Umthombo Resources

SCHOONGEZICT COAL PROJECT

ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP)

IN TERMS OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT (ACT 28 OF 2002)

FEBRUARY 2008

COMPILED BY:

GCS (PTY) LTD

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1 BACKGROUND AND INTRODUCTION

1.1 Background and Information

The Schoongezicht Coal Project is an opencast mining project proposed by Umthombo Resources (Pty) Ltd. Umthombo Resources is a black owned trading company based and operating in South Africa. The project is aimed at mining the coal reserve which is located on Portions 10 and 11 of the Farm Schoongezicht 225 IR, approximately 15 km east of the town of Delmas and 5 km south of Argent siding in the Mpumalanga Province.

The most suitable mining method for this project is opencast mining, due to depth of the coal deposit and the parameters of the existing geological model. This method includes pre-stripping of usable soil (the upper A and B horizon soil material), blasting and excavation of the overburden to expose the coal. Mining of the coal will take place using conventional trucks, small draglines and excavation equipment. Once the coal has been removed the overburden will be returned to the pit and the usable soil will be replaced. This is also known as the roll-over mining method and ensures minimum void space and exposure. The return of the overburden and the usable soil will be a continuous rehabilitation process. The disturbed area will be reseeded using a mix of commercial available grass seed to stabilize the rehabilitated sites in.

Side Minerals obtained the prospecting rights for the remaining extent of portion 10 and 11 of Schoongezicht 225 IR. This right, however, has been ceded to Umthombo Resources. Umthombo Resources has thus applied for Mining Rights in respect of these portions. A Mining Rights Application (MRA) was submitted to the Department of Minerals and Energy (DME) and the acceptance of this application was received on 06 September 2007. Following the acceptance by DME an Environmental Management Programme (EMP) is required to be compiled and submitted. The EMP will be compiled in terms of Section 39(1) and Regulation 51 of the Mineral and Petroleum Resources Development Act (Act No. 28 of 2002) (MPRDA). An Environmental Impact Assessment (EIA), undertaken in terms of Regulation 50 of the Act, is a necessary pre-requisite for the EMP. The EMP must be submitted to the Regional Director of Mineral Development at the DME for approval. It is a requirement that the approved EMP is implemented throughout the life of the mine until closure is granted.

GCS (Pty) Ltd has been appointed by Umthombo Resources to undertake the necessary environmental investigations and compile the Environmental Management Programme (EMP), in terms of the requirements of the Mineral and Petroleum Resources Development Act (MPRDA) (Act 28 of 2002).

1.1.1 Name and Address of Mine, Mine Owner, Responsible Person

Name of Mine	Schoongezicht Colliery
Postal Address	2 Maude Street The Forum Building, 12th Floor Sandton 2196
Physical Address	Portion 10 and Portion 11 of the Farm Schoongezicht 225, Delmas, Mpumalanga. Access road via the Veldskool road.
Telephone	(011) 883 9378
Facsimile	011 883 2183
Contact Persons	Mr Matodzi Nesongozwi (Director) Ms. Nokuthula Makhubedu (Environmental Scientist)

Name of company	Umthombo Resources (Pty) Ltd
Physical Address	2 Maude Street The Forum Building, 12th Floor Sandton 2196
Postal Address	P.O. Box 2906 Rivonia 2128
Telephone	(011) 883 9378
Facsimile	011 883 2183
Contact Persons	Mr Matodzi Nesongozwi (Director) Ms. Nokuthula Makhubedu (Environmental Scientist)

Responsible Person	Mr Matodzi Nesongozwi (Director)
Name of company	Umthombo Resources (Pty) Ltd
Name of Mine	Schoongezicht Colliery
Physical Address	2 Maude Street The Forum Building, 12th Floor Sandton 2196
Postal Address	P.O. Box 2906 Rivonia 2128
Telephone:	(011) 883 9378
Fax Number	011 883 2183

1.2 Brief Project Description

Umthombo Resources (Pty) Ltd applied for a mining right in respect of a coal reserve on Portion 10 and 11 of the farm Schoongezicht 225 IR, situated approximately 15 km east of Delmas and 5 km south of Argent siding in the Mpumalanga Province. The intention for Umthombo Resources mining rights application is to develop an opencast coal mine.

The proposed coal resources consists of four seams of varying quality and physical characteristics, which are located in an area that is approximately 380 meters wide and 2000 meters long. The 2 Upper Top seam and the 2 Main Select seam are suitable for washing to provide and export grade product while the 2 Lower A and B seams are suitable as raw power station feed stock. The depth of the 2 Upper Top seam ranges from about 6 meters in the east to 26 meters in the west. The lower seams are separated from the main upper seam by approximately 6 meters of inter burden which is consistent in thickness over most of the deposit.

The total extractable coal is 7,360,152 tonnes. After a single-stage washing process the 2 Upper Top and 2 Main Select seams will yield 2,5951 million tonnes of clean coal at a value of 26,5J/kg. The life of this resource at the planned mining rate is six years which excludes a pre-production build up phase to establish box cuts, ramps and infrastructure. The planned production rate of 100,000 RoM tonnes per month is suitable over a period of six years.

