Pty) Ltd – Wonderfontein Colliery in terms of section 21(a), 21, 21(c), 21(e), 21(g), 21(i) and 21 (j) of the National Water Act, 1998 (Act 36 of 1998) to undertake a coal mining operation on Portions 2,3,6, 12,13, 14, 15,19, 21, 19,22,23 and 25 of the farm Wonderfontein 428 JS.

In terms of Section 21 (c) and (i) water uses only, the upgrade of one (1) existing road crossings have been applied for and is authorized in terms of this licence.

## 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 Regional Head of any change of name, address, premises and/or legal status.
4. If the properties 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 Regional Head within 60 days of the said change taking place.
5. If a water user association is established in the area to manage the resource, membership of the Licensee to 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.
9. The licence shall not be construed as exempting the Licensee from compliance with the provisions 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 annual internal audit on compliance with the conditions of licence. A report on the audit shall be submitted to the Regional Head within one month of the finalisation of the audit.
12. The Licensee shall appoint an independent external auditor to conduct an annual audit on compliance with the conditions of this licence. The first audit must be conducted within 3 (three) months of the date this licence and a report on the audit shall be submitted to the Regional Head within one month of finalisation of the report.
13. 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 years. Calibration certificates shall be available for inspection by the Regional Head or his representative upon request.

14. Any incident that causes or may cause water pollution shall be reported to the Responsible Authority or a designated representative within 24 hours.

## APPENDIX II

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

1. The licence authorises the taking of water from a water resources as set out in Table 1 below:

Table1: Summary of section 21 (a) water uses for Umsimbithi Mine

Purpose/Description	Properties	Total Volume (m <sup>3</sup> /a)	Co-ordinates
Abstraction of groundwater from the borehole for domestic use. (WFN 2 and 3)	RE Portion 2 of the farm Wonderfontein 428 JS	1 200m <sup>3</sup> /a	S 25°50'56.8" E 29°52'17.3"
Water abstracted from the opencast Pit 1 for mining/ processing.	Remaining extent of Wonderfontein 428 JS	229 950 m <sup>3</sup> /a	S 25°49'25.5" E 29°53'53.4"
Water abstracted from the opencast Pit 2 for mining/ processing.	Portion 2 of the farm Wonderfontein 428 JS	229 950 m <sup>3</sup> /a	S 25°50'47.20" E 29°52'38.49"
Water abstracted from the opencast Pit 3 for mining/ processing.	Remaining extent of portion 3 of Wonderfontein 428 JS	229 950 m <sup>3</sup> /a	S 25°49'14.05" E 29°54'16.6"
Water abstracted from the opencast Pit 4 for mining/ processing.	Portion 12 of the farm Wonderfontein 428 JS	2 29 950 m <sup>3</sup> /a	S 25°51'54.8" E 29°53'40.2"
Water abstracted from the opencast Pit 5 for mining/ processing.	Portion 13 of the Farm Wonderfontein 428 JS	229 950 m <sup>3</sup> /a	S 25°51'47.87" E 29°52'51.89"
Water abstracted from the opencast Pit 6 for mining/ processing.	Remaining extent of portion 14 of Klippan 452 JS	229 950 m <sup>3</sup> /a	S 25°52'02.05" E 29°52'23.4"
Water abstracted from the opencast Pit 7 for mining/ processing.	Portion 15 of the Farm Wonderfontein 428 JS	229 950 m <sup>3</sup> /a	S 25°49'37.19" E 29°52'56.5"
Water abstracted from the opencast Pit 8 for mining/	Portion 19 of the Farm Wonderfontein 428 JS	229 950 m <sup>3</sup> /a	S 25°49'17.33" E 29°54'19.12"

processing.			
Water abstracted from the opencast Pit 9 for mining/ processing.	Portion 21 of the Farm Wonderfontein 428 JS	229 950 m <sup>3</sup> /a	S 25°50'59.4" E 29°53'45.25"
Water abstracted from the opencast Pit 10 for mining/ processing.	Portion 22 of the Farm Wonderfontein 428 JS	229 950 m <sup>3</sup> /a	S 25°49'24.00" E 29°54'09.57"
Water abstracted from the opencast Pit 11 for mining/ processing.	Portion 23 of the Farm Wonderfontein 428 JS	229 950 m <sup>3</sup> /a	S 25°50'07.1" E 29°52'41.01"
Water abstracted from the opencast Pit 12 for mining/ processing.	Remaining extent of portion 25 of Wonderfontein 428 JS	229 950 m <sup>3</sup> /a	S 25°50'27.1" E 29°52'52.1"

2. The quantity of water authorised to be taken in terms of this licence may not be exceeded without prior authorisation by the Minister.
3. This licence does not imply any guarantee that the said quantities and qualities of water will be available at present or at any time in the future.
4. The abovementioned volume may be reduced when the licence is reviewed.
5. The Licensee shall continually investigate new and emerging technologies and put into practice water efficient devices or apply technique for the 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 Department accepts no liability for any damage, loss or inconvenience, of whatever nature, suffered as a result of:
  - 7.1 shortage of water
  - 7.2 inundations or flood
  - 7.3 siltation of the resource; and
  - 7.4 required reserve releases.
8. 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 (c) of the Act: Impeding or diverting the flow of water in a watercourse**  
**Section 21 (i) of the Act: Altering the bed, banks, course or characteristic of a watercourse**

**1. GENERAL**

- 1.1 The Licensee is authorized to carry out the water uses mentioned above, associated with the upgrading of an existing road crossings.

**Table 2: Water Use Activities**

Activities	Watercourse	Starting Points Co-ordinate	Ending Points Co-ordinate
Upgrading of an existing road crossings.	Crossing Stream (Wetland)	25.50 21.44° S 29.53 22.72° E	25. 50 21.90° S 29. 53 20.14° E
		25.51 03.5° S 29.53 12.0° E	25.51 02.0° S 29.53 09.1° E

- 1.2 The Licensee must carry out and complete all the activities listed under condition 1.1, Appendix III, according to the following:

1.2.1 Reports submitted to the Department or the Responsible Authority, specifically:

- 1.2.1.1 Integrated Water Use License Application submitted by Umsimbithi Mining (PTY) LTD dated August 2010;
- 1.2.1.2 Watercourse crossings work method statement dated March 2012;
- 1.2.1.3 Environmental Monitoring plan compiled by JKC Consultant dated August 2010;
- 1.2.1.4 Ecological assessment and wetland delineation for the proposed development prior to the proposed Wonderfontein Colliery development compiled by Scientific Aquatic Services dated August 2008;
- 1.2.1.5 Objection of IWULA for Umsimbithi mine by Escarpment Environment Protection Group (EEPOG);
- 1.2.1.6 Environmental Authorization dated August 2007;

1.2.2 Conditions of the licence; and

1.2.3 Any other written direction issued by the Responsible Authority in relation to this licence.

- 1.3 No activity must take place within the 1:100 year flood line or the delineated riparian habitat, whichever is the greatest, and/or within 500 m radius from the



boundary of any wetland or 100 metres from a watercourse or borehole, unless authorised by this licence.

- 1.4 This licence is only authorising the upgrading of 1 existing road crossings in terms of Section 21 (c) and (i) water uses and not the mining of wetlands (including pans) or mining within the extent of the watercourse i.e. within 1:100 year floodline or delineated riparian habitat, whichever is the greatest, and/or within 500 m radius from the boundary of any wetland.
- 1.5 Construction of any mining related infrastructures such as pollution control dam, storage facilities, related activities such as discard dumps, stockpile, etc within the extent of the watercourse must be authorised in terms of Section 21 (c) and (i) water uses before any activity commence.
- 1.6 The conditions of this licence must be brought to the attention of all persons (employees, sub-consultants, contractors etc.) associated with the undertaking of these activities and the Licensee must take such measures that are necessary to bind such persons to the conditions of this licence.
- 1.7 A copy of the water use licence and reports set out under condition 1.2 must be on site at all times.
- 1.8 A suitably qualified person(s), appointed by the Licensee, and approved in writing by the Regional Head must be responsible for ensuring that the activities are undertaken in compliance with the specifications as set out in reports submitted to the Department or the Responsible Authority and the conditions of this licence.

## 2 FURTHER STUDIES AND INFORMATION REQUIREMENTS

### 2.1 For Section 21 (c) & (i) water uses in Table 2:

- 2.1.1 Design drawings of the proposed upgrading road crossings must be submitted to the Regional Head for a written approval in consultation with the Sub directorate: Environment and Recreation of the Department before the commencement of the upgrading of existing road crossings.
- 2.1.2 No site activities must occur beyond the proposed site location of the erosion, sedimentation controls and marked limits of disturbance.
- 2.1.3 A Wetland Specialist must compile a Wetland Management and Rehabilitation plan for the wetland road crossings in consultation with Environment and Recreation unit of the Department and it must be submitted to the Regional Head for a written approval before the commencement of the activity.
- 2.1.4 If the Licensee is not the end user/beneficiary of the water use related infrastructure and will not be responsible for long term maintenance and management of the infrastructure, the Licensee must provide a programme for hand over to the successor-in-title including a brief management/maintenance plan and the agreement for infrastructure along with allocation of responsibilities, within three (3) months of the date of issuing of this licence.

### **3 PROTECTIVE MEASURES**

#### **3.1 Stormwater management and erosion control**

- 3.1.1 Stormwater 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.
- 3.1.1 Erosion control measures must be implemented to avoid erosion in areas that are prone to erosion, such as the steep slopes and drainage lines.
- 3.1.2 At all stages of contract, erosion of bare soil, other excavation surfaces and stockpiles of topsoil and spoil shall be prevented by the application of erosion control measures.
- 3.1.3 All erosion control mechanisms need to be regularly inspected and maintained.
- 3.1.4 Where necessary culverts must be constructed to attenuate the velocity of the stormwater discharge to protect the watercourse from erosion.
- 3.1.5 Erosion down verges should be minimized by including frequent discharge points with energy dissipaters before discharging storm water into the adjacent grasslands.
- 3.1.6 Infiltration down the verges of the roads rather than surface runoff should be encouraged (this could for example include the use of grassed swales, Hyson Cells or grass blocks). Small detention ponds filled with Phragmites reeds would allow sediment and debris/litter to be trapped before entering the main drainage lines.
- 3.1.7 Where storm water enters the river systems, sediment and debris trapping, as well as energy dissipation control structures should be put in place.

#### **3.2 Structures, construction site and materials**

- 3.2.1 Necessary erosion prevention measures must be employed to ensure the sustainability of the structure.
- 3.2.2 Structure must not be damaged by floods exceeding the magnitude of floods occurring on average once in every 100 years.
- 3.2.3 The construction camp, equipment and material stockpiles must be located 500m away from the watercourse/s and must be recovered and removed within a period of 1(one ) month after completion of activity.
- 3.2.4 Where possible, construction activities should be scheduled for dry winter months to decrease the risk of erosion during heavy thunderstorms. Natural instream hydrology is to be used to determine which months constitute the low flow months.

- 3.2.5 Natural drainage lines and wetlands outside of the structure footprint must be treated as sensitive areas, with highly restricted use. Permissible activities inside these areas must be clearly stipulated and treated as unique situations and exceptions.
- 3.2.6 All areas susceptible to erosion must be protected and ensure that there is no undue soil erosion resultant from activities within and adjacent to construction camp and work areas.
- 3.2.7 Vehicular or pedestrian into the wetland areas are not permitted.
- 3.2.8 Retain natural indigenous trees, shrubbery and grass species wherever possible.
- 3.2.9 Do not drain, fill or alter in any way, any wetland or drainage line, including the riverbanks unless this forms part of the construction works authorised in this licence.
- 3.2.10 Do not allow erosion to develop on a large scale before effecting repairs. When in doubt, seek advice from Environmental Officer.
- 3.2.11 The method used for crossing must prevent the concentration of flow and thus the risk of soil erosion.
- 3.2.12 Stock piles must be revegetated to stabilise the soil, reduce run-off and minimise erosion.
- 3.2.13 The volume of storm water run-off should be minimised by limiting the area of impermeable surfaces and compacting soils.
- 3.2.14 Discharges must include a rock packed mattress to prevent gully erosion.
- 3.2.15 Hazardous material must be stored outside the extent of the watercourse and dispose of at a registered landfill site.
- 3.2.16 Slope/bank stabilization measures should be implemented where necessary, to prevent erosion during the operation phase (i.e. post construction).
- 3.2.17 Road construction and river diversions are a linear process, however areas in and around the rivers should not be cleaned, graded and ditched/trenched more than a week before the construction. This will prevent erosion and sedimentation and the collection of run-off trench water which has high sediment content.
- 3.2.18 During the construction and operation phase erosion and siltation measures should be implemented (e.g. the use of temporary silt traps downstream of construction areas should be employed).
- 3.2.19 The use of machinery within the instream & riparian zones may lead to compaction of soils & vegetation. This will lead to decreases of infiltration of rain water, increases in run-off water and will limit re-vegetation from taking place. The

Licensee must ensure that all compacted areas that do not form part of the footprint activity be ploughed, landscaped to approximate the natural slope of the area and aerated followed by re-seeding.