The roll-over method of mining will be used, implying that the overburden stripped from the initial cut will need to be stockpiled. However, with each successive cut taken, the overburden/soils stripped will be used to backfill and top dress the previous cut. In this way, the soils can be replaced in a position very close to that from which they were taken and thus result in a minimal impact. The overburden/soils that are stripped and stockpiled for use in the final backfill will need to be protected against wind and water erosion (drainage), as well as any compaction. This will be done by re-vegetating the stockpiles.

1.3 Brief Description of the Public Participation Process

The full public participation process is described in section 7 of the EIA report.

The methodology followed for the public participation process consisted of GCS having forwarded a Background Information Document to all I&APs / Stakeholders via e-mail, fax and/or post. The BID was made available in English. The BID included details of the proposed project as well as

the EIA / EMP purpose, requirements and process as well as details regarding the Public Participation Meeting that was held on 28 November 2007. It also included relevant contact details and a comment / registration sheet. I&APs / Stakeholders were invited to register and send responses by fax, telephone or e-mail to GCS.
Advertisements regarding the project and Public Participation Meeting in terms of the required legislated procedures were placed in the following newspapers:

- Mpumalanga Beeld on Thursday, 15 November 2007,
- Streek Nuus/News on Saturday, 10 November 2007.

All issues and responses from I&APs have been compiled into a document that is available in Section 7.2.4 of the EIA report.

1.4 Methodology

In terms of Section 39 (1) of the MPRDA Umthombo Resources is required to conduct an Environmental Impact Assessment (EIA) and submit an Environmental Impact Report (EIR) and Environmental Management Programme (EMP) to the DME in respect of the surface operations over which the mine will be operating. The Schoongezicht Coal Project environmental investigation and reporting will address the total mining area, which includes the area for which mining and prospecting rights have been applied, as well as the areas on which vital mine infrastructure (i.e. the wet concentration plant) will be established. The EIA and EMP report will be submitted as a combined document.

GCS (Pty) Ltd, an independent, environmental consultancy company has been appointed by Umthombo Resources to undertake the necessary environmental investigations and compile the EIA / EMP for the proposed project.

The Water Use Licensing pertaining to the proposed project will also be undertaken by GCS (Pty) Ltd.

1.4.1 Legislation

The environmental component of the project will comply with the requirements of *inter alia*, the following legislation (and the Regulations promulgated hereunder):

- Constitution of South Africa, 1996 (Act 108 of 1996);

- The Mineral and Petroleum Resources Development Act (Act 28 of 2002);
- The National Environmental Management Act, 1998 (Act 107 of 1998);
- The National Water Act, 1998 (Act 36 of 1998);
- The Environment Conservation Act, 1989 (Act 73 of 1989);
- The National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004);
- The Hazardous Substances Act, 1973 (Act 15 of 1973);
- The National Heritage Resources Act, 1999 (Act 25 of 1999).

1.4.2 EMP Process

The recommended management strategies from each specialist involved in the EIA process was synthesized by GCS to formulate the Environmental Management Programme (EMP) for the proposed mining operation. Management strategies were based various specialist reports and relevant experience in the various aspects. Wherever possible, management strategies will be incorporated into the mine systems to avoid, or appropriately manage impacts from the outset.

1.5 Report Structure

Chapter 1 - Background and Introduction
Chapter 2 - Environmental Objectives and Goals
Chapter 3 - Environmental Management Programme
Chapter 4 - Environmental Awareness Plan
Chapter 5 - Planned Environmental monitoring and performance assessments
Chapter 6 - Financial Provision
Chapter 7 - Undertaking by Client
Chapter 8 - Conclusion
Chapter 9 - References

2 ENVIRONMENTAL OBJECTIVES AND GOALS

The environmental consequences associated with the Schoongezicht Colliery operations on the surrounding area are addressed within this report according to the prerequisites of the Mineral and Petroleum Resources Development Act of 2002 and all relevant legislation as listed. To ensure that the impacts associated with the mine as a whole are properly mitigated, managed and / or avoided (where possible), a number of specific environmental objectives have been defined. The environmental objectives need to be attained and/or maintained to ensure satisfactory environmental (social, economical, biophysical) management of the mining area and the potential cumulative impacts on the surrounding environment.

The overall objectives of closure will be to rehabilitate the disturbed areas to arable and grazing land, to ensure that the site is made safe and to control erosion and pollution emanating from the former mine area. More specifically, the following closure objectives are defined:

Topography	To mitigate topographic impacts created during the operational phase – to restore the topography to as close to its original harm af possible
Soils	To mitigate long-term soil contamination impacts To ameliorate altered physical and chemical properties of soils caused by stripping, handling and stockpiling To install and maintain long-term erosion control structures
Land capability	To restore the affected surfaces to arable land capability
Land use	To restore the affected surface area to pre-mining status so that pre-mining land use activities can be resumed within time
Vegetation	To control weed/alien plant invasion To establish a cover of vegetation that will control erosion until such time as the production of maize can continue
Surface water	To control surface water contamination within the site on a long-term basis To continue the surface water quality monitoring in order to determine/verify the effect of mining on the surface water quality To present the results of the monitoring programme to DWAF on an annual basis
Maintenance	To monitor and manage post-closure impacts

The mine will comply with the submission of information as stipulated within the EIA report (please refer to Section 8.4.17).