### **3.3 Water use activities in relation to the characteristics of the watercourse**

#### **3.3.1 Flow regime**

3.3.1.1 The activities must be conducted in a manner that does not negatively affect catchment yield, hydrology and hydraulics. The Licensee must ensure that the overall magnitude and frequency of flow in the watercourse does not decrease, other than for natural evaporative losses and authorised attenuation volumes.

3.3.1.2 Appropriate design and mitigation measures must be developed to minimise impacts on the natural flow regime of the watercourse i.e. through placement of structures/supports and to minimise turbulent flow in the watercourse.

3.3.1.3 Structures to be designed in a way to prevent the damming of wetland water and not impact on the flow of the water, during the construction and operational phases.

3.3.1.4 The development may not impede natural drainage lines.

3.3.1.5 Any instream structures used for construction purposes should not stop the natural flow in the water column for a prolonged period.

3.3.1.6 The method of construction for the river crossings/river diversions should aim to maintain flows across the width of the natural river channel (or mimic it) without significantly increasing velocities. Energy dissipaters should be utilized on the downstream side of culverts.

3.3.1.7 In the case of bridges, bridge designs should aim towards the construction of as few as possible instream pillars, without compromising the safety of structures, where the pillars that do occur instream should have rounded edges to aid in the prevention of the build-up of debris.

3.3.1.8 Culverts, and the new channel (in the case of river diversion), should be constructed in such a way as to allow for the movement of instream aquatic organisms (i.e. they should allow for low flow migration and not only high flow channelling of water).

#### **3.3.2 Riparian and In-stream Habitat (Vegetation and Morphology)**

3.3.2.1 Activities (including spill clean-up) must start up-stream and proceed into a down-stream direction, so that the recovery processes can start immediately, without further disturbance from upstream works.

3.3.2.2 Rehabilitation of disturbed instream and riparian habitat should commence immediately after construction is completed. An aquatic ecologist should oversee this process.

- 3.3.2.3 Indigenous riparian vegetation, including dead trees, outside the limits of disturbance indicated in the site plans must not be removed from the area.
- 3.3.2.4 Alien and invader vegetation must not be allowed to further colonise the area, and all new alien vegetation recruitment must be sustainably eradicated or controlled.
- 3.3.2.5 Existing vegetation composition must be maintained or improved by maintaining the natural variability in flow fluctuations. Rehabilitated areas shall have vegetation basal cover of at least 15% at all times.
- 3.3.2.6 Recruitment and maintaining of a range of size classes of dominant riparian species in perennial channels must be stimulated.
- 3.3.2.7 Encroachment of additional exotic species and terrestrial species within the wetland area must be discouraged.
- 3.3.2.8 The necessary erosion prevention mechanisms must be employed to ensure the sustainability of structures and activities and to prevent sedimentation within the wetland.
- 3.3.2.9 Soil that have become compacted through the water use activities must be loosened to an appropriate depth to allow seed germination.
- 3.3.2.10 Slope/bank stabilisation measures must be implemented with a 1:3 ratio or flatter and vegetated with indigenous vegetation immediately after the shaping.
- 3.3.2.11 The indiscriminate use of machinery within the wetland areas will lead to compaction of soils and vegetation and must therefore be strictly controlled.
- 3.3.2.12 The method used for river crossings must limit turbidity, sedimentation and chemical changes to the composition of the water.
- 3.3.2.13 The construction of roads and road servitudes in or adjacent to the riparian zone should be managed and strictly controlled to minimize damage to the riparian zone.
- 3.3.2.14 Operation & storage of equipment in the riparian zone to be prevented as far as possible.
- 3.3.2.15 Where applicable, disturbed riparian zones (i.e. for those areas that will not form part of the operational footprint but that were disturbed as part of the construction activities) should be re-vegetated using site-appropriate indigenous vegetation and/or seed mixes.
- 3.3.2.16 Similarly, instream habitat conditions should be recreated as far as possible; this pertains to those areas where construction activities have disturbed the instream habitat beyond the operational footprint of the activity.

- 3.3.2.17 Alien vegetation should not be allowed to colonize the disturbed riparian (and instream) areas
- 3.3.2.18 No construction camps should be allowed in the riparian zone.
- 3.3.2.19 No stockpile areas should be located in the riparian zone.
- 3.3.2.20 The possibility of spillages should be catered for in the design of the road where attenuation ponds prior to the discharge of storm water could be employed or the storm water systems themselves could be designed in such a way that it can be easily sealed off after the occurrence of a spill. If a spill occurs during the operational phase of the road, a suitably qualified team of experts must be consulted and rehabilitation plan drawn up and implemented.

### **3.3.3 Biota**

- 3.3.3.1 The Licensee must take all reasonable steps to allow movement of aquatic species, including migratory species.
- 3.3.3.2 All reasonable steps must be taken not to disturb the breeding, nesting and/or feeding habitats and natural movement patterns of aquatic biota.
- 3.3.3.3 The current level of diversity of biotopes and communities of animals, plants and microorganisms must be maintained.

### **3.3.4 Water quality**

- 3.3.4.1 The Licensee must ensure that the quality of the water to downstream water users does not decrease because of the water use activities listed under condition 1.1.
- 3.3.4.2. In-stream water quality must be analysed on a two-weekly basis during construction otherwise monthly in operational phase at monitoring points both upstream and downstream of the activities for the following variables, but not limited to:
  - 3.3.4.2.1 pH: 6-8.5 pH;
  - 3.3.4.2.2 Electronically Conductivity (mS/m): <70mS/m
  - 3.3.4.2.3 Suspended solids (mg/l) : <20 mg/l;
  - 3.3.4.2.4 Total dissolved Solids (mg/l) : <450mg/l;
  - 3.3.4.2.5 Dissolved Oxygen (mg/l) : <6mg/l; and
  - 3.3.4.2.6 Turbidity (NTU): <3NTU
- 3.3.4.3. Monitoring must be undertaken as set out in condition 6.
  - 3.3.4.3.1. Monitoring must continue for 3 years after cessation of the activities listed in condition 1.1.

3.3.4.3.2. Turbidity, sedimentation and chemical changes to the composition of the water must be limited and monitored both upstream and downstream of activities.

- 3.3.4.4. Activities that lead to elevated levels of turbidity of any watercourse must be minimised. Activities must be scheduled to take place during the dry seasons when flows are lowest where reasonably possible. If this is not possible and if management measures have not been provided for activities in a wet season in the reports submitted to the Responsible Authority, the Licensee must submit such to the Regional Head for written approval before these activities commence. Natural in-stream hydrology is to be used to determine which months constitute the low flow months.
- 3.3.4.5. Pollution of and disposal/spillage of any material into the watercourse must be prevented, reduced, or otherwise remediated through proper operation, maintenance and effective protective measures.
- 3.3.4.6. Any hazardous substances must be handled according to the relevant legislation relating to transport, storage and use of the substance.
- 3.3.4.7. No material with pollution generating potential will be used in any of the operation and maintenance activities.
- 3.3.4.8. 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 return the spilled material back into the system. The system must be maintained in a state of good repair and standby pumps must be provided.

#### **4 OTHER WATER USERS**

- 4.1 The Licensee must attempt to prevent adverse affect on other water users. All complaints must be investigated by a suitable qualified person and if investigations prove that the Licensee has impaired the rights of other water users, the Licensee must initiate suitable compensative measures.

#### **5. REHABILITATION AND MANAGEMENT**

- 5.1 Wetland management and rehabilitation plan for the road crossings must be submitted to Regional Head in consultation with Environment and Recreation Section of the Department for written approval before the upgrading of road crossings may commence.
- 5.2 The Licensee must embark on a systematic long-term rehabilitation programme to restore the watercourse/s to environmentally acceptable and sustainable conditions after completion of the activities, which must include, but not be limited to the rehabilitation of disturbed and degraded riparian areas to restore and upgrade the riparian habitat integrity to sustain a bio-diverse riparian ecosystem.

- 5.3 A photographic record must be kept as follows and submitted with reports as set out in Condition 6:
- 5.3.1. Dated photographs of all the sites to be impacted before construction commences;
  - 5.3.2. Dated photographs of all the sites during construction on a monthly basis; and
  - 5.3.3. Dated photographs of all the sites after completion of construction, seasonally.
- 5.4 All disturbed areas must be re-vegetated with indigenous vegetation suitable to the area in consultation with an indigenous plant expert, ensuring that during rehabilitation only indigenous shrubs, trees and grasses are used in restoring the biodiversity.
- 5.5 An active campaign for controlling invasive species must be implemented within disturbed zones to ensure that it does not become a conduit for the propagation and spread of invasive exotic plants.
- 5.6 Plants that are indigenous to the immediate surroundings must be used for rehabilitation.
- 5.7 The Regional Head must sign a release form that the rehabilitation was successful and satisfactory.
- 5.8 Rehabilitation of disturbed instream and riparian habitat should commence immediately after construction is completed. An aquatic ecologist should oversee this process

## 6. MONITORING AND REPORTING

- 6.1. The Regional Head must be notified in writing one week prior to commencement of the licensed activity/ies and again upon completion of the activity/ies.
- 6.2. A dedicated, comprehensive and appropriate environmental (including bio-monitoring) assessment and monitoring programme to determine the impact, change, deterioration and improvement of the aquatic system associated with the activities listed under condition 1.1 as well as compliance with the water use licence conditions must be developed and submitted to the Regional Head: for written approval within one (1) months from the date of issuance of this licence and be implemented as directed.
- 6.3 When dead trees and other debris collect at the base of bridges and culverts they create hydraulic obstacles resulting in the scouring (erosion) of the downstream banks (this may lead to an excessive soil deposition upstream of the bridge). The Licensee must develop and implement a long-term monitoring and maintenance plan to maintain bank stability to control any erosion that has taken place as a result of the crossing infrastructure as well as clear any debris away from the base of the bridges especially after high



rainfall and flood events. The plan must be submitted to the Regional Head for written approval within three (3) months from the date of issuance of this licence and be implemented as directed.

- 6.3. The Licensee may apply after a period of two (2) years after completion of upgrading existing road crossings in writing to the Regional Head for alternative reporting arrangements for which written approval must be provided.
- 6.4. The Licensee must conduct an annual internal audit on compliance with the conditions this licence. A report on the audit must be submitted to the Responsible Authority within one month of the finalization of the audit. A qualified independent auditor must undertake this audit.
- 6.5. The audit reports must include but are not limited to:
- 6.5.1 Reporting in respect of the monitoring programme referred to in condition 6.2; and
- 6.5.2 A record of implementation of all mitigation measures including a record of corrective actions; and compensation measures for damage where mitigation measures have failed to adequately protect the in-stream and riparian habitat or any other characteristics of the watercourse.

## 7. POLLUTION PREVENTION, INCIDENTS AND MALFUNCTIONS

- 7.1. Pollution incidents shall be dealt with in accordance with the Act.
- 7.2. Any incident that may cause pollution of any water resource shall immediately be reported to the Responsible Authority.
- 7.3. If surface and/or groundwater pollution has occurred or may possibly occur, the Licensee must conduct, and/or appoint Specialists to conduct the necessary investigations and implement additional monitoring, pollution prevention and remediation measures to the satisfaction of the Responsible Authority.
- 7.4. The Licensee shall keep all records relating to the compliance or non-compliance with the conditions of this licence in good order. Such records shall be made available to the Responsible Authority within 14 (fourteen) days of receipt of a written request by the Department for such records.
- 7.5. The Licensee shall keep an incident report and complaints register, which must be made available to any external auditors and the Department.
- 7.6. Access of people and vehicles to wetlands within the construction servitude must be restricted as far as possible.
- 7.7. Wetlands must not be viewed in isolation from the surrounding slopes catchment, as eroded material or other potential pollutants emanating from

the surrounding non-wetland areas adjacent to the wetland boundaries may enter the wetland and cause significant pollution in the wetland.