3 ENVIRONMENTAL MANAGEMENT PROGRAMME

All the negative issues identified and discussed in Section 8 of the EIA report are covered in this section.

3.1 Geology

3.1.1 Issue: Loss of natural resources

Phase of the mining operation

Construction	Operational	Decommissioning & Closure
✓	✓	

Management objectives

To ensure that only the areas where the coal is to be removed and if necessary where the access roads will be located is disturbed.

Management and mitigation measures

The occurrence of impacting the geology is inevitable and there are no management or mitigation measures that can be implemented to reduce the impact.

When mining commences, the mine must ensure that only the area to be mined is disturbed. Once each box cut has been mined, the pit will be backfilled with overburden material and rehabilitated.

3.2 Topography

3.2.1 Issue: Land Transformation

Phase of the mining operation

Construction	Operational	Decommissioning & Closure
✓	✓	✓

Management objectives

To alter the site topography for as short a period as possible.

Management and mitigation measures

The mined areas should be rehabilitated as soon as possible after the area has been mined, in order to return the topography to as close to its pre-mining condition as possible (cultivating and

grazing). The open pit will be backfilled with overburden, the bulking factor of which will be taken into consideration during the rehabilitation process, to prevent any ponding of water on the rehabilitated areas.

The access road to the plant should follow the contours of the area and not cut or fill should be allowed

The stripping ratio has been calculated at 2.17:1.

The generalised geological profile of the coal seam is as follows:

i. 0.83m 2 Upper Top Seam
ii. 2.09m 2 Upper hard overburden
iii. 4.07m 2 Upper Main Seam
iv. 5.95m hard overburden
v. 1.62m 2 Lower A Seam
vi. 0.75m 2 Lower hard overburden
vii. 1.4m 2 Lower B Seam

The total depth is 16.71m.

The final ground levels will depend on:

a. how much coal is removed
b. the bulking factors of the materials once they have been handled in a roll-over and load and haul mining operation.

The factors used are:

a. soft overburden – 25% bulking
b. hard overburden – 35% bulking
c. parting – 35% bulking

3.3 Soils

3.3.1 Issue: Loss of natural resources

Phase of the mining operation

Construction	Operational	Decommissioning & Closure
✓	✓	✓

Management objectives

To conserve soil resources disturbed by the mine operations and to ensure that the pre-mining land capability can be restored.

Management and mitigation measures

The mine proposes to strip an average of 250mm topsoil and stockpile it separately from the lower 400 to 500mm of sub-soils were present.

Only three cuts will be stripped of soil at any one time.

All overburden and broken rock (broken from blasting) will be stockpiled separately from the soil. Once sections of the pit have been worked out, the overburden, subsoil and topsoil will be replaced, in that order, into the pit for rehabilitation purposes. Care will be taken so as not to mix the overburden, subsoil and topsoil during the rehabilitation process.

3.3.2 Issue: Soil erosion

Phase of the mining operation

Construction	Operational	Decommissioning & Closure
✓	✓	✓

Management objectives

To prevent erosion of soils.

Management and mitigation measures

Vegetation establishment in disturbed areas will be undertaken as soon as is practical. Soil replacement and the preparation of a seed bed to facilitate the re-vegetation programme. The soil stockpiles will not exceed 1.5m in height and vegetated for the life of mine. It is important that any wet and dry soils (where impacted) area stockpiled separately, and that the structural integrity and erosive nature of the soils are managed during the stockpiling phase so as to leave these soils utilisable for rehabilitation.

The requirements for effective erosion control measures, as stipulated by the Department of Agriculture, are as follows:

- Erosion control measures are required in all areas where slope gradients exceed 2%,
- Engineered erosion control measures are required where slope gradients exceed 15% (7°).

The mine will ensure that erosion controls are included in the designs of linear infrastructure and points of water discharge. Energy dissipaters will be constructed at points where there are concentrated discharged of water to the environment (such as culverts and outflows of water from diversion berms).

Once mining operations cease and the disturbed land has been rehabilitated, a few samples of the stockpiled soil will be analysed to determine the nutrient status of the soil. Based on the analysis, fertilisers will be applied if necessary. Erosion control measures will then be implemented to ensure that the topsoil is not washed away and erosion gulleys do not develop in the rehabilitated land.

3.3.3 Issue: Soil contamination

Phase of the mining operation

Construction	Operational	Decommissioning & Closure
✓		✓

Management objectives

To prevent the contamination of soils.

Management and mitigation measures

Chemical toilets will be provided at the mine site for the duration of the project.

Vehicles will be regularly serviced according to a pre-planned maintenance programme. Only minor vehicle maintenance will take place on site, if necessary. The maintenance of vehicles will take place on a concrete floor. All used oil will be collected for recycling. Major vehicle repairs will take place off-site.

Fuel will be stored in a diesel tank on site. The diesel tank will be stored in a concrete bunded.

Major spillage incidents will be reported to the DME, DWAF, DACE and the MDALA. Appropriate remedial measures will be implemented in consultation with these regulatory authorities.

If spills do occur and soils become contaminated, the appropriate remedial measures will be identified in consultation with an appropriately qualified specialist. After the soils have been treated, the affected areas will be landscaped and rehabilitated.

Runoff from the coal (temporary) and overburden stockpiles will be contained and disposed of in the pollution control dam from where it will evaporate.

Seepage from the coal (temporary) and overburden stockpiles will be collected in the storm water cut-off trenches and disposed of in the pollution control dam for evaporation.

The pollution control dam has been designed to contain the 1:50 year flood event. The dirty water areas will be kept to a minimum to prevent any spillage from the pollution control dam. If the pollution control dam were to spill, it would be during a storm event greater than the 1:50 year flood event and the dilution factor would be great enough to minimise the impact on the soils and surface water bodies.

3.4 Land Capability

3.4.1 Issue: Temporary loss of arable and grazing land

Phase of the mining operation

Construction	Operational	Decommissioning & Closure
✓	✓	✓

Management objectives

To restore all disturbed land to its pre-mining land capability.

Management and mitigation measures

As the roll-over method of mining will be used, rehabilitation of mined out areas will be an ongoing process. Once a cut is complete, overburden will be placed back in the pit, first hard overburden and then the soft overburden. Then the soil will be replaced – first the subsoil and then the topsoil.

The restoration of disturbed areas requires careful conservation of soil and erosion control. Soil replacement and the preparation of a seed bed will facilitate the re-vegetation programme to limit soil erodibility and soil amelioration will enhance the agricultural capability of the soils.

Mine vehicles will not be permitted to travel off designated roads.

All the disturbed land will be restored back to its arable potential once rehabilitation is complete and erosion control measures are in place.

3.5 Land Use

3.5.1 Issue: Land use transformation

Phase of the mining operation

Construction	Operational	Decommissioning & Closure
✓	✓	✓

Management objectives

To make land available for agricultural activities where this is possible and safe.

Management and mitigation measures

Arable land surrounding the mine site will continue to be used for the cultivation of maize and grazing of cattle during the mining operations, where it is safe to do so.

Once the mine has been rehabilitated, most of the land use will return to agriculture.

3.6 Natural Vegetation

3.6.1 Issue: Removal of vegetation cover

Phase of the mining operation

Construction	Operational	Decommissioning & Closure
✓	✓	✓

Management objectives

To limit the amount of vegetation to be removed to the immediate mine site and to promote vegetation growth to prevent erosion of the soils.

Management and mitigation measures

The mine will promote the vegetation establishment on all bare surfaces and the soil stockpiles will be protected from wind erosion by keeping the soil wet by means of dust suppression measures using water. A very light mixture of molasses can be added to the water and sprayed on the stockpiles. This will form a protective crust that is biodegradable and acts as a compost agent when worked back for rehabilitation. The protective crust created by the molasses mixture will also reduce the erosion of the stockpiles by water. Erosion control and storm water runoff control measures will be implemented.

Backfilled areas will be contoured to prevent erosion of the bare soil surfaces and rehabilitated areas. A recommended seed mixture will be used to re-vegetate the rehabilitated areas.

3.6.2 Issue: Spreading of alien plant species

Phase of the mining operation

Construction	Operational	Decommissioning & Closure
✓	✓	✓

Management objectives

To prevent the spread of invasive species.

Management and mitigation measures

Invasive species will be eradicated on an ongoing basis during the life of the mine and will be included in the monitoring programme during the post-closure phase. Where chemicals are required to remove invasive plants, only those approved by the MDALA will be used.

3.6.3 Issue: Dust nuisance

Phase of the mining operation

Construction	Operational	Decommissioning & Closure
✓	✓	✓

Management objectives

To minimise the effects dust.

Management and mitigation measures

Wet dust suppression along with other dust suppression techniques will be implemented during the closure phase to reduce the nuisance of dust that can settle on the leaves of plants. The release and settling of dust on plant leaves could reduce the potential growth in flora and negatively impact the habitat of the fauna in the area.

3.7 Animal Life

3.7.1 Issue: Destruction of natural habitat

Phase of the mining operation

Construction	Operational	Decommissioning & Closure
✓	✓	✓

Management objectives

To ensure the minimal disturbance of animals and their habitat .

Management and mitigation measures

To ensure that appropriate time is provided during the construction phase, in order for any fauna to move to another location with suitable habitat. The biodiversity of the area must be conserved, the mine will ensure that the water quality and the natural habitat to fauna are not impacted excessively by the mining operations.

Regular surface and groundwater monitoring will be conducted by the mine and any sources of contamination leaving the mine site will be detected and will be managed timeously and appropriately.

3.8 Surface Water

3.8.1 Issue: Contamination of watercourses

Phase of the mining operation

Construction	Operational	Decommissioning & Closure
✓	✓	✓

Management objectives

To prevent pollution of watercourses in the vicinity of the mine.

Management and mitigation measures

Dirty storm water runoff will be contained on site and will therefore not impact on the surface water quality of the farm dams located south east to the proposed mine site. Clean and dirty water cut-off trenches will be constructed around the mine site to separate clean and dirty water runoff from the mine. All clean water will be diverted away from the site and into the catchment

area. Dirty water will be collected in the cut-off trenches and will be diverted to the pollution control dam.

Surface water monitoring will take place during the operational, decommissioning and post-closure phases. Surface water monitoring will take place in the farm dams and in the defunct opencast mine. Annual surface water monitoring reports will be submitted to DWAF. The reports will present monitoring data and interpretations of trends in the data and reporting on compliance with water quality guidelines.