- 7.8 A copy of the Environmental Impact Report, associated Environmental Management Plan and Rehabilitation plans must be present at the construction site for easy reference to specialist recommendations in sensitive areas.
- 7.9 Construction crew must be educated about the sensitivities involved in these areas as well as the potential species they could encounter. A poster of sensitive species (compiled by a qualified specialist) should be kept on the construction site for easy reference.
- 7.10 A qualified Wetland Specialist must be retained by the Licensee who will give effect to the various licence conditions and monitor compliance of this licence.

## **8. BUDGETARY PROVISIONS**

- 8.1 The water user must ensure that there is a budget sufficient to complete and maintain the water use and for successful implementation of the rehabilitation and monitoring programme as set out in this licence.
- 8.2 The Department may at any stage of the process request proof of budgetary provisions.

**APPENDIX IV****Section 21(e) of the Act: Engaging in a controlled activity,****1. QUANTITY OF WATER CONTAINING WASTE FOR IRRIGATION**

- 1.1 This licence authorises the disposal by irrigation on land with a treated effluent of a maximum quantity of twelve thousand seven hundred and seventy five cubic metres (12 775m<sup>3</sup>/a) per annum on portion 21 of the farm Wonderfontein 428 JS.
- 1.2 The quantity of wastewater authorised to be irrigated with in terms of this licence may not be exceeded without prior authorisation by the responsible authority.

**2. CROP TYPE AND AREA IRRIGATED**

- 2.1 This licence authorises the Licensee to irrigate a total surface area of one comma five (1.5) hectare of lawn with treated effluent.

**3. QUALITY OF WATER CONTAINING WASTE**

The quality of water containing waste to be irrigated shall not exceed the limits indicated in Table 3:

**Table 3: Quality of waste water to irrigate with.**

Variable	Limit
pH	7.80
EC	57.70 (mS/m)
TDS	388.00 (mg/l)
NO3-N	2.30 (mg/l)
Cl	26.00 (mg/l)
SO4	<5 (mg/l)
Na	22.00 (mg/l)
K	3.20 (mg/l)
Ca	43.00 (mg/l)
Mg	45.00 (mg/l)
E-coli	1 per 100ml
COD	75 mg

#### **4. MONITORING**

- 4.1. The quantity of water containing waste irrigated shall be metered and recorded daily.
- 4.2. Monitoring for the quantity of the water containing waste for irrigation shall be done at the point of abstraction.
- 4.3. Water quantity measuring, recording and integrating devices shall be maintained in a sound state of repair and calibrated by a competent person at intervals of not less than two years. Calibration certificates shall be available for inspection by the Regional Head or his/her representative upon request.
- 4.4. The Licensee must conduct bi-annual aquatic macro-invertebrates assessments. Aquatic macro-invertebrates must be sampled using the latest South African Scoring System (SASS) method.

#### **5. GROUNDWATER MONITORING**

- 5.1. The Licensee must develop groundwater monitoring plan for the site and be submitted to the Regional Head within three (3) months from the date of issuance of this licence.
- 5.2. A groundwater monitoring system shall be installed to detect possible groundwater pollution as a result of irrigation of lawns in the mine.
- 5.3. If ground water pollution have occurred or may possible occur, the Licensee must conduct necessary investigations and implement additional monitoring and rehabilitation measures which must be to the satisfaction of the Regional Head.
- 5.4. The monitoring point(s) shall not be changed without prior notification to and written approval by the Regional Head.

#### **6. SLUDGE MANAGEMENT**

- 6.1. Wastewater sludge from the drying beds and other solid waste for instance grit and screenings must be handled, stored, transported, utilised or disposed of in such a manner as not to cause any odour, flies, health hazard, secondary pollution or other nuisance.
- 6.2. Sludge emanating from the treatment process must be quantified, analysed, dealt with according to the requirements of Chapter 5 of the National Environmental Management: Waste Act 2008 (Act 59 of 2008) and the Guideline for Utilisation and Disposal of waste water sludge (vol 1-5), dated March 2006 and any updates thereafter, to the satisfaction of the Regional Head.
- 6.3. Any wastewater sludge or any other solids waste may be alienated for utilisation or disposal thereof, only in terms of written agreement contained in this licence is accepted between the Licensee and such other party jointly and separately.

- 6.4 The Licensee must ensure that the sludge will be disposed of at a nearest municipal sewage treatment plant as agreed with the municipality.

## 7. METHODS OF ANALYSIS

- 7.1 Analyses shall 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, Act 30 of 1982.
- 7.2 The methods of analysis shall not be changed without prior notification to and written approval by the Regional Head or delegated nominee.

## 8. GENERAL IRRIGATION PRACTICES

- 8.1 Irrigation shall be practised in accordance with the guidelines prescribed in the document titled "Guideline for the utilisation and disposal of wastewater effluent" (Volume 2) dated March 2006.
- 8.2. Irrigation with waste water shall be practiced in a systematic manner and precautions shall be taken so as to prevent:
- 8.2.1 Water logging and pooling of waste in any location,
  - 8.2.2 Pollution of underground water or surface water due to seepage or otherwise,
  - 8.2.3 Fly breeding, public health hazard, odour or secondary pollution,
  - 8.2.4 Runoff from the irrigation area because of wet weather or any other conditions whatsoever and
  - 8.2.5 The site of the irrigation area shall be adequately fenced to prevent the entry of animals and unauthorised persons.
- 8.3 Notices manufactured of durable weatherproof 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.
- 8.4 The Licensee shall take adequate measures to:
- 8.4.1 Provide adequate storage capacity for the total inflow of water containing waste during periods while irrigation cannot be practised, with a freeboard of at least 0,8 metres above the expected maximum water level, which shall be based on the average monthly rainfall figures for the catchment area concerned, less the gross mean evaporation in that area, plus the maximum precipitation to be expected over a period of 24 hours with a frequency of once in 100 years.
  - 8.4.2 Ensure that no irrigation takes place in times of wet weather.
  - 8.4.3 Ensure that if irrigation is carried out by a party other than the Licensee, both the third party and the Licensee shall comply with the Conditions as

set out in the licence. The Licensee remains responsible for compliance by the third party.