Once trends are established, some of constituents will be sampled less frequently, while others found to be problematic might be added, as determined on consultation with the relevant role players.

3.9 Groundwater

The assessment on groundwater in the relevant area could not be investigated as access to portion 10 and 11 of the Farm Schoongezicht was restricted by the landowner. Therefore no Environmental Impact Assessments and subsequently no Management Measures were identified with regards to this aspect.

3.10 Air Quality

3.10.1 Issue: Dust and other emissions

Phase of the mining operation

Construction	Operational	Decommissioning & Closure
✓	✓	✓

Management objectives

To minimise the impact of the mining operations on the already elevated dust levels in the area.

Management and mitigation measures

The haul roads will be watered using a water cart in order to reduce the dust generated by the movement of mine vehicles on the gravel roads. The water cart will operate with the haul trucks, wetting the road ahead of the truck. Water that have been collected in the pollution control dams will be used for dust suppression methods. If it is found that the watering of the roads is not

sufficient to suppress the dust, dustex will be used for dust suppression for. The dust suppressant is a gravel preserver and dust palliative and produces a well bonded, smooth hard surface with good abrasion resistant characteristics. The dust suppressant has no negative impact on the environment and is safe to handle. It is non-toxic and non-hazardous.

A second dust monitoring study will be conducted during mine operations, to verify the data obtained during the pre-mining dust study.

All stockpiles will be vegetated as soon as possible in order to minimise the effect of wind on dust emissions.

3.11 Noise

The assessment on noise and vibration in the relevant area could not be investigated as access to portion 10 and 11 of the Farm Schoongezicht was restricted by the landowner. Therefore no Environmental Impact Assessments and subsequently no Management Measures were identified with regards to this aspect.

3.11.1 Issue: Blasting hazards and damage to structures by blasting

Phase of the mining operation

Construction	Operational	Decommissioning & Closure
✓	✓	

Management objectives

To prevent injury and damage to any structures in the vicinity of the mine as a result of blasting.

Management and mitigation measures

Schoongezicht Colliery will observe the blasting regulations in terms of the Explosives Act 26 of 1956. These require that:

- The danger zone associated with each blast is delineated and people and animals are cleared from this zone before during and after (30 minutes) each blast
- An audible warning is given at least three minutes before the blast is fired
- All structures and services within 500m of the blast are marked on a site plan
- Each blast is designed using recognised formulae or by employing the services of experts in the field, to ensure that no damage will be caused by blasting vibrations

- All structures in the immediate vicinity of the blasts are checked, in the presence of the owner, and a record of the condition of the structures is taken

Schoongezicht Colliery will obtain the necessary approvals for blasting in terms of the Minerals Act and Explosives Act, and will comply with the conditions of these approvals.

A recognised blasting company will be used to design the blasts so as to minimise the generation of fly rock and vibrations and to limit the damage risk to the pylons and power lines at the mine site. Eskom require that fly rock be completely contained when mining beneath the pylons. Eskom has also instituted a maximum vibration limit of 75 mm/s at any pylon.

The nearest brick structure (residence and office) is approximately 700m to the south east of the mine site.

After each blast, any infrastructure within a 500m radius of the mine site will be inspected. The proposed mine, will conduct a crack survey on the houses on or immediately adjacent to the farm Schoongezicht 225 IR. The observation of the crack survey will be used to monitor effects of blasting on the structural integrity of dwellings and outbuildings.

3.12 Sites of Archaeological and Heritage Interest

3.12.1 Issue: Loss of important archaeological and heritage aspects

The assessment on archaeological and heritage aspects was restricted to Portion 11 of the Farm Schoongezicht, as there was no access granted by the landowner to the Portion 10 at the time of the site visit. The intention and requirement of the archaeological and heritage study is to supply details of a holistically study which should include Portion 10 and Portion 11 of the Farm Schoongezicht 225 IR. Therefore no Environmental Impacts and subsequently no Management Measures are available.

3.13 Visual Aspects

3.13.1 Issue: Visual intrusion by mine infrastructure

Phase of the mining operation

Construction	Operational	Decommissioning & Closure

✓	✓	✓

Management objectives

Minimise visual disturbance of mining activities.

Management and mitigation measures

The site is well screened to the west and north by rows of black wattle trees, and to the east by maize fields.

The mine will ensure that the screening vegetation is not damaged during the mining operations, even though the plants are invader species. On completion of mining, all mine infrastructure and coal stockpiles will be removed from the site, with the exception of the pollution control dam which will become an evaporation dam after decommissioning, for the management of decant from the two opencast pits.

The mine infrastructure and stockpiles will be visible from the south east of the mining area which will have a visual impact on the houses and offices nearby. During mining operations, the overburden and soil stockpiles will be located to the west of the opencast area. The soil stockpiles will not exceed 1.5m in height.

3.14 Regional Socio-economic Structure

3.14.1 Issue: Loss of jobs

Phase of the mining operation

Construction	Operational	Decommissioning & Closure
		✓

Management objectives

Addressing the impact of job loss once mining activities at Schoongezicht Colliery cease.

Management and mitigation measures

In order to reduce the social disruption as a result of employment loss, the mine will implement training courses to train the employees with other life skills so that they will be able to find alternative employment after mining.