- 8.5 A soil monitoring system shall be implemented to monitor the quality of the soil.
- 8.6 The irrigation practice shall be evaluated on a yearly basis by a competent soil scientist appointed by the Licensee to determine the efficient functioning and possible deterioration of soils.

## **9. STORM WATER MANAGEMENT**

- 9.1 All storm water run-off diverted from the site shall be received and disposed off in a way that will not negatively impact the quality and total integrity of the receiving water resource.
- 9.2 Provide contour walls or furrows around the irrigation area to prevent storm water ingress or water containing waste from entering any river, stream or wetland.
- 9.3 Prevent seepage and runoff from the area under irrigation from flowing or seeping beyond the boundaries of the irrigation area.

## **10. PIPELINES**

- 10.1 The pipelines used for the conveyance of the treated wastewater 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.
- 10.2 All stop-valves and taps on the pipelines conveying the effluent shall be of a type that can be opened and closed by means of a loose wrench. This wrench shall be in the safekeeping of a responsible member of the staff to prevent unauthorised use thereof.
- 10.3 Notices manufactured of a durable weatherproof material warning against the use of water containing waste for drinking and washing purposes shall be displayed at prominent places where the waste is being reused and at all taps. Such notices shall be worded in the official languages applicable in the area.

## 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 the activities, including the construction and operation of the facilities listed below in Table 4, according to the Report and according to the final plans submitted with the Integrated Water Use Licence Application.

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

Purpose/ Description	Properties	Total Volume/capacity (m <sup>3</sup> /a)	Area (ha)	Co-ordinates
Slurry dam (for the disposal of slurry)	RE Portion 2 of the farm Wonderfontein 428 JS	547 500m <sup>3</sup> /a	3.75 ha	S 25°50'20.57" E 29°52'20.57"
Discard dump (for the disposal of discard materials from the pit)	RE Portion 21 of the farm Wonderfontein 428 JS	97 090 tons/a	83.3 ha	S 25°50'30.57" E 29°52'20.85"
Pollution Control Dam (Wastewater from all the dewatering, runoff from stockpiles and rainfall) and will be used for processing and dust suppression.	RE Portion 6 of the farm Wonderfontein 428 JS	1 163 433 m <sup>3</sup> /a <b>Capacity= 98 000m<sup>3</sup></b>	6.3 ha	S 25°50'54.51" E 29°53'12.47"
Return Water Dam. (Wastewater from the Washing Plant, slurry dam and runoff).	RE Portion 2 of the farm Wonderfontein 428 JS	547 500 m <sup>3</sup> /a <b>Capacity=25 000m<sup>3</sup></b>	1.5 ha	S 25°50'53.47" E 29°52'15.19"
ROM stockpile	RE Portion 2 of the farm Wonderfontein 428 JS	36 000 tons/a	NA	25° 49'52" S 29° 52'40" E

Purpose/ Description	Properties	Total Volume/capacity (m <sup>3</sup> /a)	Area (ha)	Co-ordinates
Overburden stockpile 1	Portion 19 of the farm Wonderfontein 428 JS	18 819m <sup>3</sup> /a	21.67 ha	S 25°48'51.92" E 29°54'02.32"
Overburden stockpile 2	Portion 22 of the farm Wonderfontein 428 JS	5 645m <sup>3</sup> /a	21.68 ha	S 25°49'28.82" E 29°54'19.39"
Overburden stockpile 3	Portion 23 and Portion 15 of the farm Wonderfontein 428 JS	26 053 m <sup>3</sup> /a	30 ha	S 25°49'53.01" E 29°52'08.99"
Overburden stockpile 4	Portion 21 of the farm Wonderfontein 428 JS	1 303m <sup>3</sup> /a	1.5 ha	S 25°51'02.0" E 29°53'22.6"
Overburden stockpile 5	Portion 21 of the farm Wonderfontein 428 JS	6 131m <sup>3</sup> /a	7.06 ha	S 25°51'16.24" E 29°53'33.98"
Overburden stockpile 6	Portion 21 of the farm Wonderfontein 428 JS	1 624m <sup>3</sup> /a	1.87 ha	S 25°51'16.24" E 29°53'33.98"
Overburden stockpile 7	Portion 13 of the farm Wonderfontein 428 JS	8 858m <sup>3</sup> /a	10.2 ha	S 25°51'18.26" E 29°52'47.60"
Backfilling with overburden material	farm Wonderfontein 428 JS	360 000 tons/a	NA	

- 1.2 The construction of the dams 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 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 16/2/7/B100/C372, inform the 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 water 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 Regional 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.

## 2. STORAGE OF WATER CONTAINING WASTE

- 2.1 The Licensee is authorised to dispose of a maximum quantity in cubic metres (m<sup>3</sup>) of waste per month into the waste management facility on the farm described above in Table 4.
- 2.2 The Licence authorises to dispose of a maximum quantity of one hundred and thirty nine thousand four hundred and thirty cubic metres (139 430m<sup>3</sup>/a) per annum of wastewater from pollution control dam for dust suppression on the farm Wonderfontein 428 JS.

## 3. QUALITY OF WASTE WATER TO BE DISPOSED

- 3.1 The quality of waste water disposed of into the dams is as specified in table 6.

**Table 5: Water Quality Limits not to be exceeded**

Substance/parameter	Limit
pH	8.5 - 11.14
Electrical conductivity (Ec) in mS/m	650
Total Dissolved Solids (TDS) in mg/l	140
Chlorides (Cl) in mg/l	0.10
Sulphate (SO <sub>4</sub> ) in mg/l	550
Sodium (Na) in mg/l	750
Calcium (Ca) in mg/l	30
Fluoride (F) in mg/l	2.05
Potassium (K) in mg/l	53.5
Magnesium (Mg) in mg/l	9.5
Nitrate and Nitrite (NO <sub>3</sub> and NO <sub>2</sub> ) in mg/l	0.1

Total Alkalinity (CaCO <sub>3</sub> ) mg/l	830
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#### 4. MONITORING

- 4.1 The Licensee shall monitor on monthly basis the water resources at surface water monitoring point and Ground water 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 Tables 7 and 8 below:

**Table 6: Surface Water monitoring points for Wonderfontein Colliery**

Locality	Description
WS1	Steel Pan
WS2	Steel Pan Small
WS3	Petie Bezuidenhout Dam
SW4	Downstream point at R33
Pollution Control Dam	Wastewater containment facility

**Table 7: Ground Water Monitoring points for Wonderfontein Colliery**

Locality/ Boreholes	co-ordinates	
WF1	S 25 ° 53' 09.52"	E 28 ° 53' 19.80"
WF2	S 25 ° 52' 42.480"	E 29 ° 53' 12.30"
WF3	S 25 ° 53' 06.25"	E 29 ° 53' 17.80"
WF4	S 25 ° 53' 06.25"	E 29 ° 53' 17.80"

- 4.2 The date, time and monitoring point in respect of each sample taken shall be recorded together with the results of the analysis.
- 4.3 Monitoring points shall not be changed prior to notification to and written approval by the Regional Head.
- 4.4 An Aquatic Scientist approved by the 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.
- 4.5 Water quality testing to be performed on the pollution control dams, Slurry Dam and Discard dump phase 2 on a quarterly basis in order to determine the risks to the receiving environment. The data gathered in the investigation must be reported annually to the Regional Head. If any concentrations levels as specified above are exceeded, the Licensee must institute an investigation to determine the cause of poor water quality. Furthermore, the Licensee must undertake geochemical assessment on Slurry Dam and Discard dump.

- 4.6 Water quality testing must be conducted quarterly on the wastewater stream from the pollution control dam and Return Water Dam when returned back to the mine for use as process water.
- 4.7 The Licensee shall participate in any initiative such as Direct Estimation of Ecological Effect Potential (DEEEP) to determine the toxicity of complex tailings waste discharges. Both acute and chronic toxicity must be addressed and at least three taxonomic groups must be present when toxicity tests are performed.
- 4.8 Analysis shall 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).
- 4.9 The methods of analysis shall not be changed without prior notification to and written approval by the Minister.
- 4.10 The Licensee shall ensure that the boreholes situated within 2 km radius and the 17 hydro geological boreholes information gathered through the drilling are included in the monitoring programme.
- 4.11 The groundwater modelling should be updated as more information on the newly drilled groundwater monitoring boreholes becomes available in order to plan for any eventualities.

## 5. WATER RESOURCE PROTECTION

- 5.1 The impact of the activities of the mine on the ground water shall not exceed the following water quality reserve for the area as indicated on the table 9 below.

**Table 8: Water quality limits not to be exceeded**

Substance / Parameter	RQO
pH	7.75 - 8.53
Conductivity as (Ec in mS/m)	26.46
Sodium as (Na in mg/l)	11.97
Magnesium as (Mg in (mg/l)	6.39
Calcium as (Ca in (mg/l)	24.31
Chloride as (Cl in mg/l)	4.40
Sulphate as (SO <sub>4</sub> in mg/l)	5.24
Nitrate as (N in mg/l)	0.16
Fluoride as (Fl in mg/l)	0.36

## 6. REPORTING

- 6.1 The Licensee shall update the water balance annually and calculate the loads of waste emanating from the activities. The Licensee shall determine the contribution of their activities to the mass balance for the water resource and must furthermore

co-operate with other water users in the catchment to determine the mass balance for the water resource reserve compliance point.

- 6.2 The Licensee shall submit the results of analysis for the monitoring requirements to the on a quarterly basis under Reference number 16/2/7/B100/C372.
- 6.3 The Licensee shall submit the nature and the quality of the waste disposed into the following dams.
- I. Return Water Dam
  - II. Pollution Control Dam
  - III. Slurry Dam

## 7. STORM WATER MANAGEMENT

- 7.1 Stormwater leaving the Licensee's premises shall in no way be contaminated by any substance, whether such substance is a solid, liquid, vapour or gas or a combination thereof which is produced, used, stored, dumped or spilled on the premises.
- 7.2 Increase runoff due to vegetation clearance and/or soil compaction must be managed, and steps must be taken to ensure that storm water does not lead to bank instability and excessive levels of silt entering the stream.
- 7.3 Storm-water shall be diverted from the mine complex site and roads and shall be managed in such a manner as to disperse runoff and concentrating the storm-water flow.
- 7.4 Where necessary works must be constructed to attenuate the velocity of any storm-water discharge and to protect the banks of the affected watercourses.
- 7.5 Storm-water control works must be constructed, operated and maintained in a sustainable manner throughout the impacted area.
- 7.6 Increased runoff due to vegetation clearance and/or soil compaction must be managed, and steps must be taken to ensure that storm-water does not lead to bank instability and excessive levels of silt entering the streams.
- 7.7 All storm-water that would naturally run across the pollution areas shall be diverted via channels and trapezoidal drains designed to contain the 1:50 year flood.
- 7.8 The polluted storm water system shall be designed and implemented to provide suitable routing and pumping capacity for contaminated storm water from the individual facilities to the respective storm water dams in accordance with the design specifications as contained in the Integrated Water Use Licence Application report.
- 7.9 The polluted storm water captured in the storm water control dams shall be pumped to the process water treatment plant for reuse and recycling.

## 8. PLANT AREAS AND CONVEYANCES

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

## 9. ACCESS CONTROL

- 9.1 Strict access procedures must be followed in order to gain access to the property. Access to the pollution control dams, Coal slurry discard dumps and Return water dam must be limited to authorised employees of the Licensee and their Contractors only.
- 9.2 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.

## 10. CONTINGENCIES

- 10.1 Accurate and up-to-date records shall be kept of all system malfunctions resulting in non-compliance with the requirements of this licence. The records shall be available for inspection by the Regional Head upon request. Such malfunctions shall be tabulated under the following headings with a full explanation of all the contributory circumstances:
- 10.1.1 operating errors
  - 10.1.2 mechanical failures (including design, installation or maintenance)
  - 10.1.3 environmental factors (e.g. flood)
  - 10.1.4 loss of supply services (e.g. power failure) and
  - 10.1.5 Other causes.
- 10.2 The Licensee must, within 24 hours, notify the Regional 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.

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

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

## 11. AUDITING

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

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

## 12. INTEGRATED WATER AND WASTE MANAGEMENT

- 12.1 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 Regional Head for approval within one (1) year from the date of issuance of this licence.