3.14.2 Issue: Loss of revenue for local economy

Phase of the mining operation

Construction	Operational	Decommissioning & Closure
		✓

Management objectives

To ensure that the Schoongezicht project goes ahead or an alternative ore body is located to generate income.

Management and mitigation measures

In order for the Schoongezicht project to be approved, all the environmental impacts identified during the EMPR investigations, must be effectively managed according to the commitments set out in Section 2 of this document, in order to minimise and/or mitigate the impacts.

3.15 Social Aspect

3.15.1 Issue: Safety of mine employees/contractors

Phase of the mining operation

Construction	Operational	Decommissioning & Closure
✓	✓	✓

Management objectives

To ensure the safety of employees to and from work.

Management and mitigation measures

All employees working at Schoongezicht Colliery will be shuttled from and back to collective point within the local area each day. The mining operations will be fenced off to prevent unauthorised access to the workings. All employees will have to enter the property through access control at the entrance to the mine.

3.15.2 Issue: Littering of coal and coal dust from trucks

Phase of the mining operation

Construction	Operational	Decommissioning & Closure
	✓	✓

Management objectives

To prevent to littering of the transport route with coal and coal dust.

Management and mitigation measures

In order to prevent the littering of the transport route with coal and coal dust, all the coal trucks will be covered with tarpaulin. The coal transport contractors will also ensure that the trucks are not overloaded, thereby preventing the littering of coal on the roads. In the event of coal littering, the transport contractors will return to the site and clean up the coal.

3.15.3 Issue: Overloading of coal trucks

Phase of the mining operation

Construction	Operational	Decommissioning & Closure
	✓	

Management objectives

To prevent the overloading of coal trucks.

Management and mitigation measures

All coal trucks leaving Schoongezicht Colliery will be monitored. The overloading of trucks is an operational problem. The number of front-end loader buckets will be counted each time a truck is loaded.

3.15.4 Issue: Deterioration to access road

Phase of the mining operation

Construction	Operational	Decommissioning & Closure
✓	✓	✓

Management objectives

To minimise the deterioration of the access road and to ensure safe access to and from the mine site.

Management and mitigation measures

To ensure safe and efficient traffic flow the following measures are recommended:

(i) Warning signs be positioned along access road especially at approximately 300 meter

distances from the intersection at Argent Siding,

(ii) The Argent siding intersection must be properly defined,

Maintenance of the gravel access route will take place on a regular basis.

3.16 Submission of Information

Groundwater qualities and water levels will be monitored by the mine up to closure and for at least two years after production stopped. This data will be used to re-evaluate long-term impacts. A borehole will be required to be drilled for monitoring purposes in order to obtain information regarding in-pit water qualities and water levels

3.17 Maintenance

All maintenance will be undertaken by the mine management, until closure has been obtained. The maintenance will include all aspects of the natural environment impacted upon. They will also be required to implement and manage all mitigatory measures resulting from residual impacts.

3.18 Proposed Timetable, Duration and Sequence

3.18.1 Submission of EMPR and applications for mining permissions

The final EMPR with the amended specialist studies and comments form the public will be submitted at the latest end of April 2008, under the condition that access to the relevant farm portions are granted before then. The DME aims at making a decision on day 120 from date of submission of the final EMPR. **Table 3-1** provides a breakdown of the proposed timeframes for the Schoongezicht Coal Project.

Table 3-1: Proposed Timetable

Activity	Date
EMPR approval	May/June 2008
Commencement of construction	June/July 2008
Full operational phase	June/July 2008
Decommissioning	June 2014
Closure	20015

A closure application will be submitted on decommissioning of the mine.

3.18.2 Proposed rehabilitation programme

As mining will be conducted using the roll-over method, rehabilitation of the mined areas will be conducted on a continuous basis. Once the final cut has been mined, the stockpiled overburden and soil from the initial box cut will be used for the backfilling and rehabilitation of the final cut.

The soil stockpiles will be protected from wind erosion by keeping them wet with sprayers from a water bowser. A very light mixture of molasses may be added to the water and sprayed on the stockpiles. This will form a protective crust that is biodegradable and acts as a compost agent when worked back for rehabilitation. The protective crust created by the molasses mixture will also reduce the erosion of the stockpiles by water.

On decommissioning and closure, all existing infrastructure (chemical toilets, concrete slab for vehicle maintenance, diesel tank, coal stockpile) with the exception of the evaporation dam, will be demolished and removed from the site. The haul roads will also be ripped up and topsoiled. All disturbed areas will then be rehabilitated according to the goals set out in Section 2 of this document.

4 ENVIRONMENTAL AWARENESS PLAN

The successful implementation of the Environmental Management Programme is dependent on training and awareness of all bulk sampling personnel.

4.1 Induction

All full time staff and contractors are required to attend an induction session. Employees are inducted when they start at the mine and when they return from leave. Any contractor, who works on the mine for a period of 24 hours or more, is required to undergo induction.

Environmental issues and aspects related to the operation will be addressed in induction sessions. All environmental impacts and aspects and their mitigatory measures will be discussed, explained and communicated to employees. The induction sessions will be modified according to the level of employee attending the induction session, so that all employees gain a suitable understanding of environmental issues and pollution.