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

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

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

## 13. 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:

- Major ions (Ca, K, Mg, Na, SO<sub>4</sub>, NO<sub>3</sub>, Cl, F)
  - pH
  - Electrical Conductivity (EC)
  - Total Petroleum hydrocarbon (TPH)
  - Total Alkalinity
- 13.2 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 Affairs.
- 13.3 The mining areas should be flooded as soon as possible to prevent oxygen from reacting with remaining pyrite.
- 13.4 The Licensee should remove all coal from the opencast and as little as possible should be left.
- 13.5 The final backfilled opencast topography should be engineered such that runoff is directed away from the opencast areas.
- 13.6 The final layer should be as clayey as possible and compacted if feasible, to reduce recharge to the opencasts.
- 13.7 A safety pillar of at least 30 m should be left between the underground and opencast areas.
- 13.8 The Licensee must ensure in advance that alternative water supply for external water users is provided to these users should groundwater resources be impacted
- 13.9 A proper ground 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.
- 13.10 The pollution control dam 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.
- 13.11 Geochemical assessment should be done on the discard material during the mining operation.
- 13.12 A Licensee will establish a well designed monitoring programme which will serve as a means of verifying predictions, and early detection system for the taking of corrective action.
- 13.13 The Licensee will manage and minimize pollution by reuse and reclaim.
- 13.14 The Licensee must undertake groundwater monitoring on a quarterly basis

- 13.15 In the event that salts are identified on the footprint areas, The Licensee shall call upon the expertise of soil scientist to assess the impact and decide on the need to rehabilitate prior to placement of subsoil and topsoil.
- 13.16 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 VI**

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

1. The licence authorises the removal, discharging or disposing of water found underground for the efficient continuation of an activity as set out in table 11 below:

**Table 9: Summary of section 21(j) water uses**

Purpose/Description	Properties	Total Volume (m <sup>3</sup> /a)	Co-ordinates
Dewatering from the opencast Pit 1 (This is disposed of into a PCD)	Remaining extent of portion 2 of the farm Wonderfontein 428 JS	229 950 m <sup>3</sup> /a	S 25°49'25.5" E 29°53'53.4"
Dewatering of opencast Pit 2. (This is disposed of into a PCD)	Portion 2 of the farm Wonderfontein 428 JS	229 950 m <sup>3</sup> /a	S 25°50'47.20" E 29°52'38.49"
Dewatering from the opencast Pit 3. (This is disposed of into a PCD)	Portion 3 of Wonderfontein 428 JS	229 950 m <sup>3</sup> /a	S 25°49'14.05" E 29°54'16.6"
Dewatering of opencast Pit 4. (This is disposed of into a PCD)	Portion 12 of the farm Wonderfontein 428 JS	229 950 m <sup>3</sup> /a	S 25°51'54.8" E 29°53'40.2"
Dewatering of opencast Pit 5. (This is disposed of into a PCD)	Portion 13 of the Farm Wonderfontein 428 JS	229 950 m <sup>3</sup> /a	S 25°51'47.87" E 29°52'51.89"
Dewatering of opencast Pit 6. (This is disposed of into a PCD)	Portion 14 of the Farm Klippan 452 JS	229 950 m <sup>3</sup> /a	S 25°52'02.05" E 29°52'23.4"
Dewatering of opencast Pit 7. (This is disposed of into a PCD)	Portion 15 of the Farm Wonderfontein 428 JS	229 950 m <sup>3</sup> /a	S 25°49'37.19" E 29°53'45.25"

Dewatering of opencast Pit 8. (This is disposed of into a PCD)	Portion 19 of the Farm Wonderfontein 428 JS	229 950 m <sup>3</sup> /a	S 25°49'17.33" E 29°54'19.12"
Dewatering of opencast Pit 9. (This is disposed of into a PCD)	Portion 21 of the Farm Wonderfontein 428 JS	229 950 m <sup>3</sup> /a	S 25°50'59.4" E 29°53'45.25"
Dewatering of opencast Pit 10. (This is disposed of into a PCD)	Portion 22 of the Farm Wonderfontein 428 JS	229 950 m <sup>3</sup> /a	S 25°49'24.00" E 29°54'09.57"
Dewatering of opencast Pit 11. (This is disposed of into a PCD)	Portion 23 of the Farm Wonderfontein 428 JS	229 950 m <sup>3</sup> /a	S 25°50'07.1" E 29°52'41.01"
Dewatering of opencast Pit 12. (This is disposed of into a PCD)	Remaining extent of ptn 25 of Wonderfontein 428 JS	229 950 m <sup>3</sup> /a	S 25°50'27.1" E 29°52'52.1"

2. The disposal of water into the pollution control dam shall take place at the following location:

**Table 10: The wastewater containment facility**

Location	X co-ordinate	Y co-ordinate
Pollution Control Dam	S 25°50'54.51"	E 29°53'12.47"

3. The quantity of the water authorised to be removed and disposed of into the pollution control dam in terms of this licence may not be exceeded without prior authorisation by the Minister.
4. The Licensee shall provide any water user whose water supply is impacted by the water use with potable water.
5. The quantity of water removed from underground must be metered and recorded on a daily basis.
6. The groundwater levels shall be monitored every six months (once in the beginning of the dry season and once in the beginning of the wet season).
7. Self registering flow meters must be installed in the delivery lines at easily accessible positions near the dewatering points.

8. The flow metering devices shall be maintained in a sound state of repair and calibrated by a competent person at intervals of not more than once in two years. Calibration certificates shall be available for inspection by the Regional Head or his/her representative upon request.
9. Calibration certificates in respect of the pumps must be submitted to the Regional Head after installation thereof and thereafter at intervals of two years.
10. The date and time of monitoring in respect of each sample taken shall be recorded together with the results of the analysis.
11. 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).
12. 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.
13. The Licensee 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: -
  - 13.1 nature of the incident (e.g. operating malfunctions, mechanical failures, environmental factors, loss of supply services, etc)
  - 13.2 actions taken to rectify the situation and to prevent pollution or any other damage to the environment and
  - 13.3 measures to be taken to prevent re-occurrence of any similar incident.
14. The Licensee shall follow acceptable construction, maintenance and operational practices to ensure the consistent, effective and safe performance of the groundwater removal system.
15. Reasonable measures must be taken to provide for mechanical, electrical or operational failures and malfunctions of the underground water removal system.

**END OF LICENCE**