The basic content of the Schoongezicht induction programme for full time employees will include the following aspects:

- Waste Management
- Pollution Control,
- Dust Control,
- Water (Surface and Groundwater) Control,
- Topsoil management,
- Trespassing, and
- Hygiene.

4.2 Environmental Seminars

Environmental seminars can be held with management, and selected groups of supervisors/foremen and/or employee representatives. This will take the form of an open discussion between the relevant department and these individuals. The seminars will aid in environmental awareness being generated at all levels, as well as assist the relevant department in defining all, and identifying new environmental issues, concerns and pollution sources.

4.3 In-house Training

In-house training sessions will be held with relevant employees. The training sessions will be determined by the relevant department, and will allow for employees to participate in determining what the environmental issues and concerns are with regard to their specific occupation. Education with regard to environmental incident reporting will be detailed at these sessions.

4.4 On the Job Training

On the job training is an essential tool in environmental awareness. Employees will be given details of the expected environmental issues and concerns specifically related to their occupation. Employees will be trained on how to respond if an environmental problem or source of environmental pollution arises. The training will be on-going, and all new employees will be provided with the same standard of training as existing employees.

4.5 General Training and Skills Development

Human Resources Development Programmes will include appropriate training and skills development programmes as required by the workforce in support of operation specific business plans (both mining and non-mining related). Training will be offered in portable skills, being competencies that will enable employees to find jobs elsewhere within the mining industry, or to become self-employed.

Basic environmental and pollution control skill will be included in this training.

4.6 Environmental Communication Strategy

Schoongezicht Management shall establish and maintain procedures for the internal communication between the various levels and functions of the organisation, and receiving, documenting and responding to relevant communication from external interested & affected parties. The organisation shall consider processes for external communication on its significant environmental aspects and record its decision.

Communication is a management responsibility. All line supervisors are responsible for effective communication within their own sections. Environmental communication can be divided into two categories: internal communication and external communication.

4.6.1 Internal Communication

The following communication channels and media will/can be used to communicate environmental issues within Schoongezicht.
The Mine Manager communicates information to senior management on environmental issues and the information is minuted.
'Environmental issues' should be an agenda item on plant and section monthly safety, health & environmental meeting agendas.

Leaflets, posters etc are produced by the relevant department or other designated persons.

Weekly Safety Meeting: All meetings are scheduled to commence with a discussion on safety, health & environmental topics.

4.6.2 External Communication

The following communication channels and media will/can be used to communicate environmental issues to individuals who are not employed by Schoongezicht.

Environmental Committee: An Environmental Committee should be established and used as a forum to keep interested and affected parties informed of the significant environmental aspects. This should also be the forum where interested and affected parties get the opportunity to raise environmental concerns.

Records must be kept of all decisions and concerns. The Environmental Committee should be chaired by the Mine Manager, or another appropriately appointed competent individual.

4.6.3 Incident Reporting Structure

Environmental incident reporting is a vital part of communication at Schoongezicht. Employees are required to report any and all environmentally related problems, incidents and pollution, so that the appropriate mitigatory action can be implemented timeously. In the event of an Environmental Incident the reporting procedure as indicated in the table overleaf should be followed (refer to **Table 4-1**):

Table 4-1: Environmental Incident Reporting Procedures

ENVIRONMENTAL INCIDENT REPORTING STRUCTURE	ACTION REQUIRED
Person causing or observing the incident	Shall report the incident to an immediate supervisor in the area/section where the environmental incidents observed.
Line Management in relevant area of responsibility where the incident occurred	Shall investigate the incident and record the following information: • How the incident happened; • The reasons the incident happened; • How rehabilitation or clean up needs to take place; • The nature of the impact that occurred; • The type of work, process or equipment involved; and • Recommendations to avoid future such incidents and/or occurrences. Shall inform the Environmental Manager and the Mine Manager on a daily basis of all incidents that were reported in the area/section. Shall consult with the relevant department / person for recommendations on actions to be taken or implemented where appropriate (e.g. clean-ups). Shall assist the Environmental Manager and/or Mine Manager with applicable data in order to accurately capture the incident into the reporting database.
Area / Line Managers Shall forward a copy of the incident form to other line managers.	Shall forward a copy of the incident form to the Environmental Manager and the Mine Manager. Shall inform the relevant department / person on a weekly basis of the incident by e-mail or by submitting a copy of the incident report. Once a High Risk Incident (any incident which results from a significant aspect and has the potential to cause a significant impact on the environment) occurred it must be reported immediately to the Environmental Manager and the Mine Manager by telephone or email to ensure immediate response / action. Shall forward a copy of the completed Incident Reporting Form (and where applicable a copy of the incident investigation) to the relevant department / person.
Environmental Manager / Mine Manager Shall complete an incident assessment form to assess what level of incident occurred.	Shall make recommendations for clean-up and / or appropriate alternate actions. Shall enter actions necessary to remediate environmental impacts into the database in conjunction with the responsible line manager.

	Shall enter the incident onto the database in order to monitor the root causes of incidents. Shall include the reported incidents in an appropriate monthly / quarterly report. Shall highlight all incidents for discussion at HSEC meetings.

5 PLANNED ENVIRONMENTAL MONITORING AND PERFORMANCE ASSESSMENTS

5.1 Monitoring

Ongoing monitoring of the bio-physical and socio-economic environments will continue throughout the life of the project as per the monitoring programmes. The mine's Environmental Management System (EMS) will monitor and assess the performance of the EMP on an ongoing basis.

5.2 Performance Assessment

The Mineral and Petroleum Resources Development Act (MRPDA)(Act 28 of 2002) requires that the holder of a mining right undertake an assessment of performance against the requirements of its EMP and submit such report to the DME. Performance assessments for the Schoongezicht Project will be undertaken in accordance with Regulation 55 of the MRPDA.

- All procedures (emergency, environmental awareness, rehabilitation strategies etc.) will continuously be updated;
- All information as required by the various government departments should be captured and be readily available for submission when required;
- A Schoongezicht annual report will be submitted to the DME;
- Surface water monitoring will take place on a quaterly basis and will be taken by outsources specialist,
- Groundwater monitoring will take place on a quaterly basis and will be taken by outsources specialist,
- The Groundwater levels will be monitored on monthly basis and will be presented in the form of piezometric maps, from which changes can be determined through time;
- Recycled water will be sampled on a weekly basis. It will be ananlysed for pH and residuals on a weekly basis and once a month for all the other surface water variables;
- And Environmental Management Programme Performance Assessment will be undertaken every two (2) years as required by the MPRDA and will be submitted to the DME; and
- The financial provision (method and quantum) will be updated every two (2) years as part of the Environmental Management Programme Performance Assessment.

6 FINANCIAL PROVISIONS

Financial Provision - Schoongezicht Opencast Section

February 2008

Item No.	Description	Unit	Quantity	Rate	Amount
1	Rehabilitation of access roads				
1.1	Gravel Roads	m^2	1,750	R 7.00	R 12,250.00
	Sub Total				**R 12,250.00**
2	Demolition of temporaty infrastructures				
2.1	Offices (converted shipping containers/portable buildings)	m^2	49	R 130.00	R 6,370.00
	Sub Total				**R 6,370.00**
3	Opencast rehabilitation				
3.1	Backfilling and shaping (final void)	m^3	75,000	R 4.00	R 300,000.00
3.2	Load and haul (backfill)	m^3	75,000	R 9.00	R 675,000.00
3.3	Topsoil (load and haul)	m^2	80,000	R 9.00	R 720,000.00
	Sub Total				**R 1,695,000.00**
4	General Surface Rehabilitation				
4.1	Area Ripping and grassing	m^2	100,000	R 6.00	R 600,000.00
	Sub Total				**R 600,000.00**
5	Fencing, Powerlines and Communication Lines				
5.1	Fences	m	6,000	R 5.51	R 33,060.00
5.2	Overhead Powerlines	m	3,000	R 5.51	R 16,530.00
	Sub Total				**R 49,590.00**
6	2 years maintenance and aftercare (monitoring)				
6.1	Water Quality	sum			R 30,000.00
6.2	Vegetation	sum			R 20,000.00
	Sub Total				**R 50,000.00**
				TOTAL :	**R 2,413,210.00**

7 UNDERTAKING BY CLIENT

An undertaking of agreement to the management strategies as proposed in the Environmental Management Programme (EMP) as well as an undertaking of approval of the EMP is provided on the following page.

UNDERTAKING

I, N. Makhubedu the undersigned and duly authorised thereto by Umthombo Resources (Pty) Ltd, have studied and understand the contents of this Environmental Management Programme (EMP) and duly undertake to adhere to the conditions as set out therein, unless specifically or otherwise agreed to.

Signed at JHB on this day 20/02 of 2008.

Signature of Mine Manager

I, A P Cronjé the undersigned and duly authorized thereto by DEPARTMENT OF MINERALS AND ENERGY have studied and approved the contents of this Environmental Management Programme, subject to the amendment thereof to include a rehabilitation plan, as informed by public participation for the Regional Manager's consideration within 180 days of today's date and a further ~~of~~ financial provision of R1 418 210 within the same 180 days, ~~of~~ 2008.

Signed at ____ on this day ____ of 2008.

Signed at eMalahleni on this 27th day of May 2009.

Signature of Director: Mineral Development

2009.

8 CONCLUSION

The environmental consequences of the project, both positive and negative, were addressed in the EIA and EMP document.

In the EMP document all the associated concerns, consequences and issues raised are set up with management measures to control, mitigate and prevent more environmental damage than necessary.

The specific requirements, which will be implemented, to prevent unnecessary environmental degradation, whilst promoting economic and social upliftment are included in the document under various sections.

The process of mitigation, ongoing monitoring, and the implementation of the rehabilitation plan will be conducted in an open and transparent manner to ensure that all aspects and issues of concern are dealt with and mitigated when the mine applies for a closure certificate.

9 REFERENCES

Agis Comprehensive Atlas: www.agis.agric.za/agisweb/agis.html

Demarcation Board Statistics 2001: www.demarcation.org.za

Environmental Scoping Report, Umthombo Resources.

Mining Application Right, Umthombo Resources.

SDG Consulting: Air Quality Impact Assessment – Umthombo Resources.

TWP-ES: Soil, Land use and Land Capability Impact Assessment for Schoongezicht Colliery.